INITIAL STUDY

City of Buena Park
Lyon Development Residential Project
Dickerson Elementary School Site

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April 2015

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A Air Quality and Greenhouse Gas Assessment
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C Preliminary Water Quality Management Plan
D Phase I Environmental Site Assessment
E Noise Assessment
F Traffic Impact Analysis

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1.0 INTRODUCTION

Following preliminary review of the proposed Lyon Development Residential Project, the City has determined that the Project is subject to the guidelines and regulations of the California Environmental Quality Act (CEQA). This Initial Study addresses the direct, indirect, and cumulative environmental effects associated with the Project, as proposed.

1.1 STATUTORY AUTHORITY AND REQUIREMENTS

In accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000-21177) and pursuant to Section 15063 of Title 14 of the California Code of Regulations (CCR), the City of Buena Park, acting in the capacity of Lead Agency, is required to undertake the preparation of an Initial Study to determine if the proposed Project would have a significant environmental impact. If, as a result of the Initial Study, the Lead Agency finds that there is evidence that any aspect of the project may cause a significant environmental effect, the Lead Agency shall further find that an Environmental Impact Report (EIR) is warranted to analyze project-related and cumulative environmental impacts. Alternatively, if the Lead Agency finds that there is no evidence that the project, either as proposed or as modified to include the mitigation measures identified in the Initial Study, may cause a significant effect on the environment, the Lead Agency shall find that the proposed project would not have a significant effect on the environment and shall prepare a Negative Declaration for that project. Such determination can be made only if "there is no substantial evidence in light of the whole record before the Lead Agency" that such impacts may occur (Section 21080[c], Public Resources Code).

The environmental documentation, which is ultimately selected by the City of Buena Park in accordance with CEQA, is intended as an informational document undertaken to provide an environmental basis for subsequent discretionary actions upon the project. The resulting documentation is not, however, a policy document and its approval and/or certification neither presupposes nor mandates any actions on the part of those agencies from whom permits and other discretionary approvals would be required.

The environmental documentation and supporting analysis is subject to a public review period. The proposed project is not a project "of statewide, regional, or areawide significance" as prescribed in Section 15206 of the CEQA Guidelines because it does not meet the criteria for such projects. Furthermore, project implementation does not require any action by a State Agency (i.e., "responsible" or "trustee" agency). Therefore, the document will not be submitted to the State Clearinghouse for review and the review period is determined to be 20 days in accordance with Section 15073 of the CEQA Guidelines. Following review of any comments received, the City of Buena Park will consider these comments as a part of the project's environmental review and include them with the Initial Study documentation for consideration by the City of Buena Park in accordance with Section 15074(b) of the CEQA Guidelines.

1.2 PURPOSE

The purposes of the Initial Study/Environmental Checklist are to: (1) identify environmental impacts; (2) provide the Lead Agency with information to use as the basis for deciding whether to prepare an EIR or Negative Declaration; (3) enable an applicant or Lead Agency to modify a project, mitigating adverse impacts before an EIR is prepared; (4) facilitate environmental assessment early in the design of the project; (5) provide documentation of the factual basis for the finding in a Negative Declaration that a project would not have a significant environmental effect; (6) eliminate needless EIRs; (7) determine whether a previously prepared EIR could be used for the project; and (8) assist in the preparation of an EIR, if required, by focusing the EIR on the effects determined to be significant, identifying the effects determined not to be significant, and explaining the reasons for determining that potentially significant effects would not be significant.

Section 15063 of the CEQA Guidelines identifies specific disclosure requirements for inclusion in an Initial Study. Pursuant to those requirements, an Initial Study shall include: (1) a description of the project, including the location of the project; (2) an identification of the environmental setting; (3) an identification of environmental effects by use of a checklist, matrix or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries; (4) a discussion of ways to mitigate significant effects identified, if any; (5) an examination of whether the project is compatible with existing zoning, plans, and other applicable land use controls; and (6) the name of the person or persons who prepared or participated in the preparation of the Initial Study.

1.3 INCORPORATION BY REFERENCE

As permitted by Section 15150 of the State CEQA Guidelines, this initial study incorporates several documents by reference. The reference documents identified below were utilized during the preparation of the Initial Study. The relevant information and/or analysis that has been incorporated by reference into this initial study has been summarized. Each of the documents identified below, which have been incorporated by reference, are available for review at the City of Buena Park Community Development Department, located at 6650 Beach Boulevard, Buena Park, California 90622.

- *City of Buena Park General Plan* (adopted December 7, 2010). The purpose of the City of Buena Park General Plan (General Plan) is to provide a general, comprehensive, and long-range guide for community decision-making. The Buena Park General Plan is organized into ten (10) elements. General Plan Elements have been re-organized by thematic topic for clarity and to avoid redundancy. In addition to the Land Use and Community Design Element, the General Plan also includes Mobility, Community Facilities, Conservation and Sustainability, Open Space and Recreation, Safety, Noise, Economic, Implementation, and Housing Elements. Each General Plan element presents an overview of its scope, summary of conditions and planning issues, goals, and policies. Goals and policies of the General Plan are applicable to all lands within the City's jurisdiction.

- *City of Buena Park General Plan Update Final Environmental Impact Report General* (November 2010) SCH No. 2009111026. The City of Buena Park Environmental Impact Report General Plan Update (*General Plan EIR*) reviews the City's and Planning Area's existing conditions, analyzes potential environmental impacts from implementation of the General Plan Update, identifies policies from the proposed General Plan Update that serve to reduce and minimize impacts, and identifies additional mitigation measures, to reduce potentially significant impacts of the General Plan Update. The EIR presents a worst-case scenario based upon the City's and adjacent areas' maximum potential development from 2002 through 2030.

  The EIR was prepared as a Program EIR (CEQA Guidelines Section 15168, *Program EIR*), and as such, was intended to serve as the environmental document for a series of actions contemplated by the General Plan, including amending the Zoning Ordinance to bring it into consistency with the General Plan. CEQA provides for using a Program EIR to ensure consideration of cumulative impacts, avoid duplicative reconsideration of basic policy issues, and allow early identification and evaluation of program wide mitigation measures. This Dickerson Elementary School Residential Development Project Initial Study is incorporating by reference the environmental analysis from the broader *General Plan Update EIR*, which provides a description of the environmental setting as well as the environmental impact conclusions.

- *City of Buena Park Zoning Code* (Title 19 of the City of Buena Park Municipal Code, *Zoning*). The purpose of the *Zoning Code* is to ensure that the growth and development of the City is attractive, efficient and humane; and that the health, safety, prosperity, enjoyment, and general welfare of those who reside, work, or visit in the City is served to the optimum. Where applicable, development standards and related relevant requirements prescribed in the Zoning Code have been identified and summarized and their relationship to the proposed Dickerson Elementary School Single-Family Residential Development Project identified and described in the Initial Study.

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2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION AND ENVIRONMENTAL SETTING

PROJECT LOCATION

The project site encompasses approximately 9.5 acres of land located at 10051 Bernadette Avenue, in the city of Buena Park, California (refer to Exhibit 1-1). It is located immediately southwest of Ball Road and Bernadette Avenue. A parcel map that includes the site (134-301-24) is included as Exhibit 2-2.

PROJECT SETTING

Project Site

Historically, the subject property supported agricultural fields between at least 1927 and 1952. Following the agricultural use of the site, it was developed as the Dickerson Elementary School in the early 1960s. The school initially contained eight school buildings. The northeastern classroom building was constructed between 1963 and 1972. The childcare center was constructed between 1994 and 2002. The portable classroom buildings were installed in 2009. Seven permanent classroom buildings and seven portable classroom buildings were located within the site's eastern and southern portions, which encompass 39,786 square feet of floor area. These buildings were generally adjoined by covered walkways and landscaped areas. The school's administrative building is located in the site's southeastern portion. Asphalt-paved parking lots were located in the site's southeastern and southwestern corners. A relatively large asphalt paved sports courtyard is located within the site's central portion. A grass lawn covered most of the site's western and northern portions. A daycare center occupies a portion of the site's northeastern corner. Exhibit 2-3 illustrates the project site and the existing site features.

Surrounding Area

The site is surrounded by a variety of land uses. Single-family residential homes are located north of Ball Road, which is located along the site's northern property, in the City of Cypress. A church (New Praise Church) is located immediately north of the site's central portion, also in Cypress. A retail commercial center is located immediately north of the site's eastern portion. A liquor market, restaurant, small market, pool/spa supply store, grooming parlor, nail and hair salon, coffee store, massage parlor, and empty suite are situated in this center. Bernadette Avenue extends along the eastern boundary of the project site. Single-family dwellings are located immediately east of this roadway and the site. The properties adjoining the site's southern and western boundaries also include single-family residential dwelling units, which are physically separated from the project site by fences. Exhibit 2-4 (Aerial Photograph) also shows the surrounding land uses and their relationship to the subject property.

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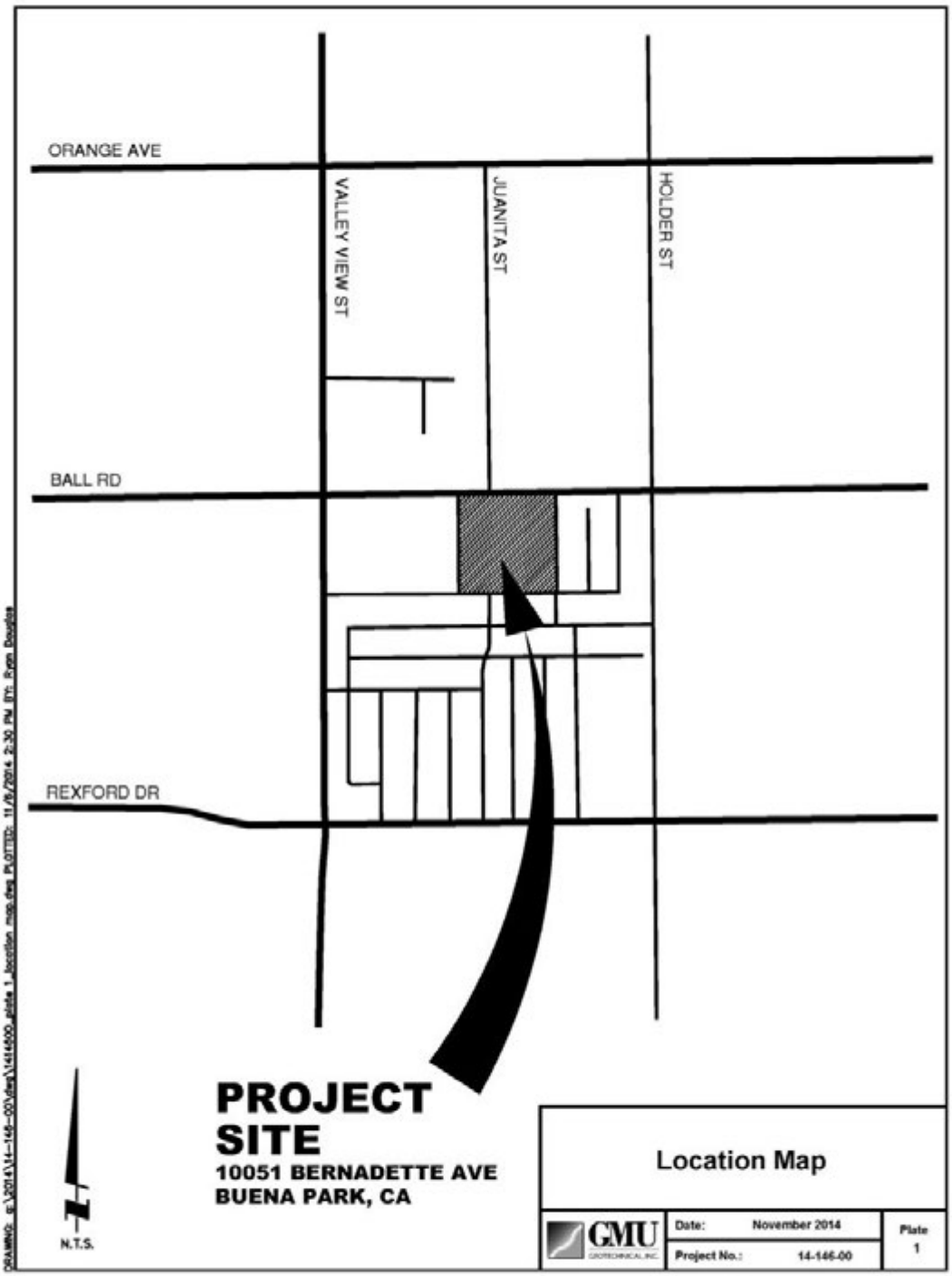

Exhibit 2-1
Vicinity Map

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Parcel Map
Exhibit 2-2

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Exhibit 2-3
Existing Site Features

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Exhibit 2-4
Aerial Photograph

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2.2 PROJECT BACKGROUND

The subject property is currently developed as the Elizabeth Dickerson Elementary School. As indicated above, the site currently supports approximately 40,000 square feet of educational floor area in 14 buildings. In addition, the site is characterized by passive open space within the limits of the property. The school operated until 2010, when it was closed and declared "surplus property" by the Cypress School District. The 9.09-acre property was recently sold to the William Lyon Homes for development purposes.

2.3 PROJECT CHARACTERISTICS

PROJECT DESCRIPTION

The project applicant, William Lyon Development Company, is proposing to redevelop the existing Dickerson Elementary School site with 67 single-family detached residential dwelling units. As previously indicated, development of the site will result in the demolition of the existing school structures and related facilities and construction of the 67-unit residential subdivision. The gross density of the project is 7.37 dwelling units per acre (du/ac) based on the 9.09 acre site. The minimum lot size is 3,555 square feet (45' x 79'). Although the RS-6 zoning allows a maximum lot coverage of 40 percent, the project is proposing only 33 percent coverage. A private recreation area is centrally located within the subdivision. Based on the City's open space requirements specified in the RS-6 zoning regulations, the project would be required to provide 11,050 (0.25 acre) square feet of open space; however, the centrally-located recreation area encompasses 21,375 square feet (0.5 acre).

As indicated in Exhibit 2-5 (Conceptual Site Plan) and on the proposed Tentative Tract Map (refer to Exhibit 2-6), a single access to the proposed subdivision is proposed near the northwestern limits of the site from Ball Road. Direct vehicular access to most of the homes is provided by a central "circular" street. On-street parallel parking is provided along the 56-foot wide internal private drive and the three private courts. In addition, an area of perpendicular parking is also provided along the southeastern private court near Bernadette Avenue.

PROJECT PHASING

Table 2-1 provides a summary of the project phasing. As indicated, development phasing includes the following general phases: (1) demolition and site preparation; (2) infrastructure improvements; (3) construction of models; and (4) home construction. It is anticipated that development will be completed within a two-year time frame, beginning in June 2015 and ending with the completion of the final home construction phase in May 2017. As indicated in the table, demolition and rough grading will extend over a period of approximately two months, followed by construction of the infrastructure and intersection improvements, which will take approximately five months. Models will be constructed upon completion of the infrastructure and will extend over a six-moth time frame. Development of the remaining homes will occur in eight phases that will overlap, beginning in January 2016 with completion of the homes approximately 17 months later in May 2017. Seven to nine homes will be constructed in each development phase following completion of the models, as indicated in Exhibit 2-7.

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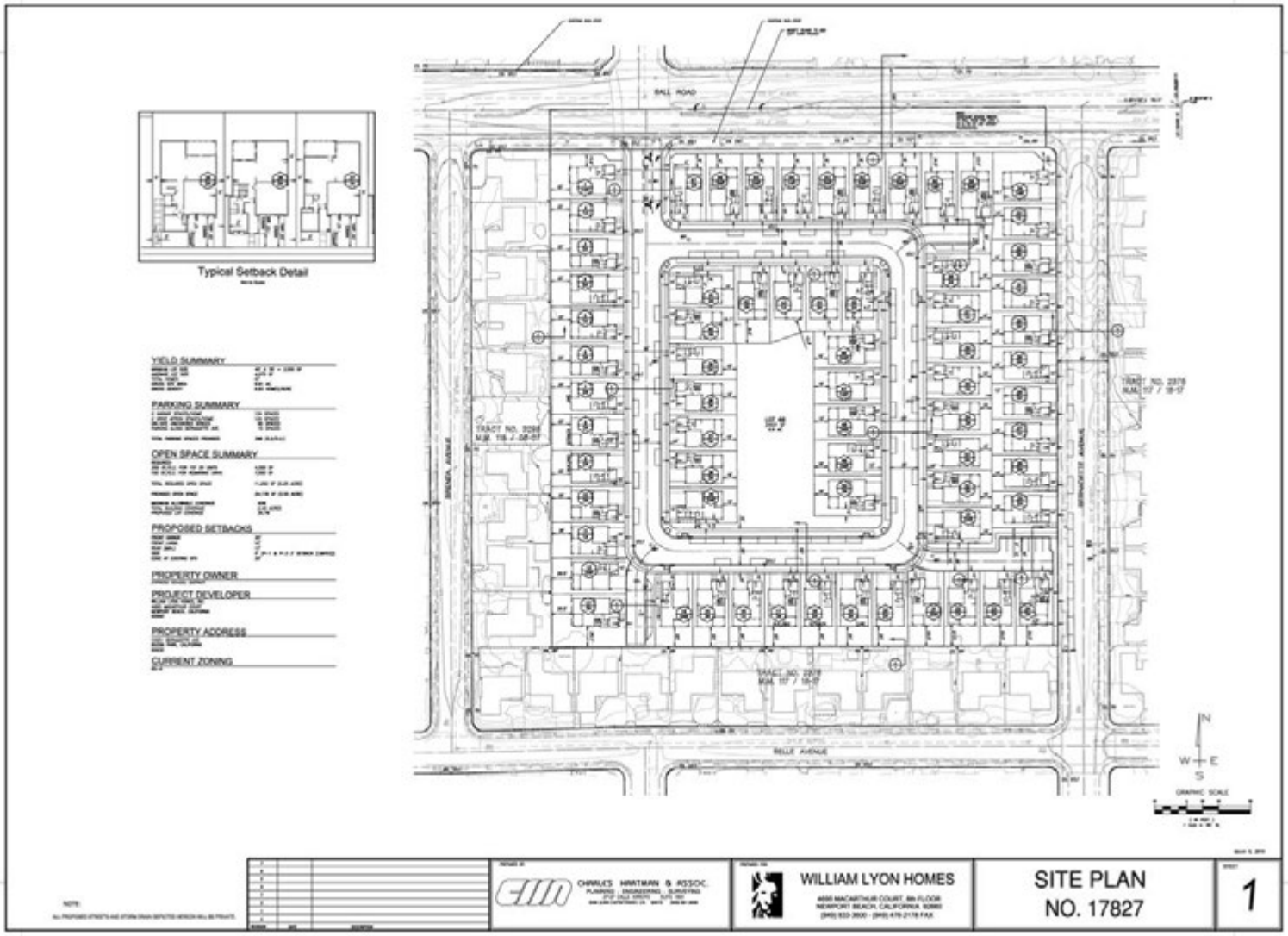

Exhibit 2-5
Technical Site Plan

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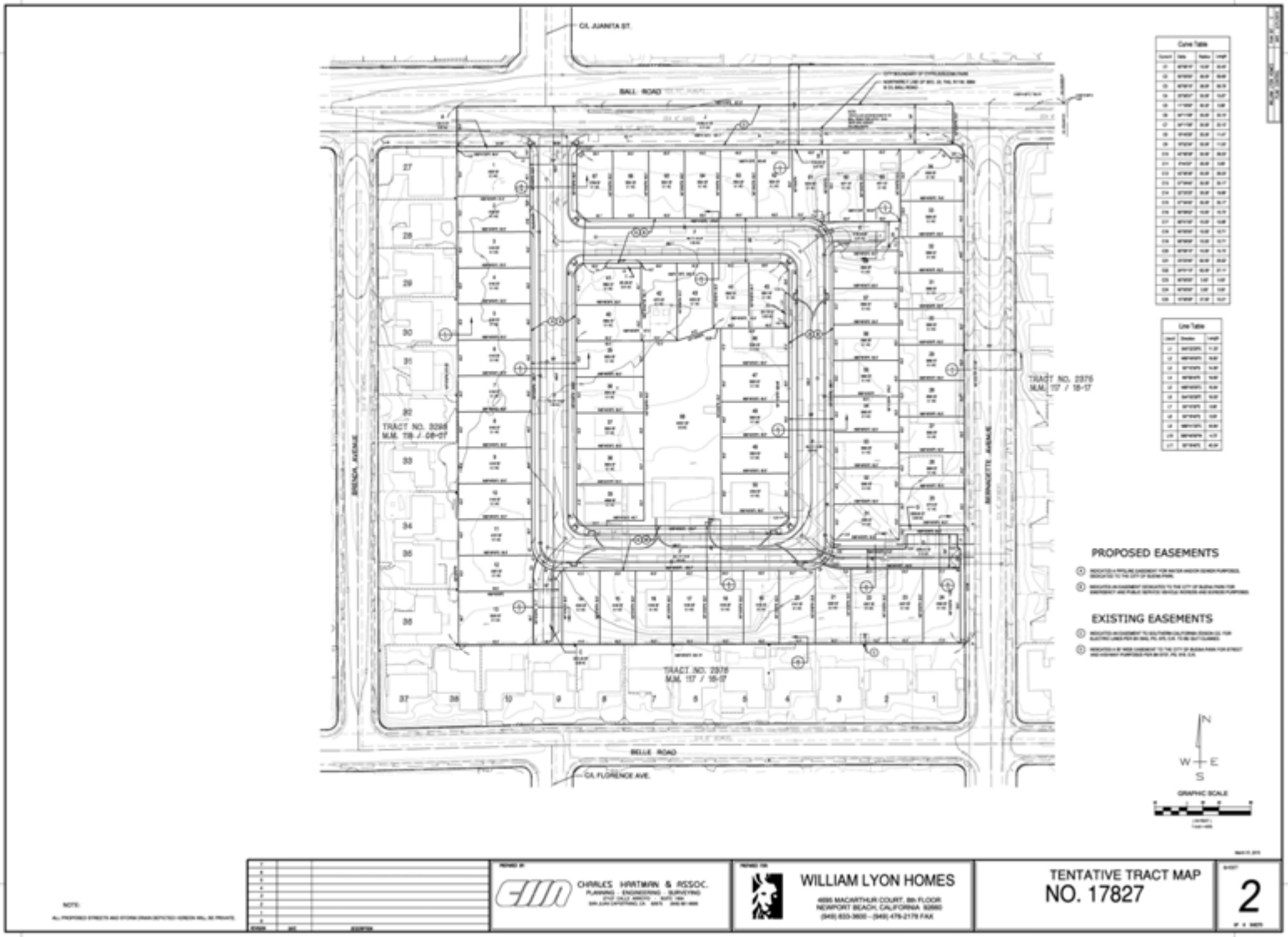

Exhibit 2-6
Tentative Tract Map 17827

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Exhibit 2-7
Conceptual Phasing Plan

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Table 2-1

Proposed Development Phasing
Lyon Development Residential Project

Description	Anticipated Start	Anticipated Completion
Demolition and Site Preparation		
Demolition/Rough Grading	June 2015	July 2015
Infrastructure Improvements		
Sewer/Storm Drain Improvements	July 2015	August 2015
Water/Street Improvements	August 2015	September 2015
Perimeter Wall Construction	September 2015	October 2015
Intersection Improvements	September 2015	October 2015
Dry Utility Installation	October 2015	November 2015
Construction of Models/Intersection Improvements		
Construction of Models	November 2015	April 2016
Construction of Homes		
Phase 1	January 2016	June 2016
Phase 2	April 2016	October 2016
Phase 3	June 2016	October 2016
Phase 4	July 2016	December 2016
Phase 5	September 2016	February 2017
Phase 6	October 2016	March 2017
Phase 7	November 2016	April 2017
Phase 8	December 2016	May 2017
SOURCE: William Lyon Homes, Inc. (December 2014)		

DISCRETIONARY APPROVALS

Project implementation will require approval of the following discretionary actions by the Buena Park Planning Commission:

- Tentative Tract Map
- Conditional Use Permit

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3.0 ENVIRONMENTAL SUMMARY

3.1 INTRODUCTION

1.	**Project Title**: Lyon Development Residential Project/Dickerson Elementary School Site
2.	**Lead Agency Name and Address:** City of Buena Park 6650 Beach Boulevard P. O. Box 5009 Buena Park, California 90622-5009
3.	**Contact Persons and Phone Numbers:** Mr. Michael Ressler, Senior Planner, (714) 562-3616
4.	**Project Location:** 10051 Bernadette Avenue Buena Park, CA 90620
5.	**Project Sponsor's Name and Address:** William Lyon Homes, Inc. 4695 MacArthur Court, 8th Floor Newport Beach, CA 92660
6.	**General Plan Designation:** Low Density Residential (Up to 7.2 DU/Ac)
7.	**Zoning:** RS-6 (6,000 Square Foot One-Family Residential)
8.	**Description of the Project:** The project applicant, Lyon Development, is proposing to demolish the existing Dickerson Elementary School, which was declared "surplus" property by the Cypress School District, and redevelop the 9.09-acre property with a 67-unit single-family detached residential subdivision. The gross density of the proposed residential subdivision is 7.37 dwelling units/acre. In addition, the applicant is also proposing 0.5 acre of open space, which is centrally located within the project site.
9.	**Surrounding Setting and Land Uses:** The subject property is surrounded on the west and south by single-family residential development. Bernadette Avenue and Ball Road border the site on the west and north, respectively. Single-family detached residential development exists east of Bernadette Avenue and single-family and commercial development exist north of Ball Road.
9.	**Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):** None

3.2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Potentially Significant Impact With Mitigation Incorporated," as indicated by the checklist on the following pages.

	Aesthetics		Land Use and Planning
	Agriculture and Forest Resources		Mineral Resources
	Air Quality	**X**	Noise
	Biological Resources		Population and Housing
	Cultural Resources		Public Services
X	Geology and Soils		Recreation
	Greenhouse Gas Emissions	**X**	Transportation/Traffic
X	Hazards and Hazardous Materials	**X**	Utilities and Service Systems
	Hydrology and Water Quality	**X**	Mandatory Findings of Significance

3.3 EVALUATION OF ENVIRONMENTAL IMPACTS

Section 4 (following) analyzes the potential environmental impacts associated with the proposed General Plan Amendment and Zone Change. The issue areas evaluated in this Initial Study include:

- Aesthetics
- Agriculture and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Greenhouse Gas Emissions
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation/Traffic
- Utilities and Service Systems

The environmental analysis in Section 4 is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*, as amended, and used by the City of Buena Park in its environmental review process. For the preliminary environmental assessment undertaken as part of this Initial Study's preparation, a determination that there is a potential for significant effects indicates the need to more fully analyze the development's impacts and to identify mitigation.

For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the development. To each question, there are four possible responses:

- **No Impact.** The development will not have any measurable environmental impact on the environment.

- **Less Than Significant Impact.** The development will have the potential for impacting the environment, although this impact will be below established thresholds that are considered to be significant.

- **Less Than Significant Impact With Mitigation Incorporated.** The development will have the potential to generate impacts, which may be considered as a significant effect on the environment, although mitigation measures or changes to the development's physical or operational characteristics can reduce these impacts to levels that are less than significant.

- **Potentially Significant Impact.** The development could have impacts, which may be considered significant, and therefore additional analysis is required to identify mitigation measures that could reduce potentially significant impacts to less than significant levels.

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4.0 ENVIRONMENTAL ANALYSIS

The following analysis includes an assessment of the proposed project and the identification of potential project impacts as identified in the Initial Study. Explanations are provided for each item in the environmental checklist.

4.1 AESTHETICS

Would the project:	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?				■
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				■
c. Substantially degrade the existing visual character or quality of the site and its surroundings?			■	
d. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			■	

Impact Analysis

4.1(a) Have a substantial adverse effect on a scenic vista?

No Impact. The subject property is not located along a scenic highway or other designated scenic vista. The site is located within a single- and multiple-family residential area along a heavily traveled arterial highway (Ball Road) in the western limits of the City of Buena Park. Ball Road is not designated a scenic corridor. Further, this project site is not located near any designated scenic highways or scenic routes, and no scenic vistas exist along the affected roadway. The project is located within a highly urbanized area of Orange County and Ball Road is not designated as or located near any scenic corridors acknowledged by the Buena Park General Plan. The area in which the project site is located is intensively developed residential land uses to east and south and north of Ball Road. Single family residential dwelling units exist along the east side of Brenda Avenue and Bell Avenue to the west and south, respectively, as well as along the east side of Bernadette Avenue, which abuts the project site on the east. In addition, retail commercial and residential development are located immediately north of Ball Road, which abuts the Dickerson School site on the north. The project site and environs are urbanized and neither the subject property nor the adjacent areas possess any significant visual or aesthetic resources that would be adversely affected, either directly or indirectly, by redevelopment of the existing elementary school for residential. No significant adverse visual impacts are anticipated as a result of converting the existing Dickerson Elementary School to single-family residential development. It is anticipated that the proposed residential subdivision would be aesthetically compatible with the existing, adjacent residential development. Furthermore, the proposed residential use and the density would also be consistent and compatible with the residential development in the immediate vicinity of the project site. As a result, project implementation would not result in any impact on an existing scenic vista.

4.1(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. As indicated above, the proposed project site is located in an urbanized area and the site neither possesses nor would affect any significant aesthetic resources, including rock outcroppings and/or historic buildings. The subject property currently supports an elementary school (Dickerson Elementary) that has been declared "surplus" by the Cypress Elementary School District. Although the elementary school site does support some mature trees and landscaping, all of the trees are introduced and are not considered either aesthetically or visually important amenities. In addition, Dickerson Elementary School is not identified as a historic resource, either by the Cypress School District or the City of Buena Park. Although conversion of the existing Dickerson Elementary School to a residential subdivision will change the character of the site, conversion of the subject property as proposed would not result in damage to any important open space or scenic resources. The project would result in the elimination of an existing "surplus" elementary school, which would be developed by the project applicant. As indicated above, the proposed project would not result in the loss of any significant or important trees, rock outcroppings, and/or historic buildings. Therefore, no impacts to scenic resources are anticipated; no mitigation measures are required.

4.1(c) Substantially degrade the existing visual character or quality of the site and its surroundings?

Less than Significant Impact. As indicated above, project implementation will result in the development of the site with a 67-unit single-family residential development. Although conversion of the site as proposed will change the character of the site (i.e., convert the existing school site to a residential subdivision), it will not result in potentially significant damage to the aesthetic character of any important scenic resources as discussed above. Neither the site nor the surrounding area is designated as a scenic amenity by the City of Buena Park. As previously described the project area is characterized by mixed residential and commercial development along the Ball Road. The architectural character of the proposed residential development, including the landscaping, has been designed to be compatible with the existing development and would not create any visual or aesthetic impacts.

Several elevations are proposed with a variety of architectural styles, including adobe ranch, Santa Barbara, Italianate, and prairie. These elevations are illustrated in Exhibits 4.1-1, 4.1-2, and 4.1-3. As indicated in those figures, all of the homes will be two stories in height. Building materials, depending on the specific architectural style, may include brick veneer, wood fascia, stucco, concrete roofs, decorative tile, and/or shutters, and decorative accents such as wood corbels, brick accent trim, wrought iron entry gates, etc. Colors will be aesthetically compatible with the surrounding development. The aesthetic character of the proposed residential subdivision will be enhanced with landscaping along the Ball Road frontage and at the project's entry on Ball Road (refer to Exhibits 4.1-4 and 4.1-5) where landscape plantings, including a variety of trees (e.g., pines, magnolia, jacaranda, etc) are proposed. Landscaping is also proposed along Bernadette Avenue on the east side of the project site and along the internal circulation network. Finally, a fencing plan is proposed that includes a perimeter wall along three sides of the project, lot divider walls and shared walls that separate the proposed homes from the existing homes adjacent to the site (refer to Exhibit 4.1.6).

Furthermore, design of the residential development will be subject to review by the City's Planning Commission, which will ensure that it is compatible with applicable design parameters and related requirements established by the City for the area. Therefore, project-related visual impacts are anticipated less than significant and no mitigation measures are required.

Exhibit 4-1.1
Conceptual Street Scene A

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Exhibit 4.1-2
Conceptual Street Scene B

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Exhibit 4.1-3
Conceptual Street Scene C

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Exhibit 4.1-4
Conceptual Landscape Plan

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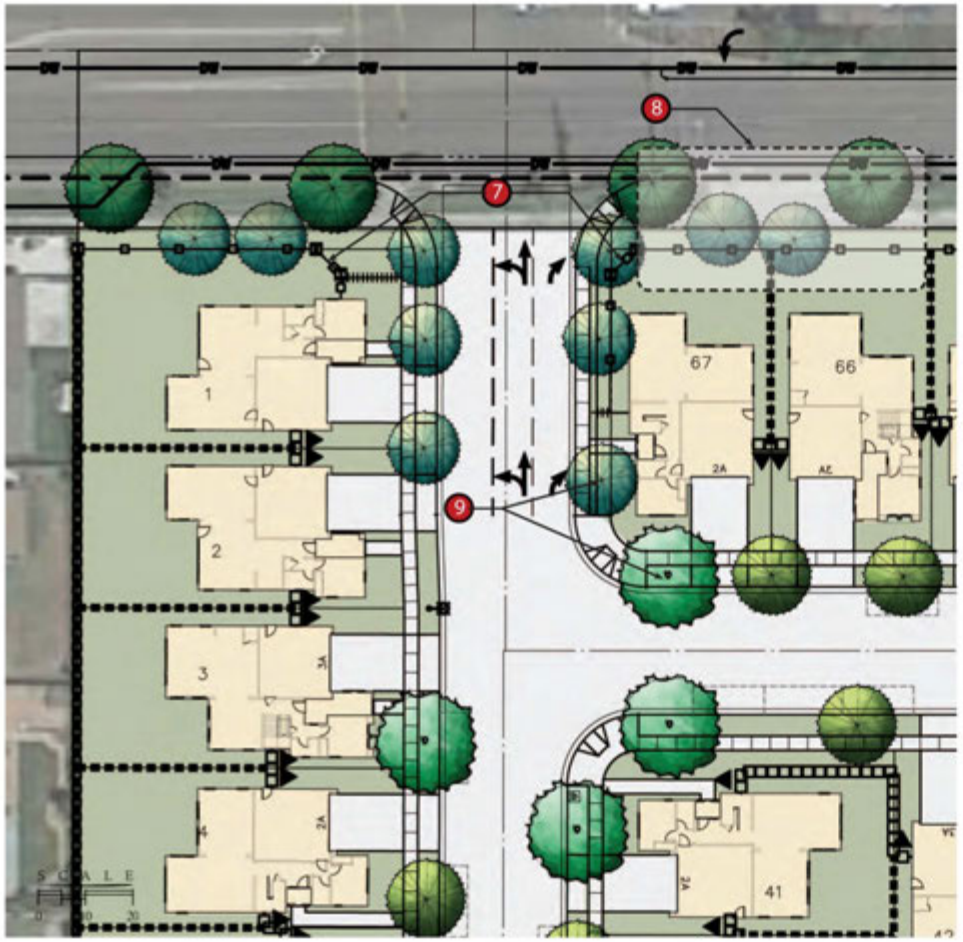


Project Entry Enlargement

LAND CONCERN
LANDSCAPE ARCHITECTURE

DICKERSON SCHOOL SITE

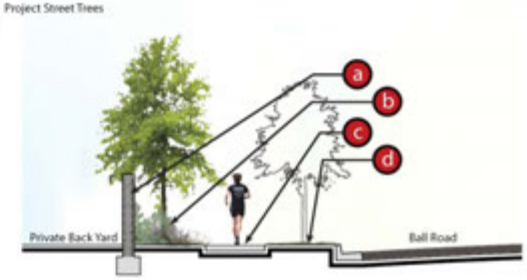
Buena Park, California

Landscape Legend

7 Split Face Wall With Pilasters Occuring At 45 Degree Entry Corners. Location of Project Signage, see Concept below.

8 Perimeter Landscape Edge, See Section Below

9 Project Street Trees



Perimeter Landscape Section

a Sound Wall

b New Perimeter Landscape and Street Trees

c Existing Sidewalk

d Existing Parkway

Project Signage Concept

e Split Face Masonry Wall With Precision Cap.

f Signage Background Per Separate Submittal.

g Approximately 1'X8' Lettering Per Separate Submittal.

WILLIAM LYON HOMES

Exhibit 4.1-5
Conceptual Project Entry Landscaping

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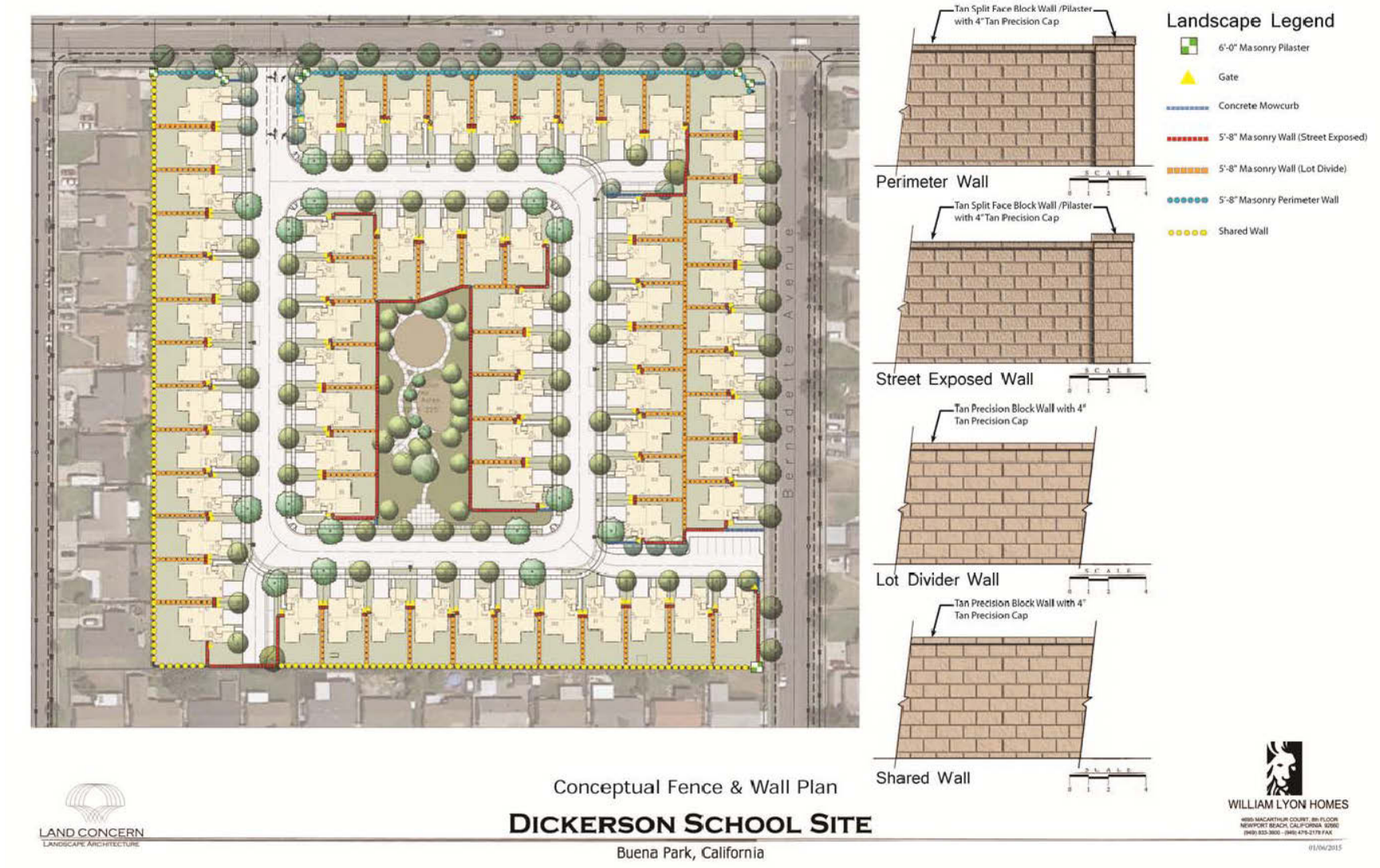

Exhibit 4.1-6
Conceptual Fence and Wall Plan

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4.1(d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?

Less than Significant Impact. With the exception of security lighting on the buildings at the Dickerson Elementary School property and street lighting along Ball Road, the subject property does not support any significant sources of light. Implementation of the proposed project will result in the creation of additional lighting in the predominantly residential areas adjacent to and in the vicinity of the project site. However, the lighting will be similar in nature to that occurring in the adjacent neighborhoods. Nonetheless, the proposed residential subdivision will be required to comply with Section 19.344.030 of the City's Zoning Code, which requires that lighting be "… directed, controlled, screened, or shaded in such a manner as to not shine directly on surrounding properties. In addition, lighting would also be controlled to ensure that glare on driveways, walkways and/or public thoroughfares does not occur. As a result, the lighting associated with the proposed residential subdivision will be less than significant; no mitigation measures are required.

Cumulative Impacts

Project implementation will not result in any significant cumulative impacts because the project site is not located along any designated scenic roadway or within a designated important view corridor. Furthermore, the proposed project will comply with applicable development standards and requirements and also incorporates landscaping that complements the site design and enhances the aesthetic character of the proposed development. Therefore, no potential significant cumulative impacts to aesthetics will occur as a result of project implementation.

Standard Conditions

SC 4.1-1 The residential development shall be required to ensure that exterior lighting proposed for the project complies with Section 19.344.030 of Title 19 (Zoning Ordinance).

Mitigation Measures

As indicated above, compliance with the City's zoning ordinance as required will ensure that no significant light and/or glare impacts will occur; no mitigation measures are required.

4.2 AGRICULTURE AND FOREST RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	**Potentially Significant Impact**	**Less Than Significant Impact With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				■
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?				■
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				■
d. Result in the loss of forest land or conversion of forest land to non-forest use?				■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				■

Impact Analysis

4.2(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. There is no designated Prime Farmland, Unique Farmland or Farmland of Statewide Importance located within the City of Buena Park. Furthermore, the subject property is not currently used for agricultural production. Therefore, project implementation would not result in the conversion of farmland to non-agricultural use. No impacts will occur as a result of project implementation and no mitigation measures are required.

4.2(b) Conflict with existing zoning for agricultural use or a Williamson Act contract?

No Impact. There are no existing Williamson Act Contracts covering property within the City of Buena Park, including the existing Dickerson School property. Since there are no agricultural uses or Williamson Act contracts present in the City, project implementation would not result in any significant impacts to potential agricultural uses. Therefore, no mitigation measures are required.

4.2(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. There is no zoning for forest land in the City of Buena Park and no areas within the City are classified as forest or timberland as defined by PRC section 4526. Therefore, project implementation would not conflict with existing zoning for, or cause rezoning of, any forest or timberland. No significant impacts would occur and no mitigation measures are required.

4.2(d) Result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. As indicated above, there are no forest lands present either on the subject property or in the City. Therefore, project implementation would not result in the loss of forest land or conversion of forest land to non-forest use. No impacts would occur and no mitigation measures are required.

4.2(e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. As previously indicated, no important farmland, agricultural activity, or forest and/or timberlands exist within the City of Buena Park. Therefore, the proposed project would not result in environmental changes that would convert farmland to non-agricultural uses or forest land to non-forest uses. No impacts would occur and no mitigation measures are required.

Cumulative Impacts

Project implementation will not result in the loss of either prime or locally important farmlands or designated forest lands. Therefore, no cumulative impacts will occur.

Standard Conditions

No standard conditions are required.

Mitigation Measures

No significant impacts to either agricultural or forest resources will occur as a result of project implementation; no mitigation measures are required.

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less Than Significant Impact With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Conflict with or obstruct implementation of the applicable air quality plan?			■	
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		■		

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	**Potentially Significant Impact**	**Less Than Significant Impact With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			■	
d. Expose sensitive receptors to substantial pollutant concentrations?			■	
e. Create objectionable odors affecting a substantial number of people?			■	

An air quality and greenhouse gas (GHG) analysis was prepared by Giroux & Associates to evaluate the potential air quality impacts of the proposed project. The analysis in the following sections focuses on the existing conditions in the study area, the analysis methodology, thresholds of significance, the potential short- and long-term air quality impacts of the proposed Lyon Residential Development Project related to the ambient air quality standards (AAQS) and sensitive receptors, and mitigation as needed. The air quality and GHG analysis is included in Appendix A; the findings and recommendations of that analysis are summarized below.

Impact Analysis

4.3(a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The subject property is designated as Low Density Residential on the Land Use Element of the Buena Park General Plan Amendment, which would permit the proposed single-family detached residential subdivision proposed by the project applicant. As a result, the long-range air quality projections reflect air emissions associated with future residential development on the subject property. As a result, the increase in traffic associated with the proposed residential use has been accounted for in the analysis of potential air quality impacts anticipated to occur as a result of buildout of the City's General Plan Update .

Generally, if a project is planned in a way that results in the minimization of vehicle miles traveled, both within the project area and the surrounding area in which it is located, and consequently the minimization of air pollutant emissions, that aspect of the project is considered consistent with the 2007 AQMP. As provided for in the Buena Park General Plan Update, goals and policies adopted by the City are intended to achieve reductions in air emissions by enabling the implementation of an efficient roadway system; supporting multi-modal transportation, improving transit service in the City; and encouraging walking, biking, and use of transit. The City also has a goal of encouraging infill development near activity centers and transportation corridors to increase participation in alternative modes of travel and reduce trip length and rates. Although the project is not in an identified "activity center," it is considered "in-fill" development that is close to shopping, schools, and employment; furthermore, future residents would have access to public transportation that serves Ball Road. The combination of these factors would contribute to a reduction in vehicle trips and, consequently, the emissions of air pollutants associated with mobile sources.

Additionally, the City is actively pursuing and implementing programs that reduce air pollutant emissions. The Goals, Policies, and Implementation Measures identified within the Mobility and Conservation and Sustainability Elements encourage cooperation with the SCAQMD and SCAG. The Mobility Element encourages cooperation with County and regional agencies through participation in various transportation programs.

4.3(b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant with Mitigation Incorporated. As indicated above, the proposed project is consistent with the land use designation prescribed in the City's General Plan for the project site. Development of the single-family uses would be consistent with the relevant policies and requirements established by the Land Use Element and, furthermore, would be consistent and compatible with the existing land use in the surrounding area. Project implementation includes the demolition of buildings and related structures existing on the school site, in addition to the site preparation and construction activities. However, short-term construction activities will not result in any pollutant emissions that exceed the significance threshold established by the South Coast AQMD. Furthermore, although the project would result in the generation of 638 vehicle trips per day, which would generate air pollutant emissions that do not occur at the present time (because the existing Dickerson Elementary School is closed), the emissions would not exceed the significance thresholds established for each air pollutant during post-development operations of the proposed single-family residential subdivision**.**

Construction Activities

Dust is typically the primary concern during construction of new buildings. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions." Emission rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). These parameters are not known with any reasonable certainty prior to project development and may change from day to day. Any assignment of specific parameters to an unknown future date is speculative and conjectural.

Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. This assumption may or may not be totally applicable to site-specific conditions on the proposed project site. As noted previously, emissions estimation for project-specific fugitive dust sources is therefore characterized by a considerable degree of imprecision.

Average daily PM_{10} emissions during site grading and other disturbance are estimated to be about 10 pounds per acre. This estimate presumes the use of reasonably available control measures (RACMs). The SCAQMD requires the use of best available control measures (BACMs) for fugitive dust from construction activities.

Current research in particulate-exposure health suggests that the most adverse effects derive from ultra-small diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates or organic material. A national clean air standard for particulate matter of 2.5 microns or smaller in diameter (called "$PM_{2.5}$") was adopted in 1997. A limited amount of construction activity particulate matter is in the $PM_{2.5}$ range. $PM_{2.5}$ emissions are estimated to comprise 10-20 percent of PM_{10}.

Although exhaust emissions will result from on and off-site heavy equipment, the exact types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Estimated construction emissions were estimated and reflect the maximum daily emissions for each pollutant during project construction. Construction emissions include all emissions associated with the construction equipment, worker trips, and supply truck deliveries. The project-related construction emissions are summarized in Table 4.3-1.

Table 4.3-1

Estimated Construction Emissions
Lyon Development Residential Project

Maximal Construction Emissions[1]	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
2015 Emissions						
Unmitigated	4.7	51.3	38.9	0.0	9.0	5.6
Mitigated	3.8	30.8	28.0	0.0	3.9	2.5
2016						
Unmitigated	47.5	29.2	20.5	0.0	2.2	1.9
Mitigated	47.5	29.2	20.5	0.0	2.2	1.9
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Threshold (Yes/No)	No	No	No	No	No	No

[1]Emissions are expressed in pounds per day.

SOURCE: Giroux & Associates (January 2015)

Peak daily construction activity emissions are estimated to be below SCAQMD CEQA thresholds with mitigation. The only model-based mitigation measured applied for this project include:

- Water exposed dirt surfaces two times per day to minimize the generation of fugitive dust generation during grading, and
- Use Tier 3 engines for the excavator, grader and dozer during grading activities

Localized Significance Thresholds

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. Refer to Appendix _ for

Table 4.3-2

LSTs and Project Emissions
Lyon Development Residential Project

Maximal Construction Emissions[1]	CO	NOx	PM_{10}	$PM_{2.5}$
Maximum On-Site Emissions				
LST 1.0 Acre/25 Meters Central Orange County	**485**	**81**	**4**	**3**
Demolition				
Unmitigated	36	48	2	1
Mitigated	25	21	2	1
Grading				
Unmitigated	27	40	9	5
Mitigated	21	20	4	2
Construction				
Unmitigated	19	30	2	2
Mitigated	19	30	2	2
Paving				
Unmitigated	15	22	1	1
Mitigated	15	22	1	1
SOURCE: Giroux & Associates (January 2015)				

LSTs were compared to the maximum daily construction activities during each construction phase. As seen in Table 4.3-2, without the application of mitigation, emissions would exceed the LST thresholds for PM_{10} and $PM_{2.5}$ during the grading phase.. LST impacts are less than significant. In order to ensure that potential LST impacts are reduced to a less than significant level, mitigation measures have been prescribed to ensure that PM10 and PM2.5 impacts are minimized and do not exceed the LST thresholds.

Operational Impacts

As indicated in the Traffic Impact Analysis prepared for the project (refer to Appendix F), the proposed project would generate 638 daily trips using trip generation numbers provided by the project traffic consultant. Although the previous use of the site as an elementary school generated greater numbers of hourly or daily traffic, the school has been closed for over four years. Therefore, the proposed project has been evaluated and analyzed as a "new" source with no traffic off-set credit for air quality impact analysis purposes. Operational emissions were calculated to assume project buildout full occupancy in 2017. The post-development (operational) impacts are summarized in Table 4.3-3. As shown in the table, operational emissions will not exceed applicable SCAQMD operational emissions CEQA thresholds of significance. Thus, project implementation would not result in any potentially significant operational air quality impacts. No mitigation measure are required.

Table 4.3-3

Daily Operational Air Pollutant Emissions
Lyon Development Residential Project

Source	Operational Emissions[1]						
	ROG	**NOx**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**	**CO_2**
Area[2]	2.8	0.1	5.6	0.0	0.1	0.1	1,294.9
Energy	0.1	0.5	0.2	0.0	0.0	0.0	627.5
Mobile	2.0	4.8	23.2	0.1	4.7	1.3	5,400.7
Total	**4.9**	**5.4**	**29.0**	**0.1**	**4.8**	**1.4**	**7,323.1**
SCAQMD Threshold	55	55	550	150	150	55	--
Exceeds Threshold (Yes/No)	No	No	No	No	No	No	N/A

[1]Emissions in pounds per day
[2]Nataural gas hearths

SOURCE: Giroux & Associates (January 2015)

4.3(c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. As indicated above, although project implementation would result in an increase in the number of vehicular trips, the amount of pollutants emitted into the air basin associated with long-term, operations would not exceed any of the SCAQMD significance thresholds. Although the SCAQMD is currently designated a "non-attainment" area for ozone and PM_{10} and $PM_{2.5}$, project implementation will not contribute to the regional degradation of the air basin due to the reduction in long-term emissions when compared to the existing emissions generated on the site by the existing land use. Therefore, potential impacts will be less than significant.

4.3(d) Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. The sensitive receptors in the vicinity of the site are the occupants of single - family residential dwelling units located adjacent to and in the vicinity of the subject property. Pollutants resulting from project implementation will occur during the construction phase and following completion and occupancy/use of the park and single-family residential development. The emissions will be comprised mostly of dust and particulate materials during the construction phase that will be dispersed in the area of operations. As indicated above, such emissions will be controlled through the implementation of standard conditions and rules prescribed by the SCAQMD and mitigation measures intended to reduce such emissions. As a result, no significant impacts will occur and no additional mitigation measures are required.

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure. Therefore, no significant impact will occur and no mitigation measures are required.

4.3(e) Create objectionable odors affecting a substantial number of people?

Less than Significant Impact. Odors are one of the most obvious forms of air pollution to the general public. Odors can present significant problems for both the source and the surrounding community. Although offensive odors seldom cause physical harm, they can cause agitation, anger and concern to the general public. Most people determine an odor to be offensive (objectionable) if it is sensed longer than the duration of a human breath, which is typically 2 to 5 seconds. Land uses that result in or create objectionable odors typically include agriculture (e.g., livestock and farming), wastewater treatment plants, food processing plants, composting operations, refineries, landfills, etc.). The proposed project includes the conversion of an existing elementary school to a 67-unit single-family residential subdivision. The only potential odors associated with the project are from site construction during the application of asphalt and paint. Any asphalt and paint odors, if perceptible, are common in the environment and would be of very limited duration. Therefore, any odor impacts would be considered less than significant and no mitigation measures are necessary.

Cumulative Impacts

Air emissions are anticipated to be less than the amount that would be generated by the former elementary school. However, project-related emissions were estimated without consideration that the site was an elementary school. Nonetheless, development of the proposed single-family residential subdivision will not result in an exceedance of either the construction or operational emissions threshold adopted by the SCAQMD and therefore, will not result in potentially significant cumulative impacts. Compliance with the applicable SCAQMD rules will ensure that dust emissions are minimized during construction to further reduce short-term cumulative impacts. Operational air emissions will likewise not be significant because the project would not exceed the City's long-range projections anticipated for the subject property, which are the basis for air emissions forecasts in the Air Quality Management Plan (AQMP). As a result, neither the project-related trip generation nor mobile source emissions would exceed the projections in that document. Therefore, potential cumulative air quality impacts are less than significant.

Standard Conditions

SC 4.3-1 The project applicant will comply with SCAQMD Rule 1113 on the use of architectural coatings. Emissions associated with architectural coatings should be reduced by using pre-coated/natural colored building materials using water-based or low-VOC (volatile organic compounds) coating and using coating transfer or spray equipment with high transfer efficiency (or using manual application methods).

SC 4.3-2 The project applicant shall comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 402 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below, which shall be implemented as determined feasible.

Applicable Rule 403 Measures:

- Apply non-toxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for ten days or more).
- Water active sites at least twice daily (locations where grading is to occur will be thoroughly watered prior to earth moving).
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered.
- Pave construction access roads at least 100 feet onto the site from main road.
- Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.

Additional dust suppression measures in the SCAQMD CEQA Air Quality Handbook are included as part of the project's standard conditions.

- Revegetate disturbed areas as quickly as possible.
- All excavating and grading operations shall be suspended when wind speeds (as instantaneous gusts) exceed 25 mph.
- All streets shall be swept a minimum of at least once a day (or more if required by the Public Works Director or Chief Building Official) if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water).
- Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash trucks and any equipment leaving the site each trip. Water shall be kept on-site and not allowed to run into the street system.
- All on-site roads shall be paved as soon as feasible, watered periodically, or chemically stabilized.
- The area disturbed by clearing, grading, earthmoving, or excavation operations shall be minimized at all times.
- The Construction Contractor should select the construction equipment used on site based on low emission factors and high energy efficiency. The Construction Contractor shall ensure that construction grading plans include a statement that all construction equipment will be tuned and maintained in accordance with the manufacturer's specifications. Proof of maintenance shall be provided to the Chief Building Official prior to equipment being brought on-site.
- The Construction Contractor should utilize electric or diesel powered equipment in lieu of gasoline powered engines where feasible.
- The Construction Contractor should ensure that construction grading plans include a statement that indicates work crews will shut off equipment when not in use. During smog season (May through October), the overall length of the construction period will be extended, thereby decreasing the size of the area prepared each day, to minimize vehicles and equipment operating at the same time.
- The Construction Contractor should time the construction activities so as to not interfere with peak hour traffic and minimize obstruction of through traffic lanes adjacent to the site; if necessary, a flagger shall be retained to maintain safety adjacent to existing roadways.
- The Construction Contractor should support and encourage ridesharing and transit incentives for the construction crew.

Mitigation Measures

MM 4.3-1 Although construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds, mitigation through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin and because of the proximity of existing homes. Therefore, the following measures shall be implemented during grading.

- Exposed dirt surfaces shall be watered twice per day to minimize the generation of fugitive dust generation during grading.

- Tier 3 engines for the excavator, grader and dozer should be used during grading activities.

MM 4.3-2 Although calculated emissions would meet SCAQMD CEQA requirements, demolition and new construction in very close proximity to existing homes presents a potential for dust nuisance even if LST standards are not expected to be violated. While use of best available control measures (BACMs) for PM_{10} is required, extra enhancements should be incorporated into project construction management. Such "super-BACMs" should be implemented during the construction phase. These measures may include but not be limited to the following:

- Large signage at the Juanita entrance that identifies the point of contractor contact responsible for dust control
- Required response to all public contact regarding dust issues within 24 hours
- Pre-watering of areas of planned earth movement for at least 72 hours
- Construct a paved access apron and wash any truck wheels with visible dust prior to access to Ball Road
- Install a fabric lined chain link fence 6-feet high around the site perimeter at all non-access points (except for the units facing Bernadette)
- Establish on-site equipment staging areas and employee parking areas closer to Ball Road away from existing homes with at least one inch of washed gravel maintenance to a depth of four inches

4.4 BIOLOGICAL RESOURCES

Would the project:	**Potentially Significant Impact**	**Less Than Significant Impact With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				■
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?				■
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				■
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				■
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			■	
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				■

Impact Analysis

4.4(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No Impact. According to the Conservation and Sustainability Element of the Buena Park General Plan, the Emery Borrow Fossil Pit within the Ralph B. Clark Regional Park supports the only area of native vegetation in Buena Park. The absence of urban development or agricultural activities in this area has allowed for the endurance of coastal sage scrub vegetation. No rare or endangered plant or animal species occur in Buena Park, although several species have been previously identified within the surrounding area. The Dickerson School and the surrounding environs are developed with urban uses and circulation facilities. Neither the site nor project environs support any native species of plants or animals. The project site is developed with the existing elementary school, which is surrounded on the east, west, and south by single-family residential development and on the north by Ball Road. All of the vegetation that exists on the site and within the project area is introduced (i.e., non-native) plant materials that are common in urban landscapes. There are no species identified as candidate, sensitive, or special status species within the limits of either the site or in the immediate project area, which has been completely altered by development. Therefore, no significant impact would occur to any sensitive species designated by the resources agencies as a result of project implementation. Further, the Project is not directly affected by any regional plans, or policies of other resource agencies. No significant impacts are anticipated and no mitigation measures are required.

4.4(b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No Impact. As indicated above, the subject property is located within an urbanized area and neither site contains riparian habitat or other sensitive natural community. Although some small rodents and mammals that adapt to urban development may exist on the site, no native habitat or grasslands exist on the subject property that would represent an important source of foraging for raptors and other sensitive or protected species. No significant biological resources are identified in the Buena Park General Plan either for the site or for the immediate project area. Due to the location and nature of the proposed project, implementation will not result in significant adverse impacts to riparian or other sensitive natural community; no mitigation measures are required.

4.4(c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. There are no federally protected wetlands as defined by Section 404 of the Clean Water Act located within the limits of the project site. Further, no marshes, vernal pools, or coastal habitats exist in the project area according to the Open Space Element adopted by the City of Buena Park. Therefore, there will be no significant impacts resulting from project implementation and no mitigation measures are required.

4.4(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

No Impact. As previously indicated, the site is located in an area of the City that is largely urbanized and devoid of natural habitat and/or species. The Dickerson School property has been improved and supports an elementary school; the site does not serve as a wildlife migratory corridor. Development of the site as proposed would not significantly alter the existing biological character of the area. Project implementation would result in intensifying the development that exists on the Dickerson School site by demolishing the school and

replacing it with 67 single-family residential dwelling units. Due to the urbanized nature of the area and lack of natural habitat and native species and the distance of the subject property from any natural habitat, implementation of the project will not interfere with the movement of any native resident species of wildlife or with the migratory patterns of fish or other wildlife species. No significant impacts will occur as a result of project implementation and no mitigation measures are required.

4.4(e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact. Implementation of the Project will result in physical changes to the affected property; however, project implementation will not result in significant impacts to biological resources as a result of redeveloping the Dickerson School site with residential dwelling units. The City's General Plan does not identify the project site as one that supports sensitive habitat and/or important biological resources. The City of Buena Park does not have an ordinance that identifies and/or regulates heritage trees on private property. As indicated in Section 4.1(b), although several mature trees exist on the Dickerson School site, none are native trees or a species that would require preservation. While the existing introduced landscaping may be eliminated as a result of project implementation (i.e., construction of the single-family residential homes), the landscape concept plan prepared for the proposed residential project will offset the loss of any existing non-native landscape species, including the trees that exist on the project site. Therefore, impacts resulting from the elimination of the existing trees that occupy the site would be less than significant; no mitigation is required.

4.4(f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The project site and surrounding area are urbanized and do not support any sensitive habitat and/or species that are protected by an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan. Project implementation will not conflict with local, regional, or state resource preservation and/or conservation policies. Therefore no significant impacts will occur as a result of project implementation; no mitigation measures are required.

Cumulative Impacts

As indicated in the preceding analysis, the site is devoid of sensitive habitat. Project implementation will not result in any impacts to biological resources and would neither contribute to nor result in any potentially significant cumulative impacts to biological resources.

Standard Conditions

No standard conditions are required.

Mitigation Measures

Project implementation will not result in any potentially significant impacts to sensitive biological resources; no mitigation measures are required.

4.5 CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?				■
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?			■	
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			■	
d. Disturb any human remains, including those interred outside of formal cemeteries?				■

Impact Analysis

4.5(a) Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?

No Impact. The Dickerson Elementary School site has been significantly altered as a result of site alteration caused by grading and development of several classroom and administrative buildings. All of the existing structures are contemporary in nature and do not possess historic value or significance. Neither the subject site and related buildings nor the surrounding properties are identified as historic resources in Table CS-1 of the Conservation and Sustainability Element of the City's General Plan. Although Project implementation includes the construction of 67 single-family residential dwelling units, no significant adverse changes to any historical resources will occur. Project implementation will necessitate some grading and site alteration in order to implement the residential subdivision; however, it is not anticipated that any historic resources will be affected. Therefore, significant impacts to historical resources will occur as a result of project implementation and no mitigation measures are required.

4.5(b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?

Less than Significant Impact. The property that is the subject of the proposed project and the surrounding area are urbanized and characterized by development that involved extensive grading and significant landform modification in order to accommodate that development. Any archaeological sites near the surface of the ground would have been disturbed and/or destroyed by past grading activities that were necessary to accommodate the existing development. As part of the Buena Park General Plan update, the Native American Heritage Commission conducted a record search of its Sacred Lands File (SLF) for the affected project area (APE) (i.e., the City of Buena Park). The NAHC SLF search did not indicate the presence of Native American cultural resources within a 0.5 mile radius of the proposed APE, with the exception of Native American cultural resources identified within the La Habra USGS Quadrangle. However, these resources are located in the City of La Habra, outside of the Buena Park City limits. While it is unlikely that significant impacts to cultural or archaeological resources would occur as a result of project implementation due to the nature and extend of past landform alteration, the City of Buena Park has adopted several policies and implementation measures addressing cultural resources. In order to ensure that cultural resources are not destroyed or lost pursuant to Policy CS-3.1 (i.e., preserve and protect significant archaeological and paleontological resources) adopted by the City, the applicant will be required to comply with the applicable policies and implementation measures prescribed in the Final EIR prepared for the General Plan Update. Specifically, the proposed project will be subject to Implementation Measures CS-24 (SC 4.5-1) and CS-26 (SC 4.5-2). No mitigation measures are required.

4.5(c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant Impact. As indicated above, the proposed project site is located within an urbanized area of the City of Buena Park and it has been previously graded and developed/improved. Any near-surface paleontological resources that may have existed at one time have likely been disturbed and/or destroyed by prior development activities. Therefore, it is unlikely that potentially significant impacts are anticipated and no mitigation measures are required. Although it is not likely that implementation of the project will result in any potentially significant impacts to paleontological resources because of the prior development activities that have taken place on the site and in the surrounding area, grading and excavation required for the parking structure previously approved by the City may have the potential to encounter paleontological resources.

4.5(d) Disturb any human remains, including those interred outside of formal cemeteries?

No Impact. As indicated previously, it is unlikely that project implementation will affect any sites or properties that possess known cultural values because the subject property is developed/improved and has been substantially altered. The site is not utilized by any Native Americans for religious or other culturally important rites and no important cultural resource sites have been identified within the City of Buena Park. Further, no formal cemeteries are located on the site or in the project environs and no human remains are known to exist in the project area. Although project implementation will require grading and excavation to implement the proposed improvements (i.e., single-family residential development), the discovery of human remains is not anticipated. Therefore, no significant impacts are anticipated with the implementation of the mitigation measure identified below.

Cumulative Impacts

As indicated above, the subject property has been extensively altered as a result of prior site development and remediation. As a result, no cultural and/or paleontological resources are expected to occur that would result in significant cumulative impacts.

Standard Conditions

Although no significant impacts to historic, cultural or paleonotological resources are anticipated as a result of the proposed project because there is a low potential for encountering such resources in the City,[1] the applicant will be required to comply with the applicable policies and implementation measures prescribed in that document, including the following:

SC 4.5-1 Archaeological resources found prior to or during construction shall be evaluated by a qualified archaeologist, and appropriate mitigation measures applied, pursuant to Public Resources Code Section 21083.2 or 21084.1, as applicable, before the resumption of development activities. Any measures applied shall include the preparation of a report meeting accepted industry standards, which shall be submitted to the appropriate California Historical Resources Information System (CHRIS) Information Center (IC).

SC 4.5-2 During excavation and grading activities of any future development project, if archaeological resources are discovered, the project contractor shall stop all work and shall retain a qualified archaeologist to evaluate the significance of the finding and appropriate course of action. Salvage operation requirements pursuant to Section 15064.5 of the CEQA Guidelines shall be followed and the treatment of discovered Native American remains shall comply with State codes and regulations of the Native American Heritage Commission.

[1]Buena Park General Plan Update Final EIR; Cultural Resources Section, p. 5.10-18 9 (September 2010).

SC 4.5-3 Paleontological resources found prior to or during construction shall be evaluated by a qualified paleontologist, and appropriate mitigation measures applied, pursuant to Section 21083.2 of CEQA, before the resumption of development activities. Any measures applied shall include the preparation of a report meeting accepted industry standards.

SC 4.5-4 Any project that involves earth-disturbing activities in soil or rock units known or reasonably suspected to be fossil-bearing shall require monitoring by a qualified paleontologist retained by the project applicant for the duration of excavation or trenching.

SC 4.5-5 In the event of the discovery of a burial, human bone, or suspected human bone, all excavation or grading in the vicinity of the find shall halt immediately and the area of the find shall be protected and the project applicant shall immediately notify the Orange County Coroner of the find and comply with the provisions of the California Health and Safety Code Section 7050.5, including P.R.C. Section 5097.98, if applicable. In the event that human remains are determined to be Native American human remains, the applicant shall consult with the Most Likely Descendent to determine the appropriate treatment for the Native American human remains.

Mitigation Measures

No significant impacts an anticipated to occur as a result of project implementation. Implementation of the standard conditions identified above, which reflect adopted City policies regarding cultural/scientific resources, will ensure that impacts remain less than significant.

4.6 GEOLOGY AND SOILS

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			■	
2) Strong seismic ground shaking?		■		
3) Seismic-related ground failure, including liquefaction?		■		
4) Landslides?				■
b. Result in substantial soil erosion or the loss of topsoil?			■	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?		■		
d. Be located on expansive soil, as defined in Table 18-1-B of the California Building Code (2001), creating substantial risks to life or property?			■	
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				■

GMU Geotechnical prepared a geotechnical investigation of the Dickerson School site in order to provide an assessment of feasibility of the proposed 67-unit single-family residential subdivision and identify geotechnical design constraints as well as develop preliminary geotechnical recommendations for grading, infiltration, and anticipated improvements. The geotechnical investigation included an analysis of seismic hazards and settlement and provided preliminary geotechnical recommendations for development. The "Geotechnical Investigation, Dickerson School Site" prepared by GMU Geotechnical is included as Appendix B and the findings and recommendations presented in that report are summarized in the following analysis.

Impact Analysis

4.6(a)(1) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less than Significant Impact. Primary ground rupture or fault rupture is defined as the surface displacement that occurs along the surface of a fault during an earthquake. The Project is located in the seismically active southern California region. The nearest known active faults are the Puente Hills (Coyote Hills) Fault and Newport-Inglewood Fault Zone, which are located about 4.7 miles south and 6.1 miles southwest of the site, respectively. Given the proximity of the site to these and numerous other active and potentially active faults, the site will likely be subject to earthquake ground motions in the future. There are no active faults or fault systems known to exist on or in the immediate vicinity of the project site. In addition, the project site is not located within an Alquist-Priolo Earthquake Fault Zone as illustrated on the maps issued by the State Geologist for the area. In addition, other faults without surface expression (i.e., blind faults) or other potentially active seismic sources also capable of generating an earthquake may be present under the site at depth but not yet identified.

Only one fault, the Norwalk Fault traverses Buena Park (the north and northeast portions).[2] No surface faulting has been associated with the Norwalk Fault. Furthermore, the Norwalk Fault is not a State designated Alquist-Priolo Earthquake Fault Zone. The Los Coyotes Fault is located near, however, outside of the City's northern boundary. Therefore, the potential for fault rupture in the City is considered low. As a result, proposed structures and future residents would not be exposed to fault rupture during a seismic event. No significant impacts will occur and no mitigation measures are required.

4.6(a)(2) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Less than Significant with Mitigation Incorporated. As indicated above, California is a seismically active region, with numerous faults located throughout. The Safety Element of the Buena Park General Plan identifies the relevant local and regional faults that have the potential to affect the City and their potential probable earthquake magnitude. As illustrated on Exhibit 5.7-1 of the Safety Element, the Norwalk Fault, which traverses the northeast portion of Buena Park, is capable of generating potential probably earthquake magnitude of 6.3. The Los Coyotes Fault is identified as being located near the City's northern boundary. Additionally, faults located within 5 miles of the City include Whittier-Elsinore, Newport-Inglewood, and Los Alamitos Faults. These and other active faults, including the San Andreas Fault, are capable of generating earthquakes with magnitudes that range between 6.0 and 7.5 or greater. Based on the 2013 California Building Code (2013 CBC), the peak horizontal ground acceleration (PHGA) for liquefaction evaluation is 0.52g for the maximum credible earthquake (MCE) event. This PHGA is associated with a modal earthquake magnitude of 6.58 at a modal distance of 7.8 km from the site.[3] As a result, future development of the proposed project would expose structures and residents to a potentially significant groundshaking effects associated with earthquakes occurring on one or more of the active regional faults. It should be recognized that much of southern California

[2]Buena Park General Plan Update Final Environmental Impact Report; Exhibit 5.7-3; September 2010.
[3]Geotechnical Investigation Dickerson School Site; GMU Geotechnical, Inc; p. 4; November 25, 2014.

is subject to some level of damaging ground shaking as a result of movement along the major active (and potentially active) fault zones that characterize this region. Design utilizing the 2013 CBC is not meant to completely protect against damage or loss of function. The project will be designed to comply with all applicable building code requirements, including the California Building Code (CBC) and other recommendations prescribed in the Geotechnical Investigation. Implementation of the mitigation measures will ensure that potential earthquake groundshaking impacts will be reduced to a less than significant level.

4.6(a)(3) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Less than Significant with Mitigation Incorporated. Liquefaction is the loss of soil strength or stiffness due to a buildup of pore-water pressure during a seismic event and is associated primarily with relatively loose, saturated fine- to medium-grained unconsolidated soils. Seismic ground shaking of relatively loose, granular soils that are saturated or submerged can cause the soils to liquefy and temporarily behave as a dense fluid. Liquefaction is caused by a sudden temporary increase in pore-water pressure due to seismic densification or other displacement of submerged granular soils. Liquefiable soil conditions are not uncommon in alluvial deposits in moderate to large canyons and could also be present in other areas of alluvial soils where the groundwater level is shallow (i.e., 50 feet below the surface).

According to the Seismic Hazards Zone Map (Los Alamitos, Anaheim, Whittier, and La Habra Quadrangles), liquefaction susceptibility is considered high throughout most of the City. Areas of potential liquefaction are delineated based on areas of historic occurrence of liquefaction, or local geological, geotechnical, and groundwater conditions that indicate a potential for permanent ground displacement. The site is located within a zone mapped as having a history of liquefaction or site conditions that indicate a potential for liquefaction by the State of California Seismic Hazards Evaluation Report. Based on the groundwater evaluation, it was determined that depths to groundwater under the site ranged from 8 feet below existing grade (i.e., highest level recorded in our subsurface explorations) to approximately 12.5 feet below the existing grade. Thus, with the site's susceptibility to earthquake groundshaking and the relative high groundwater table, further development would be subject to potential liquefaction effects.

The analysis presented in the geotechnical Investigation indicates that discrete zones within the alluvial stratum below 8 to 10 feet may be subject to liquefaction during a design seismic event (i.e., 0.52g and a MCE of 6.58). Liquefaction seismic settlement calculations indicated 0.7 to 1.6 inches of settlement could occur during a design earthquake. Given the depth of the liquefiable areas as well as the flat nature of the site and adjacent area, lateral spreading is considered negligible. Given the liquefiable layer thickness relative to the non-liquefiable cap, surface effects due to liquefaction are not anticipated to significantly affect the proposed surface improvements. However, where buried utilities are deeper than 8 feet below the existing ground surface (i.e., below the currently measured groundwater table in portions of the site), uplift resulting from seismic activity may result in damage to those utilities during the design event.

4.6(a)(4) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

No Impact. Landslides typically occur along preexisting zones of weakness within bedrock (i.e., previous failure surfaces). Additionally, landslides have the potential to occur on over-steepened slopes, especially where weak layers, such as thin clay layers, are present and dip out-of-slope. Landslide potential in Buena Park is considered low due to the flat topography of the majority of the City. Although there is the potential for landslides in the Coyote Hills area due to the sloping topography, the property proposed for development of the single-family residential homes is generally flat and devoid of any natural or man-made slopes. Therefore, no potential impacts associated with landslides and slope instability will occur and no mitigation measures are required.

4.6(b) Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Clearing, excavation, and grading associated with future development and improvements proposed for the site could expose soils to substantial short-term soil erosion or loss of topsoil, since fill material of unknown origin and varying composition currently covers most of the City. Future development would be subject to compliance with the City's standards, as well as NPDES General Construction Permit requirements, including the preparation of a Stormwater Pollution Prevention Plan (SWPPP) for erosion control, grading, and soil remediation. Grading Plans prepared for proposed developments must include an approved drainage and erosion control plan to minimize the impacts from erosion and sedimentation during grading. Additionally, development sites that encompass an area of 1.0 acres or greater would be subject to compliance with the NPDES program's General Construction Permit requirements and consequently the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The Buena Park Municipal Code section 13.32.060 specifies that each discharger identified in an individual NPDES permit shall comply with and undertake all activities required by such permit. The SWPPP prepared for the proposed projects would identify Best Management Practices (BMPs) for control erosion and pollutant transport. Additionally, the City has incorporated into the proposed General Plan Update Policies and Implementation Measures, which are intended to improve water quality resulting from storm and urban runoff from existing and future development. Less than significant impacts involving soil erosion would occur with implementation of the proposed General Plan Update, following compliance with the NPDES requirements and General Plan Update Policies and Implementation Measures specified in the General Plan Update EIR. Therefore, because the proposed projects would be subject to compliance with the City's standards, as well as NPDES General Construction Permit (i.e., SWPPP) requirements for erosion control, grading, applicable soil remediation, including compliance with the incorporation of measures prescribed in the General Plan Update EIR, project-related impacts are anticipated to be less than significant.

4.6(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in an on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant with Mitigation Incorporated. Due to the high susceptibility of liquefaction in the City, the potential similarly exists for lateral spreading that may adversely affect future residential development proposed on the Dickerson Elementary School site. In addition, the subject property is located in an area of the City that is subject to the potential for moderate differential settlement.

The site is underlain by undocumented fills ranging from approximately 6 inches to 5 feet thick across the site. In general, the deeper fill depths appear to be in the southeast section of the site in the area of the existing buildings. These materials are considered to be potentially disturbed and, therefore, significantly compressible and subject to hydro-collapse. The alluvial soils below the undocumented fills are generally disturbed, and significantly loose and/or porous to a depth of approximately 5 feet below existing grade. (i.e., where existing fills are 5 feet deep, the underlying alluvial soils are generally competent). Based on the above, all soils within the upper 5 feet are subject to potentially significant compressibility and hydro-collapse characteristics

4.6(d) Be located on expansive soil, as defined in Table 18-1-B of the California Building Code (2001), creating substantial risks to life or property?

Less than Significant Impact. The subject property is located in the southern limits of the City of Buena Park. Although the analysis presented in the City's General Plan Update EIR indicated that the site is located in an area of the City that is not subject to expansive soils, plasticity and expansion index tests conducted at the site indicate a low to low-medium expansion potential. However, following corrective grading, a low to low-medium expansion potential is anticipated (i.e., 40 to 60). Less than significant impacts involving the exposure of people and structures to potential substantial adverse effects involving unstable geologic units and expansive soils would occur with implementation of the proposed corrective grading, and compliance with the CBC, Buena Park Municipal Code, and applicable General Plan Update policies and implementation measures. As a result,

potential effect of expansive soils on future development of the single-family residential subdivision would be less than significant.

4.6(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The subject property and environs are currently served by a sanitary sewer system. Sewer facilities, which are located in the adjacent streets, will continue to serve the proposed single-family residential development. Raw sewage generated on two the site by the proposed uses will continue to be collected and conveyed by the existing sanitary sewage collection and conveyance system and not a septic system or other alternative means of collecting and treating raw sewage. As a result, potential impacts associated with a septic system are not anticipated and no mitigation measures are required.

Cumulative Impacts

Project implementation will not result in any significant cumulative impacts associated with site soils or geology because the project will be designed to meet current CBC and City Building Code requirements to ensure that loss of property and life is minimized. In addition, mitigation measures have also been prescribed to ensure that no significant cumulative loss of property and/or lives will occur. Therefore, cumulative impacts are anticipated to be less than significant.

Standard Conditions

SC 4.6-1 The project shall comply with all applicable City Building Code requirements as well as those prescribed in the California Building Code (CBC).

SC 4.6-2 All activities associated with the implementation of the proposed Dickerson School Residential Project shall comply with Section 15.86 (Grading and Excavation Code) and Section 15.56 (Building Code) of the Buena Park Municipal Code and all other applicable development requirements prescribed by the City.

Mitigation Measures

MM 4.6-1 The project applicant shall implement the recommendations prescribed in the Geotechnical Investigation prepared by GMU, including those for: (1) site preparation and grading; (2) fill material and placement; (3) sub-drains; (4) temporary excavation; (5) foundation design; (6) utility trench construction and backfill; (7) pavement design; (8) surface drainage; and (9) other recommendations.

4.7 GREENHOUSE GAS EMISSIONS

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			■	
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			■	

As previously indicated, an air quality and GHG analysis was prepared by Giroux & Associates to evaluate the potential air quality impacts of the proposed project. The analysis in the following sections focuses on the potential short- and long-term air quality impacts of the proposed Lyon Residential Development Project related to potential GHG impacts and mitigation as needed. The air quality and GHG analysis is included in Appendix A; the findings and recommendations of that analysis are summarized below.

Impact Analysis

4.7(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. "Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, over the next 13 years (by 2020).
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources and indirect sources. Direct sources include combustion emissions from the project. Indirect sources include off-site electricity generation and emissions associated with but not directly caused by the project.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the Working Group released revisions which recommended a threshold of 3,500 MT CO_2e for residential type projects. This 3,500 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

Construction Emissions

During project construction, the construction activities will generate the annual $CO_2(e)$ emissions identified in Table 4.7-1. Because the SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime, the amortized annual total is also presented. Based on the threshold of 3,500 MT/year recommended the SCAQMD, the construction impacts will be less than significant.

Table 4.7-1
Project Construction-Related Emissions
Lyon Development Residential Project

Year	Emissions ($MTCO_2e$)
2015	389.0
2016	38.3
Total	**427.4**
30-Year Annual Amortized Rate	**14.3**

[1]CalEEMod Output provided in Appendix A.

SOURCE: Giroux & Associates (January 2014)

Operational Emissions

Table 4.7-2 provides operational emissions estimates associated with the proposed residential use. GHG emissions associated with the proposed project are less than the 3,500 $CO_2(e)$ residential project threshold. GHG impacts are anticipated to be less than significant based on the GHG analysis conducted for the proposed project and summarized below in Table 4.7-2.

Table 4.7-2

**Unmitigated GHG Operational Emissions
Lyon Development Residential Project**

Consumption Source	MT CO_2(e) tons/year
Area Sources	15.7
Energy Utilization	240.4
Mobile Source	852.7
Solid Waste Generation	35.8
Water Consumption	30.5
Annualized Construction	14.3
Total	**1,196.3**
Threshold	**3,500**

SOURCE: Giroux & Associates (January 2014)

4.7(b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. As indicated above, the project is consistent with the Land Use Element of the Buena Park General Plan and the zoning adopted for the site, relevant policies related to land use (refer to Table 4.10-1), and with applicable plans and/or programs related to GHG emissions quantified for the General Plan Update EIR for buildout anticipated for the City. AB 32 requires California to reduce its GHG emissions by approximately 28.5 percent below business as usual. CARB identified reduction measures to achieve this goal as set forth in the CARB Scoping Plan. The Buena Park General Plan Update includes policies that address greenhouse gas reduction. The applicable policies and the relationship of each to the proposed project is presented in Tab le 4.7-3. As indicated in the table, the proposed townhome project is consistent with the policies adopted b y the City to reduce GHG emissions.

Table 4.7-3

**GHG Consistency Analysis
Lyon Development Residential Project**

Policy No.	General Plan Policy	Consistency Analysis
CS-23.1	Encourage exceeding the California Title 24 energy efficiency measures, using alternative energy sources such as solar panels, providing alternative transportation vehicles with fueling stations such as electrical fueling stations, and easy access to existing public transportation nodes in future developments.	The project has been designed to incorporate the Title 24 energy conservation/efficiency measures to ensure that energy consumption is reduced.
CS-23.2	Encourage green building techniques efforts in single-family homes as well as in municipal, commercial, mixed-use, or multi-family residential projects.	The project applicant will work closely with the City to develop a sustainable design program for the project that incorporates sustainable site development, construction, and building practices.
CS-23.4	Emphasize design for water conservation as part of a project's green building efforts.	The project will comply with applicable water conservation measures, including those

Policy No.	General Plan Policy	Consistency Analysis
		prescribed in Title 24.
CS-23.5	Utilize Low Impact Design (LID) features, including infiltration of stormwater. The Use of LID should not interfere with the City's goals of infill development and appropriate densities.	The WQMP addresses LID requirements and will minimize project-related storm runoff.
CS-23.8	Require new development to incorporate measures that reduce energy use through solar orientation by taking advantage of shade, prevailing winds, landscaping, and sun screens.	The proposed project has been designed to minimize energy use. The landscape plan addresses shading and sun screening.

Cumulative Impacts

Project-related cumulative impacts will not be significant because neither the short-term (i.e., demolition, grading, and construction) emissions of GHG nor the operational GHG emission will exceed recommended significance thresholds. Furthermore, the contribution of project-related GHG emissions to the cumulative impact of global climate change is considered less than significant because of the adoption of a new low carbon fuel standard and through increased fuel efficiency as mandated in AB 32 and related programs adopted by the State of California.

Standard Conditions

No standard conditions are required.

Mitigation Measures

The City Buena Park General Plan program EIR Chapter 5, Conservation and Sustainability Element, contains policies to guide the conservation of resources that are fundamental components of Buena Park's environment. Although no significant GHG impacts will occur as a result of project implementation, the following mitigation measure is shall be implemented n to further reduce GHG emissions.

MM 4.7-1 Prior to the issuance of the demolition permit, the application shall prepare and implement a Construction Management Plan, which will include Best Available Control Measures among others. Appropriate control measures will be determined on a project by project basis, and should be specific to the pollutant for which the daily threshold is exceeded. Such control measures may include but not be limited to:

- Minimizing simultaneous operation of multiple construction equipment units.
- Implementation of SCAQMD Rule 403, Fugitive Dust Control Measures.
- Watering the construction area to minimize fugitive dust.
- Require that off-road diesel powered vehicles used for construction shall be new low emission vehicles, or use retrofit emission control devices, such as diesel oxidation catalysts and diesel particulate filters verified by CARB.
- Minimizing idling time by construction vehicles.

4.8 HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		■		
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		■		
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?		■		
d. Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and, as a result, would it create a significant hazard to the public or the environment?				■
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			■	
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				■
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			■	
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				■

A Phase I Environmental Site Assessment (ESA) was conducted by Black Rock Geosciences (April 2014) to assess whether hazardous material contamination has impacted the soil and/or groundwater underlying the Dickerson School site. The Phase I ESA was conducted in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Standard E1527-13. The Phase I ESA, which is the basis for the analysis and conclusions prepared below, is included as Appendix C.

Impact Analysis

4.8(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant with Mitigation Incorporated. Project implementation includes the development of 67 single-family residential dwelling units on the existing Dickerson Elementary School site. The existing structures, which may contain asbestos-containing materials (ACM) and lead-based paint (LBP), will be demolished in order to implement the proposed project. Without proper remediation, it is possible that ACM could be released into the environment. According to the Environmental Protection Agency (EPA), ACM that is intact and in good condition can, in general, be managed safely in-place under an Operations and Maintenance

(O&M) program until removal is dictated by renovation, demolition, or deteriorating material conditions. In addition to ACM, it is also possible that LBP may also exist within the existing structures. Similar to ACM, the release of LBP into the environmental could pose a potential health risk, given the proximity of the residential uses in the project environs. Therefore, appropriate measures have been prescribed to ensure that potential health risks associated with the release of ACM and/or LBP are reduced to a less than significant level (refer to MM 4.8-1 and MM 4.8-2).

4.8(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant with Mitigation Incorporated. The site contained agricultural fields between at least 1927 and 1952. Orchards and/or row crops are not known or suspected of having occupied the site during this period. The site was developed as the Dickerson Elementary School in the early 1960s. Due to the absence of orchards and row crops (relatively heavy users of pesticides), elevated pesticide concentrations (concentrations exceeding regulatory levels) are not suspected in the soils covering the site. Records or visible indications of potentially hazardous chemicals/petroleum hydrocarbon use at the subject site were not encountered during the site assessment conducted on the property.

With the possible exception of transformers, evidence for aboveground or underground storage tanks, clarifiers, sumps, or other potentially hazardous material storage structures was not encountered on any portion of the site. Two relatively old transformers (potentially containing oil with polychlorinated biphenyls (PCBs)) are mounted between two utility poles adjacent to the site's southeastern parking lot. A relatively newer pad-mounted transformer was located adjacent to the playground in the site's central portion. However, there was no indication of oil releases from the transformers. Nonetheless, a mitigation measure has been included for implementation to ensure that the transformer poles be properly removed and testing of the transformers for possible PCBs occur in the event Southern California Edison does not claim responsibility for the poles and transformers.

Project implementation includes the development of 67 single-family residential dwelling units on the existing Dickerson Elementary School site. Existing structures, which may contain asbestos-containing materials (ACM) and lead-based paint (LBP), will be demolished in order to implement the proposed project. As indicated above, without proper remediation, it is possible that ACM could be released into the environment; however, according to the Environmental Protection Agency (EPA), ACM that is intact and in good condition can, in general, be managed safely in-place under an Operations and Maintenance (O&M) program until removal is dictated by renovation, demolition, or deteriorating material conditions. In addition to ACM, it is also possible that LBP may also exist within the structures on the school site. Similar to ACM, the release of LBP into the environmental could pose a potential health risk, given the proximity of the residential uses in the project environs. Therefore, prior to any disturbance of the structures and construction materials within the project site, a comprehensive ACM and LBP survey shall be conducted and appropriate measures prescribed to ensure that no release of either ACM or LBP occurs, including during remediation and transport and disposal of those materials. Remediation shall comply with all applicable regulatory requirements. Air emissions of asbestos fibers and leaded dust would be reduced to below a level of significance through compliance with existing federal, state, and local regulatory requirements and implementation of the mitigation measures prescribed below.

With the possible exception of ACM and LBP and the transformer poles discussed above, no other hazardous conditions are known to exist on either project site. No hazardous materials or other hazardous conditions either exist on the site or would be created by future development and/or improvements that would expose the public to a significant hazard. Potential impacts would be less than significant and no other mitigation measures are required.

4.8(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less than Significant with Mitigation Incorporated. Two schools are located within one-quarter mile of the subject property. Cypress Elementary School is located approximately one-quarter mile to the southeast on West Cerritos Avenue, west of Holder Street and Cypress High School is located about one-eighth mile to the northwest on Valley View Street north of Montecito Drive. In addition, Cypress College is located approximately one-half mile north of the project site. In addition, hazardous materials could be also used during construction of non-residential uses within the City, including the use of standard construction materials (e.g., paints, solvents, and fuels), cleaning and other maintenance products (used in the maintenance of pumps, pipes, and equipment), and diesel and other fuels (used in construction and maintenance equipment and vehicles). Particulates and construction-related emissions that would be generated as well as the use of other construction materials could affect the area in the project environs, including the two nearby schools. However, such emissions would be reduced to less than significant levels through the implementation of the standard conditions prescribed by the SCAQMD and mitigation measures; these emissions would cease upon completion of the construction activities. As indicated in Section 4.8(a), potential emissions of ACM and LBP would also be reduced through the implementation of the requisite abatement procedures reflected in the mitigation measures. No significant impacts would remain.

4.8(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. Environmental Data Resources, Inc. (EDR) conducted a search of available environmental records for the site and properties up to 1 mile away from the site. The search met the specific requirements of ASTM Standard Practice for Environmental Site Assessments (E1527-13), including those associated with government databases, search distances, and data currency. Based on that review, the Dickerson Elementary School site is not listed and no hazardous conditions are known to exist on the site. National Priority List (NPL) sites (large-scale releases of hazardous materials) have not been reported within 1 mile of the site. In addition, there are no regulatory listed properties within 1 mile of the site that are considered as having the potential to impact the soil and/or groundwater underlying the site.

There are nine properties listed within 1 mile of the site that have, or have the potential to release hazardous materials into the subsurface soil and/or groundwater. One of these properties is located upgradient (east to east-southeast) of the site. Hazardous materials released at up-gradient properties would, due to their location, have the greatest potential to impact the soil and/or groundwater beneath the site. Impacted groundwater beneath these properties would be anticipated to migrate into or toward the subject site. The Jiffy Lube formerly located at 6427 Ball Road was listed in seven databases as a result of being a small-quantity generator of potentially hazardous materials (type not listed; assumed to be waste oil, antifreeze, and other automotive liquids). It is also reported as having contained three underground storage tanks (reported as 1,000-gallon petroleum, 600-gallon motor vehicle fuel, and 285-gallon motor vehicle fuel). These tanks were reported as having been installed between 1985 and 1988. Releases have not been reported from these tanks. Due to the distance to this property (270 feet), absence of reported releases, and the subsequent removal of this facility (currently a residential development), the potentially hazardous materials formerly generated and stored at this property are not considered a threat to the soil and/or groundwater underlying the site. The remaining properties listed in EDR's report are located across or down gradient of the site.

Hazardous materials released at these properties would be anticipated to migrate toward the west to west-northwest, or away from the site. Eight properties are listed in the "Orphan Summary" of EDR's report. Such properties could not be geocoded by EDR because location information supplied by the regulatory agencies was insufficient to allow EDR to geocode the facility locations. However, based on a review of the addresses provided for the orphan properties, none are located within one mile and potentially up-gradient of the site. Based on a review of the properties listed in the environmental databases searched, none are considered to

have the potential to impact the soil and/or groundwater underlying the subject site. No significant impacts will occur and no mitigation measures are required.

A list of properties regulated by the Orange County Health Care Agency (OCHCA) was obtained from their online source (http://ochealthinfo.com/eh/home/reports) and reviewed for site listings or listings of near-vicinity properties. The site was not listed within any of the OCHCA databases. In addition, there were no properties within the immediate site vicinity listed in the OCHCA database.

Records from the Regional Water Quality Control Board (RWQCB) were searched via their online search program at http://geotracker.swrcb.ca.gov. The RWQCB database search revealed that six properties located up-gradient (east to east-southeast) and within 1 mile of the site are reported as having released gasoline, diesel, waste oil, or solvents into the underlying soil and groundwater.

- Minit Lube at 3524 W. Ball Road (approximately 3,070 feet from the site)
- Unocal Service Station No. 4781 at 3501 W. Ball Road (approximately 3,250 feet from the site)
- World Oil Service Station at 3450 W. Ball Road (approximately 3,500 feet from the site)
- Mister Best Dry Cleaners at 1211 Knott Avenue (approximately 3,650 feet from the site)
- Anaheim General Hospital at 3350 W. Ball Road (approximately 4,350 feet from the site)
- Savanna School District at 1330 S. Knott Avenue (approximately 3600 feet from the site)

However, each of these cases has been closed, indicating that the potential contaminants have been successfully remediated. Due to the status of these cases (closed) and their distance to the site (between 0.5 and 1.0 mile), the contaminants released at these properties are not considered a potential threat to the soil and/or groundwater underlying the site.

Records from the Department of Toxic Substances Control (DTSC) were searched via their online search program at http://www.envirostor.dtsc.ca.gov/public. A search of this database revealed no properties listed within one mile and hydraulically upgradient of the site. Records from the South Coast Air Quality Management District (AQMD) were searched via their on-line search program at http://www.aqmd.gov. Based on the records searched, the AQMD has not issued permits for the site or any of the properties within the immediate site vicinity.

Based on a review of properties within the site vicinity and data made available during the Phase I ESA there is a relatively low potential that contaminants from offsite properties have migrated to the subject site and have impacted the underlying soil and/or groundwater. Thus, no significant impacts would occur and no mitigation measures are required.

4.8(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Less than Significant Impact. Fullerton Airport, located approximately five miles northeast of the site, is the nearest public airport to the subject property. The subject property is not located within the Airport Environs Land Use Plan (AELUP) for Fullerton Municipal Airport and the site is not subject to either noise or safety hazards associated with aviation activities associated with that facility. However, Joint Forces Training Base (JFTB) Los Alamitos is located approximately two miles to the southwest. Crash hazard areas and building height restrictions have been identified for each airport. New residential or non-residential development within the AELUP's planning areas could result in a safety hazard. The Clear Zones for JFTB are located entirely within the boundaries of the JFTB, and the AELUP does not identify any off-base Accident Potential Zones. However, portions of the City of Buena Park, including the project site, are located within the FAR Part 77 Notification Areas for JFTB. Additionally, the site is also located within the Obstruction Imaginary Surfaces Area for JFTB. FAR Part 77 "Objects Affecting Navigable Airspace" describe the ultimate height of structures under the imaginary surfaces. In addition to the imaginary surfaces, other FAR standards along with the results of any required FAA aeronautical studies, help determine if a structure is an "obstruction."

According to the AELUP for JFTB, buildings that rise to the height of the Horizontal Surface (150 feet above ground level) would violate the established approach criteria for the primary runway at JFTB. The project is evaluated for compliance with the AELUP policies involving Accident Potential Zones and Building Height. Based on the information provided by the ALUC planning staff,[4] the Part 77 Notification Surface would be penetrated at 119 feet above mean sea level (amsl) and the Obstruction Surface would be penetrated at 205.8 feet amsl. The ground level elevation in the project area is approximately 50 feet. With a maximum building height of 35 feet, the proposed project maximum elevation would be approximately 85 feet amsl, which is below both the Notification Surface and the Obstruction surface for JFTB. No significant impacts are anticipated and no mitigation measures are required. As a result, implementation of the proposed project is not subject to either FAA Part 77 Notification or ALUC review.

4.8(f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. As indicated above two airports are located in northern and central Orange County; however, no private airstrips are located within the project environs. Future development as proposed would not be subject to any safety hazards associated with operations at a private airstrip. No significant impacts will occur and no mitigation measures are required.

4.8(g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Buena Park is a member of the Orange County Fire Authority Joint Powers Authority. The Orange County Fire Authority (OCFA) provides fire protection and emergency medical services response to the City. Services include structural fire protection, emergency medical and rescue services, hazardous inspections and response, fire prevention planning and inspection, and public education activities. OCFA also participates in disaster planning as it relates to emergency operations, which includes high occupant areas and school sites and may participate in community disaster drills planned by others. The Buena Park Police Department provides police protection services to the City. The Department operates one station on 6640 Beach Boulevard, which is open 24 hours a day, seven days a week, 365 days a year. Based on the anticipated need for additional staff and space, the City constructed a new police headquarters building, completed in December 2009.

The City of Buena Park also an Emergency Operations Plan in November 2007. The Plan is intended to provide a comprehensive emergency management program for the City. It identifies who does what, when, where, and how in order to mitigate, prepare for, respond to, and recover from the effects of natural disaster, technological accidents, nuclear incidents, and other major incidents/hazards. Although the project proposes uses that were not anticipated when the City's General Plan was adopted in 2010, the addition of residential development and a park in an area that is currently developed with similar uses will not adversely affect the effectiveness of the Emergency Operations Plan. Furthermore, the project would not result in any significant changes to circulation that would adversely affect emergency evacuation routes. No significant impacts are anticipated and no mitigation measures are required.

4.8(h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. The subject property is located neither within nor adjacent to a designated wildland area and would not, therefore, be exposed to the potential for wildland fire. As indicated above, the OCFA provides fire protection and would respond to fire and/or emergency situations occurring in the project area, including the subject site. No significant wildland fire impacts would occur and no mitigation measures are required.

[4]Lea Choum, Land Use Manager, Airport Land Use Commission; email dated January 6, 2015.

Cumulative Impacts

Implementation of the mitigation measures will ensure that any potential hazard is eliminated or reduced to a less than significant level, which will also eliminate the potential for cumulative hazards to occur. Furthermore, project implementation does not include any feature that would be considered a hazard or create hazardous conditions. As a result, no cumulative impacts will occur.

Standard Conditions

No standard conditions are required.

Mitigation Measures

MM 4.8-1 Prior to the issuance of a demolition permit, an asbestos survey shall be conducted at each of the onsite building structures (except the childcare building and portable classroom buildings) prior to any school redevelopment or demolition. The asbestos survey must be overseen by a California-Certified Asbestos Consultant. The results of this survey should provide a description of the asbestos-containing materials, their locations, estimated quantity, and recommendations for removal, containment, and off-site transportation and disposal.

MM 4.8-2 Prior to issuance of a demolition permit, onsite building structures (with the exception of the childcare building and portable classroom buildings) shall be assessed for the possible presence of lead-based paint. This study must be conducted by trained and/or licensed professionals. The results of this study should provide a description of the lead-based paint locations, estimated quantity, and recommendations for removal, containment, and off-site transportation and disposal.

MM 4.8-3 In the event that Southern California Edison does not claim responsibility for the removal of the onsite electric transformers, the transformers will be removed during construction and tested for PCBs. If PCBs are identified, the transformers and associated fluids shall be transported offsite and disposed in accordance with local and State protocol.

MM 4.8-4 Soil excavations conducted during any property redevelopment shall be monitored by the construction contractor for visible soil staining, odor, and the possible presence of unknown hazardous-material sources, such as buried 55-gallon drums (although not anticipated). If hazardous materials contamination or sources are suspected or identified, an environmental professional shall evaluate the course of action required.

4.9 HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?			■	
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned			■	

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
uses for which permits have been granted)?				
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?			■	
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?			■	
e. Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?			■	
f. Otherwise substantially degrade water quality?			■	
g. Place housing within a 100-year flood hazard as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?			■	
h. Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?			■	
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			■	
j. Inundation by seiche, tsunami, or mudflow?				■

A Preliminary Water Quality Management Plan (WQMP) and hydrology analysis was prepared by Charles Hartman & Associates to evaluate the potential hydrology and water quality impacts of the proposed project and compliance with both local and regional requirement. The Preliminary WQMP is included in Appendix C; the findings and recommendations of that analysis are summarized below.

Impact Analysis

4.9(a) Violate any water quality standards or waste discharge requirements?

Less than Significant Impact. As reflected in the General Plan Update Final EIR, residential and urban development is often a significant source of storm water pollution. Development and redevelopment activities have two primary effects on water quality; they are sources of erosion and sedimentation during the construction phase and they have long-term effects on runoff once the development is complete. Residential and urban development can affect water quality in three ways, including:

- Impervious surfaces associated with development increase the rate and volume of storm water runoff, which increase downstream erosion potential;
- Urban activities generate dry-weather ("nuisance") flows, which may contain pollutants and/or may change the ephemeral nature of streams and the degradation of certain habitats; and
- Impervious surfaces increase the concentration of pollutants during wet weather flows.

The potential for negative water quality effects is generally correlated to the density of development and the amount of impervious area associated with the development. Detached residential development has the potential to generate sediments such as nutrients and organic substances (including fertilizers), pesticides (from landscape application), trash and debris (including household hazardous waste), oxygen demand, oil and grease (from driveways and roads), and bacteria and viruses.

The subject property is within a drainage area that ultimately discharges water into Anaheim Bay via the Bolsa Chica Channel and Huntington Harbor. The applicable 303(d) impairments listed in the Drainage Area Master Plan (DAMP) are summarized in Table 4.9-1

Table 4.9-1

303(d) Listed Impairments
Lyon Development Residential Project

Contaminant	Receiving Waters		
	Bolsa Chica Channel	**Huntington Harbor**	**Anaheim Bay**
Ammonia	X		
Chlordane		X	
Copper		X	
Dieldrin			X
Indicator Bacteria	X		
Lead		X	
Nickel		X	X
Pathogens		X	
PCBs		X	X
PH	X		
Sediment Toxicity		X	X

SOURCE: Conceptual Water Quality Management Plan (Revised March 3, 2015)

In general, construction of the project has the potential to produce pollutants such as nutrients, heavy metals, pesticides and herbicides, toxic chemicals related to construction and cleaning, waste materials including wash water, paints, wood, paper, concrete, food containers and sanitary wastes, fuel, and lubricants. The pollutants of concern anticipated to occur as a result of project implementation include suspended-solid/sediment, nutrients, pathogens (i.e., bacteria/virus), pesticides, oil and grease, and trash and debris. Without proper/adequate treatment, the addition of these pollutants into the environment could adversely affect both surface and groundwater. Generally, standard safety precautions for handling and storing construction materials can adequately reduce the potential pollution of stormwater by these materials.

Existing water quality regulations require that Priority Project must implement best management practices (BMPs) that infiltrate, harvest and use, and/or evapotranspire to address storm runoff; however, if such BMPs cannot be feasibly implemented for full design capture volume (DCV) for the 85th percentile, 24-hour storm event, a biotreatment system may be implemented. Infiltration BMPs are not feasible for the proposed project based on low infiltration potential and high groundwater. BMPs that are included in the proposed project include BMPs that minimize impervious areas and disconnect impervious areas. Because infiltration is not feasible, BMPs that creation of reduce or "zero discharge" areas (i.e., runoff volume reduction) are not included. Furthermore, because the project entails the redevelopment of a developed site and considered "built out," no natural areas exist on the property to conserve as "natural areas."

Low Impact Development (LID) BMPs are also required, in addition to site design measures and source controls to reduce pollutants in storm water discharges. LID BMPs are engineered facilities that are designed to retain or biotreat runoff on the project site. Hydrologic source control BMPs that will be implemented include impervious area dispersion (e.g., roof top disconnection) and the use of street trees (i.e., canopy interception) within the open space/park area and street parkways within the project site. Also, within these areas, the sidewalks and associated hardscape areas will drain to adjacent landscaping. However, the full design capture volume is proposed to be treated with LID BMPs. Other BMPs that will be incorporated into the project design include biotreatment BMPs and underground detention. Biotreatment BMPs are proposed that utilize evapotranspiration as physical process for runoff volume reduction.

Biotreatment BMPs reduce storm water volume top the maximum extent practicable (MEP), treat storm water using a suite of treatment mechanisms characteristic of biologically active systems, and discharge water to the downstream storm drain system or directly to receiving waters. The primary BMPs proposed for the project include proprietary Bioretention Units (Modular Wetlands or equivalent), which were selected based on their ability to treat the project's pollutants of concerns to a medium or high effectiveness, in accordance with the Model WQMP requirements. Table 4.9-2 summarizes the treatment effectiveness of bioretention systems and modular wetlands proprietary bioretention units.

Table 4.9-2

Pollutants of concern and Performance Ratings
Lyon Development Residential Project

Pollutant of Concern	Treatment Effectiveness	
	Bioretention Systems	**Modular Wetlands Proprietary Bioretention Units**
Oil and Grease	High	High
Trash and Debris	High	High
Oxygen Demanding Substances	N/A	N/A
Toxic Organic Compounds	Medium	N/A
Primary Pollutant of Concern (303(d) listed impairments and TMDLs)		
Suspended Solids/Sediments	High	High
Nutrients	Low	Medium-High
Metals	High	High
Pathogens/Bacteria	Medium	Medium-High
Pesticides	N/A	N/A
SOURCE: Conceptual Water Quality Management Plan (Revised March 3, 2015)		

A proprietary biotreatment system selected for implementation (Modular Wetlands units) is one that utilizes multi-stage treatment processes, including screening media filtration, settling, and biofiltration.

An underground detention system with outlet controls is also proposed as a hydromodification control BMP, which will limit post-development flow to pre-development flow as required by the hydrologic conditions of concern (HCOC) criteria. In addition, detention of the flow will increase the post-development time of concentration as required by the HCOC criteria.

The Conceptual Water Quality Management Plan (WQMP) prepared for the proposed Dickerson School Residential Development project includes a variety of BMPs, including non-structural and structural features to minimize potential pollutants entering the storm runoff generated by the proposed project (refer to Exhibit 4.9-1).

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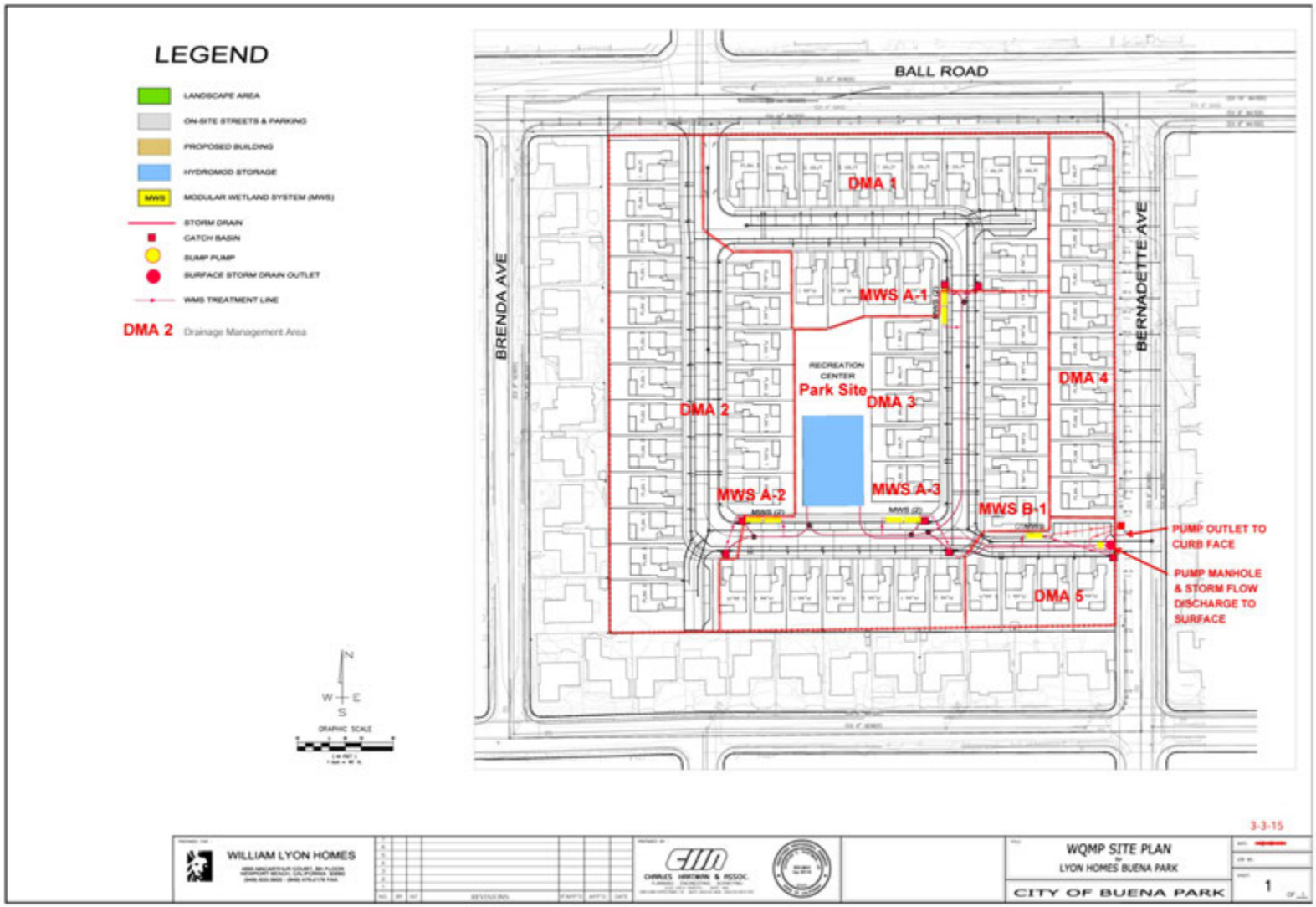

Exhibit 4.9-1
Conceptual WQMP BMPs

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Non-Structural BMPs

As indicated in Table 4.9-3 BMP Nos. N5, N6, N7, N8, N9, N10, N13 and N16 are not included with the non-structural category because the proposed project does not include the facilities referenced in those BMPs. Each of the categories of the non-structural BMPs that are applicable to the proposed project and that will be implemented are described in greater detail in the Conceptual WQMP, which is available for review at the City of Buena Park.

Table 4.9-3

Routine Non-Structural BMPs
Lyon Development Residential Project

BMP No.	Name	Incl.	N/A
N1	Education for Property Owners, Tenants and Occupants	X	
N2	Activity Restrictions	X	
N3	Common Area Landscape Management	X	
N4	BMP Maintenance	X	
N5	Title 22 CCR Compliance (how development will comply)		X
N6	Local Industrial Permit Compliance		X
N7	Spill Contingency		X
M8	Underground Storage Tank Compliance		X
N9	Hazardous Materials Disclosure Compliance		X
N10	Uniform Fire Code Implementation		X
N11	Common Area Litter Control	X	
N12	Employee Training	X	
N13	Housekeeping of Loading Docks		X
N14	Common Area Catch Basin Inspection	X	
N15	Street Sweeping Private Streets and Parking Lots	X	
N16	Retail Gasoline Outlets		X

SOURCE: C&V Consulting, Inc. (September 2013)

Structural BMPs

In addition to the non-structural BMPs identified above, the applicant will also be required to install structural BMPs through the construction and development phases of the project. The routine structural BMPs, which are included in the Conceptual WQMP and identified in Table 4.9-4, include a variety of mandated elements, including trash and waste storage, efficient irrigation systems and landscaping, and slope protection. As previously indicated, the nature and extent of each of the BMPs included in the proposed project are thoroughly described in the Conceptual WQMP, which is available for review at the City of Buena Park.

Table 4.9-4

Routine Structural BMPs
Lyon Development Residential Project

BMP No.	Name	Incl.	N/A
S1	Provide storm drain system stenciling and signage	X	
S2	Design and construct outdoor material storage areas to reduce pollution introduction		X
S3	Design and construct trash and waste storage areas to reduce pollution introduction	X	
S4	Use efficient irrigation systems and landscape design, water conservation, smart controllers, and source control	X	
S5	Protect slopes and channels and provide energy dissipation	X	
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	X	
S6	Dock areas		X
S7	Maintenance bays		X
S8	Vehicle was areas		X
S9	Outdoor processing areas		X
S10	Equipment was areas		X
S11	Fueling areas		X
S12	Hillside landscaping	X	
S13	Waste water control for food preparation		X
S14	Community car was racks		X

SOURCE: C&V Consulting, Inc. (September 2013)

With the implementation of the BMPs both during and following construction, potentially significant water quality impacts would be avoided and project-related impacts would be less than significant.

4.9(b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less than Significant Impact. The City relies on two major water supply sources, which include imported water from the Metropolitan Water District (MWD) and local groundwater from the Orange County Groundwater Basin. Although the subject property does not contribute significantly to the basin groundwater resources due to the small size and limited pervious surface area, redevelopment of the project site and the resulting increase in population would result in an ultimate increase in the demand for water supplies.

The City is expected to continue utilizing local groundwater sources as the primary source of water supply. The *Water Master Plan* projects the City will meet its 2030 water demand through the use of 15,510 acre feet per year (AFY) of groundwater and 5,170 AFY of imported water. The *Water Master Plan* estimates water demand based upon a 2030 population of 92,481 persons. The proposed General Plan Update estimates a population of 88,616 persons in 2035. The population growth assumed under the proposed General Plan Update is less than the population projections used to determine the availability of adequate water supply for the City within the *Water Master Plan*. However, it should be noted that water sources identified as available in the *Water Master Plan*, are not the same water sources that are available currently, or anticipated to be available in the future. As a result of the drought (both actual and regulatory), the groundwater basin is in overdraft. The State is mandating a 20 percent reduction in water use by 2020. Buena Park is currently in a stage 1 water shortage.

Drought conditions in southern California directly affect groundwater recharge and groundwater supplies. The City has identified the protection and conservation of its existing and future water resources within the proposed General Plan Update goals, policies, and implementation measures. Policies in the proposed General Plan Update require the provision of adequate water supply (Policies CF-4.2 and CF4.4) and encourage conservation measures, including examining the use of alternative water supplies, such as grey water and reclaimed water, where appropriate and feasible (Policy CF-4.10) and implementing green building techniques (Policies CS-23.2 through 23.5). Conservation measures would help to reduce the amount of water used, resulting in a reduction in the need for groundwater supplies. Compliance with Federal and State requirements, the City's Municipal Code, and the policies, and implementation measures included in the proposed General Plan Update would reduce impacts to groundwater resources to a less than significant level.

4.9(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?

Less than Significant Impact. No stream or river exists on either project. As previously indicated, the Dickerson Elementary School site supports several buildings, parking facilities and recreation areas. Conversion of the property to single-family residential development will result in an increase in the amount of impervious surfaces that would potentially affect surface runoff volumes. Based on the Conceptual WQMP prepared for the project, redevelopment of the site as proposed with 67 single-family residential dwelling units would result in an increase in the amount impervious surfaces on the site compared to that currently existing. At the present time, approximately half of the site is developed with impervious surfaces and the remaining half composed of grass and play areas. However, conversion of the site to a 67-unit single-family residential subdivision will result in only 24 percent of the site as pervious surfaces (e.g., landscaping and recreation/park site) while 76 percent will be impervious, resulting in a 50 percent increase in impervious surfaces.

No storm drains exist on or adjacent to the site. Under existing conditions, the entire on- and off-site area of 9.81 Acres generally sheet flows south and east to the southeastern corner of the site where it surface flows to Bernadette Avenue. Runoff from the site is discharged into Orange County Flood Control Channel C02P04 located southerly and westerly of the subject property. This flood control system ultimately discharges into Anaheim Bay via Coyote Creek and Huntington Harbour. As indicated in Section 4.9(a), a variety of BMPs have been incorporated into the project design in accordance with MS-4 requirements to ensure that surface runoff meets basin discharge standards. Specifically, the Modular Wetlands units that are proposed includes a pre-treatment chamber, which contains the first three stages of treatment, and includes a catch basin inlet filter to capture trash, debris, gross solids and sediments, a settling chamber for separating out large solids, and a media filter cartridge for capturing fine TSS, metals, nutrients, and bacteria. Runoff then flows through the wetland chamber where treatment is achieved through a variety of physical, chemical, and biological processes. As storm water passes down through the planting soil, pollutants are filtered, adsorbed, biodegraded and sequestered by the soil and plants, functioning to similar to bioretention systems. The discharge chamber at the end of the unit collects treated flows and discharges back into the storm drain system.

In addition to the BMPs prescribed in the WQMP, the Applicant will also be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) that also identifies BMPS that shall be implemented during the construction phase to avoid or reduce water quality impacts resulting from grading and construction activities.

4.9(d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?

Less than Significant Impact. As indicated above, project implementation will result in significant alteration of the existing Dickerson Elementary School site and will include in an increase in the amount of impervious coverage, which may result not only in alterations to the existing drainage patterns but also the rate and amount of surface runoff

4.9(e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant Impact. Portions of downstream flood control channels are unstable earthen lined and therefore the project is susceptible to hydrologic conditions of concern. Post development runoff for the 2-year storm event exceeds the pre development runoff by more than 5 percent. As indicated above, project implementation will result in a significant alteration to the existing site, which would cause a potential increase in both the volume and velocity of surface water from an increase in impervious surfaces. Table 4.9-5 summarizes the result of the hydrology analysis for a 2-year storm event conducted for the proposed project.

Table 4.9-5

Hydrology Analysis – 2-Year Storm Event
Lyon Development Residential Project

Storm Event	Pre-Develop. Flow (cfs)	Post-Develop. Flow (cfs)	Percent Increase	Pre-Develop. TC (min.)[1]	Post-Develop. TC (min.)[1]	Percent Increase	Pre-Develop. Volume (ac. ft.)[2]	Post-Develop. Volume (ac. ft.)[2]	Percent Increase
2-Year	5.67	7.36	29.81	23.12	17.83	-22.88	0.59	0.70	33

[1]TC - Time of Concentration (in minutes)
[2]Volume (acre feet)

SOURCE: Conceptual Water Quality Manager Plan (Revised March 3, 2015)

As indicated in Table 4.9-5, project implementation will result in an increase in surface runoff when compared to the existing storm runoff associated with the existing site that supports the elementary school. Post development surface runoff would increase by approximately 30 percent based on a 2-year storm even analyzed in the WQMP. Similarly, the post development volume would increase by about 33 percent from 0.59 acre foot to 0.70 acre foot. As a result, the hydromodification control performance criteria would be exceeded, necessitating hydromodification control.

As indicated in the Conceptual WQMP, storm drains will be constructed on-site to convey runoff to a proposed underground detention system with outlet control is proposed beneath the recreation area that is located in the central portion of the site (refer to Exhibit 4.9-1). Low impact development (LID) treatment will be accomplished by Modular Wetland units located at four locations adjacent to proposed catch basins. Treatment flow will be directed to the Modular Wetland units via a diverter located within each catch basin and the treated LID discharge will enter the storm drain system.

The detention system will limit post-development flow to pre-development flow as required by the HCOC criteria. In addition, detention of the flow will increase the post-development time of concentration as required by the HCOC criteria. The storage chamber pump will be sized to release the post-development flow at a rate equal to or less than the pre-development flow. The pump will be controlled by a float switch that will activate the pump when a specified level is reached within the storage chamber. The delay in pump activation during filling of the chamber will increase the time of concentration of the released flow to meet the HCOC criteria. Implementation and operation of the detention system and related facilities will ensure that no significant impacts would occur. No mitigation measures are required.

4.9(f) Otherwise substantially degrade water quality?

Less than Significant Impact. Although conversion of the existing Dickerson Elementary School as proposed will not result in any unique or unusual water quality impacts, site preparation, grading and construction could result in some erosion potential and the potential for a discharge of silt and other pollutants associated with the proposed development into the surface waters. However, it will be necessary to prepare a Storm Water Pollution Prevention Plan, Water Quality Management Plan and related Best Management Practices, which will be implemented to ensure that water quality impacts are minimized. As previously indicated, the Conceptual WQMP has identified several BMPs, including bioretention and proprietary biotreatment of the surface runoff that are intended to treat the post-development surface flows prior to their discharge into the receiving waters. The treated flows will not exceed the pollutant loads adopted for the basin. As a result, project-related impacts will be less than significant; no mitigation measures are required.

4.9(g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Less than Significant Impact. Although the subject property as well as the southern limits of the City of Buena Park are located with an area defined as subject to flooding during a 500-year storm, no portion of the project site or environs is located within a 100-year flood zone as identified on the Flood Insurance Rate Map (FIRM) for the City of Buena Park. The proposed project includes the development of 67 single-family residential dwelling units on the existing Dickerson Elementary School property. Although implementation of the project will result in construction of additional residential development, no portion of the development will be located within a 100-year flood hazard area. Therefore, no impacts are anticipated as a result of project implementation; no mitigation measures are required.

4.9(h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?

Less than Significant Impact. As indicated above, no portion of the site is located within the limits of a 100-year flood zone as designated by the Federal Emergency Management Agency (FEMA). Further, no significant increases in impervious surfaces or structures that could potentially impede or redirect flood flows will occur in a FEMA-designated 100-year flood zone as a result of project implementation. Therefore, no impacts are anticipated and no mitigation measures are required.

4.9(i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less than Significant Impact. A majority of the City is located within the dam inundation area of Prado Dam, a flood control and water conservation project constructed and operated by the U.S. Army Corps of Engineers (USACE) Los Angeles District. The dam provides flood control and water conservation storage for Orange County. The dam is located approximately 22 miles northeast of the City, on the Santa Ana River, west of the City of Corona. According to USACE dam inundation maps, in the event of dam failure, the flood wave would reach Buena Park in approximately 3.25 hours and would be approximately four feet deep. Project implementation will not expose either people or structures to flood hazards as a result of the failure of a dam or levee. The site is not subject to inundation as a result of the failure of a dam or levee because no such structure is located near the subject property that would adversely affect the site in the event of a failure. Therefore, no flooding or inundation impacts will result from implementation of the project.

As indicated in the General Plan Update Final EIR, future development is anticipated to potentially expose areas that could be inundated in the event of dam failure. The subject property currently supports an elementary school that has been closed, which will be redeveloped with 67 single-family residential dwelling units. Therefore, the proposed residential structures and future residents could be exposed to potential inundation as a result of the failure of the Prado Dam as previously described. The City's Emergency Operations Plan identifies the procedures that would be implemented in the event of dam failure or other emergencies that may

affect the City. Further, the proposed General Plan Update includes policies and implementation measures to reduce potential impacts related to flooding. The policies and implementation measures of the proposed General Plan Update and compliance with the procedures identified in the Emergency Operations Plan would reduce potential impacts involving dam inundation to a less than significant level.

4.9(j) Inundation by seiche, tsunami, or mudflow?

No Impact. A seiche involves the oscillation of a body of water in an enclosed basin, such as a reservoir, storage tank, or lake. According to the City's General Plan, no enclosed bodies of water are located in the immediate vicinity of the site; therefore, no impacts from seiches are anticipated as a result of project implementation. A tsunami, commonly referred to as a tidal wave, is a sea wave generated by submarine earthquakes, major landslides, or volcanic action. The City of Buena Park is located well inland, away from the Orange County coastline. Due to the elevation and the distance from the coastline, tsunami hazards do not exist for the project site and vicinity. Similarly, the site is essentially flat and devoid of steep slopes (either natural or manmade) that could be undermined by seismic activity or other instability to cause mudflows. Implementation of the proposed single-family residential development will not expose people or structures to seiches, tsunamis or mudflows. Therefore, no impacts will occur as a result of project implementation.

Cumulative Impacts

With the implementation of the BMPs and features proposed in the project, storm runoff will not exceed volumes prescribed for site development. In addition, surface water will be treated to ensure that pollutant loads are minimized and meet discharge requirements. Therefore, project implementation will not significantly contribute to the cumulative degradation of either storm runoff or water quality. Project-related impacts are less than significant.

Standard Conditions

SC 4.9-1 Prior to the issuance of a grading permit, the contractor shall obtain coverage under the General Construction Activity Storm Water Permit (General Construction Permit) issued by the State Water Resources Control Board (SWRCB). The contractor must also file a notice of intent (NOI) with the SWRCB. The project contractor will be required to prepare a stormwater pollution prevention plan (SWPPP) in compliance with the General Construction Permit. At a minimum, the SWPPP shall include a description of construction materials, practices, and equipment storage and maintenance; a list of pollutants likely to contact stormwater; site-specific erosion and sedimentation control practices; a list of provisions to eliminate or reduce discharge of materials to stormwater; BMPs, and an inspection and monitoring program. Implementation of the SWPPP shall begin with the commencement of construction and continue though the completion of the project. After construction is completed, the contractor is required to submit a notice of termination to the SWRCB.

Mitigation Measures

Hydrology

The project has been designed to decrease the amount of surface runoff generated on the site. Therefore, potential impacts to the existing storm drainage will be minimized by the implementation of the project designs and specifically, through the stormwater detention system that has been incorporated into the project. The proposed design will ensure that post-development peak surface flows will be reduced to below pre-development flow rates. Therefore, no significant hydrology impacts are anticipated and no mitigation measures are required.

Flooding

The subject property is located outside of the 100-year flood plain of the major drainages in Buena Park as delineated on the current FEMA flood insurance rate map. Therefore, no significant flooding impacts are anticipated and no mitigation measures are required.

Water Quality

The incorporation of BMPs prescribed in the SWPPP and WQMP will effectively reduce potential pollutants that enter the surface flows as a result of project implementation to the "maximum extent practicable," as required by the Regional Water Quality Control Board. As a result, no significant water quality impacts are anticipated and no mitigation measures are required.

As concluded in the analysis presented above, no significant impacts to either drainage/hydrology, flooding, or water quality will occur; no mitigation measures are required.

4.10 LAND USE AND PLANNING

Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Physically divide an established community?			■	
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			■	
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?				■

Impact Analysis

4.10(a) Physically divide an established community?

Less than Significant Impact. The subject property encompasses the existing Dickerson Elementary School in the southern limits of the City of Buena Park that has been declared "surplus" property by the Cypress Elementary School District. The site is bounded by Ball Road on the north, and single-family detached residential development on the east, south and west. The area north of the project site in the City of Cypress is developed with predominantly residential and commercial land uses. The applicant is proposing to demolish the existing elementary school buildings and redevelop the 9.09-acre property with 67 single-family residential dwelling units, which would be located adjacent to single-family residential on the east, west, and south. Development would occur within the limits of the subject property and would not directly affect adjacent properties. Although the redevelopment of the site would change from its present use (i.e., "surplus" school) to a residential use, project implementation would not divide or otherwise adversely affect or change and established community within which it is located. The proposed residential development does not contain any features or elements (e.g., roadways, channels, incompatible development, etc.) that would physically divide the existing residential neighborhoods in the project vicinity. The type and character of the proposed 67-unit single-family subdivision is similar to that existing on three sides of the site. Therefore, no significant impacts will occur and no mitigation measures are required.

4.10(b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Less than Significant Impact. As previously indicated, the project site is designated "Low Density Residential" on the Land Use Element of the Buena Park General Plan. Zoning adopted for the Dickerson Elementary School site is RS-6 (6,000 square feet One-Family Residential). The proposed project is entirely consistent with the Low Density Residential land use designation and the RS-6 zoning district regulations.

Table 4.10-1

Land Use and Community Design Element Consistency Analysis
Lyon Development Residential Project

Policy No.	Policy	Consistency Assessment
LU 1-1	Establish land use policies that encourage a balance of jobs and housing in Buena Park.	The proposed project is consistent with the adopted land use plan for the City of Buena, the goal of which is to ensure that a balance is achieved between land uses in the City, including jobs and housing.
LU-1.2	Ensure future development provides for a variety of commercial, industry, and housing that serve the spectrum of incomes within the region.	The project site is located in an area of the City that is developed with a variety of land uses, including single-family residential, retail commercial, transportation, recreational, and institutional land uses. Conversion of the site from an elementary school to a single-family residential subdivision will increase the City's housing stock and provide residential development within Buena Park. Future redevelopment of the site was anticipated to result in residential growth as envisioned in the General Plan Update. Thus, redevelopment of the site as proposed would not adversely affect the balance of land uses desired by the City in the General Plan and would increase the housing diversity in Buena Park as contemplated in the adopted long-range plans and programs.
LU-1.3	Establish a wide range of residential density and nonresidential intensities to encourage a wide range of development opportunities.	As indicated above, the proposed project would increase not only the number of dwelling units in the City but also the type of housing intended to serve a wide range of economic segments within Buena Park.
LU 1-4	Provide for the development of complementary land uses, such as open space, recreation, and civic/service uses for all future residential and non-residential development.	The proposed 67-unit single-family residential subdivision is consistent and compatible with the adjacent single-family residential neighborhoods. In addition, the project includes a centrally located recreation/open space area to serve the needs of the future residents. The project is also located in an area that is served by transportation and nearby commercial and institutional uses.
LU 2-1	Preserve public and private open space for active and passive recreational opportunities to enhance connectivity with neighborhoods.	Although project implementation will result in the conversion of a public school to a residential subdivision, recreational/open space has been integrated into the project design.
LU-3.1	Ensure that development activities acknowledge the protection and enhancement of quality of life in the City's neighborhoods.	The proposed project is intended to complement the land uses existing in the project area. The project has been designed to be compatible with the character of the residential development located adjacent to the site on the east, west and south. No significant noise, air quality and/or water quality impacts would occur as a result of project implementation. Where potentially significant impact may occur, adequate measures have been imposed to avoid or mitigate such impacts.
LU-3.2	Ensure environmental and fiscal impacts are evaluated to minimize impacts to the physical environment and fiscal obligations of the City.	Consistent with this policy, a thorough environmental analysis was conducted on the project, which determined that project implementation would not result in potentially significant impacts. The City will also evaluate the fiscal

Policy No.	Policy	Consistency Assessment
		impacts of the project on City services to ensure that fiscal impacts do not adversely affect the City's ability to provide adequate public services and facilities.
LU-3.3	Ensure land use decisions consider impacts to infrastructure and service needs.	The environmental analysis conducted for the proposed project confirmed that the existing infrastructure, including circulation, sewer, water and other public facilities have adequate capacity to accommodate the addition of 67 single-family residential dwelling units.
LU-4.1	Identify specific focus areas for transition and change to provide explicit policy guidance for land use, site and building design, and development in these areas.	The project is located in the extreme southern limits of the City and is not located within one of the City's "focus" areas. However, the proposed project has been designed to reflect both an appropriate land use, density, and design to achieve the character and features that complement the surrounding single-family residential neighborhood.
LU-4.2	Ensure future development addresses the reservation and enhancement of existing single-family neighborhoods when adjacent to areas of anticipated growth.	The project site is located along a high volume arterial that is characterized by single-family residential homes on three sides. As indicated previously, the proposed project has been designed to respect the single-family character in the surrounding area to ensure compatibility with the existing homes is achieved. As a result, the addition of 67 single-family residential dwelling units in the project area would not otherwise adversely affect any existing single-family residential neighborhoods directly.
LU-4.3	Promote the clustering of development adjacent to transportation facilities including amenities to encourage transportation and service nodes.	The project site is located adjacent to and in proximity to high volume arterials. As previously indicated, Ball Road, which abuts the site on the north, is a major east-west roadway for through traffic in the project area. In addition, Valley View Avenue and Knott Avenue are north-south roadways west and east of the site, respectively. Ball Road provides access to the I-605 Freeway to the west and also to the I-5 Freeway east of the site. In addition, all of these arterial roadways are served by public transportation provided by OCTA. The project site is also located near schools, commercial centers and recreation amenities.
LU-5.1	Ensure Buena Park is in compliance with applicable state and regional housing mandates.	The project proposes housing that is intended to meet the anticipated housing needs within Buena Park and consistent with the City's RHNA housing allocation.
LU-6.1	Provide for housing opportunities that address the needs of those who currently live or desire to live in Buena Park.	The proposed project will increase the housing stock in the City of Buena Park with the development of 67 single-family homes, which are intended to serve residents within the City as well as those desiring to live Buena Park.
LU 6-2	Preserve and enhance existing, viable single-family residential neighborhoods by prohibiting the intrusion of incompatible uses.	The applicant is proposing single-family detached residential development on a site that is surrounded by a single-family residential neighborhood. The proposed residential is consistent and compatible with the surrounding residential development and will not compromise the integrity of the existing neighborhood.
LU-6.6	Provide a wide range of housing options for Buena Park residents, including owner and rental housing adjacent to jobs, shopping, and transit.	The proposed single-family homes will not only provide additional housing in Buena Park but also increase the diversity of housing stock to meet the needs of a variety of economic segments within the City. The proposed residential development is located in an area where there is shopping and public transit readily available.
LU 7-1	Maintain and enhance the character of single-family residential neighborhoods.	The proposed single-family residential subdivision has been designed to enhance the character of the project site and complement the existing neighborhood through the integration of compatible architecture, building materials and landscaping.
LU 7-2	Encourage the development of moderate- to upper-income single-family housing.	The proposed project includes 67 single-family residential homes intended to meet the City's above moderate RHNA housing allocation.
LU 7-3	Encourage home ownership.	The applicant is proposing 67 for-sale single-family residential dwelling units.
LU 13-1	Ensure necessary capital improvements are in place prior to new development or completed concurrently.	No capital improvements would be necessary in order to accommodate the proposed project. Adequate public

Policy No.	Policy	Consistency Assessment
		services and facilities exist to serve the project.
LU-14.6	Refer to the Airport Land Use Commission, for a determination of consistency with the Airport Environs Land Use Plan, any proposed development which would pierce the imaginary surfaces for the Fullerton Municipal Airport or the Joint Forces Training Base Los Alamitos, as defined in the Federal Aviation Regulation Part 77.	Fullerton Municipal Airport (FMA) is located approximately 9 miles northeast of the project site. John Wayne Airport (JWA) is located 17.5 miles southeast of the project site. The project site is not located within the FAR Part 77 Notification area of either airport.. However, the project site is located within two miles of Los Alamitos JTFB and is within the Part 77 Notification Area. Coordination with the ALUC will occur as required and, if determined necessary, a Part 77 Notification will be filed with the Federal Aviation Administration.
LLU-14.7	Building heights shall comply with FAR Part 77 Imaginary Surfaces for the Fullerton Municipal Airport or Joint Forces Training Base Los Alamitos.	As required, the project will comply with building heights and other requisite conditions of the Part 77 Notification requirements.
LU-15.1	Promote convenient and attractive pedestrian linkages across and along streets.	The project has been designed to incorporate pedestrian access both within and along the northern boundary of the project (i.e., Ball Road) that will allow pedestrian access to nearby shopping and transportation facilities.
LU-16.2	Encourage private development to incorporate City-defined sustainable principles in site development, building construction, and building systems.	The project will comply with all mandated Title 24 features and other applicable energy-saving and building code and City required features intended to achieve sustainability, including those prescribed in Chapter 15.70 (Green Building Standards Code) of the Buena Municipal Code.
LU-16.3	Utilize land use change to encourage livability, access to services, efficient use of infrastructure, and access to transportation options.	As indicated previously, the project site is located in proximity to retail and commercial land uses as well as schools, parks, and transportation facilities that serve the surrounding residential neighborhoods. In addition, the subject property is located in an area that is served by arterial streets and freeways.
LU 17-1	Encourage a variety of employment, housing, entertainment, and recreational choices to enhance the opportunities for Buena Park residents to stay within the community throughout all stages of life.	The project includes 67 for-sale single-family residential dwelling units that are intended to meet the City's housing needs and to attract future residents to Buena Park as well as appealing to existing residents of the City.
LU-21.1	Focus on improving the appearance of corridors in the City by implementing landscaping, enhanced paving, unique streetscape amenities, appropriately-scaled lighting, and placement of utility connections underground.	The project site is not located in or near any of the City's focus areas; however, the single-family residential development has been designed to integrate a variety of features, including landscaping both within and around the subject property to create the desired character that is consistent and compatible with the residential neighborhood surrounding the site. As previously indicated, the project includes interior walkways leading to the sidewalk on Ball Road to facilitate pedestrian movement. Security lighting will comply with the City's lighting requirements prescribed in Section 19.344.030 of the Buena Park Municipal Code.
LU-21.3	Support landscaping treatments that complement a comprehensive streetscape program and that maximize water conservation through plant species and irrigation techniques.	Landscaping proposed for the project includes a variety of trees, shrubs and ground covers that will not only enhance the development but also complement the character of the surrounding neighborhood and along Ball Road. The trees will provide a vertical element as well as introduce color both within and around the perimeter of the site.
L:U 23-2	Encourage the development of a variety of public gathering places, such as community centers, mixed-use plazas or courtyards, and parks and open space, which meet the needs of residents and visitors.	A centrally-located recreation/open space area has been integrated into the project design to accommodate future residents and provide a common public space for passive recreation and related uses.
LU 24-1	Promote public gathering spaces or community centers, recreational opportunities, and social programs within existing neighborhoods.	Refer to LU 23-2.
LU-25-1	Incorporate public safety considerations into community design.	Vehicular access into the project site is from Ball Road. Although this access would not be gated,, the project will also be reviewed by the Police Department to ensure that it meets all required department requirements for safety.

As indicated in Table 4.10-1, the proposed project is consistent with the applicable policies articulated in the Land Use and Community Design Element of the Buena Park General Plan. No significant conflicts with those policies will occur. As a result, no impacts are anticipated and no mitigation measures are required.

4.10(c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The Buena Park General Plan identifies the City's open space and conservation areas. However, because the area of the City in which the subject property is located is nearly completely developed, natural open space and habitat are limited in the project environs. The subject property encompasses approximately 9.09 acres that are currently developed as the Dickerson Elementary School, which was declared surplus by the Cypress School District. The site has been entirely altered in order to accommodate the educational structures and other amenities that remain on the site. As a result, no natural features and/or habitat that would support sensitive species exist on the site. In particular, neither the site nor the surrounding areas is located within a Natural Community Conservation Plan or Habitat Conservation Plan area. Therefore, project implementation will not adversely affect such a plan, sensitive habitat and/or resources. No significant impacts are anticipated as a result of project implementation.

Cumulative Impacts

As indicated above, the proposed project is consistent with the adopted long-range plans and programs for the subject property. In addition, the proposed single-family residential subdivision is consistent with the relevant land use policies adopted for residential development as reflected in Table 4.10-1. The proposed project does not exceed the maximum intensity of development currently permitted on the site and the residential dwelling units proposed on the site are consistent and compatible with the surrounding land uses in the project environs. Therefore, implementation of the proposed project will not result in any cumulative land use impacts.

Standard Conditions

No standard conditions are required.

Mitigation Measures

No significant conflicts with adopted long-range goals and/or policies of the City of Buena Park will occur. Therefore, no significant impacts will occur and no mitigation measures are required.

4.11 MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				■
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				■

Impact Analysis

4.11(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. The project site is currently developed as the Dickerson Elementary School. In addition, the area in which the site is located is largely extensively urbanized and developed with a mix of residential, commercial, and recreational development. Neither the Buena Park General Plan nor the State of California has identified the project site or environs as a potential mineral resource of Statewide or regional significance. No mineral resources are known to exist and, therefore, project implementation will not result in any significant impacts.

4.11(b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. As indicated above, the Buena Park General Plan does not identify the project environs as having potential value as a locally important mineral resource site. Project implementation (i.e., conversion of the surplus Dickerson Elementary School to a single-family residential subdivision) as proposed will not result in the loss of any locally important mineral resource site and, therefore, no significant impacts will occur.

Cumulative Impacts

As identified above, the subject property is neither designated for mineral resources either by the State of California, County of Orange, nor City of Buena Park and, furthermore, it is not known to contain such resources. As a result, no mineral resources would be lost with site development and no cumulative impacts will occur.

Standard Conditions

No standard conditions are required.

Mitigation Measures

No impacts to mineral resources will occur as a result of project implementation and no mitigation measures are required.

4.12 NOISE

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		■		
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		■		
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		■		
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		■		

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			■	
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				■

A noise analysis was prepared by Giroux & Associates to evaluate the potential noise impacts of the proposed project. The analysis in the following sections focuses on the existing conditions in the study area, the analysis methodology, thresholds of significance, the potential short- and long-term noise impacts of the proposed Lyon Residential Development Project related to sensitive receptors, and mitigation as needed. The noise analysis is included in Appendix E; the findings and recommendations of that analysis are summarized below.

Impact Analysis

4.12(a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant with Mitigation Incorporated. The project site and vicinity are located within an urban area that is developed with a variety of land uses, including single- and multiple-family residential, commercial, parks, institutional and other land uses. Ambient noise levels on the subject property and in the project environs are the result of vehicular traffic utilizing the surrounding roadways, including the Ball Road. Project implementation will increase the intensity of development above that currently existing on the Dickinson Elementary School property and would convert the existing elementary school to a residential subdivision. As a result, activities necessary to implement the project could result an increase in the ambient noise levels. Specifically, project implementation will result in the generation of additional vehicular traffic. It is anticipated that ambient noise levels in the project vicinity could increase above levels existing without the project as a result of increased traffic/circulation and on-site uses.

Because of proximity to Ball Road, homes proposed along the northern project perimeter were evaluated to ensure traffic noise exposure would be within recommended compatibility guidelines. The project traffic report calculates that in 2017, the Ball Road roadway segment adjacent to the project site is expected to carry an ADT of about 21,000 vehicles. As shown in Table 4.12-1, by 2017, the "with project" noise levels are anticipated to be as high as 71.3 dB CNEL at 50 feet from the centerline of Ball Road.

Table 4.12-1

Near Term Traffic Noise Impact Analysis[5]
Lyon Development Residential Project

Roadway Segment	Existing No Project	Existing w/Project	2017 No Project	2017 w/Project
Ball Road				
W of Valley View Street	71.4	71.4	71.5	71.6
E of Valley View Street	70.8	70.9	71.1	71.1
W of Brenda Avenue	71.0	71.1	71.2	71.3
E of Brenda Avenue	70.9	71.0	71.2	71.2
W of Bernadette Avenue	70.9	70.9	71.0	71.1
Bernadette Avenue to Holder Street	70.9	70.8	71.0	71.1
E of Holder Street	70.2	70.2	70.4	71.0
Belle Avenue				
W of Valley View Street	60.7	60.7	60.8	60.8
E of Valley View Street	57.8	57.9	57.9	58.1
W of Brenda Avenue	58.1	58.2	58.2	58.3
Brenda Avenue to Bernadette Avenue	57.8	58.0	58.0	58.1
E of Bernadette Avenue	56.3	56.3	56.4	56.4
Valley View Street				
N of Ball Road	73.8	73.8	74.0	74.0
S of Ball Road	73.7	73.8	74.0	74.0
N of Belle Avenue	73.7	73.7	73.9	74.0
S of Belle Avenue	73.6	73.7	73.9	73.9
Brenda Avenue				
S of Ball Road	57.7	57.7	57.8	57.8
N of Belle Avenue	55.8	55.8	56.0	56.0
Bernadette Avenue				
N of Ball Road	55.5	55.5	55.5	55.5
S of Ball Road	57.6	57.9	57.8	58.0
N of Belle Avenue	56.6	56.8	56.7	56.9
S of Belle	55.3	55.3	55.4	55.4
Holder Avenue				
N of Ball Road	67.2	67.3	67.4	67.4
S of Ball Road	65.8	65.9	66.0	66.0

NOTE: CNEL levels are expressed in dB at 50 feet from the roadway centerline

SOURCE: Giroux & Associates (January 2015)

The closest homes for the proposed project are approximately 65 feet from the roadway centerline. Based on that distance from the centerline of Ball Road, the noise level would diminish to 70.2 dB CNEL. Although the City of Buena Park guidelines allows exterior noise levels of up to 70 dB CNEL, a noise level of 65 dB is the level at which ambient noise begins to interfere with one's ability to carry on a normal conversation at reasonable separation without raising one's voice and is used as the guideline for this analysis. Homes proposed along the Ball Road perimeter will have rear yards backing up to that arterial roadway where noise levels would exceed 70 dB CNEL. Therefore, it is recommended that all of the homes located along Ball Road be equipped with a 6-

[5] The noise analysis utilized traffic volume data and speed limit information obtained from the traffic analysis, prepared in December, 2014, by Linscott, Law and Greenspan, for this project.

foot noise/privacy wall (refer to MM 4.12-1). Such an enclosure would provide at least -6 dB of noise attenuation and reduce exterior recreational noise exposure in yards along the Ball Road frontage to below 65 dB CNEL. With such features incorporated into the project design, the potential exterior noise impacts would be less than significant.

The interior residential noise standard is 45 dB CNEL. For typical wood-framed construction with stucco and gypsum board wall assemblies, the exterior to interior noise level reduction is as follows:

- Partly open windows – 12 dB
- Closed single-paned windows – 20 dB
- Closed dual-paned windows – 30 dB

Use of dual-paned windows is required by the California Building Code (CBC) for energy conservation in new residential construction. Interior noise standards would therefore be met with closed windows even if exterior building façade levels were as high as 75 dB CNEL. Interior standards will be met as long as residents have the option to close their windows. Where window closure is needed to shut out noise, supplemental ventilation is required by the CBC with some specified gradation of fresh air. Central air conditioning or a fresh air inlet on a whole house fan would meet this requirement.

4.12(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant with Mitigation Incorporated. Typical background vibration levels in residential areas are usually 50 VdB or lower, below the threshold of human perception. Perceptible vibration levels inside residences are typically attributed to the operation of heating and air conditioning systems, door slams or street traffic. Construction activities and street traffic are some of the most common external sources of vibration that can be perceptible inside residences.

Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernible movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the "soft" sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (FTA 2006).

Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

Vibration is most commonly expressed in terms of the root mean square (RMS) velocity of a vibrating object. RMS velocities are expressed in units of vibration decibels. The range of vibration decibels (VdB) is as follows:

- 65 VdB - threshold of human perception
- 72 VdB - annoyance due to frequent events
- 80 VdB - annoyance due to infrequent events
- 94-98 VdB - minor cosmetic damage

The Buena Park General Plan presents vibration recommendations provided by the FTA. Although this standard is more likely applicable to stationary equipment, it could probably apply to mobile equipment. The recommended threshold is 80 VdB for vibration annoyance. The threshold for structural damage such as cracked stucco is typically 100 VdB. Estimates of vibration levels induced by the construction equipment at various distances are presented in Table 4.12-2.

Table 4.12-2

**Approximate Vibration Levels Induced by Construction Equipment
Lyon Development Residential Project**

Equipment	25 Feet (VdBA)	50 Feet (VdBA)	100 Feet (VdBA)
Large Bulldozer	87	81	75
Loaded Truck	86	80	74
Jackhammer	79	73	67
Small Bulldozer	58	52	46

SOURCE: Giroux & Associates (January 2015)
FTA Transit Noise & Vibration Assessment, Chapter 12, Construction, 2006

As indicated in Table 4.12-2, the on-site construction equipment that will create the maximum potential vibration is a large bulldozer. The stated vibration source level in the FTA Handbook for such equipment is 81 VdBA at 50 feet from the source. With typical vibrational energy spreading loss, the vibration annoyance standard of 0.01 inch per second is met at 56 feet. Although effects of vibration perception such as rattling windows could only occur at the nearest residential structures, vibration resulting from project construction would not exceed cosmetic damage thresholds. Regardless, large bulldozers will not likely operate directly at the shared property line with the southern or western perimeter homes. Any fine grading at the property line would be performed with small bulldozers which are seen above to have 30 VdB less vibration potential. Nevertheless, to ensure adequate vibration protection only small bulldozers will be permitted to operate within 56 feet of the nearest residences as prescribed in MM 4.12-1. As a result, construction activity vibration impacts would be less than significant.

Although grading and construction of the site would employ heavy equipment, significant groundborne vibration impacts are not anticipated because pile driving and/or similar activities that typically generate vibration impacts would not be utilized in the construction of the proposed project.

4.12(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant with Mitigation Incorporated. As indicated previously, it is anticipated that ambient noise levels in the project vicinity could increase as a result of increased traffic/circulation. As a result, long-term noise concerns from the development of residential uses at the project site center primarily on mobile source noise emissions on project area roadways as reflected in Table 4.12-1, which summarizes the calculated 24-hour CNEL level at 50 feet from the roadway centerline along 24 project area roadway segments. Refer to the discussion and analysis in Section 4.12(a).

4.12(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant with Mitigation Incorporated. Construction noise represents a short-term impact on ambient noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers and portable generators can reach high noise levels. Grading and construction activities associated with project implementation will result in an increase in short-term noise levels in the vicinity of the site, which may potentially impact sensitive receptors (i.e. humans) located in the vicinity of the property. In particular, residential development exists along the eastern and northern property boundaries. Temporary construction noise impacts will vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used and its activity level. Short-term construction noise impacts tend to occur in discrete phases dominated initially by demolition activities, then foundation work followed by construction and paving activities.

Demolition or construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used which changes during the course of the project. Construction noise tends to occur in discrete phases dominated initially by demolition and/or earth-moving sources and later for finish construction. Figure 2 shows the typical range of construction activity noise generation as a function of equipment used in various building phases. The earth-moving sources are seen to be the noisiest with equipment noise ranging up to about 90 dB(A) at 50 feet from the source. Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance, or about 20 dB in 500 feet of propagation. The loudest earth-moving noise sources may, therefore, sometimes be detectable above the local background beyond 1,000 feet from the construction area. An impact radius of 1,000 feet or more pre-supposes a clear line-of-sight and no other machinery or equipment noise that would mask project construction noise. With buildings and other barriers to interrupt line-of-sight conditions, the potential "noise envelope" around individual construction sites is reduced. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions.

Construction noise exposure can be further worsened when several pieces of equipment operate in close proximity. Because of the logarithmic nature of decibel addition, two equally loud pieces of equipment will be +3 dB louder than either one individually. Three simultaneous sources are +5 dB louder than any single source. Thus, while average operational equipment noise levels are perhaps 5 dB less than at peak power, simultaneous equipment operation can still yield an apparent noise strength equal to any individual source at peak noise output. Whereas the average heavy equipment reference noise level is 85 dB(A), short-term levels from either peak power or from several pieces operating in close proximity can be as high as 90 dB(A).

During most intensive heavy equipment operations, the peak hourly average noise level from several pieces of equipment in simultaneous hourly operation is 85 dB Leq at 50 feet from the activity. Even with closed windows at an adjacent residence, such levels could interfere with quiet interior residential activity.

There are existing residences located slightly greater than 50 feet west and south of the project site which could experience a temporary construction noise nuisance. Without a construction noise mitigation plan that outlines measures to minimize potential construction noise, short-term noise impacts associated with construction activities could be potentially significant. Therefore such a mitigation plan will be developed and implemented for activity occurring within 200 feet of these residences. The use of smaller equipment and notification of potentially affected residents of the duration of adjacent heavy equipment operations can reduce construction noise.

4.12(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than Significant Impact. As previously discussed (refer to Section 4.8(e)), the southwestern corner of the site is located within the 60 dB CNEL noise contour associated with Los Alamitos JFTB, which is located approximately one mile southwest of the project area. Based on the information presented in the AELUP, the project site is located at the extreme northeastern limits of the noise impact zones identified for the JFTB. Noise levels associated with aircraft operations would be expected to be 60 dBA CNEL in the project environs. According to the AELUP, residential development is conditionally compatible. It is anticipated that typical construction would result in a 20 to 25 dBA reduction in exterior noise, which would result in interior noise levels would be 45 dBA CNEL or less. As a result, no significant noise impacts associated with aviation activities at the JFTB would occur and no mitigation measures would be required. Fullerton Municipal Airport is located approximately five miles northeast of the subject property; however, noise associated with aviation operations occurring at that facility does not extend to the project area.

4.12(f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. No private airstrips are located within the project environs. Future development as proposed would not be subject to any excessive levels associated with operations at a private airstrip. No significant impacts will occur and no mitigation measures are required.

Cumulative Impacts

Potential project-related noise impacts will not result in any potentially significant cumulative impacts. As indicated above, construction-related noise impacts are short-term and would cease upon completion of construction. In addition, construction activities that are the source of the noise are limited to those hours stipulated in the City's Noise Control Ordinance. Similarly, operational noise impacts caused by project-related traffic would be less than significant. The cumulative analysis presented in Table 4.12-3 compares "2017 with project" to "existing" conditions. The largest cumulative impact is +0.7 dB CNEL and is on Ball Road west of Bernadette Avenue, adjacent to the project site. This increase in project-related noise is less than the +3.0 dB significance threshold. Thus, potential cumulative impacts are determined to be less than significant.

Table 4.12-3

Project Only and Cumulative Impacts[1]
Lyon Development Residential Project

Road Segment	Project Only Existing	Project Only 2017	Cumulative
Ball Road			
W of Valley View Street	0.0	0.0	0.2
E of Valley View Street	0.1	0.1	0.3
W of Brenda Avenue	0.1	0.1	0.3
E of Brenda Avenue	0.1	0.1	0.3
W of Bernadette Avenue	0.3	0.3	0.7
Bernadette Avenue to Holder Street	0.0	0.1	0.2
E of Holder Street	0.0	0.0	0.3
Belle Avenue			
W of Valley View Street	0.0	0.0	0.1
E of Valley View Street	0.1	0.1	0.3
W of Brenda Avenue	0.1	0.1	0.2
Brenda Avenue to Bernadette Avenue	0.1	0.1	0.3
E of Bernadette Avenue	0.0	0.0	0.1
Valley View Street			
N of Ball	0.0	0.0	0.3
S of Ball	0.0	0.0	0.3
N of Belle	0.0	0.0	0.3
S of Belle	0.0	0.0	0.3
Brenda Avenue			
S of Ball	0.0	0.0	0.1
N of Belle	0.0	0.0	0.1
Bernadette Avenue			
N of Ball	0.0	0.0	0.1
S of Ball	0.3	0.3	0.4
N of Belle	0.2	0.2	0.3
S of Belle	0.0	0.0	0.1

Road Segment	Project Only Existing	Project Only 2017	Cumulative
Holder Avenue			
N of Ball	0.0	0.0	0.2
S of Ball	0.0	0.0	0.2

[1]CNEL in dB at 50 feet from Centerline

SOURCE: Giroux & Associates (January 2013)

Standard Conditions

SC 4.12-1 In accordance with Section 8.28.010 of the Buena Park Municipal Code that regulates construction hours, noise sources associated with construction, repair, remodeling, or grading of any real property shall not occur between the hours of 8:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a Federal holiday.

Mitigation Measures

MM 4.12-1 For all perimeter units proposed along the Ball Road frontage, a 6-foot solid noise wall, constructed along the site frontage of that arterial roadway, shall be constructed to provide 6 dB of noise protection. A 15-foot long return will be required along the side yards of Lots 1 and 67 at the site entrance to prevent noise leakage to ensure that recreational users in the rear yards of units backing up to Ball Road will achieve 65 dB CNEL even at buildout.

MM 4.12-2 During construction, only small bulldozers shall be permitted to operate within 56 feet of the nearest residences. In addition, the following construction practices shall be employed:

- Stockpiling and staging activities must be located as far as practicable from dwellings.
- All mobile equipment shall have properly operating and maintained mufflers.

MM 4.12-3 Prior to the issuance of a grading permit, the applicant shall prepare and submit a construction noise mitigation plan that includes measures that will reduce construction noise where construction activity occurs within 200 feet of existing homes. The plan shall include but not be limited to the use of smaller construction equipment and notification of potentially affected residents and duration of adjacent activities when heavy equipment will be used.

4.13 POPULATION AND HOUSING

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			■	
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				■
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				■

Impact Analysis

4.13(a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than Significant Impact. The proposed project proposes development 67 single-family residential dwelling units consistent with the adopted General Plan Land Use Element designation of Low Density Residential and RS-6 zoning. Implementation of the proposed residential subdivision would not result in unplanned or unanticipated residential and/or population growth that could cause the need for expanded public services and facilities in the project area and/or the City of Buena Park. The addition of 67 single-family residential dwelling units is consistent with the City's long-range housing projections and will contribute to meeting the City's above moderate housing allocation.

4.13(b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. As previously indicated the project site supports educational several structures and amenities; no residential dwelling units exist on the site. Project implementation includes the conversion of an existing elementary school to a single-family residential subdivision. Implementation of the proposed project would not result in the elimination of any existing residential dwelling unit that would necessitate the construction of replacement housing. Therefore, no significant impacts will occur and no mitigation measures are required.

4.13(c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. As indicated above, project implementation will not result in the elimination of any existing residential dwelling units and, therefore, would not displace any residents in the City of Buena Park. The project does include the development of 67 single-family residential dwelling units that would be added to the City's inventory of housing. No significant impacts will occur and no mitigation measures are required.

Cumulative Impacts

Neither homes nor residents would be displaced as a result of project implementation. Because the proposed project is consistent with the long-range plans and policies adopted by the City of Buena Park, and because the project is located in an area of the City that is predominantly residential, no cumulative impacts will occur as a result of project implementation.

Standard Conditions

No standard conditions are required.

Mitigation Measures

No existing dwelling units will be eliminated and no residents will be displaced as a result of project implementation. Therefore, no significant impacts to population and housing; no mitigation measures are required.

4.14 PUBLIC SERVICES

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1) Fire protection?			■	
2) Police protection?			■	
3) Schools?			■	
4) Parks?			■	
5) Other public facilities?			■	

Impact Analysis

4.14(a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

4.14(a)(1) Fire protection?

Less than Significant Impact. Buena Park is a member of the Orange County Fire Authority Joint Powers Authority. The Orange County Fire Authority (OCFA) provides fire protection and emergency medical services response to the City. Services include structural fire protection, emergency medical and rescue services, hazardous inspections and response, fire prevention planning and inspection, and public education activities. OCFA also participates in disaster planning as it relates to emergency operations, which includes high occupant areas and school sites and may participate in community disaster drills planned by others. OCFA operates 61 fire stations with three stations located in the City of Buena Park. As indicated in the General Plan EIR, buildout of the City based on the updated General Plan would result in additional demands on existing fire services, as individual projects are developed and associated increases in population are realized. New developments associated with buildout would be required to comply with all applicable fire code and ordinance requirements for construction, access, water mains, fire flows, and hydrants. In addition, individual projects, including the

proposed single-family residential development, must be reviewed by the OCFA to determine the specific fire requirements applicable to the specific development and to ensure compliance with these requirements in order to ensure that staffing, response times, and/or existing service levels within the City are not adversely affected. Although the area in which the project is located is largely urbanized and developed, the proposed project represents a departure from the existing elementary school, which could affect the ability of the OCFA to provide an adequate level of service.

4.14(a)(2) Police protection?

Less than Significant Impact. The Buena Park Police Department provides police protection services to the City, operating from 6640 Beach Boulevard, 24 hours a day, seven days a week, and 365 days a year. According to the information in the Final EIR prepared for the Buena Park General Plan Update, the department currently has 233 staff members and projects to have 252 in the next 20 years.[6] This increase in staff is based on the increases in calls for service, population growth, and the City's Strategic Plan. To adequately serve the City, a new police headquarters building was constructed and opened in 2009. No additional facilities are anticipated in the future. Similar to the potential impacts identified above for fire protection, buildout of the proposed project would involve unanticipated increased growth and development as a result of the proposed General Plan Amendment necessary for the proposed single-family residential development, resulting in an increased demand for police protection services. According to the Buena Park Police Department, an increase in sworn and civilian staffing levels is anticipated. Although the exact amount of increased staffing levels that may be required is unknown at this time, future increases, including those that may be required for the proposed project, would be determined by increases in calls for service, population growth of residents and visitors, as well as consideration of the City's financial condition with regard to revenue streams to fund additional staff.

4.14(a)(3) Schools?

Less than Significant Impact. The subject property is located within the boundaries of the Cypress School District (K-6) and the Anaheim Union High School District (7-8 and 9-12). The project site is currently located within the attendance area boundaries of Frank Vessels Elementary School in the Cypress School District and Lexington Junior High School and Cypress High School in the Anaheim Union High School District. The project site is currently occupied by the Dickerson Elementary School; however, this educational facility was closed by the Cypress Elementary School District in 2009. Although it is not currently operating as an elementary school, the District does have the option of utilizing it for overflow capacity. At the present time, the school facilities are being utilized for administrative support. As indicated in the Buena Park General Plan Update EIR, buildout of the City is anticipated to result in the addition of 1,517 dwelling units citywide, which would generate up to approximately 900 new K-12 school-age children. However, because the 67 single-family residential dwelling units are not reflected in the Citywide buildout out estimates for school-age children, implementation of the proposed single-family residential project component could adversely affect school facilities. Based on student generation rates adopted by the affected districts, the proposed project would result in the approximately 40 K-12 students that would attend schools in the two districts (67 homes x 0.593 student/du).[7] Payment of the applicable developer fee adopted by each school district will ensure that potential impacts associated with the additional students will be adequate to mitigate potential impacts to school facilities. No mitigation measures are required.

4.14(a)(4) Parks?

Less than Significant Impact. The City of Buena Park Recreation, Parks and Community Services Department is responsible for maintaining the parks and recreation facilities within Buena Park. The City currently has approximately 96.1 acres of parkland. The Department operates 11 parks, including Larwin Park (which is located west of the site), one Community Recreation Center and Senior Center, one Community Gymnasium, and a community garden. The public parks range from 0.50 acres to 22.5 acres in size and are generally located within residential neighborhoods distributed throughout the City. Larwin Park supports basketball courts, play

[6]Buena Park General Plan Update Final Environmental Impact Report; SCH No. 2009111026 (Certified November 2010).
[7]Buena Park General Plan Update Final EIR; School Facilities Section, p. 5.15-5 (September 2010).

areas, a community center and restrooms. Ralph B. Clark Regional Park, located at 8800 Rosecrans Avenue, offers 105 acres of additional parkland including baseball fields, bike and hiking trails, playground, tennis courts, and volleyball courts.

The City's standard for parkland is of 3.0 acres per 1,000 persons. Based on the January 2009 population of 83,385, the City is deficient by approximately 154 acres of parkland. Due to the shortage of vacant land and the cost to purchase land, opportunities to expand existing parks and/or develop new parks within the City are limited. As previously indicated, a passive recreation area is proposed with the residential development to support the residents' recreation demands. Nonetheless, the project would be required to pay the applicable park in-lieu fee pursuant to Section 18.64.070 of the Buena Park Municipal Code to offset the project's demand for parks and recreational facilities.

The R-6 zoning requires that the project provide 200 square feet of open space for the first 20 dwelling units and 150 square feet of open space for the remaining dwelling units. Based on that requirement, the 67 single-family residential dwelling units would require the allocation of 11,050 square feet of open space within the proposed project (i.e., 4,000 square feet for the first 20 units and 7,050 square feet for the remaining 47 dwelling units). A centrally-located passive park is proposed that encompasses approximately 24,500 square feet (0.55 acre), which exceeds the open space requirement by over 13,000 square feet. Provision of the proposed open space and payment of the park fee will ensure that potential impacts to park and recreational facilities remain less than significant.

4.14(a)(5) Other public facilities?

Less than Significant Impact. The Buena Park Library District is responsible for providing library services in the City of Buena Park. The Buena Park Library is located at 7150 La Palma Avenue. As indicated previously, the proposed project would result in the generation of new students and residents within the community that could create a demand for library services. However, the potential increase in residents in the City is not anticipated to result in significant adverse impacts on the existing library services and facilities and/or other public services provided by the City due to the availability and accessibility of electronic library services, which reduce the need and demand for library facilities.

Cumulative Impacts

Project implementation would result in "in fill" development within an area of the City that is urbanized. The area in which the project is located is currently provided with adequate public services, including fire and police protection and related services. The proposed project would not substantially affect the existing level of public services provided in the area. Therefore, no significant cumulative impacts will occur.

Standard Conditions

SC 4.14-1 Prior to the issuance of any building permits, the project plans shall be subject to review and approval by the Orange County Fire Authority for compliance with all applicable OCFA standard conditions, including those for access, water supply and pressure, built-in fire protection systems, road grades and width, building materials, etc.

SC 4.14-2 Prior to the issuance of any building permits, the project plans shall be subject to review and approval by the Buena Park Police Department to ensure that it is designed in accordance with all applicable requirements of the Police Department, including but not limited to parking, security, lighting, and access.

SC 4.14-3 Prior to issuance of the building permit, the applicant shall pay the applicable developer fee pursuant to SB 50 to the Cypress School District and the Anaheim Union High School District.

SC 4.14-4 Prior to issuance of the building permit, the applicant shall pay the applicable developer fee pursuant to Section 18.64.070 of the Buena Park Municipal Code (Park and Recreation Facilities Dedications – Required When).

Mitigation Measures

No significant impacts to public services are anticipated as a result of project implementation. No mitigation measures are required.

4.15 RECREATION

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			■	
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?			■	

Impact Analysis

4.15(a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less than Significant Impact. The City of Buena Park Community Services Department, which is responsible for maintaining parks and recreation facilities in the City, offers a wide variety of recreation, sports and cultural activities, senior programs, services, and events for all age groups. The City currently has approximately 96.1 acres of parkland. The Department operates 11 parks, one Community Recreation Center and Senior Center, one Community Gymnasium, and a community garden as indicated in Table OSR-1 (Parks and Recreation Facilities) and illustrated on Exhibit OSR-1 (Parks and Recreation Facilities) in the Open Space and Recreation Element of the General Plan. Facilities at these parks and recreation facilities include children's play areas, tennis courts, volleyball courts, basketball courts, swimming pools, handball courts, shuffleboard, skate park, dog park, and other amenities. The public parks range from 0.50 acres to 22.5 acres in size and are generally located within residential neighborhoods distributed throughout the City.

The park nearest to the subject property is Larwin Park, a 5.9-acre facility located at 6150 Ball Road, is less than one-quarter mile west of the project site. In addition, John Beat Park, a 2-acre facility, is located northeast the subject property. These two parks support a variety of recreation amenities, including athletic fields, play areas, basketball courts, picnic area, restrooms, etc.

Ralph B. Clark Regional Park, located at 8800 Rosecrans Avenue, offers 105 acres of additional parkland, including baseball fields, bike and hiking trails, playground, tennis courts, and volleyball courts. In addition to the Ralph B. Clark Regional Park, regional recreational facilities in the surrounding area include La Mirada Regional Park, Craig Regional Park, and Cerritos Regional County Park. Cypress College, a community college west of Buena Park, also provides additional open space and recreational facilities to City residents. Within the City, elementary schools, junior high school, high schools, and other small campuses provide supplemental

recreational opportunities through playgrounds and playfield areas. One notable site is the joint-use Buena Park Junior High School gymnasium where the City is currently offering various recreational activities and programs, including adult sports leagues, drop-in sports, gym classes for kids, and a summer sports camp.

The City's standard for parkland is 3.0 acres per 1,000 persons. At the time the City updated its General Plan (January 2009), Buena Park was deficient in parks by approximately 154 acres, based on a population of 83,385 at the time. The deficiency is due to the shortage of vacant land and the cost to purchase land. Opportunities to expand existing parks and/or develop new parks within the City are limited. As indicated in Section 4.14(a)(4), development of the site with 67 single-family residential dwelling units will generate a total of approximately 229 residents. As a result, development of the site as proposed would create a demand for approximately 0.69 acre of parkland.

As indicated in 4.14(a)(4), Section 18.64.070 of the Buena Park Municipal Code (Park and Recreation Facilities Dedications – Required When), addresses parks and recreation facilities dedications for residential development. Specifically, Section 18.64.070 states that as a condition of approval of a subdivision map for new residential development, parkland shall be dedicated or fees shall be paid in lieu thereof, or a combination of both, for neighborhood and community park and recreation purposes. Payment of the park in-lieu fee will ensure that potential impacts to parks and recreational facilities remain less than significant. No mitigation measures are required.

4.15(b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Less than Significant Impact. As indicated in Section 4.14(a)(4), the proposed project has been designed to include a recreation area located in the central portion of the subdivision (refer to Exhibit 4.15-1). This recreation/open space encompasses approximately 24,500 square feet (0.55 acre) will include passive amenities such as a shaded picnic area, open turf area and a loop walkway, and a play structure with nearby shaded bench seating that are intended to serve future residents of the subdivision. Although the City has a deficiency in parkland based on the current population the proposed recreation and open space amenities included in the design of the project meet the prescribed requirements for the provision of open space within the development. Due to the shortage of vacant land and the cost to purchase land, opportunities to expand existing parks and/or develop new parks within the City are limited. However, the City capitalizes on opportunities to provide alternative facilities and options for recreational opportunities within the City, including entering into joint-use agreements with school facilities and seeking open space opportunities for passive recreation amenities, such as green space. Other public and private recreational opportunities exist within the City, as well as regional facilities within adjacent jurisdictions.

Individual development projects, including the proposed project, would be reviewed to determine their potential impact on park and recreation facilities. Dedication of parkland and/or payment of fees in lieu for dedication of parkland, based on 3.0 acres per 1,000 persons for new residential development would be required as a condition of approval. The fees paid by the project applicant would help to reduce potential impacts of residential development on parks and recreational facilities. Additionally, the City has proposed several policies and implementation measures in the General Plan Update to assist in providing parkland and recreational facilities for residents, including acquisition of land and preparation of a Parks and Recreation Master Plan to identify where additional parks and the types of facilities are needed. No significant impacts will occur and no mitigation measures required.

Cumulative Impacts

Although the proposed project includes residential development that would create a demand for recreational amenities in the City resulting from the increase in population, the project will be subject to park dedication fees to address the incremental demand for recreational facilities and service. Therefore, with the payment of the park fees, project implementation would not result in any additional significant cumulative impacts to existing or future recreational facilities within the City.

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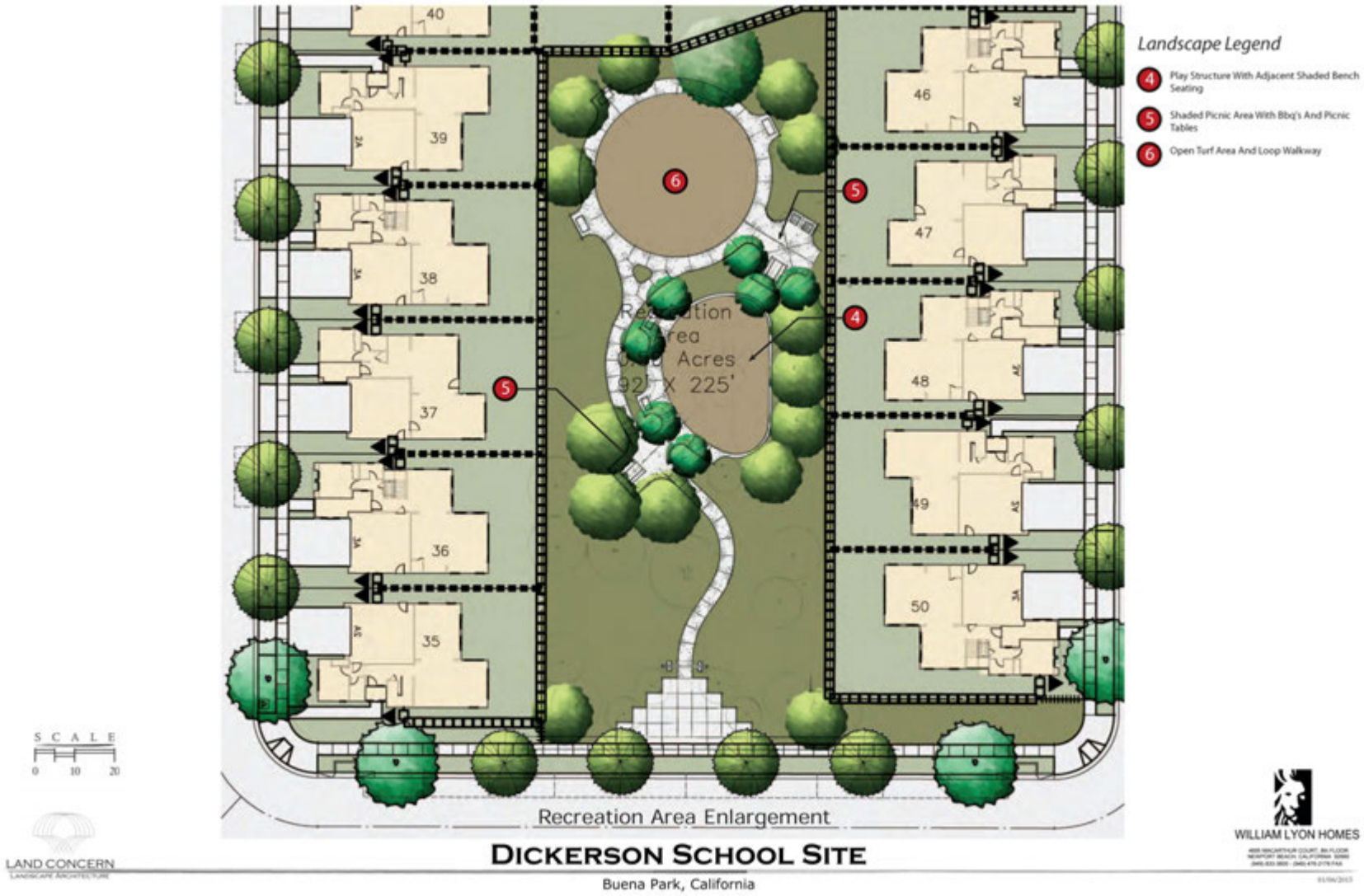

Exhibit 4.15-1
Proposed Open Space

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Standard Conditions

SC 4.15-1 Prior to issuance of the grading permit, the project applicant shall be required to comply with the requirements prescribed in Section 18.64.070 of the Buena Park Municipal Code, which mandate the dedication of parkland and/or payment of fees as determined by the Buena Park Planning Commission.

Mitigation Measures

With the implementation of SC 4.15-1 (payment of park in-lieu fees), project-related impacts to the City's parks and recreational facilities will be reduced to a less than significant level. No significant impacts will occur.

4.16 TRANSPORTATION/TRAFFIC

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit??		■		
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			■	
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?			■	
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			■	
e. Result in inadequate emergency access?			■	
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			■	

A detailed traffic impact analysis (TIA) was prepared by Linscott, Law & Greenspan, and Engineers (LLG) to evaluate the potential traffic and circulation impacts resulting from redevelopment of the site as proposed by the project applicant. The TIA prepared by LLG evaluated the existing operating conditions at eight (8) key study intersections within the project vicinity, estimated the trip generation potential of the proposed Project, and forecast future opening year (Year 2017) operating conditions without and with the proposed Project. The TIA, which is included as Appendix F to this analysis, satisfies the traffic impact requirements of the City of Buena Park, and is consistent with the current *Congestion Management Program (CMP) for Orange County.* Given several key study intersections also exist within the City of Cypress, the TIA is also consistent with this jurisdiction's respective requirements.

Impact Analysis

Eight (8) key study intersections were identified by the City of Buena Park for evaluation in the TIA. Of the eight identified intersections, two are located within the City of Buena Park, with the remaining six sharing a border with the City of Cypress. Table 4.16-1 lists each intersection, the jurisdiction in which the intersection is located and the respective minimum peak hour level of service criteria for each.

According to the City of Buena Park, level of service (LOS) D is the minimum acceptable condition that should be maintained during the peak commute hours. According to the City of Cypress, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, except at intersections along Valley View Street, Lincoln Avenue and Katella Avenue. The City of Cypress has adopted LOS E as the standard for intersections along these three arterials since they carry a significant amount of regional through traffic. However, since the two study intersections along Valley View Street are shared with Buena Park, the more stringent level of service standard serves as the basis for acceptable traffic conditions.

Table 4.16-1

Key Study Intersections
Lyon Development Residential Project

No.	Intersection	Jurisdiction	LOS Standard
1	Valley View Street/Ball Road	Buena Park/Cypress	D
2	Brenda Avenue/Ball Road	Buena Park/Cypress	D
3	Juanita Street/Ball Road	Buena Park/Cypress	D
4	Bernadette Avenue/Ball Road	Buena Park/Cypress	D
5	Holder Street/Ball Road	Buena Park/Cypress	D
6	Valley View Street/Belle Avenue	Buena Park/Cypress	D
7	Brenda Avenue/Belle Avenue	Buena Park	D
8	Bernadette Avenue/Belle Avenue	Buena Park	D

SOURCE: Linscott, Law & Greenspan Engineers (March 2015)

Since all eight locations are located within the City of Buena Park (fully or partially) existing AM and PM peak hour operating conditions for the eight (8) key study intersections were evaluated in the TIA using the *Intersection Capacity Utilization* (ICU) methodology for all of the signalized intersections and *Highway Capacity Manual 2000* (HCM 2000) methodology for both signalized and unsignalized intersections in accordance with the City of Buena Park requirements. Furthermore, it is important to note that because Dickerson Elementary School is closed and does not currently operate as an elementary school, the analysis presented in the TIA assumes that the property does not generate any traffic. The findings and recommendations of the TIA are summarized in the analysis presented below. The TIA prepared by LLG for the 67-unit single-family residential development is included as Appendix F.

4.16(a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Less than Significant with Mitigation Incorporated. As indicated in Table 4.16-2, a comparison of the trips generated by the proposed Project to the trips generated by the existing elementary school reveals that that the total "net" trip generation of the proposed Project would be 136 fewer daily trips, 220 fewer AM peak hour

trips, and 23 fewer PM peak hour trips. However, to provide a conservative assessment of the project-related traffic impacts, no trip credit was applied for the existing land use since the existing elementary school is now closed (vacant).

Table 4.16-2

Project Trip Generation
Lyon Development Residential Project

Land Use	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Trip Generation Rates							
210: SFD (TE/DU)	9.52	0.19	0.56	0.75	0.63	0.37	1.00
520: Elementary School (TE/Student)	1.29	0.25	0.20	0.45	0.07	0.08	0.15
Trip Generation Forecasts							
Proposed Project (67 SFDs)	638	13	37	50	42	25	67
Existing Elementary School (600 Students)	-774	-150	-120	-270	-42	-48	-90
Total Net Project Trip Generation[1]	-136	-137	-83	-220	0	-23	-23

TE/DU – Trip ends/dwelling unit
[1]For comparison purposes only. Dickerson Elementary School is closed and no trips are currently generated by the school. Project-related traffic impacts are based on the trip generation resulting from the development of 67 single-family residential dwelling units.

SOURCE: Linscott, Law & Greenspan Engineers (March 2015)

As indicated in Table 4.16-2, the proposed project would result in the generation of 638 vehicle trips per day, including 50 AM peak hour trips and 67 PM peak hour trips. Potential impacts of the proposed Project are described below.

Existing Plus Project Traffic Conditions

ICU Analysis

Table 4.16-3 summarizes the existing operating conditions and the existing "with project" traffic operating conditions at the three existing signalized key study intersections.

Table 4.16-3

Existing Plus Project ICU Analysis
Lyon Development Residential Project

Key Intersection	Minimum Acceptable LOS	Time Period	Existing Traffic Conditions		Existing w/Project Traffic Conditions		Significant Impact		Existing with Project with Mitigation[1]	
			V/C Ratio	LOS	V/C Ratio	LOS	Increase	Yes/No	V/C Ratio	LOS
Valley View Street/ Ball Road	D	AM	0.798	C	0.802	D	0.004	No	0.805	D
		PM	0.763	C	0.767	C	0.004	No	0.767	C
Juanita Street/ Ball Road	D	AM	0.512	A	0.522	A	0.010	No	0.523	A
		PM	0.408	A	0.415	A	0.007	No	0.419	A
Holder Street/ Ball Road	D	AM	0.605	B	0.609	B	0.004	No	0.618	B
		PM	0.622	B	0.626	B	0.004	No	0.638	B

[1]The service levels presented herein are representative for forecast traffic conditions of implementation of recommended improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U- turns are required at the closest available location.

SOURCE: Linscott, Law & Greenspan Engineers (March 2015)

As indicated in the table, the three existing signalized study intersections are currently operating at acceptable levels of service based on the two cities' level of service standards (refer to Table 4.16-1). Furthermore, when project-related traffic is added to the existing traffic, the key signalized study intersections would continue to operate at acceptable levels (i.e., LOS C or better) based on the ICU methodology; the addition of project-related traffic would not result in any significant to the three signalized intersections based on the significance criteria prescribed by the Cities of Buena Park and Cypress as indicated below. Since there are no significant impacts, no mitigation measures are required. However, the V/C ratio and level of service with mitigation reflects the level of service results based on the implementation of recommended mitigation measures identified in Table 4.16-4.

For the signalized intersection ICU analysis, a significant impact occurs at the key study intersection if:

Buena Park

- Traffic generated by the Project causes the LOS to degrade from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F) per the City of Buena Park and City of Cypress LOS standards, or
- Traffic generated by the Project increases traffic demand at the study intersection by at least 2% of capacity (ICU increase ≥ 0.020) at an intersection already operating at an unacceptable level of service (LOS E or F).

Cypress

- Traffic generated by the Project increases the ICU value by at least 0.01 at an intersection already operating at an unacceptable level of service (LOS E or F).

HCM Analysis

Table 4.16-4 summarizes the peak hour LOS results at the eight key study intersections for existing traffic conditions, with and without the Project, based on the *Highway Capacity Manual (HCM)* Method of Analysis. As indicated in the table, based on the HCM/LOS method analysis, two of the eight key study intersections currently operate at unacceptable levels of service at the present time during the AM and/or PM peak hour when compared to the LOS standards recognized by the Cities of Buena Park and Cypress. The remaining six (6) existing key study intersections currently operate at acceptable levels of service during the AM and PM peak hours. The intersections of Bernadette Avenue at Ball Road and Belle Avenue at Valley View Street, which are unsignalized, currently operate at unacceptable service levels during the AM and/or PM peak hours.

Table 4.16-4

Existing Plus Project HCM Analysis
Lyon Development Residential Project

Key Intersection	Minimum Acceptable LOS	Time Period	Existing Traffic Conditions		Existing w/ Project Traffic Conditions		Significant Impact		Existing w/Project w/Mitigation[1]	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Increase	Yes/No	Delay (s/v)	LOS
Valley View Street/ Ball Road	D	AM	50.4	D	50.9	D	0.5	No	51.4	D
		PM	47.5	D	47.9	D	0.4	No	48.0	D
Brenda Avenue/ Ball Road[2]	D	AM	15.1	C	15.2	C	0.1	No	15.2	C
		PM	22.2	C	22.7	C	0.5	No	23.1	C
Juanita Street/ Ball Road	D	AM	17.2	B	20.0	C	2.8	No	20.0	B
		PM	16.3	B	18.3	B	2.0	No	18.3	B
Bernadette Avenue/ Ball Road[2]	D	AM	**42.8**	**E**	**46.1**	**E**	**3.3**	**Yes**	13.5	B
		PM	**86.2**	**F**	**92.4**	**F**	**6.2**	**Yes**	13.7	B
Holder Street/ Ball Road	D	AM	21.1	C	21.2	C	0.1	No	21.6	C
		PM	21.1	C	21.2	C	0.1	No	21.6	C
Valley View Street/ Belle Avenue[2]	D	AM	**861.3**	**F**	**883.0**	**F**	**21.7**	**Yes**	20.9	C
		PM	**981.0**	**F**	**1,238.7**	**F**	**257.7**	**Yes**	26.1	D
Brenda Avenue/ Belle Avenue[2]	D	AM	7.3	A	7.3	A	0.0	No	--	--
		PM	7.2	A	7.2	A	0.0	No	--	--
Bernadette Avenue/ Belle Avenue[2]	D	AM	7.1	A	7.1	A	0.0	No	--	--
		PM	7.2	A	7.2	A	0.0	No	--	--

s/v – seconds per vehicle
Bold HCM/LOS values indicate unacceptable levels of service based n the Cities' LOS standards (refer to Table 4.16-1).

[1]The service levels presented herein are representative of forecast traffic conditions with implementation of recommended improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.
[2]Unsignalized intersection.

SOURCE: Linscott, Law & Greenspan Engineers (March 2015)

For the signalized intersection HCM analysis, a significant impact occurs at the key study intersection if:

- Traffic generated by the Project causes the LOS to degrade from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F), or

- Traffic generated by the Project increases the delay at the study intersection by at least 2.0 seconds at an intersection already operating at an unacceptable level of service (LOS E or F).

At unsignalized intersections, a "significant" adverse traffic impact is defined as a Project that causes:

- an intersection's LOS to degrade from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F), or
  a 2.0 second or more increase in delay (seconds per vehicle) at an intersection operating at a deficient condition.

Review of Table 4.16-4 indicates that traffic associated with the proposed Project will impact two of the eight key study intersections. The remaining six key study intersections are forecast to operate at an acceptable LOS with the addition of Project generated traffic, based on LOS standards and impact criteria above. The location projected to operate at an adverse LOS is as follows:

- Bernadette Avenue/Ball Road (LOS E during the AM peak hour and LOS F during the PM peak hour)

- Valley View Street/Belle Avenue (LOS F during the AM and PM peak hours)

As shown in Table 4.16-4, the implementation of recommended improvements completely offsets the impacts of the proposed Project and results in the two intersections operating at LOS D or better conditions during the weekday AM peak hour and PM peak hour periods.

Future Traffic Conditions (2017)

The relative impacts of the added Project traffic volumes generated by proposed Project during the AM and PM peak hour traffic conditions was evaluated based on analysis of future Year 2017 operating conditions (i.e., with cumulative project traffic and also accounting for 1 percent per year "growth") at the eight key study intersections, with and without the proposed Project. The significance of the potential impacts of the Project at each key intersection was then evaluated for both ICU and HCM methodologies and the traffic impact criteria previously discussed.

ICU Analysis

Table 4.16-5 summarizes the AM and PM peak hour LOS results at the three signalized key study intersections for the Year 2017 traffic conditions, based on the ICU Method of Analysis. As indicated in that table for the Year 2017 Without Project traffic conditions, all three signalized key study intersections are forecast to operate at an acceptable level of service during the AM and PM peak hours when compared to the LOS standards defined by both Buena Park and Cypress.

Table 4.16-5

Year 2017 Peak Hour ICU Analysis
Lyon Development Residential Project

Key Intersection	Minimum Acceptable LOS	Time Period	Existing Traffic Conditions		Year 2017 w/out Project Traffic Conditions		Year 2017 w/Project Traffic Conditions		Significant Impact		Year 2017 w/Project w/Mitigation[1]	
			V/C Ratio	LOS	V/C Ratio	LOS	V/C Ratio	LOS	Increase	Yes/No	V/C Ratio	LOS
Valley View Street/ Ball Road	D	AM	0.798	C	0.832	D	0.836	D	0.004	No	0.839	D
		PM	0.763	C	0.796	C	0.800	D	0.004	No	0.800	C
Juanita Street/ Ball Road	D	AM	0.512	A	0.533	A	0.544	A	0.011	No	0.544	A
		PM	0.408	A	0.427	A	0.434	A	0.008	No	0.438	A
Holder Street/ Ball Road	D	AM	0.605	B	0.629	B	0.633	B	0.004	No	0.642	B
		PM	0.622	B	0.648	B	0.652	B	0.004	No	0.664	B

[1]The service levels presented herein are representative for forecast traffic conditions of implementation with recommended improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.

SOURCE: Linscott, Law & Greenspan Engineers (March 2015)

As indicated in Table 4.16-5 for the Year 2017 With Project traffic conditions, all three signalized key study intersections are forecast to operate at an acceptable level of service during the AM or PM peak hours when compared to the LOS standards defined previously. As such, the proposed Project would not have a significant impact under the Year 2017 With Project traffic conditions when compared to the LOS criteria; no mitigation measures are required. Nonetheless, Table 4.16-5 presents the level of service results based on the implementation of recommended mitigation measures identified in Table 4.16-6.

HCM Analysis

Table 4.16-6 summarizes the AM and PM peak hour Level of Service results at the key study intersections for the Year 2017 traffic conditions, based on the *Highway Capacity Manual (HCM)* Method of Analysis. The first column (1) of Delay/LOS values in *Table 9-2* presents a summary of existing AM and PM peak hour traffic conditions. The second column (2) presents forecast Year 2017 Without Project traffic conditions and the third column (3) identifies forecast Year 2017 With Project traffic conditions. The fourth column (4) shows the increase in Delay value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the significant impact criteria mentioned in this report. The fifth column (5) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

Table 4.16-6

Year 2017 Peak Hour HCM Analysis
Lyon Development Residential Project

Key Intersection	Minimum Acceptable LOS	Time Period	Existing Traffic Conditions		Year 2017 w/out Project Traffic Conditions		Year 2017 w/Project Traffic Conditions		Significant Impact		Year 2017 w/Project w/Mitigation[1]	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Increase	Yes/No	V/C Ratio	LOS
Valley View Street/ Ball Road	D	AM	50.4	D	52.3	D	52,9	D	0.6	No	53.4	D
		PM	47.5	D	48.8	D	49.2	D	0.4	No	49.3	D
Brenda Avenue/ Ball Road[2]	D	AM	15.1	C	15.2	C	15.3	C	0.1	No	15.4	C
		PM	22.2	C	22.8	C	23.3	C	0.5	No	23.7	C
Juanita Street/ Ball Road	D	AM	17.9	B	172	B	20.0	B	2,8	No	20.0	B
		PM	16.4	B	16.3	B	18.2	B	1.9	No	18.2	B
Bernadette Avenue/ Ball Road[2]	D	AM	**42.8**	**E**	**44.1**	**E**	**47.4**	**E**	**3.3**	**Yes**	13.7	B
		PM	**86.2**	**F**	**92.9**	**F**	**102.3**	**F**	**9.4**	**Yes**	13.9	B
Holder Street/ Ball Road	D	AM	21.1	C	21.2	C	21.3	C	0.1	No	21.7	C
		PM	21.1	C	21.3	C	21.4	C	0.1	No	21.8	D
Valley View Street/ Belle Avenue[2]	D	AM	**861.3**	**F**	**1,090.0**	**F**	**1,116.7**	**F**	**26.7**	**Yes**	22.2	C
		PM	**981.0**	**F**	**1,665.6**	**F**	**2,547.4**	**F**	**881.8**	**Yes**	27.6	D
Brenda Avenue/ Belle Avenue[2]	D	AM	7.3	A	7.3	A	7.3	A	0.0	No	--	--
		PM	7.2	A	7.2	A	7.2	A	0.0	No	--	--
Bernadette Avenue/ Belle Avenue[2]	D	AM	7.1	A	7.1	A	7.1	A	0.0	No	--	--
		PM	7.2	A	7.2	A	7.2	A	0.0	No	--	--

s/v – seconds per vehicle
Bold HCM/LOS values indicate unacceptable levels of service based n the Cities' LOS standards (refer to Table 4.16-1).

[1]The service levels presented herein are representative of forecast traffic conditions with implementation of recommended improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.
[2]Unsigalized intersection

SOURCE: Linscott, Law & Greenspan Engineers (March 2015)

Review of Table 4.16-6 indicates that for the Year 2017 Without Project traffic conditions, two of the eight key study intersections are forecast to operate at unacceptable levels of service during the AM and/or PM peak hours when compared to the LOS standards defined previously. The remaining six key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours. Similarly, for the Year 2017 With Project traffic conditions, the same two key study intersections are also forecast to operate at unacceptable levels of service during the AM and/or PM peak hours when compared to the LOS relevant standards. The locations projected to operate at an unacceptable level of service include:

- Bernadette Avenue/Ball Road (LOS E during the AM peak hour and LOS F during the PM peak hour)
- Valley View Street/Belle Avenue (LOS F during the AM and PM peak hours)

As a result, project implementation will result in impacts to the two unsignalized intersections that are currently operating at unacceptable levels of service. However, as shown in Table 4.16-6. the implementation of recommended improvements completely offsets the cumulative impacts of the proposed Project and results in a LOS D or better conditions during the weekday AM peak hour and PM peak hour. Thus, the project-related impacts will be reduced to a less than significant level.

Traffic Signal Warrant Analysis

The level of service analysis at the unsignalized intersections is supplemented with an assessment of the need for signalization. This assessment has been conducted for Existing Plus Project and Year 2017 Cumulative Plus Project traffic conditions.

For this study, the need for signalization is assessed on the basis of the peak-hour traffic signal warrant (Warrant #3) described in the *California Manual on Uniform Traffic Control Devices (MUTCD).* Warrant #3 has two parts: 1) Part A evaluates peak hour vehicle delay for traffic on the minor street approach with the highest delay and 2) Part B evaluates peak-hour traffic volumes on the major and minor streets. This method provides an indication of whether peak-hour traffic conditions or peak-hour traffic volume levels are, or would be, sufficient to justify installation of a traffic signal.

Table 4.16-7 summarizes the results of the peak-hour traffic signal warrant analysis conducted for Brenda Avenue at Ball Road, Bernadette Avenue at Ball Road, and Belle Avenue at Valley View Street, as well as Brenda Avenue at Belle Avenue and Bernadette Avenue at Belle Avenue. As shown, the peak hour traffic signal warrants were not met at any of the key unsignalized intersections.

Table 4.16-7

Traffic Signal Warrant Analysis Summary
Lyon Development Residential Project

Key Intersection	Time Period	Existing w/Project Traffic Conditions		Year 2017 w/Project Traffic Conditions	
		Part A of Warrant 3 Satisfied	Part B of Warrant 3 Satisfied	Part A of Warrant 3 Satisfied	Part B of Warrant 3 Satisfied
Brenda Avenue/Ball Road	AM	No	No	No	No
	PM	No	No	No	No
Bernadette Avenue/Ball Road	AM	No	No	No	No
	PM	No	No	No	No
Valley View Street/Belle Avenue	AM	No	No	No	No
	PM	No	No	No	No
Brenda Avenue/Belle Avenue	AM	No	No	No	No
	PM	No	No	No	No
Bernadette Avenue/Belle Avenue	AM	No	No	No	No
	PM	No	No	No	No

NOTE: Signal warrant checks based on Warrant 3, Part A – Peak Hour Delay Warrant and Part B – Peak Hour Volume Warrant, which are contained in the California MUTCD.

SOURCE: Linscott, Law & Greenspan Engineers (March 2015)

4.16(b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less than Significant Impact. The traffic impact analysis prepared for the proposed project is consistent with the requirements and procedures outlined in the current *Orange County Congestion Management Program (CMP).* The CMP requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System (HS). In accordance with the CMP guidelines, this number is based on the desire to analyze any impacts that will be three (3) percent or more of the existing CMP highway system facilities' capacity. However, as noted in the TIA, the proposed project is expected to generate only 638 daily trips, and thus does not meet the criteria required for a CMP traffic analysis. Therefore, it is concluded that the proposed project will not have any significant traffic impacts on the Congestion Management Program Highway System. No mitigation measures are required.

4.16(c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Less than Significant Impact. As discussed in Section 4. 8(e), although the project site is located within the FAA Part 77 Notification Area of the Los Alamitos JFTB, the proposed structures have been evaluated and do not pose a hazard to navigation. Neither the Notification Surface nor the Obstruction Surface of the JFTB would be penetrated by any of the proposed structures. Therefore, project implementation will not result in a change to air traffic patterns at the airport. Furthermore, traffic associated with the proposed residential development was thoroughly evaluated (refer to Section 4.16). Based on that analysis, project implementation will not result in any substantial safety risks or hazards to aviation activities occurring at the JFTB. No significant impacts are anticipated and no mitigation measures are required.

4.16(d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less than Significant Impact. The on-site circulation layout of the proposed Project, based upon the conceptual site plans, on an overall basis is adequate. An evaluation of the on-site circulation shown on the preliminary site plans was conducted as part of the TIA.[8] The turning templates were utilized to ensure that small service/delivery trucks (i.e., UPS, FedEx, and trash trucks), fire trucks and passenger vehicles could properly access and circulate through the Project site. A fire truck turning template and small truck (SU-30) turning template was utilized in this evaluation. Based on that evaluation, curb return radii have been confirmed and are generally adequate for small service/delivery trucks (FedEx, UPS), trash trucks and fire trucks*.* The design of the entry/exit points of the project driveways are adequate for expected traffic volumes. (Figure 10-1 in Appendix F illustrates the turning movements required of a small truck (SU-30) to circulate throughout the site; Figure 10-2 shows the turning movements required of a fire truck to circulate throughout the site. Figure 10-3 in Appendix F illustrates the turning movements required of a small truck (WB-40) to circulate throughout the site.)

Implementation of the proposed project would not result in inadequate design features or incompatible uses because it would be evaluated to determine the appropriate land use permit for authorizing its use and the conditions for their establishment and operation. At a minimum, compliance with relevant Municipal Code standards would be required. The project will also be evaluated to ensure that adequate access and circulation to and within the development would be provided. Access to the site must comply with all City design standards and would be reviewed by the City and the Orange County Fire Authority to ensure that inadequate design features or incompatible uses do not occur. The City and the Orange County Fire Authority would review the proposed development plans for proposed project in order to ensure that it is designed to meet adopted

[8]This analysis was conducted using the *Turning Vehicle Templates* developed by Jack E. Leisch & Associates and *AutoTURN for AutoCAD* computer software that simulates turning maneuvers for various types of vehicles.

standards and provide adequate emergency access. Therefore, implementation of the proposed project would not result in significant impacts involving inadequate design features or incompatible uses.

4.16(e) Result in inadequate emergency access?

Less than Significant Impact. Primary access to the Project site will be provided via proposed full-access driveway at the intersection of Ball Road and Juanita Street, with an emergency access located on the west side of Bernadette Avenue. As indicated in Tables 4.16-3, 4.16-4, 4.16-5, and 4.16-6, the Ball Road/Juanita Street intersection, with the addition of the proposed project driveway, is forecast to continue to operate at an acceptable service level (LOS D or better) during the AM peak hour and PM peak hour. In order to facilitate full access to the primary driveway at Ball Road and Juanita Street, several improvements, which are subject to the approval of the City of Cypress and the City of Buena Park, have been incorporated into the design of the proposed project. These improvements are listed in PDF 4.17-1 and include but are not limited to: median improvements, restriping, signal control and improvements, etc. Therefore, with the incorporation of the project design features listed in PDF 4.17-1, project site access is considered adequate.

Finally, as indicated in the Final EIR prepared for the Buena Park General Plan Update, proposed development projects would be required to comply with the City's development review process including review for compliance with the City's Zoning Code. The proposed development would be required to comply with all applicable fire code and ordinance requirements for construction and access to the site. Individual projects would be reviewed by the Orange County Fire Authority to determine the specific fire requirements applicable to the specific development and to ensure compliance with these requirements. This would ensure that new developments would provide adequate emergency access to and from the site. Further, the City and the Orange County Fire Authority would review any modifications to existing roadways to ensure that adequate emergency access or emergency response would be maintained. Additionally, emergency response and evacuation procedures would be coordinated through the City in coordination with the police and fire departments, resulting in less than significant impacts. Although the proposed project would constitute a departure from the General Plan buildout, compliance with the requirements prescribed in the applicable codes and ordinances will ensure that no potentially significant impacts to emergency access would occur.

4.16(f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Less than Significant Impact. The project site is located along Ball Road, a Major Arterial Roadway in the City of Buena Park. The City of Buena Park is currently served by local and regional bus service, as well as a Metrolink regional commuter rail line. The existing circulation system includes pedestrian facilities such as sidewalks within the Entertainment Corridor and near schools, parks, and major retail facilities. However, City streets are generally not equipped with designated bicycle facilities. Development along this roadway is served by public transit service proved by the Orange County Transportation Authority (OCTA). Specifically, OCTA Route 46 provides east-west service along Ball Road and connects to the following north-south OCTA routes: Route 21 (Valley View Avenue), Route 25 (Knott Avenue), and Route 29 (Beach Boulevard). In addition to bus service, the City and project site are also served by Metrolink Rail service. The Buena Park Metrolink station is located approximately four miles north of the subject property on Lakeknoll Drive, west of Dale Street and north of Artesia Boulevard in the northeast portion of the City. The Buena Park Metrolink station is served by two Metrolink lines: the Orange County Line, which begins in Oceanside in San Diego County; and the 91 Line, which begins in Riverside County. From Buena Park, both lines head north to Union Station in downtown Los Angeles. Metrolink operates seven days a week, from 4:00 AM to 8:30 PM on weekdays and 6:20 AM to 10:45 PM on weekends. The Buena Park Metrolink station has a 300-space parking lot. A shuttle service between the Buena Park Metrolink station and the Fullerton Park-and-Ride is offered every weekday during the peak commute hours at 10-minute intervals. Project implementation will not conflict with any adopted policies, program, and/or plans for public transit.

Cumulative Impacts

In order to make a realistic estimate of future on-street conditions prior to implementation of the proposed Project, the status of other known development projects (cumulative projects) within a two-mile radius of the proposed project was researched at the Cities of Buena Park, Anaheim, Los Alamitos, La Palma, and Cypress in December 2014. With this information, the potential impact of the proposed Project was evaluated within the context of the cumulative impact of all ongoing development. Five (5) cumulative projects in the City of Cypress that have either been built, but not yet fully occupied, or are being processed for approval; no cumulative projects have been identified as either planned and/or approved within a two-mile radius of the proposed Project. These five cumulative projects have been included as part of the cumulative background setting. Table 4.16-8 provides a brief description for each of the five cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table 4.16-8

Cumulative Projects
Lyon Development Residential Project

Project	Project Description	Location
13-Acre Retail/Commercial	143,556 sq. ft. retail 9,353 sq. ft sit down restaurant	N/W Corner of Katella Avenue and Winners Circle
Cottonwood Church	245,843 sq. ft. church 28,000 sq. ft. specialty retail 33,600 sq. ft. community college	N/W Corner of Katella Avenue and Lexington Drive
Mackay Elementary School	47 Single-family Dwelling Units	8721 Cypress Avenue
Habitat for Humanity	15 Condominium Units	6122 Lincoln Avenue
Bonanni Development	76 Condominium Units	6178 and 6182 Lincoln Avenue
SOURCE: Linscott, Law & Greenspan Engineers (March 2015)		

Table 4.16-9 summarizes the trip generation potential for all five cumulative projects and the proposed Project on a daily and peak hour basis for a typical weekday. As shown, the cumulative projects are expected to generate 13,898 daily trips, with 768 trips (487 inbound, 281 outbound) anticipated during the AM peak hour and 991 trips (565 inbound, 426 outbound) produced during the PM peak hour. Traffic generated by the proposed Project (638 daily 2-way trips, 50 AM peak hour trips and 67 PM peak hour trips) represents approximately 4 percent of the total cumulative daily trips, 6 percent of the AM and PM peak hour cumulative trips.

Table 4.16-9

**Cumulative Projects Traffic Generation
Lyon Development Residential Project**

Land Use	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
13-acre Retail/Commercial Project	6,786	96	59	155	194	195	389
Cottonwood Church	6,128	375	163	538	309	198	507
Mackay Elementary School	454	9	26	35	30	17	47
Habitat for Humanity	88	1	6	7	5	3	8
Bonanni Development	442	6	27	33	37	13	40
Sub-Total Cumulative Projects	**13,898**	**487**	**281**	**768**	**565**	**426**	**991**
Proposed Project	638	13	37	50	42	25	67
Total Cumulative Project Trip Generation[1]	**14,536**	**500**	**318**	**818**	**597**	**451**	**1,058**

SOURCE: Linscott, Law & Greenspan Engineers (March 2015)

As previously indicated in Table 4.16-6, the incremental increase in traffic generated by the proposed project would also result in a potentially significant cumulative impacts at two of the key study intersections with the addition of the cumulative projects and anticipated growth forecast for 2017 at project buildout. All of the remaining key study signalized intersections are anticipated to operate at acceptable levels of service based on both the ICU and HCM traffic analysis methodologies. Two unsignalized intersections are forecast to operate at unacceptable levels of service (i.e., LOS E or F) based on the HCM methodology at project buildout (Bernadette Avenue/Ball Road and Valley View Street/Belle Avenue) with the addition of the project-related traffic. Both of these intersections are unsignalized and do not meet the traffic signal warrant criteria (refer to Table 4.16-7). As a result, the project implementation will result in potentially significant cumulative impacts at these two intersections, necessitating the implementation of mitigation measures (refer to MM 4.16-1 and 4.16-2). The proposed mitigation measures will return the levels of service at the Bernadette Avenue/Ball Road and Valley View Street/Belle Avenue intersections to an acceptable level of service (i.e., LOS D or better) as indicated in Table 4.16-6.

Project Design Features

PDF 4.17-1 As a project design feature, the proposed intersection improvements to be completed as a part of the Project at the Ball Road/Juanita Street intersection to accommodate the proposed primary access driveway, subject to the approval of the City of Cypress and the City of Buena Park, include:

- Modification of the existing median on Ball Road to provide a dedicated westbound left-turn lane
- Restriping the southbound approach on Juanita Street to provide one left/through option lane, and a separate right-turn lane
- Construction of the new site driveway to provide a northbound (outbound) left/through option lane and a right-turn lane and one departure (inbound) lane
- Modification of the existing traffic signal and installation of new traffic signal equipment as well as installation of the appropriate pavement markings and striping, as necessary
- Installation of traffic signal poles, mast arms and equipment for northbound traffic from the project site at the Ball Road/Juanita Street intersection;
- Addition of traffic control for the proposed westbound left-turn from Ball Road onto the project site.

- Addition of traffic control as appropriate for the southbound through movement from Juanita Street onto the project site.
- Implementation of the appropriate traffic signal timing for the new layout of the Ball Road/Juanita Street intersection
- Addition of a pedestrian crossing across the project driveway of this intersection.

Standard Conditions

SC 4.16-1 The project Applicant shall, in collaboration with the City of Buena Park, modify/remove all existing signage related to school zones that are associated with the former Elizabeth Dickerson Elementary School and replace all "yellow" crosswalks with standard white paint with the conversion of the school site to residential development in order to conform to the most current *California Manual on Uniform Traffic Control Devices (CA MUTCD)*. The limits of the work will be determined by the City of Buena Park Public Works Department.

Mitigation Measures

The results of the "Existing With Project" HCM analysis presented previously in Table 4.16-4 and the "2017 Plus Project" HCM analysis (i.e., project-related impact) indicate that the proposed Project will impact two (2) of the eight (8) key study intersections. The improvements listed below have been identified to mitigate the project-related and cumulative traffic impacts identified for the Project in Table 4.16-6) at the two intersections where potentially significant impacts have been identified in both traffic scenarios. The mitigation measures prescribed below are the same for both levels of impact. The Project shall construct and/or pay a fair-share of the construction costs to implement the mitigation measures identified below.

MM 4.16-1 Eastbound and westbound left-turn movements from Belle Avenue onto Valley View Street shall be restricted during the weekday AM peak period and PM peak period (right-turn movements would continue to be allowed). The project Applicant shall install all necessary regulatory signs per the City of Buena Park Standard Design Guidelines and/or CA MUTCD. Implementation of this improvement will require the approval of the City of Buena Park.

MM 4.16-2 Northbound and southbound left-turn movements from Bernadette Avenue onto Ball Road shall be restricted during the weekday AM peak period and PM peak period (right-turn movements would continue to be allowed). The project Applicant shall install all necessary regulatory signs per the City of Buena Park Standard Design Guidelines and/or CA MUTCD. Implementation of this improvement will require the approval of the City of Buena Park.

4.17 UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			■	
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		■		
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause			■	

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
significant environmental effects?				
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			■	
e. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			■	
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			■	
g. Comply with federal, state, and local statutes and regulations related to solid waste?			■	

Impact Analysis

4.17(a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less than Significant Impact. The Orange County Sanitation District (OCSD) has two operating facilities (Reclamation Plant No. 1 and Treatment Plant No. 2) that treat wastewater from residential, commercial, and industrial sources in central and northwest Orange County. The City of Buena Park (along with the cities of La Habra, Fullerton, Anaheim, Cypress, La Palma, Stanton, Los Alamitos, Westminster, and Fountain Valley) is located within OCSD Revenue Area 3. All sewage flow from Revenue Area 3 is collected and treated at Treatment Plant No. 2, which is located at 22212 Brookhurst Street, Huntington Beach. Reclamation Plant No. 1 and Treatment Plant No. 2 are constructed to together treat 372 mgd of primary treated wastewater and 332 mgd of secondary treated wastewater. Fiscal Year 2011-2012 average daily ocean discharge under dry weather conditions was 207 mgd without (and 152 mgd with) reclamation.[9]

Implementation of the proposed project would result in an increase of residential sewage generated by the 67 single-family residential dwelling units. Based on a wastewater flow coefficient utilized to estimate wastewater generation in the Buena Park General Plan Update EIR,[10] of 1,029 gallons/acre for medium density residential development, the proposed project would generate approximately 9,354 gallons of raw sewage per day (i.e., 1,029 gallons/acre x 9.09 acres. However, based on the sewage generation factor of 1,488 gallons per day recommended by the OCSD, the project would result in the generation of nearly 13,522 gallons per day (gpd), which is greater than the generation based on the factor reflected in City's General Plan Update.

The proposed project is located in the most southern sewer sub-basin in the City. The sewer sub-basin extends from a connection to the Orange County Sanitation District (OCSD) trunk sewer in the intersection of Cerritos Avenue and Florence Avenue north to Mt. Whitney Drive. The sub-basin is bounded on the eastern, western, and southern edges by the City limits. The proposed project would connect to an existing 8-inch gravity sewer line in Bernadette Avenue. The flows from the proposed project will drain south to the 8-inch line in Myra Avenue, then west to Florence Avenue, and finally turn south to a connection with an OCSD trunk line in Cerritos Avenue.

[9]California Regional Water Quality Control Board – Santa Ana Region; Order No. R8-2012-0035, NPDES No. CA0110604; Waste Discharge Requirements and National Pollutant Discharge Elimination System for Orange County Sanitation District; Reclamation Plant No. 1 and Treatment Plant No. 2 (June 18, 2012).

[10]Buena Park General Plan Update Final EIR; Table 5.12-4 (Existing Wastewater Flow).

As a result, project implementation would result in a relatively small increase, the increase in raw sewage generated by the proposed use assuming either generation factor would neither exceed the treatment plant's capacity to accommodate the project nor exceed the existing treatment requirements imposed on the OCSD by the Regional Water Quality Control Board. The raw sewage generated by the proposed project would be residential in nature and would not contain constituents that would affect the waste discharge requirements imposed on the treatment plant. The addition in sewage would be treated in accordance with the current treatment requirements. No significant impacts would occur and no mitigation measures are required.

4.17(b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant with impact Incorporated. As indicated above, there is approximately 41 mgd of excess primary treatment capacity at Treatment Plant No. 2 in Huntington Beach. The OCSD has indicated that no deficiencies exist within their facilities serving the City of Buena Park and anticipates that available capacity would be available to serve buildout of the City based on the General Plan Update.

In addition to sewer collection and treatment, the City's Water Master Plan includes a Water Supply Plan, which is set to implement and maintain delivery of water to the City's customers despite the status of supply availabilities. Water storage and transmission facilities are located throughout the project area and currently serve Dickerson Elementary School. Although the proposed project represents a departure from the existing use of the property, the addition of 67 single-family residential dwelling units would not require the construction of new water or wastewater treatment facilities. The proposed project would be subject to both applicable General Plan Policies and mitigation measures prescribed in the General Plan EIR (e.g., update the City's Sewer and Water Plans as necessary, coordinate with the Public Works Department and water and sewer providers, etc.).

The Dickerson School Site project is located in the most southern sewer sub-basin in the City. The sewer sub-basin extends from a connection to the OCSD trunk sewer in the intersection of Cerritos Avenue and Florence Avenue north to Mt. Whitney Drive. The sub-basin is bounded on the eastern, western, and southern edges by the City limits. The exact boundaries of the existing sub-basin are shown in Exhibit A at the back of this report.

The Dickerson School Site project is proposing to connect to an existing 8-inch gravity sewer line in Bernadette Avenue. The flows from the proposed project will drain south to the 8-inch line in Myra Avenue, then west to Florence Avenue, and finally turn south to a connection with an OCSD trunk line in Cerritos Avenue. An upsizing of the gravity sewer line in Myra Avenue and Florence Avenue downstream of the proposed project is listed under the City's Capital Improvement Project (CIP) program. It is listed as a "Priority B" status project with an intended completion within the next three years. The CIP consists of upsizing the line in Myra Avenue from an 8-inch diameter to a 10-inch diameter and upsizing the line in Florence Avenue from a 10-inch diameter to a 12-inch diameter.

Based on the sewer study that was completed for the proposed project, the 67 dwelling units would result in the generation of approximately 4,104 gpd to 8,272 gpd more when compared to school when it was operational. However, because the school is closed, the increase in raw sewage generated by the project is estimated to be a maximum of 13,522 gpd based on the OCSD generation rate of 1,488 gpd/acre. The sewer study determined that due to the shallow slopes of the existing gravity sewer lines, all reaches in Bernadette Avenue, Myra Avenue, and Florence Avenue have 0.2 percent slope. The minimum desired velocity of 2 feet per second is not achieved under the three modeling scenarios that were evaluated.[11]

[11]Off-Site Sewer Analysis for the Dickerson School Site Project in the City of Buena Park; Dexter Wilson Engineering, Inc.; January 7, 2015

Completing the Capital Improvement Project in Myra Avenue and Florence Avenue will provide the necessary additional flow capacity such that existing sewage flow will meet the City's depth design criteria. As previously indicated, the CIP consists of upsizing the line in Myra Avenue from an 8-inch diameter to a 10-inch diameter and upsizing the line in Florence Avenue from a 10-inch diameter to a 12-inch diameter. Implementation of these CIP improvements will be sufficient also to accommodate the additional sewage flow from the proposed residential project.[12] To support the proposed residential project there is no need to amend or alter the proposed CIP improvements. With the CIP improvements in place, existing flows as well as the additional generation from the proposed residential project will be sufficiently accommodated by the City's gravity sewer lines in conformance to the City's depth design criteria. Therefore, potentially significant impacts to sewer facilities would be reduced to a less than significant level; no additional mitigation measures are required

4.17(c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant Impact. Project implementation would result in the construction of storm drain and related drainage and water quality facilities and features that would be required to accept, detain and convey post-development storm runoff from the project site; however, these facilities are required to accept, treat, and convey storm flows within the project site; no regional facilities are required to be expanded and no new regional facilities are necessary to accommodate the post-development runoff generated by the proposed project. No significant impacts would occur and no mitigation measures are required. (Refer to Section 4.9.)

4.17(d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less than Significant Impact. The City of Buena Park relies on two major water supply sources, which include imported water from MWD through an agreement with MWDOC and local groundwater from the Orange County Groundwater Basin, managed by OCWD. According to the City's Public Works Department, Buena Park receives 62 percent of its water from groundwater and 38 percent of its water from allocations from MWD. The City's current BPP of 62 percent is not anticipated to rise above the current rate for a number of years. Further, it is not anticipated to reach the historical value of 75 percent in the next 10 years.[13] The *Water Master Plan* projects that the City will meet its 2030 water demand through use of 15,510 AFY of groundwater and 5,170 AFY of imported water.[14] The *Water Master Plan* estimates water demand in part on a 2030 population of 92,481 persons. The proposed General Plan Update estimates a population of 88,567 persons in 2035. The population growth assumed under the proposed General Plan Update is less than the population projections used to determine the availability of adequate water supply for the City within the *Water Master Plan*. Project implementation would result in an estimated population increase of approximately 228 residents based on the City's estimated population per household of 3.41 persons.

Water facilities are located in the project area, including mains in Ball Road, which abuts the project site on the north. The Dickerson School Site project is located in an area of the City of Buena Park that is well developed. The area north, south and east of the project is primarily residential development. There is an existing commercial center north of the proposed project site. Within these areas the water systems have been in place for many years. There is a 10-inch diameter line running adjacent to the north of the project area under Ball Road and a 6-inch diameter line running adjacent to the east side of the project under Bernadette Avenue. The water pressure zone serving the area around the Dickerson School Site property is Zone 1 operating at a maximum hydraulic grade line of 240 feet. Zone 1 covers the vast majority of the City of Buena Park due to the flat topography of most of the City. The primary piping feeding the system extends along Ball Road to the east and Holder Street to the north.

[12]Ibid.
[13]Buena Park General Plan Update Final Environmental Impact Report; SCH No. 2009111026 (Certified November 2010).
[14]Ibid.

The City's Water Master Plan has estimated the average low density (RS-6) residential potable water demand to be 1,500 gpd per acre. Based on a water demand factor of 1,500 gallons per day per acre, the proposed development plan for the Dickerson School Site project would have an estimated average day demand (ADD) of 13,635 gpd. The maximum day demand (MDD), which is calculated based on 1.58 times the ADD, is estimated to be 21,543 gpd; and the peak hour demand (PHD), which is 2.43 times the average day demand, is estimated to be 33,133 gpd.[15] The Dickerson School Residential Development project will be served from the City of Buena Park Zone 1 240 Pressure Zone system, which has adequate pressure to serve the site. The project is proposing to make two connections to the existing public water system, including a connection to an existing 10-inch diameter line in Ball Road and a second connection to an existing 6-inch line in Bernadette Avenue.

The City's *Water Master* Plan includes a Water Supply Plan, which is set to implement and maintain delivery of water to the City's customers despite the status of supply availabilities. Several water supply scenarios were analyzed to determine if the City would be able to meet water demands under various water supply situations. Five scenarios were evaluated, which includes 0 percent groundwater and 100 percent MWD Supply, 25 percent groundwater and 75 percent MWD Supply, 50 percent groundwater and 50 percent MWD Supply, 75 percent groundwater and 25 percent MWD Supply, and 100 percent groundwater and 0 percent MWD Supply. In all scenarios evaluated by the City for the General Plan Update, except with 100 percent groundwater, the City would be able to meet the required demands and design criteria. In the event the entire MWD water supply was unavailable, there would be a shortage of available supply to meet the future (year 2030) projected ADD. The City cannot meet its MDD solely from groundwater sources, unless the City's Phase 4 Conservation Plan, which calls for conservation of 30 to 50 percent, is implemented. It is anticipated that the City will have adequate water supplies to accommodate buildout, even with the proposed land use, because the small increase in population associated with the project is less than the SCAG buildout population estimates, which is the basis for long-range water demand projects.

Finally, the Buena Park General Plan Update identified policies and implementation measures within the Community Facilities Element to ensure adequate water supply and facilities to serve the projected growth associated with buildout of the General Plan. Those policies address maintaining, improving, and replacing aging water systems to ensure adequate water provision to the community (Policy CF-4.1) and evaluating individual projects to determine adequate service capacity and to require mitigation and/or necessary improvements (Implementation Measure CF-17). The Conservation and Sustainability Element includes policies to reduce water consumption through green building and conservation measures. The General Plan Update EIR concluded that implementation of the General Plan Update policies and implementation measures, along with maintenance of the existing water delivery system, would make impacts to the City's water supply less than significant. As indicated above, the incremental increase in residents resulting from project implementation will be within the buildout population forecasted in the General Plan Update (as well as the SCAG forecast for the City); therefore, the project is also within the water demand estimates and will not have a significant impact on water supplies and/or facilities.

4.17(e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact. Similar to water supply discussed above, project implementation will result in the development of 67 single-family residential dwelling units on the subject property, which would be in excess of the number of such dwelling units anticipated at buildout and analyzed in the City's General Plan Update EIR because the project site was analyzed as an elementary school in the buildout scenario. However, as indicated in Section 4.17(a), the proposed residential development would result in the generation of 9,354 gallons per day.[16] As indicated in Section 4.18(d), there is adequate capacity at the existing treatment facilities

[15]Water System Analysis for the Dickerson School Site in the City of Buena Park; Dexter Wilson Engineering, Inc. (January 7, 2015).

[16]Dickerson Elementary School is closed. The latest enrollment available from the Cypress School District showed that the school had an enrollment of 350 students. Based on a sewage generation rate of 15 gallons/student/day, it is estimated that the school generated approximately 5,250 gallons of raw sewage per day. However, because Dickerson School is closed, no "credit" for the school-

to accommodate the minor increase in raw sewage generated by the 67 single-family residential dwelling units. Furthermore, the General Plan Update EIR revealed that SCAG has projected that the City's population will reach 90,295 persons by 2035, compared to the proposed General Plan Update forecast, which projected a buildout population of approximately 88,616 persons. Because the City's forecast population would be slightly less than anticipated by SCAG, the increase in population over the City's buildout estimate would remain consistent with the SCAG regional growth forecasts. As a result, the proposed project would be consistent with the design capacities of the Sanitation Districts' wastewater treatment facilities and a less than significant impact would occur. (It is important to note that the City's General Plan Update accounts for the increased growth, and proposes policies to reduce potential growth related impacts associated with the proposed General Plan Update, including wastewater services and facilities. Additionally, the increase in population would occur over a 25-year period, allowing for development of necessary services and infrastructure to accommodate the proposed growth.)[17]

4.17(f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less than Significant Impact. Future development associated with buildout of the proposed General Plan Update and associated cumulative projects within the local area would impact solid waste collection and disposal services within the area. The City of Buena Park is situated within a region, which is largely urbanized and built-out. Buena Park, along with cities in the surrounding area would continue to use common landfill resources, thereby reducing the capacity of local landfills. Although the proposed General Plan Update would not significantly impact existing landfill capacity, the increase in solid waste generation from the project and related cumulative projects together could significantly impact the finite resources associated with solid waste disposal. Individual development projects and related cumulative projects would be required to meet current recycling goals, reducing the amount of solid waste requiring disposal at landfills. Future developments would be reviewed on a project-by-project basis. Solid waste impacts would be evaluated based on existing and planned disposal facilities and capacities available. All development projects would be required to comply with Federal, State, and local statutes and regulations related to solid waste. Pursuant to AB 939, every city and county in the State is required to divert 50 percent of solid waste generated in its jurisdiction away from landfills. Implementation of source reduction measures, such as recycling and converting waste to energy, that would be implemented on a project-by-project basis would serve to divert solid waste away from landfills. The contribution of the proposed General Plan Update to cumulative impacts associated with increased solid waste would be less than significant. Therefore, the proposed General Plan Update would not result in cumulatively considerable solid waste impacts.

4.17(g) Comply with federal, state, and local statutes and regulations related to solid waste?

Less than Significant Impact. As indicated in the EIR prepared for the Buena Park General Plan Update, the City is required to comply with AB939, which requires reducing the amount of solid waste by 50 percent. Site development will be subject to the requirements established in the City's Source Reduction and Recycling Element (SRRE) that reflect the manner in which solid waste reduction will occur. Compliance with the SRRE will ensure that such reductions occur, not only at the project site but also throughout the City of Buena Park. It is possible that some of the demolition debris resulting from the implementation of the Dickerson Elementary School single-family residential development could be recycled, which would result in a reduction in the amount of construction debris that would be landfilled. Therefore, no significant impacts are anticipated to occur as a result of project implementation.

related sewage generation is made. The project will generate 9,354 gallons of raw sewage per day rather than in increase of 4,104 gallons per day.

[17]Buena Park General Plan Update Final Environmental Impact Report; SCH No. 2009111026 (Certified November 2010).

Cumulative Impacts

Project implementation will create a demand for domestic water and would generate both raw sewage and refuse; however, the project is consistent with the long-range plans and policies adopted for the subject site and would not create demands for water or generate sewage and/or refuse that exceed what is anticipated as a result of development that is consistent with those plans. Therefore, because demand and generation rates associated with the proposed project can be accommodated by the existing infrastructure, their potential cumulative impacts would be less than significant.

Standard Conditions

Sewer Facilities

SC 4.17-1 The Project shall comply with Chapter 13.04 (Sewers) of the Buena Park Municipal Code, which identifies regulations for sewer system connections, improvements, and maintenance.

SC 4.17-2 Prior to issuance of a building permit, new buildings and/or other structures proposed to connect to the City's sewer system shall be approved by the City Engineer.

SC 4.17-3 All sewer pipeline extensions shall be designed to conform to standards and specifications issued by the City Engineer.

SC 4.17-4 Prior to issuance of as a building permit, the applicant shall pay the applicable sewer maintenance fee in order to connect to the City's sewer system.

Water Facilities

SC 4.17-5 The Project shall comply with Sections 13.28.060 to 13.28.100, which establishes permanent water conservation requirements that are effective at all times, to reduce water consumption within the City.

SC 4.17-6 The project shall comply with Section 13.30.040 of the Buena Park Municipal Code, which requires the implementation of water conservation measures for landscaping.

Storm Drainage

SC 4.17-7 Prior to issuance of a grading permit, the project shall comply with Section 13.32.030 (Control Urban Runoff), which requires the submittal of the project plans to the City for review and approval.

Mitigation Measures

In addition to the standard conditions cited above, the following mitigation measure is required to ensure that adequate sewer capacity is available to serve the proposed project.

MM 4.17-1 Prior to issuance of the certificate of occupancy or as determined by the City Engineer/Director of Public Works, the CIP sewer improvements shall be constructed, including upsizing the line in Myra Avenue from an 8-inch diameter to a 10-inch diameter and upsizing the line in Florence Avenue from a 10-inch diameter to a 12-inch diameter.

4.18 MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			■	
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			■	
c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?		■		

Impact Analysis

4.18(a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact. The proposed project is consistent with the General Plan land use designation and zoning adopted for the project site. The project site been impacted by past activities that have modified the existing site features in order to accommodate the existing Dickerson Elementary School. Project implementation will not result in the loss of any sensitive habitat or species. Further, no cultural or scientific resources are known to be located on the site and no known important historic resources would be adversely affected by the Project. Because the project is located in an urbanized area and is devoid of native habitat and does not support sensitive species of either plant or animals, project implementation will not substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of major periods of California history or prehistory. Nonetheless, implementation of the project will result in the redevelopment of the site from a public/institutional use (i.e., elementary school) to a single-family residential use. As a result of such redevelopment, it is anticipated that future traffic volumes associated with the proposed land use would be less than that generated by the school use prior to its closure. Nonetheless, the traffic analysis prepared for the project assumed no credit for the traffic generated by the elementary school and determined that the project would not result in any potentially significant traffic impacts. Similarly, increases in air pollutant emissions that contribute to the degradation of the ambient air quality would be less than significant, potential demands for public services and utilities, and increases in noise levels that could affect the ambient noise levels in the project area would also be less than significant based on the analysis presented in the preceding assessment of the project.

4.18(b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less than Significant Impact. Because the subject property has been substantially altered as a result of development that has occurred, no native habitat or other important or sensitive species and/or cultural/scientific resources would occur. Furthermore, implementation of the proposed project would not result in significant cumulative impacts. In particular, incremental traffic, noise and air quality impacts would not exceed significance thresholds identified either by the City of Buena Park or other adjacent municipality and/or responsible agency in the project area. Therefore, the proposed project does not have the potential to generate other project-related impacts that may be cumulatively considerable.

4.18(c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant with Mitigation Incorporated. Construction and operation of the proposed Lyon Development Residential Project/Dickerson Elementary School Site Project is consistent with the Buena Park General Plan and zoning adopted for the subject property and all applicable plans and programs. Although the preliminary analysis of the proposed project concluded that potentially significant impacts may occur that could cause substantial adverse effects on human beings, including geology and soils, hazards and hazardous materials, noise, transportation/traffic, and utilities, compliance with standard conditions prescribed by the City of Buena Park and incorporation of mitigation measures that have been prescribed will ensure that the potentially significant impacts will be reduced to a less than significant level. Therefore, project implementation will not have environmental effects that would cause substantial direct or indirect adverse effects.

4.19 REFERENCES

The following references were utilized during preparation of this Initial Study. These documents are available for review at the City of Buena Park, 6650 Beach Boulevard, Buena Park, California 90622.

Buena Park 2035 General Plan; Adopted December 7, 2010.
- Housing Element
- Land Use and Community Design Element
- Mobility Element
- Safety Element
- Conservation and Sustainability Element
- Community Facilities Element
- Noise Element
- Implementation Element
- Economic Development Element
- Open Space and Recreation Element

Buena Park General Plan Update Final Environmental Impact Report; SCH No. 2009111026 (Certified November 2010).

Cypress General Plan

Traffic Impact Analysis; Dickerson Elementary School Residential Project; Linscott, Law & Greenspan Engineers (December 23, 2014).

Airport Environs Land Use Plan (AELUP) for Joint Forces Training Base Los Alamitos; Airport Land Use Commission (Amended December 19, 2002).

Geotechnical Investigation Dickerson School Site; GMU Geotechnical, Inc. (November 25, 2014).

Phase I Environmental Site Assessment School Property 10051 Bernadette Avenue, Buena Park, CA; Black Rock Geosciences (April 2014).

Air Quality and GHG Analyses Dickerson School Site Residential Project; Giroux & Associates; January 6, 2015.

Noise Impact Analysis Dickerson School Site Residential Project; Giroux & Associates; January 23, 2015.

Off-Site Sewer Analysis for the Dickerson School Site Project in the City of Buena Park; Dexter Wilson Engineering, Inc.; January 7, 2015

Water System Analysis for the Dickerson School Site Project in the City of Buena Park; Dexter Wilson Engineering, Inc.; January 7, 2015

4.20 REPORT PREPARATION PERSONNEL

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Mr. Hans Giroux, Principal

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5.0 LEAD AGENCY DETERMINATION

On the basis of this initial evaluation:

I find that the proposed use **COULD NOT** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared. ☐

I find that although the proposal could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described in Section 4.0 have been added. A **MITIGATED NEGATIVE DECLARATION** will be prepared. ☒ X

I find that the proposal **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required. ☐

I find that the proposal **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed. ☐

I find that the proposal could have a significant effect on the environment, because all potentially significant effects a) have been adequately analyzed in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable legal standards, and b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐

Signature

City of Buena Park
Agency

Joel Rosen, Director
Printed Name/Title

4/27/15
Date

AIR QUALITY and GHG IMPACT ANALYSES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT

CITY OF BUENA PARK, CALIFORNIA

Prepared by:

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Santa Ana, Calif. 92705

Prepared for:

Keeton Kreitzer Consulting
Attn: Keeton Kreitzer
P. O. Box 3905
Tustin, CA 92781

Date:

January 6, 2015

Project No.: P14-058 AQ

METEOROLOGY CLIMATE

The project site's climate, as with all Southern California, is dominated by the strength and position of the semi-permanent high pressure pattern over the Pacific Ocean near Hawaii. It creates cool summers, mild winters, and infrequent rainfall. It drives the cool daytime sea breeze, and it maintains comfortable humidity levels and ample sunshine after the frequent morning clouds dissipate. Unfortunately, the same atmospheric processes that create the desirable living climate combine to restrict the ability of the atmosphere to disperse the air pollution generated by the large population attracted in part by the desirable climate. Portions of the Los Angeles Basin therefore experience some of the worst air quality in the nation for certain pollutants.

Temperatures in the City of Buena Park average 63 degrees annually. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby oceanic thermal reservoir. Summer afternoons reach 90 degrees on average, and winter mornings drop to 40 degrees. In contrast to the steady temperature regime, rainfall is highly variable. Measurable precipitation occurs mainly from early November to mid-April, but total amounts are generally small. Buena Park averages 15 inches of rain annually with January as the wettest month. Twenty-two days per year have measurable rain, with moderate to heavy rain (>0.50 inch in 24 hours) on seven days.

Winds in the project vicinity display several characteristic regimes. During the day, especially in summer, winds are from the southwest in the morning and from the northwest in the afternoon. Daytime wind speeds are 6 – 8 miles per hour on average. At night, especially in winter, the land becomes cooler than the ocean, and an off-shore wind of 2-4 miles per hour develops. One other important wind regime occurs when high pressure occurs over the western United States that creates hot, dry and gusty Santa Ana winds from the north and northeast across Buena Park.

The net effect of the wind pattern on air pollution is that any locally generated emissions will be carried seaward at night and toward western Riverside or San Bernardino Counties by day. Daytime ventilation is much more vigorous. Unless daytime winds rotate far into the northwest and bring air pollution from developed areas of the air basin into Buena Park, warm season air quality is better in the project vicinity than in inland valleys farther to the east. While winter mornings have strong stagnation potential because of light winds, automobiles have become sufficiently "clean" such that localized pollution "hot spots" have almost completely disappeared. Although there are still recurring violations of some clean air standards, the magnitude and frequency of those violations have diminished dramatically in the last 20-30 years in the project area.

In addition to winds that control the rate and direction of pollution dispersal, Southern California is notorious for strong temperature inversions that limit the vertical depth through which pollution can be mixed. In summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a giant lid over the basin. Air starting onshore at the beach is relatively

clean, but becomes progressively more polluted as sources continue to add pollution from below without any dilution from above. Buena Park is only moderately affected by the marine inversion such that the frequency of violations of smog standards is relatively low.

A second inversion type forms on clear, winter nights when cold air off the mountains sinks to the surface while the air aloft remains warm. This process forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as automobile exhaust near their source. During the long nocturnal drainage flow from land to sea, the exhaust pollutants continually accumulate within the shallow, cool layer of air near the ground. Some areas of Orange County thus may experience slightly elevated levels of carbon monoxide and nitrogen oxides because of this winter radiation inversion condition. However, the Buena Park area is not substantially affected by limited nocturnal mixing effects (no violations of CO standards in over 10 years). Both types of inversions occur throughout the year to some extent, but the marine inversions are very dominant during the day in summer, and radiation inversions are much stronger on winter nights when nights are long and air is cool. The governing role of these inversions in atmospheric dispersion leads to a substantially different air quality environment in summer in the South Coast Air Basin than in winter.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the Dickerson School Site Residential project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule, which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to “non-attainment” for the 8-hour ozone standard.

Table 1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)[8]	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)[8]	24 Hour	—	—	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12.0 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m³)		9 ppm (10 mg/m³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	
Nitrogen Dioxide (NO_2)[9]	1 Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1 Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[10]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[10]	—	
Lead[11,12]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m³		
Visibility Reducing Particles[13]	8 Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (6/4/13)

Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

9. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

10. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

11. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

12. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

13. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (6/4/13)**

Table 2
Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Fine Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the exposure period for the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ($NO_{2)}$ that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted. In December, 2012, the federal annual standard for PM-2.5 was reduced from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ which matches the California AAQS. The severity of the basin's non-attainment status for PM-2.5 may be increased by this action and thus require accelerated planning for future PM-2.5 attainment.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. A new 8-hour ozone standard was adopted in 2014, but the final numerical value has not yet been selected. It will require additional public input in 2016, then three years of ambient data collection, then 2 years of non-attainment findings and planning protocol adoption, then several years of plan development and approval. Final air quality plans for the new standard are likely to be adopted in 2015. Ultimate attainment of the new standard in ozone problem ares such as Southern California might be close to 2030.

A new federal one-hour standard for nitrogen dioxide (NO_2) was adopted in 2010. This standard is more stringent than the existing state standard. Based upon air quality monitoring data throughout Southern California, the basin was designated as "attainment" for the national one-hour standard.

BASELINE AIR QUALITY

Existing and probable future levels of air quality around the project area can best be best inferred from ambient air quality measurements conducted by the SCAQMD at the Anaheim monitoring station. This station measures both regional pollution levels such as smog, as well as primary vehicular pollution levels near busy roadways such as carbon monoxide and nitrogen oxides. Pollutants such as particulates (PM-10 and PM-2.5) are also monitored at Anaheim. Table 3 is a 6-year summary of monitoring data for the major air pollutants compiled from this air monitoring station. From these data the following conclusions regarding air quality trends can be drawn:

a. Photochemical smog (ozone) levels occasionally exceed standards. The 1-hour state standard, 8-hour state and the 8-hour federal ozone standard have been exceeded on less than 1 percent of all days in the past six years. Year 2012 and 2013 demonstrate progressively improved ozone levels in the area with zero violations of any ozone standards. While ozone levels are still occasionally high, they are much lower than 10 to 20 years ago.

b. Respirable dust (PM-10) levels rarely exceed the state standard with seven violations in all measured days in the past six years. The less stringent federal PM-10 standard has not been violated during this six year period.

c. The federal ultra-fine particulate (PM-2.5) standard of 35 $\mu g/m^3$ has been exceeded about one percent of measurement days in the last six years.

d. More localized pollutants such as carbon monoxide, nitrogen oxides, etc. are very low near the project site. There is substantial excess dispersive capacity to accommodate localized vehicular air pollutants such as NOx or CO without any threat of violating applicable AAQS.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table 3
Air Quality Monitoring Summary (2008-2013)
(Number of Days Standards Were Exceeded, and
Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	2008	2009	2010	2011	2012	2013
Ozone						
1-Hour > 0.09 ppm (S)	2	0	1	0	0	0
8-Hour > 0.07 ppm (S)	10	2	1	1	0	0
8- Hour > 0.075 ppm (F)	5	1	1	0	0	0
Max. 1-Hour Conc. (ppm)	0.105	0.093	0.104	0.088	0.079	0.084
Max. 8-Hour Conc. (ppm)	0.086	0.077	0.088	0.072	0.067	0.070
Carbon Monoxide						
1-hour > 20. ppm (S)	0	0	0	0	0	0
8- Hour > 9. ppm (S,F)	0	0	0	0	0	0
Max 1-hour Conc. (ppm)	4.1	3.2	3.0	xx	xx	xx
Max 8-hour Conc. (ppm)	3.4	2.7	2.0	2.1	2.3	2.6
Nitrogen Dioxide						
1-Hour > 0.18 ppm (S)	0	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.093	0.068	0.073	0.074	0.067	0.081
Inhalable Particulates (PM-10)						
24-hour > 50 $\mu g/m^3$ (S)	3/58	1/56	0/57	2/57	0/61	1/59
24-hour > 150 $\mu g/m^3$ (F)	0/58	0/56	0/57	0/57	0/61	0/59
Max. 24-Hr. Conc. ($\mu g/m^3$)	61.	62.	43.	53.	48.	77.
Ultra-Fine Particulates (PM-2.5)						
24-Hour > 35 $\mu g/m^3$ (F)	5/304	4/334	0/331	2/352	4/347	1/331
Max. 24-Hr. Conc. ($\mu g/m^3$)	67.8	64.5	31.7	39.2	50.1	37.8

xx = data not reported on CARB website

Source: South Coast AQMD Air Monitoring Station Data Summary, Anaheim Station (3176)

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The AQMP outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 requires control technologies that do not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation will allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification sets a later attainment deadline (2024), but also requires the air basin to adopt even more stringent emissions controls.

Table 4

South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

Pollutant	2010[a]	2015[b]	2020[b]	2025[b]
NOx	603	451	357	289
VOC	544	429	400	393
PM-10	160	155	161	165
PM-2.5	71	67	67	68

[a]2010 Base Year.
[b]With current emissions reduction programs and adopted growth forecasts.

Source: California Air Resources Board, 2013 Almanac of Air Quality

In other air quality attainment plan reviews, EPA has disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA has stated that the current attainment plan relies on PM-2.5 control regulations that have not yet been approved or implemented. It is expected that a number of rules that are pending approval will remove the identified deficiencies. If these issues are not resolved within the next several years, federal funding sanctions for transportation projects could result. The 2012 AQMP included in the ARB submittal to EPA as part of the California State Implementation Plan (SIP) is expected to remedy identified PM-2.5 planning deficiencies.

The federal Clean Air Act requires that non-attainment air basins have EPA approved attainment plans in place. This requirement includes the federal one-hour ozone standard even though that standard was revoked around eight years ago. There was no approved attainment plan for the one-hour federal standard in place at the time of revocation. Through a legal quirk, the SCAQMD is now forced to develop an AQMP for the long since revoked one-hour federal ozone standard. Because the 2012 AQMP contains a number of control measures for the 8-hour ozone standard that are equally effective for one-hour levels, the 2012 AQMP is believed to satisfy hourly attainment planning requirements.

The proposed project does not directly relate to the AQMP in that there are no specific air quality programs or regulations governing commercial land use projects. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.

b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation.

c. Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

d. Exposes sensitive receptors to substantial pollutant concentrations.

e. Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based

upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 5
Daily Emissions Thresholds

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional Indicators

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation

- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.

- Project could generate vehicle trips that cause a CO hot spot.

The SCAQMD CEQA Handbook also identifies various secondary significance criteria related to toxic, hazardous or odorous air contaminants. Except for the small diameter particulate matter ("PM-2.5") fraction of diesel exhaust generated by heavy construction equipment and project-related diesel truck traffic, there are no secondary impact indicators associated with project construction or operations.

For PM-2.5 exhaust emissions, recently adopted policies require the gradual conversion of delivery fleets to diesel alternatives, or the use of "clean" diesel if their emissions are demonstrated to be as low as those from alternative fuels. Because health risks from toxic air contaminants (TAC's) are cumulative over an assumed 70-year lifespan, measurable off-site public health risk from diesel TAC exposure would occur for only a brief portion of a project lifetime, and only in dilute quantity.

SENSITIVE RECEPTORS

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called "sensitive receptors." Sensitive population groups include young children, the elderly and the acutely and chronically ill (especially those with cardio-respiratory disease). Residential areas adjacent to a proposed site are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. The residential uses surrounding the site would be considered the closest receptors.

CONSTRUCTION ACTIVITY IMPACTS

Dust is typically the primary concern during construction of new buildings. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions." Emission rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). These parameters are not known with any reasonable certainty prior to project development and may change from day to day. Any assignment of specific parameters to an unknown future date is speculative and conjectural.

Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. This assumption may or may not be totally applicable to site-specific conditions on the proposed project site. As noted previously, emissions estimation for project-specific fugitive dust sources is therefore characterized by a considerable degree of imprecision.

Average daily PM-10 emissions during site grading and other disturbance are estimated to be about 10 pounds per acre. This estimate presumes the use of reasonably available control measures (RACMs). The SCAQMD requires the use of best available control measures (BACMs) for fugitive dust from construction activities.

Current research in particulate-exposure health suggests that the most adverse effects derive from ultra-small diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates or organic material. A national clean air standard for particulate matter of 2.5 microns or smaller in diameter (called "PM-2.5") was adopted in 1997. A limited amount of construction activity particulate matter is in the PM-2.5 range. PM-2.5 emissions are estimated to comprise 10-20 percent of PM-10.

CalEEMod was developed by the SCAQMD to provide a computer model by which to calculate both construction emissions and operational emissions from a variety of land use projects. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions.

Although exhaust emissions will result from on and off-site heavy equipment, the exact types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Estimated construction emissions were modeled using CalEEMod2013.2.2 to identify maximum daily emissions for each pollutant during project construction. Construction emissions include all emissions associated with the construction equipment, worker trips, and supply truck deliveries.

The proposed development of 67 single family residences was modeled in CalEEMod2013.2.2. The modeled prototype construction equipment fleet and schedule is indicated in Table 6 and based on CalEEMod defaults for a project of this size.

Table 6

Construction Activity Equipment Fleet

Phase Name and Duration	**Equipment**
Demo (30 day) 39,768 sf debis	1 Concrete Saw
	3 Excavators
	2 Dozers
Grading (20 days)	1 Dozer
	1 Excavator
	1 Grader
	3 Loader/Backhoes
Construction (230 days)	1 Crane
	3 Forklifts
	1 Generator Set
	1 Welder
	3 Loader/Backhoes
Paving (20 days)	2 Pavers
	2 Paving Equipment
	2 Rollers

Utilizing this indicated equipment fleet shown in Tables 6 the following worst case daily construction emissions are calculated by CalEEMod and are listed in Table 7.

Table 7
Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

Maximal Construction Emissions	ROG	NOx	CO	SO_2	PM-10	PM-2.5
2015						
Unmitigated	4.7	51.3	38.9	0.0	9.0	5.6
Mitigated	3.8	30.8	28.0	0.0	3.9	2.5
2016						
Unmitigated	47.5	29.2	20.5	0.0	2.2	1.9
Mitigated	47.5	29.2	20.5	0.0	2.3	1.9
SCAQMD Thresholds	75	100	550	150	150	55

Peak daily construction activity emissions are estimated be below SCAQMD CEQA thresholds with mitigation. The only model-based mitigation measured applied for this project are:

- Water exposed dirt surfaces two times per day to minimize the generation of fugitive dust generation during grading, and
- Use Tier 3 engines for the excavator, grader and dozer during grading activities

Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a relatively brief construction period due to the lack of health risk associated with such a brief exposure.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For the proposed project, the primary source of possible LST impact would be during construction. LSTs are applicable for a sensitive receptor where it is possible that an individual could remain for 24 hours such as a residence, hospital or convalescent facility.

LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distances. For this project the nearest sensitive uses are immediately adjacent to the site. Therefore the most stringent 25 meter source-receptor distance was selected.

LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant screening level concentration data is currently published for 1, 2 and 5 acre sites for varying distances. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, the following tables should be used to determine the maximum daily disturbed-acreage for comparison to LSTs.

Table 8
Maximum Daily Disturbed Acreage per Equipment Type

Equipment Type	Acres/8-hr-day
Crawler Tractor	0.5
Graders	0.5
Rubber Tired Dozers	0.5
Scrapers	1

Based on this table, the proposed project will result in 1.0 disturbed daily acre during peak construction grading activity:

(1 dozer x 0.5 + 1 grader x 0.5 = 1.0 acre disturbed).

The following thresholds and emissions in Table 9 are therefore determined (pounds per day):

Table 9
LST and Project Emissions (pounds/day)

LST 1.0 acres/25 meters Central Orange County	CO	NOx	PM-10	PM-2.5
Max On-Site Emissions	485	81	4	3
Demo				
Unmitigated	36	48	2	1
Mitigated	25	21	2	1
Grading				
Unmitigated	27	40	9	5
Mitigated	21	20	4	2
Construction				
Unmitigated	19	30	2	2
Mitigated	19	30	2	2
Paving				
Unmitigated	15	22	1	1
Mitigated	15	22	1	1

CalEEMod Output in Appendix

LSTs were compared to the maximum daily construction activities during each construction phase. As seen in Table 9, with application of mitigation, emissions meet the LST for construction thresholds. LST impacts are less-than-significant. The applied mitigation is as follows:

- Water exposed dirt surfaces two times per day to minimize the generation of fugitive dust generation during grading, and
- Use Tier 3 engines for excavator, grader and dozer during grading activities

Although calculated emissions would meet SCAQMD CEQA requirements, demolition and new construction in very close proximity to existing homes presents a potential for dust nuisance even if LST standards are not expected to be violated. While use of best available control measures (BACMs) for PM-10 is required, extra enhancements should be incorporated into project construction management. Such "super-BACMs" might include:

- Large signage at the Juanita entrance that identifies the point of contractor contact responsible for dust control
- Required response to all public contact regarding dust issues within 24 hours
- Pre-watering of areas of planned earth movement for at least 72 hours
- Construct a paved access apron and wash any truck wheels with visible dust prior to access to Ball Road
- Install a fabric lined chain link fence 8-feet high around the site perimeter at all non-access points (except for the units facing Bernadette)
- Establish on-site equipment staging areas and employee parking areas closer to Ball Road away from existing homes with at least one inch of washed gravel maintenance to a depth of four inches

- Instruct all on-site workers and visitors about the importance of fully carrying out any fugitive dust control measures.

OPERATIONAL IMPACTS

The project would generate 638 daily trips using trip generation numbers provided by the project traffic consultant. The previous site use as an elementary school generated greater numbers of hourly or daily traffic. However, the school has been closed for over four years. The proposed project was therefore considered as a "new" source with no traffic off-set credit for air quality impact analysis purposes. Operational emissions were calculated using CalEEMod2013.2.2 for an assumed project build-out and full occupancy year of 2017. The operational impacts are shown in Table 9. As shown, operational emissions will not exceed applicable SCAQMD operational emissions CEQA thresholds of significance.

Table 10
Daily Operational Impacts

	Operational Emissions (lbs/day)						
Source	**ROG**	**NOx**	**CO**	**SO_2**	**PM-10**	**PM-2.5**	**CO2**
Area *	2.8	0.1	5.6	0.0	0.1	0.1	1,294.9
Energy	0.1	0.5	0.2	0.0	0.0	0.0	627.5
Mobile	2.0	4.8	23.2	0.1	4.7	1.3	5,400.7
Total	**4.9**	**5.4**	**29.0**	**0.1**	**4.8**	**1.4**	**7,323.1**
SCAQMD Threshold	55	55	550	150	150	55	-
Exceeds Threshold?	No	No	No	No	No	No	NA

*natural gas hearths
Source: CalEEMod2013.2.2 Output in Appendix

CONSTRUCTION EMISSIONS MITIGATION

Construction activities are not anticipated to cause dust emissions to exceed SCAQMD CEQA thresholds. Nevertheless, mitigation through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin and proximity of adjacent residential uses. Recommended mitigation includes:

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Prepare a high wind dust control plan.
- Address previously disturbed areas if subsequent construction is delayed.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 2-3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

In order to minimize potential dust nuisance impacts because of existing home proximity, use of super enhanced nuisance dust control measures beyond these presented above is recommended. As discussed on the impact analysis text, a highly enhanced dust control program might include:

- Signage with point of contact
- Minimum response time
- Pre-watering prior to soil disturbance
- Paved site access apron and wheel washers
- Wind control fencing
- Dust suppression staging and parking areas
- Worker and visitor dust control instruction

Similarly, ozone precursor emissions (ROG and NOx) are calculated to be below SCAQMD CEQA thresholds. However, because of the regional non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control includes:

Exhaust Emissions Control

- Utilize well-tuned off-road construction equipment.
- Establish a preference for contractors using Tier 3 or better heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

GREENHOUSE GAS EMISSIONS

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved by 2020.
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve),

general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

THRESHOLDS OF SIGNIFICANCE

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to "select the model or methodology it considers most appropriate." The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as CalEEMod, as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons (MT) CO_2 equivalent/year. In September 2010, the Working Group released revisions which recommended a threshold of 3,500 MT CO_2e for residential type projects. This 3,500 MT/year recommendation has been used as a guideline for this analysis. In the absence of an adopted numerical threshold

of significance, project related GHG emissions in excess of the guideline level are presumed to trigger a requirement for enhanced GHG reduction at the project level.

PROJECT RELATED GHG EMISSIONS GENERATION

Construction Activity GHG Emissions

The build-out timetable for this project is assumed to be less than two years. During project construction, the CalEEMod2013.2.2 computer model predicts that the construction activities will generate the annual CO_2e emissions identified in Table 11.

Table 11
Construction Emissions (Metric Tons CO_2e)

	CO_2e
Year 2015	389.0
Year 2016	38.3
Total	427.4
Amortized	**14.3**

*CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level is also provided. GHG impacts from construction are considered individually less-than-significant.

Project Operational GHG Emissions

The input assumptions for operational GHG emissions calculations, and the GHG conversion from consumption to annual regional $CO_2(e)$ emissions are summarized in the CalEEMod2013.2.2 output files found in the appendix of this report.

The total operational and annualized construction emissions are identified in Table 12.

Table 12
Operational Emissions

Consumption Source	**MT $CO_2(e)$ tons/year**
Area Sources*	15.7
Energy Utilization	240.4
Mobile Source	852.7
Solid Waste Generation	35.8
Water Consumption	30.5
Annualized Construction	14.3
Total	**1,196.3**
Guideline Threshold	3,500

*natural gas hearths

Total project GHG emissions are less than the proposed significance threshold of 3,500 MT. GHG emissions for the proposed project are less than significant.

CONSISTENCY WITH GHG PLANS, PROGRAMS AND POLICIES

The City Buena Park General Plan program EIR Chapter 5, Conservation and Sustainability Element, contains policies to guide the conservation of resources that are fundamental components of Buena Park's environment. The following mitigation measures could apply for the Dickerson School Site Residential project:

Energy and Water Use Mitigation Goals:

- Water Efficiency: Encourage smarter use of water, inside and out. Water reduction is typically achieved through more efficient appliances, fixtures and fittings inside and water-wise landscaping outside.

Construction Activity Mitigation Goals:

- Policy CS-14.1: Ensure that construction activities follow current South Coast Air Quality Management District (SCAQMD) rules, regulations, and thresholds.

- Policy CS-14.2: Ensure all applicable best management practices are used in accordance with the SCAQMD to reduce emitting criteria pollutants during construction.

- Policy CS-14.3: Require all construction equipment for public and private projects comply with CARB's vehicle standards. For projects that may exceed daily construction emissions established by the SCAQMD, Best Available Control Measures will be incorporated to reduce construction emissions to below daily emission standards established by the SCAQMD.

- Policy CS-14.4: Require project proponents to prepare and implement a Construction Management Plan, which will include Best Available Control Measures among others. Appropriate control measures will be determined on a project by project basis, and should be specific to the pollutant for which the daily threshold is exceeded. Such control measures may include but not be limited to:

    - Minimizing simultaneous operation of multiple construction equipment units.
    - Implementation of SCAQMD Rule 403, Fugitive Dust Control Measures.
    - Watering the construction area to minimize fugitive dust.
    - Require that off-road diesel powered vehicles used for construction shall be new low emission vehicles, or use retrofit emission control devices, such as diesel oxidation catalysts and diesel particulate filters verified by CARB.
    - Minimizing idling time by construction vehicles.

APPENDIX

CALEEMOD2013.2.2 COMPUTER MODEL OUTPUT

Dickerson

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	67.00	Dwelling Unit	9.09	120,600.00	192

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - actual acreage

Construction Phase - Demo: 20 days, Grading: 20 days, Construction: 230 days, Paving: 20 days

Demolition - 39768 sf demo

Vehicle Trips - 9.52 trips per day

Construction Off-road Equipment Mitigation - Tier 3 engines for grader, excavator and dozer

Area Mitigation -

Off-road Equipment - Demo: 1 concrete saw, 3 excavators, 2 dozers

Off-road Equipment - Grading: 1 excavator, 1 grader, 1 dozer, 3 loader/backhoes

Off-road Equipment - Construction: 1 crane, 3 forklifts, 1 gen set, 3 loader/backhoes, 1 welder

Off-road Equipment - Paving: 2 pavers, 2 paving equipment, 2 rollers

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblLandUse	LotAcreage	21.75	9.09
tblProjectCharacteristics	OperationalYear	2014	2017
tblVehicleTrips	ST_TR	10.08	9.52
tblVehicleTrips	WD_TR	9.57	9.52

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	4.7482	51.2628	38.9020	0.0486	6.7200	2.4989	9.0496	3.4120	2.3300	5.5552	0.0000	4,981.9368	4,981.9368	1.1328	0.0000	5,005.7251
2016	47.5498	29.2194	20.5397	0.0316	0.3120	1.9789	2.2909	0.0836	1.8590	1.9426	0.0000	3,093.3920	3,093.3920	0.7067	0.0000	3,108.2328
Total	**52.2980**	**80.4822**	**59.4416**	**0.0802**	**7.0320**	**4.4777**	**11.3404**	**3.4956**	**4.1890**	**7.4978**	**0.0000**	**8,075.3287**	**8,075.3287**	**1.8395**	**0.0000**	**8,113.9579**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2015	3.8179	30.8342	28.0378	0.0486	2.7231	2.1302	3.9510	1.3578	2.0028	2.5212	0.0000	4,981.9368	4,981.9368	1.1328	0.0000	5,005.7251
2016	47.5498	29.2194	20.5397	0.0316	0.3120	1.9789	2.2909	0.0836	1.8590	1.9426	0.0000	3,093.3920	3,093.3920	0.7067	0.0000	3,108.2328
Total	**51.3678**	**60.0536**	**48.5775**	**0.0802**	**3.0351**	**4.1091**	**6.2419**	**1.4414**	**3.8618**	**4.4638**	**0.0000**	**8,075.3287**	**8,075.3287**	**1.8395**	**0.0000**	**8,113.9578**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.78**	**25.38**	**18.28**	**0.00**	**56.84**	**8.23**	**44.96**	**58.77**	**7.81**	**40.47**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	20.3766	0.5105	39.2603	0.0539		5.1483	5.1483		5.1475	5.1475	627.5835	1,215.9530	1,843.5365	1.8816	0.0426	1,896.2541
Energy	0.0572	0.4886	0.2079	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.7533	623.7533	0.0120	0.0114	627.5493
Mobile	1.9679	4.8414	23.2411	0.0642	4.6050	0.0696	4.6746	1.2287	0.0641	1.2928		5,396.4241	5,396.4241	0.2032		5,400.6922
Total	**22.4017**	**5.8405**	**62.7093**	**0.1211**	**4.6050**	**5.2574**	**9.8624**	**1.2287**	**5.2511**	**6.4798**	**627.5835**	**7,236.1304**	**7,863.7139**	**2.0968**	**0.0540**	**7,924.4957**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.9372	0.0651	5.5897	2.9000e-004		0.1112	0.1112		0.1103	0.1103	0.0000	1,286.8942	1,286.8942	0.0345	0.0234	1,294.8752
Energy	0.0572	0.4886	0.2079	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.7533	623.7533	0.0120	0.0114	627.5493
Mobile	1.9679	4.8414	23.2411	0.0642	4.6050	0.0696	4.6746	1.2287	0.0641	1.2928		5,396.4241	5,396.4241	0.2032		5,400.6922
Total	**4.9623**	**5.3951**	**29.0387**	**0.0676**	**4.6050**	**0.2203**	**4.8253**	**1.2287**	**0.2139**	**1.4426**	**0.0000**	**7,307.0716**	**7,307.0716**	**0.2497**	**0.0349**	**7,323.1168**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**77.85**	**7.63**	**53.69**	**44.23**	**0.00**	**95.81**	**51.07**	**0.00**	**95.93**	**77.74**	**100.00**	**-0.98**	**7.08**	**88.09**	**35.51**	**7.59**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2015	1/28/2015	5	20	
2	Grading	Grading	1/29/2015	2/25/2015	5	20	
3	Building Construction	Building Construction	2/26/2015	1/13/2016	5	230	
4	Paving	Paving	1/14/2016	2/10/2016	5	20	
5	Architectural Coating	Architectural Coating	2/11/2016	3/9/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 244,215; Residential Outdoor: 81,405; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	181.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	24.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9573	0.0000	1.9573	0.2964	0.0000	0.2964			0.0000			0.0000
Off-Road	4.5083	48.3629	36.0738	0.0399		2.4508	2.4508		2.2858	2.2858		4,127.1934	4,127.1934	1.1188		4,150.6886
Total	**4.5083**	**48.3629**	**36.0738**	**0.0399**	**1.9573**	**2.4508**	**4.4081**	**0.2964**	**2.2858**	**2.5821**		**4,127.1934**	**4,127.1934**	**1.1188**		**4,150.6886**

3.2 Demolition - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1827	2.8255	1.9228	6.6600e-003	0.1576	0.0469	0.2045	0.0432	0.0431	0.0863		678.3695	678.3695	5.2900e-003		678.4806
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0572	0.0743	0.9054	2.0400e-003	0.1677	1.2200e-003	0.1689	0.0445	1.1200e-003	0.0456		176.3739	176.3739	8.6700e-003		176.5558
Total	**0.2399**	**2.8998**	**2.8282**	**8.7000e-003**	**0.3253**	**0.0481**	**0.3734**	**0.0876**	**0.0442**	**0.1318**		**854.7434**	**854.7434**	**0.0140**		**855.0365**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7633	0.0000	0.7633	0.1156	0.0000	0.1156			0.0000			0.0000
Off-Road	1.5349	20.8983	25.2097	0.0399		1.0694	1.0694		1.0694	1.0694	0.0000	4,127.1934	4,127.1934	1.1188		4,150.6886
Total	**1.5349**	**20.8983**	**25.2097**	**0.0399**	**0.7633**	**1.0694**	**1.8327**	**0.1156**	**1.0694**	**1.1850**	**0.0000**	**4,127.1934**	**4,127.1934**	**1.1188**		**4,150.6886**

3.2 Demolition - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1827	2.8255	1.9228	6.6600e-003	0.1576	0.0469	0.2045	0.0432	0.0431	0.0863		678.3695	678.3695	5.2900e-003		678.4806
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0572	0.0743	0.9054	2.0400e-003	0.1677	1.2200e-003	0.1689	0.0445	1.1200e-003	0.0456		176.3739	176.3739	8.6700e-003		176.5558
Total	**0.2399**	**2.8998**	**2.8282**	**8.7000e-003**	**0.3253**	**0.0481**	**0.3734**	**0.0876**	**0.0442**	**0.1318**		**854.7434**	**854.7434**	**0.0140**		**855.0365**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	3.8327	40.4161	26.6731	0.0298		2.3284	2.3284		2.1421	2.1421		3,129.0158	3,129.0158	0.9341		3,148.6328
Total	**3.8327**	**40.4161**	**26.6731**	**0.0298**	**6.5523**	**2.3284**	**8.8807**	**3.3675**	**2.1421**	**5.5096**		**3,129.0158**	**3,129.0158**	**0.9341**		**3,148.6328**

3.3 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0572	0.0743	0.9054	2.0400e-003	0.1677	1.2200e-003	0.1689	0.0445	1.1200e-003	0.0456		176.3739	176.3739	8.6700e-003		176.5558
Total	**0.0572**	**0.0743**	**0.9054**	**2.0400e-003**	**0.1677**	**1.2200e-003**	**0.1689**	**0.0445**	**1.1200e-003**	**0.0456**		**176.3739**	**176.3739**	**8.6700e-003**		**176.5558**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	1.5783	19.9080	20.6268	0.0298		1.2267	1.2267		1.1623	1.1623	0.0000	3,129.0158	3,129.0158	0.9341		3,148.6328
Total	**1.5783**	**19.9080**	**20.6268**	**0.0298**	**2.5554**	**1.2267**	**3.7822**	**1.3133**	**1.1623**	**2.4756**	**0.0000**	**3,129.0158**	**3,129.0158**	**0.9341**		**3,148.6328**

3.3 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0572	0.0743	0.9054	2.0400e-003	0.1677	1.2200e-003	0.1689	0.0445	1.1200e-003	0.0456		176.3739	176.3739	8.6700e-003		176.5558
Total	**0.0572**	**0.0743**	**0.9054**	**2.0400e-003**	**0.1677**	**1.2200e-003**	**0.1689**	**0.0445**	**1.1200e-003**	**0.0456**		**176.3739**	**176.3739**	**8.6700e-003**		**176.5558**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**		**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

3.4 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0673	0.6853	0.7628	1.5200e-003	0.0437	0.0115	0.0553	0.0125	0.0106	0.0231		153.4797	153.4797	1.1900e-003		153.5047
Worker	0.0915	0.1189	1.4486	3.2600e-003	0.2683	1.9500e-003	0.2702	0.0711	1.7900e-003	0.0729		282.1982	282.1982	0.0139		282.4893
Total	**0.1589**	**0.8042**	**2.2114**	**4.7800e-003**	**0.3120**	**0.0135**	**0.3255**	**0.0836**	**0.0124**	**0.0960**		**435.6778**	**435.6778**	**0.0151**		**435.9940**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904	0.0000	2,689.5771	2,689.5771	0.6748		2,703.7483
Total	**3.6591**	**30.0299**	**18.7446**	**0.0268**		**2.1167**	**2.1167**		**1.9904**	**1.9904**	**0.0000**	**2,689.5771**	**2,689.5771**	**0.6748**		**2,703.7483**

3.4 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0673	0.6853	0.7628	1.5200e-003	0.0437	0.0115	0.0553	0.0125	0.0106	0.0231		153.4797	153.4797	1.1900e-003		153.5047
Worker	0.0915	0.1189	1.4486	3.2600e-003	0.2683	1.9500e-003	0.2702	0.0711	1.7900e-003	0.0729		282.1982	282.1982	0.0139		282.4893
Total	**0.1589**	**0.8042**	**2.2114**	**4.7800e-003**	**0.3120**	**0.0135**	**0.3255**	**0.0836**	**0.0124**	**0.0960**		**435.6778**	**435.6778**	**0.0151**		**435.9940**

3.4 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**		**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

3.4 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0612	0.6055	0.7155	1.5100e-003	0.0438	9.6000e-003	0.0533	0.0125	8.8200e-003	0.0213		151.8012	151.8012	1.0800e-003		151.8238
Worker	0.0833	0.1076	1.3175	3.2600e-003	0.2683	1.8700e-003	0.2701	0.0711	1.7300e-003	0.0729		272.3044	272.3044	0.0128		272.5733
Total	**0.1445**	**0.7131**	**2.0330**	**4.7700e-003**	**0.3120**	**0.0115**	**0.3235**	**0.0836**	**0.0106**	**0.0942**		**424.1056**	**424.1056**	**0.0139**		**424.3971**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485	0.0000	2,669.2864	2,669.2864	0.6620		2,683.1890
Total	**3.4062**	**28.5063**	**18.5066**	**0.0268**		**1.9674**	**1.9674**		**1.8485**	**1.8485**	**0.0000**	**2,669.2864**	**2,669.2864**	**0.6620**		**2,683.1890**

3.4 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0612	0.6055	0.7155	1.5100e-003	0.0438	9.6000e-003	0.0533	0.0125	8.8200e-003	0.0213		151.8012	151.8012	1.0800e-003		151.8238
Worker	0.0833	0.1076	1.3175	3.2600e-003	0.2683	1.8700e-003	0.2701	0.0711	1.7300e-003	0.0729		272.3044	272.3044	0.0128		272.5733
Total	**0.1445**	**0.7131**	**2.0330**	**4.7700e-003**	**0.3120**	**0.0115**	**0.3235**	**0.0836**	**0.0106**	**0.0942**		**424.1056**	**424.1056**	**0.0139**		**424.3971**

3.5 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0898**	**22.3859**	**14.8176**	**0.0223**		**1.2610**	**1.2610**		**1.1601**	**1.1601**		**2,316.3767**	**2,316.3767**	**0.6987**		**2,331.0495**

3.5 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0520	0.0672	0.8235	2.0400e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		170.1902	170.1902	8.0000e-003		170.3583
Total	**0.0520**	**0.0672**	**0.8235**	**2.0400e-003**	**0.1677**	**1.1700e-003**	**0.1688**	**0.0445**	**1.0800e-003**	**0.0455**		**170.1902**	**170.1902**	**8.0000e-003**		**170.3583**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601	0.0000	2,316.3767	2,316.3767	0.6987		2,331.0495
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0898**	**22.3859**	**14.8176**	**0.0223**		**1.2610**	**1.2610**		**1.1601**	**1.1601**	**0.0000**	**2,316.3767**	**2,316.3767**	**0.6987**		**2,331.0495**

3.5 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0520	0.0672	0.8235	2.0400e-003	0.1677	1.1700e-003	0.1688	0.0445	1.0800e-003	0.0455		170.1902	170.1902	8.0000e-003		170.3583
Total	**0.0520**	**0.0672**	**0.8235**	**2.0400e-003**	**0.1677**	**1.1700e-003**	**0.1688**	**0.0445**	**1.0800e-003**	**0.0455**		**170.1902**	**170.1902**	**8.0000e-003**		**170.3583**

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.1640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	**47.5325**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**		**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.6 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0174	0.0224	0.2745	6.8000e-004	0.0559	3.9000e-004	0.0563	0.0148	3.6000e-004	0.0152		56.7301	56.7301	2.6700e-003		56.7861
Total	**0.0174**	**0.0224**	**0.2745**	**6.8000e-004**	**0.0559**	**3.9000e-004**	**0.0563**	**0.0148**	**3.6000e-004**	**0.0152**		**56.7301**	**56.7301**	**2.6700e-003**		**56.7861**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.1640					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966	0.0000	281.4481	281.4481	0.0332		282.1449
Total	**47.5325**	**2.3722**	**1.8839**	**2.9700e-003**		**0.1966**	**0.1966**		**0.1966**	**0.1966**	**0.0000**	**281.4481**	**281.4481**	**0.0332**		**282.1449**

3.6 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0174	0.0224	0.2745	6.8000e-004	0.0559	3.9000e-004	0.0563	0.0148	3.6000e-004	0.0152		56.7301	56.7301	2.6700e-003		56.7861
Total	**0.0174**	**0.0224**	**0.2745**	**6.8000e-004**	**0.0559**	**3.9000e-004**	**0.0563**	**0.0148**	**3.6000e-004**	**0.0152**		**56.7301**	**56.7301**	**2.6700e-003**		**56.7861**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.9679	4.8414	23.2411	0.0642	4.6050	0.0696	4.6746	1.2287	0.0641	1.2928		5,396.4241	5,396.4241	0.2032		5,400.6922
Unmitigated	1.9679	4.8414	23.2411	0.0642	4.6050	0.0696	4.6746	1.2287	0.0641	1.2928		5,396.4241	5,396.4241	0.2032		5,400.6922

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	637.84	637.84	587.59	2,155,066	2,155,066
Total	637.84	637.84	587.59	2,155,066	2,155,066

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510449	0.057012	0.191854	0.151889	0.041459	0.005887	0.015572	0.014818	0.001440	0.002145	0.004716	0.000509	0.002251

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0572	0.4886	0.2079	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.7533	623.7533	0.0120	0.0114	627.5493
NaturalGas Unmitigated	0.0572	0.4886	0.2079	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.7533	623.7533	0.0120	0.0114	627.5493

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	5301.9	0.0572	0.4886	0.2079	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.7533	623.7533	0.0120	0.0114	627.5493
Total		**0.0572**	**0.4886**	**0.2079**	**3.1200e-003**		**0.0395**	**0.0395**		**0.0395**	**0.0395**		**623.7533**	**623.7533**	**0.0120**	**0.0114**	**627.5493**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	5.3019	0.0572	0.4886	0.2079	3.1200e-003		0.0395	0.0395		0.0395	0.0395		623.7533	623.7533	0.0120	0.0114	627.5493
Total		**0.0572**	**0.4886**	**0.2079**	**3.1200e-003**		**0.0395**	**0.0395**		**0.0395**	**0.0395**		**623.7533**	**623.7533**	**0.0120**	**0.0114**	**627.5493**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.9372	0.0651	5.5897	2.9000e-004		0.1112	0.1112		0.1103	0.1103	0.0000	1,286.8942	1,286.8942	0.0345	0.0234	1,294.8752
Unmitigated	20.3766	0.5105	39.2603	0.0539		5.1483	5.1483		5.1475	5.1475	627.5835	1,215.9530	1,843.5365	1.8816	0.0426	1,896.2541

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	2.3879					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	17.5564	0.4454	33.6770	0.0536		5.1180	5.1180		5.1172	5.1172	627.5835	1,206.0000	1,833.5835	1.8716	0.0426	1,886.0914
Landscaping	0.1738	0.0651	5.5833	2.9000e-004		0.0303	0.0303		0.0303	0.0303		9.9530	9.9530	9.9900e-003		10.1628
Architectural Coating	0.2584					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**20.3766**	**0.5105**	**39.2603**	**0.0539**		**5.1483**	**5.1483**		**5.1475**	**5.1475**	**627.5835**	**1,215.9530**	**1,843.5365**	**1.8816**	**0.0426**	**1,896.2541**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Consumer Products	2.3879					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1171	1.0000e-005	6.3800e-003	0.0000		0.0809	0.0809		0.0800	0.0800	0.0000	1,276.9412	1,276.9412	0.0245	0.0234	1,284.7124
Landscaping	0.1738	0.0651	5.5833	2.9000e-004		0.0303	0.0303		0.0303	0.0303		9.9530	9.9530	9.9900e-003		10.1628
Architectural Coating	0.2584					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.9372**	**0.0651**	**5.5897**	**2.9000e-004**		**0.1112**	**0.1112**		**0.1103**	**0.1103**	**0.0000**	**1,286.8942**	**1,286.8942**	**0.0345**	**0.0234**	**1,294.8752**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Dickerson

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	67.00	Dwelling Unit	9.09	120,600.00	192

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	630.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - actual acreage

Construction Phase - Demo: 20 days, Grading: 20 days, Construction: 230 days, Paving: 20 days

Demolition - 39768 sf demo

Vehicle Trips - 9.52 trips per day

Construction Off-road Equipment Mitigation - Tier 3 engines for grader, excavator and dozer

Area Mitigation -

Off-road Equipment - Demo: 1 concrete saw, 3 excavators, 2 dozers

Off-road Equipment - Grading: 1 excavator, 1 grader, 1 dozer, 3 loader/backhoes

Off-road Equipment - Construction: 1 crane, 3 forklifts, 1 gen set, 3 loader/backhoes, 1 welder

Off-road Equipment - Paving: 2 pavers, 2 paving equipment, 2 rollers

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblLandUse	LotAcreage	21.75	9.09
tblProjectCharacteristics	OperationalYear	2014	2017
tblVehicleTrips	ST_TR	10.08	9.52
tblVehicleTrips	WD_TR	9.57	9.52

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.5087	4.3314	2.9884	4.2800e-003	0.1238	0.2837	0.4075	0.0470	0.2661	0.3131	0.0000	387.1923	387.1923	0.0880	0.0000	389.0400
2016	0.5129	0.3803	0.2703	4.2000e-004	3.5800e-003	0.0235	0.0271	9.5000e-004	0.0220	0.0229	0.0000	38.1292	38.1292	9.5000e-003	0.0000	38.3286
Total	**1.0216**	**4.7117**	**3.2587**	**4.7000e-003**	**0.1274**	**0.3072**	**0.4346**	**0.0480**	**0.2880**	**0.3360**	**0.0000**	**425.3215**	**425.3215**	**0.0975**	**0.0000**	**427.3686**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2015	0.4564	3.8517	2.8193	4.2800e-003	0.0719	0.2589	0.3308	0.0247	0.2441	0.2688	0.0000	387.1919	387.1919	0.0880	0.0000	389.0396
2016	0.5129	0.3803	0.2703	4.2000e-004	3.5800e-003	0.0235	0.0271	9.5000e-004	0.0220	0.0229	0.0000	38.1292	38.1292	9.5000e-003	0.0000	38.3286
Total	**0.9693**	**4.2320**	**3.0896**	**4.7000e-003**	**0.0755**	**0.2824**	**0.3578**	**0.0256**	**0.2660**	**0.2917**	**0.0000**	**425.3211**	**425.3211**	**0.0975**	**0.0000**	**427.3682**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**5.12**	**10.18**	**5.19**	**0.00**	**40.75**	**8.08**	**17.66**	**46.58**	**7.63**	**13.19**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7241	0.0137	1.1189	7.1000e-004		0.0678	0.0678		0.0678	0.0678	7.1167	14.8045	21.9211	0.0224	4.8000e-004	22.5404
Energy	0.0104	0.0892	0.0379	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003	0.0000	239.2009	239.2009	8.2300e-003	3.1900e-003	240.3613
Mobile	0.3534	0.9383	4.1608	0.0112	0.8141	0.0125	0.8266	0.2175	0.0115	0.2291	0.0000	852.0310	852.0310	0.0332	0.0000	852.7271
Waste						0.0000	0.0000		0.0000	0.0000	15.9795	0.0000	15.9795	0.9444	0.0000	35.8110
Water						0.0000	0.0000		0.0000	0.0000	1.3849	25.0156	26.4005	0.1434	3.6000e-003	30.5267
Total	**1.0880**	**1.0411**	**5.3176**	**0.0124**	**0.8141**	**0.0875**	**0.9015**	**0.2175**	**0.0865**	**0.3040**	**24.4810**	**1,131.0519**	**1,155.5330**	**1.1515**	**7.2700e-003**	**1,181.9664**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5062	8.1400e-003	0.6980	4.0000e-005		4.8000e-003	4.8000e-003		4.7900e-003	4.7900e-003	0.0000	15.6089	15.6089	1.4100e-003	2.7000e-004	15.7208
Energy	0.0104	0.0892	0.0379	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003	0.0000	239.2009	239.2009	8.2300e-003	3.1900e-003	240.3613
Mobile	0.3534	0.9383	4.1608	0.0112	0.8141	0.0125	0.8266	0.2175	0.0115	0.2291	0.0000	852.0310	852.0310	0.0332	0.0000	852.7271
Waste						0.0000	0.0000		0.0000	0.0000	15.9795	0.0000	15.9795	0.9444	0.0000	35.8110
Water						0.0000	0.0000		0.0000	0.0000	1.3849	25.0156	26.4005	0.1434	3.5900e-003	30.5245
Total	**0.8700**	**1.0356**	**4.8967**	**0.0118**	**0.8141**	**0.0245**	**0.8386**	**0.2175**	**0.0235**	**0.2411**	**17.3644**	**1,131.8564**	**1,149.2208**	**1.1305**	**7.0500e-003**	**1,175.1447**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**20.04**	**0.53**	**7.91**	**5.39**	**0.00**	**71.96**	**6.98**	**0.00**	**72.79**	**20.71**	**29.07**	**-0.07**	**0.55**	**1.82**	**3.03**	**0.58**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2015	1/28/2015	5	20	
2	Grading	Grading	1/29/2015	2/25/2015	5	20	
3	Building Construction	Building Construction	2/26/2015	1/13/2016	5	230	
4	Paving	Paving	1/14/2016	2/10/2016	5	20	
5	Architectural Coating	Architectural Coating	2/11/2016	3/9/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 244,215; Residential Outdoor: 81,405; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	181.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	24.00	7.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0196	0.0000	0.0196	2.9600e-003	0.0000	2.9600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0451	0.4836	0.3607	4.0000e-004		0.0245	0.0245		0.0229	0.0229	0.0000	37.4413	37.4413	0.0102	0.0000	37.6544
Total	**0.0451**	**0.4836**	**0.3607**	**4.0000e-004**	**0.0196**	**0.0245**	**0.0441**	**2.9600e-003**	**0.0229**	**0.0258**	**0.0000**	**37.4413**	**37.4413**	**0.0102**	**0.0000**	**37.6544**

3.2 Demolition - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9100e-003	0.0297	0.0213	7.0000e-005	1.5500e-003	4.7000e-004	2.0200e-003	4.3000e-004	4.3000e-004	8.6000e-004	0.0000	6.1479	6.1479	5.0000e-005	0.0000	6.1489
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	8.4000e-004	8.7200e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5382	1.5382	8.0000e-005	0.0000	1.5399
Total	**2.4700e-003**	**0.0306**	**0.0300**	**9.0000e-005**	**3.2000e-003**	**4.8000e-004**	**3.6800e-003**	**8.7000e-004**	**4.4000e-004**	**1.3100e-003**	**0.0000**	**7.6862**	**7.6862**	**1.3000e-004**	**0.0000**	**7.6888**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.6300e-003	0.0000	7.6300e-003	1.1600e-003	0.0000	1.1600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0154	0.2090	0.2521	4.0000e-004		0.0107	0.0107		0.0107	0.0107	0.0000	37.4412	37.4412	0.0102	0.0000	37.6544
Total	**0.0154**	**0.2090**	**0.2521**	**4.0000e-004**	**7.6300e-003**	**0.0107**	**0.0183**	**1.1600e-003**	**0.0107**	**0.0119**	**0.0000**	**37.4412**	**37.4412**	**0.0102**	**0.0000**	**37.6544**

3.2 Demolition - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9100e-003	0.0297	0.0213	7.0000e-005	1.5500e-003	4.7000e-004	2.0200e-003	4.3000e-004	4.3000e-004	8.6000e-004	0.0000	6.1479	6.1479	5.0000e-005	0.0000	6.1489
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	8.4000e-004	8.7200e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5382	1.5382	8.0000e-005	0.0000	1.5399
Total	**2.4700e-003**	**0.0306**	**0.0300**	**9.0000e-005**	**3.2000e-003**	**4.8000e-004**	**3.6800e-003**	**8.7000e-004**	**4.4000e-004**	**1.3100e-003**	**0.0000**	**7.6862**	**7.6862**	**1.3000e-004**	**0.0000**	**7.6888**

3.3 Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0383	0.4042	0.2667	3.0000e-004		0.0233	0.0233		0.0214	0.0214	0.0000	28.3860	28.3860	8.4700e-003	0.0000	28.5639
Total	**0.0383**	**0.4042**	**0.2667**	**3.0000e-004**	**0.0655**	**0.0233**	**0.0888**	**0.0337**	**0.0214**	**0.0551**	**0.0000**	**28.3860**	**28.3860**	**8.4700e-003**	**0.0000**	**28.5639**

3.3 Grading - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	8.4000e-004	8.7200e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5382	1.5382	8.0000e-005	0.0000	1.5399
Total	**5.6000e-004**	**8.4000e-004**	**8.7200e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5382**	**1.5382**	**8.0000e-005**	**0.0000**	**1.5399**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0256	0.0000	0.0256	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0158	0.1991	0.2063	3.0000e-004		0.0123	0.0123		0.0116	0.0116	0.0000	28.3859	28.3859	8.4700e-003	0.0000	28.5639
Total	**0.0158**	**0.1991**	**0.2063**	**3.0000e-004**	**0.0256**	**0.0123**	**0.0378**	**0.0131**	**0.0116**	**0.0248**	**0.0000**	**28.3859**	**28.3859**	**8.4700e-003**	**0.0000**	**28.5639**

3.3 Grading - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	8.4000e-004	8.7200e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5382	1.5382	8.0000e-005	0.0000	1.5399
Total	**5.6000e-004**	**8.4000e-004**	**8.7200e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.5382**	**1.5382**	**8.0000e-005**	**0.0000**	**1.5399**

3.4 Building Construction - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4043	3.3183	2.0713	2.9600e-003		0.2339	0.2339		0.2199	0.2199	0.0000	269.6137	269.6137	0.0677	0.0000	271.0343
Total	**0.4043**	**3.3183**	**2.0713**	**2.9600e-003**		**0.2339**	**0.2339**		**0.2199**	**0.2199**	**0.0000**	**269.6137**	**269.6137**	**0.0677**	**0.0000**	**271.0343**

3.4 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.9500e-003	0.0791	0.0967	1.7000e-004	4.7600e-003	1.2800e-003	6.0400e-003	1.3600e-003	1.1800e-003	2.5400e-003	0.0000	15.3312	15.3312	1.2000e-004	0.0000	15.3337
Worker	9.9800e-003	0.0148	0.1542	3.5000e-004	0.0291	2.2000e-004	0.0293	7.7300e-003	2.0000e-004	7.9300e-003	0.0000	27.1958	27.1958	1.3900e-003	0.0000	27.2250
Total	**0.0179**	**0.0939**	**0.2509**	**5.2000e-004**	**0.0339**	**1.5000e-003**	**0.0354**	**9.0900e-003**	**1.3800e-003**	**0.0105**	**0.0000**	**42.5270**	**42.5270**	**1.5100e-003**	**0.0000**	**42.5587**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4043	3.3183	2.0713	2.9600e-003		0.2339	0.2339		0.2199	0.2199	0.0000	269.6134	269.6134	0.0677	0.0000	271.0340
Total	**0.4043**	**3.3183**	**2.0713**	**2.9600e-003**		**0.2339**	**0.2339**		**0.2199**	**0.2199**	**0.0000**	**269.6134**	**269.6134**	**0.0677**	**0.0000**	**271.0340**

3.4 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.9500e-003	0.0791	0.0967	1.7000e-004	4.7600e-003	1.2800e-003	6.0400e-003	1.3600e-003	1.1800e-003	2.5400e-003	0.0000	15.3312	15.3312	1.2000e-004	0.0000	15.3337
Worker	9.9800e-003	0.0148	0.1542	3.5000e-004	0.0291	2.2000e-004	0.0293	7.7300e-003	2.0000e-004	7.9300e-003	0.0000	27.1958	27.1958	1.3900e-003	0.0000	27.2250
Total	**0.0179**	**0.0939**	**0.2509**	**5.2000e-004**	**0.0339**	**1.5000e-003**	**0.0354**	**9.0900e-003**	**1.3800e-003**	**0.0105**	**0.0000**	**42.5270**	**42.5270**	**1.5100e-003**	**0.0000**	**42.5587**

3.4 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0153	0.1283	0.0833	1.2000e-004		8.8500e-003	8.8500e-003		8.3200e-003	8.3200e-003	0.0000	10.8969	10.8969	2.7000e-003	0.0000	10.9537
Total	**0.0153**	**0.1283**	**0.0833**	**1.2000e-004**		**8.8500e-003**	**8.8500e-003**		**8.3200e-003**	**8.3200e-003**	**0.0000**	**10.8969**	**10.8969**	**2.7000e-003**	**0.0000**	**10.9537**

3.4 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9000e-004	2.8400e-003	3.7100e-003	1.0000e-005	1.9000e-004	4.0000e-005	2.4000e-004	6.0000e-005	4.0000e-005	1.0000e-004	0.0000	0.6175	0.6175	0.0000	0.0000	0.6176
Worker	3.7000e-004	5.5000e-004	5.7000e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0687	1.0687	5.0000e-005	0.0000	1.0698
Total	**6.6000e-004**	**3.3900e-003**	**9.4100e-003**	**2.0000e-005**	**1.3800e-003**	**5.0000e-005**	**1.4300e-003**	**3.7000e-004**	**5.0000e-005**	**4.2000e-004**	**0.0000**	**1.6862**	**1.6862**	**5.0000e-005**	**0.0000**	**1.6874**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0153	0.1283	0.0833	1.2000e-004		8.8500e-003	8.8500e-003		8.3200e-003	8.3200e-003	0.0000	10.8969	10.8969	2.7000e-003	0.0000	10.9537
Total	**0.0153**	**0.1283**	**0.0833**	**1.2000e-004**		**8.8500e-003**	**8.8500e-003**		**8.3200e-003**	**8.3200e-003**	**0.0000**	**10.8969**	**10.8969**	**2.7000e-003**	**0.0000**	**10.9537**

3.4 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9000e-004	2.8400e-003	3.7100e-003	1.0000e-005	1.9000e-004	4.0000e-005	2.4000e-004	6.0000e-005	4.0000e-005	1.0000e-004	0.0000	0.6175	0.6175	0.0000	0.0000	0.6176
Worker	3.7000e-004	5.5000e-004	5.7000e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	1.0687	1.0687	5.0000e-005	0.0000	1.0698
Total	**6.6000e-004**	**3.3900e-003**	**9.4100e-003**	**2.0000e-005**	**1.3800e-003**	**5.0000e-005**	**1.4300e-003**	**3.7000e-004**	**5.0000e-005**	**4.2000e-004**	**0.0000**	**1.6862**	**1.6862**	**5.0000e-005**	**0.0000**	**1.6874**

3.5 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0209**	**0.2239**	**0.1482**	**2.2000e-004**		**0.0126**	**0.0126**		**0.0116**	**0.0116**	**0.0000**	**21.0138**	**21.0138**	**6.3400e-003**	**0.0000**	**21.1469**

3.5 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	7.6000e-004	7.9200e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4843	1.4843	7.0000e-005	0.0000	1.4858
Total	**5.1000e-004**	**7.6000e-004**	**7.9200e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4843**	**1.4843**	**7.0000e-005**	**0.0000**	**1.4858**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0209	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0209**	**0.2239**	**0.1482**	**2.2000e-004**		**0.0126**	**0.0126**		**0.0116**	**0.0116**	**0.0000**	**21.0138**	**21.0138**	**6.3400e-003**	**0.0000**	**21.1469**

3.5 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	7.6000e-004	7.9200e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4843	1.4843	7.0000e-005	0.0000	1.4858
Total	**5.1000e-004**	**7.6000e-004**	**7.9200e-003**	**2.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.4843**	**1.4843**	**7.0000e-005**	**0.0000**	**1.4858**

3.6 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4716					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6800e-003	0.0237	0.0188	3.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	2.5533	2.5533	3.0000e-004	0.0000	2.5596
Total	**0.4753**	**0.0237**	**0.0188**	**3.0000e-005**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**	**0.0000**	**2.5533**	**2.5533**	**3.0000e-004**	**0.0000**	**2.5596**

3.6 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	2.5000e-004	2.6400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4948	0.4948	2.0000e-005	0.0000	0.4953
Total	**1.7000e-004**	**2.5000e-004**	**2.6400e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4948**	**0.4948**	**2.0000e-005**	**0.0000**	**0.4953**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4716					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6800e-003	0.0237	0.0188	3.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	2.5533	2.5533	3.0000e-004	0.0000	2.5596
Total	**0.4753**	**0.0237**	**0.0188**	**3.0000e-005**		**1.9700e-003**	**1.9700e-003**		**1.9700e-003**	**1.9700e-003**	**0.0000**	**2.5533**	**2.5533**	**3.0000e-004**	**0.0000**	**2.5596**

3.6 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	2.5000e-004	2.6400e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4948	0.4948	2.0000e-005	0.0000	0.4953
Total	**1.7000e-004**	**2.5000e-004**	**2.6400e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4948**	**0.4948**	**2.0000e-005**	**0.0000**	**0.4953**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3534	0.9383	4.1608	0.0112	0.8141	0.0125	0.8266	0.2175	0.0115	0.2291	0.0000	852.0310	852.0310	0.0332	0.0000	852.7271
Unmitigated	0.3534	0.9383	4.1608	0.0112	0.8141	0.0125	0.8266	0.2175	0.0115	0.2291	0.0000	852.0310	852.0310	0.0332	0.0000	852.7271

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	637.84	637.84	587.59	2,155,066	2,155,066
Total	637.84	637.84	587.59	2,155,066	2,155,066

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.510449	0.057012	0.191854	0.151889	0.041459	0.005887	0.015572	0.014818	0.001440	0.002145	0.004716	0.000509	0.002251

4.4 Fleet Mix

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	135.9315	135.9315	6.2500e-003	1.2900e-003	136.4635
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	135.9315	135.9315	6.2500e-003	1.2900e-003	136.4635
NaturalGas Mitigated	0.0104	0.0892	0.0379	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003	0.0000	103.2694	103.2694	1.9800e-003	1.8900e-003	103.8978
NaturalGas Unmitigated	0.0104	0.0892	0.0379	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003	0.0000	103.2694	103.2694	1.9800e-003	1.8900e-003	103.8978

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.93519e+006	0.0104	0.0892	0.0379	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003	0.0000	103.2694	103.2694	1.9800e-003	1.8900e-003	103.8978
Total		**0.0104**	**0.0892**	**0.0379**	**5.7000e-004**		**7.2100e-003**	**7.2100e-003**		**7.2100e-003**	**7.2100e-003**	**0.0000**	**103.2694**	**103.2694**	**1.9800e-003**	**1.8900e-003**	**103.8978**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.93519e+006	0.0104	0.0892	0.0379	5.7000e-004		7.2100e-003	7.2100e-003		7.2100e-003	7.2100e-003	0.0000	103.2694	103.2694	1.9800e-003	1.8900e-003	103.8978
Total		**0.0104**	**0.0892**	**0.0379**	**5.7000e-004**		**7.2100e-003**	**7.2100e-003**		**7.2100e-003**	**7.2100e-003**	**0.0000**	**103.2694**	**103.2694**	**1.9800e-003**	**1.8900e-003**	**103.8978**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	475008	135.9315	6.2500e-003	1.2900e-003	136.4635
Total		**135.9315**	**6.2500e-003**	**1.2900e-003**	**136.4635**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	475008	135.9315	6.2500e-003	1.2900e-003	136.4635
Total		**135.9315**	**6.2500e-003**	**1.2900e-003**	**136.4635**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5062	8.1400e-003	0.6980	4.0000e-005		4.8000e-003	4.8000e-003		4.7900e-003	4.7900e-003	0.0000	15.6089	15.6089	1.4100e-003	2.7000e-004	15.7208
Unmitigated	0.7241	0.0137	1.1189	7.1000e-004		0.0678	0.0678		0.0678	0.0678	7.1167	14.8045	21.9211	0.0224	4.8000e-004	22.5404

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0472					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4358					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.2195	5.5700e-003	0.4210	6.7000e-004		0.0640	0.0640		0.0640	0.0640	7.1167	13.6758	20.7925	0.0212	4.8000e-004	21.3879
Landscaping	0.0217	8.1400e-003	0.6979	4.0000e-005		3.7900e-003	3.7900e-003		3.7900e-003	3.7900e-003	0.0000	1.1287	1.1287	1.1300e-003	0.0000	1.1524
Total	**0.7241**	**0.0137**	**1.1189**	**7.1000e-004**		**0.0678**	**0.0678**		**0.0678**	**0.0678**	**7.1167**	**14.8045**	**21.9211**	**0.0224**	**4.8000e-004**	**22.5404**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Consumer Products	0.4358					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.4600e-003	0.0000	8.0000e-005	0.0000		1.0100e-003	1.0100e-003		1.0000e-003	1.0000e-003	0.0000	14.4803	14.4803	2.8000e-004	2.7000e-004	14.5684
Landscaping	0.0217	8.1400e-003	0.6979	4.0000e-005		3.7900e-003	3.7900e-003		3.7900e-003	3.7900e-003	0.0000	1.1287	1.1287	1.1300e-003	0.0000	1.1524
Architectural Coating	0.0472					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.5061**	**8.1400e-003**	**0.6980**	**4.0000e-005**		**4.8000e-003**	**4.8000e-003**		**4.7900e-003**	**4.7900e-003**	**0.0000**	**15.6089**	**15.6089**	**1.4100e-003**	**2.7000e-004**	**15.7208**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	26.4005	0.1434	3.5900e-003	30.5245
Unmitigated	26.4005	0.1434	3.6000e-003	30.5267

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	4.36532 / 2.75205	26.4005	0.1434	3.6000e-003	30.5267
Total		**26.4005**	**0.1434**	**3.6000e-003**	**30.5267**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	4.36532 / 2.75205	26.4005	0.1434	3.5900e-003	30.5245
Total		**26.4005**	**0.1434**	**3.5900e-003**	**30.5245**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	15.9795	0.9444	0.0000	35.8110
Unmitigated	15.9795	0.9444	0.0000	35.8110

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	78.72	15.9795	0.9444	0.0000	35.8110
Total		**15.9795**	**0.9444**	**0.0000**	**35.8110**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	78.72	15.9795	0.9444	0.0000	35.8110
Total		**15.9795**	**0.9444**	**0.0000**	**35.8110**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

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Geotechnical Investigation, Dickerson School Site, City of Buena Park, California

Prepared for
William Lyon Homes

November 25, 2014

GMU Project No. 14-146-00

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City of Buena Park, California

DISTRIBUTION:

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Charles Hartman & Associates
Attn: Mr. Charles Hartman (electronic copy)

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APPENDIX A: Geotechnical Exploration Procedures and Logs
APPENDIX B: Geotechnical Laboratory Procedures and Test Results
APPENDIX C: Liquefaction Analysis Results

INTRODUCTION

This report presents the results of our geotechnical investigation for the proposed Dickerson School Site Residential Development in the City of Buena Park, California.

The purpose of this geotechnical investigation of the proposed development site is to provide an assessment of feasibility and identify geotechnical design constraints as well as develop preliminary geotechnical recommendations for grading, infiltration, and anticipated improvements. Final grading recommendations will be contained in a review of rough grading report while final recommendations for improvements will be provided in a review of precise grading report, both to be prepared at a later date.

SCOPE

The scope of our studies included the following:

1. Performed a background document review (see References), including available historic aerial photographs.

2. Performed a field exploration program consisting of: 1) excavating five hollow-stem auger drill holes to depths ranging from 6 feet to 41.5 feet to perform field infiltration testing and obtain samples for geotechnical testing; 2) excavating four backhoe test pits to depths ranging from 2 to 9 feet to evaluate subsurface geologic and engineering conditions as well as obtain samples for testing; and 3) perform five CPT soundings to about 50 feet in depth. All the subsurface exploration logs are included in Appendix A of this report.

3. Performed insitu infiltration testing in three areas using hollow-stem auger drill holes.

4. Performed laboratory testing of samples collected to evaluate the engineering properties of the soil.

5. Performed analysis of the data collected, including seismic hazards and settlement, to provide preliminary geotechnical recommendations for development.

6. Preparation of this preliminary geotechnical investigation report summarizing our findings and recommendations regarding preliminary design parameters, seismic design parameters, and corrective grading.

PROJECT DESCRIPTION AND DESIGN GRADING

Based on a review of the reference (1) Conceptual Site Plan prepared by Bassenian Lagoni, it is our understanding that the proposed project will consist of the construction of 67 graded lots to accommodate single-family residential homes, adjacent streets, and associated improvements. It is also our understanding, based on the Conceptual Grading Plan (reference (2)), the planned grading will consist of making cuts and fills of up to about 4 feet, with no significant cut or fill slopes planned. We understand that site retaining walls will be required at the south and west property boundaries as well as internally within the project in order to achieve site grades. Walls are anticipated to be a maximum of 5 to 6 feet in height.

SITE LOCATION

The subject property, as shown on Plate 1 – Location Map, is located within the City of Buena Park at the former location of the Elizabeth Dickerson Elementary School. The site is bounded by Ball Road on the north, Bernadette Avenue to the east, and by an existing residential tract to the south and west.

EXISTING SITE CONDITIONS

The subject site is characterized by relatively flat topography with elevations ranging from 48 to 52 feet above MSL (mean sea level). The site currently consists of school buildings, asphalt parking lot areas, driveways, and play areas, sand and grass play areas, and landscaping. Few established trees are present across the site. Freestanding masonry walls exist at the property lines on the south and west, and one low retaining wall exists on the east property limit, adjacent to the school entrance driveway. Drainage is controlled by surface sheet flow and drainage devices (i.e., gutters and drainage inlets) with the site ultimately draining toward the adjacent street areas.

BACKGROUND INFORMATION AND EXPLORATION

GENERAL SITE HISTORY

Based on our review of available references, the site was developed as the Elizabeth Dickerson Elementary School in the late 1950s to early 1960s. Prior to this development, the site was used for agriculture and appears in historic aerials to be grassland and generally unaltered from its native condition prior to school site grading in the 1960s.

SUBSURFACE EXPLORATION AND TESTING

Our exploration included excavation of five drill holes, four test pits, and five CPT soundings, as described in Appendix A. Bulk samples and drive samples were collected within the drill holes and test pits. Our exploration procedures, sample data, and logs are presented in Appendix A. Approximate locations of our subsurface exploration are shown on Plate 2 – Geotechnical Map.

Laboratory testing of soil engineering index properties include in-place moisture content/dry density, particle size distribution, expansion, Atterberg limits, R-value, maximum density, direct shear, consolidation, and corrosion. Geotechnical laboratory procedures and test results are presented in Appendix B.

GEOLOGIC AND GEOTECHNICAL CONDITIONS

SITE GEOLOGY AND GEOMORPHOLOGY

The subject site is located within the southern margin of the Los Angeles Basin, and is characterized by relatively flat topography underlain by artificial fill and alluvial deposits derived from deposits of the San Gabriel River. The site is located within an area mapped by the State of California Seismic Hazards Evaluation Report with a history of liquefaction or site conditions that indicate a liquefaction potential. No known active faults cross the site and the nearest active fault is the Puente Hills fault.

SUBSURFACE SOIL CONDITIONS

The subsurface materials encountered during our site investigation include undocumented artificial fill and Quaternary younger alluvium as described below. The existing parking lot areas have about 3 to 4.5 inches of asphalt over undocumented artificial fill. No information regarding the materials underlying the buildings at the site was obtained. However, these materials are expected to be similar to those encountered during our site investigation.

Undocumented Artificial Fill (Qafu)

Minor amounts of artificial fill were observed to be present underlying the site with thicknesses of up to about 2 feet, except adjacent to the retaining wall on the eastern property limit where existing fill was encountered up to 5 feet deep. Undocumented artificial fill encountered within the subject site generally consists of very fine to fine-grained brown silts and sands with minor clays. Moisture condition and consistency are described as damp to moist and loose to stiff/ medium dense.

Quaternary Younger Alluvium (Qyf)

Alluvial materials encountered onsite generally consist of light brown to brown silty sand and sandy silt with some sand, clayey silt, and silty clay. Several of the explorations indicate a discontinuous layer of silty clay/clayey silt at depths of approximately 5 to 8 feet below site grade. Generally the alluvium is moist to saturated, loose/firm to medium dense/stiff, and very fine to fine-grained with minor coarse-grained material.

GROUNDWATER

Standing water was measured in our excavations DH-1, DH-3, DH-4, DH-5, and TP-1 after reaching total depth at depths below existing grade ranging from 8 to 18.5 feet. In addition, wet/moist and caving conditions were noted in all of the CPTs at an approximate depth of 9 to 10 feet. Based on the results of our laboratory testing, saturation of samples collected from all explorations increased to about 100 percent at depths below existing grade ranging from 8 to 12.5 feet (TP-1 noted near saturation conditions at a depth of 6 feet). Available regional seismic hazard publications (i.e., reference (3)) report historic high groundwater conditions at slightly less than 10 feet below ground surface.

Grading and construction of utilities in cut areas or at depths of greater than 8 feet below current existing grades should anticipate seepage, wet conditions, or "pumping" soils.

It should further be noted that groundwater levels are seasonal in nature and fluctuate over time. Consequently, groundwater levels may be higher at some point in the future. However, groundwater levels are not anticipated to rise above the recorded high groundwater level of approximately 8 feet below existing grade.

FAULTING AND SEISMICITY

The site is not within an Alquist-Priolo Earthquake Fault Zone, and no known active faults are shown on current geologic maps as crossing the site. The nearest known active faults are the Puente Hills (Coyote Hills) Fault and Newport-Inglewood Fault Zone, which are located about 4.7 miles south and 6.1 miles southwest of the site, respectively. Given the proximity of the site to these and numerous other active and potentially active faults, the site will likely be subject to earthquake ground motions in the future.

Based on the 2013 California Building Code (2013 CBC), the peak horizontal ground acceleration (PHGA) for liquefaction evaluation is 0.52g for the MCE event. This PHGA is associated with a modal earthquake magnitude of 6.58 at a modal distance of 7.8 km from the site using the USGS 2008 Interactive Deaggregation website.

GEOTECHNICAL ENGINEERING FINDINGS

LIQUEFACTION, SEISMIC SETTLEMENT, AND LATERAL SPREADING

Liquefaction Investigation

The site is located within a zone mapped as having a history of liquefaction or site conditions that indicate a potential for liquefaction by the State of California Seismic Hazards Evaluation Report. Consequently, liquefaction and related hazards were quantitatively evaluated utilizing the CPT soundings to a maximum depth of 50 feet deep.

Design Earthquake and Mode Magnitude

Per the 2013 CBC, an MCE peak ground acceleration of 0.52g associated with a modal contributing magnitude of 6.58 was utilized in the liquefaction analyses.

Design Groundwater Level

Based on the previously discussed groundwater evaluation, a conservative groundwater level of 8 feet below existing grade (i.e., highest level recorded in our subsurface explorations) was adopted for use in the liquefaction analyses.

Liquefaction Analyses

GMU utilized CLiq to evaluate CPT data for liquefaction. CLiq is a commercial computer software program that applies the latest methods for liquefaction analysis including post-earthquake settlement and lateral displacement.

Liquefaction, Seismic Settlement, Lateral Spreading and Surface Effects

The analysis indicates that discrete zones within the alluvial stratum below 8 to 10 feet may be subject to liquefaction during a design seismic event. Liquefaction seismic settlement calculations indicate 0.7 to 1.6 inches of settlement could occur during a design earthquake.

Given the depth of the liquefiable areas as well as the flat nature of the site and adjacent area, lateral spreading is considered negligible. Given the liquefiable layer thickness relative to the non-liquefiable cap, surface effects due to liquefaction are not anticipated to significantly affect the proposed surface improvements.

However, where buried utilities are deeper than 8 feet below the existing ground surface (i.e., below the currently measured groundwater table in portions of the site), they may undergo uplift and damage during the design event. The results of our analyses are presented in Appendix C.

SETTLEMENT

Compressibility/Hydro-Collapse

The following summarizes the compressibility and hydro-collapse potential of the on-site soils:

- The site is underlain by undocumented fills ranging from approximately 6 inches to 5 feet thick across the site. In general, the deeper fill depths appear to be in the southeast section of the site in the area of the existing buildings. These materials are considered to be potentially disturbed and hence significantly compressible and subject to hydro-collapse.

- The alluvial soils below the undocumented fills are generally disturbed, and significantly loose and/or porous to a depth of approximately 5 feet below existing grade. (i.e., where existing fills are 5 feet deep, the underlying alluvial soils are generally competent).

- Based on the above, all soils within the upper 5 feet are subject to potentially significant compressibility and hydro-collapse characteristics.

Rough Grading Settlement

Settlement due to the anticipated fills is expected to be immediate and occur during grading. Consequently, the settlement is not expected to significantly affect the performance of the anticipated improvements.

Precise Grading Settlement

Based on anticipated relatively light residential building loads and shallow foundation depths, foundations will need to be underlain by a minimum thickness of compacted fill to keep static settlement uniform and within normal levels. With the implementation of the required corrective grading, static settlement for the buildings should not exceed 1.0 inch total or the same amount over a distance of 40 feet.

SLOPE STABILITY

No significant existing slopes are present within or immediately adjacent to the site. In addition, no significant slopes are planned for the proposed development (i.e., any raised grades will be supported by retaining walls). Consequently, slope stability is not anticipated to be a geotechnical design constraint for the project.

SOIL EXPANSION

Plasticity and expansion index tests conducted at the site indicate a low to low-medium expansion potential. Following corrective grading, a low to low-medium expansion potential is anticipated (i.e., 40 to 60).

CORROSIVITY

Chemical testing was performed on select representative samples to determine soil corrosivity. The results are listed in Table B-1 in Appendix B. The results are summarized below:

- Moderate corrosion potential to ferrous metals. Consequently, any metal exposed to the soil will need protection.

- Test results indicate a negligible sulfate exposure to concrete; therefore, special cement types and/or ratios, strengths, etc. do not appear to be required from a geotechnical perspective.

Additional corrosion testing at the completion of grading should be performed to confirm that the near-surface soils have corrosion characteristics in accordance with those documented in this report.

INFILTRATION TESTING

Three infiltration tests were performed within the site in general accordance with the Santa Ana Regional Water Quality Control Board Technical Guidance Document (TGD) Appendices dated March 2011, utilizing the shallow percolation test procedure contained in Section VII.3.8.2. One test was performed in DH-2 and the other two tests were performed immediately adjacent DH-1 and DH-3 (See Plate 2).

The results of the testing are summarized below.

Drill Hole	Location Area	Depth (ft. below existing ground surface)	Stabilized Infiltration Rate (1) (in/hour)	Measured Groundwater Depth	Estimated Potential Groundwater Depth (2)
DH-1	SE Corner of Site	4.5	0.17	8	8
DH-2	Recreation Area – South End	5.5	0.13	15.5	10
DH-3	Recreation Area – North End	4.0	1.22	15.5	10

Notes: (1) Infiltration rates have no safety factor applied.
(2) Based on additional considerations for laboratory saturation values and CPT observations

Based on the above table the following items should be considered in regards to infiltration design:

- The groundwater is too high and the infiltration too low to make infiltration viable in the area at the southeast corner of the site.

- Infiltration design in the recreation area may assume an average value 0.68 inch/hour.

- The estimated potential groundwater depth should be used as the design groundwater depth for infiltration. If additional infiltration clearance is required, then the installation and monitoring of piezometers should be considered in order to more accurately determine current groundwater levels.

EXCAVATION CHARACTERISTICS

Rippability

The soil materials underlying the site can be excavated with scrapers and other conventional grading equipment.

Trenching

We expect that excavation of utility trenches can be accomplished utilizing conventional trenching machines and backhoes. Trench support requirements will be limited to those required by safety laws or other locations where trench slopes will need to be flattened or supported by shoring designed to suit the specific conditions exposed.

Trenches approaching 8 feet below current existing grades (i.e., 6 to 8 feet below grade) may encounter wet conditions.

Volume Change

In order to aid planning for the anticipated grading, we estimate that the change in volume of on-site fill and the upper portions of alluvial deposits excavated and placed as compacted fill at an average relative compaction of 92% will result in an average of about 5 to 10% loss in volume. It should be noted that the aforementioned value is approximate and is for rough planning purposes only, and only applies to the on-site soils.

CONCLUSIONS

Based on the geologic and geotechnical findings, it is our opinion that the proposed development is feasible from a geotechnical perspective if accomplished in accordance with the City of Buena Park grading requirements and the recommendations presented herein. General conclusions pertaining to the site are as follows:

1. The site should be considered developable and it is not expected to adversely impact adjacent properties from a geotechnical perspective utilizing standard grading techniques.

2. Site soils are younger alluvial deposits with a minor cap of artificial fill.

3. Groundwater was measured in the field from approximately 8 to 18.5 feet below existing grade. However, soil saturation values and CPT field operations indicate that the groundwater may be as high as 8 to10 feet below existing grades consistent with the historic high groundwater level.

4. There are no known active faults within the subject site. The site seismicity is typical for the Buena Park area. Structure design should be in accordance with the current CBC.

5. Based on the code-required design earthquake, the site will be subject to liquefaction and related seismic settlements on the order of ¾ to 1½ inches. Lateral spreading and other related liquefaction effects (i.e., sand boils, etc.) are not anticipated to significantly affect the proposed improvements.

6. The existing surface improvements, buildings, asphalt parking lots, driveways, play areas, etc. will need to be demolished. All organics and decomposable materials will need to be hauled off-site. The existing asphalt and concrete may be utilized as compacted fill if it is crushed to pieces smaller than 6 inches and mixed with on-site soil materials to the satisfaction of the GMU field representative. Asphalt may not be placed within 2 feet of finish grade below structures, and should therefore be limited to placement below streets or park areas. In addition, existing subsurface utility lines, depending on their depths and locations in relation to the proposed development, will have to be excavated and removed, or abandoned in-place.

7. Corrective grading will be required below the site to improve soils prone to adverse settlement.

8. Soils exposed at the ground surface following grading are anticipated to possess a low to low-moderate expansion potential and be moderately corrosive to ferrous metals.

9. Given the calculated liquefaction settlements as well as the expected presence of expansive soils, post-tensioned foundation systems are recommended.

10. Based on the infiltration testing performed for this report, infiltration may be possible in the central park area and/or areas north of the recreation area. However, groundwater levels may be prohibitive. In this regard, piezometer installation and monitoring may be required to more accurately determine current existing groundwater levels.

RECOMMENDATIONS

SITE PREPARATION AND GRADING

General

All site preparation and grading should be performed in accordance with the City of Buena Park requirements, the CBC, the current building code, and the recommendations presented in this report.

Clearing and Demolition

All significant organic material such as weeds, brush, tree branches, roots, or other decomposable material should be removed from areas to be graded. If encountered, construction debris over 6 inches in diameter such as asphalt, concrete, etc. should either be removed or crushed prior to initiating grading operations. Excavations that result from demolition activities, if any, such as those for removal of footings or underground utilities that extend beyond the recommended removals, should be backfilled with engineered fill in accordance with the fill placement recommendations presented in this report.

Corrective Grading

Based on the settlement evaluation described above, corrective grading will be required below the entire site as detailed below.

Lot Areas

- Corrective grading will be required to a depth of 5 feet below the existing ground surface or 2 feet below foundations whichever is deeper.

- In addition, all existing undocumented fill soils should be removed down to competent alluvial soils.

- Along the perimeter of the site and below the currently planned perimeter walls, the bottom 2 feet of the 5-foot over-excavation may be sloped at a 1:1 angle so as to limit the exposed vertical height of the perimeter excavations.

Street Areas

- Corrective grading in street areas should extend a minimum depth of 2 feet below the bottom of the pavement structural section.

The corrective grading described above is based on the field and laboratory data obtained in this investigation at the site. All corrective grading must be monitored by GMU Geotechnical in order to confirm that conditions exposed during grading are in accordance with the conditions described herein and those used to generate the corrective grading recommendations. It should be noted that actual removals may vary based on geologic conditions encountered during grading.

Processing

The bottom of all removals should be scarified, moisture conditioned (if necessary) to at least 2% above the optimum moisture content, and compacted to at least 90% relative compaction prior to placing fill.

FILL MATERIAL AND PLACEMENT

Suitability of Fill Materials

The on-site soils are suitable for use as engineered fill. No rock or broken concrete greater than 6 inches in maximum diameter should be utilized at the site. If rock or broken concrete is used at the site, it should not be "nested" or placed in wind rows. All fill materials to be used at the site should be approved by GMU Geotechnical.

Import

If any imported soils are used, these soils should be tested to conform to the physical and chemical characteristics of the on-site soils and the soil characteristics described herein.

Placement of Fill

All soil material used as compacted fill, or material processed in-place or used to backfill trenches, should be moistened, dried, or blended as necessary to achieve a minimum of 2% over optimum moisture content, and compacted to at least 90% relative compaction as determined by ASTM Test Method D 1557 (latest version). Engineered fill should be placed in lifts not exceeding 6 to 8 inches in loose thickness, and thoroughly compacted to meet the criteria indicated above.

Field Density Testing

Methods, locations, and frequency of testing shall be determined by GMU Geotechnical during site grading and in accordance with City of Buena Park requirements.

SUBDRAINS

Due to the absence of ravine or canyon areas within the site, the construction of canyon bottom subdrains is not anticipated. However, if free moisture is encountered during corrective grading or as a precautionary measure wherever the potential of future subsurface moisture may create possible problems with respect to saturation of subgrade soils, canyon bottom-type subdrains should be constructed per our recommendations to be provided at that time.

Backdrain-type subdrains are not anticipated to be required at the site due to the absence of any planned stabilization fills. The final determination for all subdrains should be made by GMU Geotechnical during the Grading Plan review process and/or observation of field conditions during grading.

TEMPORARY EXCAVATIONS

Significant temporary excavations (i.e., greater than 2 feet) will be required for corrective grading and utility construction. General guidance and recommendations for temporary excavations are presented below:

- Excavation stability is the responsibility of the contractor.
- The following is presented for general contractor guidance only in determining safe excavations:
    - Exploratory test pits with vertical side walls remained open during field observations (i.e., roughly 1 hour) to a depth of 9 feet.
    - Groundwater was noted at depths as high as 8 feet below existing grade with a several-foot thick zone of near saturation above. It should be also noted that groundwater levels may fluctuate and may be higher or lower at the time of construction.
- Excavations should conform to all applicable occupational health standard, rules, regulations, and orders established by the State of California and the Federal Government, including sloping, bracing, shoring, or other provisions as required.
- Along the perimeter of the site and below the currently planned perimeter walls, the bottom 2 feet of the 5-foot over-excavation may be sloped at a 1:1 angle so as to limit the exposed vertical height of the perimeter excavations.

PRE-GRADING SURVEY

Given that corrective grading will be required right up to the perimeter property lines, a pre-construction survey consisting of photo or video documentation should be completed prior to construction.

PRELIMINARY FOUNDATION DESIGN CRITERIA

General

All applicable guidelines, codes, and ordinances should be followed in the design of the foundation system. The following recommendations are should be used for preliminary design purposes only. Site-specific building foundation design and improvements will be addressed in future reports.

Based on the previously described conditions, the following general, preliminary foundation system requirements should be anticipated:

- Post-tensioned Foundation Systems
    - Underlain by Stego 15 mil barrier or equivalent with no sand requirement above or below required from a geotechnical perspective.
    - Mat slabs are recommended.
        - Mat slabs anticipated to range in thickness from approximately 8-10 inches.
        - If additional design details are required from a planning/cost perspective, the following PTI parameters may be utilized.

          Center Lift
          e_m = 9.0 feet
          y_m = 0.20 inch

          Edge Lift
          e_m = 5.1 feet
          y_m = 0.83 inch

- 12-18 inch edge beam embedment.
    - PT end caps not required. Tiger caps should be provided.

- Concrete
    - Given the proximity to groundwater, a maximum water/cement ratio of 0.50 is recommended for the building slabs.

Structure Seismic Design

The average shear wave velocity for the upper 100 feet of subsurface soils (V_{s30}) was estimated to be 700 feet per second based on our shear wave velocity measurement at CPT-4. For our preliminary analysis, we have assumed that the site is underlain by S_D soil profile. The seismic design coefficients based on ASCE 7-10 and 2013 CBC are listed in Table 1.

Table 1. 2013 CBC Site Categorization and Site Coefficients

Categorization/Coefficient	Design Value
Soil Profile Type (Table 20.3-1)	S_D
Short Period Spectral Acceleration S_s**	1.500
1-sec. Period Spectral Acceleration S_1**	0.553
Site Coefficient F_a (Table 11.4-1)**	1.00
Site Coefficient F_v (Table 11.4-2)**	1.50
Short Period MCE* Spectral Acceleration S_{MS}**	1.500
1-sec. Period MCE Spectral Acceleration S_{M1}**	0.829
Short Period Design Spectral Acceleration S_{DS}**	1.000
1-sec. Period Design Spectral Acceleration S_{D1}**	0.553
MCE Peak Ground Acceleration (PGA)	0.52
Site Coefficient F_{PGA} (Table 11.8-1)**	1.00
MCE Peak Ground Acceleration (PGA_M)	0.52
Modal Contributing Magnitude to MCE Event	6.58

* MCE: Maximum Considered Earthquake
** Values Obtained from USGS Earthquake Hazards Program website are **based on the ASCE7-10 and 2013 CBC** and site coordinates of N33.81611° and W118.02322°.

It should be recognized that much of southern California is subject to some level of damaging ground shaking as a result of movement along the major active (and potentially active) fault zones that characterize this region. Design utilizing the 2013 CBC is not meant to completely protect against damage or loss of function. Therefore, the preceding parameters should be considered as minimum design criteria.

RETAINING WALL DESIGN

General

Miscellaneous exterior walls ranging from free-standing 5- to 6-foot-high screen walls to low- and medium-height retaining walls are anticipated for the site. The criteria contained in the following sections may be used for the preliminary design of these walls.

Preliminary Foundation and Wall Design Parameters

- Bearing Material: Engineered fill
- Minimum Depth: 24 inches below lowest outside adjacent grade

- Minimum Width: 24 inches for conventional footings

- Minimum Footing Reinforcement: Four #4 bars; two at top and two at bottom of footing

- Allowable Bearing Capacity*: Perimeter walls - 1000 psf with a minimum embedment of 24 inches (may be increased 20% for each additional foot of footing width and/or embedment to a maximum of 1,500 psf).
  All other walls - 2000 psf with a minimum embedment of 24 inches (may be increased 20% for each additional foot of footing width and/or embedment to a maximum of 3,500 psf).

- Coefficient of Friction*: 0.35

- Passive Earth Pressure*: Perimeter Walls - Level Ground - 200 psf/ft of depth (disregard upper 6 inches).
  All other walls - Level Ground – 350 psf/ft depth (disregard upper 6 inches).

- Static Lateral Earth Pressures: 40 pcf (Active – Level Backfill).
  60 pcf (Active – 2:1 Backfill).

Given the height of the proposed walls (less than 6 feet), the current 2013 CBC indicates that the incorporation of seismic earth pressures is not required.

- Unit Weight of Backfill: 125 pcf

* These values may be increased by one-third for short duration wind or seismic loads.

Additional Recommendations

- Waterproofing: The back side of all retaining walls should be waterproofed down to the top of the foundation prior to placing subdrains or backfill. The design and selection of the waterproofing system is outside the scope of our report and is outside our purview.

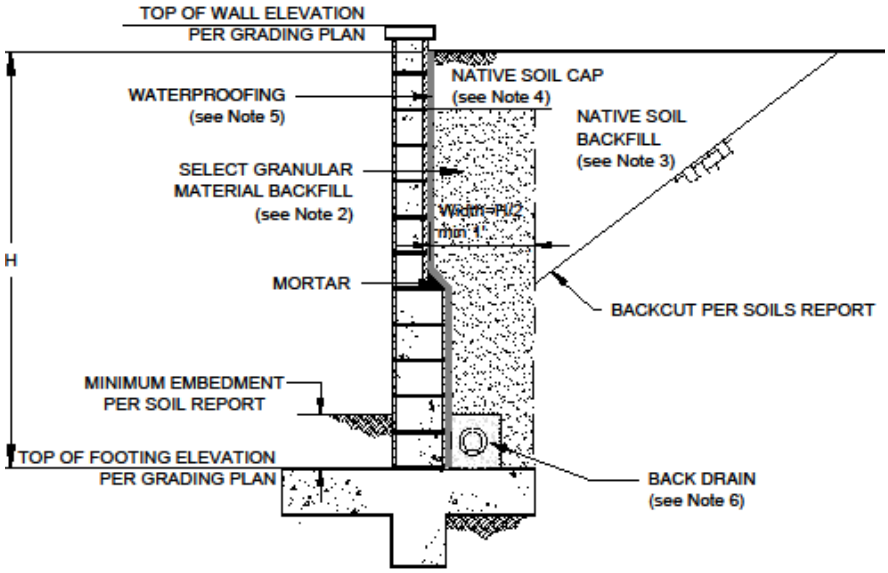
  Special design consideration should be given to waterproofing for retaining walls where homeowners yard grade adjustments may create a

condition where landscaping water seepage may occur through the wall above the waterproofing.

- Control Joints: Control/construction joints should be implemented and designed by a structural engineer. As a minimum, control/construction joints should be provided at a maximum interval of 20 feet and at all angle points and other locations where differential movement is likely to occur (i.e., where caissons are utilized, joints should not occur over center of caisson).

- Concrete: No special requirements from a geotechnical perspective. Type II/V cement should be utilized.

- Wall Backfill and Drainage: See following Retaining Wall Detail diagram and Notes for backfill and drainage requirements.



RETAINING WALL DETAIL
NOT TO SCALE

Retaining Wall Notes:

1. Final determination of the material to be used for backfill shall be made by our office.
2. All select retaining wall backfill to within 1 to 2 feet of final grade should consist of granular material possessing a low (i.e., EI <50) expansion potential. Onsite materials are largely anticipated to meet this criteria. Gravel, such as open, poorly graded rock (i.e., ¾-inch rock) will require filter fabric (Mirafi 140N or equivalent) to minimize the potential for migration of fines into the gravel.

3. All native wall backfill should be moisture conditioned as necessary to at least 5% over the optimum moisture content and compacted to a minimum of 92% relative compaction as determined by ASTM Test Method D 1557.
4. Fine-grained native soils should be used to cap the upper 2 feet of the select backfill zone where walls are greater than 3 feet in height. Where walls are less than 3 feet in height but greater than 2 feet, the fine-grained cap should not be greater than 1.5 feet, and where walls are less than 2 feet in height, the fine-grained cap should be limited to 1 foot.
5. The back side of the walls should be waterproofed down to the footing. The design and selection of the waterproofing system is outside the scope of this report.
6. A backdrain system should consist of a 4-inch perforated PVC pipe surrounded by at least 1 cubic foot of ¾-inch crushed rock wrapped in Mirafi 140N filter fabric (or equivalent). Backdrain gradient should not be less than 1% when possible. The drain should outlet into area drains at runs of less than 200 feet, if practical.

UTILITY TRENCH CONSTRUCTION AND BACKFILL

Recommendations for utility trench backfill are summarized below:

- Depending on the final design depth, utilities may encounter wet or saturated conditions. Appropriate precautions should be made by the contractor.

- Backfill of all utility trenches should meet the requirements of the City of Buena Park and all other applicable agencies for each utility.

- Backfill compaction of utility trenches should be such that no significant settlement will occur. Backfill for all trenches should be compacted to at least 90% relative compaction subject to sufficient observation and testing.

- In the event that granular material having sand equivalent of 30 or greater is used for backfill with in the pipe zone and this material is thoroughly flooded into place, extensive testing is not required.

- If soil material with a sand equivalent less than 30 is used for backfill, it should be placed at optimum moisture content or above and mechanically compacted. Jetting or flooding will not densify soil materials with a sand equivalent less than 30.

- Care should be taken in design and construction to ensure that pipe bedding and backfill materials do not become exposed to damage or runoff, which could cause piping conditions and associated subsurface voids.

PRELIMINARY PAVEMENT DESIGN

To evaluate the preliminary asphalt pavement section, a traffic index of 5.5 was assumed. Based on R-value testing contained herein, other geotechnical testing as well as our visual observations, R-values are anticipated to range from about 10-50. Preliminary street sections assuming lower bound R-values of 10 and 20 are presented in the following table. These street structural sections are for planning purposes only. Final design sections should be based on project traffic indices and additional R-value testing performed at the completion of grading.

Location	R-Value	Traffic Index	Asphalt Concrete (in.)/ Aggregate Base (in.)	Full Depth Asphalt Concrete (in.)
Interior Streets	10	5.5	4.5/9.0	8.0
Interior Streets	20	5.5	4.0/8.0	7.5

SURFACE DRAINAGE

All site drainage should be in minimum accordance with the CBC and City of Buena Park requirements. Maintaining positive drainage of all landscaping areas along with avoiding over-irrigation will help minimize the possibility of "perched" groundwater accumulating slightly below the graded surfaces.

Surface drainage should be carefully controlled during and after grading to prevent ponding and to avoid uncontrolled runoff onto adjacent streets and/or properties. Particular care will be required during grading to maintain temporary berms, swales, and other erosion control measures needed to direct runoff toward temporary or permanent surface drainage facilities.

ADDITIONAL REPORTS/RECOMMENDATIONS

This report is only intended to be a preliminary report to address feasibility and to evaluate geotechnical design constraints and provide preliminary recommendations. The following additional reports are envisioned:

- Review of Rough Grading Report
  - This report will provide a detailed review of the rough grading plan and updated revised recommendations as necessary for grading and rough grade plan improvements.

- Review of Precise Grading Report
  - This report will provide a detailed review of the precise grading plan and final recommendations for the planned improvements.

LIMITATIONS

All parties reviewing or utilizing this report should recognize that the findings, conclusions, and recommendations presented represent the results of our professional geological and geotechnical engineering efforts and judgments. Due to the inexact nature of the state of the art of these professions and the possible occurrence of undetected variables in subsurface conditions, we cannot guarantee that the conditions actually encountered during grading and construction will be identical to those observed and sampled during our study or that there are no unknown subsurface conditions which could have an adverse effect on the use of the property. We have exercised a degree of care comparable to the standard of practice presently maintained by other professionals in the fields of geotechnical engineering and engineering geology, and believe that our findings present a reasonably representative description of geotechnical conditions and their probable influence on the grading and use of the property.

CLOSURE

We are pleased to present the results of our geotechnical investigation for this project. The Plates and Appendices that complete this report are listed in the Table of Contents.

If you have any questions concerning our findings or recommendations, please do not hesitate to contact us and we will be happy to discuss them with you.

Respectfully submitted,

GMU GEOTECHNICAL, INC.

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Principal Geotechnical Engineer

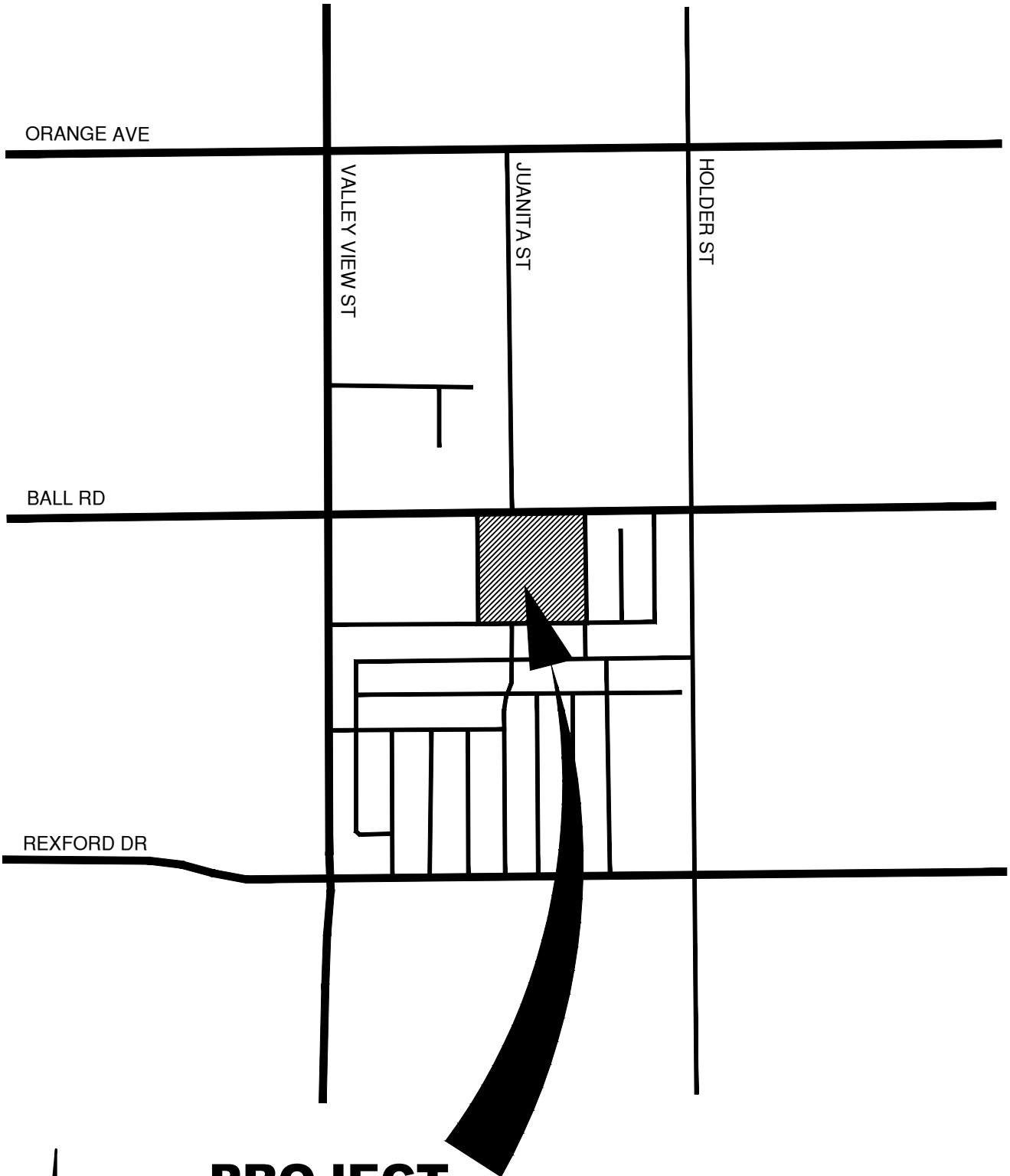
REFERENCES

(1) Conceptual Site Plan, Dickerson School Site, prepared by Bassenian Lagoni, dated September 9, 2014.

(2) Concept Grading Exhibit for Buena Park Development, prepared by Charles Hartman and Associates, dated September 4, 2014.

(3) Seismic Hazard Zone Report for the Los Alamitos 7.5-Minute Quadrangle, Los Angeles and Orange Counties, California, 1998; CDMG Report 019.

(4) Digital Geologic Map of the 30' x 60' Long Beach Quadrangle, Version 1.0, 2003, Compiled by Saucedo, G.J., Greene, H.G., Kennedy, M.P., and Bezore, S.P., California Geological Survey Regional Geologic Map Series, 1:100,000.



PROJECT SITE

10051 BERNADETTE AVE
BUENA PARK, CA

N.T.S.

Location Map

GMU GEOTECHNICAL, INC.

Date:	November 2014
Project No.:	14-146-00

Plate 1

DRAWING: q:\2014\14-146-00\dwg\1414600_plate 1_location map.dwg PLOTTED: 11/6/2014 2:30 PM BY: Ryan Douglas

GEOTECHNICAL LEGEND

- CPT-5 — APPROXIMATE LOCATION OF CONE PENETRATION TESTING
- DH-5 (15.5') — APPROXIMATE LOCATION OF HOLLOW-STEM AUGER BORING (GROUNDWATER DEPTH BELOW EXISTING GROUND SURFACE)
- TP-4 — APPROXIMATE LOCATION OF BACKHOE TEST PIT
- PATH OF EQUIPMENT
- INFILTRATION TEST HOLE LOCATIONS

0 100'

Geotechnical Map

GMU GEOTECHNICAL INC.

Date:	November 2014
Project No.:	14-146-00

Plate 2

DRAWING: q:\2014\14-146-00\dwg\1414600_plate 2_geotechnical map.dwg PLOTTED: 10/30/2014 4:54 PM BY: Ryan Douglas

APPENDIX A

Exploration Procedures, Drill Hole Logs, Test Pit Logs, and Cone Penetration Test Soundings

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GEOTECHNICAL, INC.

APPENDIX A-1

GMU GEOTECHNICAL EXPLORATION PROCEDURES, DRILL HOLE LOGS, TEST PIT LOGS AND CONE PENETRATION TESTS

Our exploration at the subject site consisted of the drilling of five hollow-stem auger drill holes, four backhoe test pits, and the advancement of five cone penetration tests (CPT). The approximate locations of the drill holes, test pits, and CPT tests are shown on the enclosed Geotechnical Map – Plate 2.

Our drill holes and test pits were logged, and undisturbed samples were taken using a 3.0-inch outside-diameter drive sampler which contains a 2.416-inch-diameter brass sample sleeve 6 inches in length. In addition, blow counts recorded during sampling from the drive sampler are shown on the drill hole logs. Standard Penetration Tests (SPT) were also taken in the hollow-stem auger drill holes. Small bulk samples of the material were collected, and blow counts for each SPT were recorded. In the test pits, bulk samples of the soils were collected as well as drive samples. The logs of each drill hole and test pit are contained in this Appendix A, and the Legend to Logs is presented as Plate A-1.

Results of the CPT soundings are contained in Appendix A. Shear wave velocity readings were obtained at 5-foot intervals from CPT-3. The results of these shear wave readings are also included in Appendix A.

The geologic and engineering field descriptions and classifications that appear on these logs are prepared according to Corps of Engineers and Bureau of Reclamation standards. Major soil classifications are prepared according to the Unified Soil Classification System as modified by ASTM Standard No. 2487. Since the description and classification that appear on the Log of Drill Hole are intended to be that which most accurately describe a given interval of a drill hole (frequently an interval of several feet), discrepancies do occur in the Unified Soil Classification System nomenclature between that interval and a particular sample in that interval. For example, an 8-foot-thick interval in the Log of Drill Hole may be identified as silty sand (SM) while one sample taken within the interval may have individually been identified as sandy silt (ML). This discrepancy is frequently allowed to remain to emphasize the occurrence of local textural variations in the interval.

MAJOR DIVISIONS			Group Letter	Symbol	TYPICAL NAMES
COARSE-GRAINED SOILS More Than 50% Retained On No.200 Sieve Based on The Material Passing The 3-Inch (75mm) Sieve. Reference: ASTM Standard D2487	**GRAVELS** 50% or More of Coarse Fraction Retained on No.4 Sieve	Clean Gravels	**GW**		Well Graded Gravels and Gravel-Sand Mixtures, Little or No Fines.
			GP		Poorly Graded Gravels and Gravel-Sand Mixtures Little or No Fines.
		Gravels With Fines	**GM**		Silty Gravels, Gravel-Sand-Silt Mixtures.
			GC		Clayey Gravels, Gravel-Sand-Clay Mixtures.
	SANDS More Than 50% of Coarse Fraction Passes No.4 Sieve	Clean Sands	**SW**		Well Graded Sands and Gravelly Sands, Little or No Fines.
			SP		Poorly Graded Sands and Gravelly Sands, Little or No Fines.
		Sands With Fines	**SM**		Silty Sands, Sand-Silt Mixtures.
			SC		Clayey Sands, Sand-Clay Mixtures.
FINE-GRAINED SOILS 50% or More Passe The No.200 Sieve Based on The Material Passing The 3-Inch (75mm) Sieve. Reference: ASTM Standard D2487	**SILTS AND CLAYS** Liquid Limit Less Than 50%		**ML**		Inorganic Silts, Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts With Slight Plasticity.
			CL		Inorganic Clays of Low To Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays.
			OL		Organic Silts and Organic Silty Clays of Low Plasticity
	SILTS AND CLAYS Liquid Limit 50% or Greater		**MH**		Inorganic Silts, Micaceous or Diatomaceous Fine Sandy or Silty Soils, Elastic Silts.
			CH		Inorganic Clays of High Plasticity, Fat Clays.
			OH		Organic Clays of Medium To High Plasticity, Organic Silts.
HIGHLY ORGANIC SOILS			**PT**		Peat and Other Highly Organic Soils.

The descriptive terminology of the logs is modified from current ASTM Standards to suit the purposes of this study

ADDITIONAL TESTS

DS = Direct Shear
HY = Hydrometer Test
TC = Triaxial Compression Test
UC = Unconfined Compression
CN = Consolidation Test
(T) = Time Rate
EX = Expansion Test
CP = Compaction Test
PS = Particle Size Distribution
EI = Expansion Index
SE = Sand Equivalent Test
AL = Atterberg Limits
FC = Chemical Tests
RV = Resistance Value
SG = Specific Gravity
SU = Sulfates
CH = Chlorides
MR = Minimum Resistivity
pH
(N) = Natural Undisturbed Sample
(R) = Remolded Sample
CS = Collapse Test/Swell-Settlement

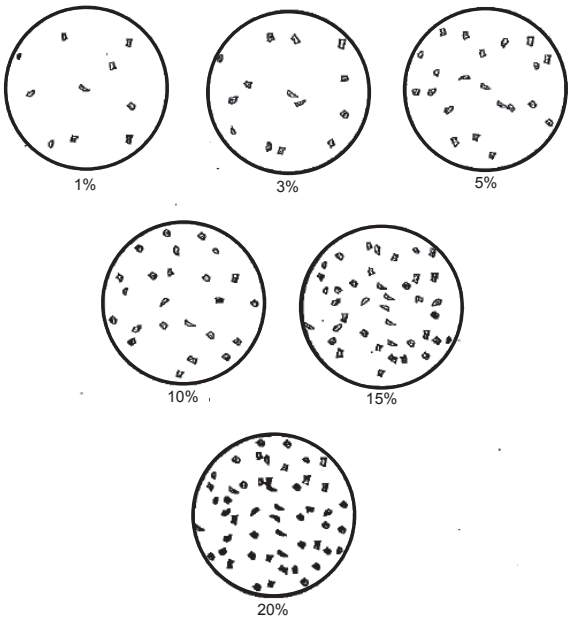
GEOLOGIC NOMENCLATURE

B = Bedding C = Contact J = Joint
F = Fracture Flt = Fault S = Shear
RS = Rupture Surface = Seepage
= Groundwater

SAMPLE SYMBOLS

Undisturbed Sample (California Sample)
Undisturbed Sample (Shelby Tube)
Bulk Sample
Unsuccessful Sampling Attempt
SPT Sample

10: 10 Blows for 12-Inches Penetration
6/4: 6 Blows Per 4-Inches Penetration
P: Push
(13): Uncorrected Blow Counts ("N" Values) for 12-Inches Penetration- Standard Penetration Test (SPT)



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LEGEND TO LOGS

ASTM Designation: D 2487
(Based on Unified Soil Classification System)

Plate
A-1

SOIL DENSITY/CONSISTENCY

FINE GRAINED

Consistency	Field Test	SPT (#blows/foot)	Mod (#blows/foot)
Very Soft	Easily penetrated by thumb, exudes between fingers	<2	<3
Soft	Easily penetrated one inch by thumb, molded by fingers	2-4	3-6
Firm	Penetrated over 1/2 inch by thumb with moderate effort	4-8	6-12
Stiff	Penetrated about 1/2 inch by thumb with great effort	8-15	12-25
Very Stiff	Readily indented by thumbnail	15-30	25-50
Hard	Indented with difficulty by thumbnail	>30	>50

COARSE GRAINED

Density	Field Test	SPT (#blows/foot)	Mod (#blows/foot)
Very Loose	Easily penetrated with 0.5" rod pushed by hand	<4	<5
Loose	Easily penetrated with 0.5" rod pushed by hand	4-10	5-12
Medium Dense	Easily penetrated 1' with 0.5" rod driven by 5lb hammer	10-30	12-35
Dense	Dificult to penetrat 1' with 0.5" rod driven by 5lb hammer	31-50	35-60
Very Dense	Penetrated few inches with 0.5" rod driven by 5lb hammer	>50	>60

BEDROCK HARDNESS

Density	Field Test	SPT (#blows/foot)
Soft	Can be crushed by hand, soil like and structureless	1-30
Moderately Hard	Can be grooved with fingernails, crumbles with hammer	30-50
Hard	Can't break by hand, can be grooved with knife	50-100
Very Hard	Scratches with knife, chips with hammer blows	>100

MODIFIERS

Trace	1%
Few	1-5%
Some	5-12%
Numerous	12-20%
Abundant	>20%

GRAIN SIZE

Description		Sieve Size	Grain Size	Approximate Size
Boulders		>12"	>12"	Larger than a basketball
Cobbles		3-12"	3-12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4-3"	3/4-3"	Thumb-sized to fist-sized
	Fine	#4-3/4"	0.19-0.75"	Pea-sized to thumb-sized
Sand	Coarse	#10-#4	0.079-0.19"	Rock-salt-sized to pea-sized
	Medium	#40-#10	0.017-0.079"	Sugar-sized to rock salt-sized
	Fine	#200-#40	0.0029-0.017"	Flour-sized to sugar-sized
Fines		passing #200	<0.0029"	Flour-sized and smaller

MOISTURE CONTENT

Dry- Very little or no moisture
Damp- Some moisture but less than optimum
Moist- Near optimum
Very Moist- Above optimum
Wet/Saturated- Contains free moisture

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LEGEND TO LOGS

Plate

A-2

Project: Dickerson School Site
Project Location: Buena Park, CA
Project Number: 14-146-00

Log of Drill Hole DH-1

Date(s) Drilled	10-8-14	Logged By	RLD	Checked By	GPS
Drilling Method	Hollow Stem Auger	Drilling Contractor	2R Drilling	Total Depth of Drill Hole	31.5 feet
Drill Rig Type	CME 75	Diameter(s) of Hole, inches	8	Approx. Surface Elevation, ft MSL	48.0
Groundwater Depth [Elevation], feet	8.0 [40.0]	Sampling Method(s)	Open drive sampler with 6-inch sleeve/SPT	Drill Hole Backfill	Native/Bentonite
Remarks	Infiltration Hole Adjacent to Drill Hole @ 4.5'			Driving Method and Drop	Auto Hammer

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: NUMBER OF BLOWS	SAMPLE DATA: DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			ASPHALT		4 1/2" AC						
			UNDOCUMENTED FILL (Qafu)		SILTY SAND (SM); brown, moist, medium dense, fine to medium grained sand		5 6 7	140	13	100	
45	5		QUATERNARY YOUNGER ALLUVIUM (Qyf)		CLAYEY SILT to SAND (ML-SP); brown, moist, firm, low plasticity, fine grained sand		2 3 4	140			
40					SAND (SP); light brown, very moist, medium dense, medium grained sand ▽		6 8 10	140	22	101	
	10				becomes saturated		3 5 8	140			
35					becomes loose		2 3 6	140	22	101	
	15				SANDY SILT (ML); brown, saturated, firm, low plasticity		2 4 3	140			
30					SILT (ML); grayish brown, saturated, firm, low plasticity		4 4 6	140	28	94	

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GMU GEOTECHNICAL, INC.

Drill Hole DH-1

Project: Dickerson School Site
Project Location: Buena Park, CA
Project Number: 14-146-00

Log of Drill Hole DH-1

Sheet 2 of 2

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: NUMBER OF BLOWS	SAMPLE DATA: DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
					becomes brown, stiff		4 5 4	140			
25											
	26				SILTY SAND (SM); brown, saturated, loose, fine to medium grained sand		2 3 5	140			
20											
	30				SILTY CLAY (CL); brown, saturated, firm, medium plasticity		4 4 6	140	31	92	

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GMU GEOTECHNICAL, INC.

Drill Hole DH-1

Project: Dickerson School Site **Project Location:** Buena Park, CA **Project Number:** 14-146-00	**Log of Drill Hole DH-2** Sheet 1 of 1

Date(s) Drilled	10-8-14	Logged By	RLD	Checked By	GPS
Drilling Method	Hollow Stem Auger	Drilling Contractor	2R Drilling	Total Depth of Drill Hole	6.0 feet
Drill Rig Type	CME 75	Diameter(s) of Hole, inches	8	Approx. Surface Elevation, ft MSL	51.0
Groundwater Depth [Elevation], feet	N/A ▯	Sampling Method(s)	Open drive sampler with 6-inch sleeve/SPT	Drill Hole Backfill	Native/Bentonite
Remarks	Infiltration Hole @ 5.5'			Driving Method and Drop	Auto Hammer

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: NUMBER OF BLOWS	SAMPLE DATA: DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			ASPHALT		3" AC						
50			UNDOCUMENTED FILL (Qafu)		SILT with some SAND (ML); brown, damp to moist, fine grained sand						
			QUATERNARY YOUNGER ALLUVIUM (Qyf)		SANDY SILT (ML); brown, damp to moist, medium dense, fine grained sand		6 10 10	140	15	106	
	5				becomes moist, loose, medium grained sand		3 3 4	140			
45											

DH_REV3 14-146-00.GPJ GMULAB.GPJ 10/30/14

GMU GEOTECHNICAL, INC.

Drill Hole DH-2

Project: Dickerson School Site **Project Location:** Buena Park, CA **Project Number:** 14-146-00	**Log of Drill Hole DH-3** Sheet 1 of 2

Date(s) Drilled	10-8-14	Logged By	RLD	Checked By	GPS
Drilling Method	Hollow Stem Auger	Drilling Contractor	2R Drilling	Total Depth of Drill Hole	31.5 feet
Drill Rig Type	CME 75	Diameter(s) of Hole, inches	8	Approx. Surface Elevation, ft MSL	50.0
Groundwater Depth [Elevation], feet	15.5 [34.5]	Sampling Method(s)	Open drive sampler with 6-Inch sleeve/SPT	Drill Hole Backfill	Native/Bentonite
Remarks	Infiltration Hole Adjacent to Drill Hole @ 4.0'			Driving Method and Drop	Auto Hammer

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: NUMBER OF BLOWS	SAMPLE DATA: DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			ASPHALT		4" AC						
			UNDOCUMENTED FILL (Qafu)		SAND with some SILT (SM); brown, moist, fine grained sand						
			QUATERNARY YOUNGER ALLUVIUM (Qyf)		SILTY SAND (SM); brown, moist, loose, fine grained sand		2 3 3	140			
45	5				SANDY SILT (ML); brown, moist, firm, low plasticity		4 5 5	140	22	89	CN
							2 2 3	140			
40	10				SILTY SAND (SM); brown, moist, medium dense, fine grained sand		5 7 12	140	22	105	
					becomes loose		2 3 6	140			
35	15				becomes very moist, medium dense, fine to medium grained sand ▽		9 11 20	140	24	103	
					SANDY SILT (ML); brown, saturated, soft, low plasticity		1 2 1	140			

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GMU GEOTECHNICAL, INC.

Drill Hole DH-3

Project: Dickerson School Site
Project Location: Buena Park, CA
Project Number: 14-146-00

Log of Drill Hole DH-3

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: NUMBER OF BLOWS	SAMPLE DATA: DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
					becomes stiff		3 7 8	140	25	97	
25	25				SILTY CLAY (CL); dark grayish brown, saturated, firm, medium plasticity		3 4 5	140	40	83	
20	30						1 3 4	140			

DH_REV3 14-146-00.GPJ GMULAB.GPJ 10/30/14

GMU GEOTECHNICAL, INC.

Drill Hole DH-3

Project: Dickerson School Site
Project Location: Buena Park, CA
Project Number: 14-146-00

Log of Drill Hole DH-4

Sheet 1 of 2

Date(s) Drilled	10-8-14	Logged By	RLD	Checked By	GPS
Drilling Method	Hollow Stem Auger	Drilling Contractor	2R Drilling	Total Depth of Drill Hole	41.5 feet
Drill Rig Type	CME 75	Diameter(s) of Hole, inches	8	Approx. Surface Elevation, ft MSL	50.0
Groundwater Depth [Elevation], feet	12.5 [37.5]	Sampling Method(s)	Open drive sampler with 6-Inch sleeve/SPT	Drill Hole Backfill	Native/Bentonite
Remarks				Driving Method and Drop	Auto Hammer

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	NUMBER OF BLOWS	DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	DRY UNIT WEIGHT, pcf	ADDITIONAL TESTS
			GRASS AND TOPSOIL		Grass and Topsoil						
			UNDOCUMENTED FILL (Qafu)		SILTY SAND (SM); light brown, damp, fine grained sand						
			QUATERNARY YOUNGER ALLUVIUM (Qyf)		SILTY SAND (SM); light brown, damp, medium dense, fine grained sand		4 6 7	140	5	96	
45	5				SANDY CLAY (CL); brown, moist, firm, low plasticity		3 3 2	140	20		PS, AL
					SAND with some SILT (SM); brown, very moist, medium dense, medium to coarse grained sand		4 8 11	140	10	111	
40	10				SILTY SAND (SM); light brown to brown, very moist, loose, fine to medium grained sand		2 2 5	140			
					becomes brown, medium dense, fine grained sand		3 5 8	140	26	98	
35	15				SAND (SP); brown, saturated, medium dense, medium grained sand		P 5 6	140			
					SILTY SAND to CLAYEY SILT (SM-ML); brown to dark brown, saturated, soft, low plasticity		2 2 3	140	27	99	CN

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GMU GEOTECHNICAL, INC.

Drill Hole DH-4

Project: Dickerson School Site
Project Location: Buena Park, CA
Project Number: 14-146-00

Log of Drill Hole DH-4

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: NUMBER OF BLOWS	SAMPLE DATA: DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
					SILTY SAND (SM); brown, saturated, loose, medium grained sand		2 5 4	140			
25	25				SANDY SILT (ML); brown, saturated, soft, low plasticity		2 2 2	140			
20	30				SILTY CLAY (CL); dark brown, saturated, firm, low plasticity		6 5 5	140	24	99	
15	35				SILTY SAND (SM); brown, saturated, loose, fine grained sand		3 4 5	140			
10	40				SANDY SILT (ML); brown, saturated, medium dense, low plasticity		8 13 16	140	29	94	

DH_REV3 14-146-00.GPJ GMULAB.GPJ 10/30/14

GMU GEOTECHNICAL, INC.

Drill Hole DH-4

Project: Dickerson School Site **Project Location:** Buena Park, CA **Project Number:** 14-146-00	**Log of Drill Hole DH-5** Sheet 1 of 2

Date(s) Drilled	10-8-14	Logged By	RLD	Checked By	GPS
Drilling Method	Hollow Stem Auger	Drilling Contractor	2R Drilling	Total Depth of Drill Hole	31.5 feet
Drill Rig Type	CME 75	Diameter(s) of Hole, inches	8	Approx. Surface Elevation, ft MSL	51.0
Groundwater Depth [Elevation], feet	18.5 [32.5]	Sampling Method(s)	Open drive sampler with 6-inch sleeve/SPT	Drill Hole Backfill	Native/Bentonite
Remarks				Driving Method and Drop	Auto Hammer

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: NUMBER OF BLOWS	SAMPLE DATA: DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
			GRASS AND TOPSOIL		Grass and Topsoil						
50			QUATERNARY YOUNGER ALLUVIUM (Qyf)		SILTY SAND (SM); brown, damp, loose, fine grained sand		3 3 4	140			
45	5				SANDY SILT (ML); brown, moist, medium dense, low plasticity		4 5 10	140	17	93	
					SANDY SILT (ML); brown, moist, firm, low plasticity		1 2 3	140			
40	10				SILTY SAND (SM); brown, very moist, medium dense, fine grained sand		3 5 8	140	25	98	CN
					SANDY SILT (ML); brown, very moist, soft, low plasticity		2 2 2	140			
35	15				becomes stiff		4 6 8	140	27	96	
					becomes dark brown, saturated, soft ▽		1 1 1	140			

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GMU GEOTECHNICAL, INC.

Drill Hole DH-5

Project: Dickerson School Site
Project Location: Buena Park, CA
Project Number: 14-146-00

Log of Drill Hole DH-5

Sheet 2 of 2

ELEVATION, feet	DEPTH, feet	GRAPHIC LOG	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ORIENTATION DATA	ENGINEERING CLASSIFICATION AND DESCRIPTION	SAMPLE DATA: SAMPLE	SAMPLE DATA: NUMBER OF BLOWS	SAMPLE DATA: DRIVING WEIGHT, lbs	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: ADDITIONAL TESTS
30					SILTY SAND (SM); brown, saturated, medium dense, fine grained sand		2 5 9	140	21	108	
	25				CLAYEY SILT (ML); brown, saturated, stiff, low plasticity		3 6 9	140	33	92	
25											
	30				SILTY SAND (SM); brown, saturated, loose, fine to medium grained sand		P 2 3	140			
20											

DH_REV3 14-146-00.GPJ GMULAB.GPJ 10/30/14

GMU GEOTECHNICAL, INC.

Drill Hole DH-5

Project: Dickerson School Site Project Location: Buena Park, CA Project Number: 14-146-00	**Log of Test Pit TP-1** Sheet 1 of 1

Date(s) Excavated	10-6-14	Logged By	LLB	Checked By	N/A
Excavation Equipment	Backhoe	Excavation Contractor	Mikes Backhoe	Total Depth of Test Pit	9.0 feet
Sampling Method(s)	Open drive sampler with 6-inch sleeve			Approx. Surface Elevation, ft MSL	50.0
Groundwater Depth [Elevation], feet	9.0 [41.0]	Test Pit Dimensions	Width: 2 ft; Length: 10 ft; Depth: 9 ft		
Remarks					

DEPTH, feet	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ENGINEERING CLASSIFICATION AND DESCRIPTION	ELEVATION, feet	DEPTH, feet	SOIL SYMBOL	SAMPLE	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: MAXIMUM DENSITY, pcf	TEST DATA: ADDITIONAL TESTS
	UNDOCUMENTED FILL (Qafu) Very organic, abundant rootlets, and scattered trash to 6 inches; contact at 6 inches is diffuse, below is scattered rootlets, homogenous	CLAYEY SILT (ML), minor fine sand, dark brown, wet, loose to firm								
		SANDY SILT (ML), brown to yellow brown, moist, firm, sand is fine grained								EI, CP, DS, RV, FC
2	**QUATERNARY YOUNGER ALLUVIUM (Qyf)** Poorly developed soil structure, locally porous, lenses of pebbly sandy silt, scattered rootlets	SANDY SILT (ML), brown to yellow brown, moist, firm, sand is fine grained	48	2			19	94		
	Continues locally porous, scattered rootlets	Becomes fine to medium grained								
4			46	4			15	108		
	Continues locally porous, smaller poreholes									
	Scattered porosity	SILT (ML), brown to yellow brown, moist, firm, minor fine sand								
6		SAND (SM), brown to yellow brown, moist, firm, fine grained	44	6			33	87		
	Limited porosity, scattered lenses of pebbly clay	SILTY CLAY (CL), brown to gray brown, moist, stiff, slightly plastic								
8			42	8			21	106		

TP_REV1 14-146-00.GPJ GM&U.GDT 10/30/14

GMU GEOTECHNICAL, INC.

Project: Dickerson School Site **Project Location: Buena Park, CA** **Project Number: 14-146-00**	**Log of Test Pit TP-2** Sheet 1 of 1

Date(s) Excavated	**10-6-14**	Logged By	**LLB**	Checked By	**N/A**
Excavation Equipment	**Backhoe**	Excavation Contractor	**Mikes Backhoe**	Total Depth of Test Pit	**7.5 feet**
Sampling Method(s)	**Open drive sampler with 6-inch sleeve**			Approx. Surface Elevation, ft MSL	**51.0**
Groundwater Depth [Elevation], feet	**N/A []**	Test Pit Dimensions	**Width: 2 ft; Length: 6 ft; Depth: 7.5 ft**		
Remarks					

DEPTH, feet	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ENGINEERING CLASSIFICATION AND DESCRIPTION	ELEVATION, feet	DEPTH, feet	SOIL SYMBOL	SAMPLE	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: MAXIMUM DENSITY, pcf	TEST DATA: ADDITIONAL TESTS
	<u>UNDOCUMENTED FILL (Qafu)</u> Some organics	SILT (ML), with minor clay, dry to damp, loose								
	<u>QUATERNARY YOUNGER ALLUVIUM (Qyf)</u> Slightly porous, abundant calcium carbonate staining along roothairs	SILTY SAND (SM), light yellow brown, damp, firm, fine grained sand	50							
2		SILT (ML), with minor fine sand, yellow brown, damp, firm		2			4	98		
			48							E!, FC
4		Becomes moist, increase in sand content		4			10	94		
			46							
6				6			23	94		
	Micaceous, no porosity observed	SILTY CLAY (CL), brown to dark brown, moist, stiff, slightly plastic	44							

TP_REV1 14-146-00.GPJ GM&U.GDT 10/30/14

GMU GEOTECHNICAL, INC.

Project: Dickerson School Site
Project Location: Buena Park, CA
Project Number: 14-146-00

Log of Test Pit TP-3

Sheet 1 of 1

Date(s) Excavated	10-6-14	Logged By	LLB	Checked By	N/A
Excavation Equipment	Backhoe	Excavation Contractor	Mikes Backhoe	Total Depth of Test Pit	2.0 feet
Sampling Method(s)	Open drive sampler with 6-inch sleeve			Approx. Surface Elevation, ft MSL	52.0
Groundwater Depth [Elevation], feet	N/A ▯	Test Pit Dimensions	Width: 2 ft; Length: 5 ft; Depth: 2 ft		
Remarks	Broken Irrigation Main Line at 2 feet				

DEPTH, feet	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ENGINEERING CLASSIFICATION AND DESCRIPTION	ELEVATION, feet	DEPTH, feet	SOIL SYMBOL	SAMPLE	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: MAXIMUM DENSITY, pcf	TEST DATA: ADDITIONAL TESTS
	UNDOCUMENTED FILL (Qafu) Scattered angular cobbles	SANDY SILT (ML), light brown to reddish brown, dry to damp, firm, scattered pebbles								
2	Broken irrigation line, north side of pit		50	2			2			

TP_REV1 14-146-00.GPJ GM&U.GDT 10/30/14

GMU GEOTECHNICAL, INC.

Project: Dickerson School Site
Project Location: Buena Park, CA
Project Number: 14-146-00

Log of Test Pit TP-4

Sheet 1 of 1

Date(s) Excavated	10-6-14	Logged By	LLB	Checked By	N/A
Excavation Equipment	Backhoe	Excavation Contractor	Mikes Backhoe	Total Depth of Test Pit	7.5 feet
Sampling Method(s)	Open drive sampler with 6-inch sleeve			Approx. Surface Elevation, ft MSL	50.0
Groundwater Depth [Elevation], feet	N/A ▯	Test Pit Dimensions	Width: 2 ft; Length: 6 ft; Depth: 7.5 ft		
Remarks					

DEPTH, feet	GEOLOGICAL CLASSIFICATION AND DESCRIPTION	ENGINEERING CLASSIFICATION AND DESCRIPTION	ELEVATION, feet	DEPTH, feet	SOIL SYMBOL	SAMPLE	TEST DATA: MOISTURE CONTENT, %	TEST DATA: DRY UNIT WEIGHT, pcf	TEST DATA: MAXIMUM DENSITY, pcf	TEST DATA: ADDITIONAL TESTS
0	UNDOCUMENTED FILL (Qafu) Porous	SANDY SILT (ML), light brown, dry to damp, firm to very firm, fine grained								
2			48	2			2			
4			46	4			2	96		
	QUATERNARY YOUNGER ALLUVIUM (Qyf) Slightly porous	SILTY SAND (SM), yellow brown, damp to moist, fine grained								
6	No porosity observed	SILTY CLAY (CL), dark brown to dark gray, moist, stiff, minor fine sand to 6.5 feet	44	6			16	111		PS, AL

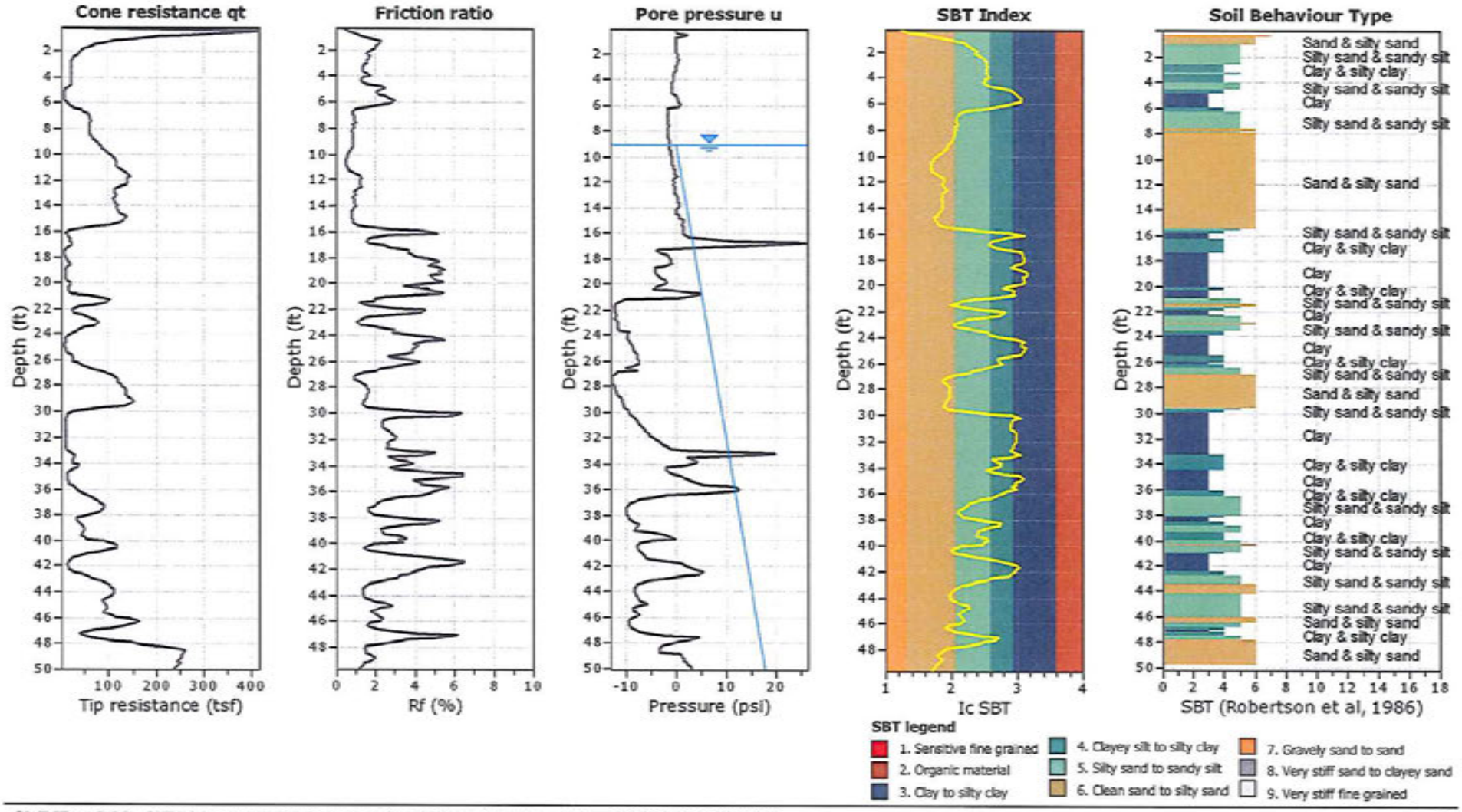
TP_REV1 14-146-00.GPJ GM&U.GDT 10/30/14

GMU GEOTECHNICAL, INC.

GMU Geotechnical, Inc.
Geotechnical Engineers

Project: Dickerson School Site
Location: Buena Park

CPT: CPT-1
Total depth: 50.03 ft, Date: 10/10/2014
Surface Elevation: 0.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Uknown
Cone Operator: Uknown

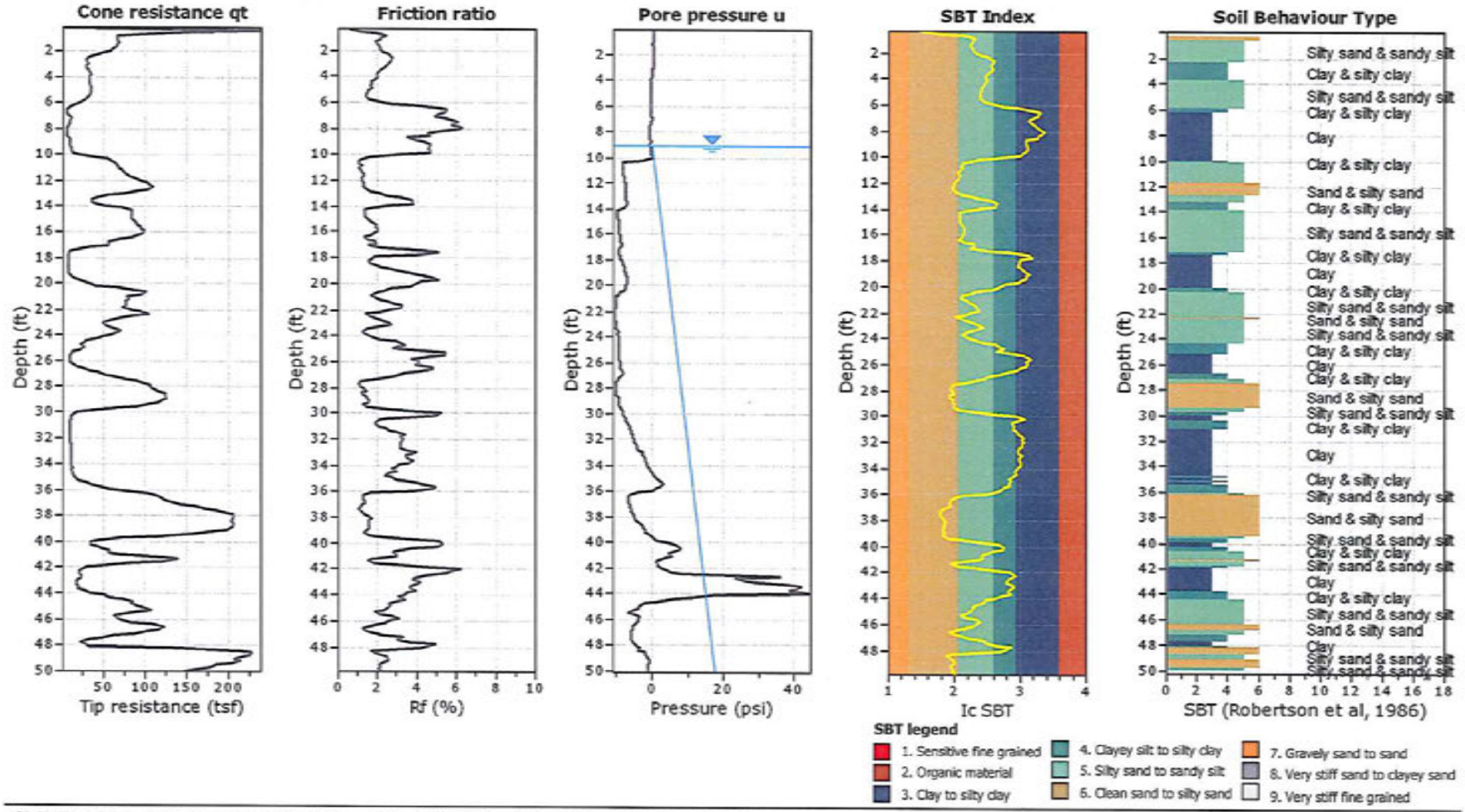


GMU GEOTECHNICAL, INC.

GMU Geotechnical, Inc.
Geotechnical Engineers

Project: Dickerson School Site
Location: Buena Park

CPT: CPT-2
Total depth: 50.03 ft, Date: 10/10/2014
Surface Elevation: 0.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Uknown
Cone Operator: Uknown

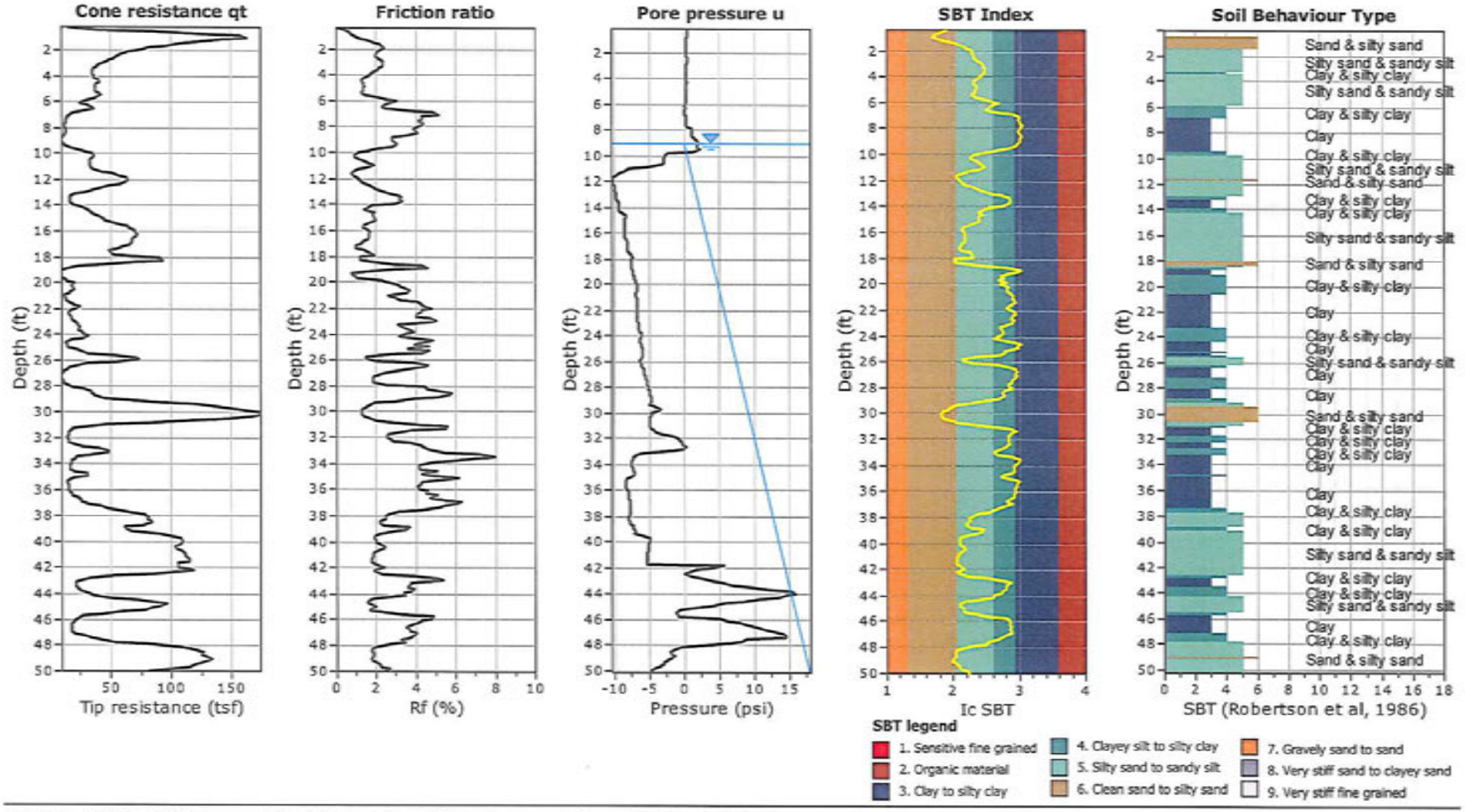


GMU Geotechnical, Inc.
Geotechnical Engineers

CPT: CPT-3

Total depth: 50.03 ft, Date: 10/10/2014
Surface Elevation: 0.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Uknown
Cone Operator: Uknown

Project: Dickerson School Site
Location: Buena Park

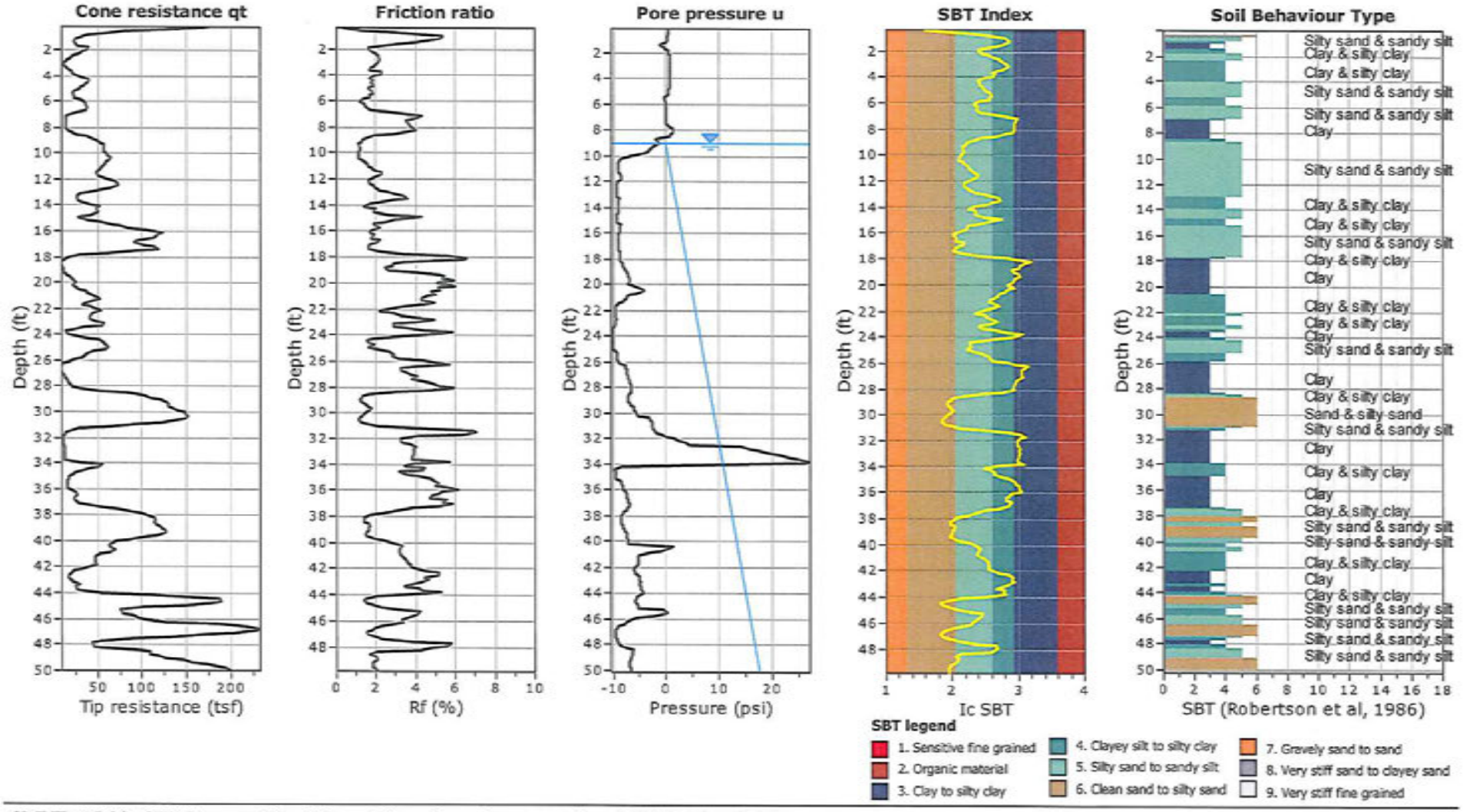


GMU GEOTECHNICAL, INC.

GMU Geotechnical, Inc.
Geotechnical Engineers

Project: Dickerson School Site
Location: Buena Park

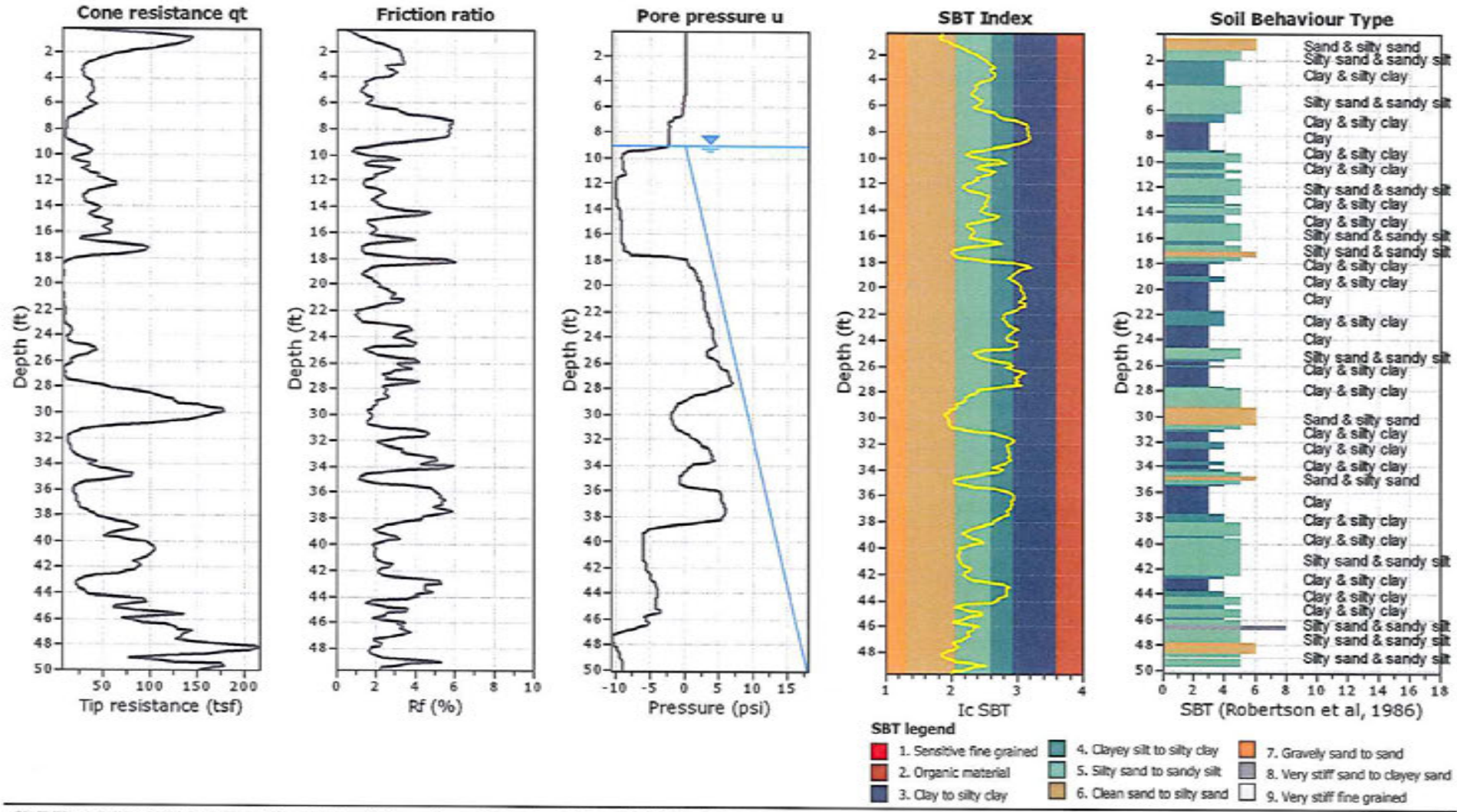
CPT: CPT-4
Total depth: 50.03 ft, Date: 10/10/2014
Surface Elevation: 0.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Uknown
Cone Operator: Uknown



GMU Geotechnical, Inc.
Geotechnical Engineers

CPT: CPT-5
Total depth: 50.03 ft, Date: 10/10/2014
Surface Elevation: 0.00 ft
Coords: X:0.00, Y:0.00
Cone Type: Uknown
Cone Operator: Uknown

Project: Dickerson School Site
Location: Buena Park



APPENDIX B

Geotechnical Laboratory Procedures and Test Results

GMU GEOTECHNICAL, INC.

APPENDIX B-1

GEOTECHNICAL LABORATORY PROCEDURES AND TEST RESULTS

Moisture and Density

Field moisture content and in-place density were determined for each 6-inch sample sleeve of undisturbed soil material obtained from the drill holes. The field moisture content was determined in general accordance with ASTM Test Method D 2216 by obtaining one-half the moisture sample from each end of the 6-inch sleeve. The in-place dry density of the sample was determined by using the wet weight of the entire sample.

At the same time the field moisture content and in-place density were determined, the soil material at each end of the sleeve was classified according to the Unified Soil Classification System. The results of the field moisture content and in-place density determinations are presented on the right-hand column of the Log of Drill Hole and are summarized on Table B-1. The results of the visual classifications were used for general reference.

Particle Size Distribution

As part of the engineering classification of the materials underlying the site, samples were tested to determine the distribution of particle sizes. The distribution was determined in general accordance with ASTM Test Method D 422 using U.S. Standard Sieve Openings 3", 1.5", ¾", ⅜", and U.S. Standard Sieve Nos. 4, 10, 20, 40, 60, 100, and 200. In addition, on some samples a standard hydrometer test was performed to determine the distribution of particle sizes passing the No. 200 sieve (i.e., silt and clay-size particles). The results of the tests are contained in this Appendix B. Key distribution categories (% gravel; % sand, etc.) are contained on Table B-1.

Atterberg Limits

As part of the engineering classification of the soil material, samples of the on-site soil material were tested to determine relative plasticity. This relative plasticity is based on the Atterberg limits determined in general accordance with ASTM Test Method D 4318. The results of these tests are contained in this Appendix B and also Table B-1.

Expansion Test

To provide a standard definition of one-dimensional expansion, an expansion index test was performed on a representative sample in general accordance with ASTM Test Method D 4829. The

results from this test procedure are reported as an "expansion index." The results of this test are contained in this Appendix B-1.

Chemical Tests

The corrosion potential of typical on-site materials under long-term contact with both metal and concrete was determined by chemical and electrical resistance tests. The soluble sulfate test for potential concrete corrosion was performed in general accordance with California Test Method 417, the minimum resistivity tests for potential metal corrosion were performed in general accordance with California Test Method 643, and the concentration of soluble chlorides was determined in general accordance with California Test Method 422. The results of these tests are presented on Table B-1.

Compaction Tests

Bulk samples representative of the on-site materials were tested to determine the maximum dry density and optimum moisture content of the soil. These compactive characteristics were determined in general accordance with ASTM Test Method D 1557. The results of this test are contained in this Appendix B and also Table B-1.

Consolidation Tests

The one-dimensional consolidation properties of undisturbed samples were evaluated in general accordance with the provisions of ASTM Test Method D 2435. The sample diameter was 2.625 inches and sample height was 1.00 inch. Water was added during the tests at various normal loads to evaluate the potential for hydro-collapse and to produce saturation during the remainder of the testing. Consolidation readings were taken regularly during each load increment until the change in sample height was less than approximately 0.0001 inch over a two-hour period. The graphic presentation of consolidation data is a representation of volume change in change in axial load. In addition, time rate tests were performed for select samples. The results of these tests are contained in this Appendix B.

Direct Shear Strength Test

A direct shear test was performed on a remolded sample of typical on-site soils. The general philosophy and procedure of the test was in accord with ASTM Test Method D 3080 - "Direct Shear Tests for Soils Under Consolidated Drained Conditions".

The tests are single shear tests and are performed using a sample diameter of 2.416 inches and a height of 1.00 inch. The normal load is applied by a vertical dead load system. A constant rate of strain is applied to the upper one-half of the sample until failure occurs. Shear stress is monitored by

a strain gauge-type precision load cell and deflection is measured with a digital dial indicator. This data is transferred electronically to data acquisition software which plots shear strength vs. deflection. The shear strength plots are then interpreted to determine either peak or ultimate shear strengths. Residual strengths were obtained through multiple shear box reversals. A strain rate compatible with the grain size distribution of the soils was utilized. The interpreted results of these tests are shown in this Appendix B.

R-value Tests

Bulk samples representative of the underlying on-site materials were tested to measure the response of a compacted sample to a vertically applied pressure under specific conditions. The R-value of a material is determined when the material is in a state of saturation such that water will be exuded from the compacted test specimen when a 16.8 kN load (2.07 MPa) is applied. The results from these test procedures are reported in this Appendix B.

TABLE B-1
SUMMARY OF SOIL LABORATORY DATA

Sample Information			Geologic Unit	USCS Group Symbol	In Situ Water Content, %	In Situ Dry Unit Weight, pcf	In Situ Saturation, %	Sieve/Hydrometer				Atterberg Limits			Compaction		Expansion Index	R-Value	Chemical Test Results			
Boring Number	Depth, feet	Elevation, feet						Gravel, %	Sand, %	<#200, %	<2μ, %	LL	PL	PI	Maximum Dry Unit Weight, pcf	Optimum Water Content, %			pH	Sulfate (ppm)	Chloride (ppm)	Min. Resistivity (ohm/cm)
DH-1	2.5	NA	Qafu	SM-ML	12.7	100	51															
DH-1	7.5	NA	Qyf	SP	22.1	101	91															
DH-1	12.5	NA	Qyf	SP	21.8	101	91															
DH-1	17.5	NA	Qyf	CL/ML	28.3	94	99															
DH-1	30	NA	Qyf	CL	31.1	92	103															
DH-2	2	NA	Qyf	ML	14.9	106	71															
DH-3	5	NA	Qyf	SM/ML	22.2	89	68															
DH-3	10	NA	Qyf	SM/ML	21.9	105	100															
DH-3	15	NA	Qyf	SM	23.9	103	103															
DH-3	20	NA	Qyf	ML	25.4	97	96															
DH-3	25	NA	Qyf	CL	39.7	83	107															
DH-4	2.5	NA	Qyf	SM	4.6	96	17															
DH-4	5	NA	Qyf	CL	20.0			0	29	71	27	41	17	24								
DH-4	7.5	NA	Qyf	SM	9.8	111	53															
DH-4	12.5	NA	Qyf	ML	26.0	98	100															
DH-4	17.5	NA	Qyf	SM-ML	27.3	99	108															
DH-4	30	NA	Qyf	CL	23.5	99	93															
DH-4	40	NA	Qyf	ML	28.7	94	100															
DH-5	5	NA	Qyf	ML	16.9	93	58															
DH-5	10	NA	Qyf	ML-SM	25.1	98	97															
DH-5	15	NA	Qyf	ML	27.0	96	100															
DH-5	20	NA	Qyf	SM-ML	20.7	108	103															
DH-5	25	NA	Qyf	CL/ML	33.3	92	110															
TP-1	1	NA	Qafu	ML	14.5	107	69								118.5	12.5	24	43	8.1	0	96	2683
TP-1	2	NA	Qyf	ML	19.0	94	66															

GMU_TABLE_SOIL_LAB_DATA 14-146-00.GPJ FNC AB GWGN01.GDT 10/24/14

GMU GEOTECHNICAL, INC.

Project: Dickerson School Site
Project No. 14-146-00

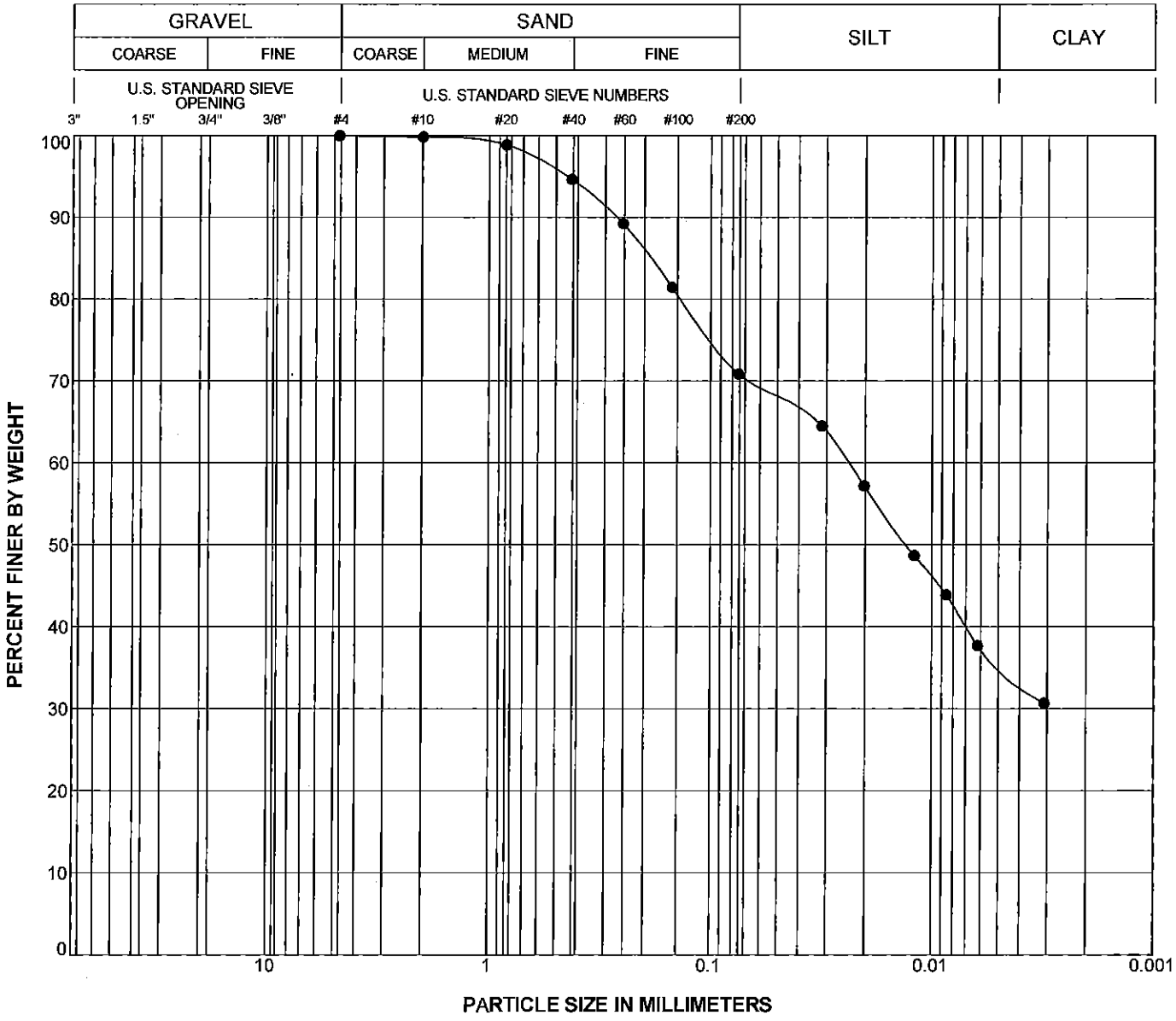
TABLE B-1
SUMMARY OF SOIL LABORATORY DATA

Sample Information			Geologic Unit	USCS Group Symbol	In Situ Water Content, %	In Situ Dry Unit Weight, pcf	In Situ Saturation, %	Sieve/Hydrometer				Atterberg Limits			Compaction		Expansion Index	R-Value	Chemical Test Results			
Boring Number	Depth, feet	Elevation, feet						Gravel, %	Sand, %	<#200, %	<2μ, %	LL	PL	PI	Maximum Dry Unit Weight, pcf	Optimum Water Content, %			pH	Sulfate (ppm)	Chloride (ppm)	Min. Resistivity (ohm/cm)
TP-1	4	NA	Qyf	ML	15.0	108	75															
TP-1	6	NA	Qyf	CL	33.4	87	97															
TP-1	8	NA	Qyf	CL/SC	20.7	106	98															
TP-2	2	NA	Qyf	ML-SM	4.1	98	16															
TP-2	3	NA	Qyf	ML													29		8.4	0	114	2467
TP-2	4	NA	Qyf	ML	9.8	94	34															
TP-2	6	NA	Qyf	ML/CL	22.7	94	79															
TP-3	2	NA	Qafu	ML	2.4																	
TP-4	2	NA	Qafu	SM	1.7																	
TP-4	4	NA	Qafu	ML	2.4	96	9															
TP-4	6	NA	Qyf	SM	15.5	111	83	0	74	26	11	NP	NP	NP								

GMU_TABLE_SOIL_LAB_DATA 14-146-00.GPJ FNC AB GWGN01.GDT 10/24/14

GMU GEOTECHNICAL, INC.

Project: Dickerson School Site
Project No. 14-146-00



Boring Number	Depth (feet)	Geologic Unit	Symbol	LL	PI	Classification
DH-4	5.0	Qyf	●	41	24	Lean Clay with Sand (CL)

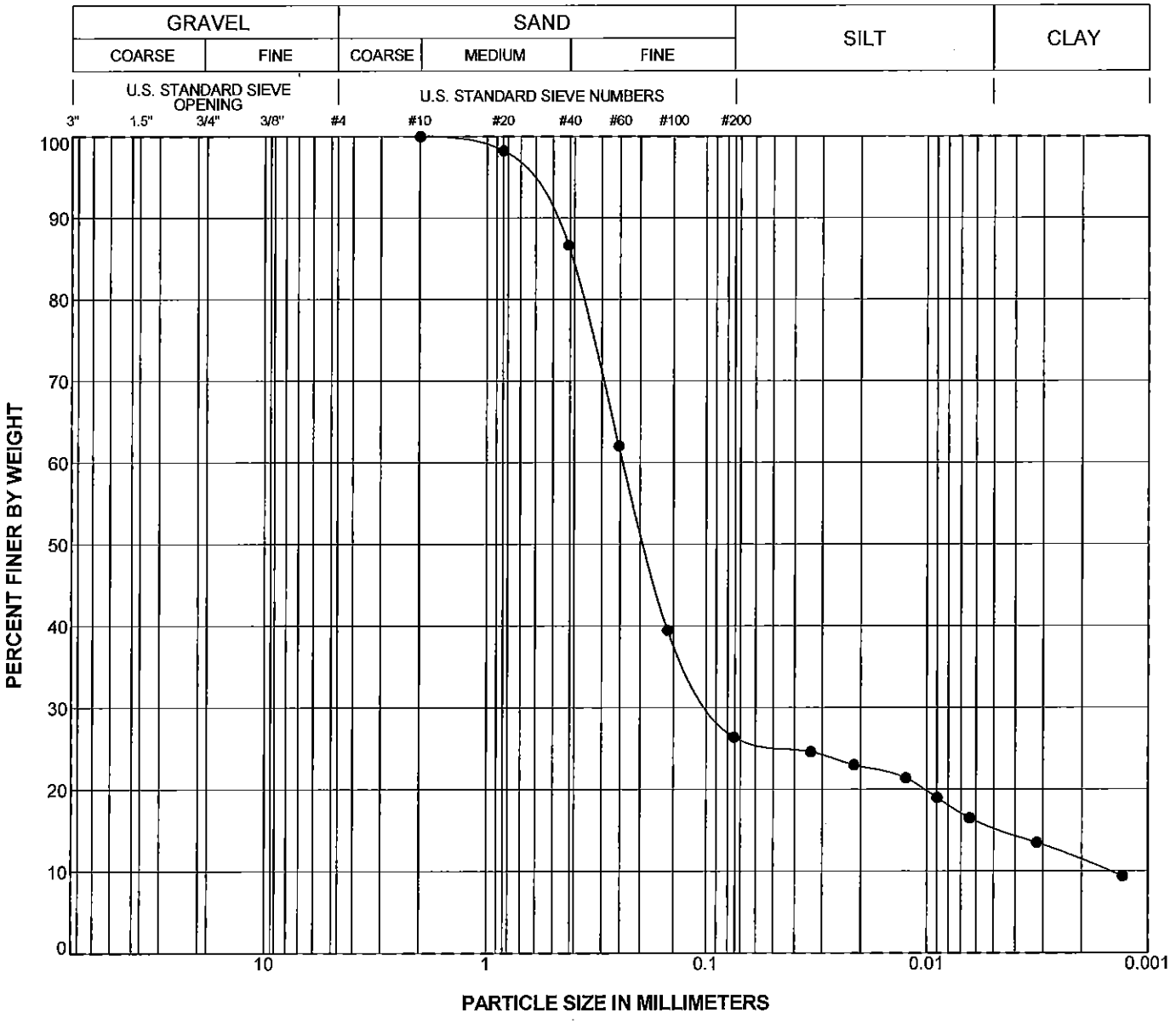
GMU_GRAIN_SIZE 14-146-00.GPJ 10/24/14

PARTICLE SIZE DISTRIBUTION

Project: Dickerson School Site

Project No. 14-146-00

GMU GEOTECHNICAL, INC.



Boring Number	Depth (feet)	Geologic Unit	Symbol	LL	PI	Classification
TP-4	6.0	Qyf	●	NP	NP	Silty Sand (SM)

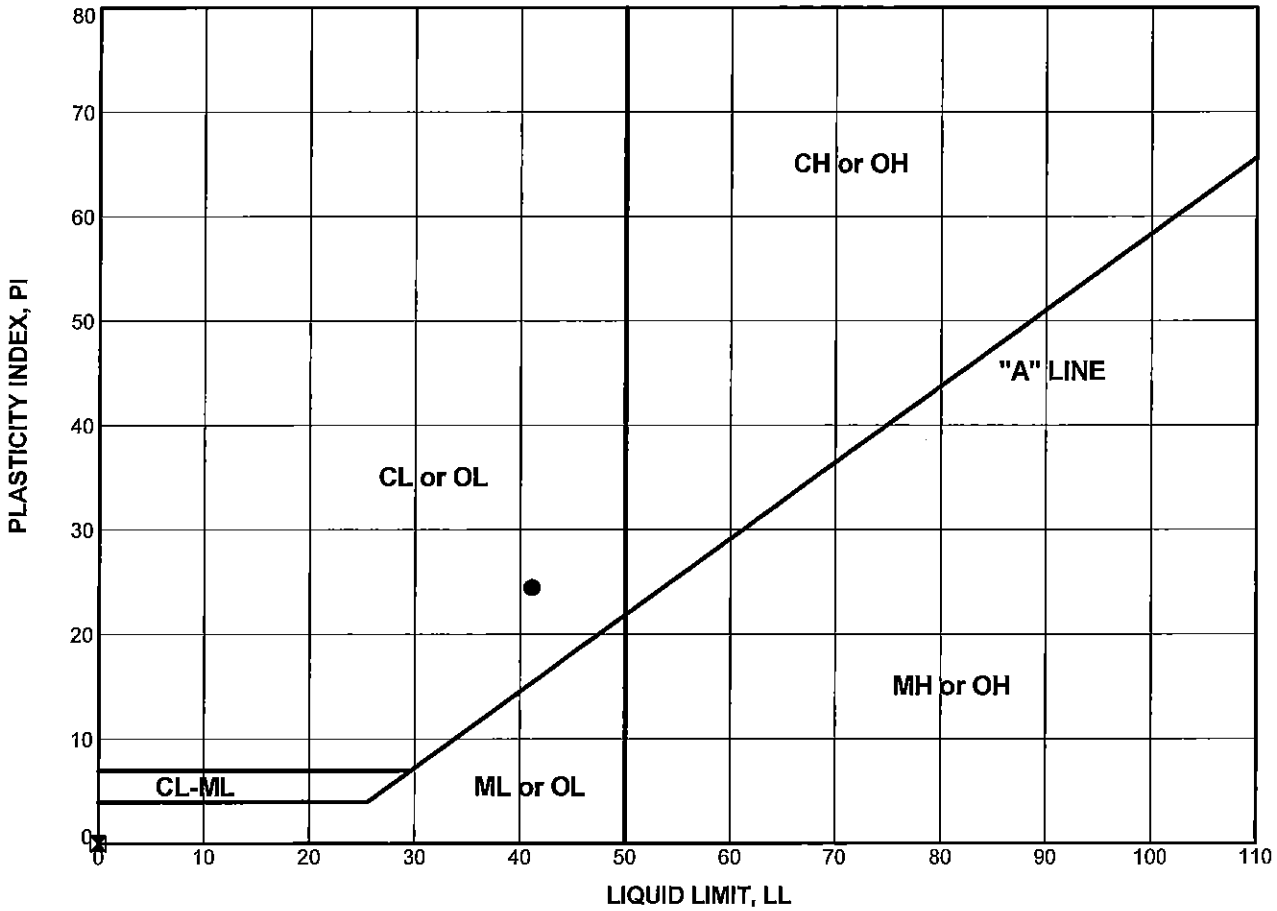
GMU_GRAIN_SIZE 14-146-00.GPJ 10/24/14

PARTICLE SIZE DISTRIBUTION

Project: Dickerson School Site

Project No. 14-146-00

GMU GEOTECHNICAL, INC.



Boring Number	Depth (feet)	Geologic Unit	Test Symbol	Water Content (%)	LL	PL	PI	Classification
DH-4	5.0	Qyf	●	20	41	17	24	Lean Clay with Sand (CL)
TP-4	6.0	Qyf	⊠	16	NP	NP	NP	Silty Sand (SM)

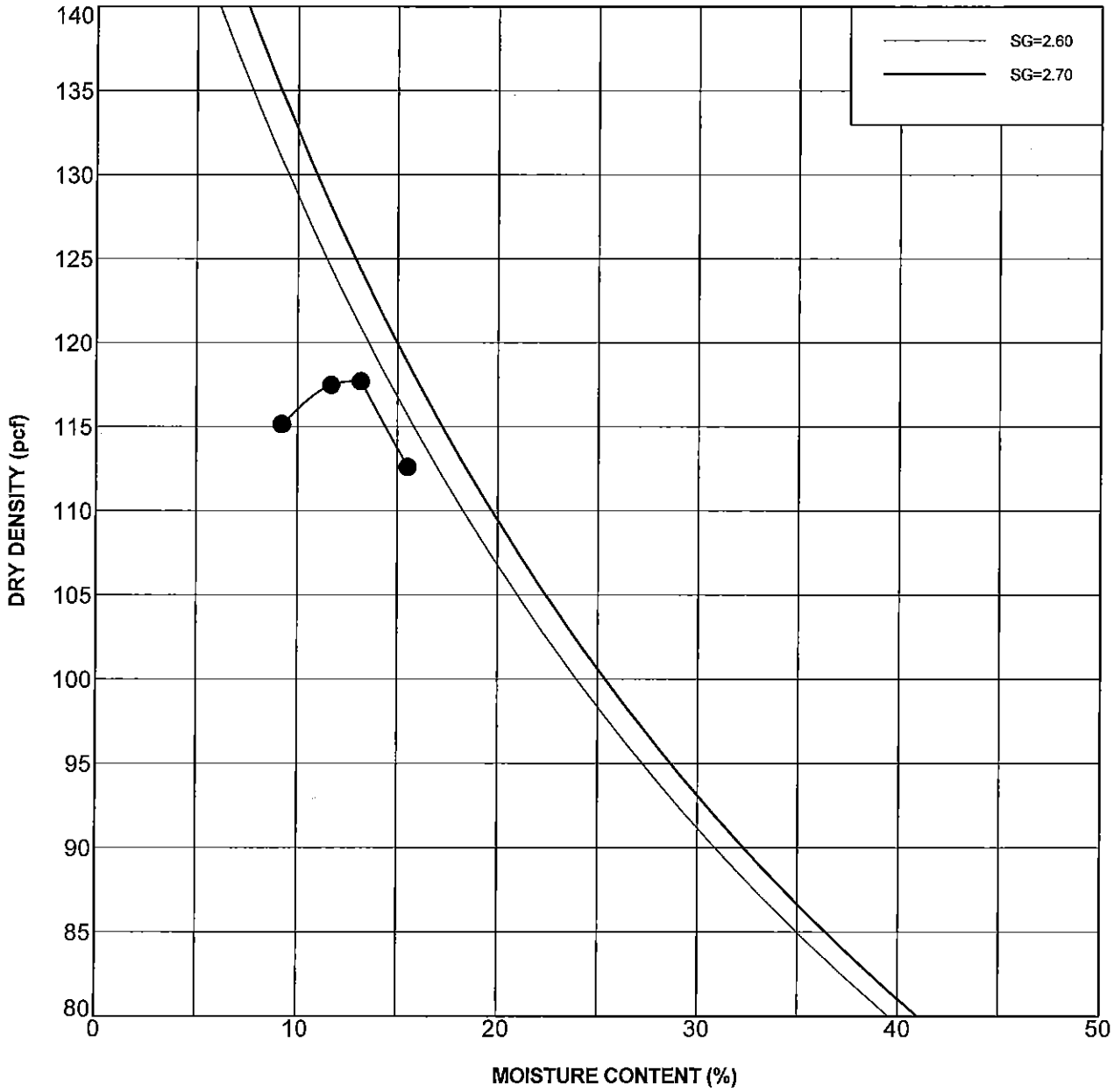
GMU_ATTERBERG_LIMITS_12.PTS 14-146-00.GPJ GM&U.GDT 10/24/14

ATTERBERG LIMITS

Project: Dickerson School Site

Project No. 14-146-00

GMU GEOTECHNICAL, INC.



Boring Number	Depth (feet)	Geologic Unit	Symbol	Maximum Dry Density, pcf	Optimum Moisture Content, %	Classification
TP-1	1.0	Qafu	●	118.5	12.5	Sandy Silt (ML)

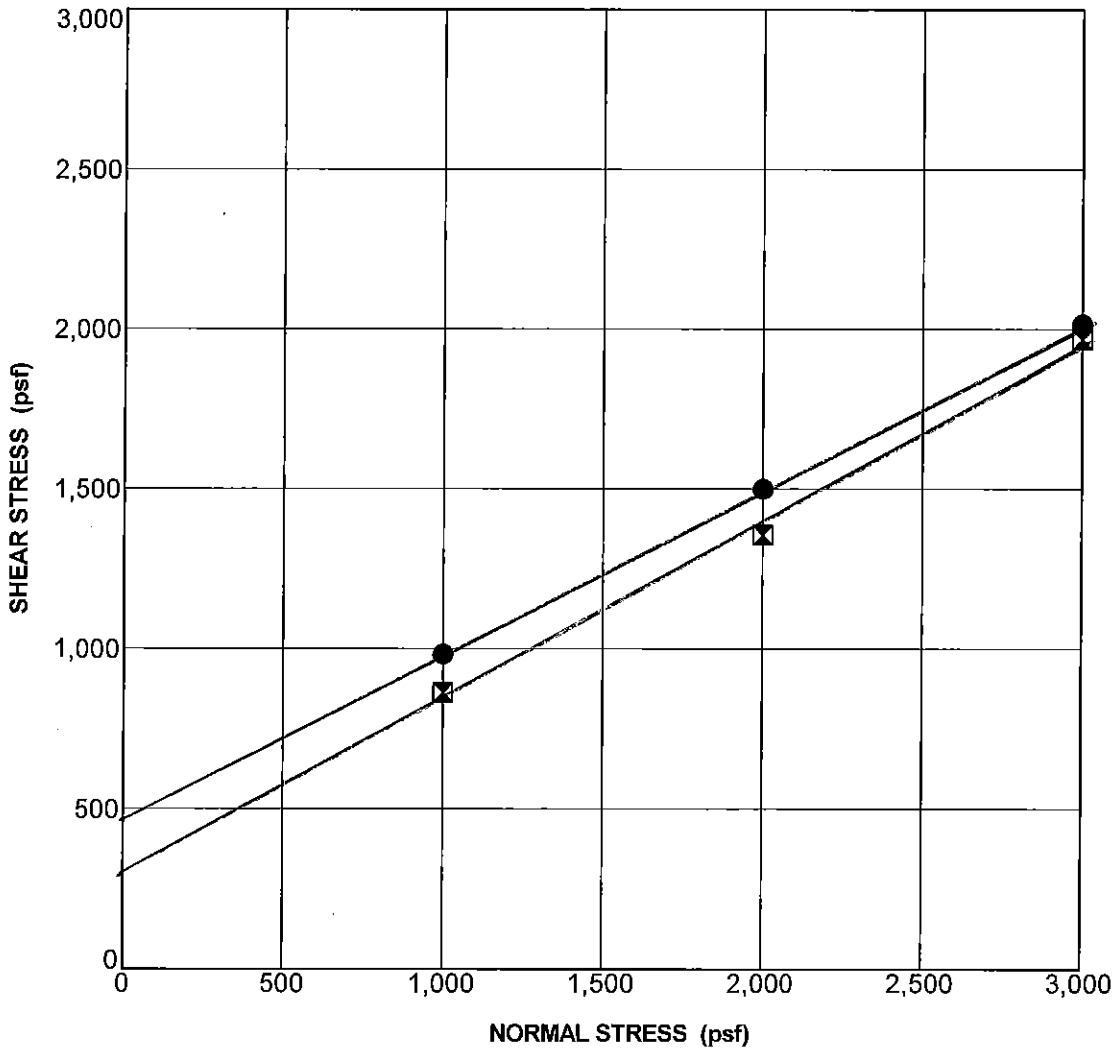
COMPACTION TEST DATA

Project: Dickerson School Site

Project No. 14-146-00

GMU GEOTECHNICAL, INC.

GMU_COMPACTION_4_SETS 14-146-00.GPJ 10/24/14



SAMPLE AND TEST DESCRIPTION
Sample Location: TP-1 @ 1.0 ft **Geologic Unit:** Qafu **Classification:** Sandy Silt (ML)
Strain Rate (in/min): 0.005 **Sample Preparation:** Remolded
Notes: 90% Compaction at 2% over optimum moisture

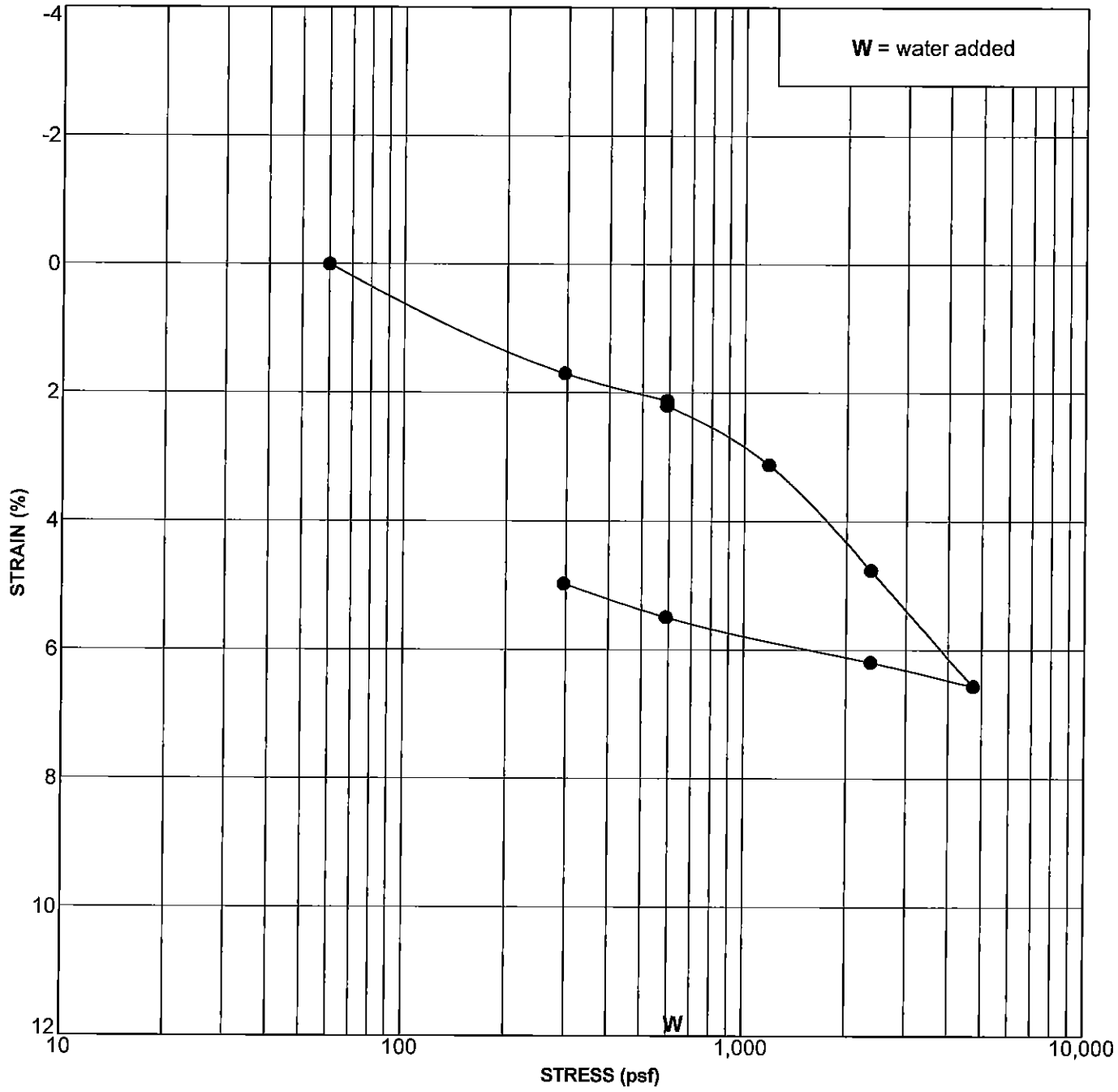
STRENGTH PARAMETERS		
STRENGTH TYPE	**COHESION (psf)**	**FRICTION ANGLE (degrees)**
● Peak Strength	468	27.0
⊠ Ultimate Strength	292	29.0

SHEAR TEST DATA

Project: Dickerson School Site
Project No. 14-146-00

GMU GEOTECHNICAL, INC.

GMU_DIRECT_SHEAR 14-146-00.GPJ GM&U.GDT 10/24/14



Boring Number	Depth (feet)	Geologic Unit	Symbol	In Situ or Remolded Sample	% Hydro-Collapse	Classification
DH-3	5.0	Qyf	●	In Situ	0.08	Clayey Silt with some Sand (SM/ML)

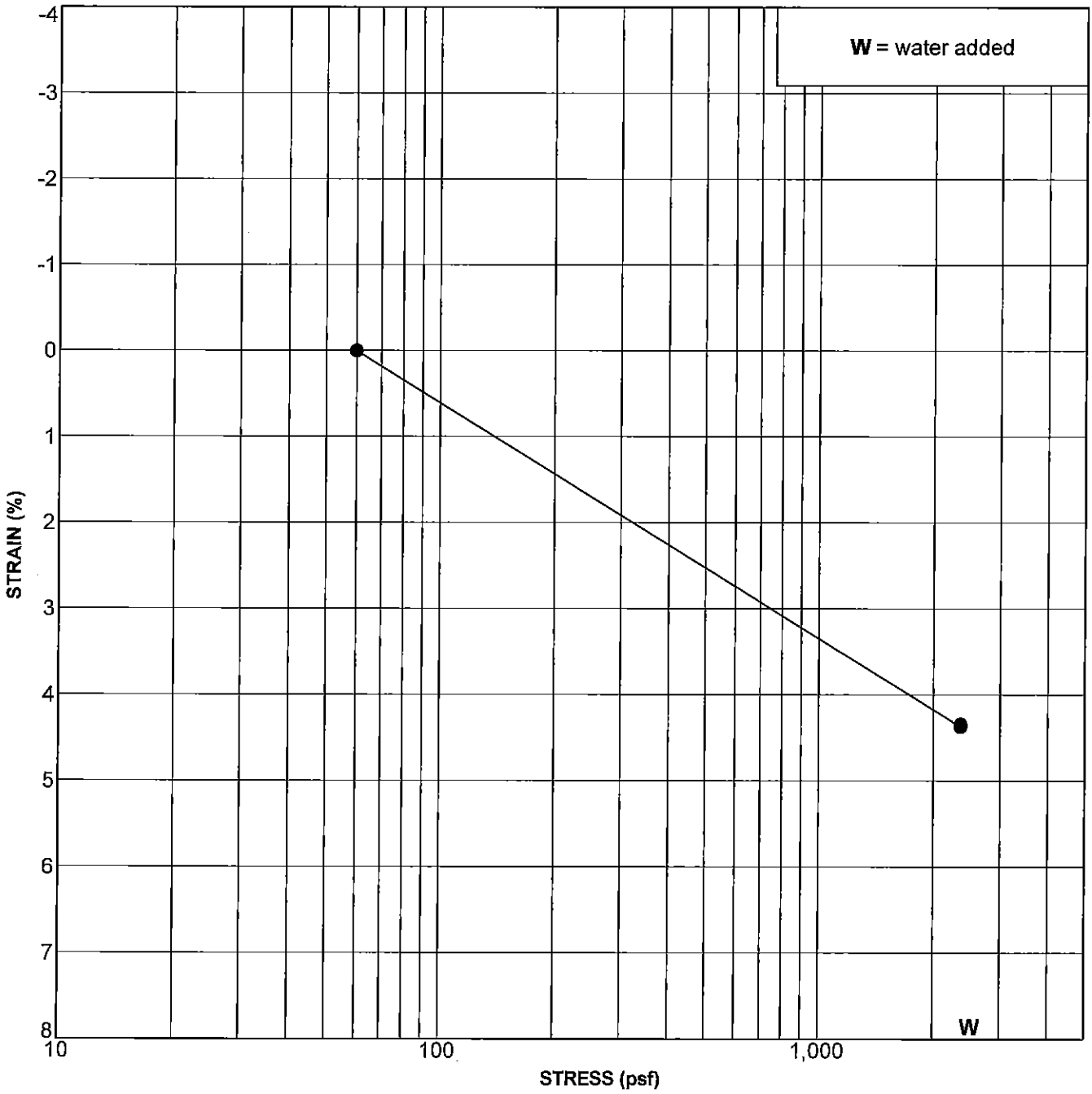
CONSOLIDATION TEST DATA

Project: Dickerson School Site

Project No. 14-146-00

GMU GEOTECHNICAL, INC.

GMU_CONSOL 14-146-00.GPJ GM&U GDT 10/24/14



Boring Number	Depth (feet)	Geologic Unit	Symbol	In Situ or Remolded Sample	% Hydro-Collapse	Classification
DH-4	17.5	Qyf	●	In Situ	-0.03	Silty Sand/Clayey silt (SM/ML)

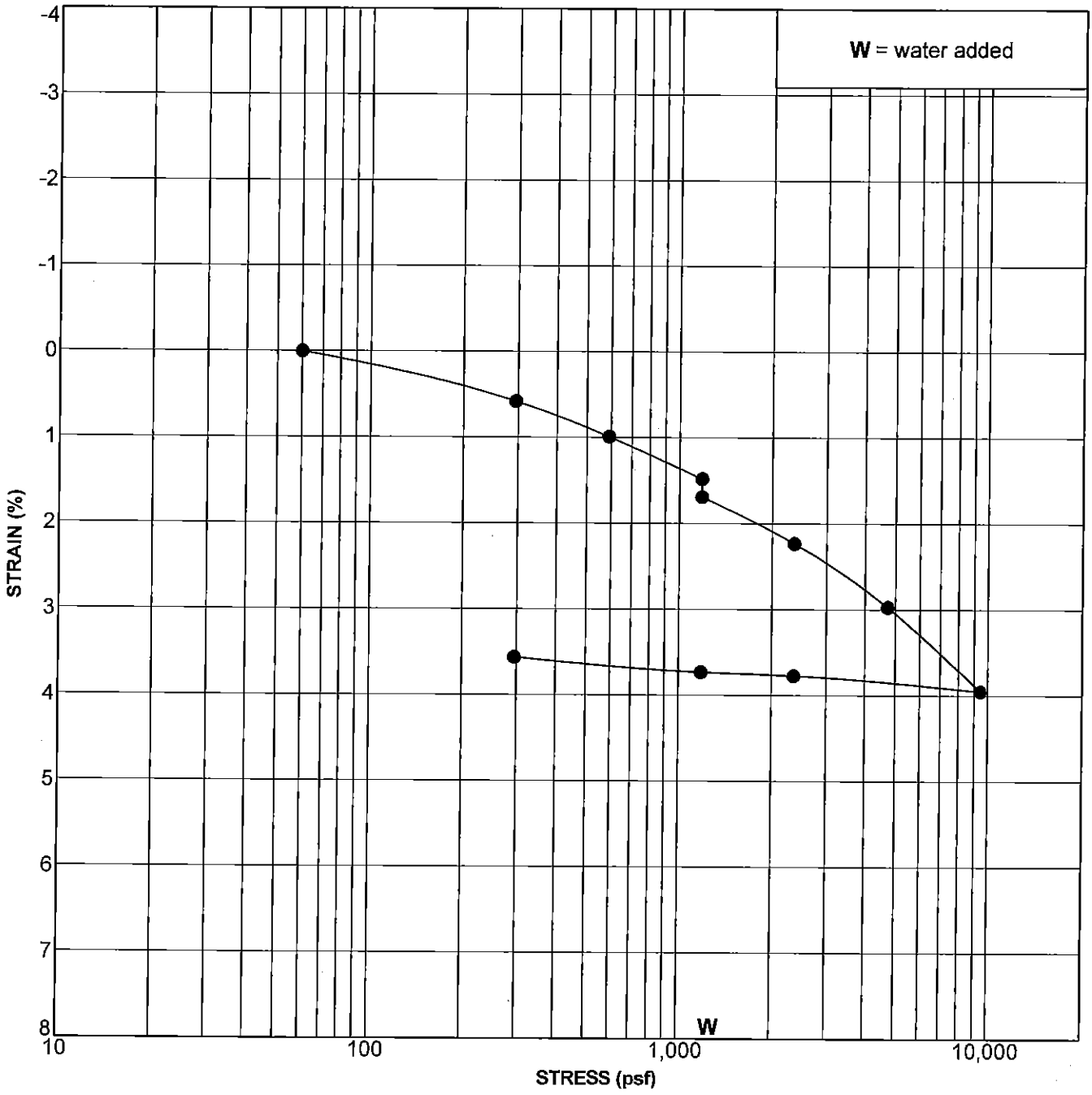
CONSOLIDATION TEST DATA

Project: Dickerson School Site

Project No. 14-146-00

GMU GEOTECHNICAL, INC.

GMU_CONSOL 14-146-00.GPJ GM&U.GDT 10/24/14



Boring Number	Depth (feet)	Geologic Unit	Symbol	In Situ or Remolded Sample	% Hydro-Collapse	Classification
DH-5	10.0	Qyf	●	In Situ	0.21	Silty Sand (SM)

CONSOLIDATION TEST DATA

Project: Dickerson School Site

Project No. 14-146-00

GMU GEOTECHNICAL, INC.

GMU_CONSOL 14-146-00.GPJ GM&U.GDT 10/24/14

APPENDIX C

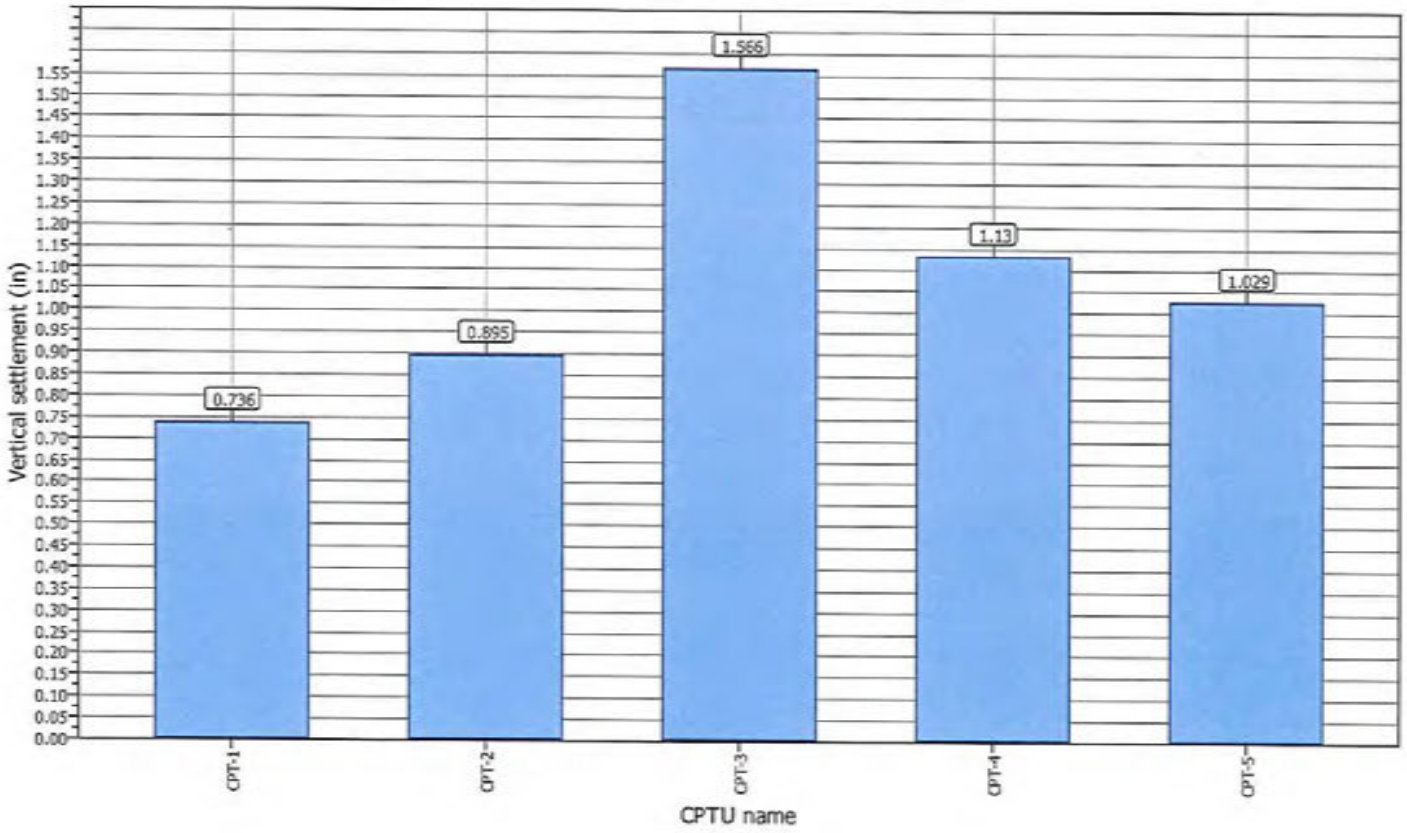
Liquefaction Analysis Results

GMU GEOTECHNICAL, INC.

Project title : Dickerson School Site

Location : Buena Park

Overall vertical settlements report



GMU Geotechnical, Inc.
Geotechnical Engineers

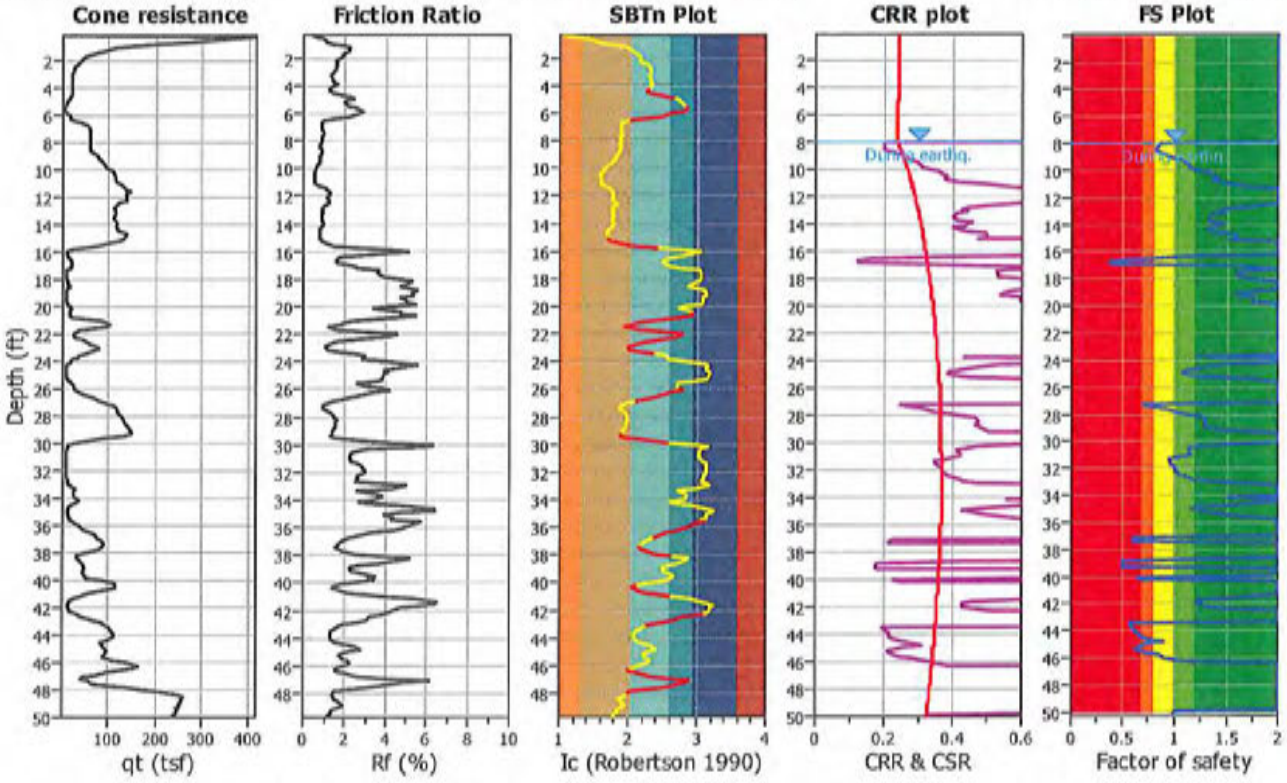
LIQUEFACTION ANALYSIS REPORT

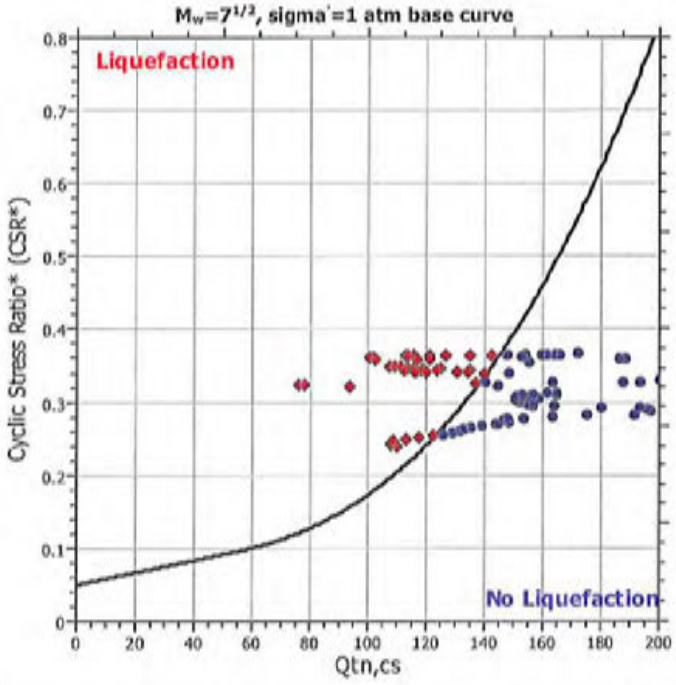
Project title : Dickerson School Site **Location : Buena Park**

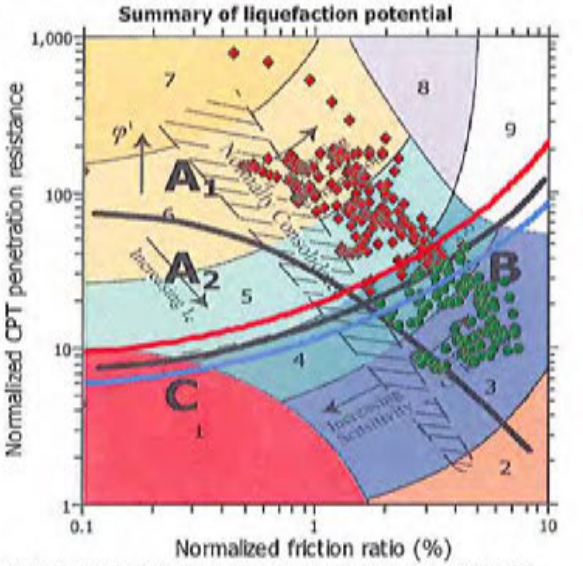
CPT file : CPT-1

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.58	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	No		

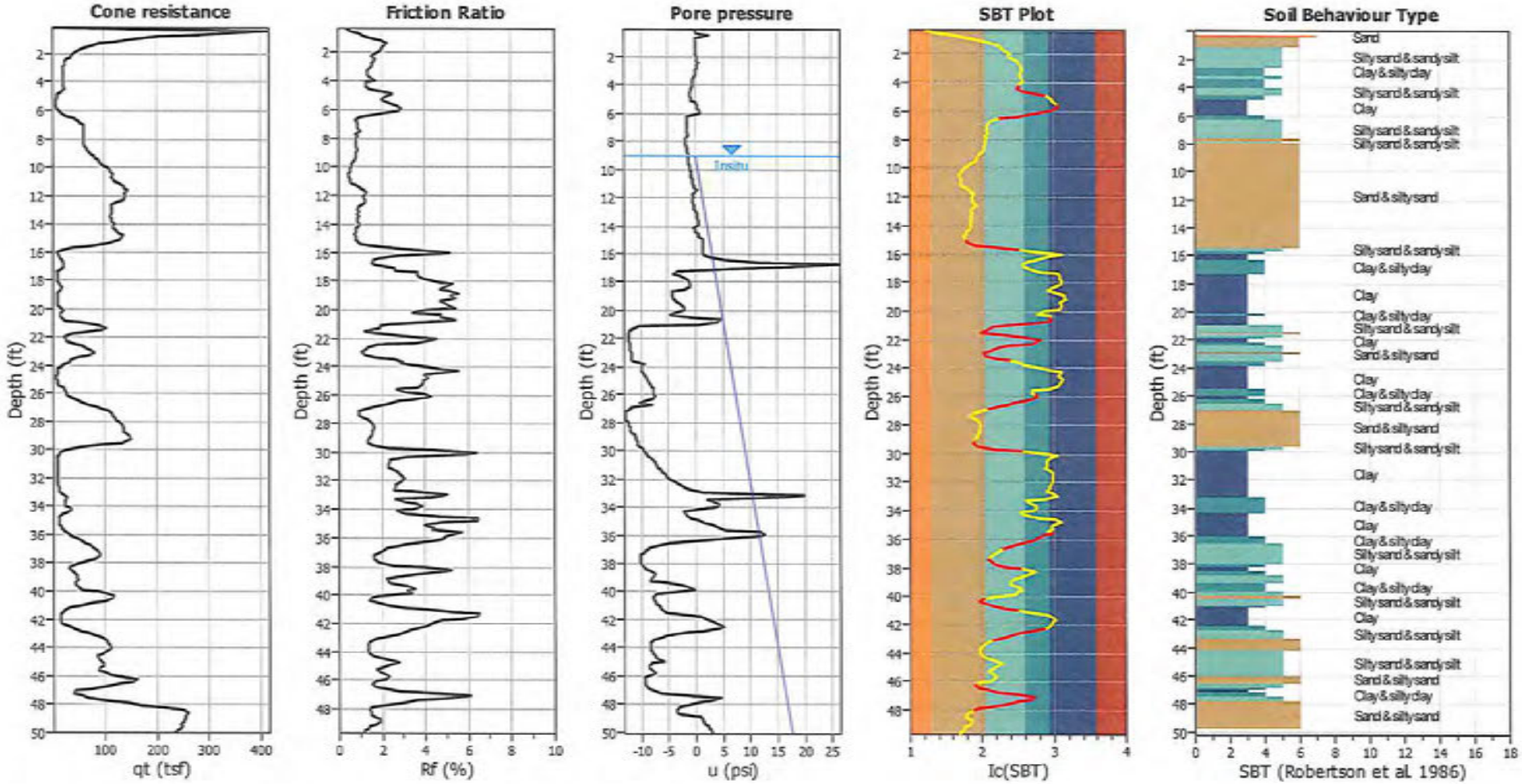






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



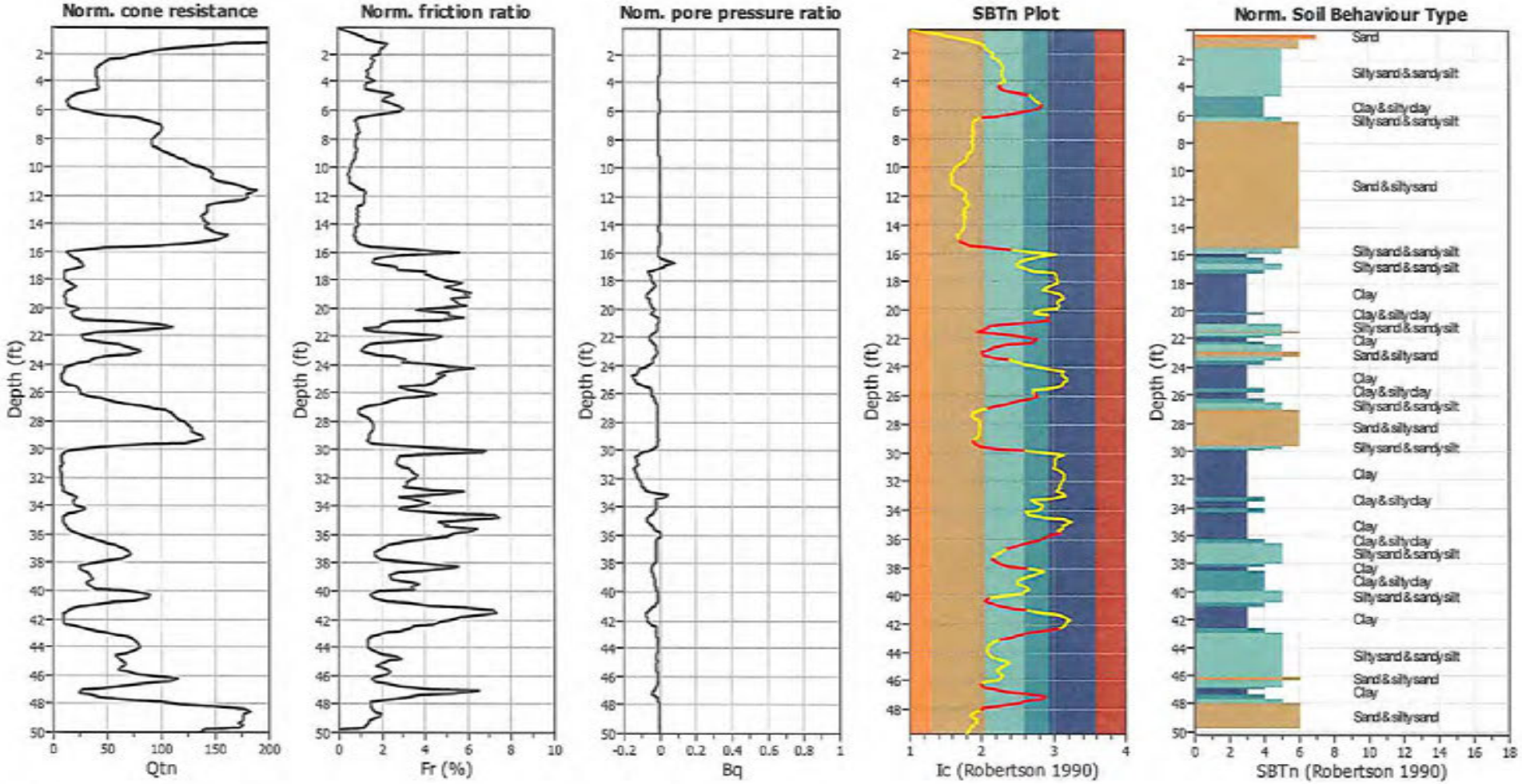
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



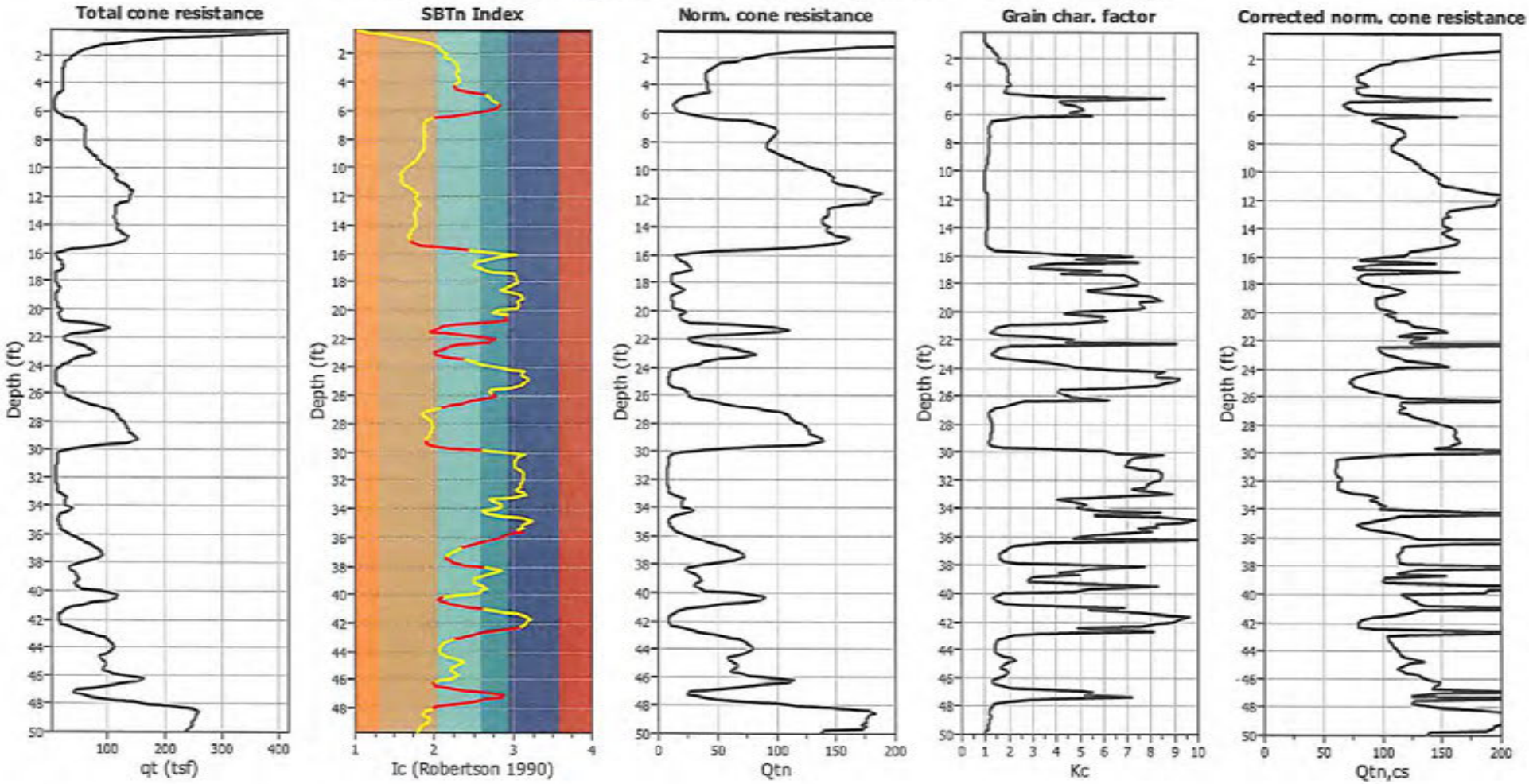
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

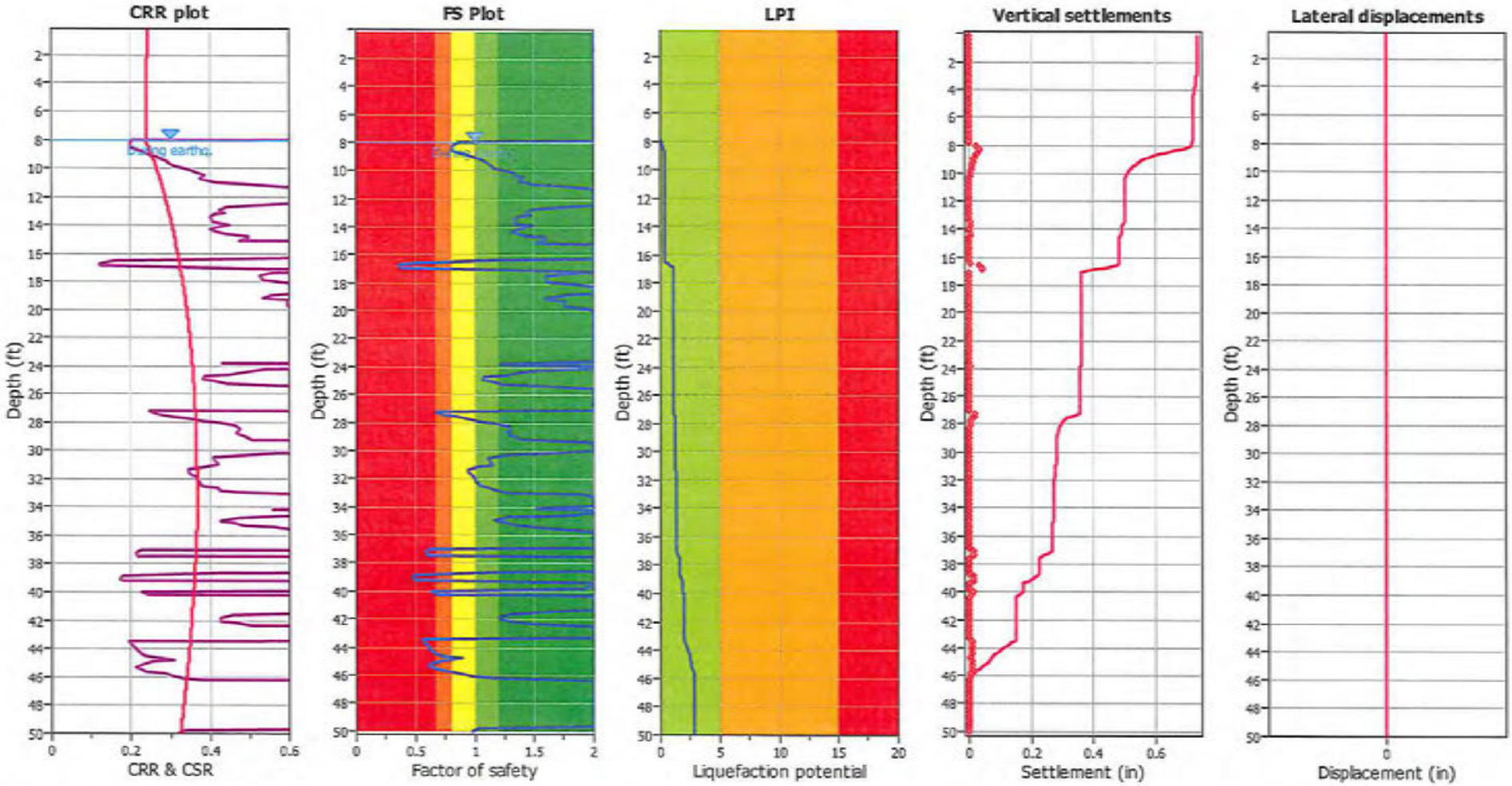
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_c applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

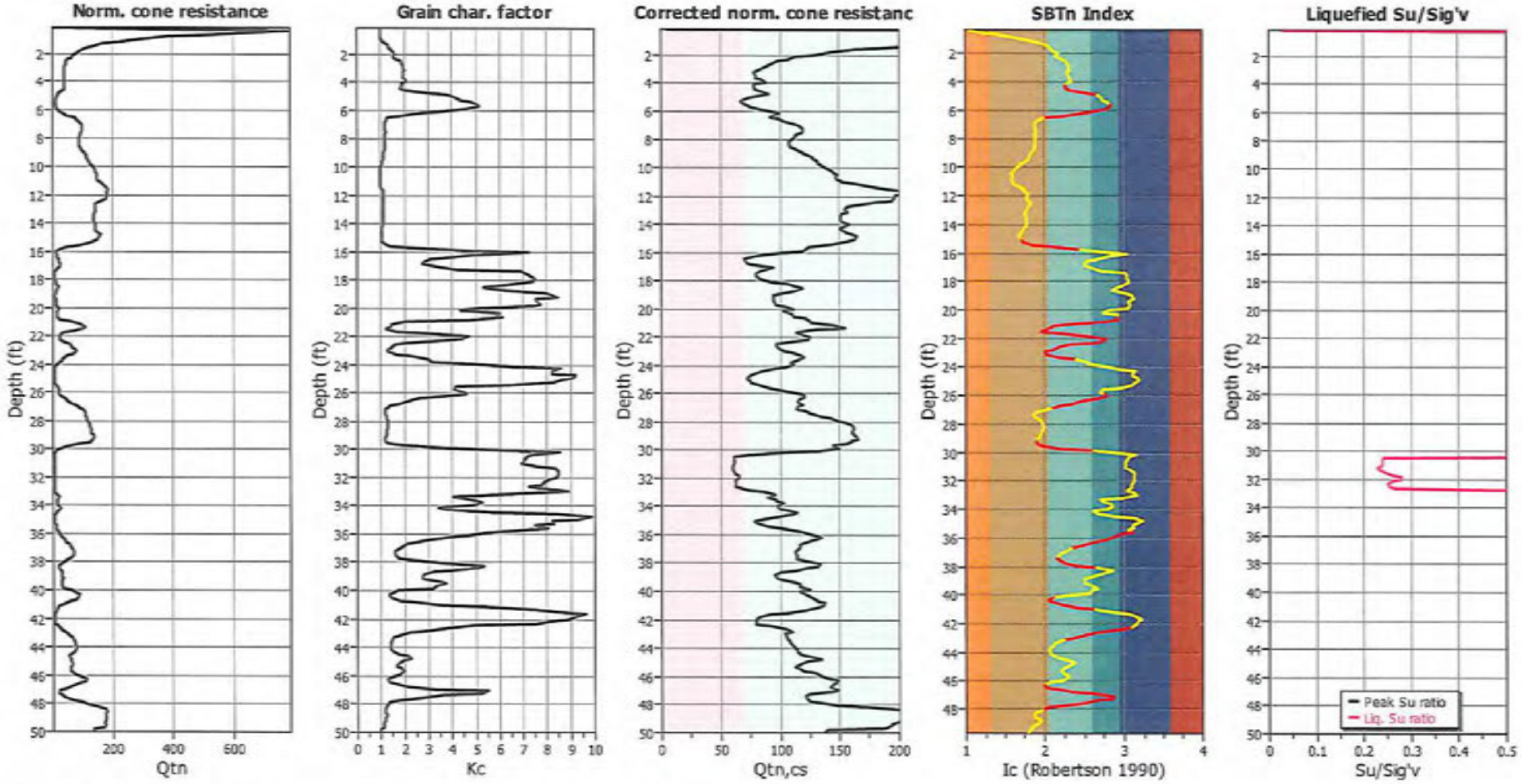
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

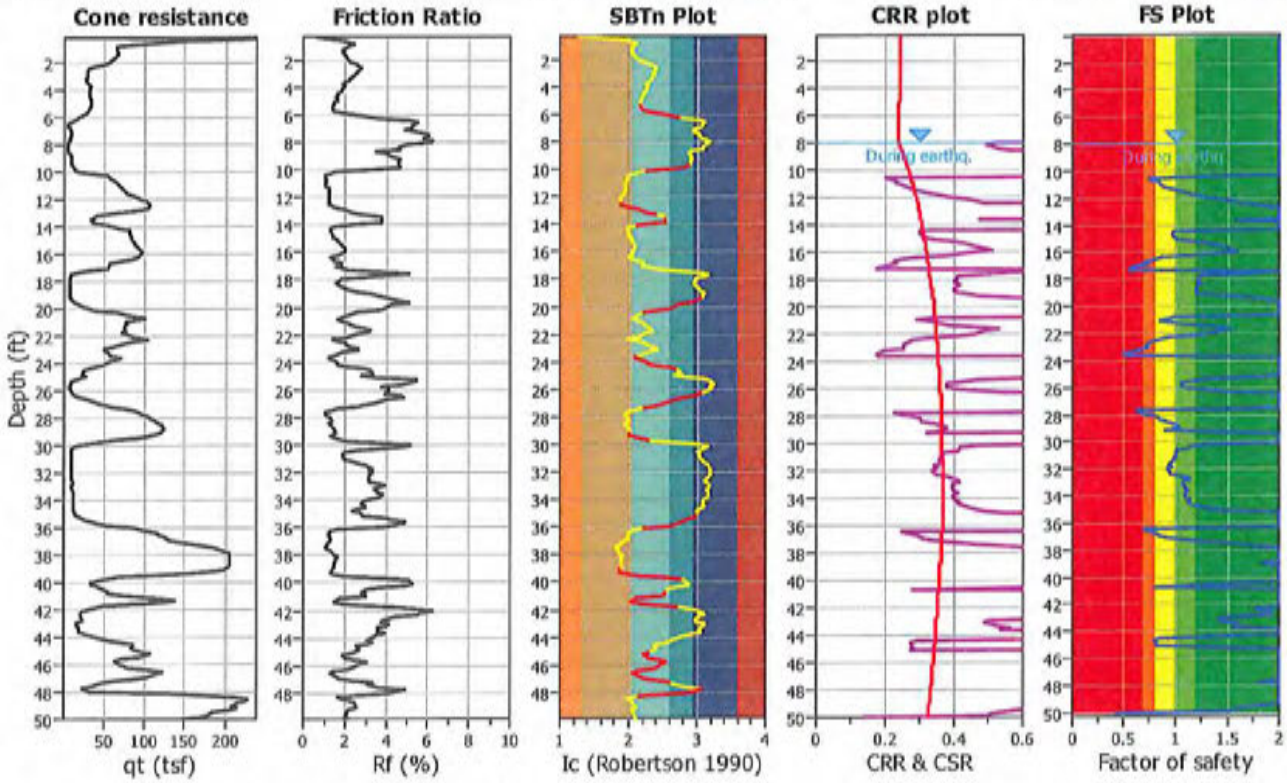
LIQUEFACTION ANALYSIS REPORT

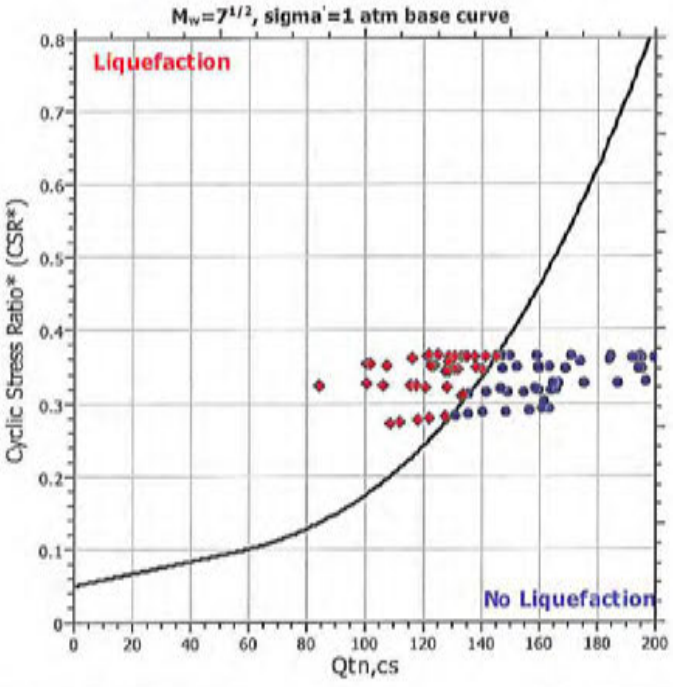
Project title : Dickerson School Site **Location : Buena Park**

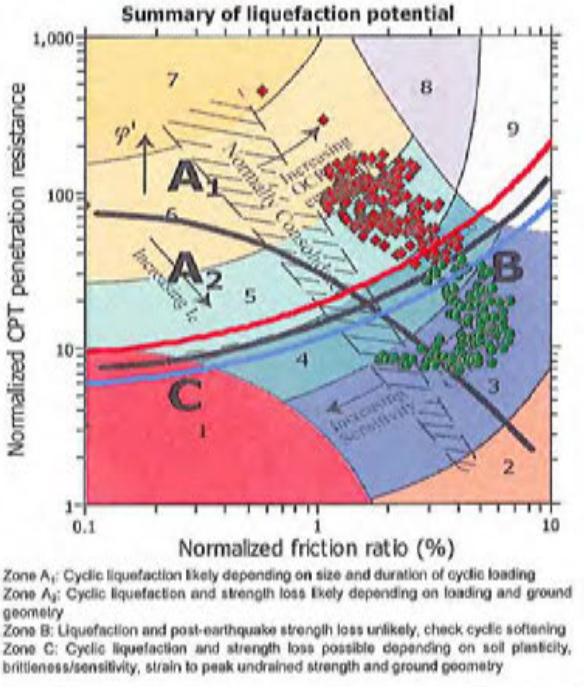
CPT file : CPT-2

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.58	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	No		

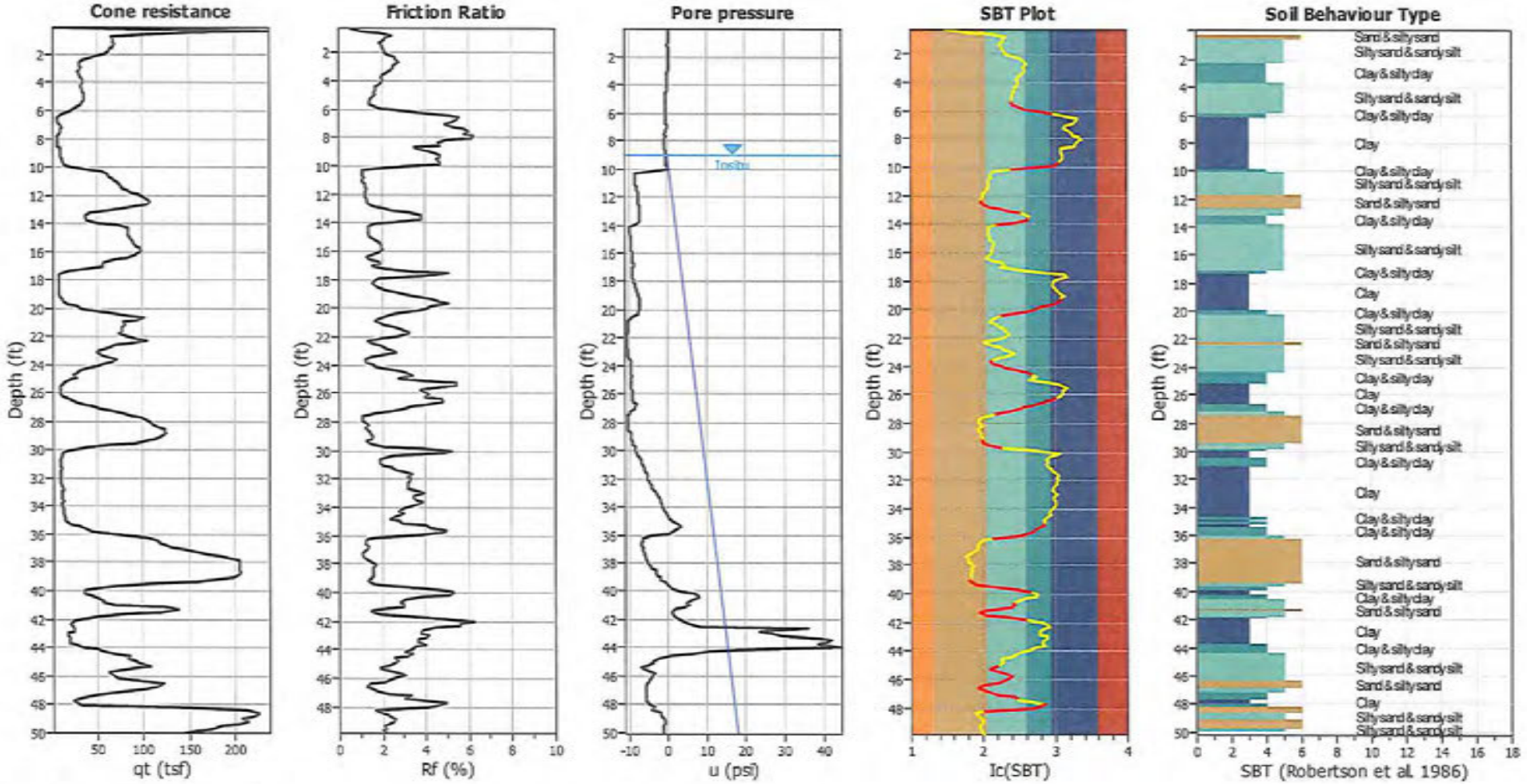






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



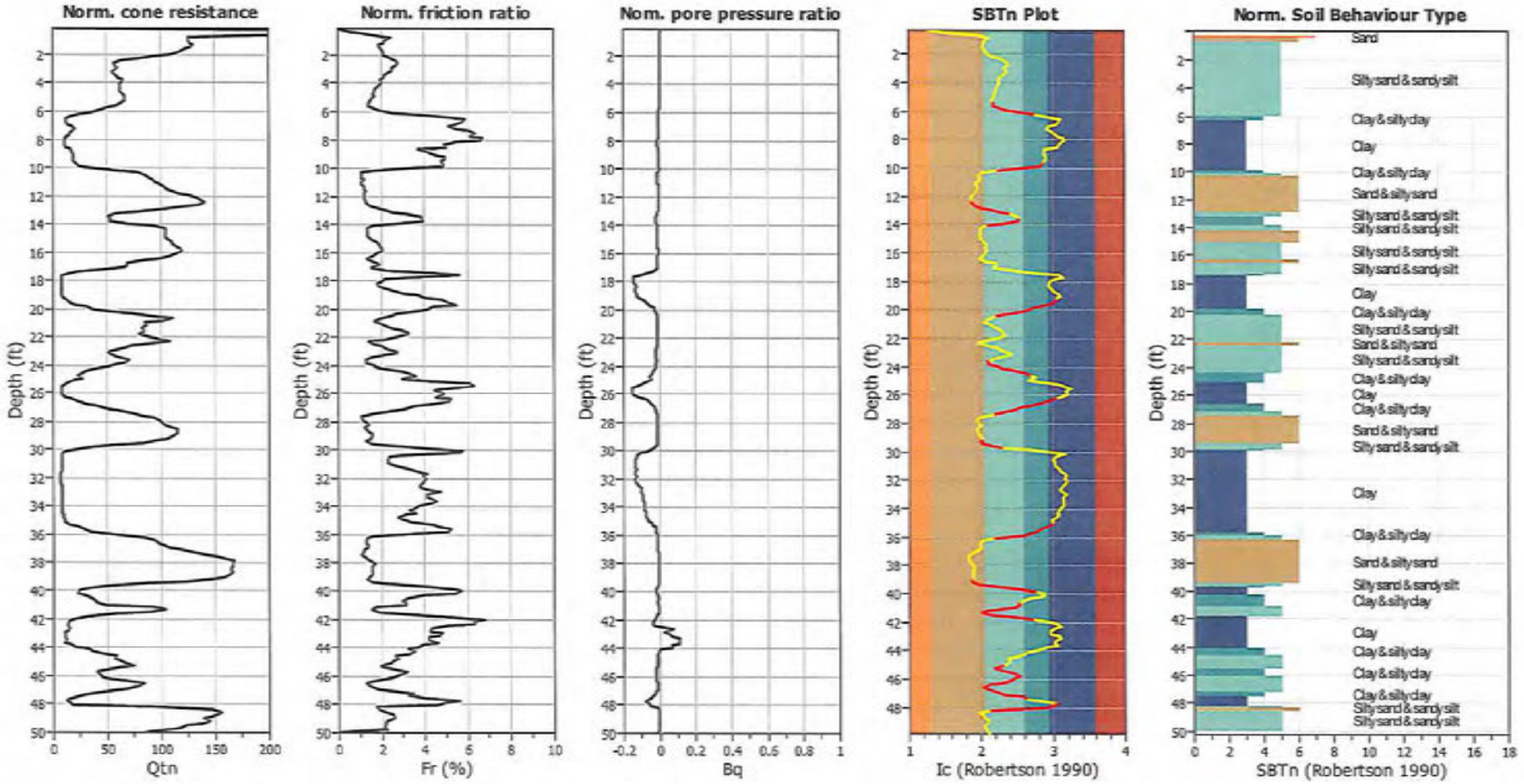
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



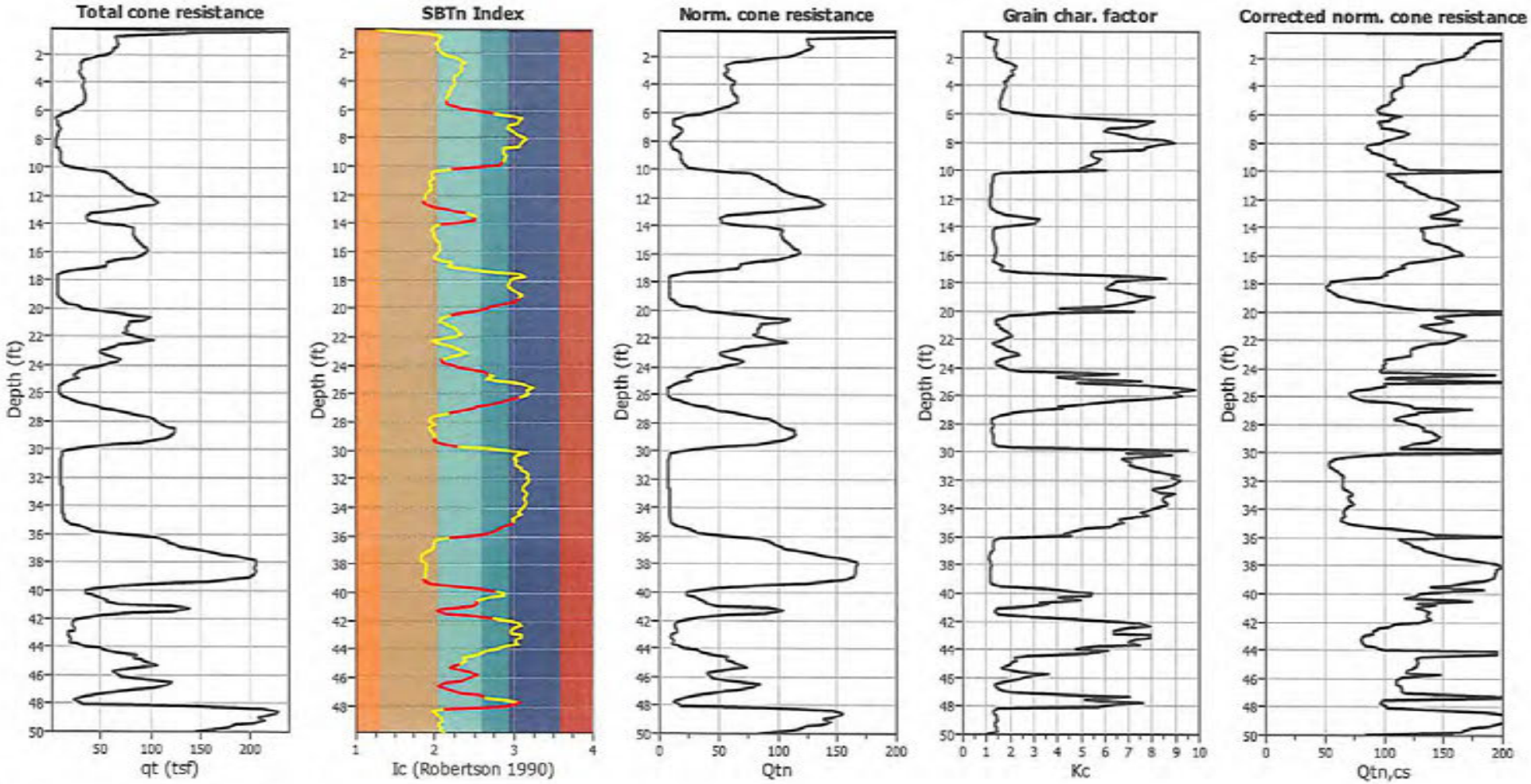
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

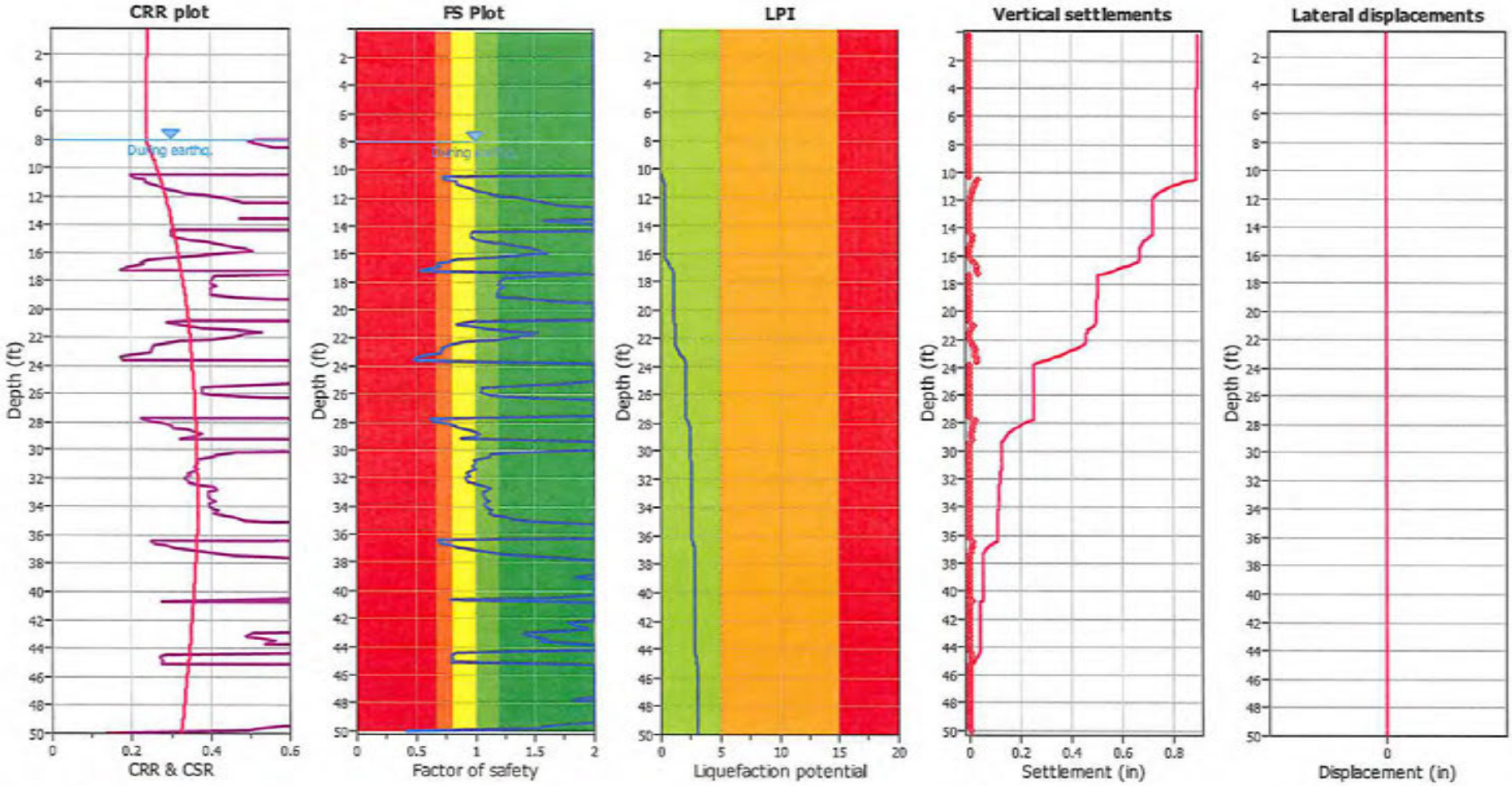
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_o applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

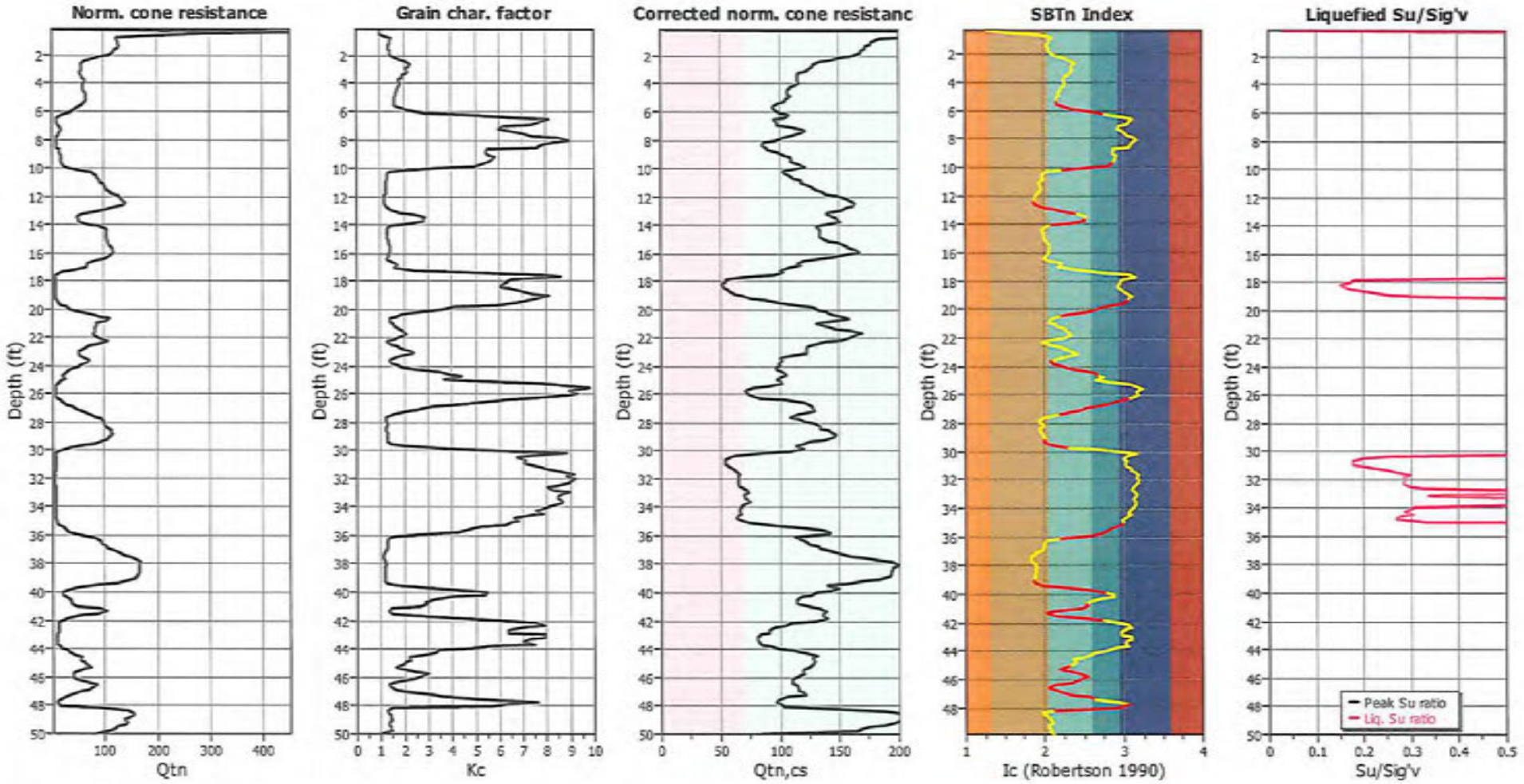
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

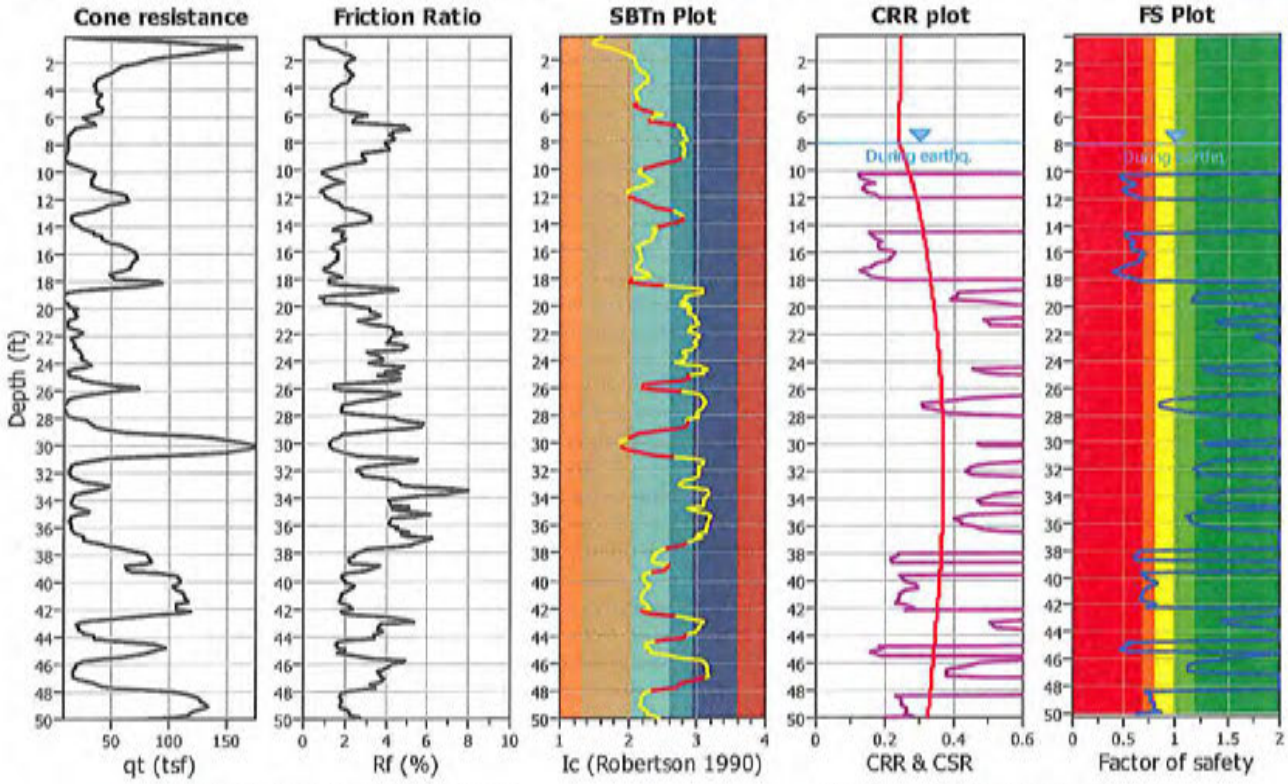
LIQUEFACTION ANALYSIS REPORT

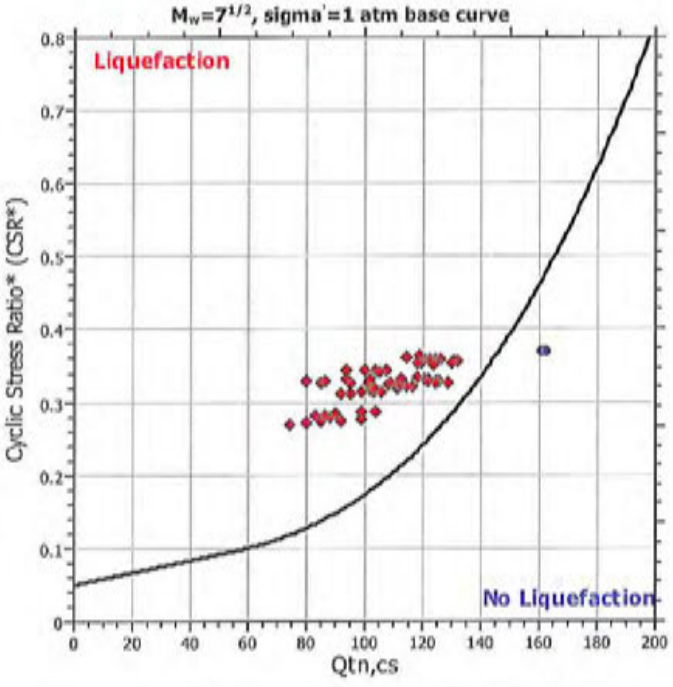
Project title : Dickerson School Site **Location : Buena Park**

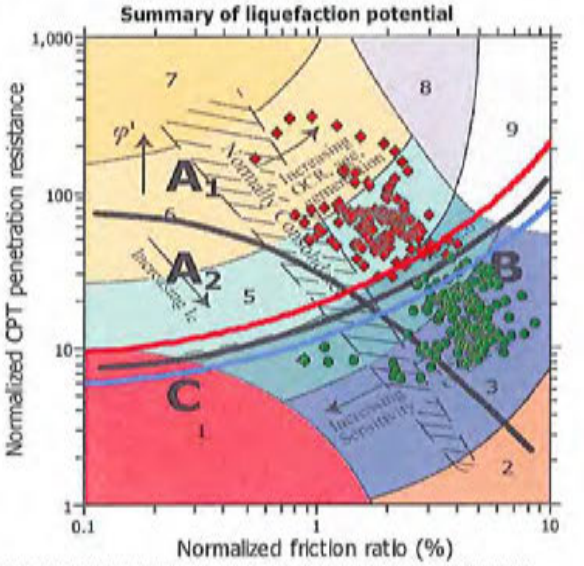
CPT file : CPT-3

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	18.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.58	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	No		

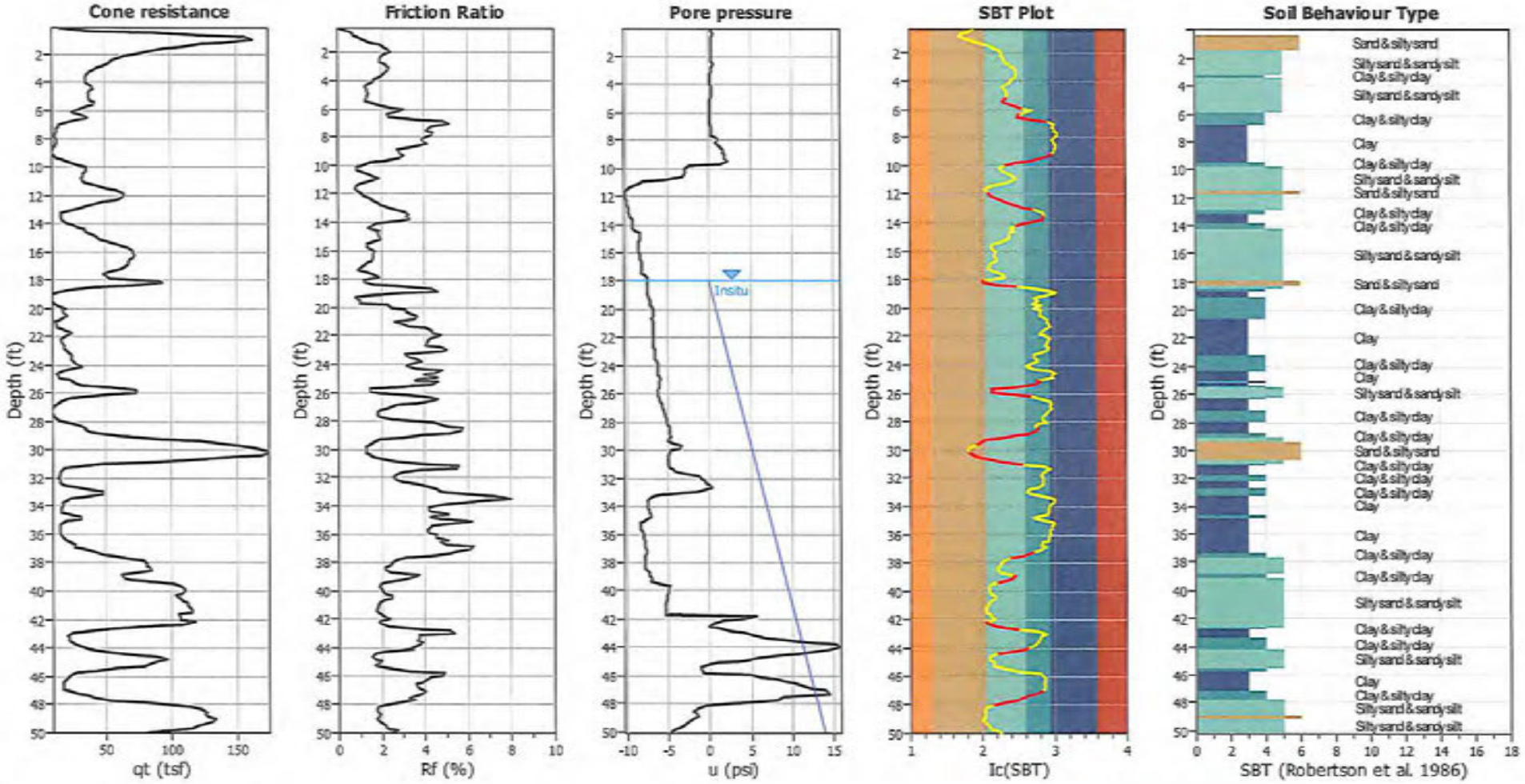






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



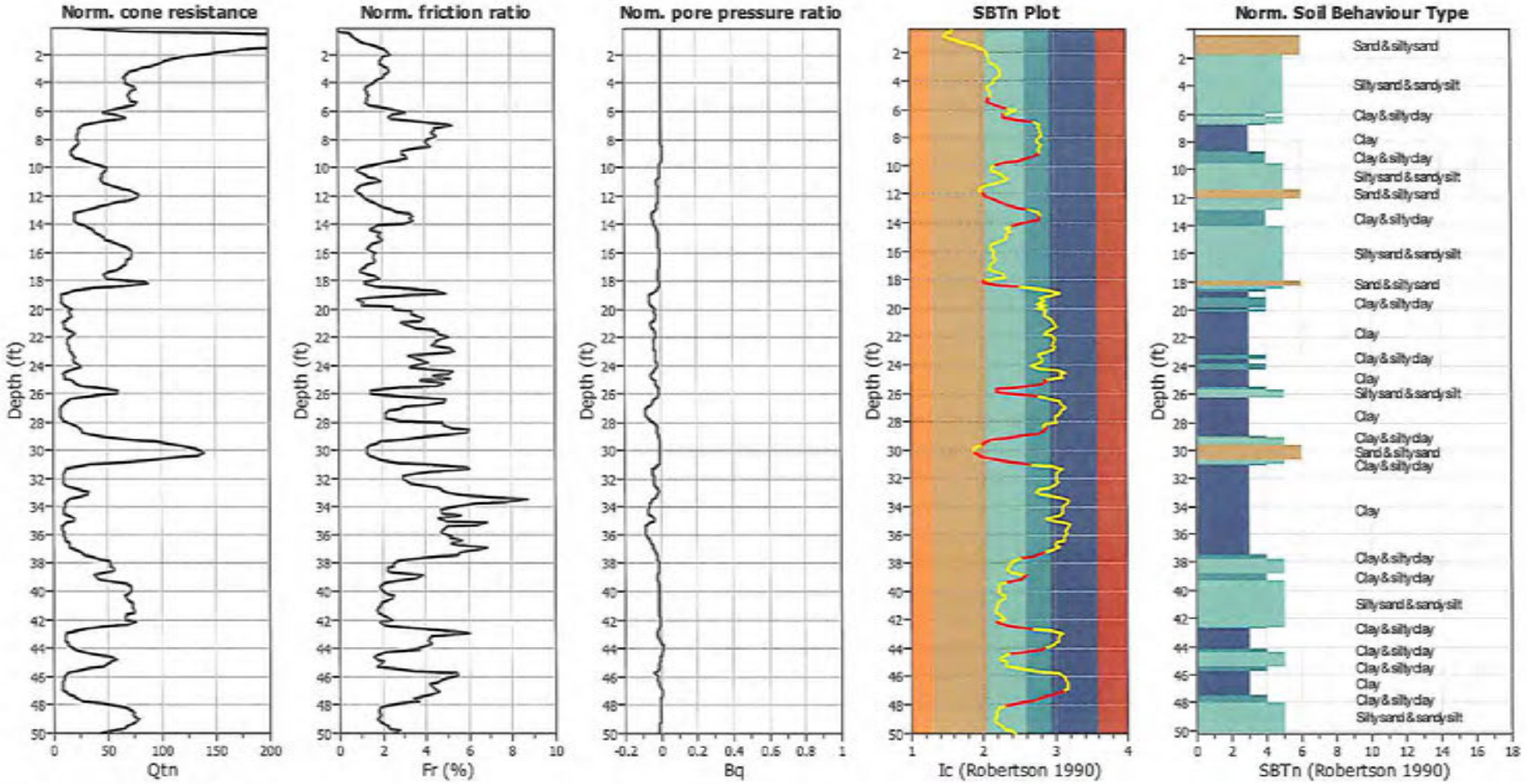
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	18.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



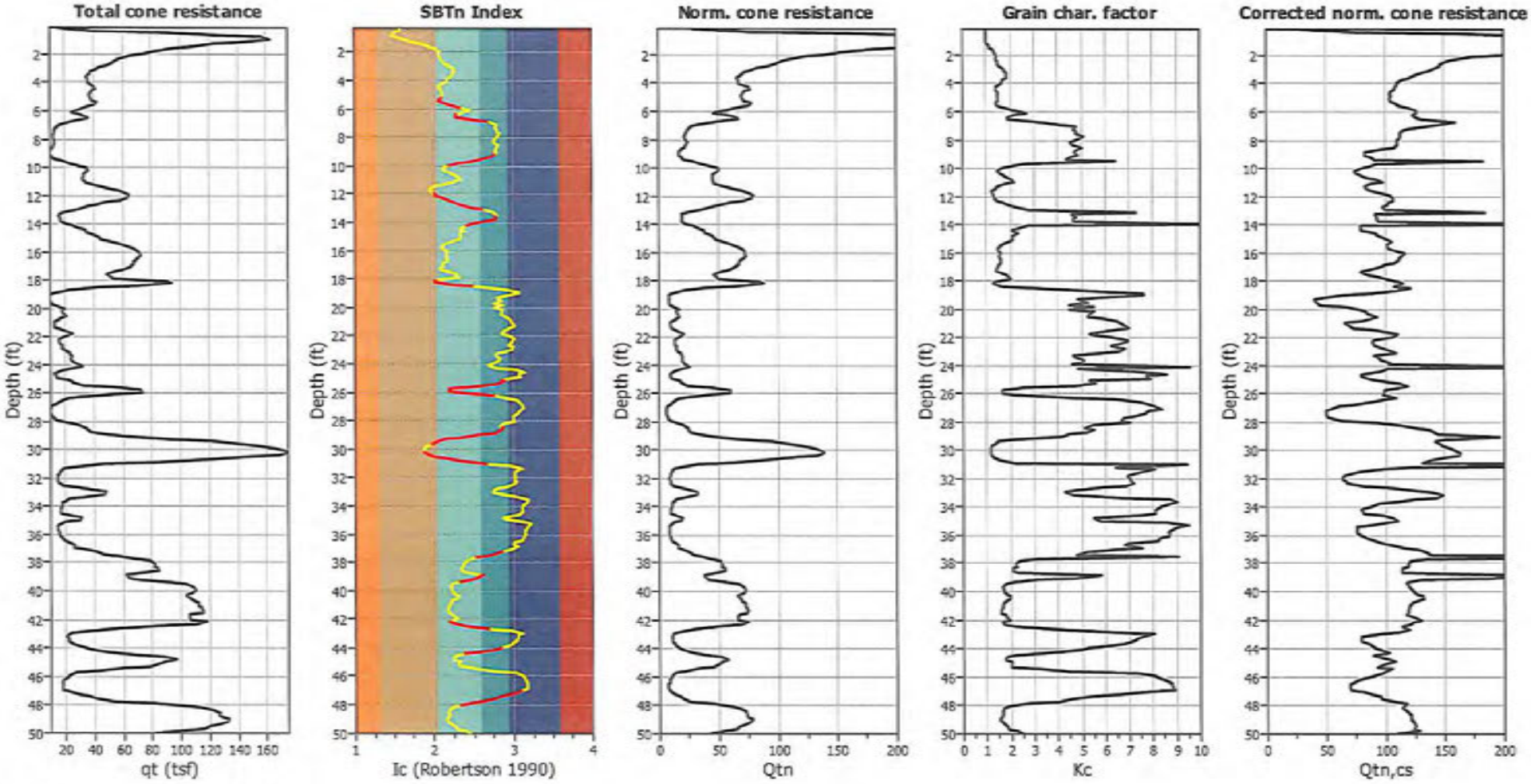
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	18.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

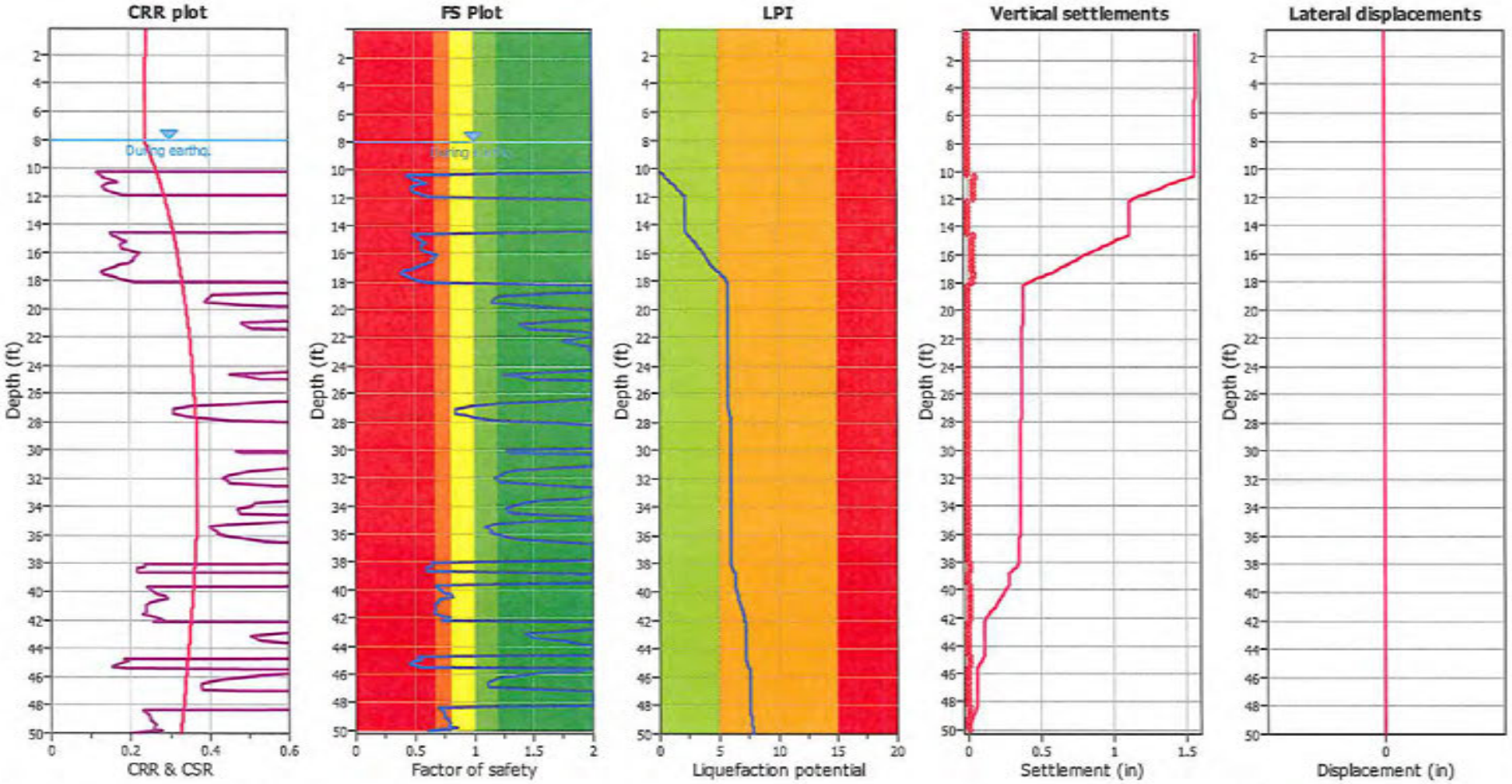
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	18.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	18.00 ft	Fill height:	N/A	Limit depth:	N/A

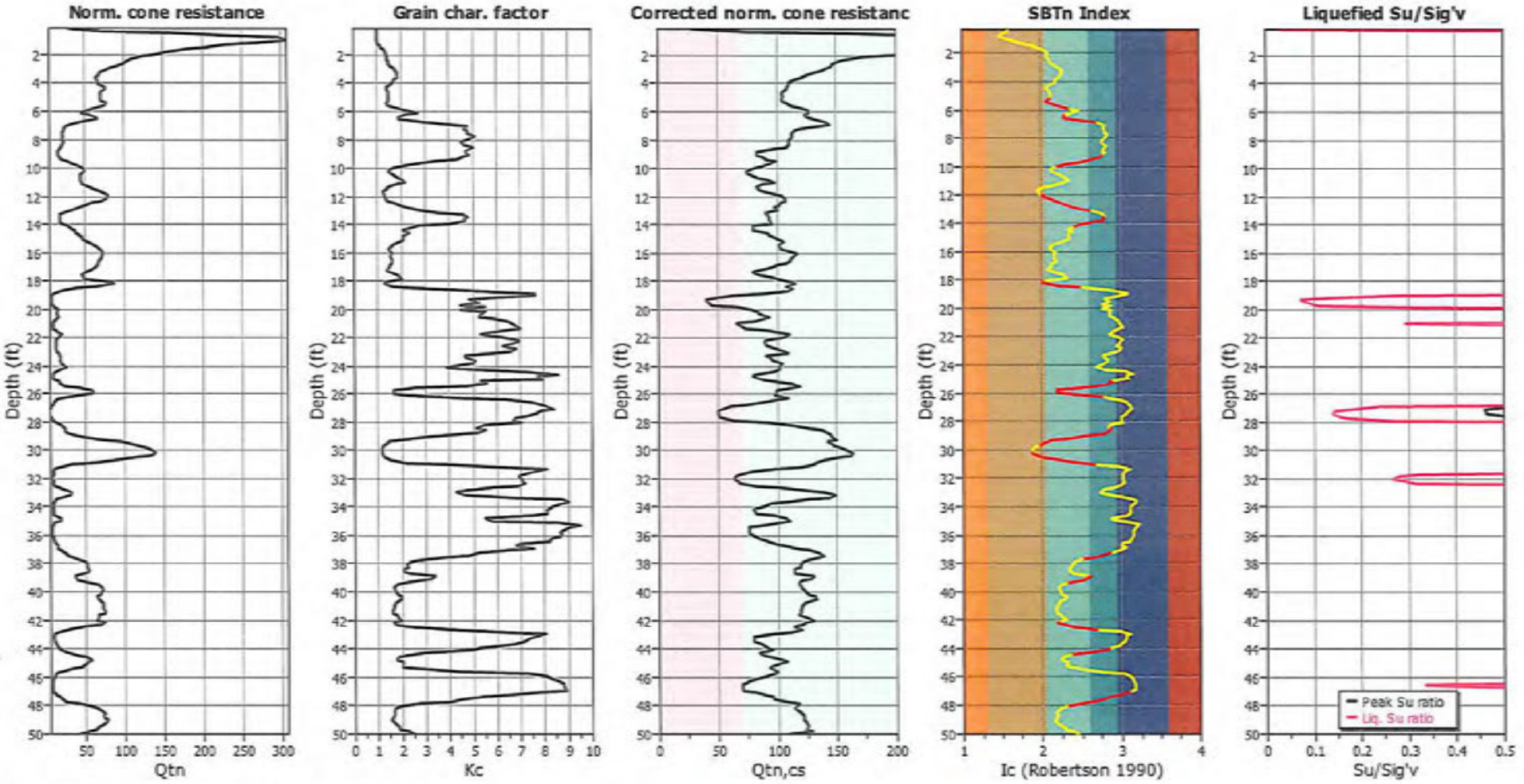
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	18.00 ft	Fill height:	N/A	Limit depth:	N/A

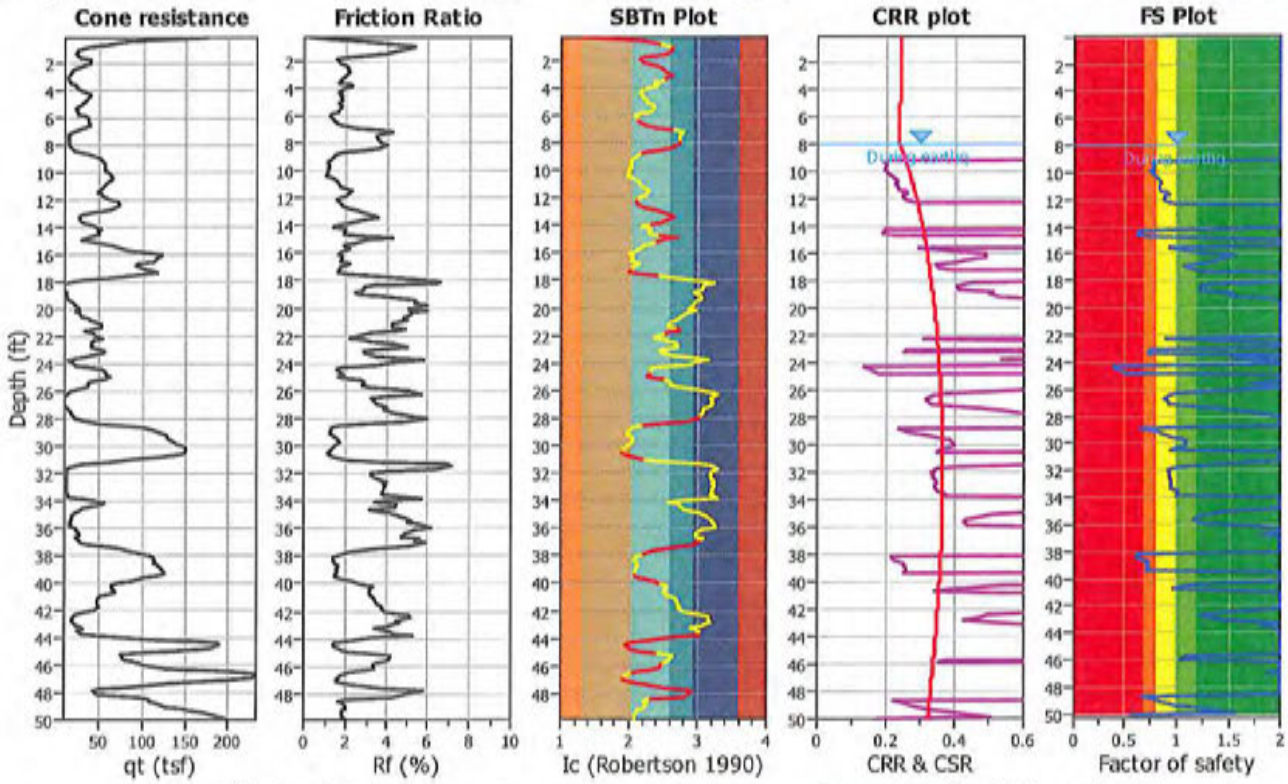
LIQUEFACTION ANALYSIS REPORT

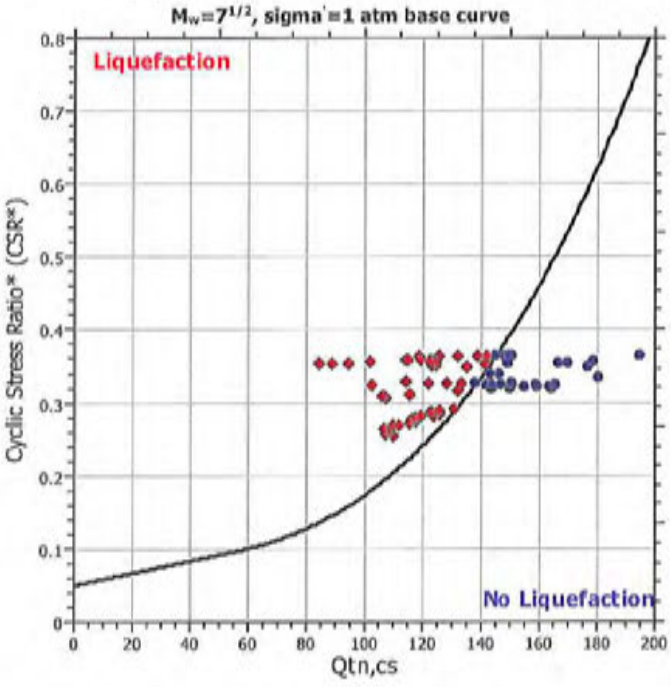
Project title : Dickerson School Site **Location : Buena Park**

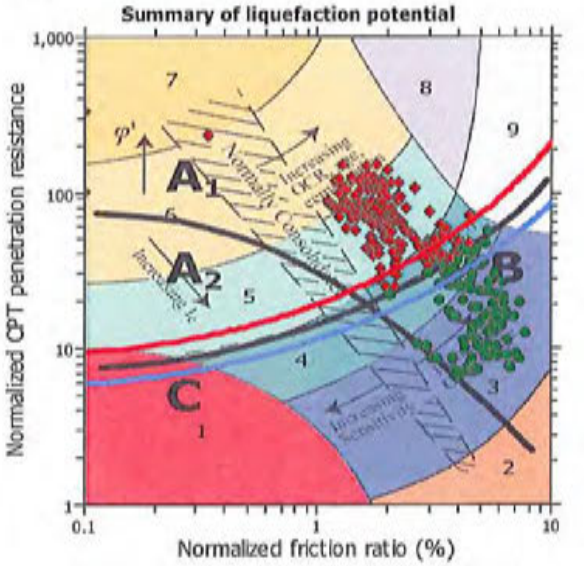
CPT file : CPT-4

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	15.50 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.58	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_α applied:	No		

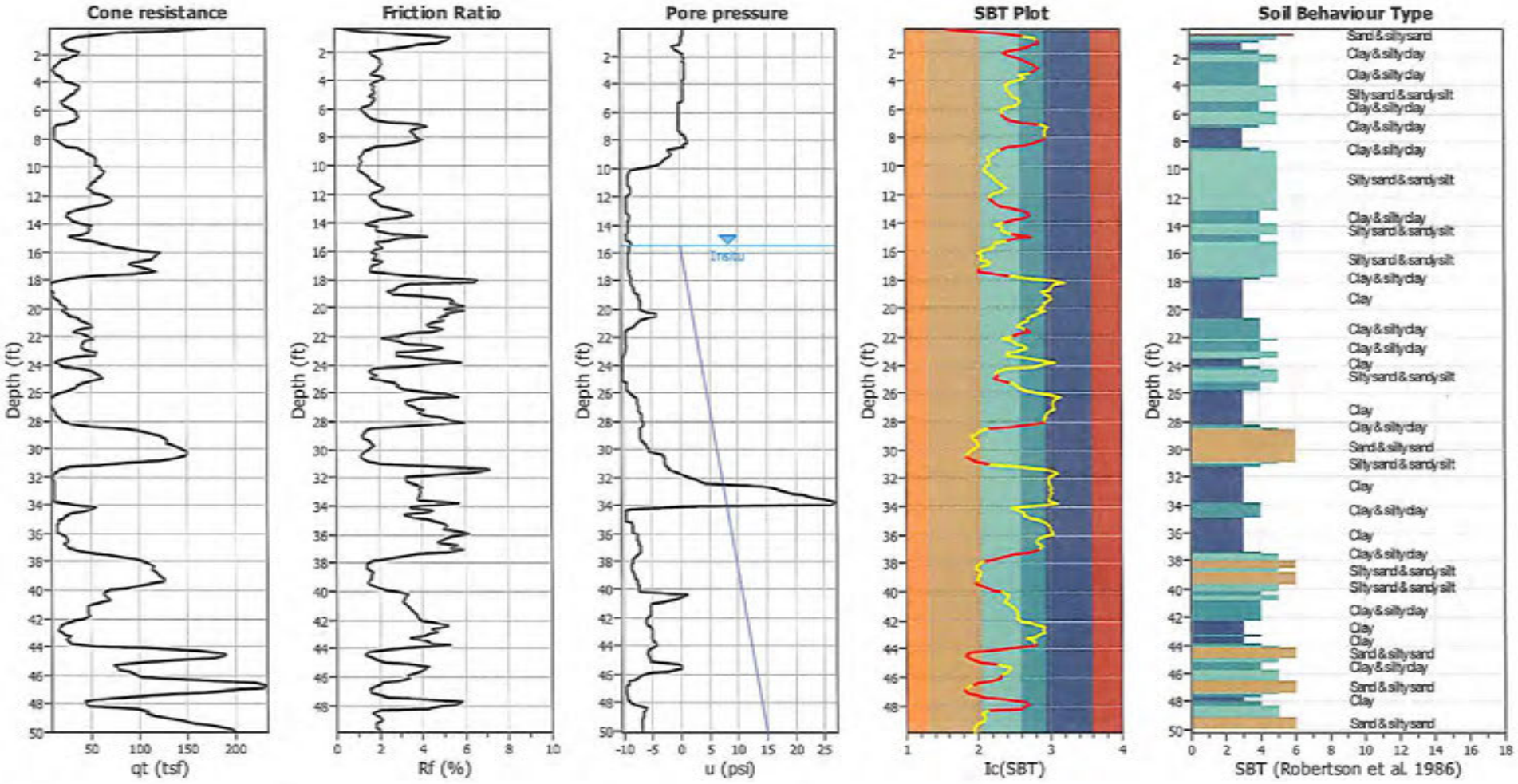






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



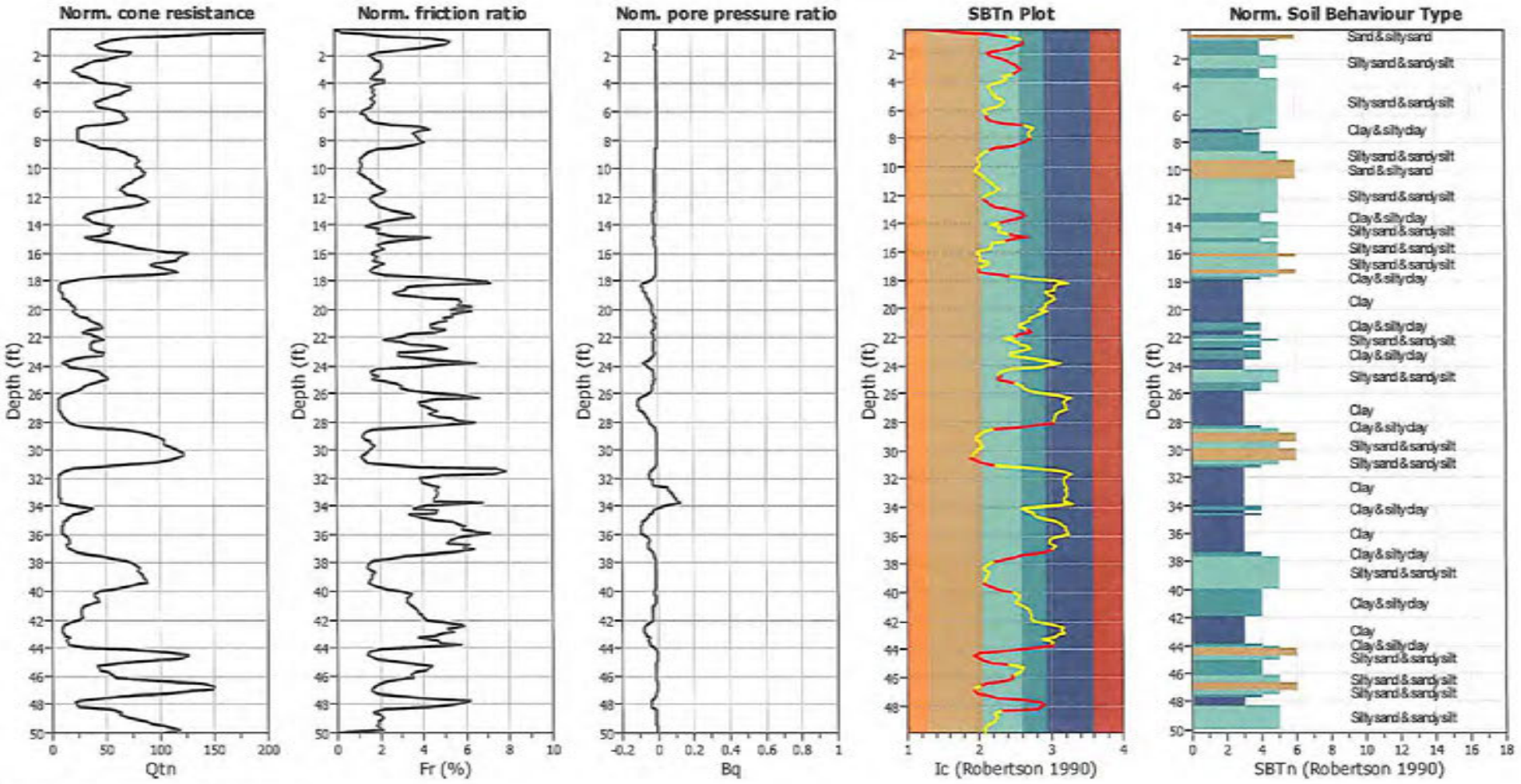
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	15.50 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	15.50 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
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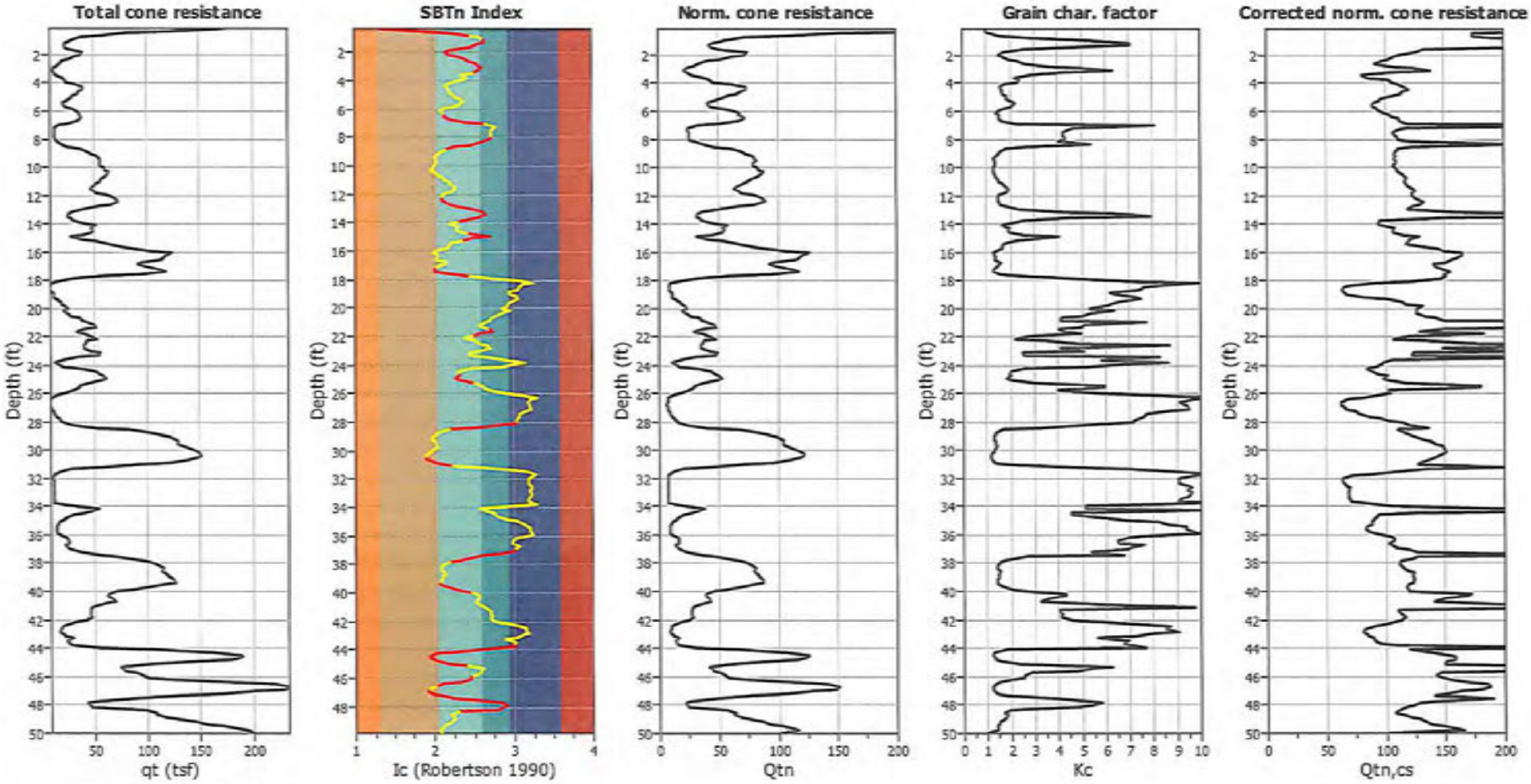
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

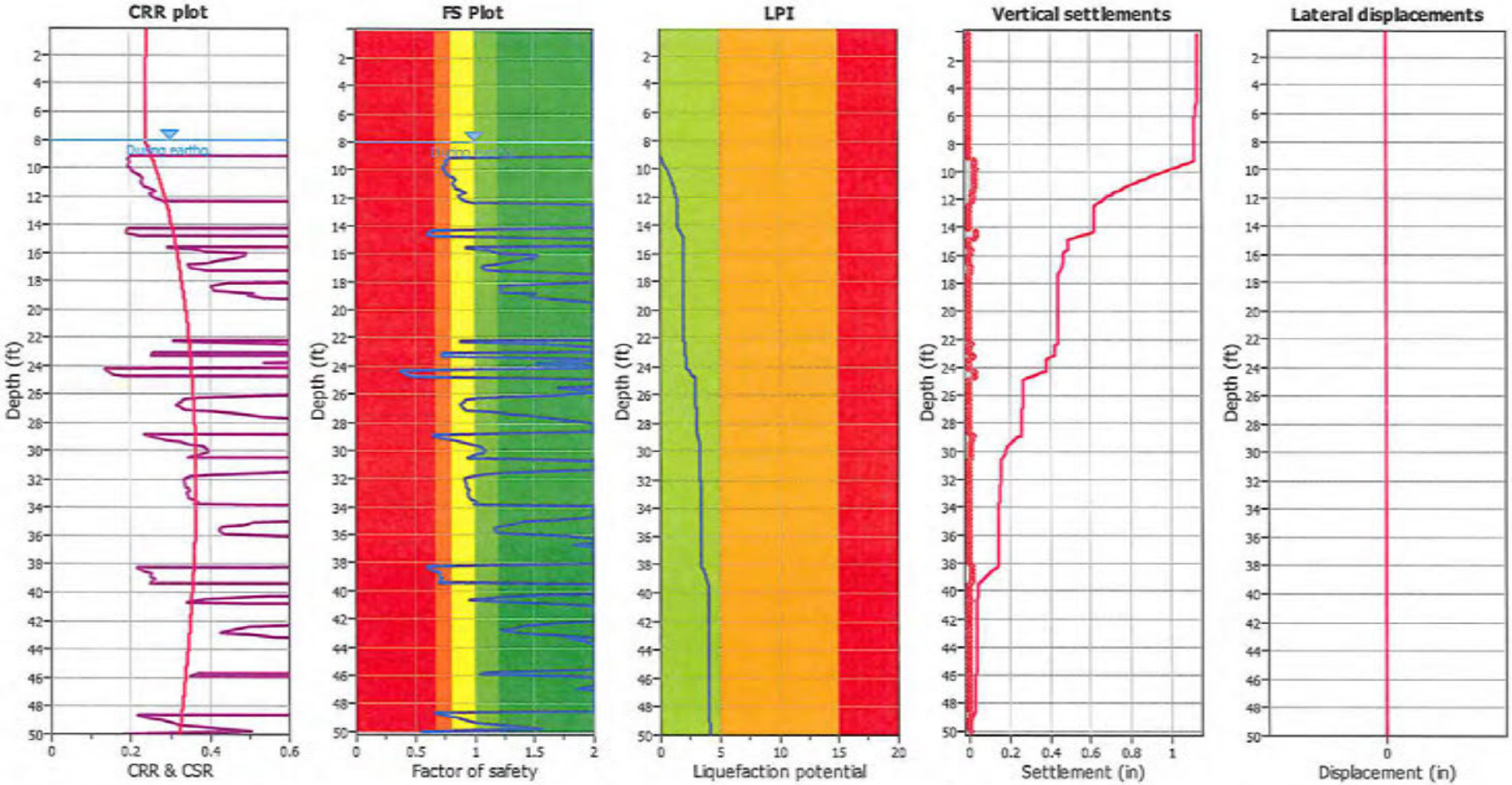
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_o applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	15.50 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	15.50 ft	Fill height:	N/A	Limit depth:	N/A

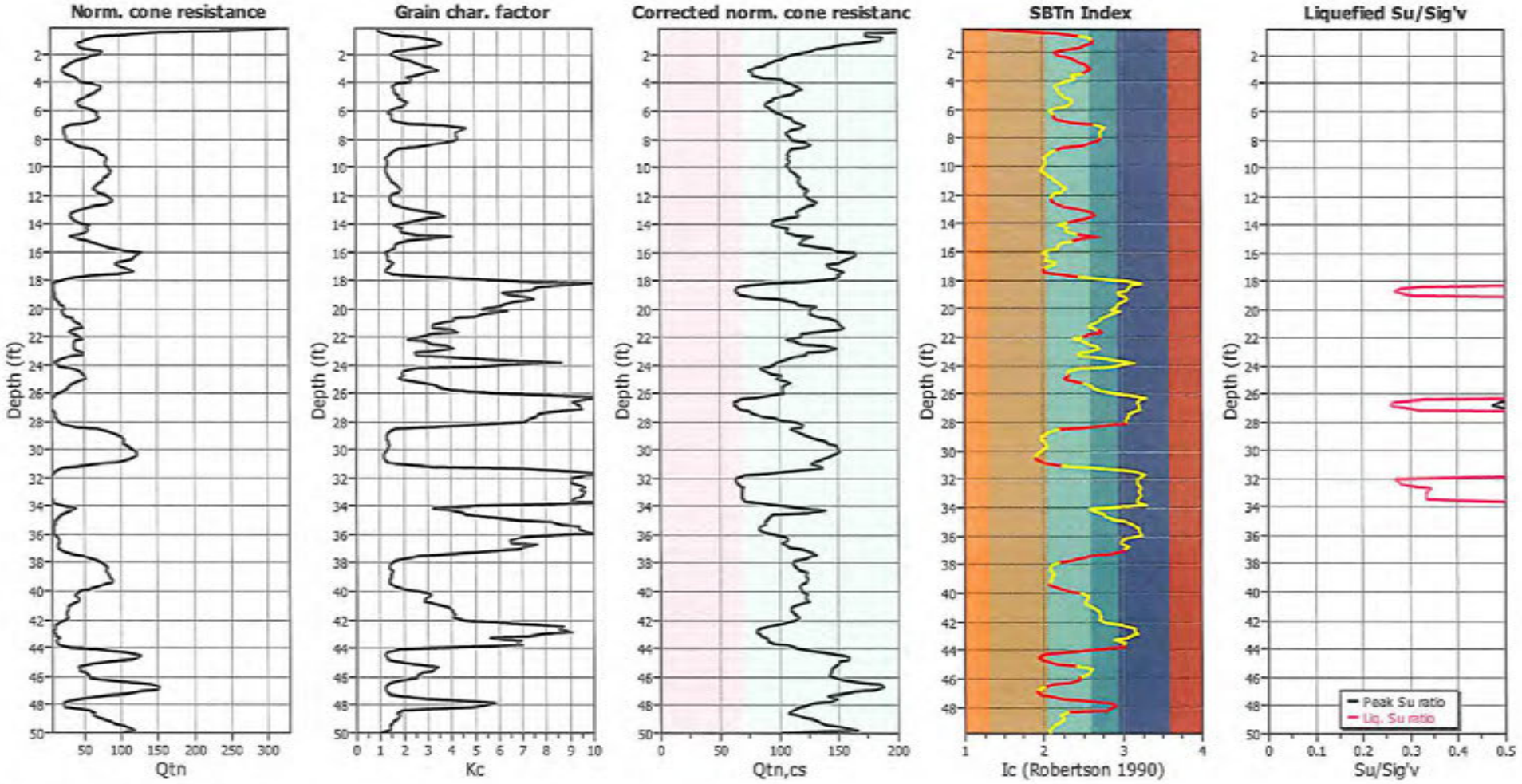
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	15.50 ft	Fill height:	N/A	Limit depth:	N/A

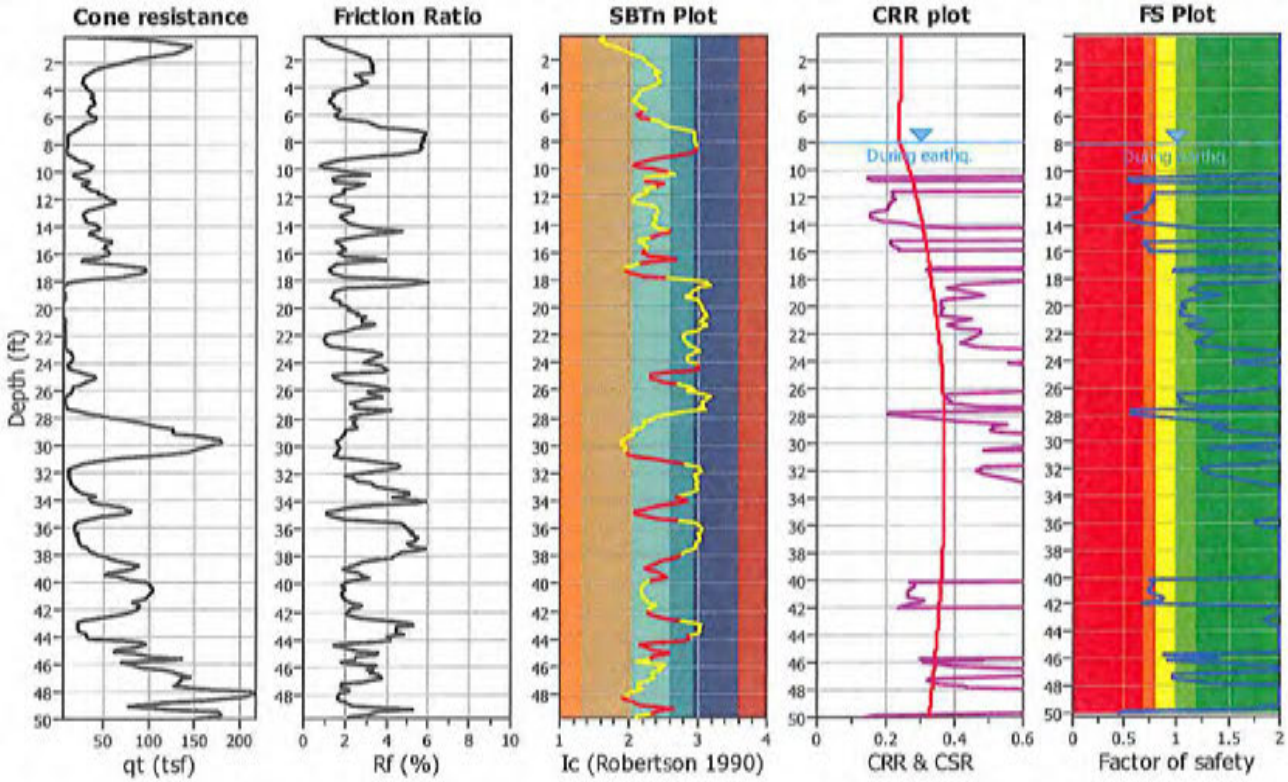
LIQUEFACTION ANALYSIS REPORT

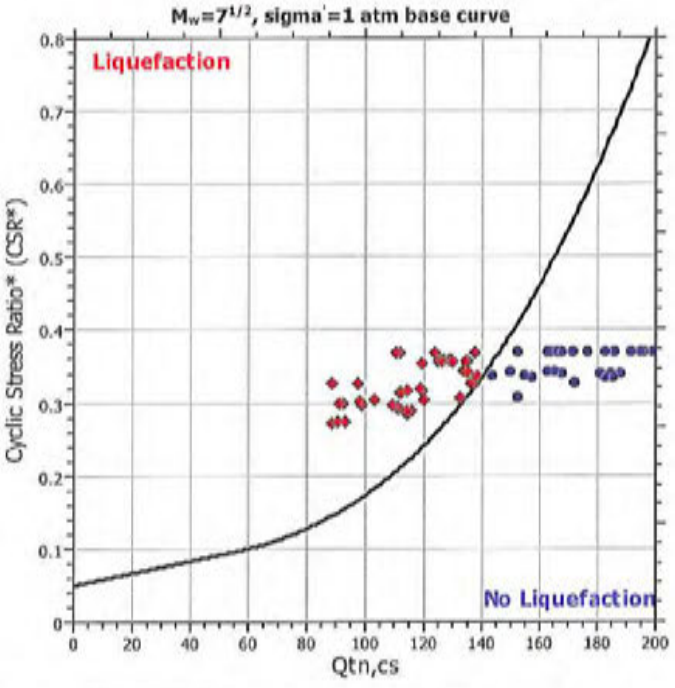
Project title : Dickerson School Site **Location : Buena Park**

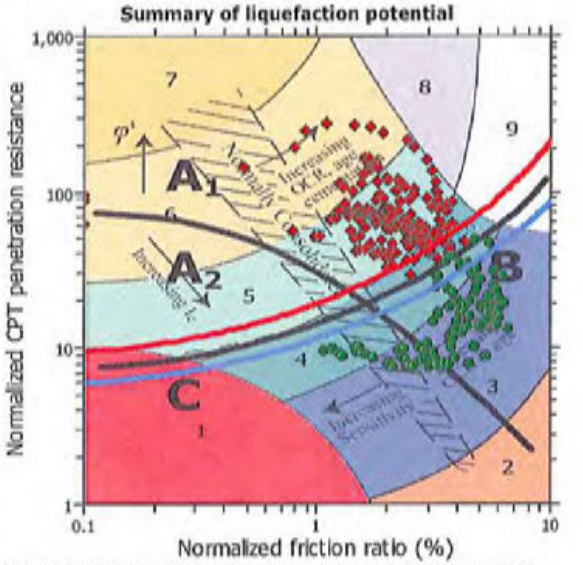
CPT file : CPT-5

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	9.00 ft	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	8.00 ft	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	1	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.58	Ic cut-off value:	2.60	Trans. detect. applied:	Yes	MSF method:	Method based
Peak ground acceleration:	0.52	Unit weight calculation:	Based on SBT	K_σ applied:	No		

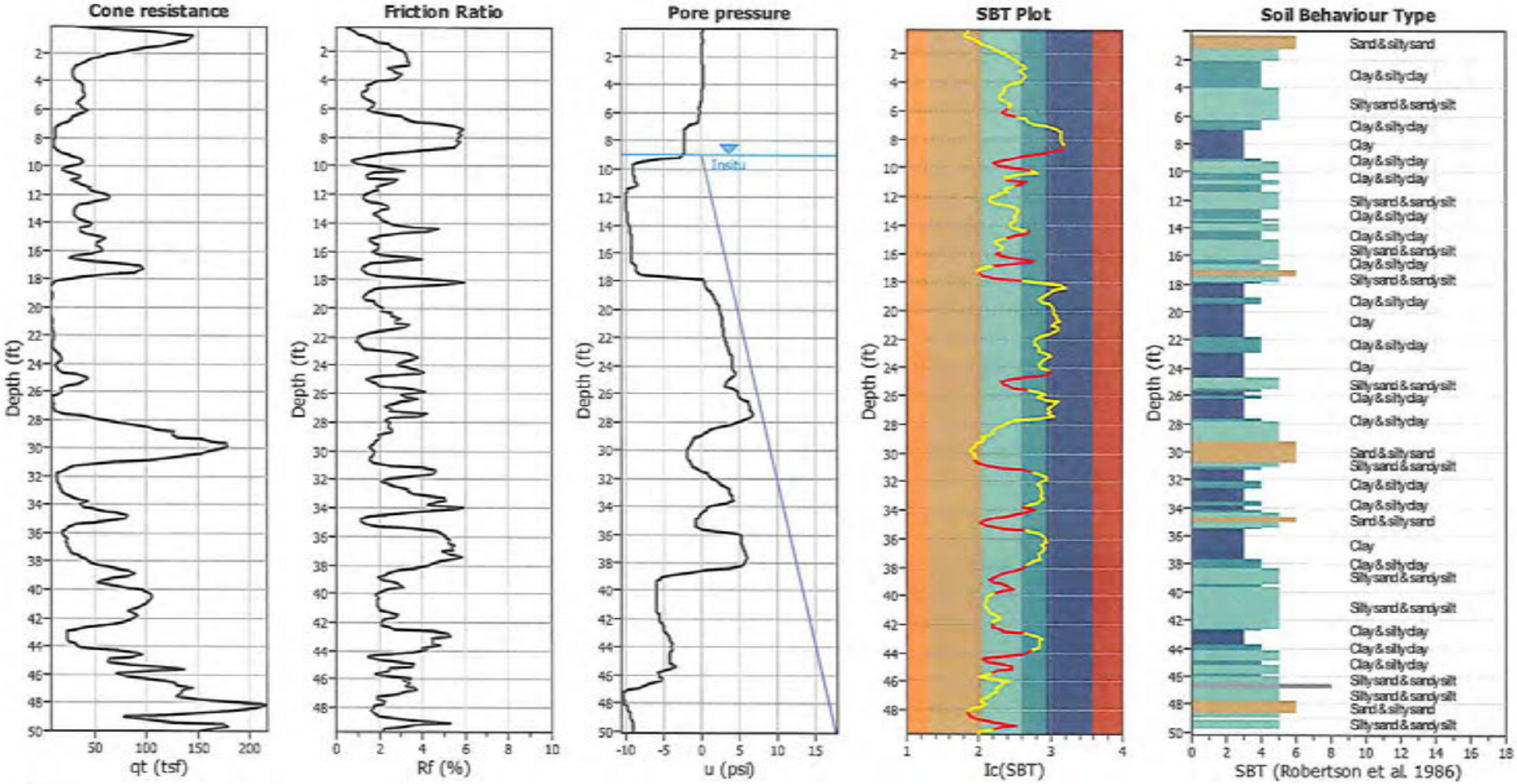






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



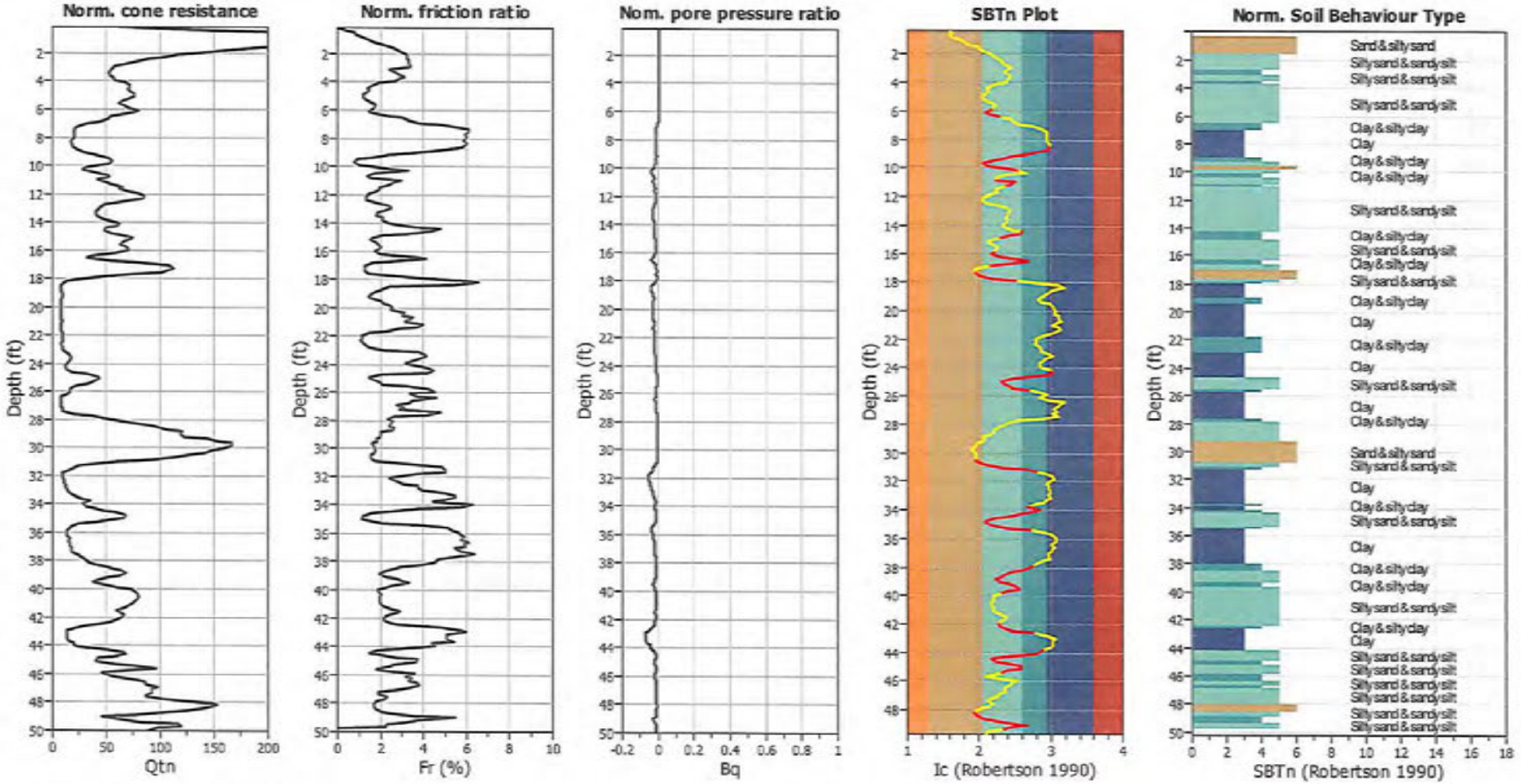
Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

CPT basic interpretation plots (normalized)



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

SBTn legend

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5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
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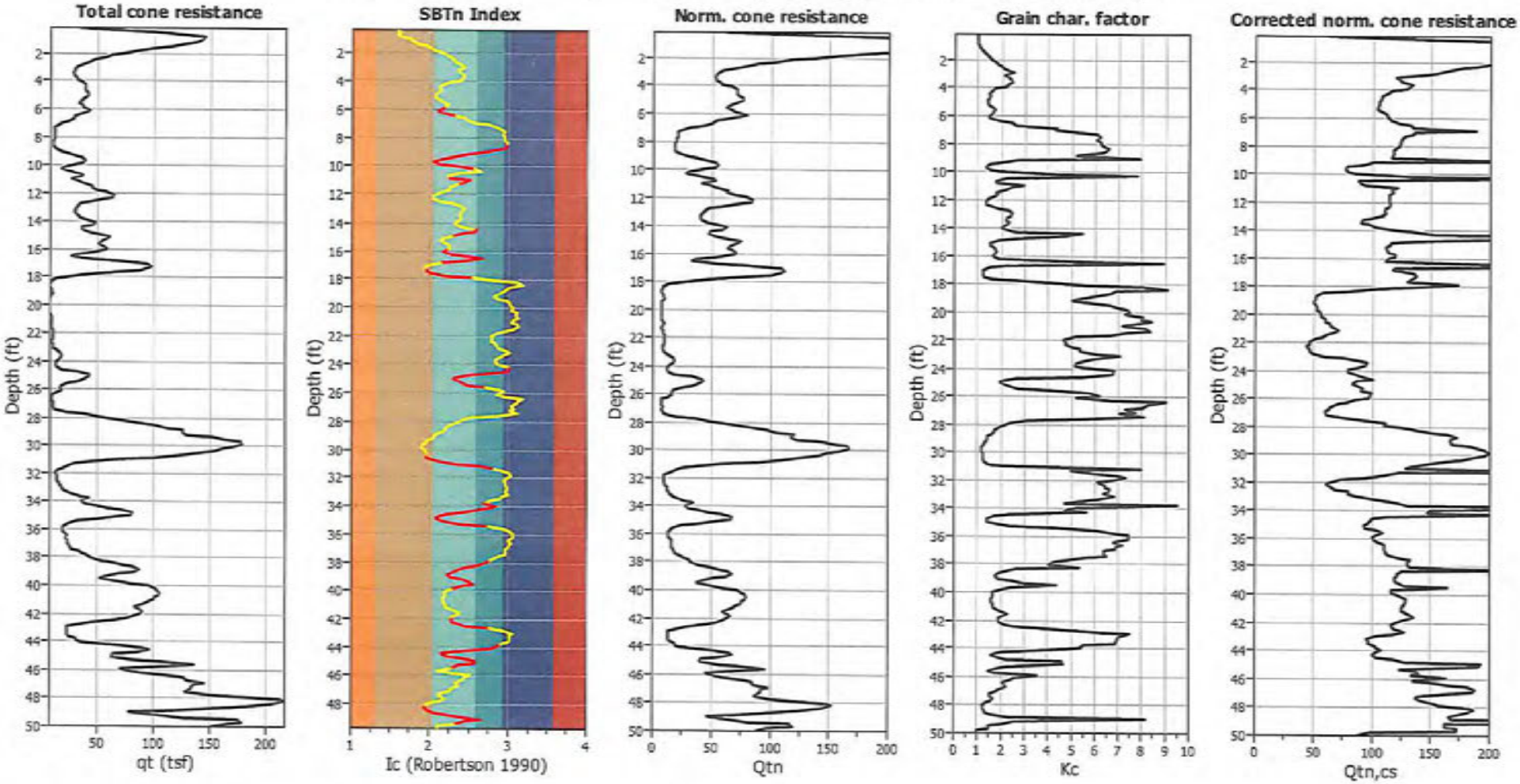
9. Very stiff fine grained

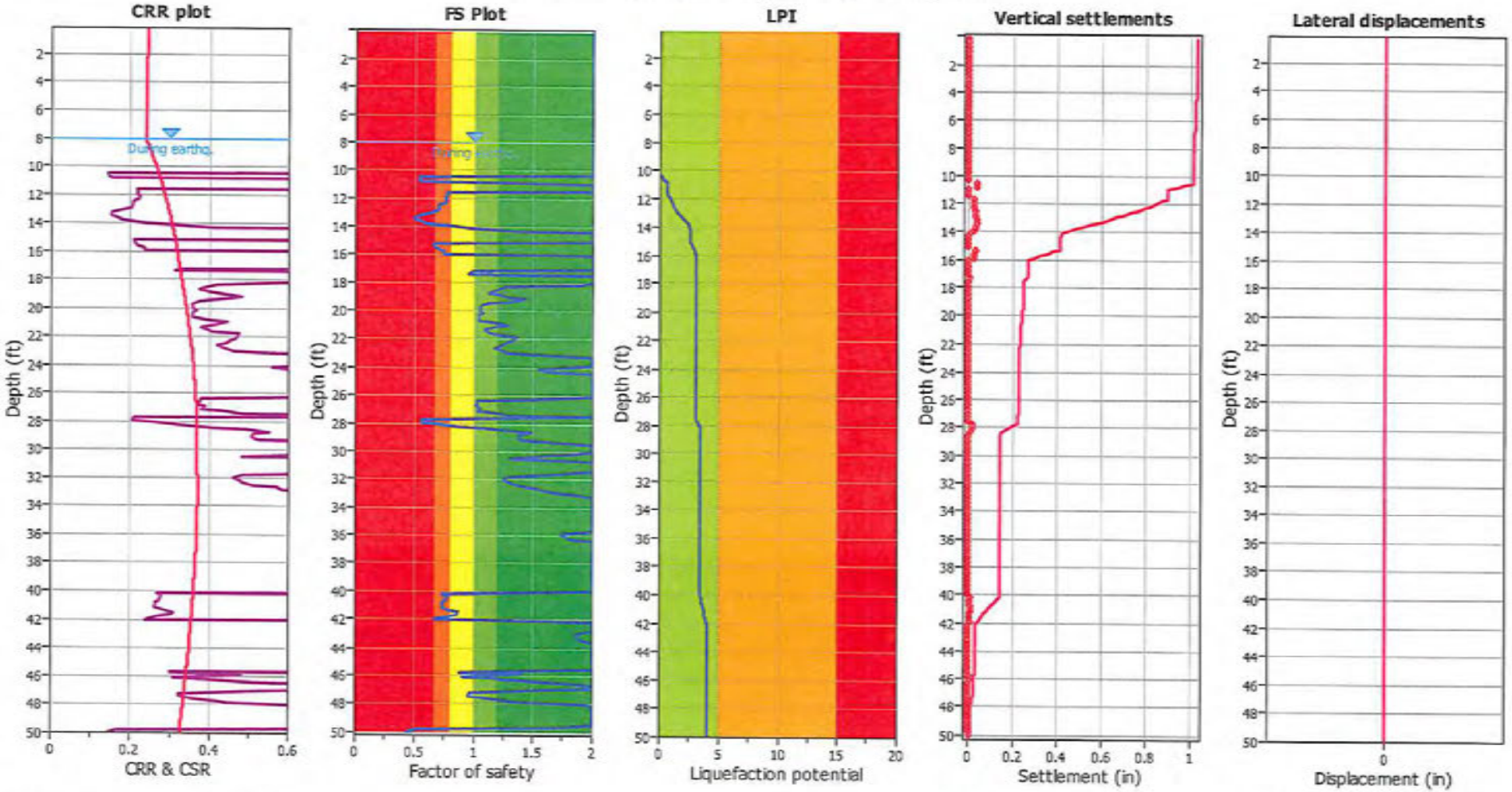
Liquefaction analysis overall plots (intermediate results)



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_c applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

- Almost certain it will liquefy
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LPI color scheme

- Very high risk
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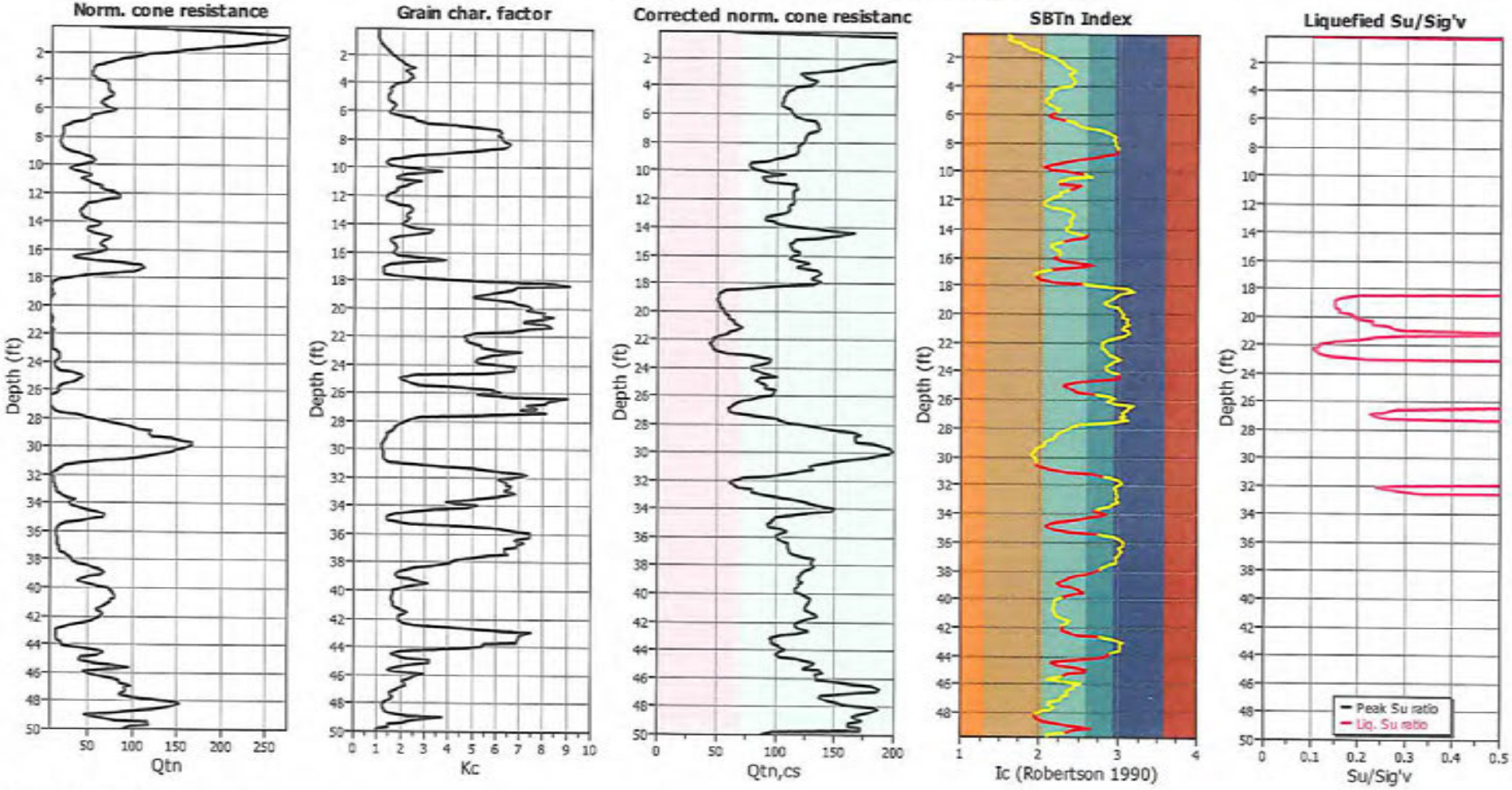
Check for strength loss plots (Robertson (2010))



Input parameters and analysis data

Analysis method:	Robertson (2009)	Depth to water table (erthq.):	8.00 ft	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	1	Transition detect. applied:	Yes
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	No
Earthquake magnitude M_w:	6.58	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.52	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	9.00 ft	Fill height:	N/A	Limit depth:	N/A

PHASE I ENVIRONMENTAL SITE ASSESSMENT

SCHOOL PROPERTY
10051 BERNADETTE AVENUE,
BUENA PARK, CALIFORNIA

April 2014

Project No. 18012

Prepared for:

Mr. Barry Blade
Cypress School District
9470 Moody Street
Cypress, California 90630

Prepared by:

Quin Kinnebrew, PG

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EXECUTIVE SUMMARY

This Phase I environmental site assessment was conducted in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Standard E1527-13. The scope of work for this assessment is provided in Section 1.2 of this report.

Site Location and Description - The subject site includes approximately 9.5 acres of land located at 10051 Bernadette Avenue, in the city of Buena Park, California. It is located immediately southwest of Ball Road and Bernadette Avenue. At the time of this assessment, the site was developed as an elementary school. Seven permanent classroom buildings and seven portable classroom buildings were located within the site's eastern and southern portions. These buildings were generally adjoined by covered walkways and landscaped areas. The school's administrative building was located in the site's southeastern portion. Asphalt-paved parking lots were located in the site's southeastern and southwestern corners. A relatively large asphalt-paved sports courtyard was located within the site's central portion. A grass lawn covered most of the site's western and northern portions. A daycare center occupied a portion of the site's northeastern corner.

Site History - The site contained agricultural fields between at least 1927 and 1952. Orchards and/or row crops are not known or suspected of having occupied the site during this period. The site was developed as the Dickerson Elementary School in the early 1960s. The school initially contained eight school buildings. The northeastern classroom building was constructed between 1963 and 1972. The childcare center was constructed between 1994 and 2002. The portable classroom buildings were installed in 2009.

Onsite Hazardous Material Sources and Releases - With the possible exception of electric transformers, evidence for aboveground or underground storage tanks, clarifiers, sumps, or other potentially hazardous material-containing structures was not encountered on any portion of the site during this assessment. Two relatively old transformers (potentially containing oil with polychlorinated biphenyls (PCBs)) were mounted between two utility poles adjacent to the site's southeastern parking lot. A relatively new pad-mounted transformer was located adjacent to the playground in the site's central portion. Indications of oil releases from these transformers were not encountered at the time of the site reconnaissance.

Significant releases of potential hazardous materials, including pesticides, are not known or suspected at the site. Due to absence of orchards and row crops within the site (relatively heavy users of pesticides), elevated pesticide concentrations are not suspected within the soils covering the site.

Regional Hazardous Material Releases - Based on a review of properties within the site vicinity and data made available during this assessment, it is our opinion that there is a relatively low potential that contaminants from offsite properties have migrated to the subject site and have impacted the underlying soil and/or groundwater.

Recognized Environmental Conditions - Recognized environmental conditions and/or historical recognized environmental conditions were not identified within the site during this assessment.

Recommendations - Soil and/or groundwater environmental studies are not recommended for the site. Based on the findings of this assessment, there are no known onsite conditions that would warrant regulatory involvement regarding such studies, including actions leading to environmental soil sampling, soil remediation, groundwater sampling, and/or groundwater remediation.

It is recommended that an asbestos survey be conducted at each of the onsite building structures (except the childcare building and portable classroom buildings) prior to any school redevelopment or demolition. Asbestos-containing building materials were phased out in the mid- to late 1970s, after the site was developed. The asbestos survey must be overseen by a California-Certified Asbestos Consultant. The results of this survey should provide a description of the asbestos-containing materials, their locations, estimated quantity, and recommendations for removal, containment, and off-site transportation and disposal.

In addition to the asbestos surveys, it is recommended that the onsite building structures (with the exception of the childcare building and portable classroom buildings) be assessed for the possible presence of lead-based paint. Lead use in commercial paint was prohibited after 1978. This study must be conducted by trained and/or licensed professionals. The results of this study should provide a description of the lead-based paint locations, estimated quantity, and recommendations for removal, containment, and off-site transportation and disposal.

In the event that Southern California Edison does not claim responsibility for the removal of the onsite electric transformers, it is recommended that the transformers be removed during construction and tested for PCBs. If PCBs are identified, the transformers and associated fluids should be transported offsite and disposed in accordance with local and State protocol.

As always, we recommend that soil excavations conducted during any property redevelopment be monitored by the construction contractor for visible soil staining, odor, and the possible presence of unknown hazardous-material sources, such as buried 55-gallon drums (although not anticipated). If hazardous materials contamination or sources are suspected or identified, an environmental professional should evaluate the course of action required.

Phase I Environmental Site Assessment Report

10051 Bernadette Avenue
Buena Park, California

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this study was to assess whether hazardous material contamination has impacted the soil and/or groundwater underlying the school property located at 10051 Bernadette Avenue, in the City of Buena Park, California (Figure 1).

1.2 SCOPE OF WORK

This Phase I environmental site assessment was conducted in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Standard E1527-13. The scope of work for this assessment included the following:

- Site reconnaissance to visually assess current site utilization, potential onsite use or storage of hazardous materials, and indications of surface and subsurface contamination;
- Review of local geology and hydrogeology using readily available data;
- Review of current and historical conditions and uses of the site and immediate vicinity using available resources, including:
  - historical aerial photographs and topographic maps,
  - environmental and geologic reports and maps,
  - state and federal government databases,
  - local agency files,
  - oil field maps, and
  - street directories.
- Preparation of this report.

Data gaps to the ASTM Standard E1527-13 for this report include the following:

- Interviews with representatives of the site and adjoining properties,
- Review of chain of title documents, and
- An assessment of the site's purchase price and the fair market value.

The references used in this study are listed in Section 8.0. Color photocopies of selected photographs taken during the site reconnaissance are included in Appendix A. Copies of aerial photographs, topographic maps, and an assessor parcel map are provided in Appendix B. The search of select government documents was subcontracted to Environmental Data Resources, Inc. (EDR). A copy of the full EDR report is included in Appendix C.

2.0 SITE OVERVIEW

2.1 LOCATION

The subject site includes approximately 9.5 acres of land located at 10051 Bernadette Avenue, in the city of Buena Park, California (Figures 1 and 2). It is located immediately southwest of Ball Road and Bernadette Avenue. A parcel map that includes the site (134-301-24) is provided in Appendix B.

2.2 SITE DESCRIPTION

At the time of this assessment, the site was developed as an elementary school. Seven permanent classroom buildings and seven portable classroom buildings were located within the site's eastern and southern portions. These buildings were generally adjoined by covered walkways and landscaped areas. The school's administrative building was located in the site's southeastern portion. Asphalt-paved parking lots were located in the site's southeastern and southwestern corners. A relatively large asphalt-paved sports courtyard was located within the site's central portion. A grass lawn covered most of the site's western and northern portions. A daycare center occupied a portion of the site's northeastern corner. For a more detailed description of the site, refer to Section 3.1 of this report.

2.3 SITE HISTORY

The site contained agricultural fields between at least 1927 and 1952. Orchards and/or row crops are not known or suspected of having occupied the site during this period. The site was developed as the Dickerson Elementary School in the early 1960s. The school initially contained eight school buildings. The northeastern classroom building was constructed between 1963 and 1972. The childcare center was constructed between 1994 and 2002. The portable classroom buildings were installed in 2009.

2.4 GEOLOGY

The subject site is located between approximately 47 and 50 feet above mean sea level (USGS, 1981; Figure 1). The site and immediate site vicinity slope very gently toward the west. Soils underlying the site are comprised of Recent-age alluvial (river) deposits (Morton and Miller, 1981). These deposits are described as being mixtures and layers of clay, silt, sand, and gravel.

The Inglewood fault is the closest known active fault within the site vicinity. This fault is mapped approximately 6.75 miles southwest of the site (Jennings and Bryant, 2010).

2.5 HYDROGEOLOGY

The site is located in the northwestern portion of the Orange County Coastal Basin, a structural groundwater basin containing unconsolidated alluvial deposits to depths of more than 2,000 feet (CDWR, 1961). The Artesia aquifer is the shallowest potable groundwater aquifer beneath the site within this structural basin. The depth to groundwater within this aquifer beneath the site was approximately 60 feet in June 2011 (OCWD, 2011), with a flow direction toward the west. Perched groundwater (not utilized for municipal purposes) was reported at depths between 7.05 and 10.31 feet (an average of 8.05 feet) at a property located approximately 1,000 feet west-northwest of the site (ETIC, 2011). The perched groundwater flow direction beneath this property was reported toward the west-northwest.

Based on data collected during this assessment, groundwater beneath the site is anticipated between 5 and 12 feet below ground surface, with a flow direction toward the west to west-northwest.

3.0 ASSESSMENT REVIEW

3.1 SITE INSPECTIONS AND OBSERVATIONS

On April 3, a Black Rock Geosciences representative visited the site to assess its current utilization and visually search for indications of surface and subsurface contamination. Photographs taken during the site visit are included in Appendix A. Observations made during the site reconnaissance are presented below.

- At the time of this assessment, an elementary school occupied the site. The administration building and an adjoining auditorium were located in the site's southeastern portion (Photo Nos. 1 and 2). Seven class room buildings were located within the site's eastern and southern portions (Photo Nos. 3 through 8). These buildings, relatively well maintained, were generally adjoined by covered walkways and landscaped areas. One of the buildings was adjoined by a paved playground.

- The interior portions of each school building were not observed during the site assessment. Those viewed contained equipment and furniture expected in classroom and offices settings.

- Three portable classroom buildings were located in the site's northern portion and four portable classrooms were located in the site's southern portion (Photo Nos. 9 and 10).

- A childcare building and adjoining playground were located in the site's northeastern portion (Photo Nos. 11 and 12).

- A relatively large asphalt-paved sports courtyard was located within the site's central portion (Photo Nos. 9, 13, and 14). This pavement was relatively well maintained, and contained white painted boundaries for various sport-related activities. Aboveground structures within this portion of the site included basketball stands, handball walls, and a playground gym.

- A pad-mounted transformer and adjoining electrical cabinet were located within a fenced area immediately north of the paved playground (Photo No. 15). Indications of releases from this transformer were not observed at the time of the site reconnaissance.

- A well-maintained lawn covered most of the site's northern and western portions (Photo Nos. 16, 17, and 18). Baseball backstops were located on the lawn's western side.

- Asphalt-paved parking lots were located in the site's southeastern and southwestern corners (Photo Nos. 19 and 20). The asphalt within this area appeared well maintained. Significant motor oil releases were not observed in these parking lots.

- Utility poles and associated electric lines traversed along the site's northern, western, and southern sides. Pole-mounted transformers (two total) were located immediately north and west of the site, although not within site limits. Two electrical transformers were mounted between two utility poles on the southern side of the site's southeastern parking lot (Photo No. 21). Indications of releases from these transformers were not observed at the time of the site reconnaissance.

- None of the following were observed within the site:
  - Fill ports or vent pipes to underground storage tanks
  - Aboveground storage tanks
  - Indications of septic systems
  - Groundwater and/or vadose zone wells
  - Mounds or depressions suggesting trash or other solid waste disposal areas
  - Pools of liquid or potentially hazardous substances
  - Hazardous material storage structures
  - Wastewater discharge pipes
  - Clarifiers, ponds, pits, sumps, or other underground waste disposal areas
  - Unusual or noxious odors

3.2 PROJECT VICINITY

Properties adjoining the site were reviewed for evidence of possible contaminant sources and/or releases. A brief description of these properties is provided below.

- Ball Road was located along the site's northern side. Residential dwellings were located immediately north of Ball Road and the site's western side. A church (New Praise Church) was located immediately north of the site's central portion (Photo No. 22). A commercial shopping center was located immediately north of the site's eastern portion (Photo No. 23). This shopping center included a liquor market, restaurant, small market, pool/spa supply store, grooming parlor, nail and hair salon, coffee store, massage parlor, and empty suite. Potentially hazardous material sources and/or releases were not observed within the adjoining roadway or visible portions of the properties located immediately north of the site.

- Bernadette Avenue was located along the site's eastern side (Photo No. 24). Single-family dwellings were located immediately east of this roadway and the site. Potentially hazardous material sources and/or releases were not observed within the adjoining roadway or visible portions of the properties located immediately north of the site.

- The properties adjoining the site's southern and western sides were in residential use (single-family dwellings). Fences separated the site from these properties. Potentially hazardous material sources and/or releases were not observed within the visible portions of these properties.

3.3 REVIEW OF AERIAL PHOTOGRAPHS

The following aerial photographs were reviewed to assess the land use over time and look for evidence of potentially hazardous materials storage, usage, and/or disposal areas. Copies of these photographs, with the exception of the photograph dated 2013, are provided in Appendix B. The 2013 photograph is provided as a background for Figure 2.

AERIAL PHOTOGRAPHS REVIEWED

Date	*Scale*	*Source*
1927	1" = 500'	Fairchild
1947	1" = 500'	Fairchild
1952	1" = 500'	EDR
1963	1" = 500'	EDR
1977	1" = 500'	Teledyne
1989	1" = 500'	USGS
1994	1" = 500'	EDR
2005	1" = 500'	EDR
2013	1" = 120'	Google Earth

In the 1927 aerial photograph, the site's northern half appears in agricultural use (field). The site's southern half appears in an undeveloped and natural state, covered with a moderate growth of vegetation. Building structures are not visible within the site. Ball Road is visible along the site's northern side. The properties adjoining the site and adjoining roadway appear either in agricultural use (fields) or in an undeveloped and natural state. An apparent dwelling is located approximately 200 feet northwest of the site. Indications of potential contaminant sources, such as landfills, large aboveground tanks, oil wells, or pipelines, are not visible onsite or within the adjoining properties.

In the 1938 and 1952 aerial photographs, the site and adjoining properties appear in agricultural use (fields). Apparent dwellings and/or barns are now visible within the property located north of the site and Ball Road. Potential contaminant sources are not visible within the site or site vicinity.

In the 1963, 1977, 1989, 1994, 2005, and 2013 aerial photographs, the site appears in a similar state to that observed during the site reconnaissance. The site appears recently developed in the 1963 aerial photographs. Eight school buildings are initially visible within the site. The northeastern classroom building (ninth building) was constructed between 1963 and 1977. The childcare building was constructed between 1994 and 2005. The modular classroom buildings were installed between 2005 and 2013. Paved and unpaved areas adjoin the onsite buildings. A relatively large grass lawn is visible in the site's northern and western portions. A paved parking lot is visible in the site's southeastern corner. Bernadette Avenue is visible along the site's eastern side. The residential developments located east, west, and south of the site are visible in each aerial photograph (constructed between 1952 and 1963). The commercial properties located north of the site were developed in the 1970s and 1980s. Potential contaminant sources are not visible within the site or site vicinity.

3.4 REVIEW OF MAPS AND REPORTS

3.4.1 USGS TOPOGRAPHIC MAPS

Topographic maps (Los Alamitos, California quadrangles) dated 1902, 1935, 1950, 1964, 1972, and 1981 and covering the site and vicinity were reviewed as part of this assessment. Copies of these maps are provided in Appendix B of this report. As noted in the 1902 topographic map, Ball Road is shown along the site's northern side. No other manmade structures are shown within the site or within the immediate site vicinity. The use of the site and adjoining properties are not depicted on this map. Structures of

concern, such as pipelines, oil wells, aboveground tanks, and landfills, are not shown within the site or immediate site vicinity.

In the 1935 and 1950 topographic maps, manmade structures are not shown within the site. Ball Road and Juanita Street are shown immediately north of the site. Dwelling-size buildings are also shown north and northwest of the site. Structures of concern are not shown within the site or immediate site vicinity.

In the 1964, 1972, and 1981 topographic maps, the site is shown in use as a school (Dickerson School). Eight building structures are initially shown within the site in a similar location to that of the existing school buildings. A ninth classroom building is shown in the site's northeastern portion in the 1972 and 1981 topographic maps. Bernadette Avenue is now shown along the site's eastern portion. The properties located east, south, and west of the site are shaded red, indicating that they have been developed. A commercial-size building, similar to present, is shown north of the site in the 1972 and 1981 topographic maps. Structures of concern are not shown within the site or immediate site vicinity.

3.4.2 SANBORN INSURANCE MAPS

Sanborn Maps (historical insurance maps) were not found for the site or site vicinity.

3.4.3 OIL FIELD MAPS

Oil well maps provided by the California Division of Oil, Gas, and Geothermal Resources (CDOGGR) were searched via their search program at http://www.conservation.ca.gov/dog/Pages/WellFinder.aspx. Based on a review of the map provided by CDOGGR, there are no oil wells located within 1,000 feet of the site. The closest oil well shown (Charles T. B. Jones 1) is located approximately 0.25 miles west-northwest (down gradient) of the site. This well is noted to be a producing oil well. Due to the location and distance to this well, any associated potentially hazardous material releases related to this well are not considered a threat to the soil and/or groundwater underlying the site.

3.4.4 ASSESSOR PARCEL MAPS

An assessor parcel map and associated property profile were obtained for the site for review. A copy of the assessor parcel map is included in Appendix B. The assessor parcel map shows the location and dimensions of the parcel included within this assessment. Easements through the site, including for chemical and/or petroleum hydrocarbon pipelines, are not shown on this map.

The property profile reports that the owner of the onsite parcel (APN 134-301-24) is the "Cypress School District". Owners commonly associated with hazardous material use, such as dry cleaners and fuel service stations, were not listed in the property profile. The use of the site is noted as being "Tax Exempt." Aboveground buildings are not listed at the site. The site is noted to be 9.53 acres in area. No other pertinent data were provided within the property profile.

3.4.5 STREET DIRECTORIES

Street directories typically list the year and reported occupant for each site address. The site's address (10051 Bernadette Avenue) was listed between 1972 and 2013 with the following occupants:

- Dickerson Elementary School (1972 through 2013)
- Cypress Teachers Association (1985 through 1994)
- DT Wilk (1985 through 1994)
- Carousel Preschool & Childcare (1985 through 2008)
- ABC Development Preschool and Childcare (2013)

As noted, the associated uses of the site address are related to the elementary school and childcare center. Property uses that may suggest that hazardous material sources (such fuel service stations or oil-related operations) were not listed in the street directories searched.

3.5 ENVIRONMENTAL DATABASE REVIEW

Environmental Data Resources, Inc. (EDR) conducted a search of available environmental records for the site and properties up to 1 mile away from the site. The search met the specific requirements of ASTM Standard Practice for Environmental Site Assessments (E1527-13), including those associated with government databases, search distances, and data currency. EDR's report, dated March 24, 2014, is included as Appendix C of this report. Pages 1 through 9 of the executive summary in EDR's report list the federal and state environmental databases searched for this assessment. A description of these databases is provided at the end of EDR's report (electronic version only).

A map provided in the EDR report shows the location of the subject site and properties within the search distances defined by ASTM (see Page 2 in Appendix C). As noted in the EDR report, the site is not listed within any of the environmental databases searched.

There are nine properties listed within 1 mile of the site that have, or have the potential to release hazardous materials into the subsurface soil and/or groundwater. One of these properties is located up-gradient (east to east-southeast) of the site. Hazardous materials released at up-gradient properties would, due to their location, have the greatest potential to impact the soil and/or groundwater beneath the site. Impacted groundwater beneath these properties would be anticipated to migrate into or toward the subject site. The Jiffy Lube formerly located at 6427 Ball Road was listed in seven databases as a result of being a small-quantity generator of potentially hazardous materials (type not listed; assumed to be waste oil, antifreeze, and other automotive liquids). It is also reported as having contained three underground storage tanks (reported as 1,000-gallon petroleum, 600-gallon motor vehicle fuel, and 285-gallon motor vehicle fuel). These tanks were reported as having been installed between 1985 and 1988. Releases have not been reported from these tanks. Due to the distance to this property (270 feet), absence of reported releases, and the subsequent removal of this facility (currently a residential development), the potentially hazardous materials formerly generated and stored at this property are not considered a threat to the soil and/or groundwater underlying the site.

The remaining properties listed in EDR's report are located across or down gradient of the site. Hazardous materials released at these properties would be anticipated to migrate toward the west to west-northwest, or away from the site.

Eight properties are listed in the "Orphan Summary" of EDR's report. Such properties could not be geocoded by EDR because location information supplied by the regulatory agencies was insufficient to allow EDR to geocode the facility locations. Based on a review of the addresses provided for the orphan properties, none are located within one mile and potentially up-gradient of the site.

Based on a review of the properties listed in the environmental databases searched, none are considered to have the potential to impact the soil and/or groundwater underlying the subject site.

3.6 AGENCY CONTACTS AND MATERIALS

A list of properties regulated by the Orange County Health Care Agency (OCHCA) was obtained from their online source (http://ochealthinfo.com/eh/home/reports) and reviewed for site listings or listings of near-vicinity properties. The site was not listed within any of the OCHCA databases. In addition, there were no properties within the immediate site vicinity listed in the OCHCA database.

Records from the Regional Water Quality Control Board (RWQCB) were searched via their online search program at http://geotracker.swrcb.ca.gov. A search of this database revealed the following six properties located up-gradient (east to east-southeast) and within 1 mile of the site.

- Minit Lube at 3524 W. Ball Road (approximately 3,070 feet from the site)
- Unocal Service Station No. 4781 at 3501 W. Ball Road (approximately 3,250 feet from the site)
- World Oil Service Station at 3450 W. Ball Road (approximately 3,500 feet from the site)
- Mister Best Dry Cleaners at 1211 Knott Avenue (approximately 3,650 feet from the site)
- Anaheim General Hospital at 3350 W. Ball Road (approximately 4,350 feet from the site)
- Savanna School District at 1330 S. Knott Avenue (approximately 3600 feet from the site)

These properties are reported as having released gasoline, diesel, waste oil, or solvents into the underlying soil and groundwater. Each of these cases is noted to have been closed, indicating that the potential contaminants have been successfully remediated. Due to the status of these cases (closed) and their distance to the site (between 0.5 and 1.0 mile), the contaminants released at these properties are not considered a potential threat to the soil and/or groundwater underlying the site.

Records from the Department of Toxic Substances Control (DTSC) were searched via their online search program at http://www.envirostor.dtsc.ca.gov/public. A search of this database revealed no properties listed within one mile and hydraulically upgradient of the site.

Records from the South Coast Air Quality Management District (AQMD) were searched via their on-line search program at http://www.aqmd.gov. Based on the records searched, the AQMD has not issued permits for the site or any of the properties within the immediate site vicinity.

4.0 FINDINGS

4.1 BUILDING CONSTRUCTION MATERIALS

Asbestos- and lead-containing building materials are suspected within the site. With the exception of the childcare building (constructed between 1994 and 2002) and portable classroom buildings (installed in 2009), the onsite buildings were constructed between 1960 and 1972. Asbestos-containing building materials and lead-based paint were phased out in the mid- to late 1970s. Asbestos and lead surveys were not conducted as part of this assessment.

4.2 ONSITE HAZARDOUS MATERIAL USE

Pesticides/Herbicides - Based on the data collected during this assessment, the site periodically contained agricultural fields between at least 1927 and 1962. Due to the absence of orchards and row crops (relatively heavy users of pesticides), elevated pesticide concentrations (concentrations exceeding regulatory levels) are not suspected in the soils covering the site.

Chemical/Petroleum Hydrocarbon Materials - Records or visible indications of potentially hazardous chemicals/petroleum hydrocarbon use at the subject site were not encountered during this assessment.

Potential Hazardous Materials Storage Structures - With the possible exception of transformers, evidence for aboveground or underground storage tanks, clarifiers, sumps, or other potentially hazardous material storage structures was not encountered on any portion of the site during this assessment. Two relatively old transformers (potentially containing oil with polychlorinated biphenyls (PCBs)) are mounted between two utility poles adjacent to the site's southeastern parking lot. A relatively newer pad-mounted transformer was located adjacent to the playground in the site's central portion. Indications of oil releases from these transformers were not observed at the time of the site reconnaissance.

Regulatory Actions - Regulatory actions are not known or suspected of having been issued for the subject site.

4.3 SUBJECT SITE VICINITY

Landfills - There are no landfills reported within 1 mile of the subject site.

Regional or Adjacent Hazardous Material Releases - National Priority List (NPL) sites (large-scale releases of hazardous materials) are not reported within 1 mile of the site. In addition, there are no regulatory listed properties within 1 mile of the site that are considered as having the potential to impact the soil and/or groundwater underlying the site.

Radon - Orange County radon levels reportedly average 0.4 picocuries in first-floor levels for zip code 90620. The U.S. Environmental Protection Agency (EPA) maximum allowable level is 4 picocuries. Radon concentrations above the EPA allowable level are not expected at the subject site.

Asbestos - Sources for asbestos-containing rock are not located within 100 miles of the site (CDOGGR, 2000). The closest reported asbestos-containing rocks are reported in central Santa Barbara County.

Potable Water Source - The site and adjoining areas are provided water by the City of Buena Park Water Department (BPWD). The BPWD obtains its water from the Orange County Water District (OCWD). The water obtained from the OCWD is a blend of groundwater managed by OCWD and water imported from Northern California and the Colorado River by the Municipal Water District of Orange County. The groundwater is pumped from a 350 square mile basin beneath northern and central Orange County. The 2012 water quality report for the city of Buena Park can be obtained online at: http://www.buenapark.com/Modules/ShowDocument.aspx?documentid=3553.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

Site History - The site contained agricultural fields between at least 1927 and 1952. Orchards and/or row crops are not known or suspected of having occupied the site during this period. The site was developed as the Dickerson Elementary School in the early 1960s. The school initially contained eight school buildings. The northeastern classroom building was constructed between 1963 and 1972. The childcare center was constructed between 1994 and 2002. The portable classroom buildings were installed in 2009.

Onsite Hazardous Material Sources and Releases - With the possible exception of electric transformers, evidence for aboveground or underground storage tanks, clarifiers, sumps, or other potentially hazardous material-containing structures was not encountered on any portion of the site during this assessment. Two relatively old transformers (potentially containing oil with PCBs) were mounted between two utility poles adjacent to the site's southeastern parking lot. A relatively new pad-mounted transformer was located adjacent to the playground in the site's central portion. Indications of oil releases from these transformers were not encountered at the time of the site reconnaissance.

Significant releases of potential hazardous materials, including pesticides, are not known or suspected at the site. Due to absence of orchards and row crops within the site (relatively heavy users of pesticides), elevated pesticide concentrations are not suspected within the soils covering the site.

Regional Hazardous Material Releases - Based on a review of properties within the site vicinity and data made available during this assessment, it is our opinion that there is a relatively low potential that contaminants from offsite properties have migrated to the subject site and have impacted the underlying soil and/or groundwater.

Recognized Environmental Conditions - Recognized environmental conditions and/or historical recognized environmental conditions were not identified within the site during this assessment.

5.2 RECOMMENDATIONS

Soil and/or groundwater environmental studies are not recommended for the site. Based on the findings of this assessment, there are no known onsite conditions that would warrant regulatory involvement regarding such studies, including actions leading to environmental soil sampling, soil remediation, groundwater sampling, and/or groundwater remediation.

It is recommended that an asbestos survey be conducted at each of the onsite building structures (except the childcare building and portable classroom buildings) prior to any school redevelopment or demolition. Asbestos-containing building materials were phased out in the mid- to late 1970s, after the site was developed. The asbestos survey must be overseen by a California-Certified Asbestos Consultant. The results of this survey should provide a description of the asbestos-containing materials, their locations, estimated quantity, and recommendations for removal, containment, and off-site transportation and disposal.

In addition to the asbestos surveys, it is recommended that the onsite building structures (with the exception of the childcare building and portable classroom buildings) be assessed for the possible presence of lead-based paint. Lead use in commercial paint was prohibited after 1978. This study must be conducted by trained and/or licensed professionals. The results of this study should provide a description of the lead-based paint locations, estimated quantity, and recommendations for removal, containment, and off-site transportation and disposal.

In the event that Southern California Edison does not claim responsibility for the removal of the onsite electric transformers, it is recommended that the transformers be removed during construction and tested for PCBs. If PCBs are identified, the transformers and associated fluids should be transported offsite and disposed in accordance with local and State protocol.

As always, we recommend that soil excavations conducted during any property redevelopment be monitored by the construction contractor for visible soil staining, odor, and the possible presence of unknown hazardous-material sources, such as buried 55-gallon drums (although not anticipated). If

hazardous materials contamination or sources are suspected or identified, an environmental professional should evaluate the course of action required.

6.0 LIMITATIONS

The information provided in this report is based on the scope of work authorized by the client, information obtained during the investigation, ASTM Standard E1527-13, current regulatory guidelines and laws, state-of-the-industry practices, and the professional judgment of Black Rock Geosciences personnel.

This Phase I environmental site assessment, conducted in April 2014, is based on information made available during the course of this assessment. Black Rock Geosciences relied on the information collected during our investigation, presented in the former report(s), and/or provided by the client or others to conduct our investigation and arrive at our conclusions. Black Rock Geosciences assumes that information provided by others is accurate to the extent used by Black Rock Geosciences.

The information obtained during this assessment, at a minimum, complies with criteria specified in Standard Practice for Environmental Site Assessments: Phase I, ASTM Standard E1527-13. Data gaps to this standard for this report include the following:

- Interviews with representatives of the site and adjoining property,
- A review of the site's title report, and
- An assessment of the site's purchase price and the fair market value.

Services performed by Black Rock Geosciences were conducted in a manner consistent with state-of-the-industry practices, recognizing that even the most comprehensive investigation may not detect all hazardous materials/waste at the site. Therefore, Black Rock Geosciences cannot act as an insurer or certify that the site is free of hazardous materials/waste. Except as expressly set forth herein, no representation or warranty is included in our report.

The report is the property of the client for whom it was prepared. Its distribution to others is at client's discretion.

7.0 PROFESSIONAL STATEMENT

This Phase I environmental site assessment report was prepared by Mr. Quin Kinnebrew, an Environmental Professional who possesses sufficient specific education, training, and experience necessary to exercise professional judgment to develop opinions and conclusions regarding conditions indicative of hazardous material releases or threatened releases on, at, in, or to a property. He is sufficiently qualified to meet the objectives and performance of this assessment. Mr. Kinnebrew holds a current Professional Geologist's license (PG# 5696) in California and has more than 21 years of full-time relevant experience. He obtained his Master's degree from an accredited institution (Texas A&M University) in the discipline of engineering geology. Mr. Kinnebrew has continued to build on his environmental-related knowledge through participation in continuing education and work-related experience.

Environmental Professional Statement - I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR Part 312. I have the specific qualifications based on education, training, and experience to assess a property of the

nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Quin Kinnebrew

8.0 REFERENCES

California Department of Conservation – Division of Oil, Gas, and Geothermal Resources, A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos; dated August 2000.

California Department of Water Resources - Southern District (CDWR), 1961, Bulletin No. 104, Planned Utilization of the Groundwater Basins of the Coastal Plain of Los Angeles County; Appendix A: Groundwater Geology.

ETIC Engineering (ETIC), 2011, Site Status and Groundwater Monitoring Report - First Quarter 2011 (18 March 2010 to 31 March 2011), ExxonMobil Oil Corporation Service Station 18FEE, 6011 Ball Road, Cypress, California 90630; dated May 11, 2011.

Jennings, C.W. and Bryant, W.A., 2010, 2010 Fault Activity Map of California, California Geologic Survey, Geologic Data Map No. 6.

Morton, P. K. and Miller, R. V., 1981, Geologic Map of Orange County California, Showing Mines and Mineral Deposits; Map dated 1981, scale = 1:48,000.

Orange County Water District, 2009, Groundwater Elevation Contours for the Principal Aquifer - Northwest OCWD; dated June 2009.

U.S. Geological Survey (USGS), 1902, Downey, California 15 Minute Quadrangle, Scale 1"=5,208'.

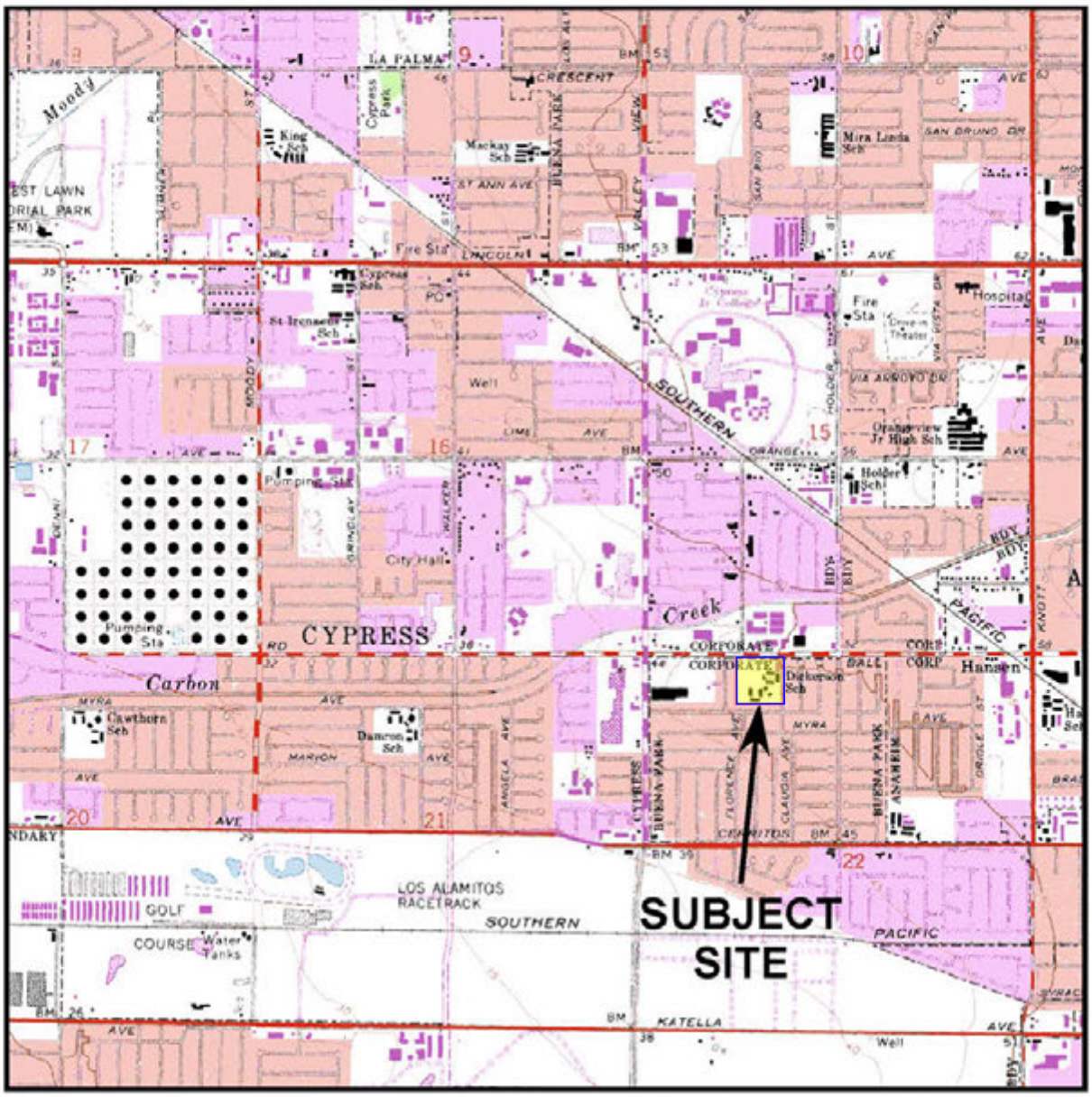
USGS, 1935, Los Alamitos, California 7.5 Minute Quadrangle, Scale 1"=2,640'.

USGS, 1950, Los Alamitos, California 7.5 Minute Quadrangle, Scale 1"=2,000'.

USGS, 1964, Los Alamitos, California 7.5 Minute Quadrangle, Scale 1"=2,000'

USGS, 1972, Los Alamitos, California 7.5 Minute Quadrangle, Scale 1"=2,000'

USGS, 1981, Los Alamitos, California 7.5 Minute Quadrangle, Scale 1"=2,000'



Base Map: 1981 Los Alamitos, California quadrangle

Approx. Scale:
0 1,200 2,400 feet

N

BLACK ROCK GEOSCIENCES	**SITE LOCATION MAP** 10051 Bernadette Avenue, Buena Park, California	**Figure No.** **1**
Project No.: 18012 Date: April 2014		

Approx. Scale:
0 60 120 feet

Base photo (Google Maps) dated April 16 2013.

BLACK ROCK GEOSCIENCES

Project No.: 18012 Date: April 2014

SITE PLAN

10051 Bernadette Avenue,
Buena Park, California

Figure No.

2

APPENDIX A

SITE PHOTOGRAPHS

Photo No. 1 – Southwest view of entrance to school.

Photo No. 2 – Southwest view of school's office building.

Photo No. 3 – Southwest view of eastern classroom building.

Photo No. 4 – East view of eastern classroom buildings.

Photo No. 5 – Northeast view of eastern classroom buildings and playground.

Photo No. 6 – East view of southern classroom buildings.

Photo No. 7 – Southwest view of southern classroom building.

Photo No. 8 – East view of southern classroom buildings.

Photo No. 9 – North view of northern portable classroom building.

Photo No. 10 – Northeast view of southern portable classroom buildings.

Photo No. 11 – North view of childcare building.

Photo No. 12 – Northeast view of playground adjacent to childcare building.

Photo No. 13 – South view of asphalt-paved playground.

Photo No. 14 – South view of playground's western area.

Photo No. 15 – Northwest view of transformer adjacent to paved playground.

Photo No. 16 – West view of lawn in site's northern portion.

Photo No. 17 – South view of lawn in site's western portion.

Photo No. 18 – South view of lawn in site's northeastern portion.

Photo No. 19 – South view of school's southeastern parking lot.

Photo No. 20 – South view of school's southwestern parking lot.

Photo No. 21 – View of transformers adjoining southeastern parking lot.

Photo No. 22 – Northwest view of church located north of site.

Photo No. 23 – North view of shopping center located north of site.

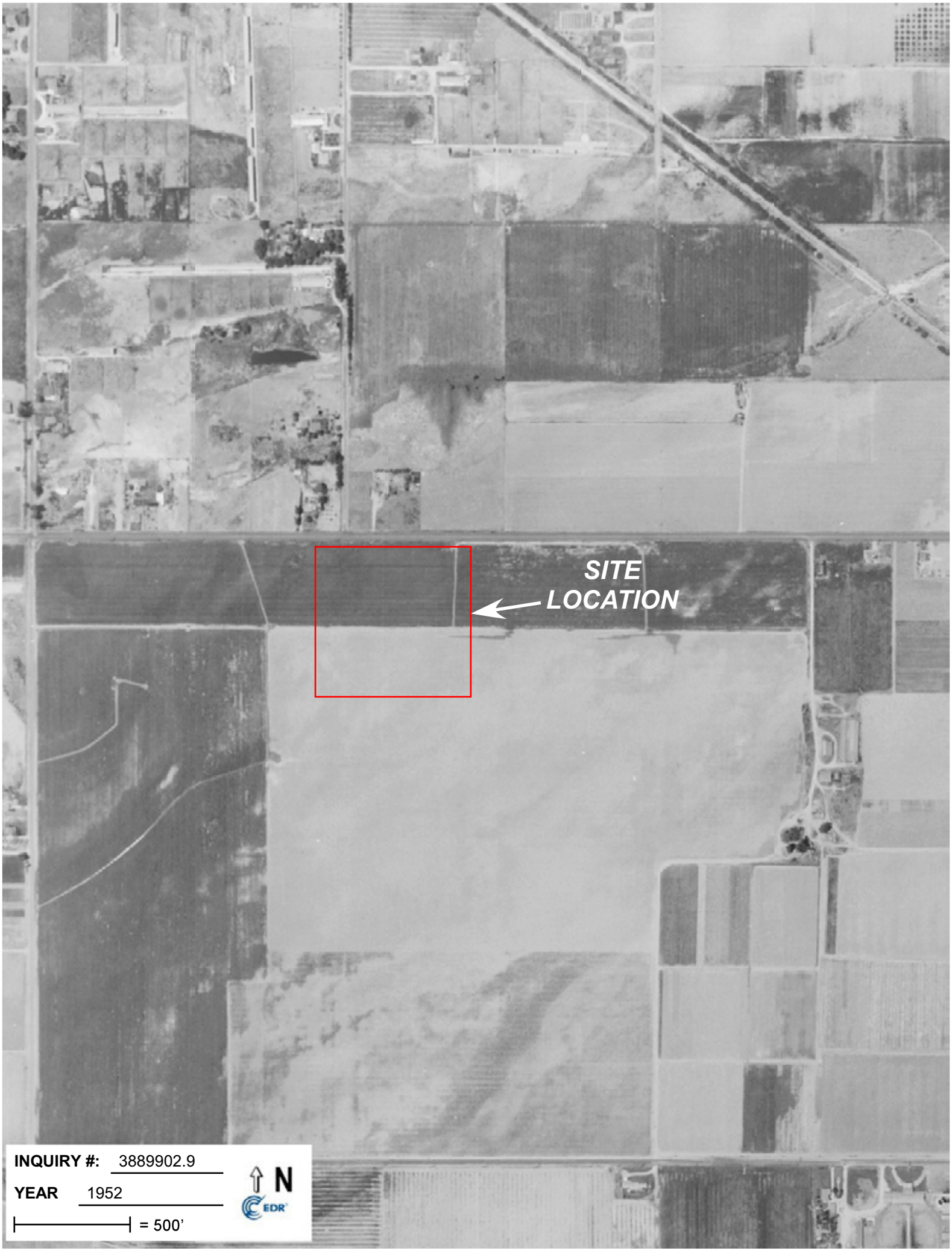
Photo No. 24 – Northeast view of roadway & dwellings east of site.

APPENDIX B

ARIAL PHOTOGRAPHS, TOPOGRAPHIC MAPS, & ASSESSOR PARCEL MAP

SITE
LOCATION
INQUIRY #: 3889902.9
YEAR 1927
= 500'
N
EDR

SITE
LOCATION
INQUIRY #: 3889902.9
YEAR 1947
= 500'
N
EDR


SITE
LOCATION
INQUIRY #: 3889902.9
YEAR 1952
= 500'
N
EDR

SITE
LOCATION
INQUIRY #: 3889902.9
YEAR 1963
= 500'
N
EDR

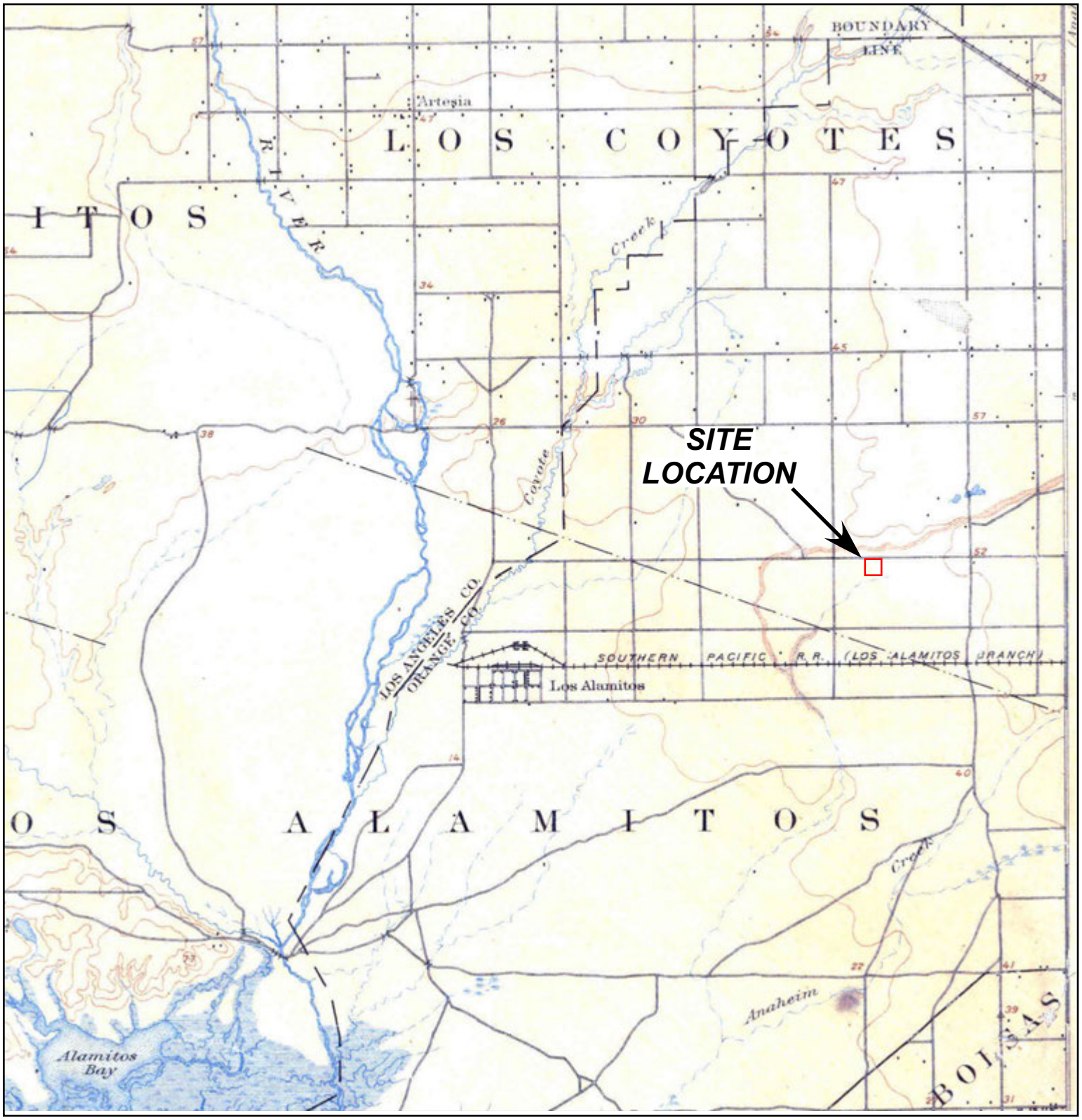
SITE
LOCATION
INQUIRY #: 3889902.9
YEAR 1977
= 500'
N
EDR

SITE
LOCATION
INQUIRY #: 3889902.9
YEAR 1989
= 500'
N
EDR

SITE
LOCATION
INQUIRY #: 3889902.9
YEAR 1994
= 500'
N
EDR

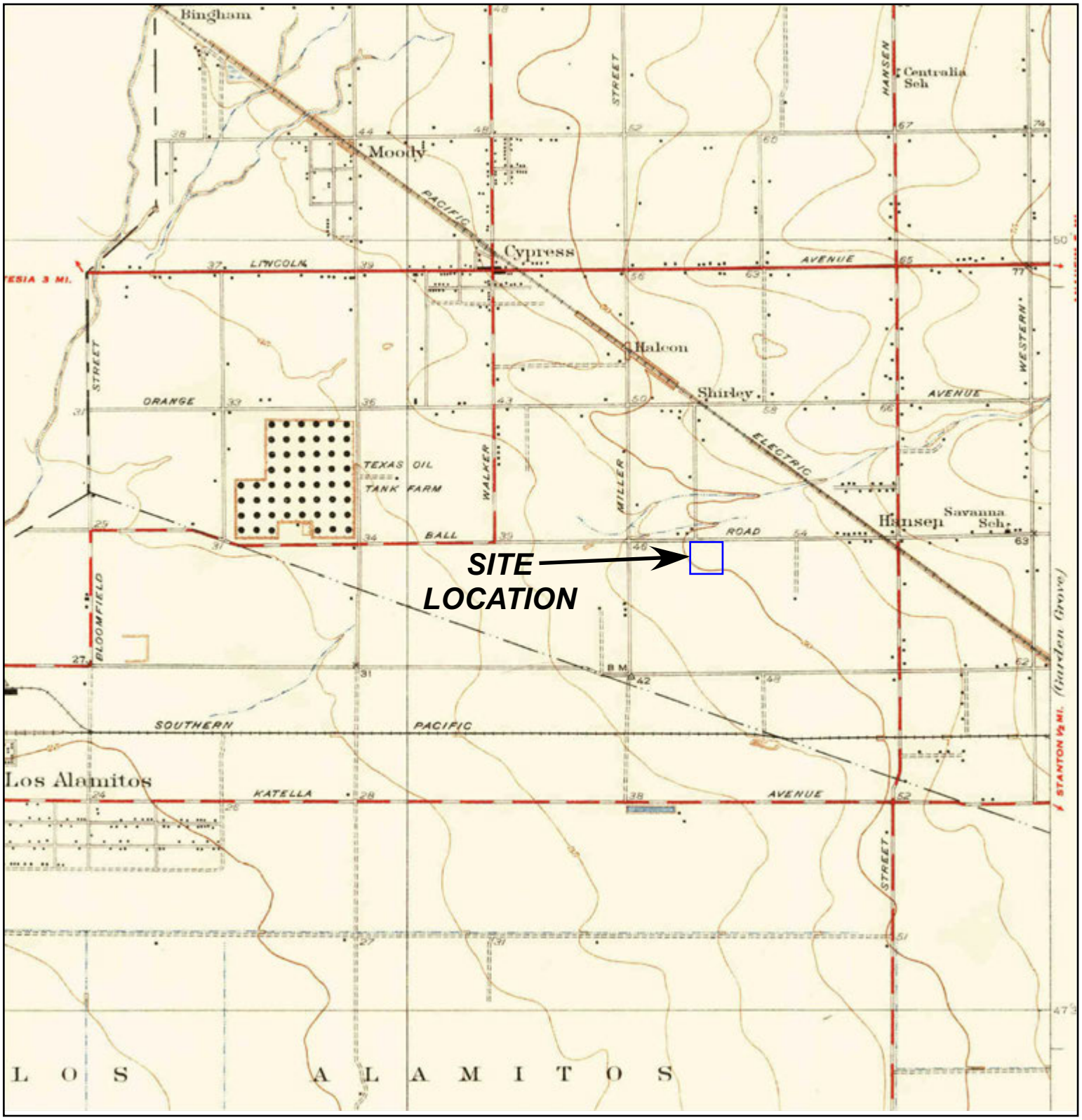
SITE
LOCATION
INQUIRY #: 3889902.9
YEAR 2005
= 500'
N
EDR

Historical Topographic Map



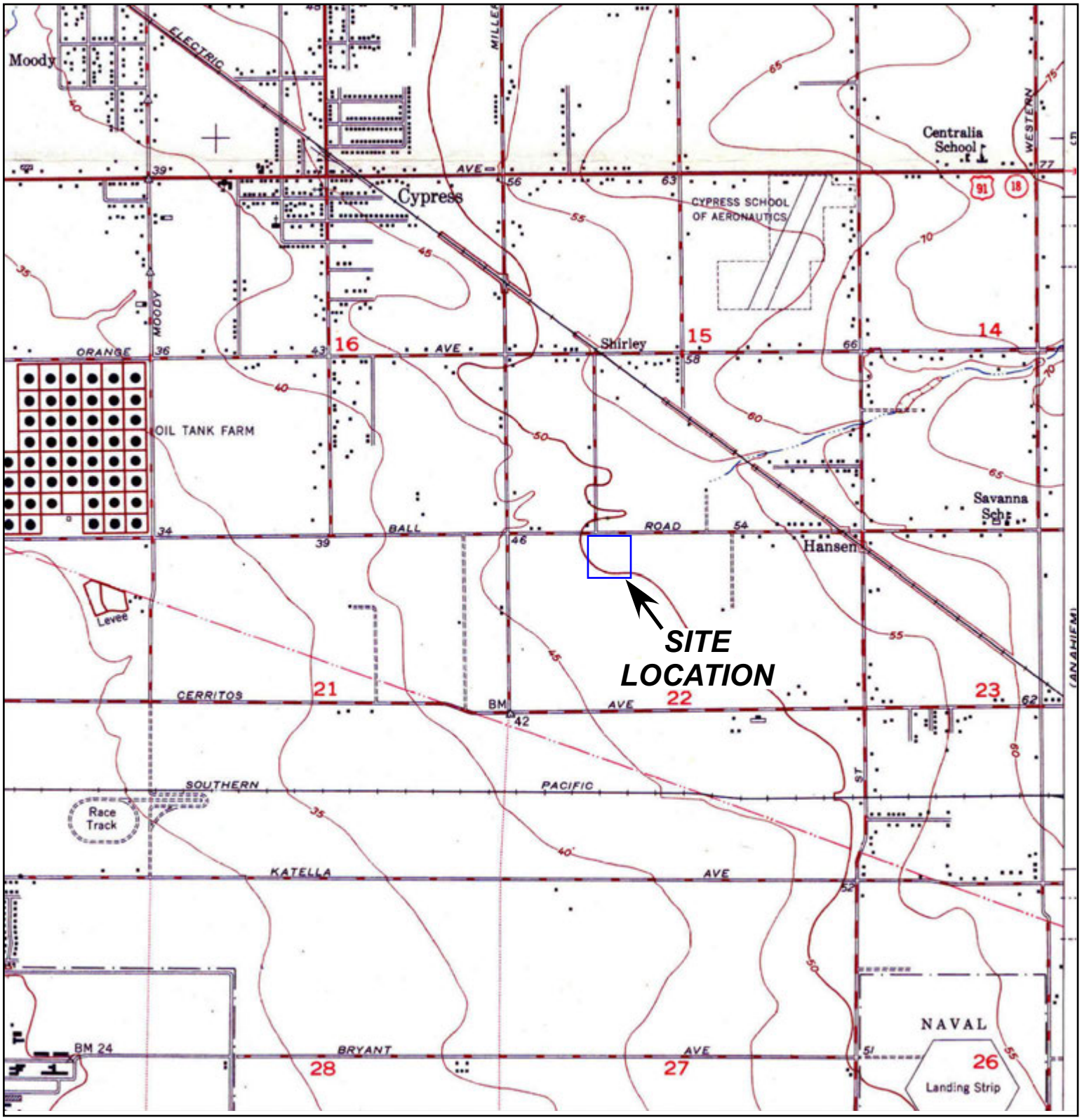
N	TARGET QUAD NAME: Los Alamitos MAP YEAR: 1902 SERIES: 15 SCALE: 1:62,500	SITE NAME: School Property ADDRESS: 10051 Bernadette Avenue Buena Park, CA 90620 LAT/LONG: 33.8161 / -118.022	CLIENT: Black Rock Geosciences CONTACT: Quin Kinnebrew INQUIRY#: 3889902.4 RESEARCH DATE: 03/24/2014

Historical Topographic Map



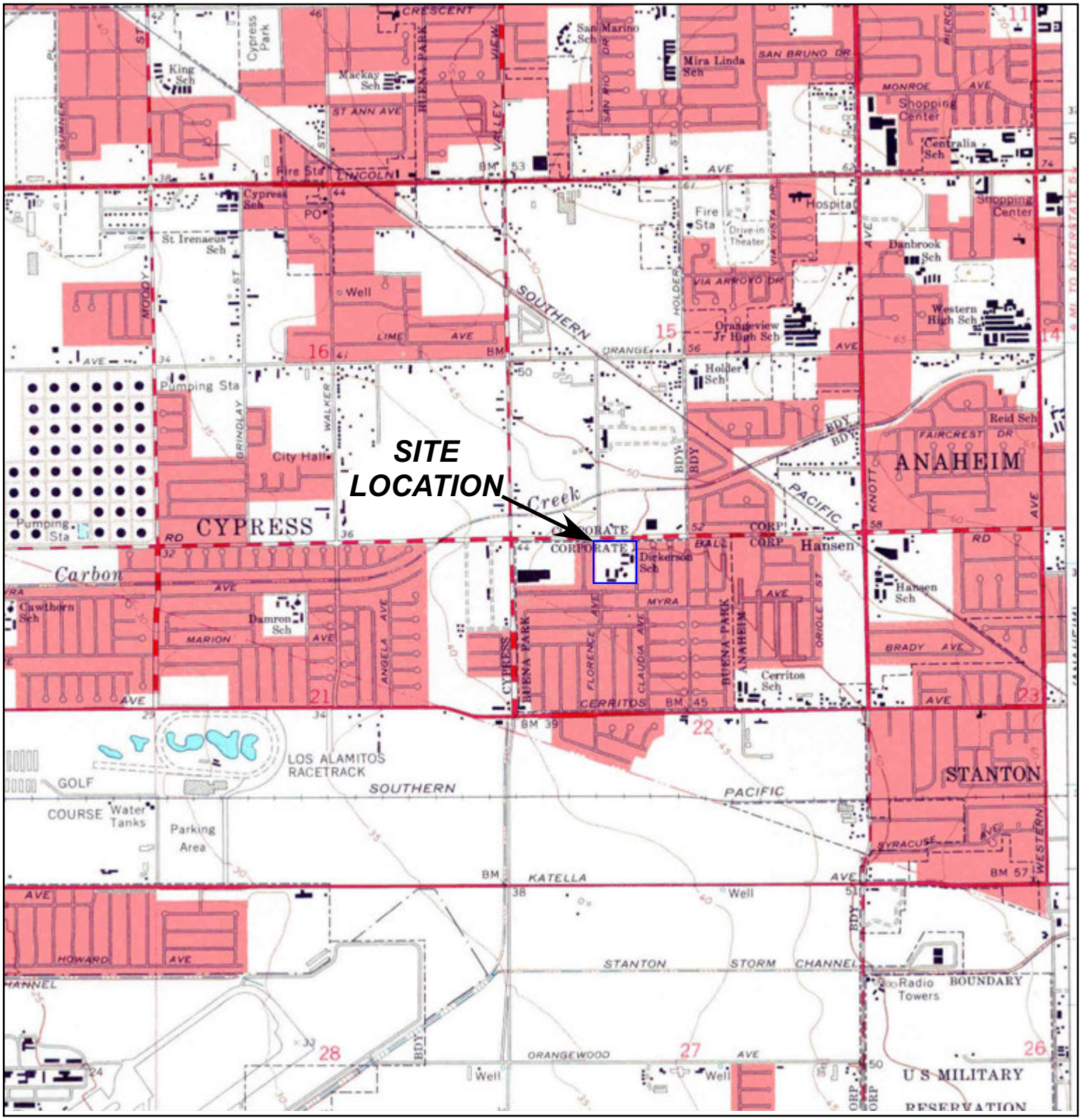
N	TARGET QUAD NAME: Los Alamitos MAP YEAR: 1935 SERIES: 7.5 SCALE: 1:31,680	SITE NAME: School Property ADDRESS: 10051 Bernadette Avenue Buena Park, CA 90620 LAT/LONG: 33.8161 / -118.022	CLIENT: Black Rock Geosciences CONTACT: Quin Kinnebrew INQUIRY#: 3889902.4 RESEARCH DATE: 03/24/2014

Historical Topographic Map



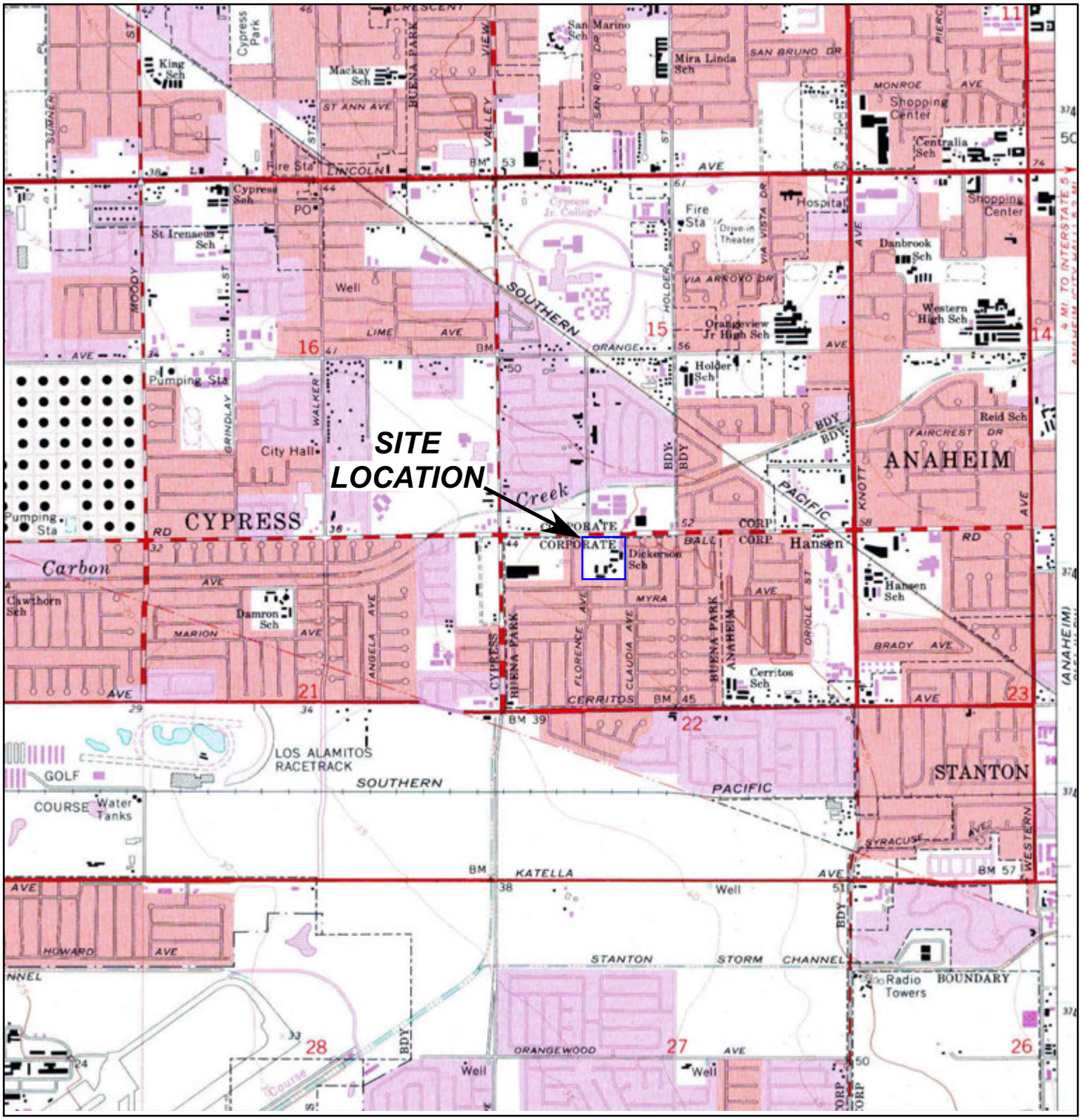
N	TARGET QUAD NAME: Los Alamitos MAP YEAR: 1950 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: School Property ADDRESS: 10051 Bernadette Avenue Buena Park, CA 90620 LAT/LONG: 33.8161 / -118.022	CLIENT: Black Rock Geosciences CONTACT: Quin Kinnebrew INQUIRY#: 3889902.4 RESEARCH DATE: 03/24/2014

Historical Topographic Map



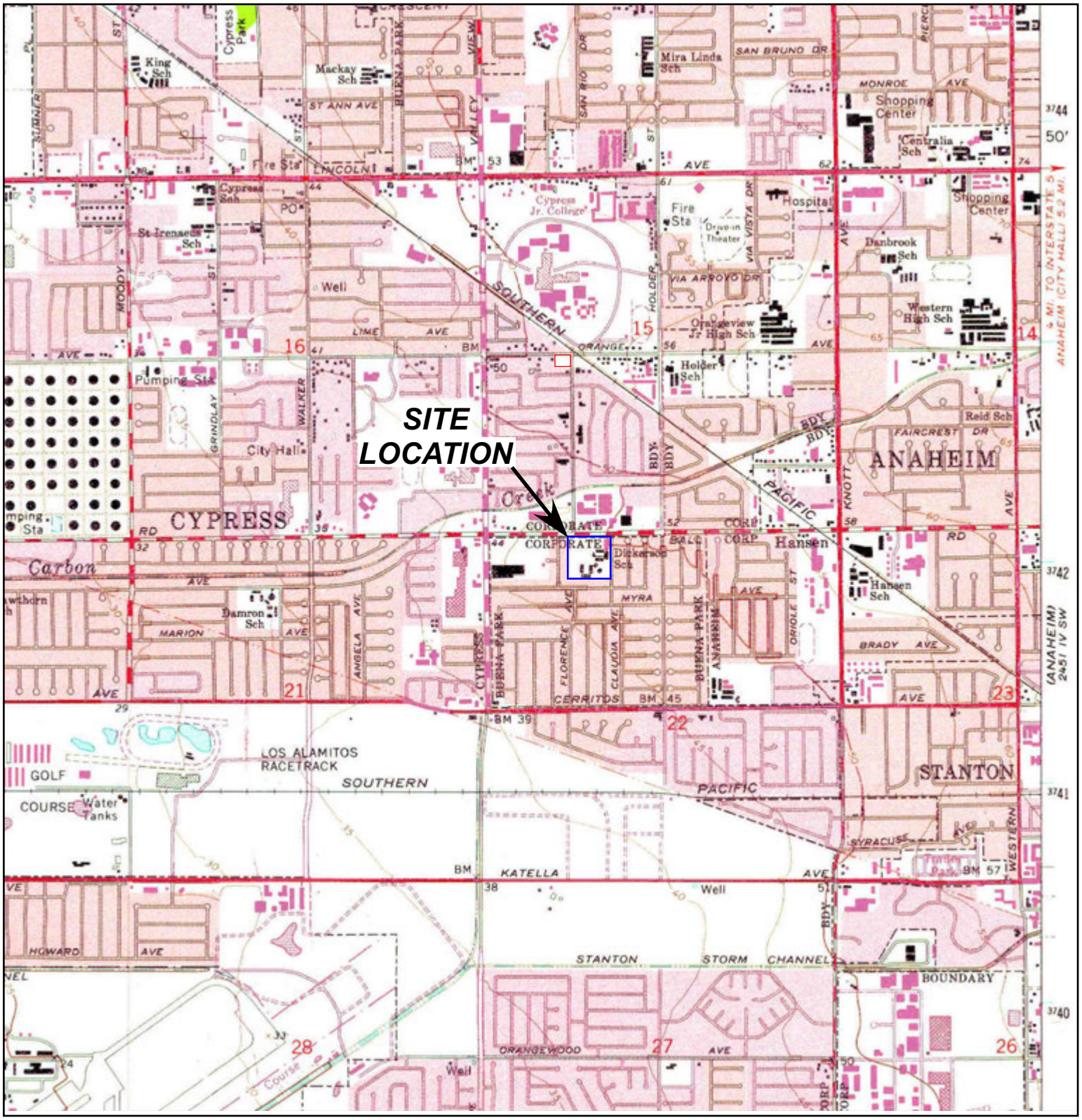
N	TARGET QUAD NAME: Los Alamitos MAP YEAR: 1964 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: School Property ADDRESS: 10051 Bernadette Avenue Buena Park, CA 90620 LAT/LONG: 33.8161 / -118.022	CLIENT: Black Rock Geosciences CONTACT: Quin Kinnebrew INQUIRY#: 3889902.4 RESEARCH DATE: 03/24/2014

Historical Topographic Map



N	TARGET QUAD NAME: Los Alamitos MAP YEAR: 1972 (Photorevised from: 1964) SERIES: 7.5 SCALE: 1:24,000	SITE NAME: School Property ADDRESS: 10051 Bernadette Avenue Buena Park, CA 90620 LAT/LONG: 33.8161 / -118.022	CLIENT: Black Rock Geosciences CONTACT: Quin Kinnebrew INQUIRY#: 3889902.4 RESEARCH DATE: 03/24/2014

Historical Topographic Map



N	TARGET QUAD NAME: Los Alamitos MAP YEAR: 1981 (Photorevised from: 1964) SERIES: 7.5 SCALE: 1:24,000	SITE NAME: School Property ADDRESS: 10051 Bernadette Avenue Buena Park, CA 90620 LAT/LONG: 33.8161 / -118.022	CLIENT: Black Rock Geosciences CONTACT: Quin Kinnebrew INQUIRY#: 3889902.4 RESEARCH DATE: 03/24/2014

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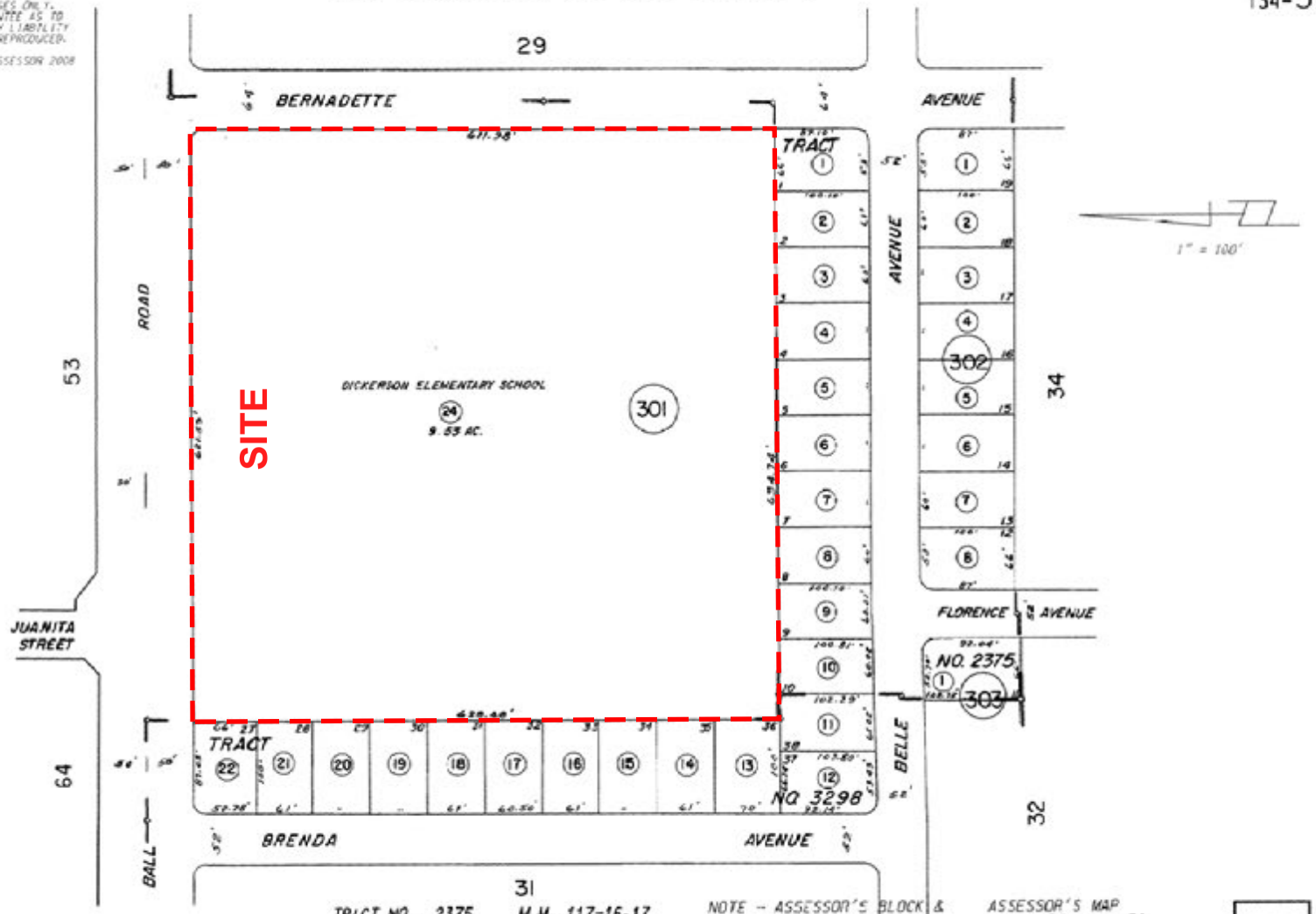
POR. N 1/2, NW 1/4, SEC. 22, T 4 S, R 11 W

134-30



MARCH 1961

TRACT NO. 2375 M.M. 117-16,17
TRACT NO. 3298 M.M. 118-06,07

NOTE – ASSESSOR'S BLOCK & PARCEL NUMBERS SHOWN IN CIRCLES

ASSESSOR'S MAP BOOK 134 PAGE 30 COUNTY OF ORANGE

APPENDIX C

ENVIRONMENTAL DATA RESOURCES, INC. REPORT

School Property
10051 Bernadette Avenue
Buena Park, CA 90620

Inquiry Number: 3889902.2s
March 24, 2014

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	8
Orphan Summary	39
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-6
Physical Setting Source Map	A-11
Physical Setting Source Map Findings	A-13
Physical Setting Source Records Searched	A-11

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

10051 BERNADETTE AVENUE
BUENA PARK, CA 90620

COORDINATES

Latitude (North):	33.8161000 - 33° 48' 57.96''
Longitude (West):	118.0220000 - 118° 1' 19.20''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	405413.6
UTM Y (Meters):	3742041.5
Elevation:	51 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	33118-G1 LOS ALAMITOS, CA
Most Recent Revision:	1981

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2012
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-CESQG ---------- RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls
LUCIS ---------- Land Use Control Information System

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ---------- State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ---------- Solid Waste Information System

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

AST ---------- Aboveground Petroleum Storage Tank Facilities
INDIAN UST ---------- Underground Storage Tanks on Indian Land

FEMA UST - Underground Storage Tank Listing

State and tribal voluntary cleanup sites

INDIAN VCP - Voluntary Cleanup Priority Listing
VCP - Voluntary Cleanup Program Properties

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS - A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9 - Torres Martinez Reservation Illegal Dump Site Locations
ODI - Open Dump Inventory
WMUDS/SWAT - Waste Management Unit Database
HAULERS - Registered Waste Tire Haulers Listing
INDIAN ODI - Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL - Clandestine Drug Labs
HIST Cal-Sites - Historical Calsites Database
SCH - School Property Evaluation Program
Toxic Pits - Toxic Pits Cleanup Act Sites
CDL - Clandestine Drug Labs
US HIST CDL - National Clandestine Laboratory Register

Local Land Records

LIENS 2 - CERCLA Lien Information
LIENS - Environmental Liens Listing
DEED - Deed Restriction Listing

Records of Emergency Release Reports

HMIRS - Hazardous Materials Information Reporting System
CHMIRS - California Hazardous Material Incident Report System
LDS - Land Disposal Sites Listing
MCS - Military Cleanup Sites Listing
Orange Co. Industrial Site - List of Industrial Site Cleanups
SPILLS 90 - SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR - RCRA - Non Generators
DOT OPS - Incident and Accident Data
DOD - Department of Defense Sites
FUDS - Formerly Used Defense Sites
CONSENT - Superfund (CERCLA) Consent Decrees
ROD - Records Of Decision
UMTRA - Uranium Mill Tailings Sites

US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
NPDES	NPDES Permits Listing
UIC	UIC Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
HAZNET	Facility and Manifest Data
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
PRP	Potentially Responsible Parties
WDS	Waste Discharge System
US AIRS	Aerometric Information Retrieval System Facility Subsystem
MWMP	Medical Waste Management Program Listing
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
HWT	Registered Hazardous Waste Transporter Database
HWP	EnviroStor Permitted Facilities Listing
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database
Financial Assurance	Financial Assurance Information Listing
PROC	Certified Processors Database
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
LEAD SMELTERS	Lead Smelter Sites

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF	Recovered Government Archive Solid Waste Facilities List

EXECUTIVE SUMMARY

RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 09/10/2013 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JIFFY LUBE #9	***6427 BALL RD***	***NE 0 - 1/8 (0.119 mi.)***	***A2***	***8***

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 02/03/2014 has revealed that there are 3 ENVIROSTOR sites within approximately 1 mile of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CYPRESS HIGH SCHOOL Status: No Further Action	***9801 VALLEY VIEW STREET***	***NW 1/4 - 1/2 (0.438 mi.)***	***11***	***30***
VAREC DIV, EMERSON ELECTRIC CO Status: Refer: 1248 Local Agency	***10800 VALLEY VIEW ST***	***SSW 1/2 - 1 (0.800 mi.)***	***12***	***32***

Lower Elevation	Address	Direction / Distance	Map ID	Page
TAYCO ENGINEERING INC	***10874 HOPE ST***	***S 1/2 - 1 (0.866 mi.)***	***13***	***34***
Status: Inactive - Needs Evaluation				

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 12/16/2013 has revealed that there are 3 LUST sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
MOBIL #11-FEE	***6011 BALL RD***	***WNW 1/4 - 1/2 (0.353 mi.)***	***5***	***13***
Status: Completed - Case Closed				
CHEVRON	***10010 VALLEY VIEW ST***	***W 1/4 - 1/2 (0.355 mi.)***	***6***	***20***
Status: Completed - Case Closed				
CYPRESS CAR WASH	***9971 VALLEY VIEW ST***	***WNW 1/4 - 1/2 (0.380 mi.)***	***C10***	***26***
Status: Completed - Case Closed				

SLIC: SLIC Region comes from the California Regional Water Quality Control Board.

A review of the SLIC list, as provided by EDR, and dated 12/16/2013 has revealed that there are 2 SLIC sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CYPRESS EAST DRY CLEANERS	10061 VALLEY VIEW STREE	W 1/4 - 1/2 (0.363 mi.)	B7	22
GW CLEANUP-CYPRESS EAST DRY	***10061 VALLEY ST***	***W 1/4 - 1/2 (0.363 mi.)***	***B8***	***23***
Facility Status: Completed - Case Closed				

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

A review of the UST list, as provided by EDR, and dated 12/16/2013 has revealed that there is 1 UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JIFFY LUBE #9	***6427 BALL RD***	***NE 0 - 1/8 (0.119 mi.)***	***A2***	***8***

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 12/16/2013 has revealed that there is 1 SWRCY site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
REPLANET LLC	6080 BALL RD	WNW 1/4 - 1/2 (0.304 mi.)	4	12

Local Lists of Registered Storage Tanks

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there is 1 CA FID UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JIFFY LUBE #9	***6427 BALL RD***	***NE 0 - 1/8 (0.119 mi.)***	***A2***	***8***

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there is 1 HIST UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CYPRESS JIFFY LUBE	6427 BALL RD	NE 0 - 1/8 (0.119 mi.)	A3	12

SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there is 1 SWEEPS UST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
JIFFY LUBE #9	***6427 BALL RD***	***NE 0 - 1/8 (0.119 mi.)***	***A2***	***8***

Other Ascertainable Records

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 2 HIST CORTESE sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CHEVRON	***10010 VALLEY VIEW ST***	***W 1/4 - 1/2 (0.355 mi.)***	***6***	***20***
CYPRESS CAR WASH CO	***9971 VALLEY VIEW ST***	***WNW 1/4 - 1/2 (0.380 mi.)***	***C9***	***24***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there is 1 EDR US Hist Auto Stat site within approximately 0.25 miles of the target property.

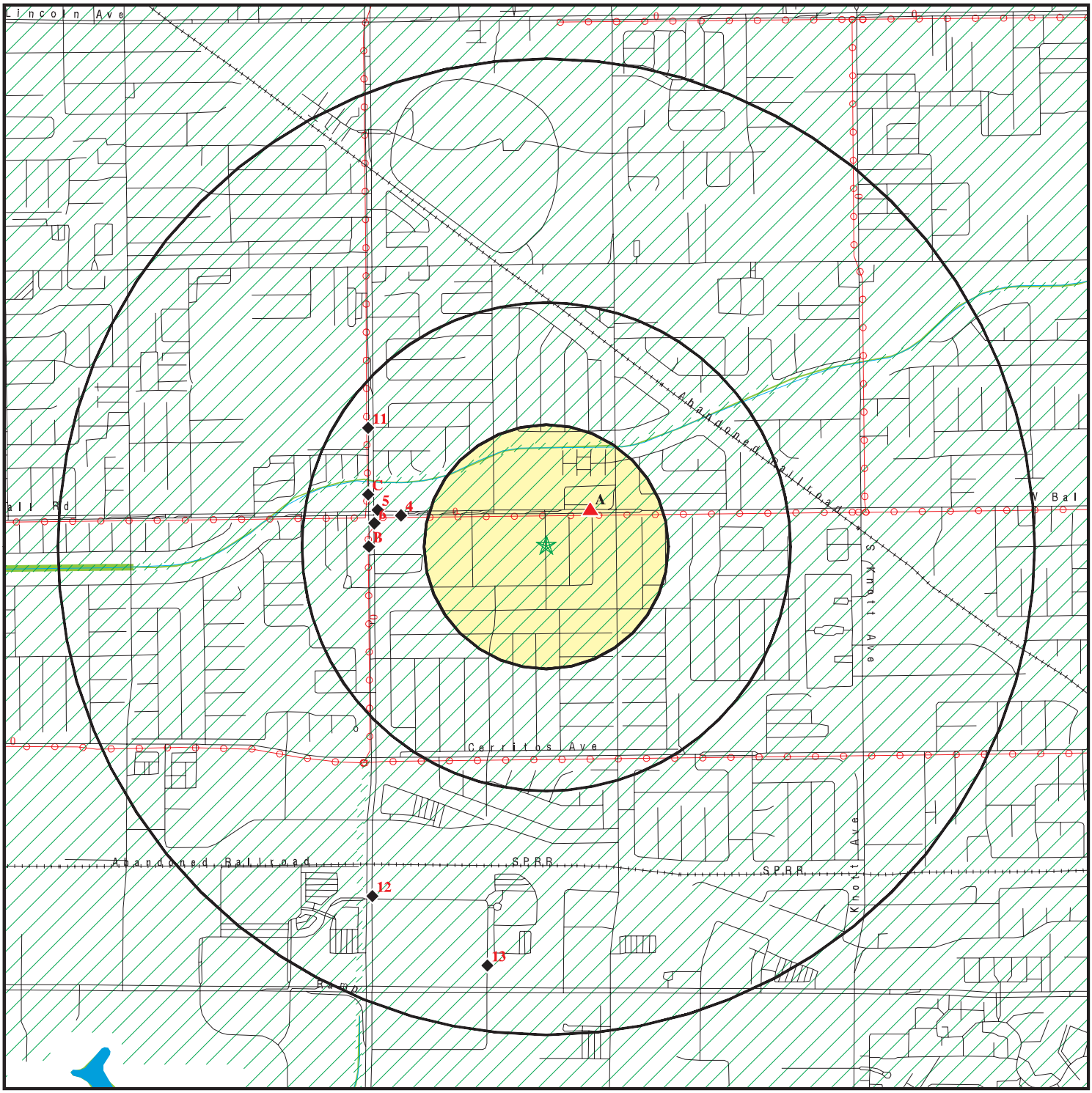
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	6427 BALL RD	NE 0 - 1/8 (0.119 mi.)	A1	8

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 10 records.

Site Name	Database(s)
AMERICAN STORES PROPERTY, INC.	RGA LUST
CENTRALIA HIGH SCHOOL DISTRICT	RGA LUST
BUENA PARK SCHOOL DISTRICT	RGA LUST
BUENA PARK SCHOOL	RGA LUST
CENTRAILA HIGH SCHOOL DISTRICT	RGA LUST
GRAHM PROPERTY	HIST CORTESE
PLYWOOD MFG PLT/DIAMOND LANDS	CERC-NFRAP
LARZABAL RANCH	CERC-NFRAP
BONANZA	HIST UST
1X LOS ALAMITOS UNIFIED SCHOOL DIS	HAZNET

OVERVIEW MAP - 3889902.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	School Property	CLIENT:	Black Rock Geosciences
ADDRESS:	10051 Bernadette Avenue Buena Park CA 90620	CONTACT:	Quin Kinnebrew
LAT/LONG:	33.8161 / 118.022	INQUIRY #:	3889902.2s
		DATE:	March 24, 2014 8:47 pm

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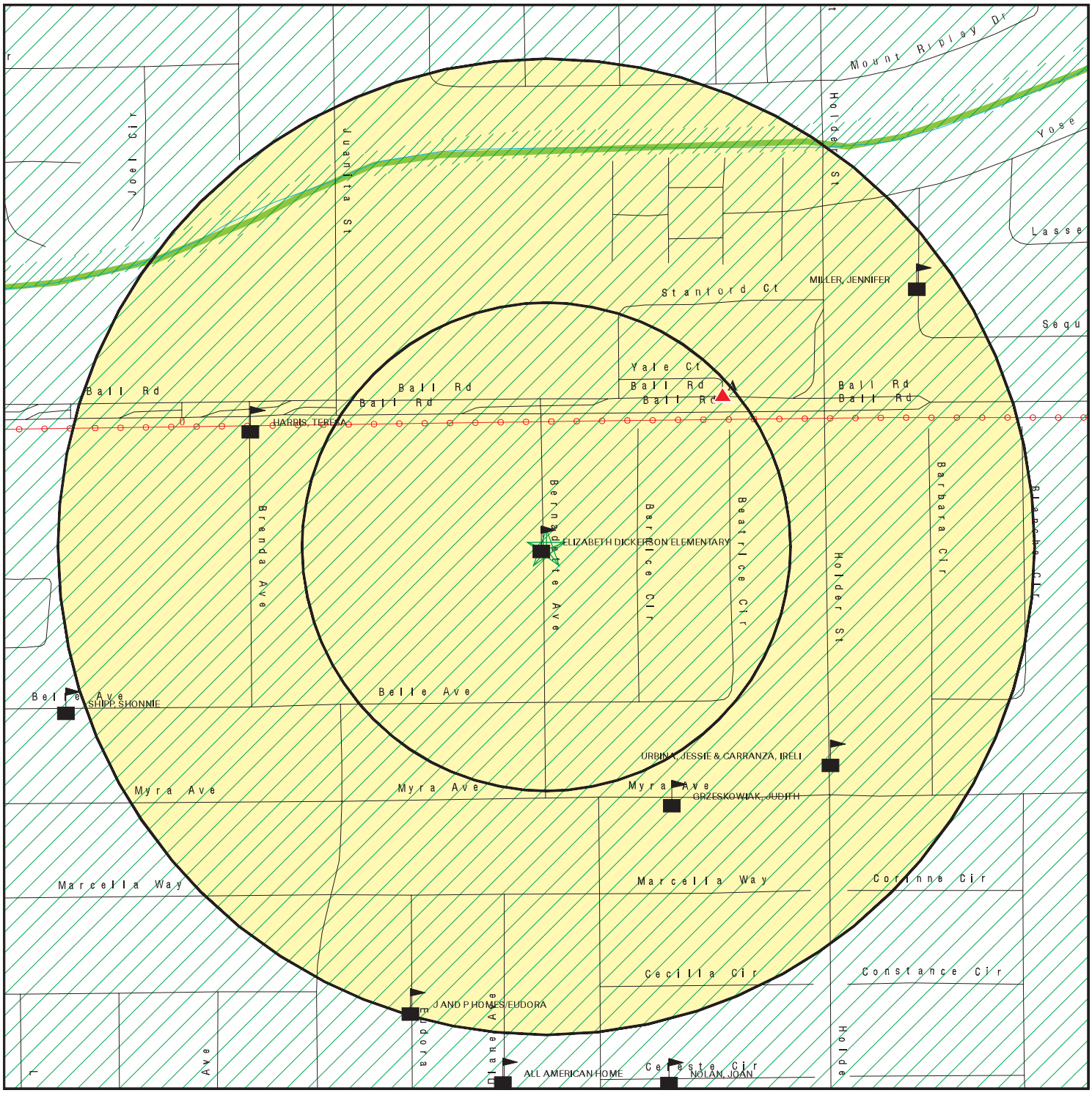
DETAIL MAP - 3889902.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: School Property	CLIENT: Black Rock Geosciences
ADDRESS: 10051 Bernadette Avenue Buena Park CA 90620	CONTACT: Quin Kinnebrew
LAT/LONG: 33.8161 / 118.022	INQUIRY #: 3889902.2s DATE: March 24, 2014 8:49 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		1	0	NR	NR	NR	1
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	1	2	NR	3
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	3	NR	NR	3

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	2	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		1	0	NR	NR	NR	1
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	1	NR	NR	1
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		1	0	NR	NR	NR	1
HIST UST	0.250		1	0	NR	NR	NR	1
SWEEPS UST	0.250		1	0	NR	NR	NR	1
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
Orange Co. Industrial Site	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	2	NR	NR	2
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		1	0	NR	NR	NR	1
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
NE
< 1/8
0.119 mi.
630 ft.
Relative: Higher
Actual: 53 ft.

6427 BALL RD
CYPRESS, CA 90630
Site 1 of 3 in cluster A

EDR US Hist Auto Stat **1015588518**
N/A

EDR Historical Auto Stations:

Name:	DISCOUNT AUTO SERVICES
Year:	1999
Address:	6427 BALL RD
Name:	DISCOUNT AUTO SERVICES
Year:	2001
Address:	6427 BALL RD
Name:	DISCOUNT AUTO SERVICE
Year:	2002
Address:	6427 BALL RD

A2
NE
< 1/8
0.119 mi.
630 ft.
Relative: Higher
Actual: 53 ft.

JIFFY LUBE #9
6427 BALL RD
CYPRESS, CA 90630
Site 2 of 3 in cluster A

RCRA-SQG **1000231336**
FINDS **CAD981167844**
CA FID UST
UST
SWEEPS UST
HAZNET

RCRA-SQG:

Date form received by agency:	09/01/1996
Facility name:	JIFFY LUBE #9
Facility address:	6427 BALL RD CYPRESS, CA 90630
EPA ID:	CAD981167844
Mailing address:	7911 TELEGRAPH RD PICO RIVERA, CA 90660
Contact:	Not reported
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	09
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	NIP INVESTMENTS
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

JIFFY LUBE #9 (Continued) **1000231336**

Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 12/26/1985
Facility name: JIFFY LUBE #9
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: FR - 262.10-12.A
Area of violation: Generators - General
Date violation determined: 10/23/1990
Date achieved compliance: 05/04/1994
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 05/04/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State Contractor/Grantee

Evaluation date: 10/23/1990

JIFFY LUBE #9 (Continued) **1000231336**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 05/04/1994
Evaluation lead agency: State Contractor/Grantee

FINDS:

Registry ID: 110002680493

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

CA FID UST:
Facility ID: 30005798
Regulated By: UTNKA
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 7148272181
Mail To: Not reported
Mailing Address: 7911 TELEGRAPH RD
Mailing Address 2: Not reported
Mailing City,St,Zip: CYPRESS 90630
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

UST:
Facility ID: 5806
Latitude: 33.81726
Longitude: -118.02051
Permitting Agency: ORANGE COUNTY

SWEEPS UST:
Status: Active
Comp Number: 5806
Number: 9
Board Of Equalization: 44-000741
Referral Date: 09-30-92
Action Date: 09-15-92
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 30-000-005806-000001
Tank Status: A
Capacity: 1000
Active Date: Not reported

JIFFY LUBE #9 (Continued) **1000231336**

Tank Use: PETROLEUM
STG: P
Content: Not reported
Number Of Tanks: 3

Status: Active
Comp Number: 5806
Number: 9
Board Of Equalization: 44-000741
Referral Date: 09-30-92
Action Date: 09-15-92
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 30-000-005806-000006
Tank Status: A
Capacity: 600
Active Date: Not reported
Tank Use: M.V. FUEL
STG: P
Content: OTHER
Number Of Tanks: Not reported

Status: Active
Comp Number: 5806
Number: 9
Board Of Equalization: 44-000741
Referral Date: 09-30-92
Action Date: 09-15-92
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 30-000-005806-000007
Tank Status: A
Capacity: 285
Active Date: Not reported
Tank Use: M.V. FUEL
STG: P
Content: OTHER
Number Of Tanks: Not reported

HAZNET:
Year: 1994
Gepaid: CAD981167844
Contact: JIFFY LUBE
Telephone: 0000000000
Mailing Name: Not reported
Mailing Address: 6427 BALL RD
Mailing City,St,Zip: CYPRESS, CA 906304045
Gen County: Not reported
TSD EPA ID: CAT080011059
TSD County: Not reported
Waste Category: Waste oil and mixed oil
Disposal Method: Recycler
Tons: .4170
Facility County: Orange

A3
NE
< 1/8
0.119 mi.
630 ft.

CYPRESS JIFFY LUBE
6427 BALL RD
CYPRESS, CA 90630

Site 3 of 3 in cluster A

HIST UST **U001564538**
N/A

Relative:
Higher

Actual:
53 ft.

HIST UST:

Region:	STATE
Facility ID:	00000067430
Facility Type:	Other
Other Type:	AUTO LUBE CENTER
Total Tanks:	0001
Contact Name:	TRINH YU
Telephone:	7148272181
Owner Name:	THE OIL SHOPPE, A CALIF CORP.
Owner Address:	7911 TELEGRAPH RD.
Owner City,St,Zip:	PICO RIVERA, CA 90660
Tank Num:	001
Container Num:	901
Year Installed:	1985
Tank Capacity:	00001000
Tank Used for:	WASTE
Type of Fuel:	5
Tank Construction:	123 2 inches
Leak Detection:	Sensor Instrument

4
WNW
1/4-1/2
0.304 mi.
1606 ft.

REPLANET LLC
6080 BALL RD
BUENA PARK, CA 90620

SWRCY **S107138075**
N/A

Relative:
Lower

Actual:
46 ft.

SWRCY:

Reg Id:	155920
Cert Id:	RC155920.001
Mailing Address:	9910 E 6th St
Mailing City:	Rancho Cucamonga
Mailing State:	CA
Mailing Zip Code:	91730
Website:	http://www.replanetusa.com
Phone Number:	(951) 520-1700
Grand Father:	N
Rural:	N
Operation Begin Date:	05/01/2012
Aluminium:	Y
Glass:	Y
Plastic:	Y
Bimetal:	Y
Agency:	N/A
Monday Hours Of Operation:	CLOSED
Tuesday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Wednesday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Thursday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Friday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Saturday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Sunday Hours Of Operation:	CLOSED
Cert Status:	Operational
Organization ID:	151891
Organization Name:	rePLANET LLC

REPLANET LLC (Continued) **S107138075**

Agency Reg ID: N/A
Operation End Date: Not reported

5
WNW
1/4-1/2
0.353 mi.
1865 ft.

MOBIL #11-FEE
6011 BALL RD
CYPRESS, CA 90630

LUST **U002096051**
CA FID UST **N/A**
SWEEPS UST

Relative:
Lower

Actual:
45 ft.

LUST:

Region:	STATE
Global Id:	T0605901273
Latitude:	33.8171175
Longitude:	-118.0279349
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	01/31/2012
Lead Agency:	ORANGE COUNTY LOP
Case Worker:	TE
Local Agency:	ORANGE COUNTY LOP
RB Case Number:	083001687T
LOC Case Number:	90UT263
File Location:	Local Agency
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	Please refer to recent Site Documents or Monitoring Reports in GeoTracker for site history. Orange County is not responsible for the accuracy of any professional interpretations provided in reports submitted by consultants for the responsible party.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0605901273
Contact Type:	Local Agency Caseworker
Contact Name:	TAMARA ESCOBEDO
Organization Name:	ORANGE COUNTY LOP
Address:	1241 EAST DYER ROAD SUITE 120
City:	SANTA ANA
Email:	tescobedo@ochca.com
Phone Number:	7144336251

Global Id:	T0605901273
Contact Type:	Regional Board Caseworker
Contact Name:	ROSE SCOTT
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	rscott@waterboards.ca.gov
Phone Number:	9513206375

Status History:

Global Id:	T0605901273
Status:	Open - Case Begin Date
Status Date:	07/26/1988

Global Id:	T0605901273
Status:	Open - Verification Monitoring

MOBIL #11-FEE (Continued) **U002096051**

Status Date: 06/13/1994

Global Id: T0605901273
Status: Open - Remediation
Status Date: 06/15/1994

Global Id: T0605901273
Status: Completed - Case Closed
Status Date: 01/31/2012

Regulatory Activities:

Global Id: T0605901273
Action Type: RESPONSE
Date: 08/20/1993
Action: Other Report / Document

Global Id: T0605901273
Action Type: RESPONSE
Date: 05/29/1992
Action: Other Report / Document

Global Id: T0605901273
Action Type: RESPONSE
Date: 06/03/2010
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/24/2009
Action: Monitoring Report - Quarterly

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/24/2009
Action: NPDES / WDR Reports

Global Id: T0605901273
Action Type: RESPONSE
Date: 10/01/1990
Action: Soil and Water Investigation Report

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/24/2009
Action: Site Assessment Report

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/24/2009
Action: Monitoring Report - Quarterly

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/24/2009
Action: Monitoring Report - Quarterly

Global Id: T0605901273

MOBIL #11-FEE (Continued) **U002096051**

Action Type:	RESPONSE
Date:	04/24/2009
Action:	Well Installation Report
Global Id:	T0605901273
Action Type:	Other
Date:	01/01/1950
Action:	Leak Reported
Global Id:	T0605901273
Action Type:	ENFORCEMENT
Date:	05/04/2011
Action:	Staff Letter
Global Id:	T0605901273
Action Type:	ENFORCEMENT
Date:	01/31/2012
Action:	Closure/No Further Action Letter
Global Id:	T0605901273
Action Type:	Other
Date:	01/01/1950
Action:	Leak Discovery
Global Id:	T0605901273
Action Type:	RESPONSE
Date:	10/21/2002
Action:	Monitoring Report - Other
Global Id:	T0605901273
Action Type:	RESPONSE
Date:	09/12/2001
Action:	Well Installation Report
Global Id:	T0605901273
Action Type:	ENFORCEMENT
Date:	05/11/2011
Action:	Notification - Preclosure
Global Id:	T0605901273
Action Type:	RESPONSE
Date:	12/01/1991
Action:	Soil and Water Investigation Report
Global Id:	T0605901273
Action Type:	RESPONSE
Date:	04/24/2009
Action:	Site Assessment Report
Global Id:	T0605901273
Action Type:	RESPONSE
Date:	04/17/2009
Action:	CAP/RAP - Feasibility Study Report
Global Id:	T0605901273
Action Type:	RESPONSE
Date:	04/17/2009

MOBIL #11-FEE (Continued) **U002096051**

Action: CAP/RAP - Feasibility Study Report

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/17/2009
Action: CAP/RAP - Feasibility Study Report

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/24/2009
Action: CAP/RAP - Other Report

Global Id: T0605901273
Action Type: ENFORCEMENT
Date: 07/10/2009
Action: Staff Letter

Global Id: T0605901273
Action Type: ENFORCEMENT
Date: 04/06/2005
Action: Staff Letter

Global Id: T0605901273
Action Type: ENFORCEMENT
Date: 07/01/2009
Action: Staff Letter

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/24/2009
Action: Monitoring Report - Quarterly

Global Id: T0605901273
Action Type: RESPONSE
Date: 04/24/2009
Action: Site Assessment Report

Global Id: T0605901273
Action Type: RESPONSE
Date: 09/01/1991
Action: Soil and Water Investigation Report

Global Id: T0605901273
Action Type: REMEDIATION
Date: 01/01/1950
Action: Soil Vapor Extraction (SVE)

Global Id: T0605901273
Action Type: REMEDIATION
Date: 01/01/1950
Action: Pump & Treat (P&T) Groundwater

Global Id: T0605901273
Action Type: REMEDIATION
Date: 01/01/1950
Action: Soil Vapor Extraction (SVE)

MOBIL #11-FEE (Continued) **U002096051**

Global Id: T0605901273
Action Type: REMEDIATION
Date: 01/01/1950
Action: Pump & Treat (P&T) Groundwater

Global Id: T0605901273
Action Type: ENFORCEMENT
Date: 11/29/1990
Action: Notice of Responsibility

Global Id: T0605901273
Action Type: ENFORCEMENT
Date: 10/14/2003
Action: Staff Letter

Global Id: T0605901273
Action Type: ENFORCEMENT
Date: 09/05/2006
Action: Staff Letter

ORANGE CO. LUST:
Region: ORANGE
Facility Id: 90UT263
Current Status: Certification (Case Closed)
Released Substance: Gasoline-Automotive (motor gasoline and additives), leaded & unleaded
Date Closed: 01/31/2012
Case Type: Other Ground Water
Record ID: RO0000872

LUST REG 8:
Region: 8
County: Orange
Regional Board: Santa Ana Region
Facility Status: Remedial action (cleanup) Underway
Case Number: 083001687T
Local Case Num: 90UT263
Case Type: Other ground water affected
Substance: Gasoline
Qty Leaked: 0
Abate Method: Not reported
Cross Street: Not reported
Enf Type: SEL
Funding: Not reported
How Discovered: Tank Closure
How Stopped: New Tank
Leak Cause: Unknown
Leak Source: Tank
Global ID: T0605901273
How Stopped Date: 9/9/9999
Enter Date: Not reported
Date Confirmation of Leak Began: Not reported
Date Preliminary Assessment Began: Not reported
Discover Date: 7/26/1988
Enforcement Date: Not reported
Close Date: Not reported

MOBIL #11-FEE (Continued) **U002096051**

Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	6/15/1994
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	Not reported
GW Qualifies:	=
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.8171175
Longitude:	-118.0279349
MTBE Date:	11/19/2002
Max MTBE GW:	15900
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	RS
Staff Initials:	AR
Lead Agency:	Local Agency
Local Agency:	30000L
Hydr Basin #:	Not reported
Beneficial:	MUN
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

CA FID UST:

Facility ID:	30001092
Regulated By:	UTNKA
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	7148288761
Mail To:	Not reported
Mailing Address:	3225 GALLOWS RD ATTN: EAR
Mailing Address 2:	Not reported
Mailing City,St,Zip:	CYPRESS 90630
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

SWEEPS UST:

Status:	Active
Comp Number:	10124
Number:	9
Board Of Equalization:	44-000400

MOBIL #11-FEE (Continued) **U002096051**

Referral Date:	09-30-92
Action Date:	09-15-92
Created Date:	02-29-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	30-000-010124-000001
Tank Status:	A
Capacity:	10000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	P
Content:	LEADED
Number Of Tanks:	4

Status:	Active
Comp Number:	10124
Number:	9
Board Of Equalization:	44-000400
Referral Date:	09-30-92
Action Date:	09-15-92
Created Date:	02-29-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	30-000-010124-000002
Tank Status:	A
Capacity:	10000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	P
Content:	DIESEL
Number Of Tanks:	Not reported

Status:	Active
Comp Number:	10124
Number:	9
Board Of Equalization:	44-000400
Referral Date:	09-30-92
Action Date:	09-15-92
Created Date:	02-29-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	30-000-010124-000003
Tank Status:	A
Capacity:	10000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

Status:	Active
Comp Number:	10124
Number:	9
Board Of Equalization:	44-000400
Referral Date:	09-30-92
Action Date:	09-15-92
Created Date:	02-29-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	30-000-010124-000004
Tank Status:	A

MOBIL #11-FEE (Continued) **U002096051**

Capacity:	10000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

6
West
1/4-1/2
0.355 mi.
1874 ft.

CHEVRON **HIST CORTESE** **S103891621**
10010 VALLEY VIEW ST **LUST** **N/A**
BUENA PARK, CA 90620

Relative:
Lower

Actual:
45 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	30
Reg By:	LTNKA
Reg Id:	083000893T

LUST:

Region:	STATE
Global Id:	T0605900707
Latitude:	33.816763
Longitude:	-118.027766
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	07/03/1996
Lead Agency:	ORANGE COUNTY LOP
Case Worker:	DB
Local Agency:	ORANGE COUNTY LOP
RB Case Number:	083000893T
LOC Case Number:	88UT103
File Location:	Local Agency
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0605900707
Contact Type:	Local Agency Caseworker
Contact Name:	DENAMARIE BAKER
Organization Name:	ORANGE COUNTY LOP
Address:	1241 E. DYER ROAD, STE. 120
City:	SANTA ANA
Email:	dbaker@ochca.com
Phone Number:	7144336255

Global Id:	T0605900707
Contact Type:	Regional Board Caseworker
Contact Name:	ROSE SCOTT
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	rscott@waterboards.ca.gov
Phone Number:	9513206375

CHEVRON (Continued) **S103891621**

Status History:
Global Id: T0605900707
Status: Open - Case Begin Date
Status Date: 05/20/1988

Global Id: T0605900707
Status: Completed - Case Closed
Status Date: 07/03/1996

Regulatory Activities:
Global Id: T0605900707
Action Type: Other
Date: 01/01/1950
Action: Leak Reported

Global Id: T0605900707
Action Type: Other
Date: 01/01/1950
Action: Leak Discovery

Global Id: T0605900707
Action Type: REMEDIATION
Date: 01/01/1950
Action: Excavation

ORANGE CO. LUST:
Region: ORANGE
Facility Id: 88UT103
Current Status: Certification (Case Closed)
Released Substance: Gasoline-Automotive (motor gasoline and additives), leaded & unleaded
Date Closed: 07/03/1996
Case Type: Other Ground Water
Record ID: RO0001265

LUST REG 8:
Region: 8
County: Orange
Regional Board: Santa Ana Region
Facility Status: Case Closed
Case Number: 083000893T
Local Case Num: 88UT103
Case Type: Other ground water affected
Substance: Gasoline
Qty Leaked: 0
Abate Method: Not reported
Cross Street: Not reported
Enf Type: Not reported
Funding: Not reported
How Discovered: Tank Closure
How Stopped: Close Tank
Leak Cause: Unknown
Leak Source: Unknown
Global ID: T0605900707
How Stopped Date: 9/9/9999

CHEVRON (Continued) **S103891621**

Enter Date:	Not reported
Date Confirmation of Leak Began:	Not reported
Date Preliminary Assessment Began:	Not reported
Discover Date:	5/20/1988
Enforcement Date:	Not reported
Close Date:	7/3/1996
Date Prelim Assessment Workplan Submitted:	Not reported
Date Pollution Characterization Began:	Not reported
Date Remediation Plan Submitted:	Not reported
Date Remedial Action Underway:	Not reported
Date Post Remedial Action Monitoring:	Not reported
Enter Date:	Not reported
GW Qualifies:	Not reported
Soil Qualifies:	Not reported
Operator:	Not reported
Facility Contact:	Not reported
Interim:	Not reported
Oversite Program:	LUST
Latitude:	33.8168455
Longitude:	-118.0280409
MTBE Date:	Not reported
Max MTBE GW:	Not reported
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	Site NOT Tested for MTBE.Includes Unknown and Not Analyzed.
MTBE Class:	*
Staff:	RS
Staff Initials:	AD
Lead Agency:	Local Agency
Local Agency:	30000L
Hydr Basin #:	Not reported
Beneficial:	MUN
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

B7
West
1/4-1/2
0.363 mi.
1917 ft.

CYPRESS EAST DRY CLEANERS **SLIC** **S102417043**
10061 VALLEY VIEW STREET **N/A**
CYPRESS, CA

Site 1 of 2 in cluster B

Relative:
Lower

Actual:
46 ft.

SLIC REG 8:

Type:	Soil and Groundwater
Facility Status:	Closed
Staff:	WDM
Substance:	TCE, PCE
Lead Agency:	Regional Board
Location Code:	CY-3
Thomas Bros Code:	797-E1

B8 **GW CLEANUP-CYPRESS EAST DRY** **SLIC** **S106104768**
West **10061 VALLEY ST** **DRYCLEANERS** **N/A**
1/4-1/2 **CYPRESS, CA 0** **WDS**
0.363 mi.
1917 ft. **Site 2 of 2 in cluster B**

Relative:
Lower

Actual:
46 ft.

SLIC:

Region:	STATE
Facility Status:	**Completed - Case Closed**
Status Date:	09/21/2007
Global Id:	SLT8R0633947
Lead Agency:	SANTA ANA RWQCB (REGION 8)
Lead Agency Case Number:	Not reported
Latitude:	33.831664
Longitude:	-118.027492
Case Type:	Cleanup Program Site
Case Worker:	Not reported
Local Agency:	Not reported
RB Case Number:	SLT8R063
File Location:	Regional Board
Potential Media Affected:	Aquifer used for drinking water supply, Soil
Potential Contaminants of Concern:	Tetrachloroethylene (PCE), Trichloroethylene (TCE)
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

DRYCLEANERS:

EPA Id:	CAL000272517
NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial
Create Date:	06/27/2003
Facility Active:	Yes
Inactive Date:	Not reported
Facility Addr2:	Not reported
Owner Name:	CYPRESS EAST CLEANERS
Owner Address:	10061 VALLEY VIEW ST
Owner Address 2:	Not reported
Owner Telephone:	7148263355
Contact Name:	JUNG J KANG
Contact Address:	10061 VALLEY VIEW ST
Contact Address 2:	Not reported
Contact Telephone:	7148263355

CA WDS:

Facility ID:	Santa Ana River 303422001
Facility Type:	Industrial - Facility that treats and/or disposes of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatever nature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, water pumping.
Facility Status:	Active - Any facility with a continuous or seasonal discharge that is under Waste Discharge Requirements.
NPDES Number:	Not reported
Subregion:	8
Facility Telephone:	Not reported

GW CLEANUP-CYPRESS EAST DRY (Continued) **S106104768**

Facility Contact:	WILLIAM RAGSDALE
Agency Name:	DONAHUE SCHRIBER REALTY GROUP
Agency Address:	4120 E. FLORIDA AVENUE
Agency City,St,Zip:	HEMET 925445079
Agency Contact:	HENRY AVILA
Agency Telephone:	9519278831
Agency Type:	Private
SIC Code:	0
SIC Code 2:	Not reported
Primary Waste Type:	Hazardous/Influent or Solid Wastes that contain toxic, corrosive, ignitable or reactive substances and must be managed according to applicable DOHS standards.
Primary Waste:	CNWTRS
Waste Type2:	Not reported
Waste2:	Contaminated Ground Water
Primary Waste Type:	Hazardous/Influent or Solid Wastes that contain toxic, corrosive, ignitable or reactive substances and must be managed according to applicable DOHS standards.
Secondary Waste:	Not reported
Secondary Waste Type:	Not reported
Design Flow:	0
Baseline Flow:	0
Reclamation:	No reclamation requirements associated with this facility.
POTW:	The facility is not a POTW.
Treat To Water:	Minor Threat to Water Quality. A violation of a regional board order should cause a relatively minor impairment of beneficial uses compared to a major or minor threat. Not: All nurds without a TTWQ will be considered a minor threat to water quality unless coded at a higher Level. A Zero (0) may be used to code those NURDS that are found to represent no threat to water quality.
Complexity:	Category A - Any major NPDES facility, any non-NPDES facility (particularly those with toxic wastes) that would be a major if discharge was made to surface or ground waters, or any Class I disposal site. Includes any small-volume complex facility (particularly those with toxicwastes) with numerous discharge points, leak detection systems or ground water monitoring wells.

C9 **CYPRESS CAR WASH CO** **HIST CORTESE** **S101609523**
WNW **9971 VALLEY VIEW ST** **CA FID UST** **N/A**
1/4-1/2 **CYPRESS, CA 90630** **SWEEPS UST**
0.380 mi.
2006 ft. **Site 1 of 2 in cluster C**

Relative:
Lower

Actual:
43 ft.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	30
Reg By:	LTNKA
Reg Id:	083003228T

Region:	CORTESE
Facility County Code:	30
Reg By:	LTNKA
Reg Id:	083001145T

CA FID UST:

Facility ID:	30017419
Regulated By:	UTNKA

CYPRESS CAR WASH CO (Continued) **S101609523**

Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 7145271705
Mail To: Not reported
Mailing Address: 9971 VALLEY VIEW ST
Mailing Address 2: Not reported
Mailing City,St,Zip: CYPRESS 90630
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

SWEEPS UST:
Status: Active
Comp Number: 2040
Number: 9
Board Of Equalization: 44-015885
Referral Date: 09-30-92
Action Date: 09-15-92
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 30-000-002040-000001
Tank Status: A
Capacity: 6000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: 3

Status: Active
Comp Number: 2040
Number: 9
Board Of Equalization: 44-015885
Referral Date: 09-30-92
Action Date: 09-15-92
Created Date: 02-29-88
Owner Tank Id: Not reported
SWRCB Tank Id: 30-000-002040-000002
Tank Status: A
Capacity: 10000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 2040
Number: 9
Board Of Equalization: 44-015885
Referral Date: 09-30-92
Action Date: 09-15-92

CYPRESS CAR WASH CO (Continued) **S101609523**

Created Date:	02-29-88
Owner Tank Id:	Not reported
SWRCB Tank Id:	30-000-002040-000003
Tank Status:	A
Capacity:	8000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	P
Content:	REG UNLEADED
Number Of Tanks:	Not reported

C10 **CYPRESS CAR WASH** **LUST U001564536**
WNW **9971 VALLEY VIEW ST** **HIST UST N/A**
1/4-1/2 **CYPRESS, CA 90630**
0.380 mi.
2006 ft. **Site 2 of 2 in cluster C**

Relative:
Lower

Actual:
43 ft.

LUST:

Region:	STATE
Global Id:	T0605902188
Latitude:	33.8174505
Longitude:	-118.0285249
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	11/18/2005
Lead Agency:	ORANGE COUNTY LOP
Case Worker:	TE
Local Agency:	ORANGE COUNTY LOP
RB Case Number:	083003228T
LOC Case Number:	98UT049
File Location:	Local Agency Warehouse
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0605902188
Contact Type:	Local Agency Caseworker
Contact Name:	TAMARA ESCOBEDO
Organization Name:	ORANGE COUNTY LOP
Address:	1241 EAST DYER ROAD SUITE 120
City:	SANTA ANA
Email:	tescobedo@ochca.com
Phone Number:	7144336251

Global Id:	T0605902188
Contact Type:	Regional Board Caseworker
Contact Name:	VALERIE JAHN-BULL
Organization Name:	SANTA ANA RWQCB (REGION 8)
Address:	3737 MAIN STREET, SUITE 500
City:	RIVERSIDE
Email:	vjahn-bull@waterboards.ca.gov
Phone Number:	9517824903

Status History:

Global Id:	T0605902188

CYPRESS CAR WASH (Continued) **U001564536**

Status: Open - Case Begin Date
Status Date: 07/29/1998

Global Id: T0605902188
Status: Open - Site Assessment
Status Date: 05/09/2001

Global Id: T0605902188
Status: Open - Remediation
Status Date: 02/23/2004

Global Id: T0605902188
Status: Completed - Case Closed
Status Date: 11/18/2005

Regulatory Activities:
Global Id: T0605902188
Action Type: Other
Date: 01/01/1950
Action: Leak Reported

Global Id: T0605902188
Action Type: ENFORCEMENT
Date: 12/17/2002
Action: Staff Letter

Global Id: T0605902188
Action Type: ENFORCEMENT
Date: 08/12/2005
Action: Staff Letter

Global Id: T0605902188
Action Type: Other
Date: 01/01/1950
Action: Leak Discovery

Global Id: T0605902188
Action Type: REMEDIATION
Date: 01/01/1950
Action: Excavation

Global Id: T0605902188
Action Type: ENFORCEMENT
Date: 11/18/2005
Action: Closure/No Further Action Letter

Global Id: T0605902188
Action Type: ENFORCEMENT
Date: 12/23/2004
Action: Staff Letter

Global Id: T0605902188
Action Type: ENFORCEMENT
Date: 06/30/2005
Action: Staff Letter

Global Id: T0605902188

CYPRESS CAR WASH (Continued) **U001564536**

Action Type: ENFORCEMENT
Date: 10/02/2003
Action: Staff Letter

Global Id: T0605902188
Action Type: ENFORCEMENT
Date: 01/09/2004
Action: Staff Letter

ORANGE CO. LUST:
Region: ORANGE
Facility Id: 98UT049
Current Status: Certification (Case Closed)
Released Substance: Gasoline-Automotive (motor gasoline and additives), leaded & unleaded
Date Closed: 11/18/2005
Case Type: Other Ground Water
Record ID: RO0002267

LUST REG 8:
Region: 8
County: Orange
Regional Board: Santa Ana Region
Facility Status: Remediation Plan
Case Number: 083003228T
Local Case Num: 98UT049
Case Type: Other ground water affected
Substance: Gasoline
Qty Leaked: 0
Abate Method: Not reported
Cross Street: Not reported
Enf Type: SEL
Funding: Not reported
How Discovered: Tank Closure
How Stopped: New Tank
Leak Cause: Unknown
Leak Source: D
Global ID: T0605902188
How Stopped Date: 9/9/9999
Enter Date: Not reported
Date Confirmation of Leak Began: Not reported
Date Preliminary Assessment Began: Not reported
Discover Date: 7/29/1998
Enforcement Date: Not reported
Close Date: Not reported
Date Prelim Assessment Workplan Submitted: Not reported
Date Pollution Characterization Began: 5/9/2001
Date Remediation Plan Submitted: 2/23/2004
Date Remedial Action Underway: Not reported
Date Post Remedial Action Monitoring: Not reported
Enter Date: Not reported
GW Qualifies: =
Soil Qualifies: Not reported
Operator: Not reported
Facility Contact: Not reported
Interim: Not reported

CYPRESS CAR WASH (Continued) **U001564536**

Oversite Program:	LUST
Latitude:	33.8174505
Longitude:	-118.0285249
MTBE Date:	9/30/2003
Max MTBE GW:	218
MTBE Concentration:	0
Max MTBE Soil:	Not reported
MTBE Fuel:	1
MTBE Tested:	MTBE Detected. Site tested for MTBE & MTBE detected
MTBE Class:	*
Staff:	VJJ
Staff Initials:	AR
Lead Agency:	Local Agency
Local Agency:	30000L
Hydr Basin #:	Not reported
Beneficial:	MUN
Priority:	Not reported
Cleanup Fund Id:	Not reported
Work Suspended:	Not reported

Summary: Not reported

HIST UST:

Region:	STATE
Facility ID:	00000058802
Facility Type:	Gas Station
Other Type:	Not reported
Total Tanks:	0004
Contact Name:	Not reported
Telephone:	7145271705
Owner Name:	JAMES LAM WALDBESER
Owner Address:	9971 VALLEY VIEW
Owner City,St,Zip:	CYPRESS, CA 90630

Tank Num:	001
Container Num:	6000
Year Installed:	Not reported
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Tank Construction:	Not reported
Leak Detection:	Stock Inventor

Tank Num:	002
Container Num:	8000
Year Installed:	Not reported
Tank Capacity:	00008000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Tank Construction:	Not reported
Leak Detection:	Stock Inventor

Tank Num:	003
Container Num:	1000
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	WASTE
Type of Fuel:	Not reported

CYPRESS CAR WASH (Continued) **U001564536**

Tank Construction: Not reported
Leak Detection: None

Tank Num: 004
Container Num: 10000
Year Installed: Not reported
Tank Capacity: 00010000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Tank Construction: Not reported
Leak Detection: Stock Inventor

11
NW
1/4-1/2
0.438 mi.
2315 ft.

CYPRESS HIGH SCHOOL **SCH S103950113**
9801 VALLEY VIEW STREET **ENVIROSTOR N/A**
CYPRESS, CA 90630

Relative:
Lower

Actual:
45 ft.

SCH:

Facility ID: 30820028
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 2
National Priorities List: NO
Cleanup Oversight Agencies: DTSC
Lead Agency: DTSC
Lead Agency Description: * DTSC
Project Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Site Code: 404429
Assembly: 65
Senate: 29
Special Program Status: Not reported
Status: No Further Action
Status Date: 07/12/2004
Restricted Use: NO
Funding: School District
Latitude: 33.82161
Longitude: -118.0310
APN: 244-131-01
Past Use: * EDUCATIONAL SERVICES
Potential COC: DDD, DDE, DDT, Lead
Confirmed COC: NONE SPECIFIED
Potential Description: SOIL
Alias Name: ANAHEIM UNION HSD-CYPRESS HS
Alias Type: Alternate Name
Alias Name: 244-131-01
Alias Type: APN
Alias Name: 404429
Alias Type: Project Code (Site Code)
Alias Name: 30820028
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE

CYPRESS HIGH SCHOOL (Continued) **S103950113**

Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 07/12/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 07/11/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 07/12/2004
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

ENVIROSTOR:
Site Type: School Investigation
Site Type Detailed: School
Acres: 2
NPL: NO
Regulatory Agencies: DTSC
Lead Agency: DTSC
Program Manager: Not reported
Supervisor: Shahir Haddad
Division Branch: Southern California Schools & Brownfields Outreach
Facility ID: 30820028
Site Code: 404429
Assembly: 65
Senate: 29
Special Program: Not reported
Status: No Further Action
Status Date: 07/12/2004
Restricted Use: NO
Site Mgmt. Req.: NONE SPECIFIED
Funding: School District
Latitude: 33.82161
Longitude: -118.0310
APN: 244-131-01
Past Use: * EDUCATIONAL SERVICES
Potential COC: DDD, DDE, DDT, Lead
Confirmed COC: DDD, DDE, DDT, Lead, NONE SPECIFIED
Potential Description: SOIL
Alias Name: ANAHEIM UNION HSD-CYPRESS HS
Alias Type: Alternate Name
Alias Name: 244-131-01

CYPRESS HIGH SCHOOL (Continued) **S103950113**

Alias Type: APN
Alias Name: 404429
Alias Type: Project Code (Site Code)
Alias Name: 30820028
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 07/12/2004
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 07/11/2003
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Cost Recovery Closeout Memo
Completed Date: 07/12/2004
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

12
SSW
1/2-1
0.800 mi.
4222 ft.

VAREC DIV, EMERSON ELECTRIC CO **Orange Co. Industrial Site** **S103622068**
10800 VALLEY VIEW ST **EMI** **N/A**
CYPRESS, CA 90630 **ENVIROSTOR**

Relative:
Lower

Actual:
38 ft.

Orange Co. Industrial Site:
Case ID: 04IC015
Region: ORANGE
Record ID: RO0003315
Current Status: CLOSED, 1/27/2005
Closure Type: Closure certification issued
Released Chemical: OIL AND WATER

EMI:
Year: 1987
County Code: 30
Air Basin: SC
Facility ID: 23960
Air District Name: SC
SIC Code: 3444
Air District Name: SOUTH COAST AQMD
Community Health Air Pollution Info System: Not reported

VAREC DIV, EMERSON ELECTRIC CO (Continued) **S103622068**

Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	5
Reactive Organic Gases Tons/Yr:	4
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1990
County Code:	30
Air Basin:	SC
Facility ID:	23960
Air District Name:	SC
SIC Code:	3599
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

ENVIROSTOR:

Site Type:	Evaluation
Site Type Detailed:	Evaluation
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Referred - Not Assigned
Division Branch:	Cleanup Cypress
Facility ID:	30990005
Site Code:	Not reported
Assembly:	67
Senate:	35
Special Program:	Not reported
Status:	Refer: 1248 Local Agency
Status Date:	09/02/2004
Restricted Use:	NO
Site Mgmt. Req.:	NONE SPECIFIED
Funding:	Not Applicable
Latitude:	0
Longitude:	0
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED, NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	30990005
Alias Type:	Envirostor ID Number

Completed Info:

VAREC DIV, EMERSON ELECTRIC CO (Continued) **S103622068**

Completed Area Name:	Not reported
Completed Sub Area Name:	Not reported
Completed Document Type:	Not reported
Completed Date:	Not reported
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

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13 **TAYCO ENGINEERING INC** **RCRA-LQG** **1000262650**
South **10874 HOPE ST** **FINDS** **CAD982004632**
1/2-1 **CYPRESS, CA** **EMI**
0.866 mi. **ENVIROSTOR**
4575 ft.

Relative:
Lower

Actual:
40 ft.

RCRA-LQG:

Date form received by agency:	08/04/2010
Facility name:	TAYCO ENGINEERING, INC
Facility address:	10874 HOPE STREET CYPRESS, CA 90630
EPA ID:	CAD982004632
Mailing address:	HOPE STREET CYPRESS, CA 90630
Contact:	LANCE LUU
Contact address:	HOPE STREET CYPRESS, CA 90630
Contact country:	Not reported
Contact telephone:	(714) 952-2240
Contact email:	LANCEL@TAYCOENG.COM
EPA Region:	09
Classification:	Large Quantity Generator
Description:	Handler: generates 1,000 kg or more of hazardous waste during any calendar month; or generates more than 1 kg of acutely hazardous waste during any calendar month; or generates more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month; or generates 1 kg or less of acutely hazardous waste during any calendar month, and accumulates more than 1 kg of acutely hazardous waste at any time; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates more than 100 kg of that material at any time

Owner/Operator Summary:

Owner/operator name:	DR. JAY CHUNG
Owner/operator address:	HOPE STREET CYPRESS, CA 90630
Owner/operator country:	Not reported
Owner/operator telephone:	Not reported

TAYCO ENGINEERING INC (Continued) **1000262650**

Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 10/01/2000
Owner/Op end date: Not reported

Owner/operator name: CHARLES TAYLOR
Owner/operator address: 10874 HOPE ST
CYPRESS, CA 90630
Owner/operator country: Not reported
Owner/operator telephone: (714) 952-2240
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: DR. JAY CHUNG
Owner/operator address: Not reported
90630
Owner/operator country: Not reported
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 10/01/2000
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 11/02/1992
Facility name: TAYCO ENGINEERING, INC
Site name: TAYCO ENGINEERING INC
Classification: Small Quantity Generator

Hazardous Waste Summary:
Waste code: D002
Waste name: A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE

TAYCO ENGINEERING INC (Continued) **1000262650**

DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code: D006
Waste name: CADMIUM

Waste code: D007
Waste name: CHROMIUM

Waste code: D008
Waste name: LEAD

Waste code: F006
Waste name: WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.

Violation Status: No violations found

FINDS:

Registry ID: 110002773570

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZARDOUS WASTE BIENNIAL REPORTER

EMI:

Year:	1987
County Code:	30
Air Basin:	SC
Facility ID:	40138
Air District Name:	SC
SIC Code:	3679
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	2
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0

TAYCO ENGINEERING INC (Continued) **1000262650**

Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	1990
County Code:	30
Air Basin:	SC
Facility ID:	40138
Air District Name:	SC
SIC Code:	3825
Air District Name:	SOUTH COAST AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	1
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

ENVIROSTOR:

Site Type:	Tiered Permit
Site Type Detailed:	Tiered Permit
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Not reported
Division Branch:	Cleanup Cypress
Facility ID:	71002954
Site Code:	Not reported
Assembly:	65
Senate:	29
Special Program:	Not reported
Status:	Inactive - Needs Evaluation
Status Date:	Not reported
Restricted Use:	NO
Site Mgmt. Req.:	NONE SPECIFIED
Funding:	Not reported
Latitude:	33.80470
Longitude:	-118.0241
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED, NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CAD982004632
Alias Type:	EPA Identification Number
Alias Name:	110002773570
Alias Type:	EPA (FRS #)
Alias Name:	71002954
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported

TAYCO ENGINEERING INC (Continued) **1000262650**

Completed Document Type:	Phase 1 Non-Submittal
Completed Date:	12/06/2000
Comments:	Not reported
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

Count: 10 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BAKER	U001565432	BONANZA	BEACH & HWY 157	90720	HIST UST
BUENA PARK	S114571265	AMERICAN STORES PROPERTY, INC.	6565		RGA LUST
BUENA PARK	S114594388	CENTRALIA HIGH SCHOOL DISTRICT	6628		RGA LUST
BUENA PARK	S114587694	BUENA PARK SCHOOL DISTRICT	6885		RGA LUST
BUENA PARK	S114587696	BUENA PARK SCHOOL	6885 ORANGETHORPE		RGA LUST
BUENA PARK	S114594256	CENTRAILA HIGH SCHOOL DISTRICT	6628 LA PALMA		RGA LUST
COUNTY	S105022428	GRAHM PROPERTY	POST HEADQUARTERS BLDG 57	90720	HIST CORTESE
LOS ALIMITOS	S112838325	1X LOS ALAMITOS UNIFIED SCHOOL DIS	OAK MIDDLE SCHOOL	90720	HAZNET
STANTON	1003878743	PLYWOOD MFG PLT/DIAMOND LANDS	END OF LAY RD	90680	CERC-NFRAP
STANTON	1003878747	LARZABAL RANCH	T26N R5W SEC 1 & 12	90680	CERC-NFRAP

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 01/21/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 01/09/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 01/09/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/28/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/31/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 151

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/10/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 02/28/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/17/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/17/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 11/21/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 95

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 02/07/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/06/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/06/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/14/2014
Date Data Arrived at EDR: 02/18/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 28

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/18/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/16/2014
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/13/2014
Date Data Arrived at EDR: 02/14/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 10

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 08/27/2013
Date Data Arrived at EDR: 08/27/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 66
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 01/29/2014
Date Data Arrived at EDR: 01/29/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 42
Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 07/29/2013
Date Data Arrived at EDR: 08/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 92

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 07/29/2013
Date Data Arrived at EDR: 07/30/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 129

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/13/2014
Date Data Arrived at EDR: 02/14/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 10

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/06/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Quarterly

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/17/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/24/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/20/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30
Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/18/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 11/25/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 36
Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 11/04/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/04/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 65
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/04/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/06/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 39
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 20
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/04/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 01/17/2014
Date Data Arrived at EDR: 01/21/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/09/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 24

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/03/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 52

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 10/14/2013
Date Data Arrived at EDR: 10/30/2013
Date Made Active in Reports: 12/03/2013
Number of Days to Update: 34

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 18

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/06/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 09/05/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 28

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/05/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/26/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/07/2014
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/28/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/09/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/28/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/09/2014
Date Data Arrived at EDR: 01/10/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/10/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/14/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/01/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/28/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 09/25/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/18/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/19/2013
Date Data Arrived at EDR: 11/21/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 42
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/18/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/30/2013
Date Data Arrived at EDR: 12/31/2013
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 42
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/31/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/16/2013
Number of Days to Update: 35
Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 19

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 41

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/17/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 58

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/07/2014
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: N/A

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 01/02/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/13/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/18/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 01/28/2014
Date Data Arrived at EDR: 01/30/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 12

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/14/2014
Date Data Arrived at EDR: 02/18/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 28

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 12/03/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/13/2014
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/14/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Quarterly

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Annually

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Annually

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/20/2013
Date Data Arrived at EDR: 12/11/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 24

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/22/2014
Date Data Arrived at EDR: 01/23/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 19

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/22/2014
Date Data Arrived at EDR: 01/23/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 20

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa Facility List

Date of Government Version: 12/05/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 24

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing
Cupa facility list.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 20

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 11/26/2013
Number of Days to Update: 56

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 12/05/2013
Date Data Arrived at EDR: 12/05/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 53

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/05/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 01/09/2013
Date Data Arrived at EDR: 01/10/2013
Date Made Active in Reports: 02/25/2013
Number of Days to Update: 46

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 11/04/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/20/2014
Date Data Arrived at EDR: 02/21/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 27

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 02/04/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 28

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 01/27/2014
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 14

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 21

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/25/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 33

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 12/06/2013
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 48
Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/20/2014
Date Data Arrived at EDR: 01/21/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 21
Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/21/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29
Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/30/2013
Date Data Arrived at EDR: 02/21/2013
Date Made Active in Reports: 03/25/2013
Number of Days to Update: 32
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 02/10/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 33
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34
Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/15/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 33
Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/09/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 02/20/2014
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 01/03/2014
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 34

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/25/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 91

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List

CUPA Facility List

Date of Government Version: 12/02/2013
Date Data Arrived at EDR: 12/03/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 30

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing

CUPA Program listing from the Environmental Health Division.

Date of Government Version: 01/09/2014
Date Data Arrived at EDR: 01/10/2014
Date Made Active in Reports: 02/14/2014
Number of Days to Update: 35

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/06/2014
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/04/2013
Number of Days to Update: 27
Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 02/01/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 33
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/13/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 33
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/01/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 34
Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

PLACER COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 12/09/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 28

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/14/2014
Date Data Arrived at EDR: 01/15/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/02/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/14/2014
Date Data Arrived at EDR: 01/15/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 28

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/06/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/06/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/26/2013
Date Data Arrived at EDR: 11/27/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 34

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2013
Date Data Arrived at EDR: 11/19/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 42

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/18/2013
Date Data Arrived at EDR: 12/19/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 20

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/25/2013
Date Made Active in Reports: 02/27/2014
Number of Days to Update: 94

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/13/2014
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 28

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/12/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 03/04/2014
Date Data Arrived at EDR: 03/06/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 14

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/07/2014
Date Data Arrived at EDR: 02/11/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 34

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 23

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 12/03/2013
Date Data Arrived at EDR: 12/04/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 29

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/18/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 21

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/19/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 20

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/02/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 40

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/03/2014
Date Data Arrived at EDR: 01/03/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 39

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/10/2013
Date Data Arrived at EDR: 12/11/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 24

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/27/2014
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 48

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 01/28/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 23

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/18/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/17/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 10/02/2013
Date Data Arrived at EDR: 10/30/2013
Date Made Active in Reports: 11/27/2013
Number of Days to Update: 28

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 03/21/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/26/2013
Date Data Arrived at EDR: 12/18/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 21

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 12/18/2013
Date Data Arrived at EDR: 12/24/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 15

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 02/11/2014
Date Data Arrived at EDR: 02/13/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 32

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 12/06/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/17/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 11/01/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 11/18/2013
Number of Days to Update: 11

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 03/12/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 09/27/2013
Number of Days to Update: 49

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SCHOOL PROPERTY
10051 BERNADETTE AVENUE
BUENA PARK, CA 90620

TARGET PROPERTY COORDINATES

Latitude (North):	33.8161 - 33° 48' 57.96''
Longitude (West):	118.022 - 118° 1' 19.20''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	405413.6
UTM Y (Meters):	3742041.5
Elevation:	51 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	33118-G1 LOS ALAMITOS, CA
Most Recent Revision:	1981

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

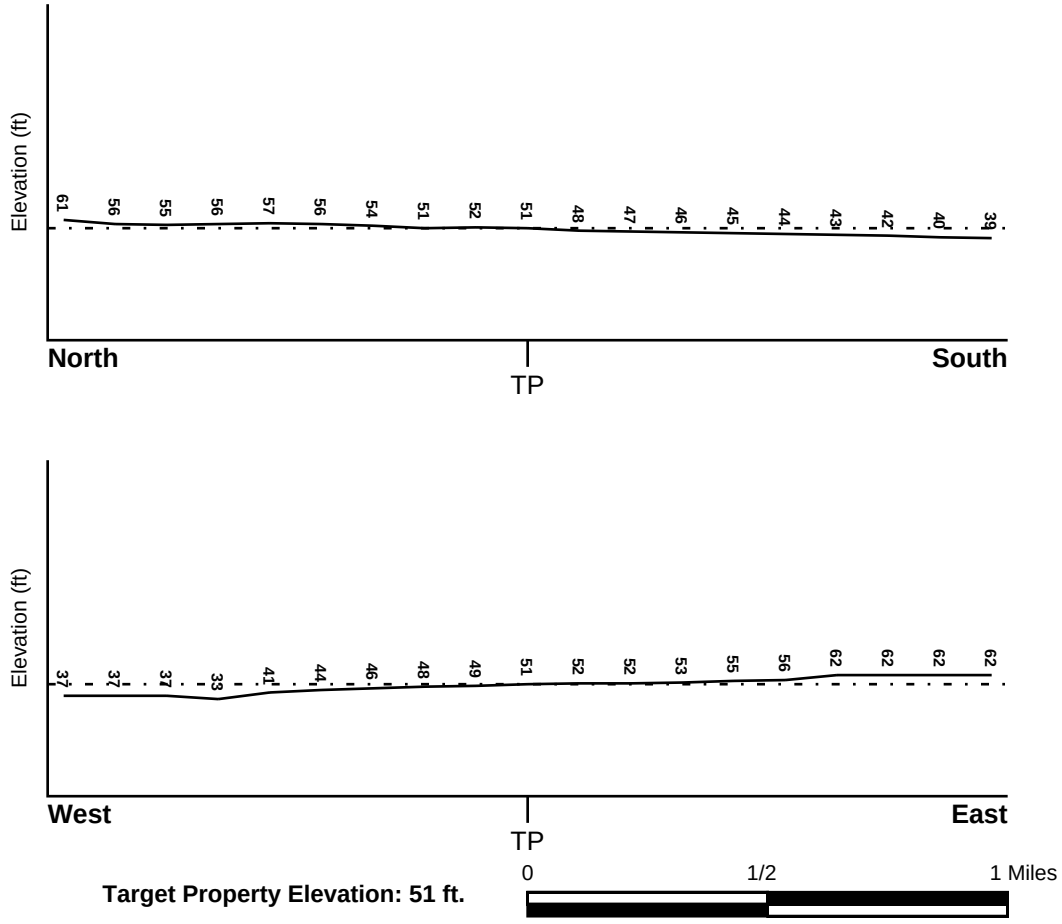
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
ORANGE, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06059C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
LOS ALAMITOS	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
A3	1/4 - 1/2 Mile West	NW
D10	1/2 - 1 Mile SW	SW
E13	1/2 - 1 Mile East	Not Reported
E15	1/2 - 1 Mile East	Not Reported
F16	1/2 - 1 Mile NNW	SW
F17	1/2 - 1 Mile NNW	Not Reported
18	1/2 - 1 Mile East	SW
F19	1/2 - 1 Mile NNW	Not Reported
F20	1/2 - 1 Mile NNW	Not Reported

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
G24	1/2 - 1 Mile West	SSW
26	1/2 - 1 Mile South	S
28	1/2 - 1 Mile SSE	Varies
I33	1/2 - 1 Mile ESE	WNW
I34	1/2 - 1 Mile ESE	WNW
I35	1/2 - 1 Mile ESE	WNW
K38	1/2 - 1 Mile NNW	Not Reported
K40	1/2 - 1 Mile NNW	Flat

For additional site information, refer to Physical Setting Source Map Findings.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

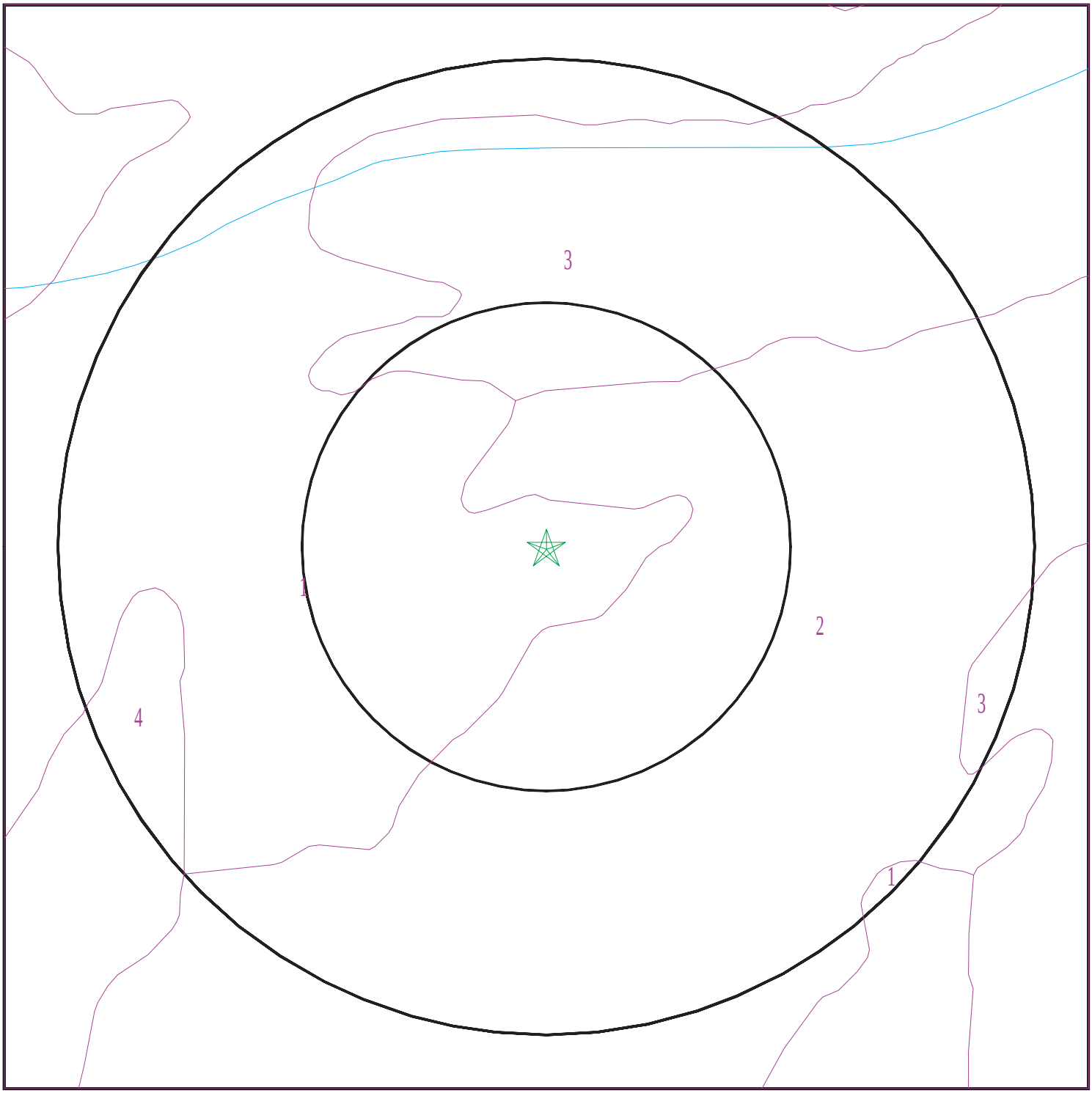
Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3889902.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	School Property	CLIENT:	Black Rock Geosciences
ADDRESS:	10051 Bernadette Avenue Buena Park CA 90620	CONTACT:	Quin Kinnebrew
LAT/LONG:	33.8161 / 118.022	INQUIRY #:	3889902.2s
		DATE:	March 24, 2014 8:49 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: METZ

Soil Surface Texture: loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6
2	16 inches	62 inches	stratified sand to fine sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14 Min: 4	Max: 8.4 Min: 6.6

Soil Map ID: 2

Soil Component Name: SAN EMIGDIO

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 8.4 Min: 7.9
2	7 inches	40 inches	stratified gravelly loamy coarse sand to very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 14	Max: 8.4 Min: 7.9
3	40 inches	44 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
4	44 inches	61 inches	stratified gravelly loamy coarse sand to very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 42 Min: 14	Max: 8.4 Min: 7.9

Soil Map ID: 3

Soil Component Name: METZ

Soil Surface Texture: loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	loamy sand	Not reported	Not reported	Max: 141 Min: 42	Max: 8.4 Min: 6.6
2	16 inches	40 inches	stratified sand to sandy clay loam	Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 6.6
3	40 inches	46 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 8.4 Min: 6.6
4	46 inches	59 inches	stratified sandy clay loam	Not reported	Not reported	Max: 14.11 Min: 1	Max: 8.4 Min: 6.6

Soil Map ID: 4

Soil Component Name: SAN EMIGDIO

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	fine sandy loam	Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.9
2	7 inches	61 inches	stratified gravelly loamy coarse sand to very fine sandy loam	Not reported	Not reported	Max: 42 Min: 14	Max: 8.4 Min: 7.9

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
C9	USGS40000138449	1/2 - 1 Mile North
H30	USGS40000138441	1/2 - 1 Mile WNW
J36	USGS40000138432	1/2 - 1 Mile WNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
G25	CA3000825	1/2 - 1 Mile West

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

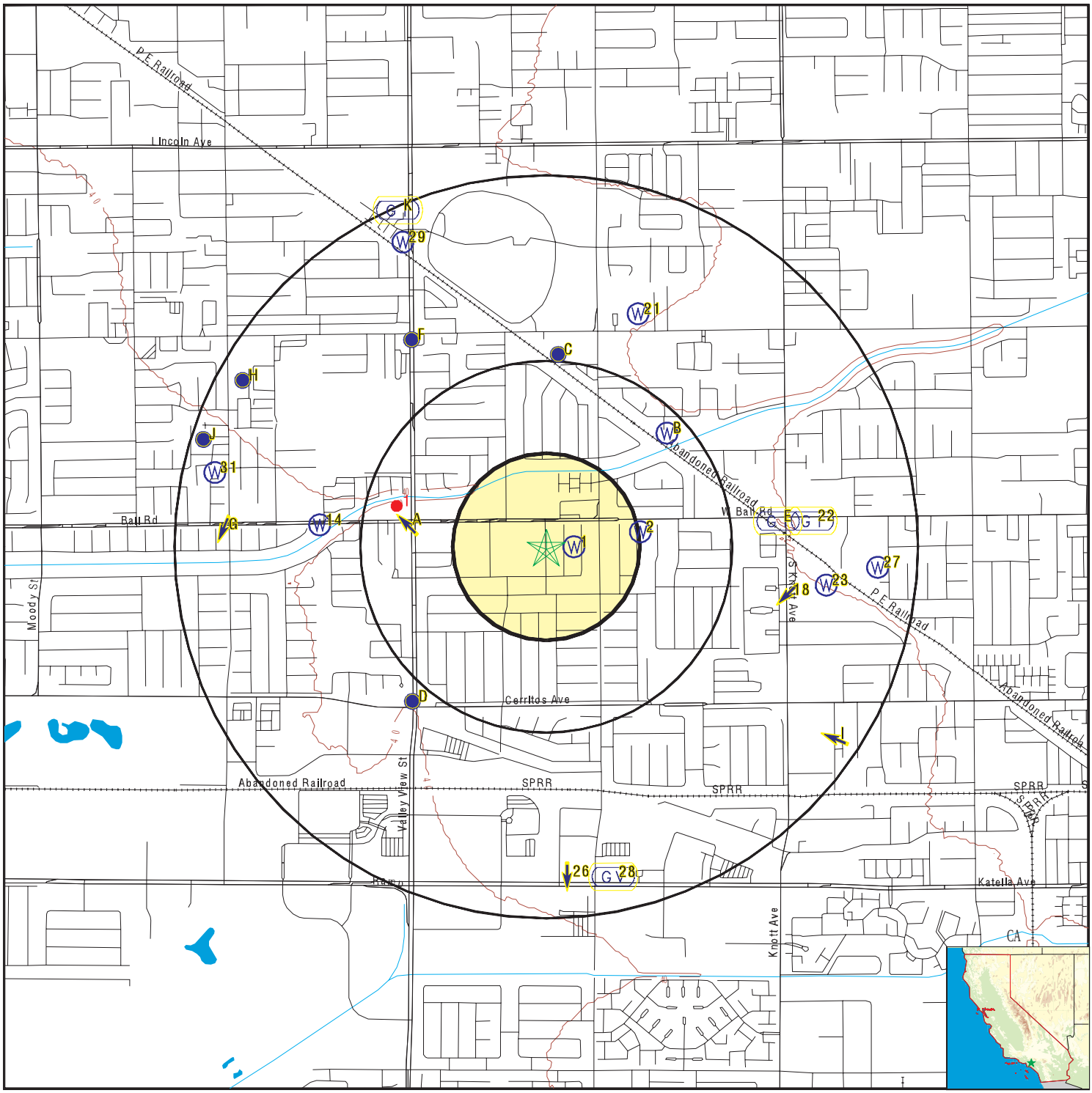
MAP ID	WELL ID	LOCATION FROM TP
1	CADW50000003363	0 - 1/8 Mile East
2	5249	1/4 - 1/2 Mile East
A4	5237	1/4 - 1/2 Mile West
B5	CADW50000003385	1/4 - 1/2 Mile NE
B6	CADW50000003386	1/4 - 1/2 Mile NE
B7	CADW50000003384	1/4 - 1/2 Mile NE
C8	CADW50000003402	1/2 - 1 Mile North
C12	CADW50000003408	1/2 - 1 Mile North
14	5248	1/2 - 1 Mile West
21	CADW50000003415	1/2 - 1 Mile NNE
23	CADW50000003355	1/2 - 1 Mile East
27	5251	1/2 - 1 Mile East
29	CADW50000003428	1/2 - 1 Mile NNW
31	CADW50000003374	1/2 - 1 Mile WNW
H32	5238	1/2 - 1 Mile WNW
H37	CADW50000003394	1/2 - 1 Mile WNW
J39	CADW50000003383	1/2 - 1 Mile WNW

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	CAOG9A000018232	1/4 - 1/2 Mile WNW

PHYSICAL SETTING SOURCE MAP - 3889902.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	School Property	CLIENT:	Black Rock Geosciences
ADDRESS:	10051 Bernadette Avenue Buena Park CA 90620	CONTACT:	Quin Kinnebrew
		INQUIRY #:	3889902.2s
LAT/LONG:	33.8161 / 118.022	DATE:	March 24, 2014 8:49 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **East** **0 - 1/8 Mile** **Higher**	**CA WELLS**	**CADW50000003363**

Latitude :	33.8161		
Longitude :	118.0207		
Site code:	338161N1180207W001	Casgem sta:	04S11W22C001S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003363

---

2 **East** **1/4 - 1/2 Mile** **Higher**	**CA WELLS**	**5249**

Water System Information:

Prime Station Code:	04S/11W-22C01 S	User ID:	TEE
FRDS Number:	3010003010	County:	Orange
District Number:	08	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	334900.0 1180100.0	Precision:	Undefined
Source Name:	LARWIN WELL 02		
System Number:	3010003		
System Name:	City of Buena Park		
Organization That Operates System:			
	6650 BEACH BLVD BUENA PARK, CA 90620		
Pop Served:	72550	Connections:	18211
Area Served:	BUENA PARK		

A3 **West** **1/4 - 1/2 Mile** **Lower**	Site ID:	083001687T	**AQUIFLOW**	**54966**
	Groundwater Flow:	NW		
	Shallow Water Depth:	Not Reported		
	Deep Water Depth:	Not Reported		
	Average Water Depth:	10.76		
	Date:	01/29/1999		

A4 **West** **1/4 - 1/2 Mile** **Lower**	**CA WELLS**	**5237**

Water System Information:

Prime Station Code:	04S/11W-16H02 S	User ID:	TEE
FRDS Number:	3010022013	County:	Orange
District Number:	08	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	334901.0 1180141.3	Precision:	100 Feet (one Second)
Source Name:	VALLEY VIEW		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

System Number: 3010022
System Name: Southern Calif WC - West Orange
Organization That Operates System:
1920 W. CORPORATE WAY
ANAHEIM, CA 92801
Pop Served: 84737 Connections: 25347
Area Served: LOS ALAMITOS

Sample Collected:	24-JAN-11	Findings:	230. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	24-JAN-11	Findings:	70. MG/L
Chemical:	CALCIUM		
Sample Collected:	24-JAN-11	Findings:	14. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	24-JAN-11	Findings:	370. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	08-MAR-11	Findings:	585. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	08-MAR-11	Findings:	7.8
Chemical:	PH, LABORATORY		
Sample Collected:	08-MAR-11	Findings:	180. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	08-MAR-11	Findings:	180. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	08-MAR-11	Findings:	215. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	08-MAR-11	Findings:	64.1 MG/L
Chemical:	CALCIUM		
Sample Collected:	08-MAR-11	Findings:	13.4 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	08-MAR-11	Findings:	38.4 MG/L
Chemical:	SODIUM		
Sample Collected:	08-MAR-11	Findings:	2.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	08-MAR-11	Findings:	30.8 MG/L
Chemical:	CHLORIDE		
Sample Collected:	08-MAR-11	Findings:	0.56 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	08-MAR-11	Findings:	3.4 UG/L
Chemical:	ARSENIC		
Sample Collected:	08-MAR-11	Findings:	3.2 UG/L
Chemical:	VANADIUM		
Sample Collected:	08-MAR-11	Findings:	356. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	08-MAR-11	Findings:	2.4 MG/L
Chemical:	NITRATE (AS NO3)		

Sample Collected:	08-MAR-11	Findings:	550. UG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	26-OCT-11	Findings:	9.11 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	26-OCT-11	Findings:	1.77 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	26-OCT-11	Findings:	8.82 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	26-OCT-11	Findings:	1.04 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	04-JAN-12	Findings:	210. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	04-JAN-12	Findings:	62. MG/L
Chemical:	CALCIUM		
Sample Collected:	04-JAN-12	Findings:	13. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	04-JAN-12	Findings:	350. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	07-FEB-12	Findings:	2.1 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-FEB-12	Findings:	470. UG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	14-JAN-13	Findings:	7.73
Chemical:	PH, LABORATORY		
Sample Collected:	14-JAN-13	Findings:	210. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	14-JAN-13	Findings:	63. MG/L
Chemical:	CALCIUM		
Sample Collected:	14-JAN-13	Findings:	14. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	14-JAN-13	Findings:	360. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	20-MAR-13	Findings:	3.96 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-MAR-13	Findings:	900. UG/L
Chemical:	NITRATE + NITRITE (AS N)		

B5
NE
1/4 - 1/2 Mile
Higher

CA WELLS **CADW50000003385**

Latitude :	33.820536		
Longitude :	118.01635		
Site code:	338205N1180164W002	Casgem sta:	Not Reported
Local well:	BPM-2/MP15	Casgem s 1:	Observation
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003385

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B6
NE
1/4 - 1/2 Mile
Higher

CA WELLS **CADW50000003386**

Latitude :	33.820536		
Longitude :	118.01635		
Site code:	338205N1180164W003	Casgem sta:	Not Reported
Local well:	BPM-2/MP5	Casgem s 1:	Observation
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003386

B7
NE
1/4 - 1/2 Mile
Higher

CA WELLS **CADW50000003384**

Latitude :	33.820536		
Longitude :	118.01635		
Site code:	338205N1180164W001	Casgem sta:	04S11W15Q002S
Local well:	BPM-2/MP1	Casgem s 1:	Observation
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003384

C8
North
1/2 - 1 Mile
Higher

CA WELLS **CADW50000003402**

Latitude :	33.8234		
Longitude :	118.0215		
Site code:	338234N1180215W001	Casgem sta:	04S11W15L006S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003402

C9
North
1/2 - 1 Mile
Higher

FED USGS **USGS40000138449**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-334924118011101		
Monloc name:	004S011W15L006S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070106	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.8233486
Longitude:	-118.020618	Sourcemap scale:	24000

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	58.00
Vert measure units:	feet	Vertacc measure val:	2.5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 80

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1986-09-02	16.97		1986-05-06	15.81	
1986-02-20	14.30		1985-11-05	17.65	
1985-08-19	16.16		1985-05-07	15.19	
1985-02-14	14.77		1984-11-01	17.68	
1984-08-23	16.88		1984-05-16	15.86	
1984-02-16	14.75		1983-11-01	17.98	
1983-08-17	16.75		1983-05-11	15.02	
1983-02-10	15.85		1982-11-04	18.60	
1982-07-28	20.29		1982-04-29	17.26	
1982-01-29	16.34		1981-11-03	18.75	
1981-07-28	18.30		1981-05-06	17.67	
1981-02-05	16.70		1980-10-28	17.95	
1980-08-26	18.38		1980-06-10	18.57	
1979-05-01	18.30		1979-02-05	18.24	
1978-11-06	20.94		1978-09-25	20.36	
1977-11-02	25.00		1976-05-05	23.80	
1976-01-06	21.30		1975-03-18	20.20	
1974-10-30	22.30		1974-08-29	24.90	
1974-01-23	20.60		1973-10-31	22.30	
1973-09-06	24.60		1973-07-03	23.20	
1973-03-09	21.20		1973-03-01	19.10	
1973-01-04	20.40		1972-10-31	23.00	
1972-09-11	24.30		1972-06-29	25.70	
1972-04-28	23.60		1972-02-28	20.80	
1971-11-01	21.50		1971-07-07	27.00	
1971-06-07	21.00		1971-04-29	20.20	
1971-04-12	21.70		1971-03-02	20.30	
1970-12-09	23.00		1970-10-29	24.80	
1970-10-01	25.30		1970-08-31	27.00	
1970-08-06	22.10		1970-06-29	21.50	
1970-05-29	21.20		1970-04-30	19.80	
1970-03-31	19.20		1970-03-06	18.60	
1970-02-02	18.30		1969-12-30	19.30	
1969-11-02	24.10		1969-10-02	23.00	
1969-08-28	22.80		1969-06-27	21.00	
1969-06-04	20.80		1969-04-28	21.30	
1969-01-03	22.10		1968-12-03	23.70	
1968-11-04	22.90		1968-09-06	26.90	
1968-07-22	26.20		1968-06-18	25.60	
1968-05-08	23.90		1968-04-22	23.50	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

			Database	EDR ID Number
D10 **SW** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083002920T SW 5 8 Not Reported 07/26/1995	**AQUIFLOW**	**68233**
D11 **SW** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083000718T Not Reported Not Reported Not Reported 7.75 08/26/1992	**AQUIFLOW**	**66460**

C12
North
1/2 - 1 Mile
Higher

CA WELLS **CADW50000003408**

Latitude :	33.8241		
Longitude :	118.0222		
Site code:	338241N1180222W001	Casgem sta:	04S11W15L003S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003408

			Database	EDR ID Number
E13 **East** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083002560T Not Reported Not Reported Not Reported 20 09/16/1994	**AQUIFLOW**	**55020**

14
West
1/2 - 1 Mile
Lower

CA WELLS **5248**

Water System Information:

Prime Station Code:	04S/11W-21A01 S	User ID:	TEE
FRDS Number:	3010022016	County:	Orange
District Number:	08	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	334901.1 1180154.7	Precision:	100 Feet (one Second)
Source Name:	BALL ROAD		
System Number:	3010022		
System Name:	Southern Calif WC - West Orange		
Organization That Operates System:			
	1920 W. CORPORATE WAY ANAHEIM, CA 92801		
Pop Served:	84737	Connections:	25347
Area Served:	LOS ALAMITOS		

Sample Collected:	07-FEB-12	Findings:	7.4 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	07-FEB-12	Findings:	1680. UG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	14-JAN-13	Findings:	8.87 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	14-JAN-13	Findings:	1.72 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	14-JAN-13	Findings:	8.9 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	14-JAN-13	Findings:	1.02 PCI/L
Chemical:	URANIUM COUNTING ERROR		
Sample Collected:	14-JAN-13	Findings:	7.77
Chemical:	PH, LABORATORY		
Sample Collected:	14-JAN-13	Findings:	250. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	14-JAN-13	Findings:	74. MG/L
Chemical:	CALCIUM		
Sample Collected:	14-JAN-13	Findings:	16. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	14-JAN-13	Findings:	420. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	20-FEB-13	Findings:	683. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	20-FEB-13	Findings:	7.9
Chemical:	PH, LABORATORY		
Sample Collected:	20-FEB-13	Findings:	184. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	20-FEB-13	Findings:	224. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	20-FEB-13	Findings:	249. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	20-FEB-13	Findings:	73.9 MG/L
Chemical:	CALCIUM		
Sample Collected:	20-FEB-13	Findings:	15.7 MG/L
Chemical:	MAGNESIUM		
Sample Collected:	20-FEB-13	Findings:	37. MG/L
Chemical:	SODIUM		
Sample Collected:	20-FEB-13	Findings:	2.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	20-FEB-13	Findings:	40.5 MG/L
Chemical:	CHLORIDE		
Sample Collected:	20-FEB-13	Findings:	0.48 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		

Sample Collected:	20-FEB-13	Findings:	3.5 UG/L
Chemical:	ARSENIC		
Sample Collected:	20-FEB-13	Findings:	406. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	20-FEB-13	Findings:	6.63 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	20-FEB-13	Findings:	0.2 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	20-FEB-13	Findings:	0.1 MG/L
Chemical:	BROMIDE		
Sample Collected:	20-FEB-13	Findings:	1500. UG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	09-MAR-11	Findings:	7.72 MG/L
Chemical:	NITRATE (AS NO3)		
Sample Collected:	09-MAR-11	Findings:	1750. UG/L
Chemical:	NITRATE + NITRITE (AS N)		
Sample Collected:	04-JAN-12	Findings:	260. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	04-JAN-12	Findings:	80. MG/L
Chemical:	CALCIUM		
Sample Collected:	04-JAN-12	Findings:	16. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	04-JAN-12	Findings:	410. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		

E15
East
1/2 - 1 Mile
Higher

Site ID:	083001517T
Groundwater Flow:	Not Reported
Shallow Water Depth:	14.33
Deep Water Depth:	16.60
Average Water Depth:	Not Reported
Date:	01/13/1995

AQUIFLOW **67238**

F16
NNW
1/2 - 1 Mile
Higher

Site ID:	083001811T
Groundwater Flow:	SW
Shallow Water Depth:	8.5 f
Deep Water Depth:	10 ft
Average Water Depth:	Not Reported
Date:	08/10/1995

AQUIFLOW **51925**

F17
NNW
1/2 - 1 Mile
Higher

Site ID:	083001811T
Groundwater Flow:	Not Reported
Shallow Water Depth:	8.13
Deep Water Depth:	10.89
Average Water Depth:	Not Reported
Date:	10/1995

AQUIFLOW **66538**

18
East
1/2 - 1 Mile
Higher

Site ID:	083003219T
Groundwater Flow:	SW
Shallow Water Depth:	9.30
Deep Water Depth:	9.41
Average Water Depth:	Not Reported
Date:	09/30/1998

AQUIFLOW **65035**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

			Database	EDR ID Number
F19 **NNW** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083002490T Not Reported 9 12 Not Reported 08/24/1998	**AQUIFLOW**	**68293**
F20 **NNW** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083002490T Not Reported 9 12 Not Reported 08/24/1998	**AQUIFLOW**	**68294**

21
NNE
1/2 - 1 Mile
Higher

CA WELLS **CADW50000003415**

Latitude :	33.8252		
Longitude :	118.0177		
Site code:	338252N1180177W001	Casgem sta:	04S11W15G003S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003415

22 **East** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083001183T Not Reported 14.55 16.27 Not Reported 07/1989	**AQUIFLOW**	**50950**

23
East
1/2 - 1 Mile
Higher

CA WELLS **CADW50000003355**

Latitude :	33.8146		
Longitude :	118.0089		
Site code:	338146N1180089W001	Casgem sta:	04S11W23D002S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003355

G24 **West** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083001501T SSW Not Reported Not Reported 8 02/10/1992	**AQUIFLOW**	**38612**

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G25
West
1/2 - 1 Mile
Lower

FRDS PWS **CA3000825**

PWS ID: CA3000825
Date Initiated: Not Reported Date Deactivated: Not Reported
PWS Name: SOUTH MIDWAY CITY MUTUAL WATER CO.
MIDWAY CITY, CA 90630

Addressee / Facility: System Owner/Responsible Party
SOUTH MIDWAY CITY
P O BOX 1
MIDWAY CITY, CA 90630

Facility Latitude: 33 49 00 Facility Longitude: 118 02 11
City Served: Not Reported
Treatment Class: Untreated Population: 224

Violations information not reported.

ENFORCEMENT INFORMATION:

Truedate: 03/31/2009 Pwsid: CA3000825
Pwsname: South Midway City Mutual Water Co.
Retpopsrvd: 717 Pwstypecod: C
Vioid: 0108003 Contaminant: COLIFORM (TCR)
Viol. Type: Monitoring, Repeat Major (TCR)
Complperbe: 4/1/2001 0:00:00
Complperen: 5/31/2001 0:00:00 Enfdate: 7/9/2001 0:00:00
Enf action: State Public Notif Requested
Violmeasur: Not Reported

Truedate: 03/31/2009 Pwsid: CA3000825
Pwsname: South Midway City Mutual Water Co.
Retpopsrvd: 717 Pwstypecod: C
Vioid: 95V0001 Contaminant: LEAD & COPPER RULE
Viol. Type: Initial Tap Sampling for Pb and Cu
Complperbe: 7/1/1993 0:00:00
Complperen: 12/31/2003 0:00:00 Enfdate: 12/31/2003 0:00:00
Enf action: Fed Compliance Achieved
Violmeasur: 0

System Name: SOUTH MIDWAY CITY MUTUAL W
Violation Type: MCL, Monthly (TCR)
Contaminant: COLIFORM (TCR)
Compliance Period: 1999-10-01 - 1999-10-31
Violation ID: 0008002
Enforcement Date: 1999-11-22 Enf. Action: State Compliance Achieved

System Name: South Midway City Mutual Water Co.
Violation Type: Monitoring, Repeat Major (TCR)
Contaminant: COLIFORM (TCR)
Compliance Period: 4/1/2001 0:00:00 - 5/31/2001 0:00:00
Violation ID: 0108003
Enforcement Date: 7/9/2001 0:00:00 Enf. Action: State Compliance Achieved

ENFORCEMENT INFORMATION:

System Name:	South Midway City Mutual Water Co.		
Violation Type:	Monitoring, Repeat Major (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	04/01/01 - 05/31/01		
Violation ID:	0108003		
Enforcement Date:	07/09/01	Enf. Action:	State Compliance Achieved
System Name:	SOUTH MIDWAY CITY MUTUAL W		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	1999-10-01 - 1999-10-31		
Violation ID:	95V0001		
Enforcement Date:	1999-11-22	Enf. Action:	State Compliance Achieved
System Name:	SOUTH MIDWAY CITY MUTUAL WA		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	1993-07-01 - 2015-12-31		
Violation ID:	95V0001		
Enforcement Date:	Not Reported	Enf. Action:	Not Reported
System Name:	SOUTH MIDWAY CITY MUTUAL W		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	1993-07-01 - 2015-12-31		
Violation ID:	95V0001		
Enforcement Date:	Not Reported	Enf. Action:	Not Reported
System Name:	SOUTH MIDWAY CITY MUTUAL WATER CO.		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	1993-07-01 - 2015-12-31		
Violation ID:	95V0001		
Enforcement Date:	Not Reported	Enf. Action:	Not Reported
System Name:	South Midway City Mutual Water Co.		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	07/01/93 - 12/31/03		
Violation ID:	95V0001		
Enforcement Date:	12/31/03	Enf. Action:	Fed Compliance Achieved
System Name:	South Midway City Mutual Water Co.		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	7/1/1993 0:00:00 - 12/31/2003 0:00:00		
Violation ID:	95V0001		
Enforcement Date:	12/31/2003 0:00:00	Enf. Action:	Fed Compliance Achieved
System Name:	SOUTH MIDWAY CITY MUTUAL W		
Violation Type:	CCR Complete Failure to Report		
Contaminant:	7000		
Compliance Period:	1999-10-19 - 2015-12-31		
Violation ID:	99V0001		
Enforcement Date:	Not Reported	Enf. Action:	Not Reported
System Name:	South Midway City Mutual Water Co.		
Violation Type:	CCR Complete Failure to Report		
Contaminant:	7000		
Compliance Period:	10/19/1999 0:00:00 - 12/31/2025 0:00:00		
Violation ID:	99V0001		
Enforcement Date:	No Enf Action as of	Enf. Action:	10/17/2006 0:00:00

ENFORCEMENT INFORMATION:

System Name:	SOUTH MIDWAY CITY MUTUAL WA		
Violation Type:	CCR Complete Failure to Report		
Contaminant:	7000		
Compliance Period:	1999-10-19 - 2015-12-31		
Violation ID:	99V0001		
Enforcement Date:	Not Reported	Enf. Action:	Not Reported
System Name:	SOUTH MIDWAY CITY MUTUAL WATER CO.		
Violation Type:	CCR Complete Failure to Report		
Contaminant:	7000		
Compliance Period:	1999-10-19 - 2015-12-31		
Violation ID:	99V0001		
Enforcement Date:	Not Reported	Enf. Action:	Not Reported
System Name:	South Midway City Mutual Water Co.		
Violation Type:	CCR Complete Failure to Report		
Contaminant:	7000		
Compliance Period:	10/19/1999 0:00:00 - 12/31/2025 0:00:00		
Violation ID:	99V0001		
Enforcement Date:	4/12/2007 0:00:00	Enf. Action:	Not Reported

CONTACT INFORMATION:

Name:	South Midway City Mutual Water Co.	Population:	717
Contact:	Sharon Harboldt	Phone:	Not Reported
Address:	10101 Slater Ave Suite 138		
Address 2:	Fountain Valley CA, 92 71496		

26
South
1/2 - 1 Mile
Lower

Site ID:	083001446T
Groundwater Flow:	S
Shallow Water Depth:	7
Deep Water Depth:	7.5
Average Water Depth:	Not Reported
Date:	08/27/1990

AQUIFLOW **54899**

27
East
1/2 - 1 Mile
Higher

CA WELLS **5251**

Water System Information:

Prime Station Code:	04S/11W-23D02 S	User ID:	TEE
FRDS Number:	3000816001	County:	Orange
District Number:	08	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Destroyed
Source Lat/Long:	334855.0 1180020.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 01 - DESTROYED		
System Number:	3000816		
System Name:	HANSEN SCHOOL-SAVANNAH SCHOOL DISTRICT		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database | EDR ID Number

28
SSE
1/2 - 1 Mile
Lower

AQUIFLOW **50958**

Site ID:	083001539T
Groundwater Flow:	Varies
Shallow Water Depth:	35.76
Deep Water Depth:	36.95
Average Water Depth:	Not Reported
Date:	07/1991

29
NNW
1/2 - 1 Mile
Higher

CA WELLS **CADW50000003428**

Latitude :	33.828		
Longitude :	118.0287		
Site code:	338280N1180287W001	Casgem sta:	04S11W16H003S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003428

H30
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000138441**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-334921118020601		
Monloc name:	004S011W16K006S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070106	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.8225154
Longitude:	-118.0358963	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	39.00
Vert measure units:	feet	Vertacc measure val:	3
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19200101	Welldepth:	150
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 9

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1984-02-16					

Note: The measurement was discontinued.

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel
1983-11-01	29.62	
1983-08-17	35.61	
Note: The site had been pumped recently.		
1983-05-11	23.73	
1982-11-08	31.13	
1982-07-28	32.46	
Note: The site had been pumped recently.		
1982-04-28	27.70	
Note: The site had been pumped recently.		
1982-01-20	25.48	
1983-02-10	25.11	

31
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADW50000003374**

Latitude :	33.819		
Longitude :	118.0375		
Site code:	338190N1180375W001	Casgem sta:	04S11W16P002S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003374

H32
WNW
1/2 - 1 Mile
Lower

CA WELLS **5238**

Water System Information:

Prime Station Code:	04S/11W-16K06 S	User ID:	TEE
FRDS Number:	3000575001	County:	Orange
District Number:	08	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Destroyed
Source Lat/Long:	334922.0 1180206.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 01 - DESTROYED		
System Number:	3000575		
System Name:	BOTT TRACT MWC		
Organization That Operates System:	Not Reported		
Pop Served:	Unknown, Small System	Connections:	Unknown, Small System
Area Served:	Not Reported		

I33
ESE
1/2 - 1 Mile
Higher

AQUIFLOW **37857**

Site ID:	083002794T
Groundwater Flow:	WNW
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	8
Date:	11/1990

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

			Database	EDR ID Number
I34 **ESE** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083002794T WNW Not Reported Not Reported 8 11/1990	**AQUIFLOW**	**37858**
I35 **ESE** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	083002794T WNW Not Reported Not Reported 8 11/1990	**AQUIFLOW**	**37856**

J36
WNW
1/2 - 1 Mile
Lower

FED USGS **USGS40000138432**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-334913118021201		
Monloc name:	004S011W16P001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070106	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.8202933
Longitude:	-118.037563	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	37.00
Vert measure units:	feet	Vertacc measure val:	3
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	California Coastal Basin aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19480101	Welldepth:	84
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 19

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1986-09-02	7.44		1986-05-06	6.01	
1986-02-20	4.20		1985-11-06	7.22	
1985-08-19	7.02		1985-05-07	7.82	
1985-02-14	4.55				
1984-11-01	7.93				
Note: The site had been pumped recently.					
1984-08-23	7.45		1984-05-16	6.92	

Ground-water levels, continued.

Date	Feet below Surface	Feet to Sealevel	Date	Feet below Surface	Feet to Sealevel
1984-02-16	4.85		1983-11-01	6.64	
1983-08-17	7.44				
Note: The site had been pumped recently.					
1983-05-11	4.48		1983-02-10	5.21	
1982-11-08	7.93		1982-07-28	8.94	
1982-04-28	6.60		1982-01-21	6.44	

H37
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADW50000003394**

Latitude :	33.8225		
Longitude :	118.0368		
Site code:	338225N1180368W001	Casgem sta:	04S11W16K006S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003394

K38
NNW
1/2 - 1 Mile
Higher

AQUIFLOW **64507**

Site ID:	083002145T
Groundwater Flow:	Not Reported
Shallow Water Depth:	7.58
Deep Water Depth:	7.85
Average Water Depth:	Not Reported
Date:	07/30/1996

J39
WNW
1/2 - 1 Mile
Lower

CA WELLS **CADW50000003383**

Latitude :	33.8203		
Longitude :	118.0385		
Site code:	338203N1180385W001	Casgem sta:	04S11W16P001S
Local well:	Not Reported	Casgem s 1:	Unknown
County id:	30		
Basin cd:	8-1	Basin desc:	Coastal Plain Of Orange County
Org unit n:	Southern Region Office	Site id:	CADW50000003383

K40
NNW
1/2 - 1 Mile
Higher

AQUIFLOW **38673**

Site ID:	083002069T
Groundwater Flow:	Flat
Shallow Water Depth:	12
Deep Water Depth:	15
Average Water Depth:	Not Reported
Date:	07/1992

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1
WNW **OIL_GAS** **CAOG9A000018232**
1/4 - 1/2 Mile

Districtnu:	1	Apinumber:	05901033
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	I
Operatorna:	Charles T. B. Jones		
Countyname:	Orange	Fieldname:	Any Field
Areaname:	Any Area		
Section:	16		
Township:	04S	Range:	11W
Basemeridi:	SB	Elevation:	Not Reported
Locationde:	Not Reported		
Glat:	33.817693		
Glong:	-118.029		
Gissourcec:	hud		
Comments:	Not Reported		
Leasename:	Not Reported	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-DEC-99
Welldeptha:	Not Reported	Redrillfoo:	Not Reported
Abandonedd:	/ /	Completion:	/ /
Gissymbol:	AOG	Site id:	CAOG9A000018232

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
90620	20	0

Federal EPA Radon Zone for ORANGE County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 90620

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.400 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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Preliminary
Priority Project
Water Quality Management Plan
(WQMP)

For:

Lyon Homes Buena Park

TENTATIVE TRACT 17827
SOUTH SIDE OF BALL ROAD
BETWEEN BRENDA AVE & BERNADETTE AVE
CITY OF BUENA PARK

Prepared for:
William Lyon Homes
4695 MacArthur Court, 8th Floor
Newport Beach, CA 92660
949-833-3600

Prepared by:
Charles Hartman & Associates
27127 Calle Arroyo, Suite 1904
San Juan Capistrano, CA 92675
949-661-6695

Chuck Hartman, PE C26243

Prepared: December 15, 2014
Revised: March 3, 2015

OWNER'S CERTIFICATION
WATER QUALITY MANAGEMENT PLAN

This Water Quality Management Plan (WQMP) has been prepared for William Lyon Homes by Charles Hartman & Associates. The WQMP is intended to comply with the requirements of the City of Buena Park, Tentative Map 17827, requiring the preparation of a Water Quality Management Plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region Stormwater Runoff Management Program. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Project Owner's Certification			
Planning Application No. (If applicable)	TBD	Grading Permit No.	TBD
Tract/Parcel Map and Lot(s) No.	TTM 17827 LOTS 1-67	Building Permit No.	TBD
Address of Project Site and APN (If no address, specify Tract/Parcel Map and Lot Numbers)			134-301-24

Owner:			
Title			
Company	William Lyon Homes		
Address	4695 MacArthur Court, 8th Floor, Newport Beach , CA 92660		
Email			
Telephone #	949-833-3600		
I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Owner Signature		Date	

Preparer (Engineer): Chuck Hartman, PE			
Title	Owner	PE Registration #	C29243
Company	Charles Hartman & Associates		
Address	27127 Calle Arroyo, Suite 1904, San Juan Capistrano, CA 92675		
Email	chuck@chaengineering.com		
Telephone #	949-661-6695		
I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.			
Preparer Signature		Date	
Place Stamp Here			

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Section III Site Assessment……7
Section IV Best Management Practices (BMPs)……...14
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Section VI Location Map, Plot Plan & BMP Details……45
Section VII Education Materials Included……46

Appendices

Appendix A……Educational Materials

Appendix B…… Hydrology Calculations

Appendix C…… Supporting Calculations

Appendix D…… BMP Details

Appendix E…… Hydromodification Requirements

Appendix F…… Pump Specs

Appendix G…… Geotechnical Report

Appendix H…… WQMP Site Plan

Section I Discretionary Permit(s) and Water Quality Conditions

Project Infomation			
Permit/Application No. (If applicable)	TBD	Grading or Building Permit No. (If applicable)	TBD
Address of Project Site (or Tract Map and Lot Number if no address) and APN	APN 134-301-24		
Water Quality Conditions of Approval or Issuance			
Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.)	Pending. To be provided in the Final WQMP.		

Conceptual WQMP	
Was a Conceptual Water Quality Management Plan previously approved for this project?	No, this is to serve as the Conceptual WQMP
Watershed-Based Plan Conditions	
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	NA

Section II Project Description

The proposed Lyon Homes Buena Park project site encompasses approximately 9.0 acres in the City of Buena Park. The total project area per Tentative Tract Map 17827 is 9.81 acres including existing off site streets to centerline. The project site is bounded by Ball Road to the north, Bernadette Ave to the east and existing single family homes to the west and south. A vicinity map is included in Appendix E.

The project site is the former Dickerson School site owned by the Cypress School District. The school facilities will be completely removed prior to beginning construction of the single family project.

Description of Proposed Project				
Development Category (From Model WQMP, Table 7.11-2; or -3):	Category 8: Redevelopment Project All significant redevelopment projects, where significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety. Since the proposed project will create more than 5,000 square feet of impervious surfaces the project meets Priority Project Category No. 8 and is considered a Priority Project in accordance with the 4th term MS4 permit for North Orange County.			
Project Area (ft^2): 392,040 (9.0 ac On Site)	Number of Dwelling Units: 67		SIC Code: NA	
	Pervious		Impervious	
Project Area	Area (acres or sq ft)	Percentage	Area (acres or sq ft)	Percentage
Pre-Project Conditions	4.54 AC Grass School Yard: 197,665 sf	50%	4.46 AC Existing Buildings: 80,446 sf Existing Paving: 113,929 sf	50%

Post-Project Conditions	2.81 AC Single Family Home Landscaping and Park Site: 93,486 sf	24%	6.19 AC Homes: 166,789 sf Garages: 28,805 sf Driveways: 21,440 sf Sidewalks: 19,600 sf Streets: 61,920 sf	76%

Narrative Project Description

The proposed project includes construction of 67 single family homes with associated garages, driveways and landscaping.

New internal street loop, surface parking, open space park facility and utility improvements are also proposed.

On-site landscaping will consist of areas along sidewalks, adjacent to buildings, drive aisles, parking spaces, recreation facility and around the perimeter of the site.

Parking will be located on-site. Each garage has two spaces, each driveway is also two spaces. In addition 65 on street guest spaces are proposed.

The site is not anticipated to have any outdoor trash storage areas, loading docks, outdoor storage areas, community car wash racks, equipment wash areas, or food preparation areas associated with food service establishments. Trash will be managed by each individual homeowner within units/garages

Materials used and stored on site will include those associated with residential land uses, such as normal cleaning supplies, maintenance materials, and typical office supplies. Materials will be stored totally within the buildings. Outdoor areas throughout the site will be used for recreational purposes. All other outdoor areas will be used for walkways, common areas and landscape. Wastes anticipated to be generated include those associated with residential land uses, including trash & debris, and landscape maintenance wastes.

Any waste generated from maintenance activities will be disposed of properly. Wash water and other waste from maintenance activities is not to be discharged or disposed of into the storm drain system. Clippings from landscape maintenance (i.e. pruning's) will be collected and disposed of properly off-site, and will not be washed into the streets, local area drains/conveyances, or catch basin inlets. Pool water will drain to sewer system, and will not discharge to the storm drain system.

A private park site will be located in the central portion of the site. . These amenities will be private and maintained by the POA.

Single Family Residential Building Summary:

Building Type	# of Units	4 Bed Room Units	5 Bed Room Units	Total SF
Plan 1	17	2,377 sf	-	40,409
Plan 2	23	2,425 sf	-	55,775
Plan 3	27	-	2,615 sf	70,605
Total	67	40	27	166,789

Property Ownership/Management:

Facilities will be maintained by the William Lyon Homes (WLH) until responsibility is transferred to the POA. The onsite loop street with associated landscaping, the park site and all drainage improvements will be maintained by (WLH) prior to transfer to the POA.

Potential Storm Water Pollutants

The table below, derived from Table 2.1 of the Countywide Model WQMP Technical Guidance Document (December 2013), summarizes the categories of land use or project features of concern and the general pollutant categories associated with them.

ANTICIPATED & POTENTIAL POLLUTANTS GENERATED BY LAND USE TYPE								
Priority Project Categories and/or Project Features	General Pollutant Categories							
	Suspended Solid/ Sediments	Nutrients	Heavy Metals	Pathogens (Bacteria/ Virus)	Pesticides	Oil & Grease	Toxic Organic Compounds	Trash & Debris
Detached Residential Development	E	E	N	E	E	E	N	E
Attached Residential Development	E	E	N	E	E	E(2)	N	E
Commercial/Industrial Development	E(1)	E(1)	E(5)	E(3)	E(1)	E	E	E
Automotive Repair Shops	N	N	E	N	N	E	E	E
Restaurants	E(1)(2)	E(1)	E(2)	E	E(1)	E	N	E
Hillside Development >5,000 ft²	E	E	N	E	E	E	N	E
Parking Lots	E	E(1)	E	E(4)	E(1)	E	E	E
Streets, Highways, & Freeways	E	E(1)	E	E(4)	E(1)	E	E	E
Retail Gasoline Outlets	N	N	E	N	N	E	E	E

Notes:

E = expected to be of concern N = not expected to be of concern

(1) Expected pollutant if landscaping exists on-site, otherwise not expected.
(2) Expected pollutant if the project includes uncovered parking areas, otherwise not expected.
(3) Expected pollutant if land use involves food or animal waste products, otherwise not expected.
(4) Bacterial indicators are routinely detected in pavement runoff.
(5) Expected if outdoor storage or metal roofs, otherwise not expected.

Source: County of Orange. (2013, December 13). Technical Guidance Document for the Preparation of Conceptual/ Preliminary and/or Project Water Quality Management Plans (WQMPs). Table 2.1.

Section III Site Assessment

Name of Planned Community/Planning Area (if applicable)	NA
Location/Address	Ball Road between Brenda Ave and Bernadette Ave City of Buena Park
General Plan Land Use Designation	Public School
Zoning	Public School
Acreage of Project Site	9.81 Acres Including Off Site Streets to Centerline
Predominant Soil Type	A – Per Orange County Hydrology Manual

Site Characteristics:

Current Drainage Patterns/Connections	Under existing conditions, the entire on site and off site area of 9.81 acres generally sheet flows south and east to the south eastern corner of the site where it surface flows to Bernadette Avenue. Runoff discharges to Orange County Flood Control Channel C02P04 located southerly and westerly of the site. This flood control system ultimately discharges to Anaheim Bay.

Describe Post Development Drainage Characteristics	Under proposed conditions, storm drains will be constructed on-site to convey runoff to a proposed underground detention chamber located within the park site. Flows in excess of the required detention volume will be released via surface flow at the southeast corner of the site using internal pressure. LID treatment will be done by Modular Wetland units located at four locations adjacent to proposed catch basins. Treatment flow will be directed to the Modular Wetland units via a diverter located within each catch basin. The treated LID discharge will then enter the storm drain system. Storm flows in excess of treatment flows will flow directly to the detention chamber via an on-site storm drain system. No storm drains exist in the area of the project. The storm drain system and detention chamber will be pumped dry by a low flow pump which will be activated by a float control switch. As the elevation of the water in the storage chamber rises, the pump will be automatically activated. The pump will remain on during and after a storm event to discharge all stored water. The project site does not receive run-on from off-site areas. Runoff discharges to Orange County Flood Control Channel C02P04 located southerly and westerly of the site. This flood control system ultimately discharges to Anaheim Bay.

Site Characteristics	
Precipitation Zone	0.83 in
Topography	The site is relatively flat and gently sloping to the southeast from elevation 52 to 48.
Drainage Patterns/Connections	No existing storm drains are located adjacent to the site. The site discharge surface flows in a southerly direction via public streets.
Soil Type, Geology, and Infiltration Properties	Soil Type A - Per OC Hydrology Manual. However, Infiltration rates are very low per the Geotechnical Report. The site is underlain by native alluvium and undocumented/uncertified fill. The alluvium in the upper 5-8 feet consist of light brown to brown silty sand and sandy silt with some sand, clayey silt and silty clay., that are moist to saturated, loose/firm to medium dense/still and very fine to fine grained with minor coarse grained material. The entire site is located within a zone mapped as having potential for liquefaction by the State of California. Geotechnical testing indicates that liquefaction may occur during a design earthquake at a depth of approximately 8-10 feet below the surface. Due to the depth this occurs, liquefaction is not anticipated to significantly affect the proposed surface improvements.
Hydrogeologic (Groundwater) Conditions	Ground water was observed approximately 10 feet below the surface.
Geotechnical Conditions (relevant to infiltration)	Infiltration rates are low to very low (0.13 -1.22 in/hr). The area where the infiltration rate is 1.22 in/hr has the potential of utilizing infiltration as a BMP. However, ground water located is within 10 feet of the surface. Any infiltration BMPs would be a minimum of eight feet below ground surface. Therefore, infiltration is not feasible due to very low infiltration rates and high ground water.
Off-Site Drainage	Project does not accept any off site drainage
Utility and Infrastructure Information	No existing storm drains are located adjacent to the site.

Watershed Description:

Receiving Waters	Bolsa Chica Channel, Huntington Harbor and Anaheim Bay
303(d) Listed Impairments	Bolsa Chica Channel: Ammonia, Indicator Bacteria, PH Huntington Harbor: Chlordane, Copper, Lead, Nickel, PCB's, Pathogens, Sediment Toxicity Anaheim Bay: Dieldrin, Nickel, PCB's, Sediment Toxicity
Applicable TMDLs	Bolsa Chica Channel: Scheduled Completion Date – 2021 Huntington Harbor: Scheduled Completion Date – 2019 Anaheim Bay: Scheduled Completion Date – 2019
Pollutants of Concern for the Project	Suspended-Solid/ Sediment, Nutrients, Pathogens (Bacteria/Virus), Pesticides, Oil and Grease, Trash and Debris
Environmentally Sensitive and Special Biological Significant Areas	None

Hydrologic Conditions of Concern:

☐ No – Show map

☒ Yes – Portions of downstream flood control channels are unstable earthen lined and therefore the project is susceptible to hydrologic conditions of concern. Post development runoff for the 2 year storm event exceeds the pre development runoff by more than 5 percent.

Pollutants of Concern:

Pollutants of Concern			
Pollutant	Check One for each: E=Expected to be of concern N=Not Expected to be of concern		Additional Information and Comments
Suspended-Solid/ Sediment	E ☒	N ☐	Suspended Solids & Sediments are soils, or other surficial material, eroded and then transported or deposited by the action of wind, water, ice or gravity. Sediments can increase turbidity, clog fish gills, reduce spawning habitat, lower young aquatic organisms survival rates, smother bottom dwelling organisms and suppress aquatic vegetation growth. Potential sources for this project include landscaped areas.
Nutrients	E ☒	N ☐	Nutrients are inorganic substances such as nitrogen and phosphorus. They commonly exist in the form of mineral salts that are either dissolved or suspended in water. Primary sources of nutrients in urban runoff are fertilizers and eroded soils. Excessive discharge of nutrients to water bodies and streams can cause excessive aquatic algae and plant growth. Such excessive production, referred to as cultural eutrophication, may lead to excessive decay of organic matter in the water body, loss of oxygen in the water, release of toxins in sediment, and the eventual death of aquatic organisms. Landscaping within the project site is a potential source of nutrients.
Heavy Metals	E ☐	N ☒	Metals of concern typically present in urban runoff include cadmium, chromium, copper, lead, mercury and zinc. Sources of these metals primarily include commercially available metals and metal products. Lead and chromium have been used as corrosion inhibitors in primer coatings and cooling tower systems. Metals are also raw material components in non-metal products such as fuels, adhesives,

			paints and other coatings. At low concentrations naturally occurring in soil, metals may not be toxic. However, at higher concentrations certain metals can be toxic to aquatic life.
Pathogens (Bacteria/Virus)	E ☒	N ☐	Bacteria and Viruses are ubiquitous microorganisms that thrive under certain environmental conditions. Their proliferation is typically caused by the transport of animal or human fecal waste from the watershed. Water containing excessive bacteria and viruses can alter the aquatic habitat and create a harmful environment for humans and aquatic life. Also, the decomposition of excess organic waste causes an increased growth of undesirable organisms in the water. Anticipated sources of pathogens within the project include food waste, landscaping, sediment and pet waste.
Pesticides	E ☒	N ☐	Pesticides (including Herbicides) are chemical compounds commonly used to control nuisance growth or prevalence of organisms. Excessive application of a pesticide may result in runoff containing toxic levels of its active component. Landscaped areas within the project site are potential sources of pesticides.
Oil and Grease	E ☒	N ☐	Oil and Grease primary sources are petroleum hydrocarbon products, motor products from leaking vehicles, esters, oils, fats, waxes and high molecular weight fatty acids. Introduction of these pollutants to the water bodies are very possible due to the wide uses and applications of some of these products in municipal, residential, commercial, industrial and construction areas. Elevated oil and grease content can decrease the aesthetic value of the water body, as well as the water quality. Potential sources of oil and grease onsite include automobiles and other motorized equipment.
Toxic Organic Compounds	E ☐	N ☒	Toxic Organic Compounds are carbon based commercially available or naturally occurring organic compounds found in pesticides, solvents and hydrocarbons. Organic compounds can, at certain concentrations, indirectly or directly constitute a hazard to life or health. When rinsing off objects, toxic levels of solvents and cleaning compounds can be discharged to storm drains. Dirt, grease and grime retained in the cleaning fluid or rinse water may also adsorb levels of organic compounds that are harmful or hazardous to aquatic life

Trash and Debris	E ☒	N ☐	Trash & Debris (such as paper, plastic, polystyrene packing foam and aluminum materials) and biodegradable organic matter (such as leaves, grass cuttings and food waste) are general waste products on the landscape. The presence of trash & debris may have a significant impact on the recreation value of a water body and aquatic habitat. Excess organic matter can create a high biochemical oxygen demand in a stream and thereby lower its water quality. Also, in areas where stagnant water exists, the presence of excess organic matter can promote septic conditions resulting in the growth of undesirable organisms and release of odorous and hazardous compounds such as hydrogen sulfide. Potential sources for trash and debris for this project include homeowners, visitors and contractors.

Section IV **Best Management Practices (BMPs)**

(NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?	YES ☐	NO ☒

Project Performance Criteria:

Project Performance Criteria	
If HCOC exists, list applicable hydromodification control performance criteria	▪ Post-development runoff volume for the 2-yr, 24-hr storm exceeds the pre-development runoff volume for the 2-yr, 24-hr storm by more than 5 percent *or* ▪ Time of concentration (Tc) of post-development runoff for the 2-yr, 24-hr storm event exceeds the time of concentration of the pre-development condition for the 2-yr, 24-hr storm event by more than 5 percent.
Applicable LID performance criteria	Priority Projects must infiltrate, harvest and use, evapotranspire, or biotreat/biofilter, the 85th percentile, 24 hour storm event. (Design Capture Volume) A Biotreatment system may only be considered if infiltration, harvest and use, and evapotranspiration cannot be feasibly implemented for the full design capture volume. In this case, infiltration, harvest and use and ET practices must be implemented to the greatest extent feasible and Biotreatment may be provided for the remaining design capture volume.

List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)	The Biotreatment system will treat the full design capture volume.
Calculate LID design storm capture volume for Project.	Total at Property Line = 9.00 ac, 76% impervious DCV (simple method) = 19,564 ft^3 *Refer to Section IV for individual Drainage Management Area (DMA) breakdowns. Detailed calculations and are provided in Appendix C.*

Drainage Management Areas (DMAs)

In accordance with the 4th Term MS4 permit and the 2011 Model WQMP, the project site has been divided into Drainage Management Areas (DMAs) to be utilized for defining drainage areas and sizing LID and other treatment control BMPs. DMAs have been delineated based on the proposed site grading patterns, drainage patterns, storm drain and catch basin locations.

The design capture volumes (DCV) and treatment flow rates (Q_{Design}) for each DMA are summarized in the table below. These have been derived utilizing the "Simple Method" in accordance with the TGD Section III.1.1. Actual BMP sizing requirements, including 80 percent capture design volumes, flow rates, depths, and other design details for the specific BMPs proposed are provided below. Locations of DMAs and associated LID and treatment BMPs are identified on the WQMP Exhibit. Additional calculations and TGD Worksheets are provided in Appendix C.

DRAINAGE MANAGEMENT AREA (DMA) SUMMARY										
DMA Name[1]	BMP Type	Tributary Drainage Area (acres)	% imp.	Runoff Coefficient	Design Storm Depth[2] (in)	Tc (min)	Rainfall Intensity[3] (in/hr)	Simple Method DCV[4] (ft^3)	Flow Rate (cfs)	Number of Units
Total Site @ Property Line		9.00	76%	0.722	0.83	10	0.23	19,564.3	1.494	-
MODULAR WETLANDS										
MWS A-1	MWS 4-15 (0.175 cfs)	2.09	76%	0.722	0.83	10	0.23	4,543.2	0.347	2
MWS A-2	MWS 4-21 (0.267 cfs)	2.57	76%	0.722	0.83	10	0.23	5,589.2	0.427	2
MWS A-3	MWS 4-21 (0.267 cfs)	2.83	76%	0.722	0.83	10	0.23	6,171.1	0.471	2
MWS B-1A	MWS 4-15 (0.175 cfs)	0.90	76%	0.722	0.83	10	0.23	1,956.4	0.149	1
MWS B-1B	MWS 4-8 (0.116 cfs)	0.60	76%	0.722	0.83	10	0.23	1,304.3	0.100	1

Notes:
MWS Modular Wetland System cfs cubic feet per second
1. Refer to exhibits in Section VI for locations of each DMA.
2. Per Figure XVI-1 of the Technical Guidance Document, dated December 20, 2013. See also Appendix A.
3. Per Figure III.4 of the Technical Guidance Document, dated December 20, 2013. See also Appendix A.
4. Per Section III.1.1 of the Technical Guidance Document.

Site Design BMPs

The following table shows site design BMPs that are included in this project. A description of each BMP follows:

Site Design BMPs

Technique	Included?		Description of Method
	Yes	No	
Minimize Impervious Area/Maximize Permeability (C-Factor Reduction)	X		Landscaping will be provided throughout the site, adjacent to sidewalks, buildings, and drive aisles to minimize impervious areas. In addition the park will include pervious areas.
Minimize Directly Connected Impervious Areas (DCIAs) (C-Factor Reduction)	X		Landscaping will be provided throughout the site, adjacent to sidewalks, buildings, and drive aisles to disconnect impervious areas.
Create Reduced or "Zero Discharge" Areas (Runoff Volume Reduction)		X	Infiltration is not feasible
Conserve Natural Areas (C-Factor Reduction)		X	The project is a redevelopment of a property that was previously occupied by a school and considered built-out. No natural areas exist.

Minimize Impervious Area

The project will increase impervious surfaces as compared to the existing conditions. However, landscaping will be provided throughout the site within the common areas as well as around the perimeter of the buildings to direct flows from impervious areas into landscaping and biotreatment facilities.

Disconnect Impervious Areas

Landscaping will be provided adjacent to sidewalks and between the proposed buildings. Roof downspouts are disconnected and will drain to landscaping for the buildings. Low-flows and first-flush runoff will drain to landscaped biotreatment features for water quality treatment.

Maximize Natural Infiltration Capacity

Due to the presence of high groundwater and low infiltration rates, infiltration is not proposed on-site.

Low Impact Development BMPs (LID)

Low Impact Development (LID) BMPs are required in addition to site design measures and source controls to reduce pollutants in storm water discharges. LID BMPs are engineered facilities that are designed to retain or biotreat runoff on the project site. In addition, evaluations for infiltration and harvest and use are included as part of the LID hierarchy assessment. The following sections summarize the LID BMPs proposed for the project in accordance with the permit hierarchy and performance criteria.

Low Impact Development (LID) BMPs must be incorporated into design features and source controls to reduce project related storm water pollutants. The incorporation of LID BMPs into project design requires evaluation of LID measures in the following treatment hierarchy: infiltration, evapotranspiration, harvest/reuse and biotreatment.

Hydrologic Source Control BMPs (HSCs)

Hydrologic source controls (HSCs) can be considered to be a hybrid between site design practices and LID BMPs. HSCs are distinguished from site design BMPs in that they do not reduce the tributary area or reduce the imperviousness of a drainage area; rather they reduce the runoff volume that would result from a drainage area with a given imperviousness compared to what would result if HSCs were not used. Limited opportunity is available for reducing runoff volume due to the infeasibility of infiltration.

Name	Included?
Localized on-lot infiltration	☐
Impervious area dispersion (e.g. roof top disconnection)	☒
Street trees (canopy interception)	☒
Residential rain barrels (not actively managed)	☐
Green roofs/Brown roofs	☐
Blue roofs	☐
Impervious area reduction (e.g. permeable pavers, site design)	☐

The project will utilize hydrologic source controls (impervious area dispersion and street trees) within the open space/park area and street parkways within the project site. Within these areas, the sidewalks and associated hardscape areas will drain to adjacent landscaping. However, the full design capture volume is being treated with LID BMPs. Therefore, hydrologic source controls are not included in the calculations.

Infiltration BMPs

Infiltration BMPs are LID BMPs that capture, store and infiltrate storm water runoff. These BMPs are engineered to store a specified volume of water and have no design surface discharge (underdrain or outlet structure) until this volume is exceeded. Examples of infiltration BMPs include infiltration trenches, bioretention without underdrains, drywells, permeable pavement, and underground infiltration galleries.

Infiltration BMPs are not feasible based on low infiltration potential and high groundwater.

Name	Included?
Bioretention without underdrains	☐
Rain gardens	☐
Porous landscaping	☐
Infiltration planters	☐
Retention swales	☐
Infiltration trenches	☐
Infiltration basins	☐
Drywells	☐
Subsurface infiltration galleries	☐
French drains	☐
Permeable asphalt	☐
Permeable concrete	☐
Permeable concrete pavers	☐
Other:	☐
Other:	☐

Evapotranspiration/Rainwater Harvesting BMPs:

Evapotranspiration BMPs are a class of retention BMPs that discharges stored volume predominately to ET, though some infiltration may occur. ET includes both evaporation and transpiration, and ET BMPs may incorporate one or more of these processes. BMPs must be designed to achieve the maximum feasible ET, where required to demonstrate that the maximum amount of water has been retained on-site. Since ET is not the sole process in these BMPs, specific design and sizing criteria have not been developed for ET-based BMPs.

Underground detention is utilized to store the post development volume in excess of the pre development runoff volume. A pump will be utilized to release the post development at a rate equal to or less than the pre development flow. This pump will also empty the underground storage facility during and after a rain event. The pump will be controlled by a float switch which will activate the pump when a specified level is reached within the storage chamber.

Biotreatment BMPs are proposed which utilize evapotranspiration as physical process for runoff volume reduction. Biotreatment BMPs are described further below.

Harvest and use (aka. Rainwater Harvesting) BMPs are LID BMPs that capture and store storm water runoff for later use. These BMPs are engineered to store a specified volume of water and have no design surface discharge until this volume is exceeded. Harvest and use BMPs include both above-ground and below-ground cisterns. Examples of uses for harvested water include irrigation, toilet and urinal flushing, vehicle washing, evaporative cooling, industrial processes and other non-potable uses.

Name	Included?
All HSCs; see HSC section	☐
Surface-based infiltration BMPs	☐
Biotreatment BMPs	☒
Above-ground cisterns and basins	☐
Underground detention	☒
Other:	☐
Other:	☐

Harvest and reuse scenarios were analyzed to determine the ability to hold the design capture volume and reuse on site based on the irrigation demands for the proposed project. In order to quantify harvested water demand for the common areas of the project, the Modified Estimated Applied Water Use (EAWU) method was used, consistent with Appendix X of the Model WQMP's Technical Guidance Document (TGD). Work sheet has been provided in Appendix C.

The results found that based on the amount of common area irrigated landscaping throughout the project, the Design Capture Volume would not be drawn down within 30 days, as required to meet "minimum partial capture" per the Model WQMP. In addition, the Modified EAWU for the project in gallons per day per acre is less than the minimum threshold in Table X.6. Based on the lack of significant irrigation demand and the greater amount of storm events that would bypass the system and not be treated, the harvest and reuse option is considered not feasible for water quality treatment. Biotreatment LID BMPs will be utilized on-site.

Biotreatment BMPs

Biotreatment BMPs are a broad class of LID BMPs that reduce storm water volume to the maximum extent practicable, treat storm water using a suite of treatment mechanisms characteristic of biologically active systems, and discharge water to the downstream storm drain system or directly to receiving waters. Treatment mechanisms include soil-media filtration (though biologically-active media), vegetative filtration (straining, sedimentation, interception, and stabilization of particles resulting from shallow flow through vegetation), general sorption processes (i.e., absorption, adsorption, ion-exchange, precipitation, surface complexation), biologically-mediated transformations, and other processes to address both suspended and dissolved constituents. Examples of biotreatment BMPs include bioretention with underdrains, vegetated swales, constructed wetlands, and proprietary biotreatment systems.

As indicated in the previous sections, infiltration is not considered feasible based on existing high groundwater, and there is insufficient demand for use of harvest and reuse BMPs. Reclaimed water for irrigation is not available for this project. Therefore, bio-treatment BMPs shall be incorporated into the project for water quality treatment.

The primary BMPs proposed for the project include Proprietary Bioretention Units (Modular Wetlands or equivalent). These systems were selected based on their ability to treat the project's pollutants of concerns to a medium or high effectiveness, in accordance with the Model WQMP and TGD requirements. The table below summarizes the overall treatment effectiveness for these systems, derived from Table 4.2 of the Technical Guidance Document and testing data provided by the manufacturer. Additional details for the Modular Wetland units included in Appendix D.

Name	Included?
Bioretention with underdrains	☐
Stormwater planter boxes with underdrains	☐
Rain gardens with underdrains	☐
Constructed wetlands	☐
Vegetated swales	☐
Vegetated filter strips	☐
Proprietary vegetated biotreatment systems	☒
Wet extended detention basin	☐
Dry extended detention basins	☐

The use of LID features include biotreatment techniques that mimic natural filtration processes using soil and plant based profiles to treat water and discharge it slowly into drains that ultimately drain off-site. The use of biotreatment features will be utilized on the site to provide treatment of runoff from the hardscape areas of the site.

POLLUTANTS OF CONCERN AND PERFORMANCE RATINGS		
Pollutant of Concern (1)	Treatment Effectiveness	
	Bioretention Systems (2)	Modular Wetlands Proprietary Bioretention Units (3)
Oil & Grease	High	High
Trash & Debris	High	High
Oxygen Demanding Substances	N/A	N/A
Toxic Organic Compounds	Medium	N/A
Primary Pollutant of Concern (303d listed impairments & TMDLs)		
Suspended Solids/Sediments	High	High
Nutrients	Low	Medium-High
Metals	High	High
Pathogens/Bacteria	Medium	Medium-High
Pesticides	N/A	N/A

Notes:

1 See Section II.2 for pollutants of concern.
2 Per Table 4.2 of the Technical Guidance Document
3 Per third-party independent field tests for a high-flow biotreatment system with raised under drain. Refer to Appendix D for details.

Proprietary Biotreatment (BIO-7) – Modular Wetlands

Modular Wetlands units by Modular Wetlands Systems, Inc. are proprietary biotreatment systems that utilize multi-stage treatment processes including screening media filtration, settling, and biofiltration. The pre-treatment chamber contains the first three stages of treatment, and includes a catch basin inlet filter to capture trash, debris, gross solids and sediments, a settling chamber for separating out larger solids, and a media filter cartridge for capturing fine TSS, metals, nutrients, and bacteria. Runoff then flows through the wetland chamber where treatment is achieved through a variety of physical, chemical, and biological processes. As storm water passes down through the planting soil, pollutants are filtered, adsorbed, biodegrated and sequestered by the soil and plants, functioning similar to bioretention systems. The discharge chamber at the end of the unit collects treated flows and discharges back into the storm drain system. Details are included in Appendix D.

- **Loop Road and Impervious Areas** – The primary loop road and driveways will be treated by proprietary biotreatment units (e.g., Modular Wetlands) located at each of the proposed catch basins. Each is sized based on the upstream tributary area which will primarily include loop road, street associated parking and sidewalk runoff.

Biotreatment BMP Sizing & Design

In accordance with the Model WQMP and TGD, the bioretention/biotreatment BMPs will be sized to treat runoff from the Design Capture Storm (85th percentile, 24-hour). Locations and tributary drainage areas (DMAs) are shown on the exhibits included in Appendix H. BMP details and typical cross sections are included in Appendix D. Detailed calculations and associated TGD Worksheets are included in Appendix C. Operation and maintenance details are included in Section V.

MODULAR WETLAND DESIGN SUMMARY								
DMA Name[1]	Tributary Drainage Area (acres)	% imp.	Tc (min)	Rainfall Intensity[2] (in/hr)	Q_{Design}[3] (cfs)	MWS Model/ Size[4]	MWS Treatment Capacity[5] Each Unit (cfs)	Number of Units
MWS A-1	2.09	76%	10	0.23	0.347	MWS 4-15	0.175	2
MWS A-2	2.57	76%	10	0.23	0.427	MWS 4-21	0.267	2
MWS A-3	2.84	76%	10	0.23	0.471	MWS 4-21	0.267	2
MWS B-1A	0.90	76%	10	0.23	0.149	MWS 4-15	0.175	1
MWS B-1B	0.60	76%	10	0.23	0.100	MWS 4-8	0.116	1

Notes:
MWS Modular Wetland System cfs cubic feet per second

1. Refer to exhibits in Section VI for locations of each DMA and BMP. See also Section IV.2.2.
2. Per Figure III.4 of the Technical Guidance Document (TGD). See also Appendix A.
3. Per Section III.3.3 and Worksheet D of the TGD. Detailed calculations/worksheets are included in Appendix A.
4. All Modular Wetlands are vault systems, receiving low-flow runoff from the tributary drainage area's catch basin equipped with DVERT low-flow diversion systems.
5. Treatment capacities of each unit are based on wetland media design loading rate (controlled by downstream orifice) and perimeter surface area of wetland media provided. Individual unit sizing calculations provided by the manufacturer are included on each cut sheet/detail included in Section VI.

Hydromodification Control BMPs

Hydromodification Control BMPs	
BMP Name	**BMP Description**
Detention System	Underground detention system with outlet controls will limit post development flow to pre development flow as required by the HCOC criteria. In addition, detention of the flow will increase the post development time of concentration as required by the HCOC criteria.

Hydrology Results

Storm Event	Pre Develop Flow (cfs)	Post Develop Flow (cfs)	% Increase	Pre Develop TC (min)	Post Develop TC (min)	% Decrease	Pre Develop Vol (ac-ft)	Post Develop Vol (ac-ft)	% Increase
2 Year	5.67	7.36	29.81%	23.12	17.83	-22.88%	0.59	0.79	33%

The hydrology results indicate that hydromodification control performance criteria is exceeded and hydromodification control is required. Flows will be stored in an underground storage chamber and pumped to the surface using a discharge pump.

The storage chamber pump will sized to release the post development flow at a rate equal to or less than the pre development flow. The pump will be controlled by a float switch which will activate the pump when a specified level is reached within the storage chamber. The delay in pump activation during filling of the chamber will increase the time of concentration of the released flow to meet the HCOC criteria.

Regional/Sub-Regional LID BMPs

Not applicable. Biotreatment LID BMPs will be utilized for water quality treatment on-site in accordance with the MS4 Permit hierarchy identified at the beginning of this Section.

Treatment BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs.

Not applicable. Biotreatment LID BMPs will be utilized for water quality treatment on-site in accordance with the MS4 Permit hierarchy identified at the beginning of this Section.

Source Control BMPs

The following tables show source control BMPs (routine non-structural and routine structural) included in this project and those that were not included.

Non-Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
N1	Education for Property Owners, Tenants and Occupants	☒	☐	Educational materials and training will be provided to residents/tenants, including education materials and restrictions to reduce pollutants from reaching the storm drain system. Examples include tips for pet care, proper waste oil disposal, and other household tips. Homeowners and tenants will be provided storm water pollution prevention materials by the POA prior to occupancy. Materials will be provided periodically thereafter. Refer to Section 7 for a list of educational materials to be provided.
N2	Activity Restrictions	☒	☐	The POA shall restrict activities that have the potential to create adverse impacts on water quality. Activities include but are not limited to: prohibiting vehicle maintenance activities within parking areas and stalls, prohibiting long-term parking without prior authorization,

				and prohibiting outdoor vehicle washing. Restriction shall begin upon occupancy.
N3	Common Area Landscape Management	☒	☐	Management programs will be designed and implemented by the POA to maintain all the common areas within the project site. These programs will cover how to reduce the potential pollutant sources of fertilizer and pesticide uses, utilization of water-efficient landscaping practices and proper disposal of landscape wastes by the POA and/or contractors. Implementation shall begin upon installation of landscaping.
N4	BMP Maintenance	☒	☐	The POA will be responsible for the implementation and maintenance of each applicable non-structural BMP, as well as scheduling inspections and maintenance of all applicable structural BMP facilities through its staff, landscape contractor, and/or any other necessary maintenance contractors.
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	Not Applicable. The project site will not require Title 22 CCR compliance since the operation of the project site will not generate of hazardous wastes as part of its routine operation.
N6	Local Industrial Permit Compliance	☐	☒	NA
N7	Spill Contingency Plan	☐	☒	Not Applicable. This site does not mandate the stockpiling of cleanup materials; therefore, it does not require a spill contingency plan.
N8	Underground Storage Tank Compliance	☐	☒	Not Applicable. There are no underground storage tanks proposed for the project site.
N9	Hazardous Materials Disclosure Compliance	☐	☒	Not Applicable. The project site will not handle or dispose of hazardous materials as part of its routine operations.

N10	Uniform Fire Code Implementation	☐	☒	Not Applicable. The project site will not handle or dispose of hazardous materials as part of its routine operations.
N11	Common Area Litter Control	☒	☐	An appropriate number of covered trash receptacles will be provided throughout the site for resident use. The POA will be responsible for performing trash pick up and sweeping of littered common areas on a weekly basis or whenever necessary. Responsibilities will also include noting improper disposal materials by the public and reporting such violations to the City for investigation. Implementation shall begin upon completion of construction.
N12	Employee Training	☒	☐	All employees of the POA and any contractors of the City will require training to ensure that employees are aware of maintenance activities that may result in pollutants reaching the storm drain. Training will include, but not be limited to, spill cleanup procedures, proper waste disposal, housekeeping practices, etc. The POA shall be responsible for ensuring training is performed upon hire and annually thereafter.
N13	Housekeeping of Loading Docks	☐	☒	No loading docks are proposed.
N14	Common Area Catch Basin Inspection	☒	☐	All catch basin inlets shall be inspected and maintained by the POA at least once a year, prior to the rainy season, no later than October 1st of each year.
N15	Street Sweeping Private Streets and Parking Lots	☒	☐	The POA shall be responsible for the street sweeping of all drive aisles and parking areas within the project prior to the rainy season, no later than October 1st of each year.
N16	Retail Gasoline Outlets	☐	☒	No retail gasoline outlets are proposed.

Structural Source Control BMPs				
Identifier	**Name**	**Check One**		**If not applicable, state brief reason**
		Included	**Not Applicable**	
S1	Provide storm drain system stenciling and signage	☒	☐	The phrase "NO DUMPING! DRAINS TO OCEAN", or an equally effective phrase, will be stenciled on all catch basins within the project site to alert the public to the destination of pollutants discharged into storm water.
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	No outdoor hazardous material storage areas are proposed.
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	No outdoor trash storage areas are proposed. A trash enclosure will be located inside the recreation building and will not be in contact with storm water runoff. An appropriate number of covered trash receptacles will be provided for each home site.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	The POA will be responsible for the installation and maintenance of all common landscape areas utilizing similar planting materials with similar water requirements to reduce excess irrigation runoff. The POA will be responsible for implementing all efficient irrigation systems for common area landscaping including but not limited to provisions for water sensors and programmable irrigation cycles. The irrigation systems shall be in conformance with local water use efficiency guidelines.
S5	Protect slopes and channels and provide energy dissipation	☒	☐	Perimeter slopes shall be stabilized with vegetation in accordance with "Efficient Irrigation and Landscape Design" source control BMP to prevent

				erosion. There are no channels within the project site.
S6	Dock areas	☐	☒	No loading dock areas are proposed.
S7	Maintenance bays	☐	☒	No maintenance bays are proposed.
S8	Vehicle wash areas	☐	☒	No vehicle wash areas are proposed.
S9	Outdoor processing areas	☐	☒	No outdoor processing areas are proposed.
S10	Equipment wash areas	☐	☒	No equipment wash areas are proposed.
S11	Fueling areas	☐	☒	No fueling areas are proposed.
S12	Hillside landscaping	☒	☐	All slopes shall be vegetated and stabilized to prevent erosion, in accordance with "Efficient Irrigation and Landscape Design" source control BMP to prevent erosion.
S13	Wash water control for food preparation areas	☐	☒	No food preparation areas are proposed.
S14	Community car wash racks	☐	☒	No community car wash racks are proposed.

Alternative Compliance Plan (If Applicable)

Water Quality Credits

Local jurisdictions may develop a water quality credit program that applies to certain types of development projects after they first evaluate the feasibility of meeting LID requirements on-site. If it is not feasible to meet the requirements for on-site LID, project proponents for specific project types can apply credits that would reduce project obligations for selecting and sizing other treatment BMPs or participating in other alternative programs.

Description of Proposed Project				
Project Types that Qualify for Water Quality Credits (Select all that apply):				
☐Redevelopment projects that reduce the overall impervious footprint of the project site.	☐Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface WQ if not redeveloped.	☐ Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance).		
☐ Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).		☐ Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned		☐ Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).
☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.	☐ Developments in a city center area.	☐ Developments in historic districts or historic preservation areas.	☐ Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.	☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.

Calculation of Water Quality Credits (if applicable)	Not applicable. Water quality credits will not be applied for the project. LID BMPs will be utilized for water quality treatment on-site in accordance with the MS4 Permit hierarchy identified at the beginning of this Section.

Alternative Compliance Plan Information

Not applicable. Biotreatment LID BMPs will be utilized for water quality treatment on-site in accordance with the MS4 Permit hierarchy identified at the beginning of this Section.

Section V -Inspection/Maintenance Responsibility for BMPs (O & M Plan)

It has been determined that the Owner, William Lyon Homes, shall assume all BMP inspection and maintenance responsibilities for the project, which includes all LID BMPs and source control BMPs within the property boundary.

Contact Name:	xxxxxxxx
Title:	xxxxxxxxxxxx
Company:	William Lyon Homes
Address:	4695 MacArthur Court, 8th Floor Newport Beach, CA 92660
Phone:	949.833.3600
Email:	xxxxxxxxxxxxxx

Prior to issuance of any permits, the Owner shall record a "Covenant and Agreement Regarding O&M Plan to Fund and Maintain Water Quality BMPs, Consent to Inspect, and Indemnification", with the County Clerk-Recorder. This document shall bind the current and future owner(s) of the property regarding implementation and maintenance of the structural and non-structural BMPs as was specified in the approved WQMP. A copy of this form is included in Appendix B.

Should the maintenance responsibility be transferred at any time during the operational life of the project, such as when an HOA or POA is formed for a project, a formal notice of transfer shall be submitted to the City of Buena Park at the time responsibility of the property subject to this WQMP is transferred. The transfer of responsibility shall be incorporated into this WQMP as an amendment.

Long-term funding for BMP maintenance will be provided by William Lyon Homes. BMPs shall be maintained throughout the year, and inspection & maintenance activities shall be documented in this WQMP.

The owner/operator shall keep a copy of the approved WQMP on the project site at all times.

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
Non-Structural Source Control BMPs			
YES	**N1. Education for Property Owners, Tenants and Occupants** Educational materials shall be provided upon tenant occupancy. Refer to Section 7.0 for a list of educational materials to be distributed to residential and commercial tenants.	Frequency: Annually	William Lyon Homes
YES	**N2. Activity Restriction** The owner through lease terms or other equally effective method shall develop use restrictions. These will include, but are not limited to, use of pesticides and fertilizers consistent with City and County guidelines, prohibiting washing or hosing of walkways and driveways, and prohibiting the washing of cars on the property.	Frequency: Ongoing	William Lyon Homes
YES	**N3. Common Area Landscape Management** Maintenance shall be consistent with City requirements, plus fertilizer and/or pesticide usage shall be consistent with County Management Guidelines for Use of Fertilizers (OC DAMP Section 5.5). Typical maintenance includes mowing, trimming, replanting, and debris removal.	Frequency: Monthly	William Lyon Homes
YES	**N4. BMP Maintenance** Maintenance of BMPs implemented at the project site shall be performed at the frequency prescribed in this WQMP. Records of inspections and BMP maintenance shall be maintained by the POA and shall be available for review upon request.	Frequency: Ongoing	William Lyon Homes

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
NO	**N5. Title 22 CCR Compliance**		
NO	**N7. Spill Contingency Plan**		
NO	**N8. Underground Storage Tank Compliance**		
NO	**N9. Hazardous Materials Disclosure Compliance**		
NO	**N10. Uniform Fire Code Implementation**		
YES	**N11. Common Area Litter Control** Litter patrol, violations investigation, reporting and other litter control activities shall be performed in conjunction with maintenance activities.	Frequency: Weekly	William Lyon Homes
YES	**N12. Employee Training** The Owner shall educate all new employees/managers on storm water pollution prevention, particularly good housekeeping practices prior to the start of the rainy season (October 1). Refresher courses shall be conducted on an as needed basis.	Frequency: Annually	William Lyon Homes
NO	**N13. Housekeeping of Loading Docks**		
YES	**N14. Common Area Catch Basin Inspection** Catch basin inlets shall be inspected and, if necessary, cleaned prior to the storm season by October 1st each year.	Frequency: Annually	William Lyon Homes
YES	**N15. Street Sweeping Private Streets and Parking Lots** Parking lots must be swept at least quarterly (every 3 months), including prior to the start of the rainy season (October 1st).	Frequency: Quarterly	William Lyon Homes

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
NO	**N16. Retail Gasoline Outlets** Insert BMP narrative from Section IV.2.1 of the Project WQMP.		
Structural Source Control BMPs			
YES	**Provide Storm Drain System Stenciling and Signage** Storm drain stencils shall be inspected for legibility, at minimum, once prior to the storm season, no later than October 1st each year. Those determined to be illegible will be re-stenciled as soon as possible.	Frequency: Annually	William Lyon Homes
NO	**Design and Construct Outdoor Material Storage Areas to Reduce Pollutant Introduction** I Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
NO	**Design and Construct Trash and Waste Storage Areas to Reduce Pollutant Introduction** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
YES	**Use Efficient Irrigation Systems & Landscape Design** In conjunction with routine maintenance activities, verify that landscape design continues to function properly by adjusting properly to eliminate overspray to hardscape areas, and to verify that irrigation timing and cycle lengths are adjusted in accordance with water demands, given time of year, weather, and day or night time temperatures.	Frequency: Monthly	William Lyon Homes

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
YES	**Protect Slopes and Channels and Provide Energy Dissipation** To be performed in conjunction with maintenance activities. Maintain vegetative cover and/or mulch to eliminate exposed soils. Any eroded surfaces to be repaired immediately. Inspections to be performed twice each year (spring and fall) and after major storm events to check for signs of erosion, gullies, and sloughing.	Frequency: Monthly	William Lyon Homes
NO	**Loading Docks** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
NO	**Maintenance Bays** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
NO	**Vehicle Wash Areas** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
NO	**Outdoor Processing Areas** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
NO	**Equipment Wash Areas** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
NO	**Fueling Areas** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
YES	**Hillside Landscaping** To be performed in conjunction with maintenance activities. Maintain vegetative cover and/or mulch to eliminate exposed soils. Any eroded surfaces to be repaired immediately. Inspections to be performed twice each year (spring and fall) and after major storm events to check for signs of erosion, gullies, and sloughing.	Frequency: Monthly	William Lyon Homes

BMP Applicable? Yes/No	BMP Name and BMP Implementation, Maintenance, and Inspection Procedures	Implementation, Maintenance, and Inspection Frequency and Schedule	Person or Entity with Operation & Maintenance Responsibility
NO	**Wash Water Controls for Food Preparation Areas** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
NO	**Community Car Wash Racks** Insert BMP narrative from Section IV.2.2 of the Project WQMP.		
	LID BMPs		
Yes	**Landscape Maintenance** Routine maintenance of vegetation and irrigation should be conducted as part of the overall landscaping/irrigation schedule. Inspections should occur semi-annually or after major storm events to check for the following and remove accordingly: standing water, sediment, and trash & debris.	Frequency: Ongoing	William Lyon Homes
Yes	**Modular Wetlands & Detention Chambers** Annual maintenance consists of a minimum of two scheduled visits, one after the rainy season to clean up after the wet season, and one before the wet season to inspect and clean the unit. Each maintenance visit consists of the following: Inspection; removal of trash, debris, sediment; Filter media and plant health evaluation and replacement if necessary; replacement of mulch. In addition inspection and maintenance of the treatment flow pumping system will be performed.	Frequency: 2x per year	William Lyon Homes
	TREATMENT CONTROL BMPs		
No	**Treatment Control BMP # 1 (insert name/type of treatment control BMP)** Insert Text and/or include attachments		
No	**Treatment Control BMP #2 (insert name/type of treatment control BMP)** Insert Text and/or include attachments		

Required Permits:
This section must list any permits required for the implementation, operation, and maintenance of the BMPs. Possible examples are:

- Permits for connection to sanitary sewer
- Permits from California Department of Fish and Game
- Encroachment permits

If no relevant permits are required, a statement to that effect should be made. Relevant permits will be determined during plan check of final construction documents and included in the final WQMP.

Submittal and Recordation of Water Quality Management Plan

Following approval of the Final Project-Specific WQMP, three copies of the approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be submitted.

Each approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be recorded in the Orange County Clerk-Recorder's Office, prior to close-out of grading and/or building permit. Educational Materials are not required to be included.

Recordkeeping

All records must be maintained for at least five (5) years and must be made available for review upon request.

Today's Date: _____

Name of Person Performing Activity (Printed): _____

Signature: _____

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

BMP Name (As Shown in O&M Plan)	Brief Description of Implementation, Maintenance, and Inspection Activity Performed

Water Quality Management Plan

Notice of Transfer of Responsibility

Submission of this Notice of Transfer of Responsibility constitutes notice to the City of Buena Park that responsibility for the Water Quality Management Program (WQMP) for the subject property identified below, and implementation of that plan, is being transferred from the Previous Owner (and his/her agent) of the site (or a portion thereof) to the New Owner, as further described below.

I. Previous Owner/Previous Responsible Party Information

Company/Individual Name		Contact Person	
Street Address		Title	
City	State	Zip	Phone

II. Information about site transferred

Name of Project (if applicable)	
Title of WQMP Applicable to site:	
Street Address of Site (if applicable)	
Planning Area and/or Tract Number(s) for Site	Lot Numbers (if Site is a portion of a tract)
Date WQMP Prepared (and revised if applicable)	

III. New Owner/New Responsible Party Information

Company/Individual Name		Contact Person	
Street Address		Title	
City	State	Zip	Phone

IV. Ownership Transfer Information

General Descriptrion of Site Tranferred to New Owner	General Description of Portion of Project/Parcel Subject to WQMP Retained by Owner (if any)
Lot/Tract Numbers of Site transferred to New Owner	
Remaining Lot/Tract Numbers Subject to WQMP Still Held by Owner (if any)	
Date of Ownership Transfer	

V. Purpose of Notice of Transfer

The purposes of this Notice of Transfer of Responsibility are: 1) to track transfer of responsibility for implementation and amendment of the WQMP when property to which the WQMP is transferred from the Previous Owner to the New Owner, and 2) to facilitate notification to a transferee of property subject to a WQMP that such New Owner is now the Responsible Party of record for the WQMP for those portions of the site that it owns.

VI. Certifications

A. Previous Owner

I certify under penalty of law that I am no longer the owner of the Transferred Site as described in Section II above. I have provided the New Owner with a copy of the WQMP applicable to the transferred Site that the New Owner is acquiring from the Previous Owner.

Printed Name of Previous Owner Representative	Title
Signature of Previous Owner Representative	Date

B. New Owner

I certify under penalty of law that I am the owner of the Transferred Site, as described in Section II above, that I have been provided a copy of the WQMP, and that I have informed myself and understand the New Owner's responsibilities related to the WQMP, its implementation, and Best Management Practices associated with it. I understand that by signing this notice, the New Owner is accepting all ongoing responsibilities for implementation and amendment of the WQMP for the Transferred Site, which the New Owner has acquired from the Previous Owner.

Printed Name of New Owner Representative	Title
Signature	Date

Section VI- Location Map, Plot Plan & BMP Details

Location Map

See Appendix E

BMP Exhibit (Plot Plan)

See Appendix H

BMP Details

See Appendix D

Section VII - Educational Materials Included

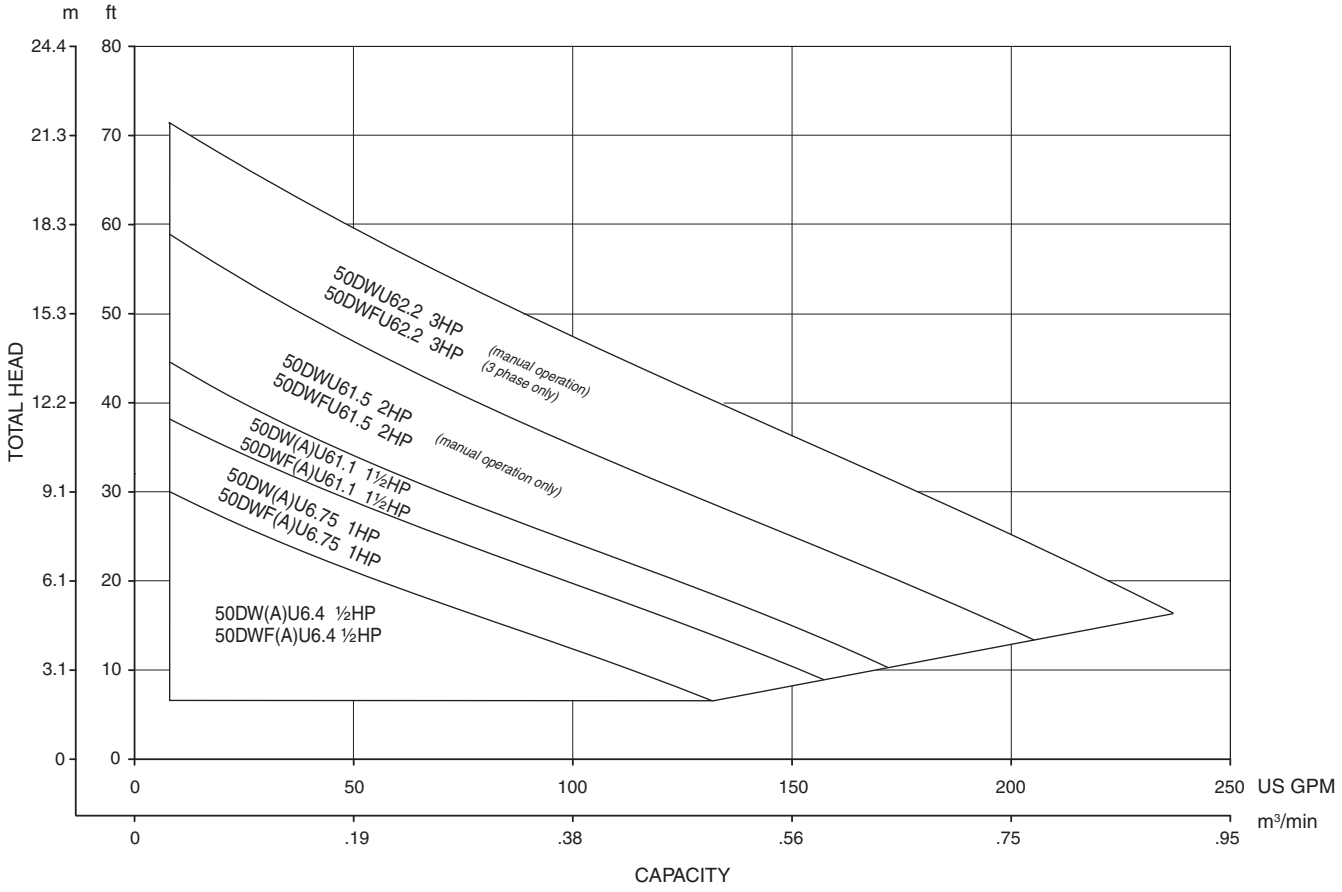
The following is a list of educational materials to be included in this WQMP.

Education Materials			
Residential Material (http://www.ocwatersheds.com)	**Check If Applicable**	**Business Material (http://www.ocwatersheds.com)**	**Check If Applicable**
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☐
Tips for the Home Mechanic	☐	Tips for the Food Service Industry	☐
Homeowners Guide for Sustainable Water Use	☒	Proper Maintenance Practices for Your Business	☐
Household Tips	☒	**Other Material**	**Check If Attached**
Proper Disposal of Household Hazardous Waste	☒		
Recycle at Your Local Used Oil Collection Center (North County)	☒		☐
Recycle at Your Local Used Oil Collection Center (Central County)	☐		☐
Recycle at Your Local Used Oil Collection Center (South County)	☐		☐
Tips for Maintaining a Septic Tank System	☐		☐
Responsible Pest Control	☒		☐
Sewer Spill	☐		☐
Tips for the Home Improvement Projects	☒		☐
Tips for Horse Care	☐		☐
Tips for Landscaping and Gardening	☒		☐
Tips for Pet Care	☒		☐
Tips for Pool Maintenance	☒		☐
Tips for Residential Pool, Landscape and Hardscape Drains	☐		☐
Tips for Projects Using Paint	☒		☐

Selection Chart

Model DW(A)U
DWF(A)U

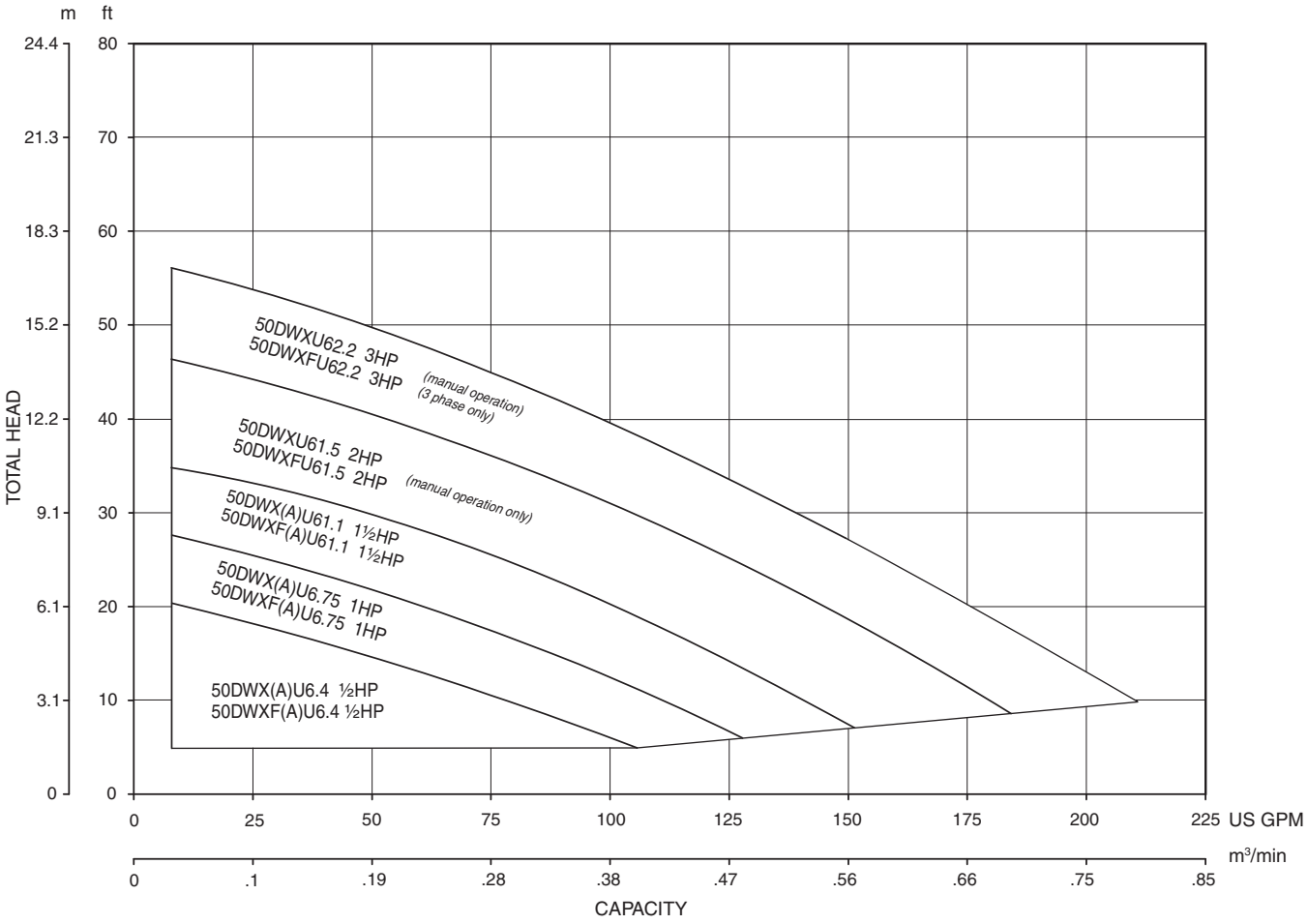
Single Channel Impeller



Selection Chart

Model DWX(A)U
DWXF(A)U

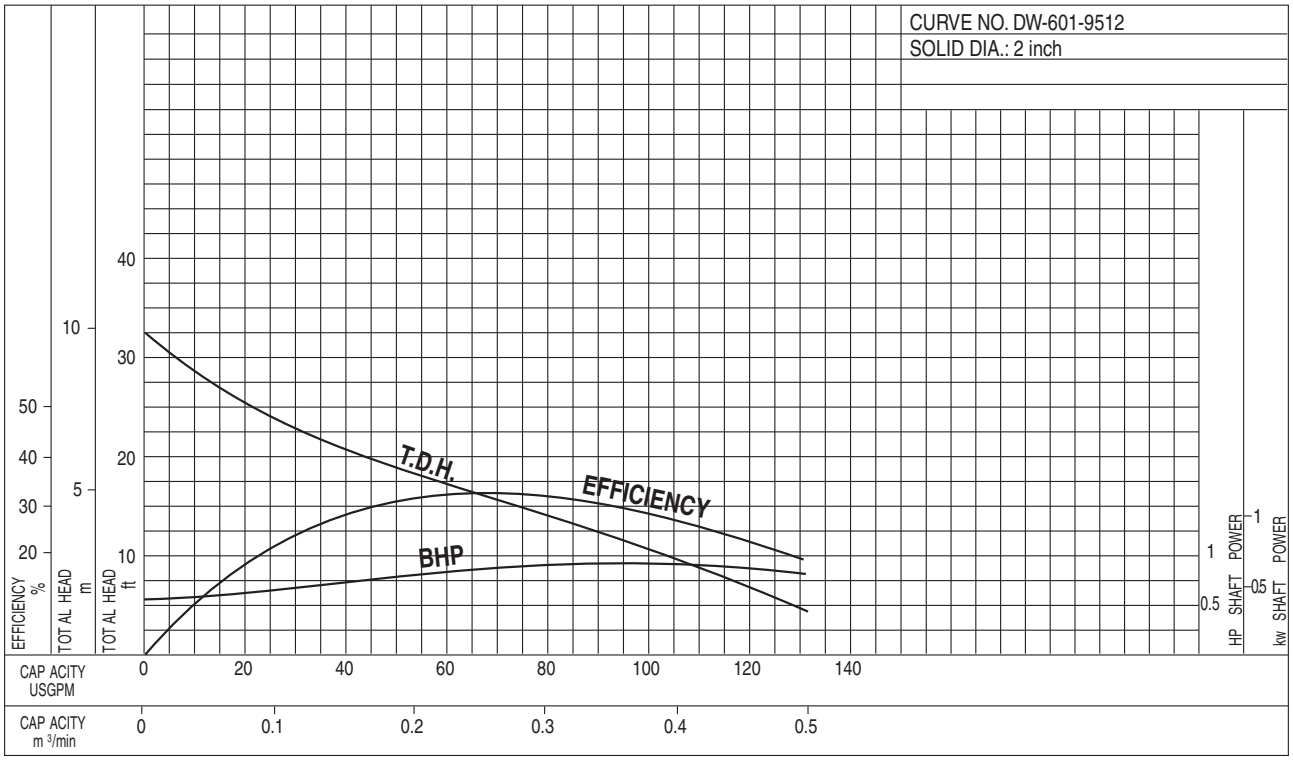
Vortex Impeller



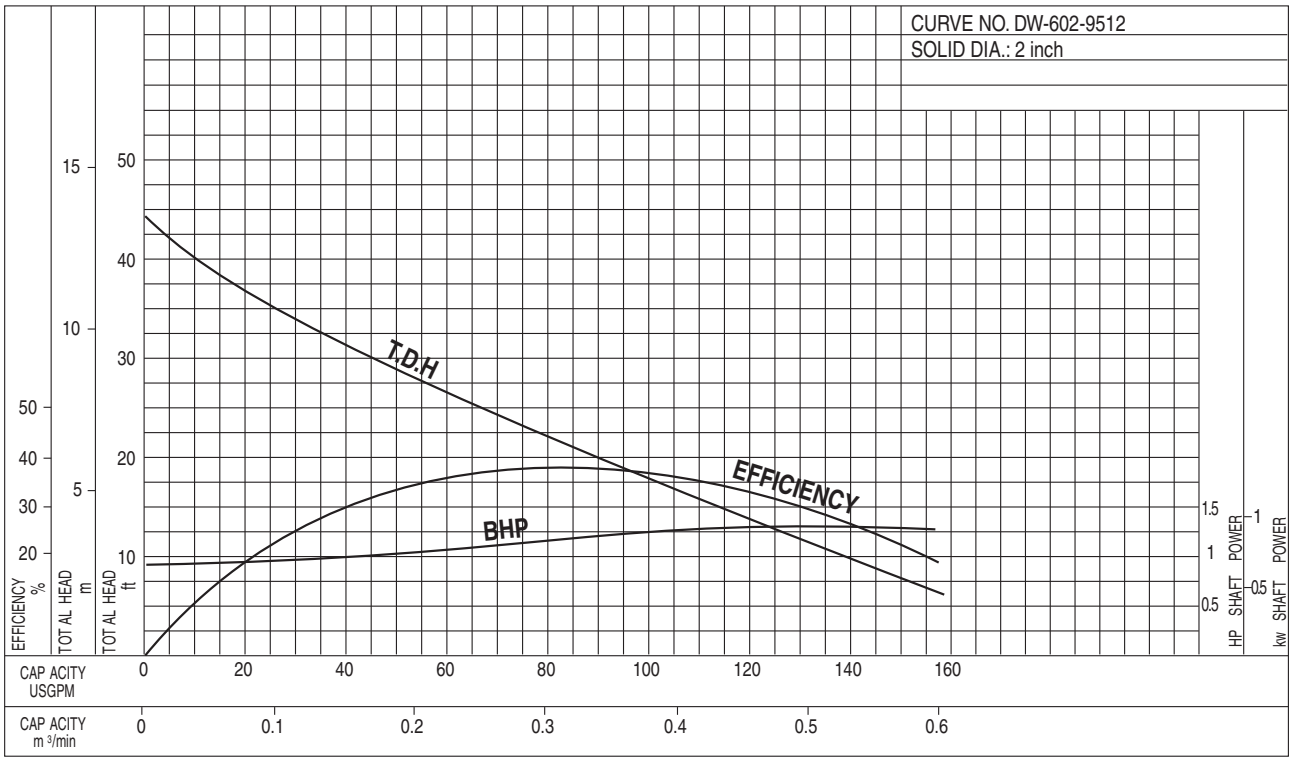
Performance Curves

Project: GPM: TDH: EFF: HP: Chk'd: Date:

50DW6.4 (½HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



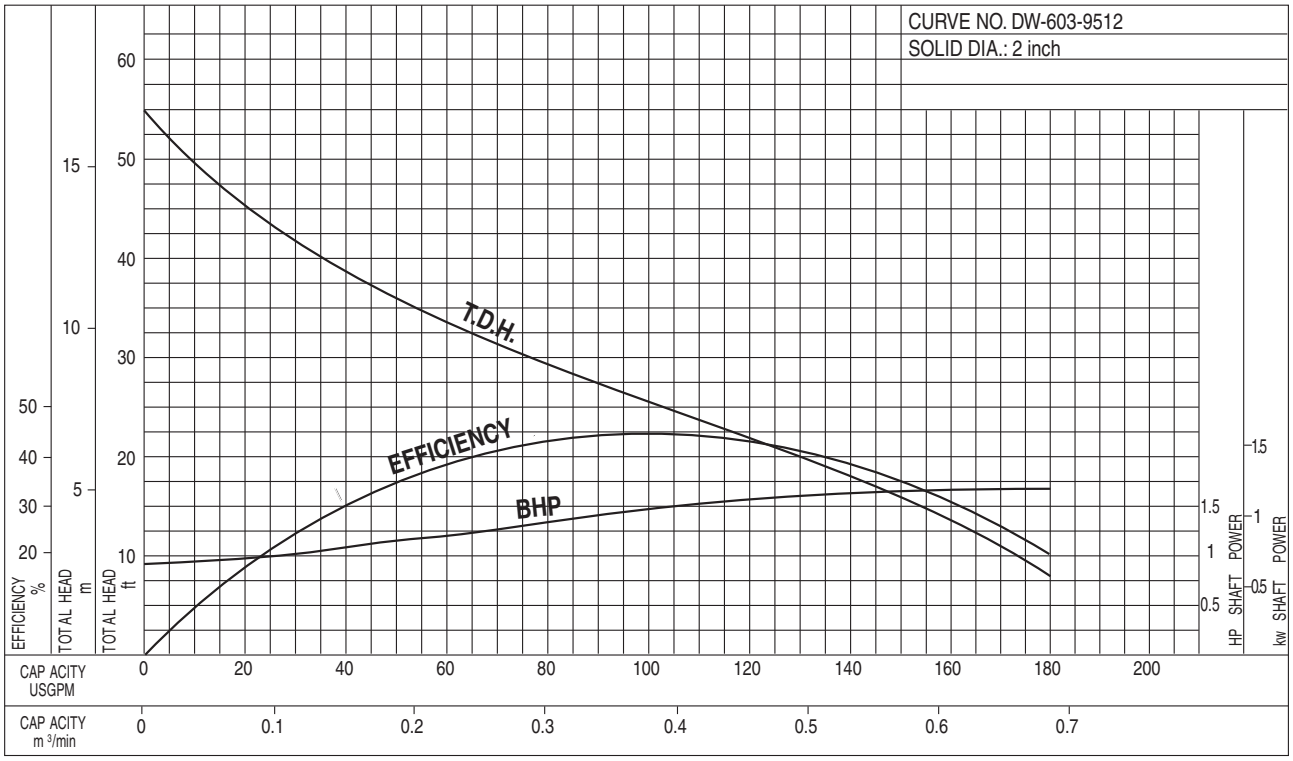
50DW6.75 (1HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



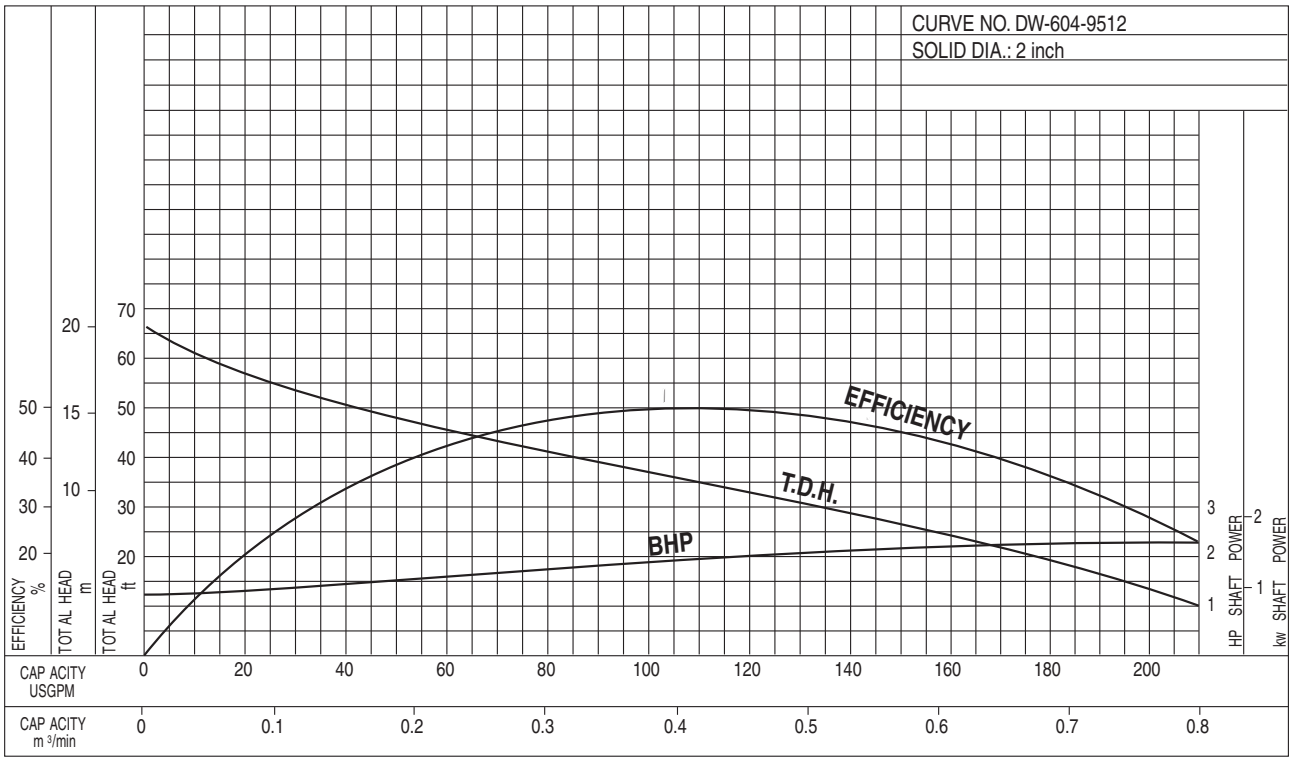
Performance Curves

Project: GPM: TDH: EFF: HP: Chk'd: Date:

50DW61.1 (1½HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



50DW61.5 (2HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



Performance Curves

Project: Model: Chk'd: Date:

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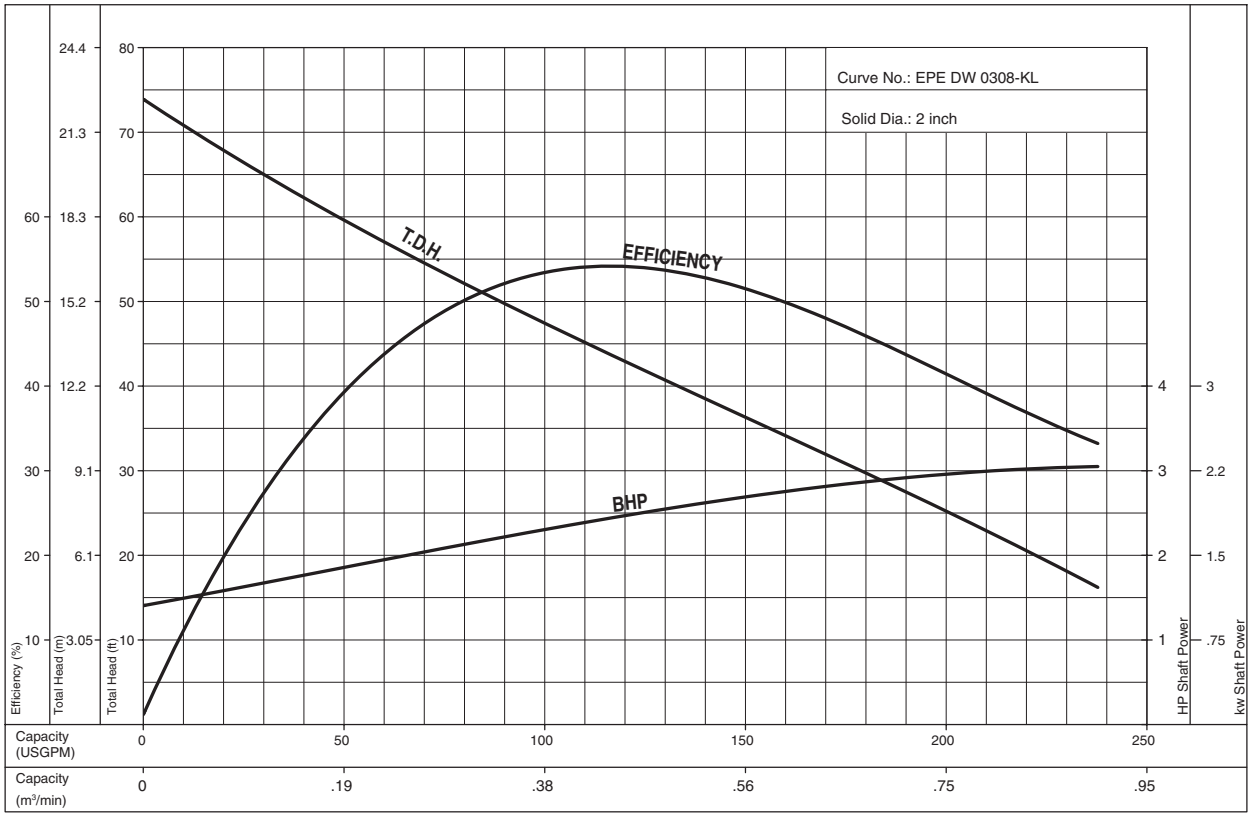
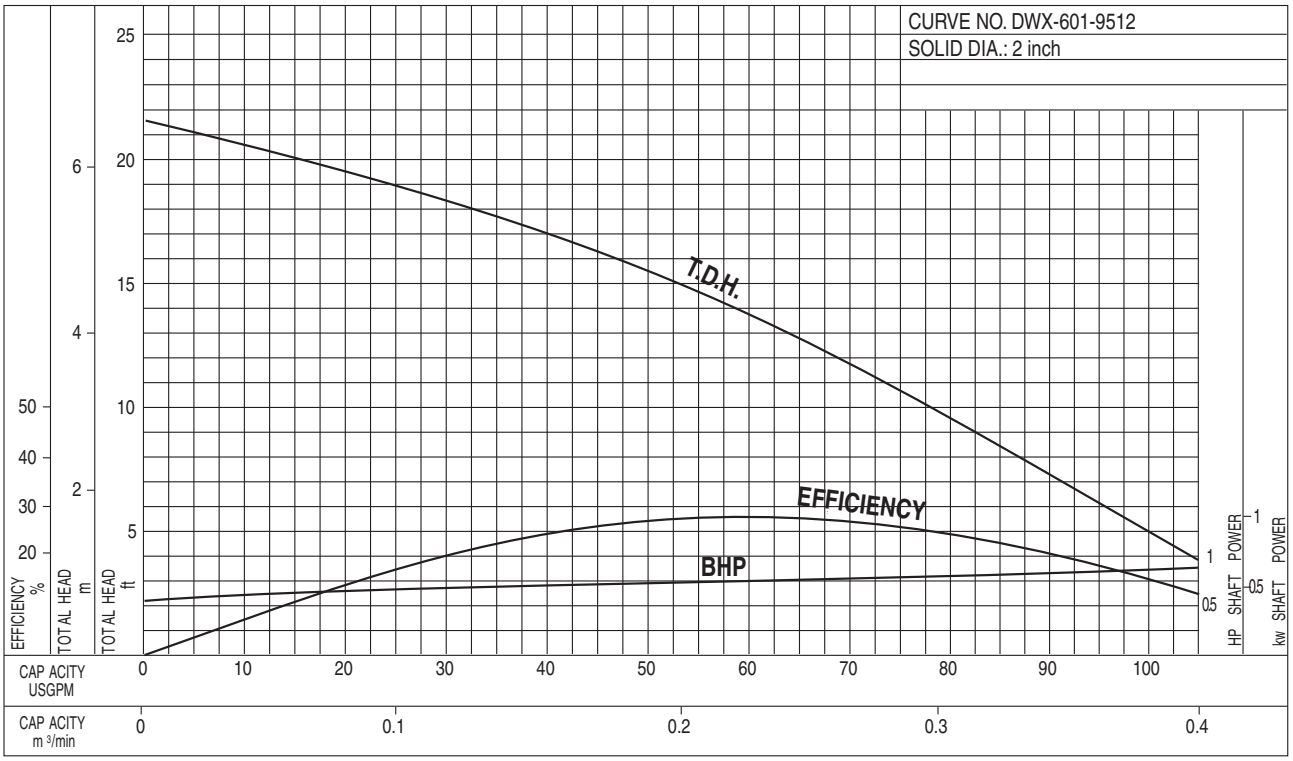


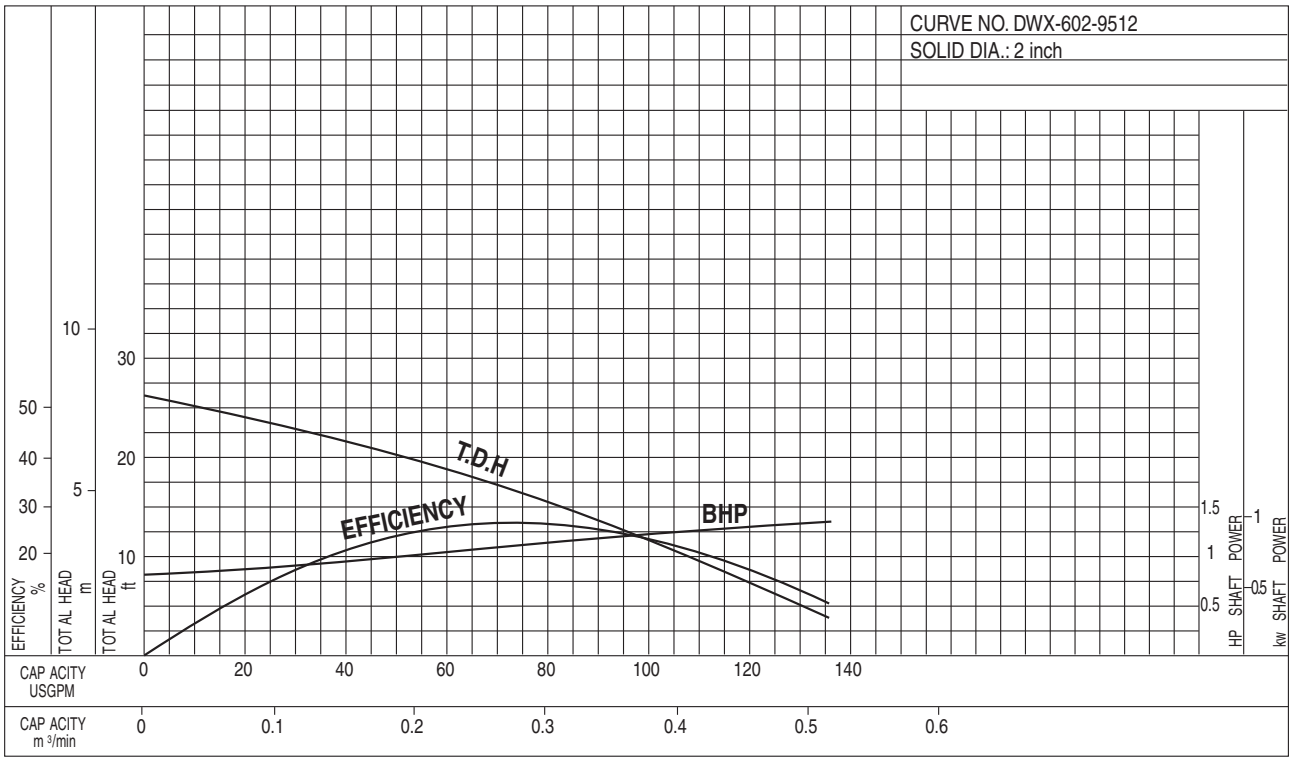
Performance Curves

Project: GPM: TDH: EFF: HP: Chk'd: Date:

50DWX6.4 (½HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



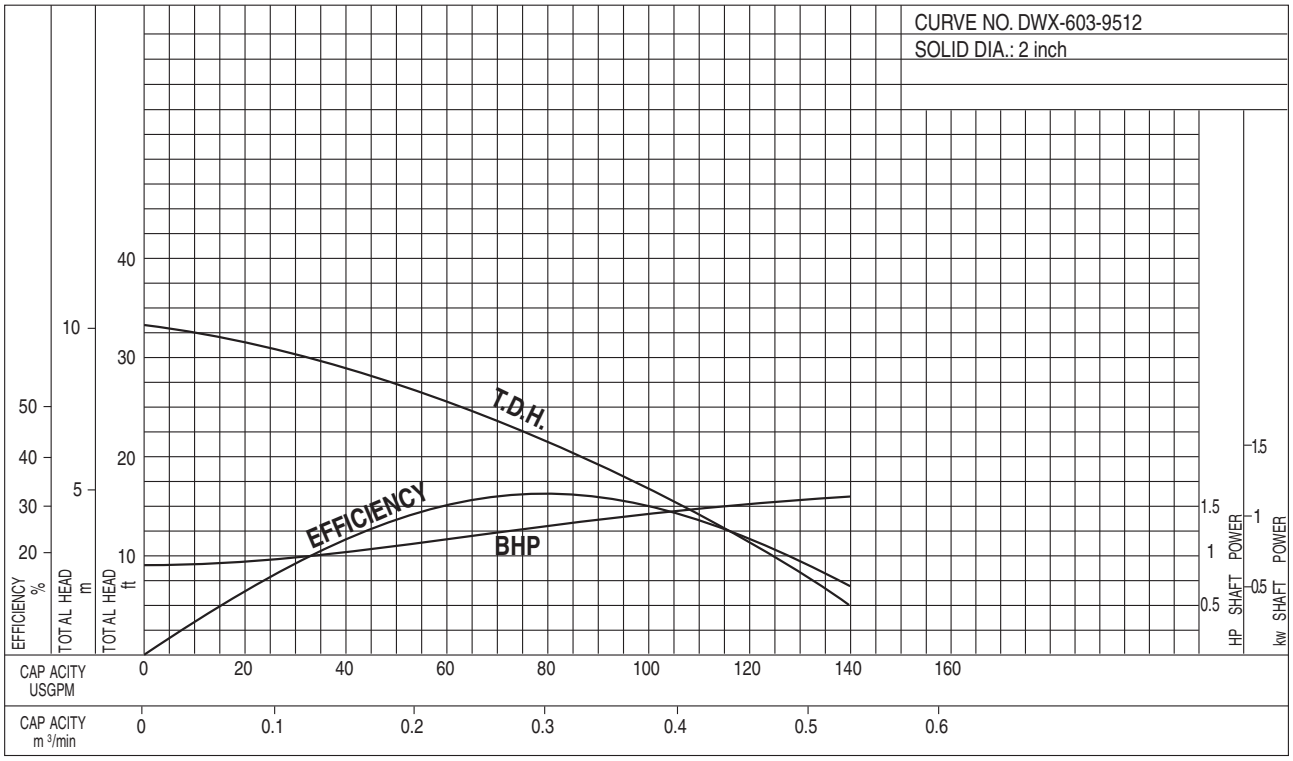
50DWX6.75 (1HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



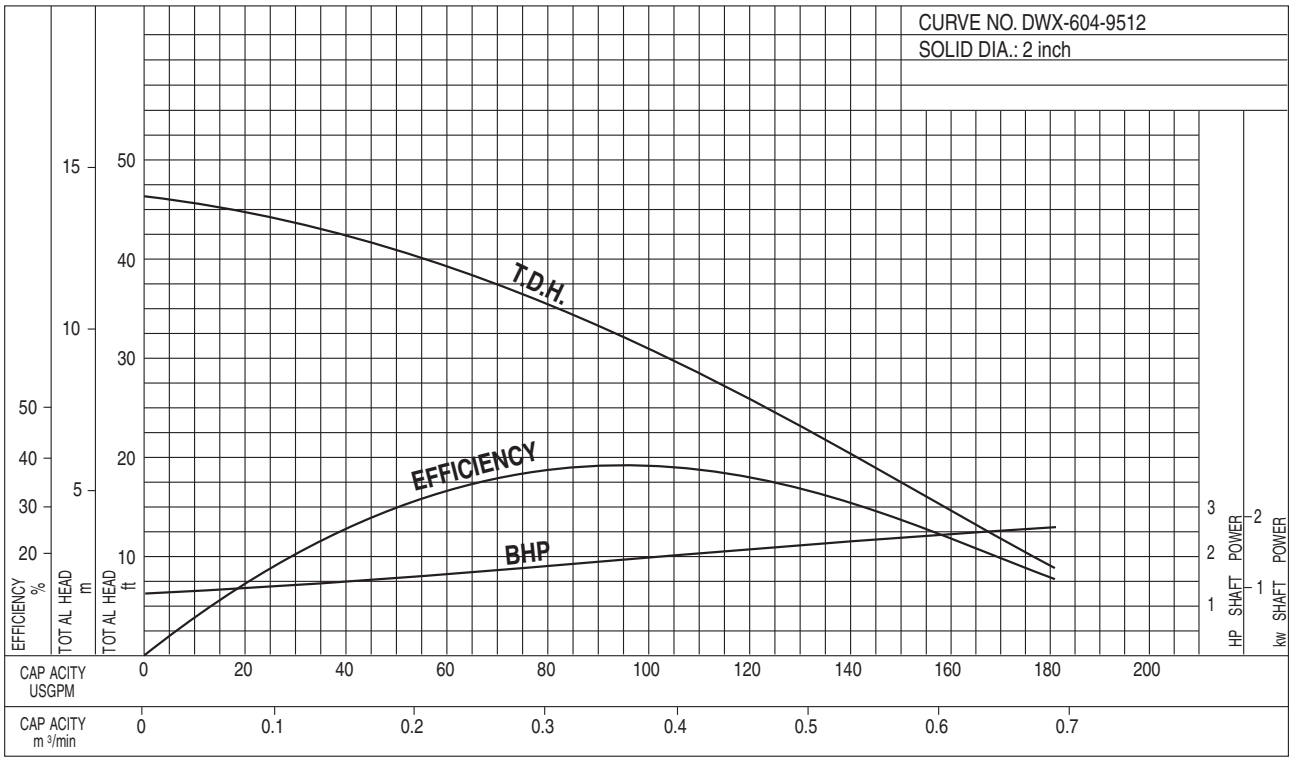
Performance Curves

Project: GPM: TDH: EFF: HP: Chk'd: Date:

50DWX61.1 (1½HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



50DWX61.5 (2HP) Synchronous Speed: 3600 RPM — 2 inch Discharge



Performance Curves

Project: Model: Chk'd: Date:

50DWX62.2 (3HP) Synchronous Speed: 3600 RPM 2 inch Discharge

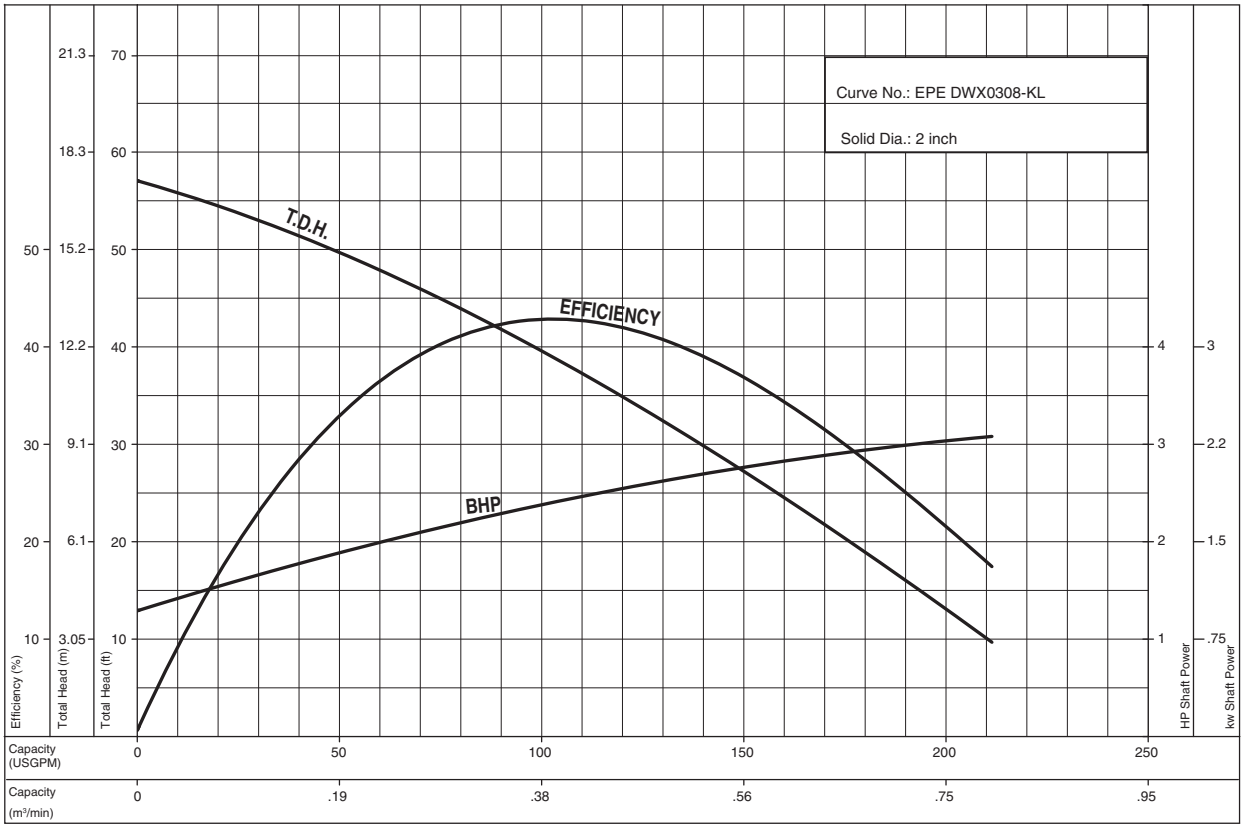
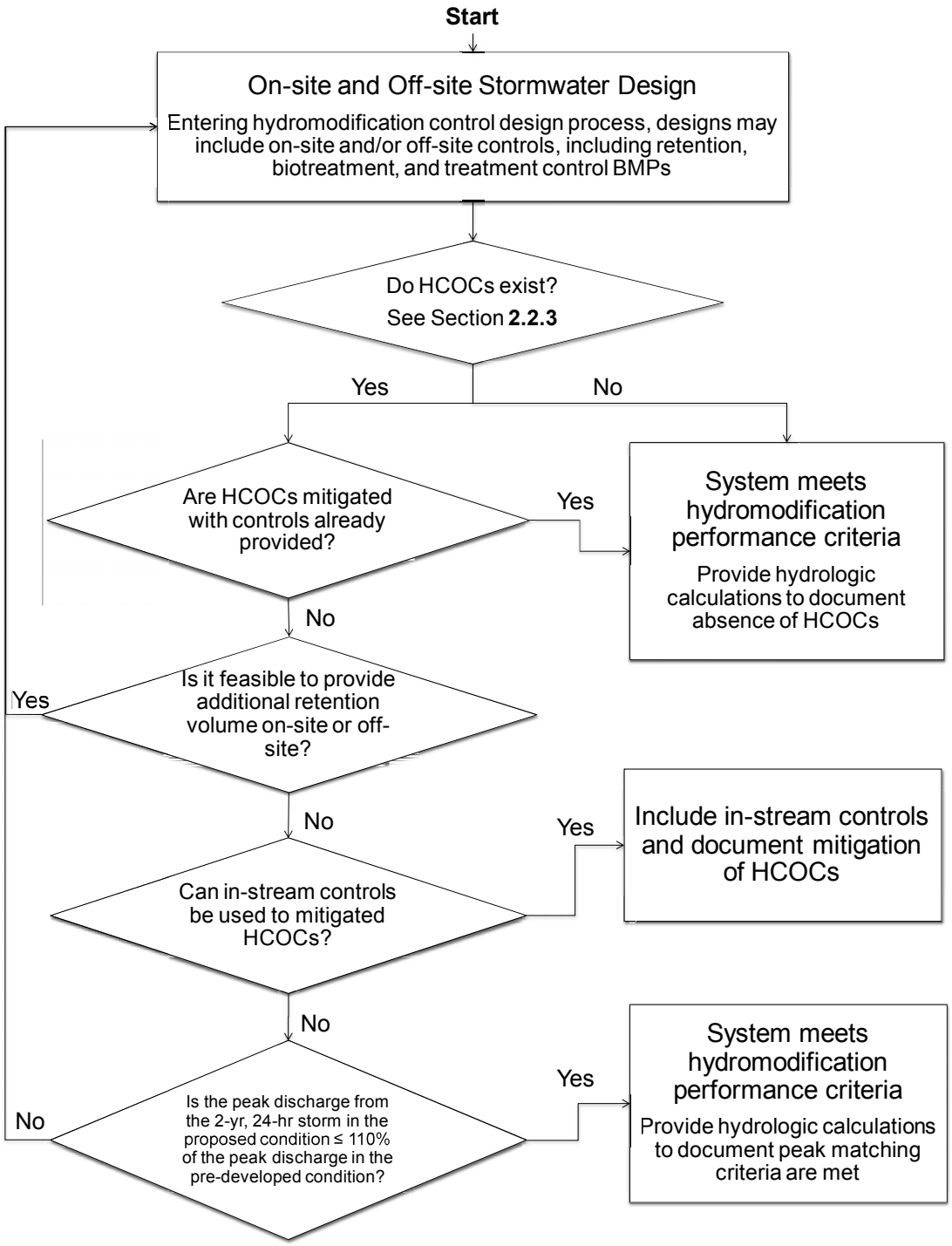
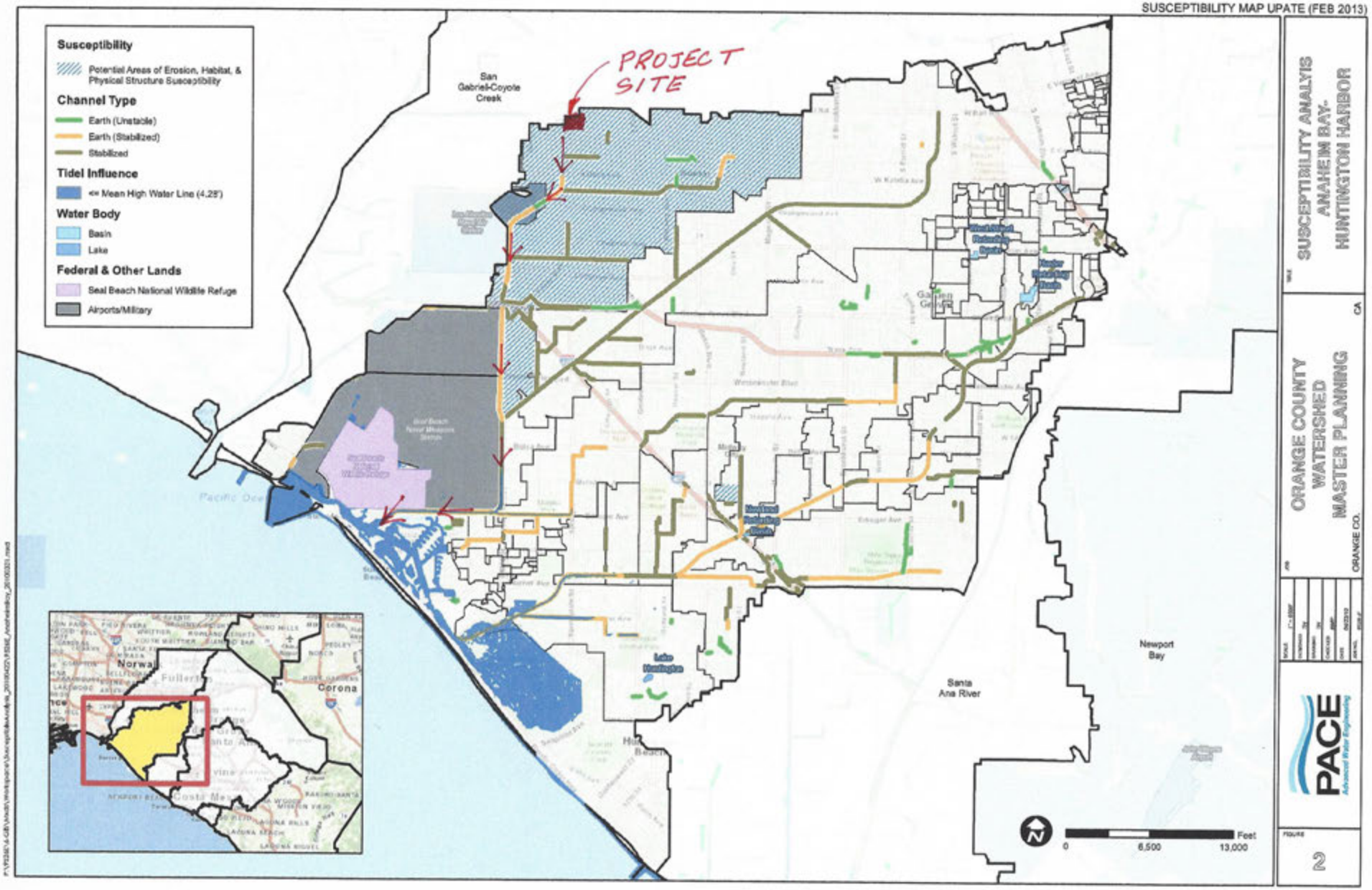


Figure 5.1. North Orange County Hydromodification Design Process



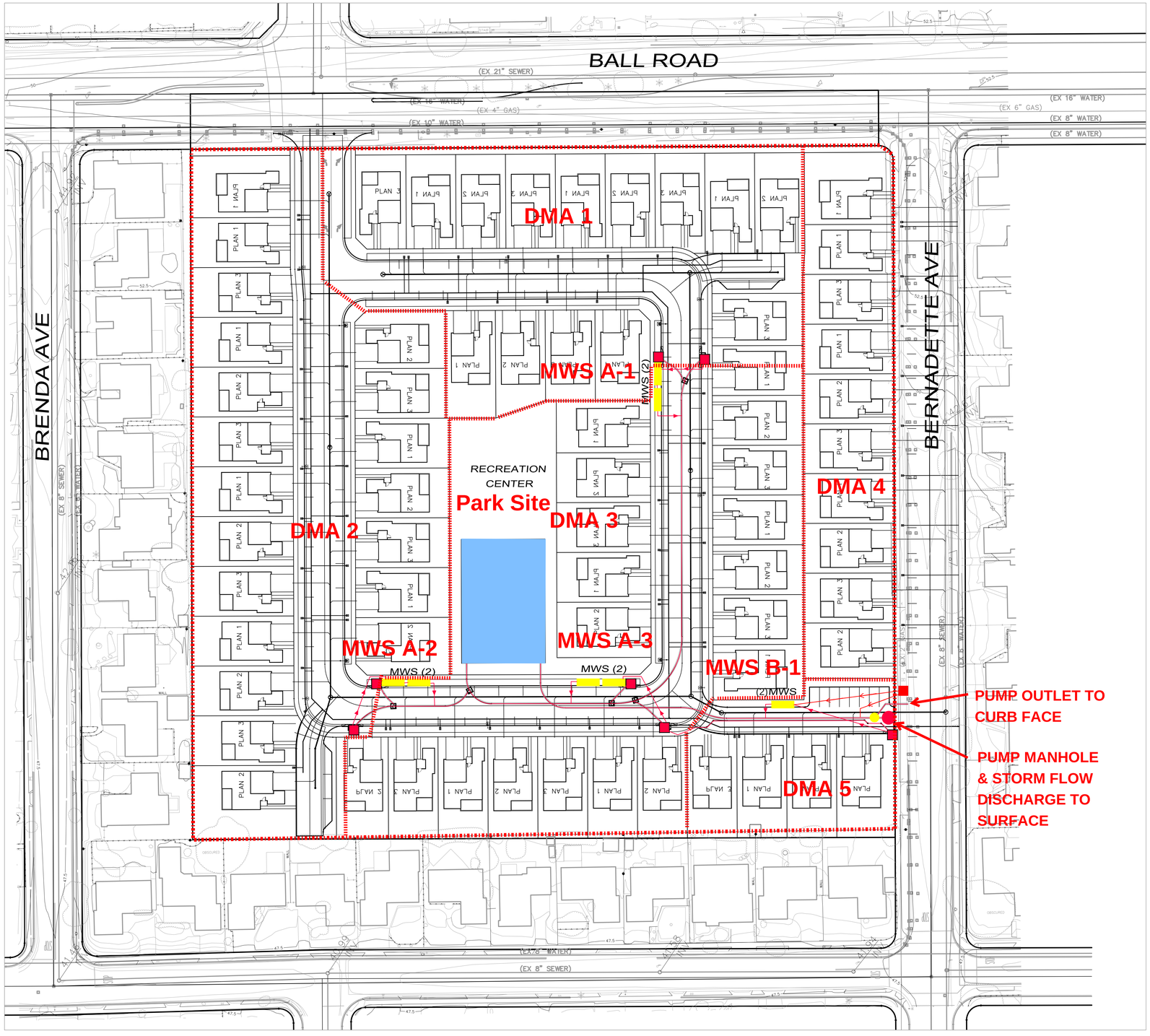
The compliance point for assessment of pre- and post-development runoff volume and time of concentration is located where runoff leaves the project site. However, the project proponent may use this same assessment technique for a point of compliance further downstream as part of a geomorphically-based project-specific evaluation of whether the project will adversely


SUSCEPTIBILITY MAP UPATE (FEB 2013)
Susceptibility
Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility
Channel Type
Earth (Unstable)
Earth (Stabilized)
Stabilized
Tidel Influence
<= Mean High Water Line (4.28')
Water Body
Basin
Lake
Federal & Other Lands
Seal Beach National Wildlife Refuge
Airports/Military
PROJECT SITE
San Gabriel-Coyote Creek
Santa Ana River
Newport Bay
Lake Huntington
Norwalk
Corona
0
6,500
13,000
Feet
SUSCEPTIBILITY ANALYIS
ANAHEIM BAY-
HUNTINGTON HARBOR
ORANGE COUNTY
WATERSHED
MASTER PLANNING
ORANGE CO.
CA
PACE
FIGURE
2

LEGEND

- LANDSCAPE AREA
- ON-SITE STREETS & PARKING
- PROPOSED BUILDING
- HYDROMOD STORAGE
- MWS — MODULAR WETLAND SYSTEM (MWS)
- STORM DRAIN
- CATCH BASIN
- SUMP PUMP
- SURFACE STORM DRAIN OUTLET
- WMS TREATMENT LINE

DMA 2 Drainage Management Area



N
W E
S

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)
1 inch = 40 ft.

3-3-15

PREPARED FOR :

WILLIAM LYON HOMES
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7						
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PREPARED BY :

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Exp. 3/31/15
CIVIL
STATE OF CALIFORNIA

TITLE:
WQMP SITE PLAN
for
LYON HOMES BUENA PARK

CITY OF BUENA PARK

DATE: ~~12-15-14~~
JOB NO.:
SHEET: 1 OF 1

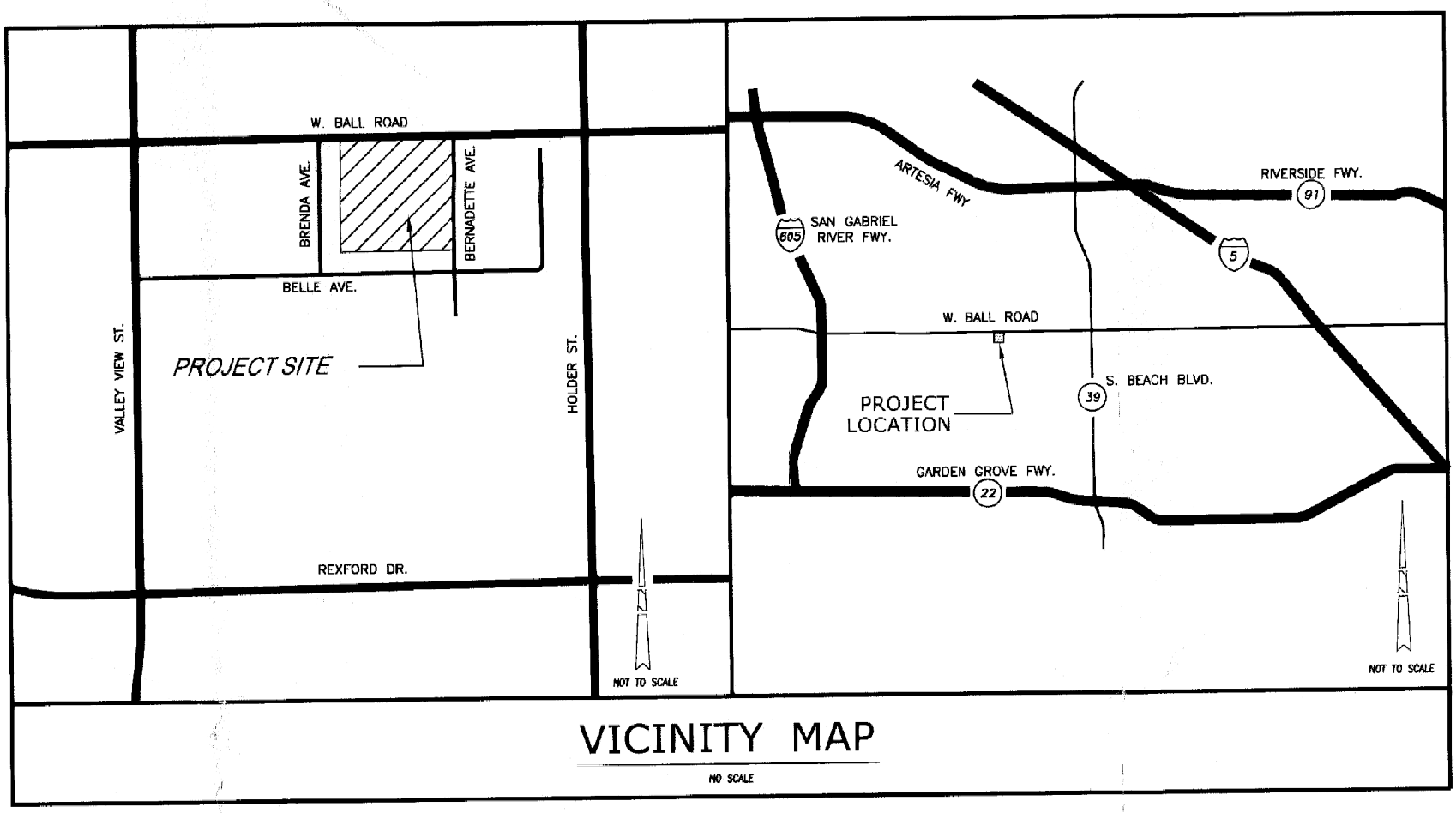
Preliminary Storm Water Quality Design Calculations

Lyon Homes Buena Park

Storm Water Design Capture Volume (DCV)

											Bio-Treatment		
											Proprietary		
Drainage Area Name	**Land Use or BMP Name**	**% impervious**	**Runoff Coefficient**	**Design Storm Depth (in)**	**Average 2-year Tc (min)**	**Rainfall Intensity (in/hr)**	**Drainage Area (ft^2)**	**Drainage Area (acres)**	**DCV (ft^3)**	**Q (cfs)**	**Unit Size**	**# of Units Needed**	**Peak Treatment Rate Each Unit (cfs)**
			0.150					0.0000	**0.0**	**0.000**			
			0.152					0.0000	**0.0**	**0.000**			
Overall Site	Singlefamily	76%	0.722	0.83	10	0.23	392,040	9.0000	**19,564.3**	**1.494**			
			0.152					0.0000	**0.0**	**0.000**			
			0.152					0.0000	**0.0**	**0.000**			
			0.152					0.0000	**0.0**	**0.000**			
DMA 1	Singlefamily	76%	0.722	0.83	10	0.23	91,040	2.0900	**4,543.2**	**0.347**	4'x15'	2	0.175
DMA 2	Singlefamily	76%	0.722	0.83	10	0.23	112,000	2.5712	**5,589.2**	**0.427**	4'x21'	2	0.267
DMA 3	Singlefamily	76%	0.722	0.83	10	0.23	123,660	2.8388	**6,171.1**	**0.471**	4'x21'	2	0.267
DMA 4	Singlefamily	76%	0.722	0.83	10	0.23	39,204	0.9000	**1,956.4**	**0.149**	4'x15'	1	0.175
DMA 5	Singlefamily	76%	0.722	0.83	10	0.23	26,136	0.6000	**1,304.3**	**0.100**	4'x8'	1	0.116
			0.152			Total	392,040	9.0000					
			0.152					0.0000	**0.0**	**0.000**			
			0.152					0.0000	**0.0**	**0.000**			
			0.152					0.0000	**0.0**	**0.000**			
			0.152					0.0000	**0.0**	**0.000**			

Assumes Modular Wetland Systems



VICINITY MAP

NO SCALE

Worksheet B: Simple Design Capture Volume Sizing Method

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	.83	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	.83	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	9.0	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	.76	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	.722	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	19,564.3	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate NA				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (Appendix VII)	$K_{observed}$=		In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=		
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=		In/hr
Step 3b: Determine minimum BMP footprint NA				
4	Enter drawdown time, *T* (max 48 hours)	T=		Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} \times T \times (1/12)$	D_{max}=		feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=		sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	2	.5
		Predominant soil texture	0.25	3	.75
		Site soil variability	0.25	3	.75
		Depth to groundwater / impervious layer	0.25	3	.75
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			2.75
B	Design	Tributary area size	0.25	2	.5
		Level of pretreatment/ expected sediment loads	0.25	2	.5
		Redundancy	0.25	3	.75
		Compaction during construction	0.25	3	.75
		Design Safety Factor, $S_B = \Sigma p$			2.50
Combined Safety Factor, $S_{Total} = S_A \times S_B$					5.25
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias) MAY TEST					1.22
Design Infiltration Rate, in/hr, $K_{DESIGN} = K_{Observed} / S_{Total}$					0.23

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

SEE GEOTECH REPORT

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Table X.8: Minimum Irrigated Area for Potential Partial Capture Feasibility

General Landscape Type	Conservation Design: K_L = 0.35			Active Turf Areas: K_L = 0.7		
Closest ET Station	*Irvine*	*Santa Ana*	*Laguna*	*Irvine*	*Santa Ana*	*Laguna*
Design Capture Storm Depth, inches	**Minimum Required Irrigated Area per Tributary Impervious Acre for Potential Partial Capture, ac/ac**					
0.60	0.66	0.68	0.72	0.33	0.34	0.36
0.65	0.72	0.73	0.78	0.36	0.37	0.39
0.70	0.77	0.79	0.84	0.39	0.39	0.42
0.75	0.83	0.84	0.90	0.41	0.42	0.45
0.80	0.88	0.90	0.96	0.44	0.45	0.48
0.85	0.93	0.95	1.02	0.47	0.48	0.51
0.90	0.99	1.01	1.08	0.49	0.51	0.54
0.95	1.04	1.07	1.14	0.52	0.53	0.57
1.00	1.10	1.12	1.20	0.55	0.56	0.60

Worksheet J: Summary of Harvested Water Demand and Feasibility

1	What demands for harvested water exist in the tributary area (check all that apply):			
2	Toilet and urinal flushing		☑	
3	Landscape irrigation		☑	
4	Other:_____		☐	
5	What is the design capture storm depth? (Figure III.1)	d	.83	inches
6	What is the project size?	A	9.0	ac
7	What is the acreage of impervious area?	IA	6.19	ac
	For projects with multiple types of demand (toilet flushing, indoor demand, and/or other demand)			
8	What is the minimum use required for partial capture? (Table X.6)			gpd
9	What is the project estimated wet season total daily use?			gpd
10	Is partial capture potentially feasible? (Line 9 > Line 8?)			
	For projects with only toilet flushing demand			
11	What is the minimum TUTIA for partial capture? (Table X.7)		104	
12	What is the project estimated TUTIA?		27	

Worksheet J: Summary of Harvested Water Demand and Feasibility

13	Is partial capture potentially feasible? (Line 12 > Line 11?)	NO	
	For projects with only irrigation demand		
14	What is the minimum irrigation area required based on conservation landscape design? (Table X.8)	.94	ac
15	What is the proposed project irrigated area? (multiply conservation landscaping by 1; multiply active turf by 2)	.55	ac
16	Is partial capture potentially feasible? (Line 15 > Line 14?)	NO	
Provide supporting assumptions and citations for controlling demand calculation:			

NOISE IMPACT ANALYSIS

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT

CITY OF BUENA PARK, CALIFORNIA

Prepared by:

Giroux & Associates
1800 E. Garry Avenue #205
Santa Ana, Calif. 92705

Prepared for:

Keeton Kreitzer Consulting
Attn: Keeton Kreitzer
P. O. Box 3905
Tustin, CA 92781

Date:

January 23, 2015

Project No.: P14-058 N

NOISE SETTING

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally considered to be unwanted sound. Sound is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound. In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

The decibel (dB) scale is used to quantify sound pressure levels. Although decibels are most commonly associated with sound, "dB" is a generic descriptor that is equal to ten times the logarithmic ratio of any physical parameter versus some reference quantity. For sound, the reference level is the faintest sound detectable by a young person with good auditory acuity.

Since the human ear is not equally sensitive to all sound frequencies within the entire auditory spectrum, human response is factored into sound descriptions by weighting sounds within the range of maximum human sensitivity more heavily in a process called “A-weighting,” written as dB(A). Any further reference in this discussion to decibels written as "dB" should be understood to be A-weighted.

Time variations in noise exposure are typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called LEQ), or alternately, as a statistical description of the sound pressure level that is exceeded over some fraction of a given observation period. Finally, because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Ldn (day-night) or the Community Noise Equivalent Level (CNEL). The CNEL metric has gradually replaced the Ldn factor, but the two descriptors are essentially identical.

CNEL-based standards are generally applied to transportation-related sources because local jurisdictions are pre-empted from exercising direct noise control over vehicles on public streets, aircraft, trains, etc. The City of Buena Park therefore regulates the traffic noise exposure of the receiving property through land use controls.

NOISE STANDARDS

Noise/land use compatibility standards for various classes of land uses are expressed in the Noise Element of the General Plan to insure that noise exposure is considered in any development decisions. The City of Buena Park has guidelines for noise exposure standards which are shown in Table 1. A noise environment of 50 dBA CNEL to 60 dBA CNEL is considered to be "normally acceptable" for single-family residential uses and levels of 55 to 70 dB CNEL are considered "conditionally acceptable" and require a detailed analysis of the noise reduction requirements to be made and needed noise insulation features included in the design.

Although the guidelines allows exterior noise levels of up to 70 dB CNEL as being "conditionally acceptable", a noise level of 65 dB is the level at which ambient noise begins to interfere with one's ability to carry on a normal conversation at reasonable separation without raising one's voice. A noise exposure of 65 dB CNEL is typically the exterior noise land use compatibility guideline for new residential dwellings in California. This guideline has been adopted for use for this project.

An interior CNEL of 45 dB is mandated by the State of California Noise Insulation Standards (CCR, Title 24, Part 6, Section T25-28) for multiple family dwellings and hotel and motel rooms. In 1988, the State Building Standards Commission expanded that standard to include all habitable rooms in residential use, included single-family dwelling units. Conventional construction, but with closed windows and fresh air supply systems or air conditioning normally suffice

.

Table 1

Land Use Category	Community Noise Exposure (CNEL)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Low Density, Single-Family, Duplex, Mobile Homes	50 - 60	55 - 70	70 – 75	75 – 85
Residential – Multiple Family	50 – 65	60 – 70	70 – 75	70 – 85
Transient Lodging – Motel, Hotels	50 – 65	60 – 70	70 – 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 – 77.5	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 70	NA	70 – 80	80 – 85
Office Buildings, Business Commercial and Professional	50 – 70	67.5 – 77.5	75 – 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	75 – 85	NA

CNEL = community noise equivalent level; NA = not applicable

NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
NORMALLY UNACCEPTABLE: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise-insulation features must be included in the design.
CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken.

Source: Office of Planning and Research, California, *General Plan Guidelines*, October 2003.

For "stationary" noise sources such as mechanical equipment (pool pumps, air conditioners, etc.) the City does have legal authority to establish noise performance standards designed to not adversely impact adjoining residential uses. These standards are articulated in Chapter 8.28 of the Buena Park Municipal Code, also known as the Noise Ordinance. These standards recognize the varying noise sensitivity of both transmitting and receiving land uses. The property line noise performance standards are normally structured according to land use and time-of-day. The City-adopted exterior noise level limits between properties are presented in Table 2.

Table 2
City of Buena Park Exterior and Interior Noise Limits
Land Use Noise Level (dBA) at Property Line Time Period

Exterior Noise Limits		
Residential	55	7:00 AM – 10:00 PM
	50	10:00 PM – 7:00 AM
Interior		
Residential	50	7:00 AM – 10:00 PM
	45	10:00 PM – 7:00 AM

The not to exceed value for these standards is as follows:

1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or
2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or
3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or
4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or
5) The noise standard plus twenty (20) dB(A) for any period of time

Section 8.28.040 of the City of Buena Park Noise Ordinance regulates construction noise. The Noise Ordinance prohibits noise generated by construction activities between the hours of 8:00 PM and 7:00 AM Monday through Saturday, and at any time on Sundays. The Noise Ordinance does not include specific noise level limits for construction activities

VIBRATION STANDARDS

Chapter 8 of the Buena Park General Plan includes a vibration discussion. Transportation and construction activities can generate varying degrees of ground-borne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with

distance from the source. The effect on buildings located in the vicinity of a construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from residential construction activities rarely reach levels that damage structures.

The City does not have regulatory standards for construction or operational vibration sources. The Federal Transit Administration (FTA) and Caltrans have published guidelines for the analysis of groundborne noise and vibration relating to transportation and construction-induced vibration. Caltrans guidelines recommend that a standard of 0.2 in/sec peak particle velocity (PPV) not be exceeded for the protection of normal residential buildings, and that 0.08 in/sec PPV not be exceeded for the protection of old or historically significant structures.[1] With respect to human response within residential uses (i.e., annoyance), FTA recommends a maximum acceptable vibration standard of 80 root-mean square vibration decibels (VdB).

BASELINE NOISE LEVELS

On-site noise measurements were made in order to document existing baseline levels in the area. These help to serve as a basis for projecting future noise exposure from ambient noise activity upon the proposed project. A short-term on-site noise measurement was conducted by Giroux & Associates on Thursday, January 8, 2015, at two locations. The results of the measurements are shown below and a graphic description of meter locations is provided in Figure 1.

Short-Term Noise Measurements (dB[A])

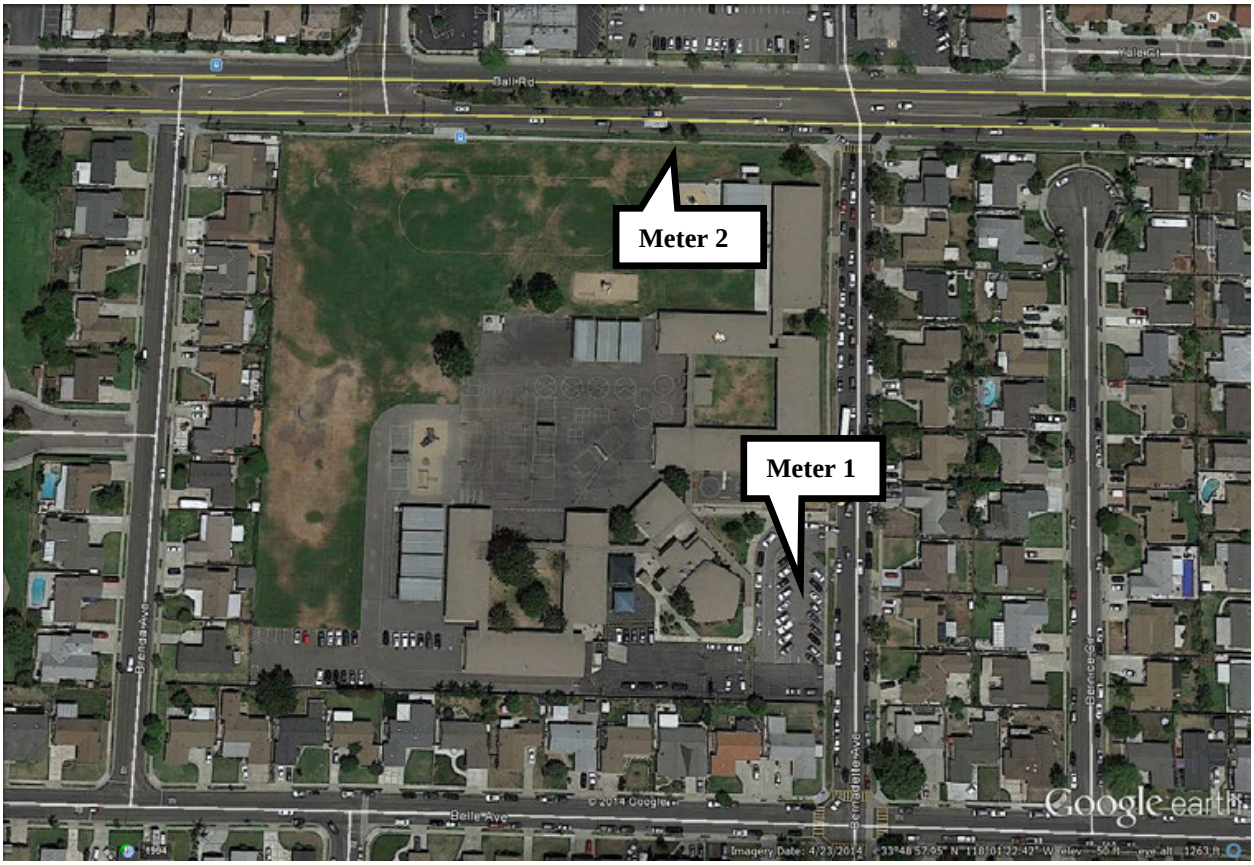
Site	Time	Leq	Lmax	Lmin	L_{10}	L_{33}	L_{50}	L_{90}
M1	13:10-13:25	48	58	38	51	46	44	40
M2	13:30-13:45	64	77	44	68	63	60	49

Meter 1 is placed to reflect existing traffic noise levels from Bernadette Avenue. The observed noise level was 48 Leq at 70 feet from the roadway centerline. Monitoring experience has shown that 24-hour weighted CNELs are typically 2 to 3 dB higher than mid-afternoon Leq readings shown above which would translate to 50-51 dB CNEL at 50 feet from centerline. This is well within recommended suggested residential compatibility guidelines.

Meter 2 is representative of noise from Ball Road. Observed noise levels at this location were higher, 64 dB Leq which would equate to a CNEL of 66 or 67 dB. Observed noise levels along the Ball Road frontage slightly exceed the 65 dB CNEL guideline at 50 feet from the centerline. Noise mitigation in the form of increased setback or shielding is likely necessary for residential units directly adjacent to Ball Road. Accordingly, this report provides an evaluation of noise reduction measures to ensure the proposed project residential noise exposure is within recommended compatibility guidelines.

Figure 1

Noise Monitor Locations



Meter Location

Meter 1: 50 feet to Bernadette centerline in staff parking lot-posted speed limit is 25 mph but most traffic traveling around 35 mph

Meter 2: 50 feet to Ball Road centerline

NOISE IMPACTS

NOISE SIGNIFICANCE CRITERIA

Noise impacts are considered significant if they result in:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

STANDARDS OF SIGNIFICANCE

Noise impacts are considered significant if they expose persons to levels in excess of standards established in local general plans or noise ordinances. The exterior noise standard adopted for use for this project is 65 dBA CNEL in usable outdoor space such as backyards, decks, patios, etc. If required, attenuation through increased setback and/or project perimeter barriers is anticipated to be used to reduce traffic noise to the 65 dBA CNEL goal. However, an inability to achieve this goal through the application of reasonably available mitigation measures would be considered a significant impact.

Impacts may also be significant if they create either a substantial permanent or temporary increase. The term "substantial" is not quantified in CEQA guidelines. In most environmental analyses, "substantial" is taken to mean a level that is clearly perceptible to humans. In practice, this is at least a +3 dB increase. Some agencies, such as Caltrans, require substantial increases to be +10 dB or more if noise standards are not exceeded by the increase. For purposes of this analysis, a +3 dB increase is considered a substantial increase. The following noise impacts due to project-related traffic would be considered significant:

1. If project traffic noise were to cause an increase by a perceptible amount (+3 dB CNEL) or expose receivers to levels exceeding city compatibility noise standards.

2. If future build-out noise levels were to expose on site sensitive receivers to levels exceeding compatibility standards of 65 dB CNEL exterior at any outdoor uses or 45 dB CNEL interior noise levels in any habitable space.

CONSTRUCTION NOISE SIGNIFICANCE

Noise levels from an activity crossing the property line of an adjacent property are regulated by the Buena Park Municipal Code. Construction activities such as the proposed project are normally exempt from any numerical thresholds if they are conducted during hours of lesser noise sensitivity. The City of Buena Park limits construction activities to the following hours:

Monday through Saturday	7:00 a.m. to 8 p.m.
Sundays and Federal Holidays	Construction is prohibited

CONSTRUCTION NOISE IMPACTS

Temporary construction noise impacts will vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used and its activity level. Short-term construction noise impacts tend to occur in discrete phases dominated initially by demolition activities, then foundation work followed by construction and paving activities.

Demolition or construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used which changes during the course of the project. Construction noise tends to occur in discrete phases dominated initially by demolition and/or earth-moving sources and later for finish construction. Figure 2 shows the typical range of construction activity noise generation as a function of equipment used in various building phases. The earth-moving sources are seen to be the noisiest with equipment noise ranging up to about 90 dB(A) at 50 feet from the source. Spherically radiating point sources of noise emissions are atmospherically attenuated by a factor of 6 dB per doubling of distance, or about 20 dB in 500 feet of propagation. The loudest earth-moving noise sources may therefore sometimes be detectable above the local background beyond 1,000 feet from the construction area. An impact radius of 1,000 feet or more pre-supposes a clear line-of-sight and no other machinery or equipment noise that would mask project construction noise. With buildings and other barriers to interrupt line-of-sight conditions, the potential "noise envelope" around individual construction sites is reduced. Construction noise impacts are, therefore, somewhat less than that predicted under idealized input conditions.

Construction noise exposure can be further worsened when several pieces of equipment operate in close proximity. Because of the logarithmic nature of decibel addition, two equally loud pieces of equipment will be +3 dB louder than either one individually. Three simultaneous sources are +5 dB louder than any single source. Thus, while average operational equipment noise levels are perhaps 5 dB less than at peak power, simultaneous equipment operation can still yield an apparent noise strength equal to any individual source at peak noise output. Whereas the average heavy equipment reference noise level is 85 dB(A), short-term levels from either peak power or from several pieces operating in close proximity can be as high as 90 dB(A).

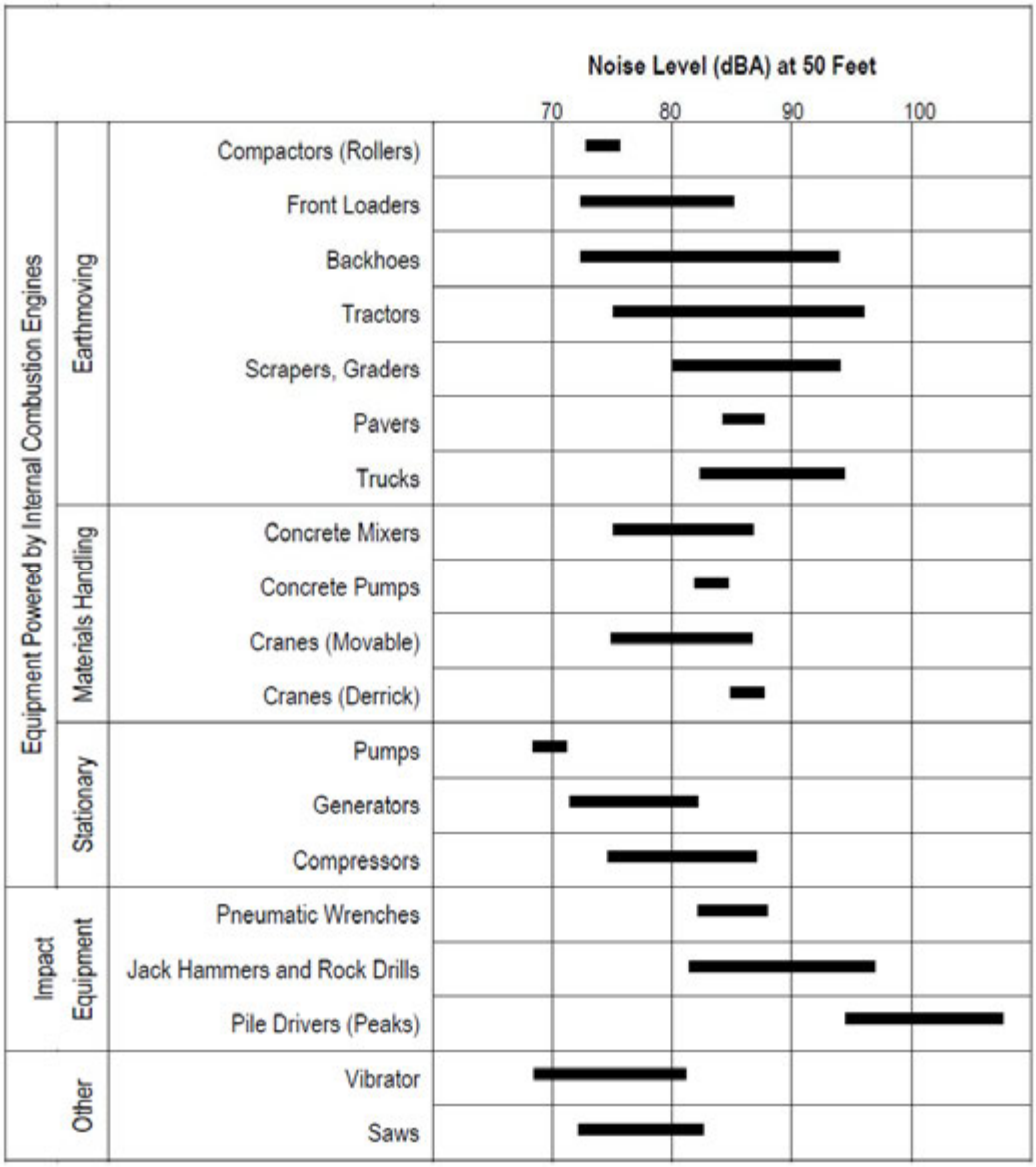
During most intensive heavy equipment operations, the peak hourly average noise level from several pieces of equipment in simultaneous hourly operation is 85 dB Leq at 50 feet from the

activity. Even with closed windows at an adjacent residence, such levels could interfere with quiet interior residential activity.

There are existing residences located slightly greater than 50 feet west and south of the project site which could experience a temporary construction noise nuisance. A construction noise mitigation plan should be developed and implemented for activity occurring within perhaps 200 feet of these residences. The use of smaller equipment and notification of potentially affected residents of the duration of adjacent heavy equipment operations can reduce construction noise.

Figure 2

Typical Construction Equipment Noise Generation Levels



Source: EPA PB 206717, Environmental Protection Agency, December 31, 1971, "Noise from Construction Equipment and Operations."

CONSTRUCTION ACTIVITY VIBRATION

Typical background vibration levels in residential areas are usually 50 VdB or lower, below the threshold of human perception. Perceptible vibration levels inside residences are typically attributed to the operation of heating and air conditioning systems, door slams or street traffic. Construction activities and street traffic are some of the most common external sources of vibration that can be perceptible inside residences.

Construction activities generate ground-borne vibration when heavy equipment travels over unpaved surfaces or when it is engaged in soil movement. The effects of ground-borne vibration include discernable movement of building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. Vibration related problems generally occur due to resonances in the structural components of a building because structures amplify groundborne vibration. Within the "soft" sedimentary surfaces of much of Southern California, ground vibration is quickly damped out. Groundborne vibration is almost never annoying to people who are outdoors (FTA 2006).

Groundborne vibrations from construction activities rarely reach levels that can damage structures. Because vibration is typically not an issue, very few jurisdictions have adopted vibration significance thresholds. Vibration thresholds have been adopted for major public works construction projects, but these relate mostly to structural protection (cracking foundations or stucco) rather than to human annoyance.

Vibration is most commonly expressed in terms of the root mean square (RMS) velocity of a vibrating object. RMS velocities are expressed in units of vibration decibels. The range of vibration decibels (VdB) is as follows:

65 VdB	-	threshold of human perception
72 VdB	-	annoyance due to frequent events
80 VdB	-	annoyance due to infrequent events
94-98 VdB	-	minor cosmetic damage

The Buena Park General Plan presents vibration recommendations provided by the FTA. Although this standard is more likely applicable to stationary equipment, it could probably apply to mobile equipment. The recommended threshold is 80 VdB for vibration annoyance. The threshold for structural damage such as cracked stucco is typically 100 VdB.

To determine potential impacts of the project's construction activities, estimates of vibration levels induced by the construction equipment at various distances are presented in Table 3.

Table 3
Approximate Vibration Levels Induced by Construction Equipment

Equipment	25 feet	50 feet	100 feet
Large Bulldozer	87	81	75
Loaded Truck	86	80	74
Jackhammer	79	73	67
Small Bulldozer	58	52	46

* (FTA Transit Noise & Vibration Assessment, Chapter 12, Construction, 2006)

The on-site construction equipment that will create the maximum potential vibration is a large bulldozer. The stated vibration source level in the FTA Handbook for such equipment is 81 VdBA at 50 feet from the source. With typical vibrational energy spreading loss, the vibration annoyance standard of 0.01 inches per second is met at 56 feet. Effects of vibration perception such as rattling windows could only occur at the nearest residential structures however vibration resulting from project construction would not exceed cosmetic damage thresholds.

Regardless, large bulldozers will not likely operate directly at the shared property line with the southern or western perimeter homes. Any fine grading at the property line will be performed with small bulldozers which are seen above to have 30 VdB less vibration potential. Nevertheless, to ensure adequate vibration protection the following mitigation measure is recommended:

- Only small bulldozers shall be permitted to operate within 56 feet of the nearest residences.

Construction activity vibration impacts are judged as less-than-significant.

PROJECT-RELATED VEHICULAR NOISE IMPACTS

Long-term noise concerns from the development of residential uses at the project site center primarily on mobile source emissions on project area roadways. These concerns were addressed using the California specific vehicle noise curves (CALVENO) in the federal roadway noise model (the FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108). The model calculates the Leq noise level for a particular reference set of input conditions, and then makes a series of adjustments for site-specific traffic volumes, distances, roadway speeds, or noise barriers.

Table 4 summarizes the calculated 24-hour CNEL level at 50 feet from the roadway centerline along 24 project area roadway segments. Existing conditions with and without project were evaluated as well as future (2017) conditions with and without project. The noise analysis utilized traffic volume data and speed limit information obtained from the traffic analysis, prepared in December, 2014, by Linscott, Law and Greenspan, for this project.

Table 5 provides a comparison of the "existing with project" and "existing no project" conditions as well as "2017 no project" and "2017 with project". As seen in Table 5, the maximum expected project related noise increase of +0.3 dB CNEL at 50 feet from the roadway centerline is along Bernadette Ave. Fifteen of the 24 segments are not expected to experience any detectable project related traffic noise impact. Because local area roadway traffic volumes are generally large, the traffic noise impact of the proposed 67 homes is minimal and will likely be imperceptible. As the impacts are less than the +3.0 dB CNEL significance threshold, traffic noise attributed to the project is considered to be individually less-than-significant.

The cumulative analysis compares "2017 with project" to "existing" conditions. The largest cumulative impact is +0.7 dB CNEL and is on Ball Road west of Bernadette, adjacent to the project site. Since this impact is also less than the +3.0 dB threshold cumulative impacts are also considered to be less-than-significant.

Table 4
Near Term Traffic Noise Impact Analysis
(CNEL in dB at 50 feet from Centerline)

Road Segment		***Existing No Project***	***Existing W Project***	***2017 No Project***	***2017 W Project***
Ball Road	W of Valley View	71.4	71.4	71.5	71.6
	E of Valley View	70.8	70.9	71.1	71.1
	W of Brenda	71.0	71.1	71.2	71.3
	E of Brenda	70.9	71.0	71.2	71.2
	W of Bernadette	70.9	70.9	71.0	71.1
	Bernadette-Holder	70.9	70.8	71.0	71.1
	E of Holder	70.2	70.2	70.4	71.0
Belle Ave/	W of Valley View	60.7	60.7	60.8	60.8
	E of Valley View	57.8	57.9	57.9	58.1
	W of Brenda	58.1	58.2	58.2	58.3
	Brenda-Bernadette	57.8	58.0	58.0	58.1
	E of Bernadette	56.3	56.3	56.4	56.4
Valley View/	N of Ball	73.8	73.8	74.0	74.0
	S of Ball	73.7	73.8	74.0	74.0
	N of Belle	73.7	73.7	73.9	74.0
	S of Belle	73.6	73.7	73.9	73.9
Brenda/	S of Ball	57.7	57.7	57.8	57.8
	N of Belle	55.8	55.8	56.0	56.0
Bernadette/	N of Ball	55.5	55.5	55.5	55.5
	S of Ball	57.6	57.9	57.8	58.0
	N of Belle	56.6	56.8	56.7	56.9
	S of Belle	55.3	55.3	55.4	55.4
Holder/	N of Ball	67.2	67.3	67.4	67.4
	S of Ball	65.8	65.9	66.0	66.0

Table 5
Project Only and Cumulative Impacts
(CNEL in dB at 50 feet from Centerline)

Road Segment		***Project Only Existing***	***Project Only 2017***	***Cumulative***
Ball Road	W of Valley View	0.0	0.0	0.2
	E of Valley View	0.1	0.1	0.3
	W of Brenda	0.1	0.1	0.3
	E of Brenda	0.1	0.1	0.3
	W of Bernadette	0.3	0.3	0.7
	Bernadette-Holder	0.0	0.1	0.2
	E of Holder	0.0	0.0	0.3
Belle Ave/	W of Valley View	0.0	0.0	0.1
	E of Valley View	0.1	0.1	0.3
	W of Brenda	0.1	0.1	0.2
	Brenda-Bernadette	0.1	0.1	0.3
	E of Bernadette	0.0	0.0	0.1
Valley View/	N of Ball	0.0	0.0	0.3
	S of Ball	0.0	0.0	0.3
	N of Belle	0.0	0.0	0.3
	S of Belle	0.0	0.0	0.3
Brenda/	S of Ball	0.0	0.0	0.1
	N of Belle	0.0	0.0	0.1
Bernadette/	N of Ball	0.0	0.0	0.1
	S of Ball	0.3	0.3	0.4
	N of Belle	0.2	0.2	0.3
	S of Belle	0.0	0.0	0.1
Holder/	N of Ball	0.0	0.0	0.2
	S of Ball	0.0	0.0	0.2

ON-SITE NOISE EXPOSURE

Because of proximity to Ball Road, proposed units along the northern project perimeter were evaluated to ensure traffic noise exposure would be within recommended compatibility guidelines. The project traffic report calculates that in 2017, the Ball Road roadway segment adjacent to the project site is expected to carry an ADT of about 21,000 vehicles. As shown in Table 4, by 2017, the "with project" noise levels are anticipated to be as high as 71.3 dB CNEL at 50 feet from the Ball Road centerline. The closest units for the proposed project are approximately 65 feet from the roadway centerline. At these setback distances the following traffic noise levels are determined:

Roadway	Noise Level at 50 feet from roadway centerline	Setback Distance	Noise Level @ Setback
Ball Road	71.3 dB CNEL	65 feet	70.2 dB CNEL

Although the City of Buena Park guidelines allows exterior noise levels of up to 70 dB CNEL, a noise level of 65 dB is the level at which ambient noise begins to interfere with one's ability to carry on a normal conversation at reasonable separation without raising one's voice and is used as the guideline for this analysis.

Project residences along the Ball Avenue perimeter will have rear yards backing up to Ball Road. Therefore it is recommended that all units along Ball Road be equipped with a 6-foot noise/privacy wall. Such an enclosure would provide at least -6 dB of noise attenuation and reduce exterior recreational noise exposure in yards along the Ball Avenue frontage to below 65 dB CNEL.

The interior residential noise standard is 45 dB CNEL. For typical wood-framed construction with stucco and gypsum board wall assemblies, the exterior to interior noise level reduction is as follows:

Partly open windows – 12 dB

Closed single-paned windows – 20 dB

Closed dual-paned windows – 30 dB

Use of dual-paned windows is required by the California Building Code (CBC) for energy conservation in new residential construction. Interior noise standards would therefore be met with closed windows even if exterior building façade levels were as high as 75 dB CNEL. Interior standards will be met as long as residents have the option to close their windows. Where window closure is needed to shut out noise, supplemental ventilation is required by the CBC with some specified gradation of fresh air. Central air conditioning or a fresh air inlet on a whole house fan would meet this requirement.

SUMMARY AND MITIGATION

The project noise impact study indicates a less-than-significant noise impact from project-related traffic on project vicinity receptors. Project-related traffic will not substantially worsen traffic noise levels on any roadway.

For all perimeter units along the Ball Road frontage, traffic noise may exceed City of Buena Park standards for outdoor recreational space. In order to create outdoor space that achieves 65 dB CNEL at these units, a 6-foot solid noise wall, constructed along the Ball Road frontage, will provide 6 dB of noise protection. A 15-foot long return will be required along the side yards of Lots 1 and 67 at the site entrance to prevent noise leakage. This will ensure that recreational users in the rear yards of units backing up to Ball Road will achieve 65 dB CNEL even at build-out.

Residential habitable rooms facing Ball Road will meet the City of Buena Park 45 dB CNEL interior noise standard with no acoustical mitigation except the option to close windows. Window closure requires that supplemental ventilation be provided to rooms facing Ball Road.

Short-term construction noise intrusion will be limited by conditions on construction permits requiring compliance with the City of Buena Park Ordinance. The allowed hours of construction are 7 a.m. and 8 p.m. on weekdays and Saturdays. Construction is not permitted on any national holiday or on any Sunday. In addition the following construction practices are recommended:

- Stockpiling and staging activities must be located as far as practicable from dwellings.
- All mobile equipment shall have properly operating and maintained mufflers.

Vibration levels from heavy equipment may be noticeable at times at the nearest sensitive use to the west and south of the project site, but will not cause any structural damage or exceed the vibration damage threshold. Nevertheless, to ensure adequate vibration protection the following mitigation measure is recommended:

- Only small bulldozers shall be permitted to operate within 56 feet of the nearest residences.

LINSCOTT LAW & GREENSPAN
engineers

REVISED TRAFFIC IMPACT ANALYSIS REPORT

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT

Buena Park, California

March 11, 2015

Engineers & Planners
Traffic
Transportation
Parking

LINSCOTT LAW & GREENSPAN engineers

REVISED TRAFFIC IMPACT ANALYSIS REPORT

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT

Buena Park, California
March 11, 2015

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REVISED TRAFFIC IMPACT ANALYSIS REPORT

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT

Buena Park, California
March 10, 2015

1.0 INTRODUCTION

This Traffic Impact Analysis report addresses the potential traffic impacts and circulation needs associated with the proposed Dickerson School Site Residential Project (hereinafter referred to as Project). The proposed Project consists of a 67-unit single family subdivision, with a recreation area of approximately 0.50 acres. Primary access to the Project site will be provided via proposed full-access driveway at the intersection of Ball Road and Juanita Street. Access to ten of the proposed homes, located on the west side of Bernadette Avenue, will be provided via driveways on this residential street. These ten homes will front Bernadette Avenue and face the existing homes on the east side.

1.1 Scope of Work

This traffic report documents the findings and recommendations of a traffic impact analysis conducted by Linscott, Law & Greenspan, Engineers (LLG) to determine the potential impacts associated with the proposed Project. The traffic analysis evaluates the existing operating conditions at eight (8) key study intersections within the project vicinity, estimates the trip generation potential of the proposed Project, and forecasts future opening year (Year 2017) operating conditions without and with the proposed Project. Where necessary, intersection improvements/mitigation measures are identified. An assessment of the Project's potential trip generation in comparison to the current land use (i.e. elementary school) for the project site is included as well.

This traffic report satisfies the traffic impact requirements of the City of Buena Park, and is consistent with the current *Congestion Management Program (CMP) for Orange County.* Given several key study intersections also reside within the City of Cypress, this report will also be prepared to ensure consistency with this jurisdiction's respective requirements. The Scope of Work for this traffic study, which is included in ***Appendix A***, was developed in conjunction with City of Buena Park Public Works Department staff as well as City of Cypress staff.

The project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing weekday peak hour traffic count information has been collected at eight (8) key study intersections for use in the preparation of intersection level of service calculations. Information concerning cumulative projects (planned and/or approved) in the vicinity of the proposed Project has been researched at the Cities of Buena Park, Anaheim, Los Alamitos, Cypress, and La Palma. Based on our research, there are five (5) cumulative projects located in the City of Cypress; no cumulative projects within the other jurisdictions listed above, including Buena Park, are planned and/or approved. The five (5) cumulative projects in the City of Cypress were considered in the cumulative traffic analysis for this project.

This traffic report analyzes existing and future weekday AM peak hour and PM peak hour traffic conditions for opening year (Year 2017) traffic setting upon completion of the proposed Project. Opening year (Year 2017) cumulative peak hour traffic forecasts were projected by incorporating a one percent (1.0%) annual growth rate and the trip generation potential of five (5) cumulative projects.

1.2 Study Area

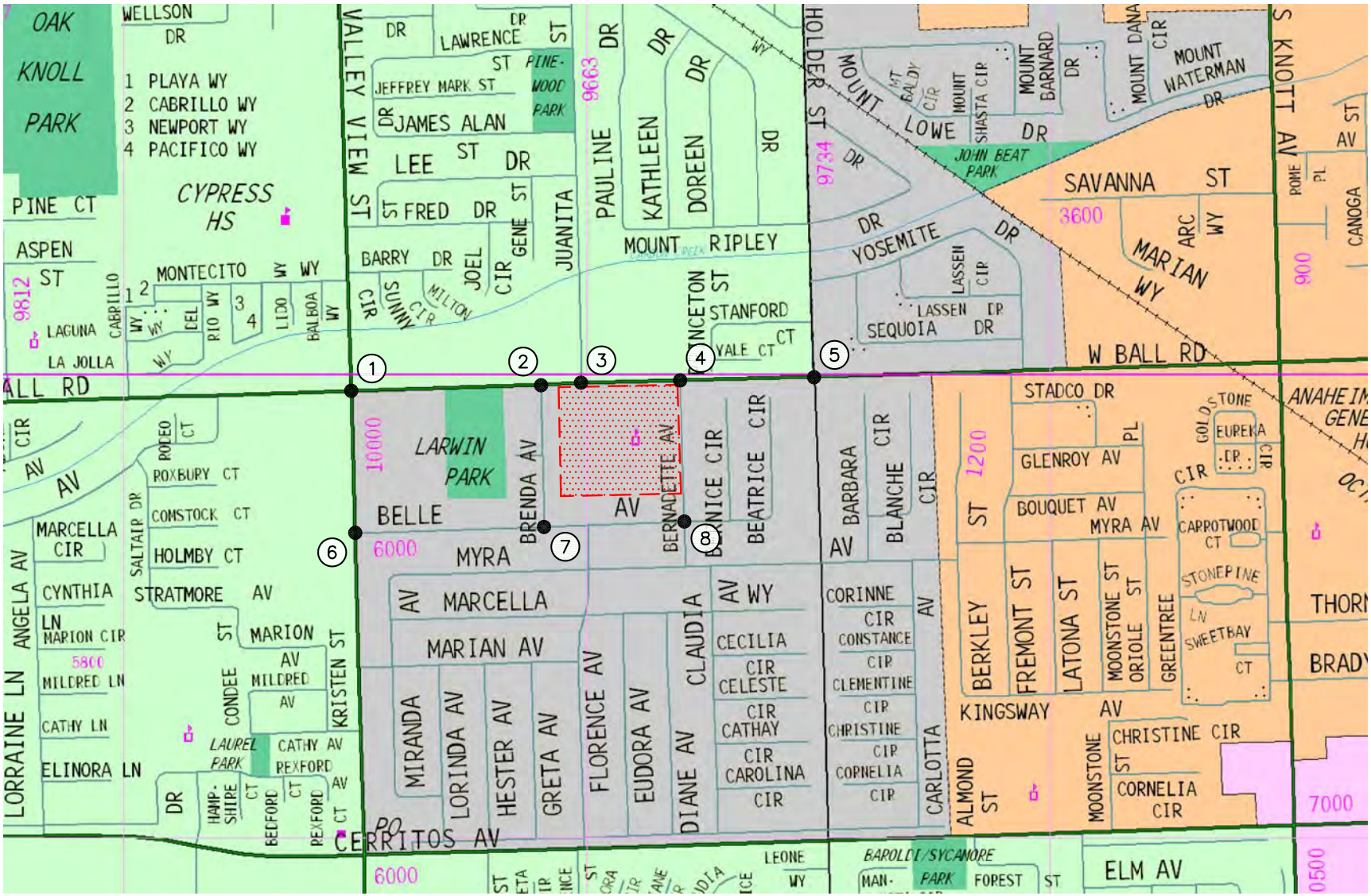
Eight (8) key study intersections have been identified for evaluation. Of the eight identified intersections, two are located within the City of Buena Park, with the remaining six sharing a border with the City of Cypress. The eight intersections listed below provide regional and local access to the study area and define the extent of the boundaries for this traffic impact investigation.

Key Study Intersections

1) Valley View Street at Ball Road (City of Buena Park/Cypress)
2) Brenda Avenue at Ball Road (City of Buena Park/Cypress)
3) Juanita Street at Ball Road (City of Buena Park/Cypress)
4) Bernadette Avenue at Ball Road (City of Buena Park/Cypress)
5) Holder Street at Ball Road (City of Buena Park/Cypress)
6) Valley View Street at Belle Avenue (City of Buena Park/Cypress)
7) Brenda Avenue at Belle Avenue (City of Buena Park)
8) Bernadette Avenue at Belle Avenue (City of Buena Park)

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the Project and depicts the study locations and surrounding street system. The Level of Service (LOS) investigations at these key locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects and the proposed Project. When necessary, this report recommends intersection and/or roadway improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service, and/or mitigates the impact of the project. Included in this Traffic Impact Analysis are:

- Existing traffic counts,
- Estimated project traffic generation/distribution/assignment,
- Estimated cumulative project traffic generation/distribution/assignment,
- AM and PM peak hour capacity analyses for existing conditions,
- AM and PM peak hour capacity analyses for existing with project conditions,
- AM and PM peak hour capacity analyses for opening year (Year 2017) traffic conditions without and with the proposed Project,
- Traffic Signal Warrant Analysis
- Site Access and Internal Circulation Evaluation, and
- Congestion Management Program Compliance Assessment.



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: THOMAS BROS.

KEY

(#) = STUDY INTERSECTION

= PROPOSED PROJECT

= CITY OF CYPRESS

= CITY OF BUENA PARK

= CITY OF ANAHEIM

= CITY OF STANTON

FIGURE 1-1

VICINITY MAP

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

2.0 PROJECT DESCRIPTION

The Project site is a 9.53 acre parcel of land that is generally located south of Ball road and west of Bernadette Avenue in the City of Buena Park, California. The subject property is currently developed with the former Elizabeth Dickerson Elementary School. ***Figure 2-1*** is an existing aerial photograph of the Project site.

The proposed Project consists of a 67-unit single family subdivision, with a recreation area of approximately 0.50 acres. ***Figure 2-2*** illustrates the proposed site plan for the Project prepared by Charles Hartman & Associates/Land Concern Landscape Architecture.

The Project is expected to be constructed over the next year or so by 2016, but is dependent on several factors, including the project funding and market conditions. Hence, to provide a conservative assessment, Year 2017 has been utilized to assess the Project's potential opening year (full buildout/occupancy) traffic impacts within a near-term cumulative traffic setting.

2.1 Site Access

Primary access to the Project site will be provided via proposed full-access driveway at the intersection of Ball Road and Juanita Street. Access to 10 of the proposed homes, located on the west side of Bernadette Avenue, will be provided via driveways on this residential street. These 10 homes will front Bernadette Avenue and face the existing homes on the east side and will be incorporated into the existing neighborhood.

As a project design feature, the proposed intersection improvements to be completed as a part of the Project at the Ball Road/Juanita Street intersection to accommodate the proposed primary access driveway, subject to the approval of the City of Cypress and the City of Buena Park, include:

- Modification of the existing median on Ball Road to provide a dedicated westbound left-turn lane,
- Restriping the southbound approach on Juanita Street to provide one left/through option lane, and a separate right-turn lane,
- Construction of the new site driveway to provide a northbound (outbound) left/through option lane and a right-turn lane and one departure (inbound) lane,
- Modification of the existing traffic signal and installation of new traffic signal equipment as well as installation of the appropriate pavement markings and striping, as necessary;
- Installation of traffic signal poles, mast arms and equipment for northbound traffic from the project site at the Ball Road/Juanita Street intersection;
- Addition of traffic control for the proposed westbound left-turn from Ball Road onto the project site.
- Addition of traffic control as appropriate for the southbound through movement from Juanita Street onto the project site.
- Implementation of the appropriate traffic signal timing for the new layout of the Ball Road/Juanita Street intersection.
- Addition of a pedestrian crossing across the project driveway of this intersection.

In addition, to conform to the most current *California Manual on Uniform Traffic Control Devices (CA MUTCD)*, the Project, in collaboration with the City of Buena Park, will modify/remove all existing signage related to school zones that are associated with the former Elizabeth Dickerson Elementary School and replace all "yellow" crosswalks with standard white paint with the conversion of the school site to residential development. The limits of the work will be determined by the City of Buena Park Public Works Department.

2.2 Pedestrian Circulation

Pedestrian circulation would be provided via existing public sidewalks along Ball Road, Brenda Avenue and Bernadette Avenue within the vicinity of the project frontage, which will connect to the project's internal walkway. The proposed Project will protect the existing sidewalk along project frontage and if necessary repair or reconstruct sidewalks along the project frontage per the City's request. The existing sidewalk system within the project vicinity provides direct connectivity to the existing residential community and major thoroughfares.

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: BING

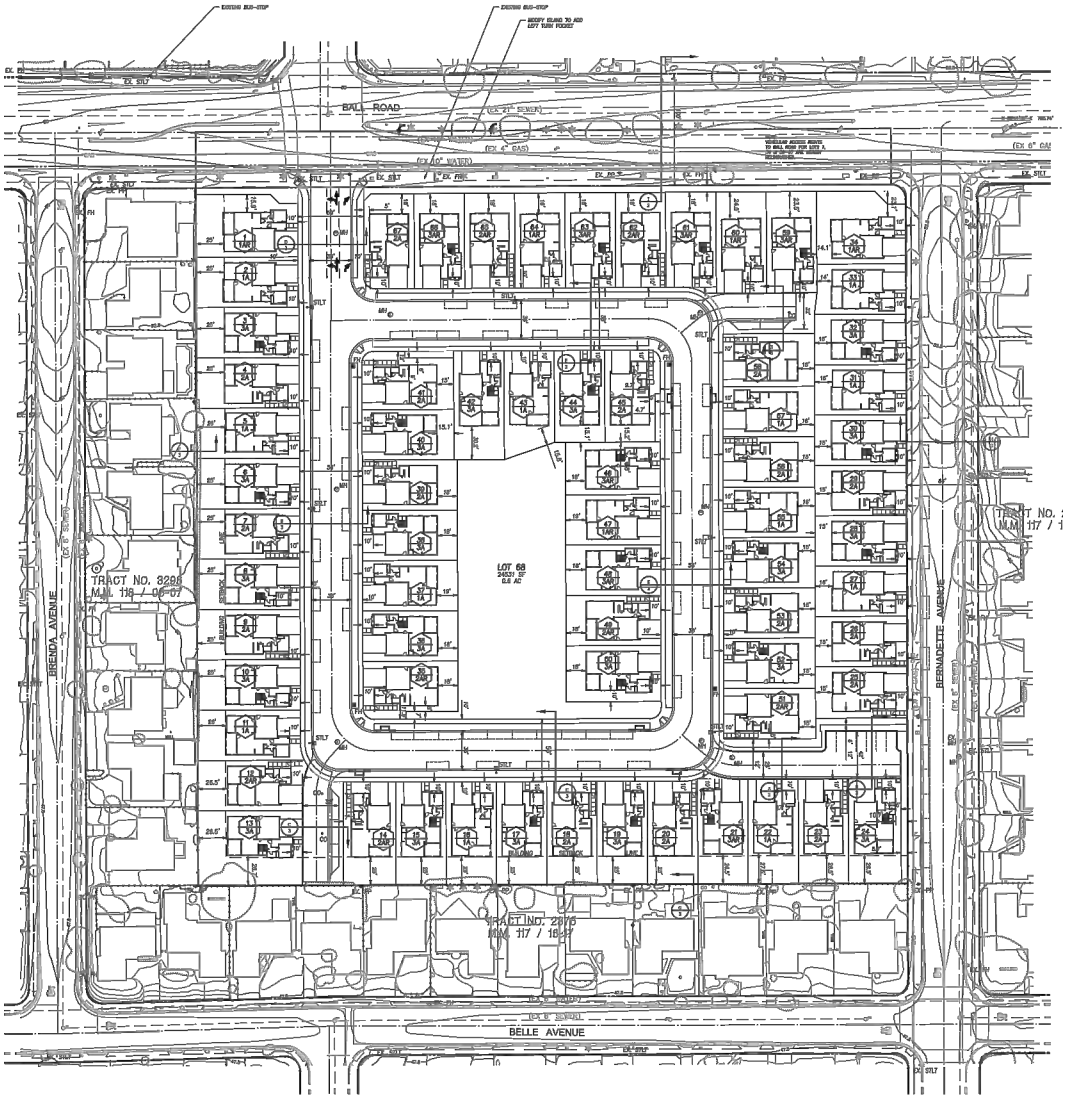
KEY

= PROPOSED PROJECT

FIGURE 2-1

EXISTING SITE

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



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SOURCE: CHARLES HARTMAN & ASSOC.

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

FIGURE 2-2

PROPOSED SITE PLAN

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

3.0 EXISTING CONDITIONS

3.1 Existing Street System

The San Gabriel River Freeway (Interstate 605), Garden Grove Freeway (State Route 22), Artesia Freeway (State Route 91), and the San Diego Freeway (Interstate 405) provide regional access to City of Buena Park. The principal local network of streets serving the project site includes Ball Road, Belle Avenue, Valley View Street, Brenda Avenue, Juanita Street, Bernadette Avenue, and Holder Street. The following discussion provides a brief synopsis of these key area streets. The descriptions are based on an inventory of existing roadway conditions.

Ball Road is a four-lane, divided roadway, oriented in the east-west direction and is classified as a Primary Arterial in the County's Master Plan of Arterial Highways (MPAH). Ball Road borders the Project site on the north side. The posted speed limit is 45 miles per hour (mph). On-street parking is not permitted on either side of the roadway. Traffic signals control the study intersections of Ball Road at Valley View Street, Juanita Street, and Holder Street.

Belle Avenue is a two-lane, local residential street, oriented in the east-west direction. Belle Avenue is located south of the Project site. On-street parking is permitted on either side of the roadway. Single family homes border Belle Avenue, between Valley View Street and Beatrice Circle.

Valley View Street is a six-lane, divided roadway, oriented in the north-south direction and is classified as a Principal Arterial Highway in the County's MPAH. Valley View Street is located west of the Project site. The posted speed limit is 45 mph. On-street parking is not permitted on either side of the roadway.

Brenda Avenue is a two-lane, local residential street, oriented in the north-south direction. Brenda Avenue is located west of the Project site. On-street parking is permitted on either side of the roadway. Single family homes border Brenda Avenue, between Ball Road and Belle Avenue.

Bernadette Avenue is a two-lane, local residential street, oriented in the north-south direction. Bernadette borders the Project site on the east side, and will provide primary access to ten of the Project homes. On-street parking is permitted on either side of the roadway. Single family homes border Bernadette Avenue on the east side, between Ball Road and Belle Avenue.

Juanita Street is a two-lane, local residential street, oriented in the north-south direction. Juanita Street will traverse the Project site on the north side, and will provide primary access to the Project site. On-street parking is permitted on either side of the roadway. Single family homes are development along Juanita Street, north of Cypress Creek to Orange Avenue; south of Cypress Creek to Ball Road, multi-family residential and commercial developments are located on the east side, while access to an existing residential subdivision is provided at Stonehaven Place. Daily traffic on Juanita Street, north of Lawrence Street, totals 1,767 vehicles per day.

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. This figure identifies the number of travel lanes for key arterials, as well as intersection configurations and controls for the key area study intersections.

3.2 Existing Traffic Volumes

Eight (8) key study intersections have been identified as the locations at which to evaluate existing and future traffic operating conditions. These key locations were selected for evaluation based on discussions with City of Buena Park staff, consideration of Orange County CMP requirements, and proximity to the project site.

Existing AM peak hour and PM peak hour traffic volumes for the eight key study intersections evaluated in this report were obtained from manual turning movement counts conducted by AimTD, LLC, Inc. in November 2014.

Figures 3-2 and ***3-3*** illustrate the existing AM and PM peak hour traffic volumes at the eight (8) key study intersections evaluated in this report, respectively. ***Appendix B*** contains the detailed peak hour traffic count sheets for the key intersections evaluated in this report.

3.3 Existing Intersection Conditions

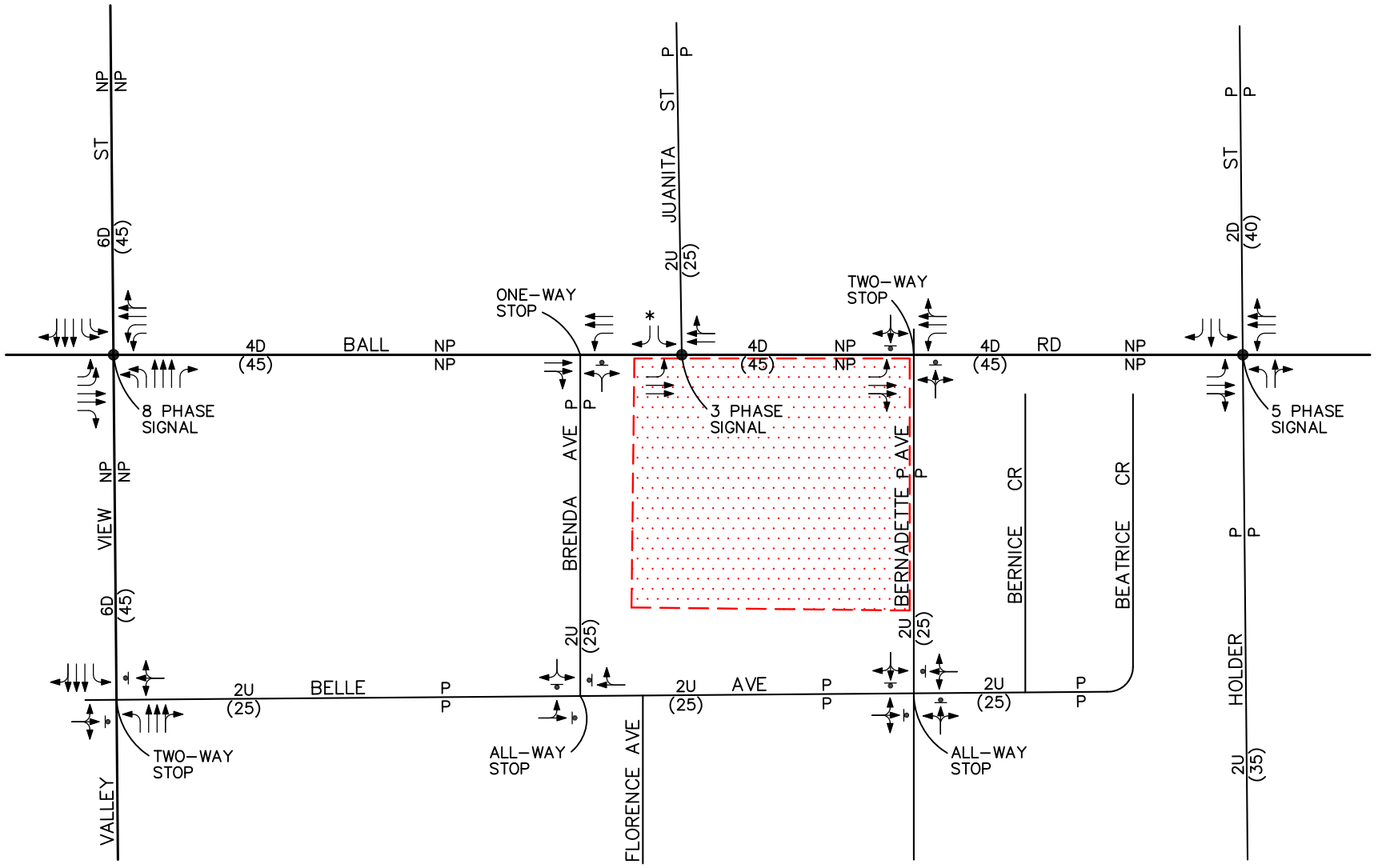
Since all eight locations are located within the City of Buena Park (fully or partially) existing AM and PM peak hour operating conditions for the eight (8) key study intersections were evaluated using the *Intersection Capacity Utilization* (ICU) methodology and *Highway Capacity Manual 2000* (HCM 2000) methodology per the City of Buena Park requirements.

3.3.1 *Intersection Capacity Utilization (ICU) Method of Analysis*

The ICU technique is intended for signalized intersection analysis and estimates the volume to capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time, and thus capacity, required by existing and/or future traffic. It should be noted that the ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing.

Per the City of Buena Park requirements, as well as the City of Cypress, the ICU calculations use a lane capacity of 1,700 vehicles per hour (vph). A clearance adjustment factor of 0.05 was added to each Level of Service calculation. A right-turn-on-red utilization factor of 0.75 was also utilized consistent with the City's requirements.

The ICU value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The ICU value is the sum of the critical volume to capacity ratios at an intersection; it is not intended to be indicative of the LOS of each of the individual turning movements. The six qualitative categories of Level of Service have been defined along with the corresponding ICU value range and are shown in ***Table 3-1***.



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N NO SCALE

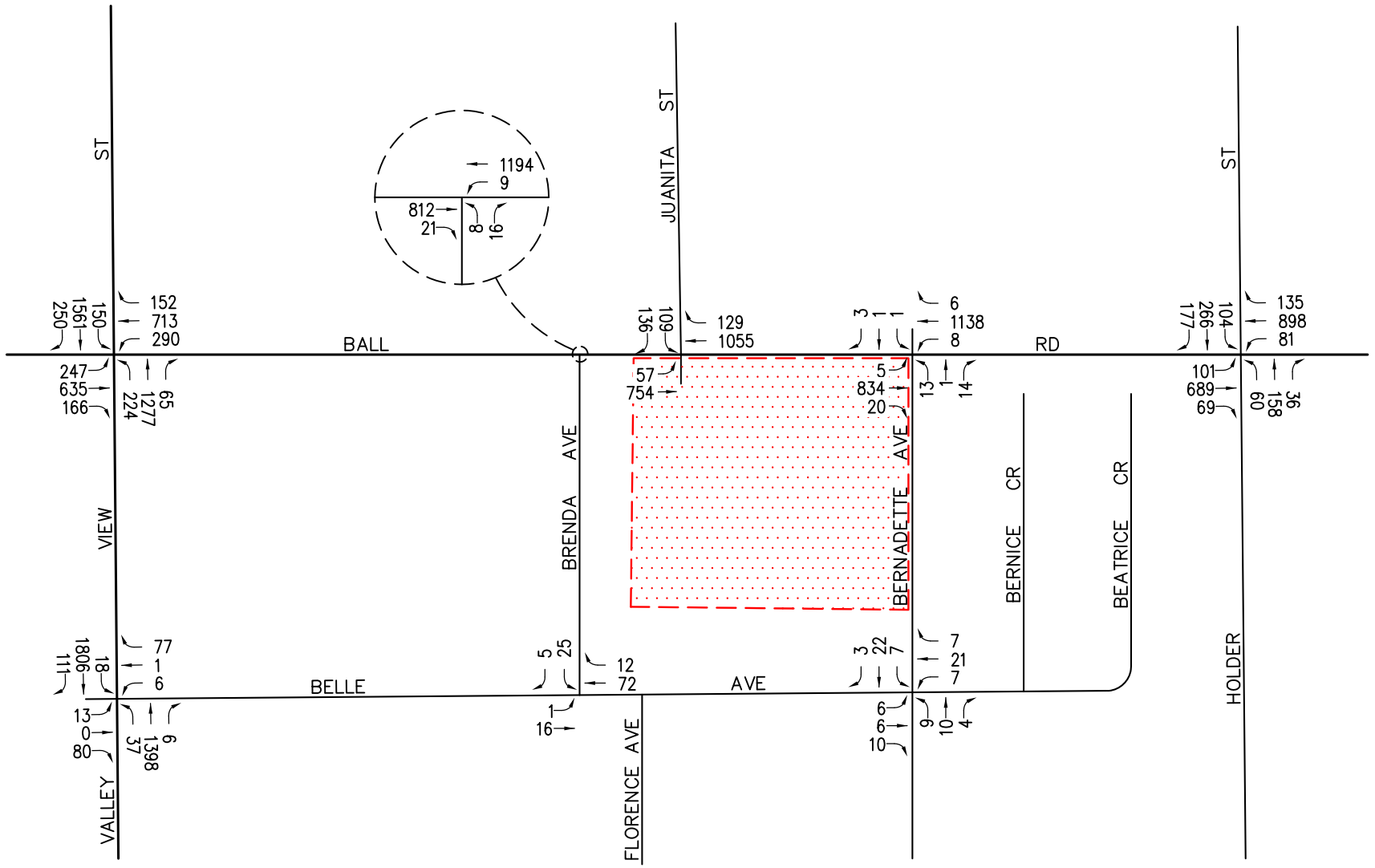
KEY

- ← = APPROACH LANE ASSIGNMENT
- ● = TRAFFIC SIGNAL, ⊸ = STOP SIGN
- P = PARKING, NP = NO PARKING
- U = UNDIVIDED, D = DIVIDED
- 2 = NUMBER OF TRAVEL LANES
- (XX) = POSTED SPEED LIMIT (MPH)
- * = DE FACTO RIGHT-TURN
- ▭ = PROJECT SITE

FIGURE 3-1

EXISTING CONDITIONS AND INTERSECTION CONTROLS

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



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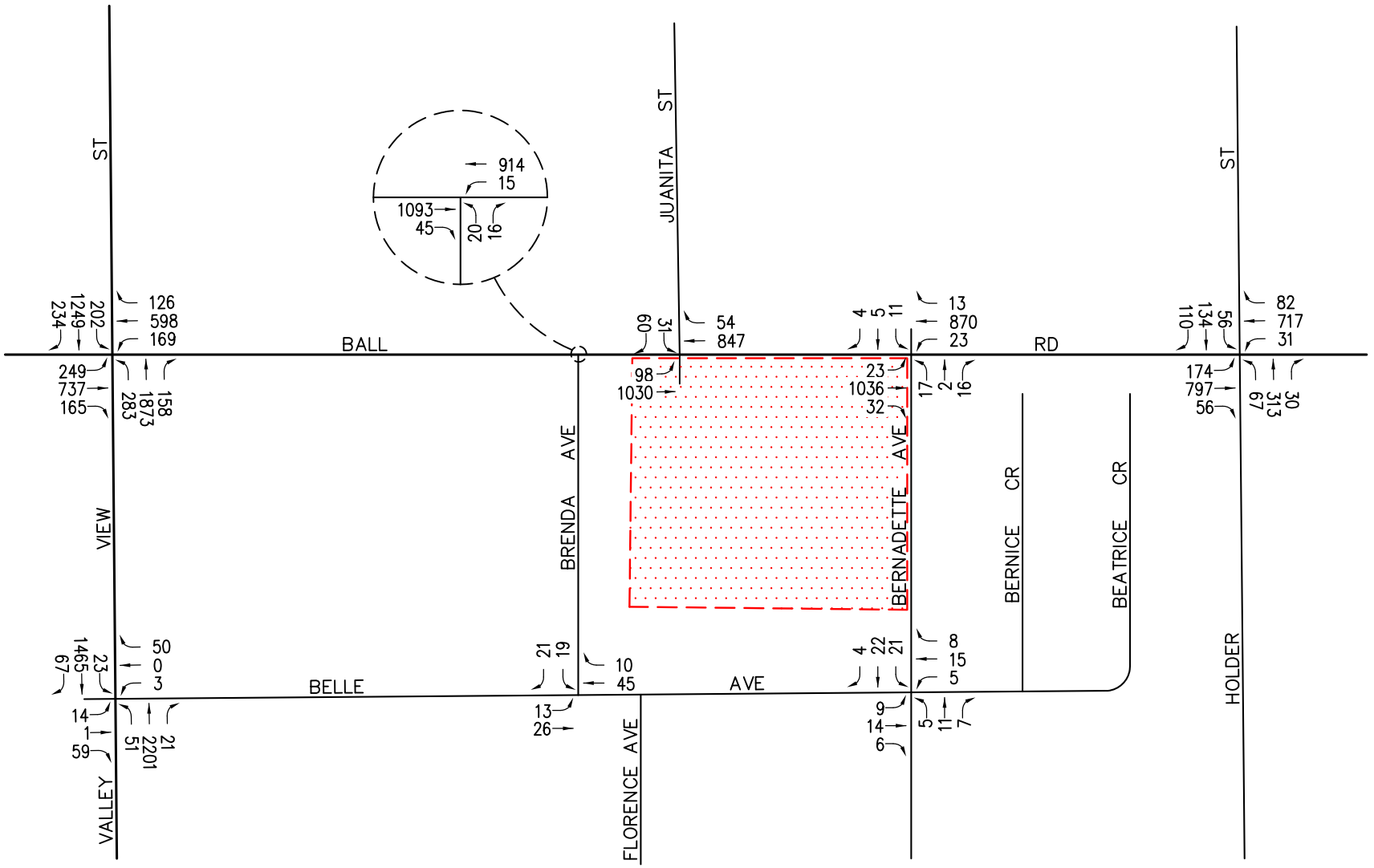
KEY

= PROJECT SITE

FIGURE 3-2

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



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KEY

= PROJECT SITE

FIGURE 3-3

EXISTING PM PEAK HOUR TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

3.3.2 *Highway Capacity Manual (HCM) Method of Analysis (Signalized Intersections)*

Based on the HCM operations method of analysis, level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometries, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents, and when there are no other vehicles on the road.

In Chapter 16 of the HCM, only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay.* Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. In contrast, in previous versions of the HCM (1994 and earlier), delay included only stopped delay.

Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle. The six qualitative categories of Level of Service that have been defined along with the corresponding HCM control delay value range for signalized intersections are shown in ***Table 3-2.***

Per the City of Buena Park requirements, the HCM calculations use a lane capacity of 1,900 vehicles per hour (vph). A truck factor of 2% was also applied to Valley View Street and Ball Road, as both are truck routes in the vicinity of the Project.

3.3.3 *Highway Capacity Manual (HCM) Method of Analysis (Unsignalized Intersections)*

The 2000 HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. This methodology estimates the average control delay for each of the subject movements and determines the level of service for each movement. For all-way stop controlled intersections, the overall average control delay measured in seconds per vehicle, and level of service is then calculated for the entire intersection. For one-way and two-way stop-controlled (minor street stop-controlled) intersections, this methodology estimates the worst side street delay, measured in seconds per vehicle and determines the level of service for that approach. The HCM control delay value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of Level of Service have been defined along with the corresponding HCM control delay value range, as shown in ***Table 3-3.***

3.3.4 *Level of Service Criteria*

According to the City of Buena Park, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours.

According to the City of Cypress, LOS D is the minimum acceptable condition that should be maintained during the peak commute hours, except at intersections along Valley View Street, Lincoln Avenue and Katella Avenue. The City of Cypress has adopted LOS E as the standard for intersections along these three arterials since they carry a significant amount of regional through traffic. However, since the two study intersections along Valley View Street are shared with Buena Park, the more stringent level of service standard was applied.

Based on the above, the following summarizes the LOS standard for each key study intersection:

Int. #	Key Intersection	Jurisdiction	Control Type	LOS Standard
1.	Valley View Street at Ball Road	Buena Park/Cypress	8∅ Traffic Signal	D
2.	Brenda Avenue at Ball Road	Buena Park/Cypress	One Way Stop	D
3.	Juanita Street at Ball Road	Buena Park/Cypress	3∅ Traffic Signal	D
4.	Bernadette Avenue at Ball Road	Buena Park/Cypress	Two Way Stop	D
5.	Holder Street at Ball Road	Buena Park/Cypress	5∅ Traffic Signal	D
6.	Valley View Street at Belle Avenue	Buena Park/Cypress	Two Way Stop	D
7.	Brenda Avenue at Belle Avenue	Buena Park	All Way Stop	D
8.	Bernadette Avenue at Belle Avenue	Buena Park	All Way Stop	D

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (ICU)

Level of Service (LOS)	Intersection Capacity Utilization Value (V/C)	Level of Service Description
A	≤ 0.600	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	0.601 – 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701 – 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801 – 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901 – 1.000	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Potentially very long delays with continuously increasing queue lengths.

TABLE 3-2

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM)[1]

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	$\leq$ 10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and $\leq$ 20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.
C	> 20.0 and $\leq$ 35.0	Average traffic delays. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and $\leq$ 55.0	Long traffic delays At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and $\leq$ 80.0	Very long traffic delays This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.
F	$\geq$ 80.0	Severe congestion This level, considered to be unacceptable to most drivers, often occurs with over saturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

[1] Source: *Highway Capacity Manual 2000,* Chapter 16 (Signalized Intersections).

TABLE 3-3

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS[2]

Level of Service (LOS)	Highway Capacity Manual Delay Value (sec/veh)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

[2] Source: *Highway Capacity Manual 2000*, Chapter 17 (Unsignalized Intersections).

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the proposed Project, a multi-step process has been utilized. The first step is traffic generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is traffic distribution, which identifies the origins and destinations of inbound and outbound project traffic. These origins and destinations are typically based on demographics and existing/expected future travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the proposed project is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the project's impacts identified.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Traffic Generation

The trip generation potential of the proposed Project was estimated using the average rates for ITE Land Use 210: Single-Family Detached Housing published in the *Trip Generation, 9th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2012)*. For the existing land use, the average trips rates for ITE Land Use 520: Elementary School was utilized. While the upper portion of ***Table 5-1*** summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project and Existing Land Use, the middle portion provides a summary of the Project's daily, AM peak hour, and PM peak hour trip generation potential as well as the existing site's trip generation "budget."

A review of the middle portion of *Table 5-1* shows the trip generation forecast for the proposed Project. As shown, the proposed Project is forecast to generate 638 daily trips, with 50 trips (13 inbound, 37 outbound) produced in the AM peak hour and 67 trips (42 inbound, 25 outbound) produced in the PM peak hour.

The existing land use has a trip generation potential of 774 daily trips, with 270 trips (150 inbound, 120 outbound) produced in the AM peak hour and 90 (42 inbound, 48 outbound) produced in the PM peak hour.

As shown at the bottom of *Table 5-1,* a comparison of the trips generated by the proposed Project to the trips generated by the Existing Land Use shows that that the total "net" trip generation of the proposed Project will result in 136 fewer daily trips, 220 fewer AM peak hour trips, and 23 fewer PM peak hour trips. However, to provide a conservative traffic assessment, no trip credit was applied for the existing land use since the existing elementary school is now closed (vacant).

TABLE 5-1
PROJECT TRAFFIC GENERATION FORECAST[3]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Rates:							
▪ 210: Single-Family Detached Housing (TE/DU)	9.52	0.19	0.56	0.75	0.63	0.37	1.00
▪ 520: Elementary School (TE/Student)	1.29	0.25	0.20	0.45	0.07	0.08	0.15
Generation Forecasts:							
Proposed Project							
▪ Dickerson School Site Residential Project (67 DU)	638	13	37	50	42	25	67
Existing Land Use							
▪ Existing Elementary School (closed – estimated to be 600 students)	-774	-150	-120	-270	-42	-48	-90
(A) Total "Net" Project Trip Generation:- Proposed Project - Existing Land Use	***-136***	***-137***	***-83***	***-220***	***+0***	***-23***	***-23***

Notes:
TE/DU = Trip end per dwelling unit, SF = Square-feet

[3] Source*: Trip Generation, 9th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2012)].

5.2 Project Traffic Distribution and Assignment

Figure 5-1 presents the traffic distribution pattern for the proposed Project. Project traffic volumes both entering and exiting the project site have been distributed and assigned to the adjacent street system based on the following considerations:

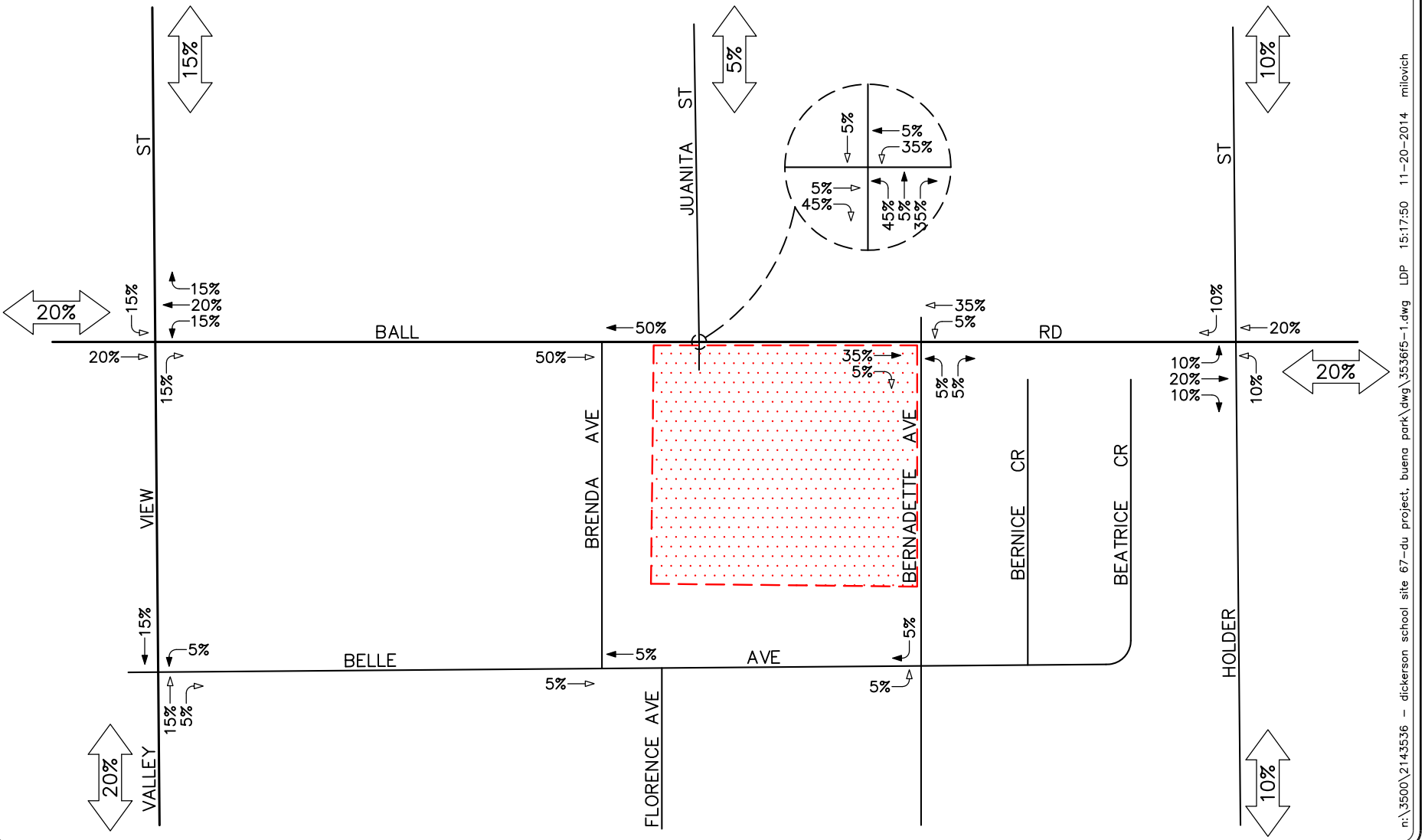
- location of site access points in relation to the surrounding street system,
- the site's proximity to major traffic carriers and regional access routes (i.e. Valley View Street, Ball Road, etc.),
- physical characteristics of the circulation system such as lane channelization and presence of traffic signals that affect travel patterns,
- presence of traffic congestion in the surrounding vicinity,
- ingress/egress availability at the project site, and
- input from City staff.

The anticipated opening year AM and PM peak hour project traffic volumes associated with the proposed Project are presented in ***Figures 5-2*** and ***5-3***, respectively. *Figure 5-3* also illustrates added daily Project traffic volumes on key roadways in the vicinity of the Project. The traffic volume assignments presented in *Figures 5-2* and *5-3* reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in *Table 5-1.*

5.3 Existing With Project Traffic Conditions

The existing with project traffic conditions have been generated based upon existing conditions and the estimated project traffic. These forecast traffic conditions have been prepared pursuant to the California Environmental Quality Act (CEQA) guidelines, which require that the potential impacts of a Project be evaluated upon the circulation system as it currently exists. This traffic volume scenario and the related intersection capacity analyses will identify the roadway improvements necessary to mitigate the direct traffic impacts of the Project, if any.

Figures 5-4 and ***5-5*** present projected AM and PM peak hour traffic volumes at the eight (8) key study intersections with the addition of the trips generated by the proposed Project to existing traffic volumes, respectively.



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N NO SCALE

KEY

= INBOUND PERCENTAGE

= OUTBOUND PERCENTAGE

= PROJECT SITE

FIGURE 5-1

PROJECT TRAFFIC DISTRIBUTION PATTERN

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

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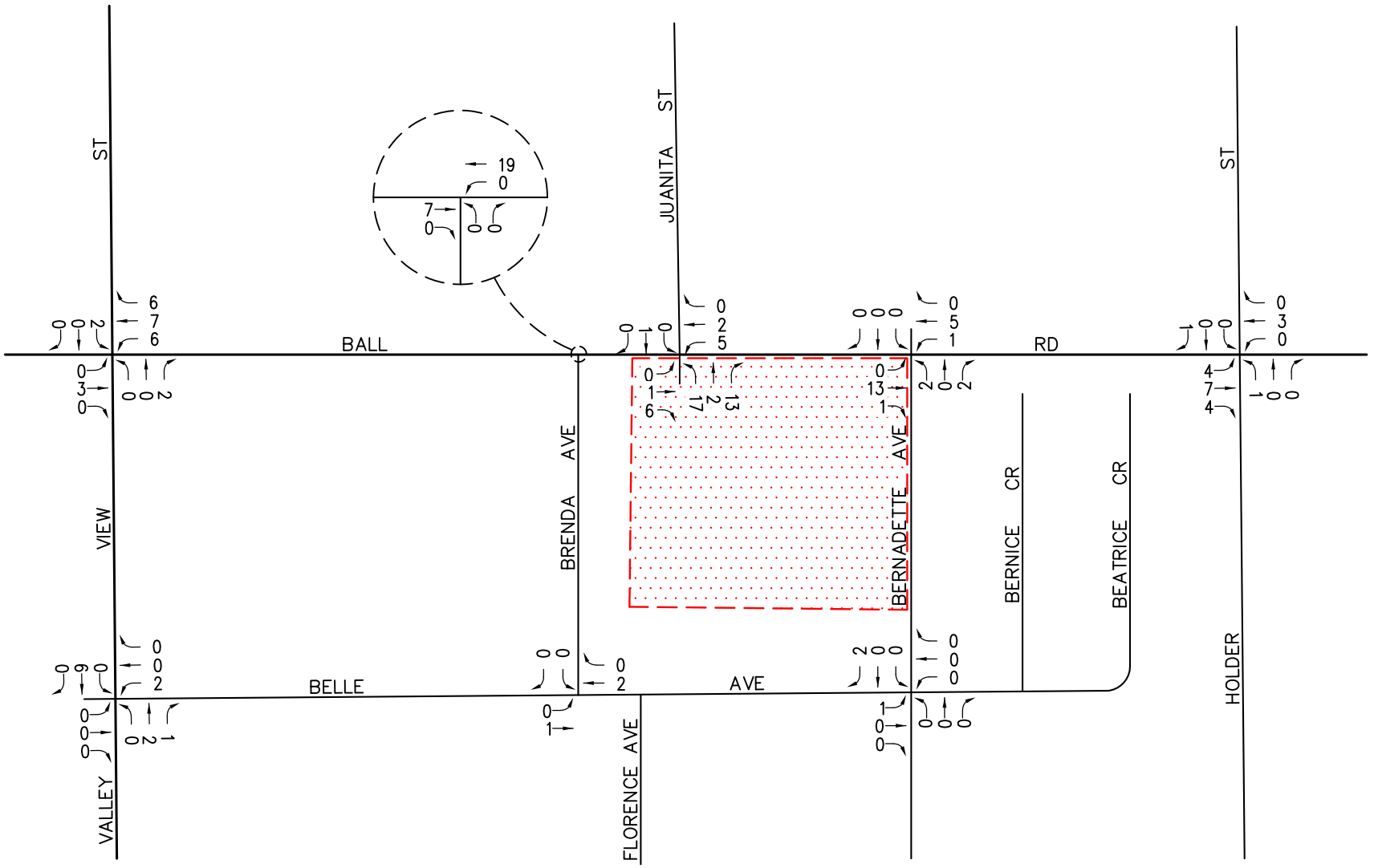

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KEY

= PROJECT SITE

FIGURE 5-2

AM PEAK HOUR PROJECT VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

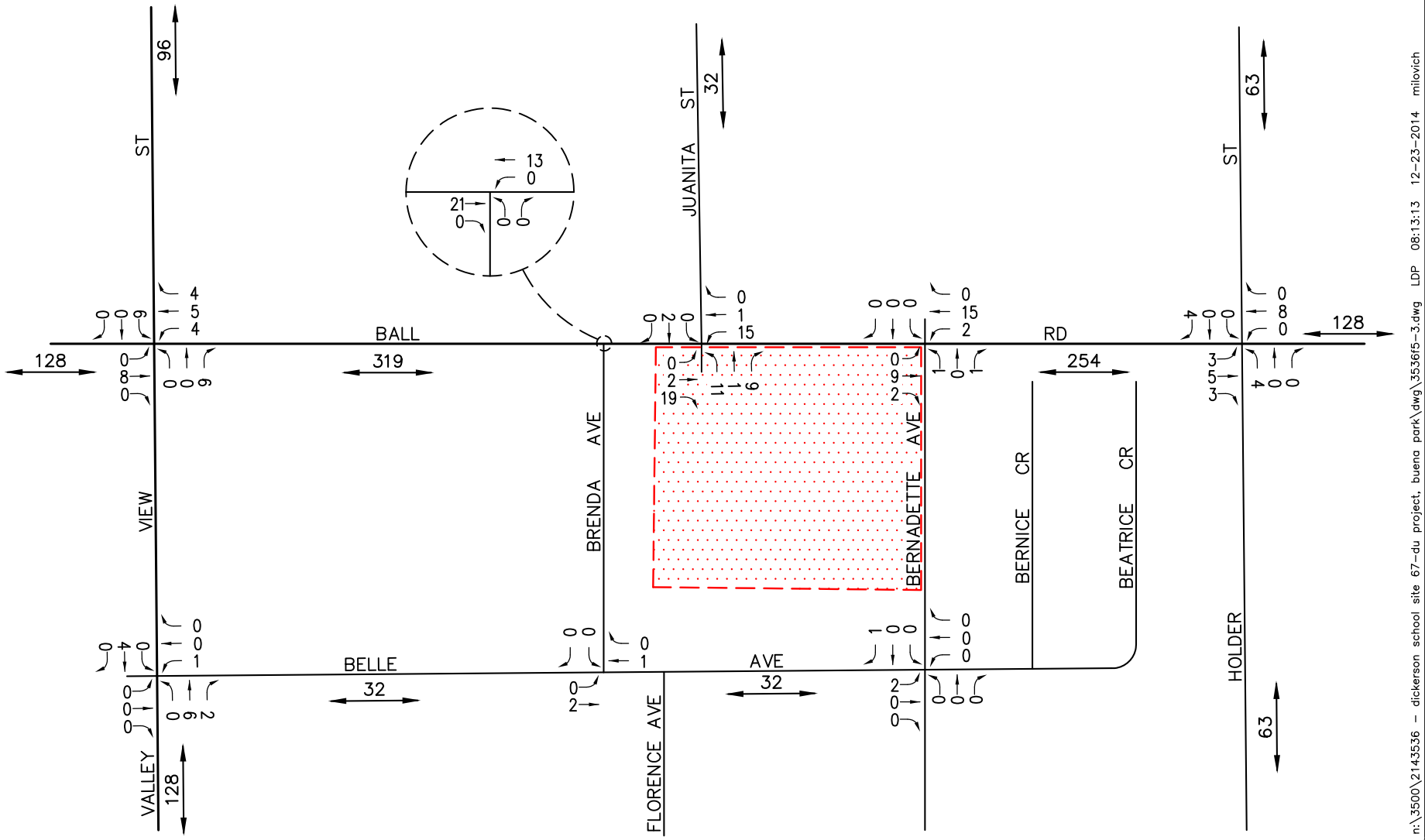

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FIGURE 5-3

PM PEAK HOUR AND DAILY PROJECT VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

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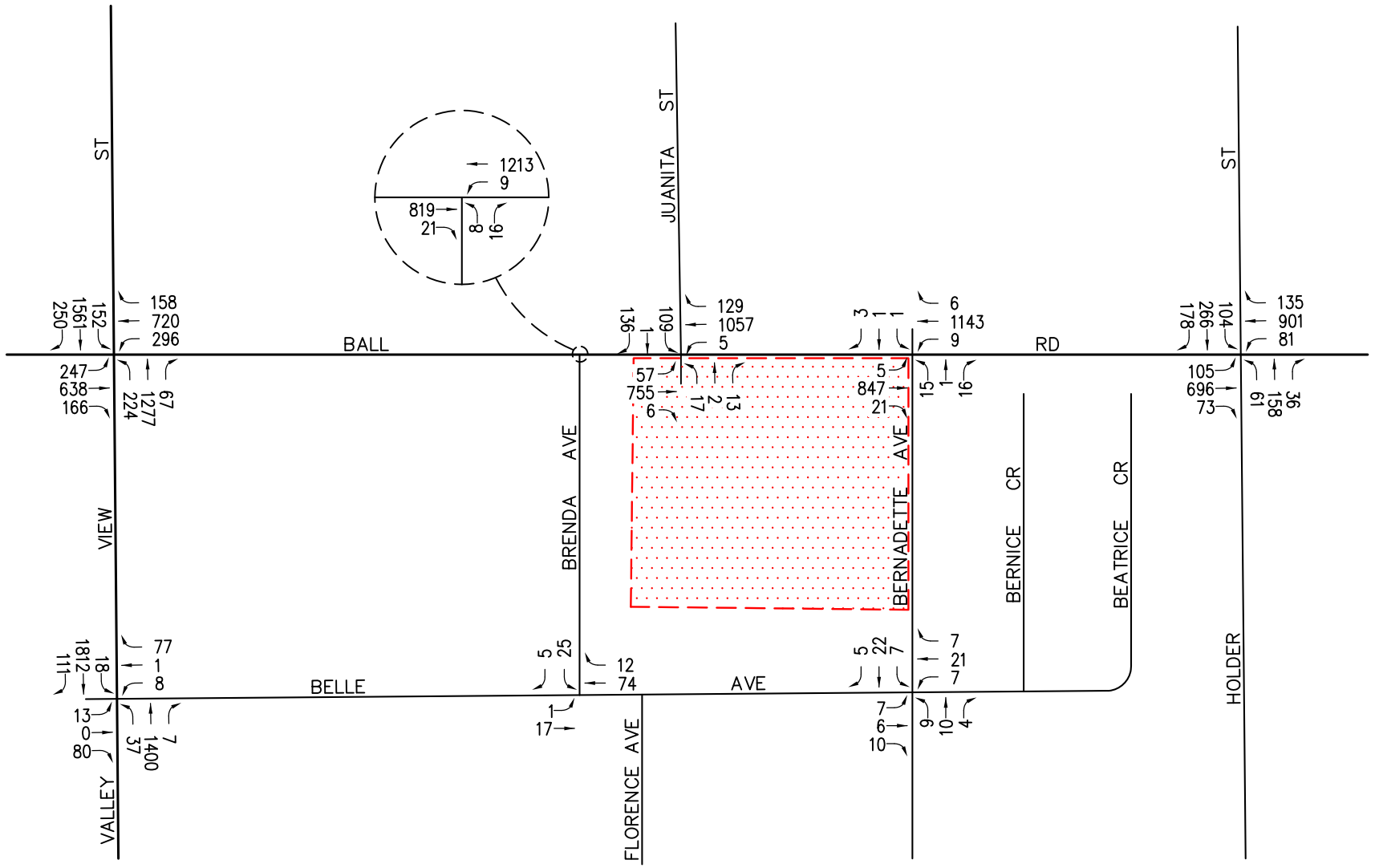

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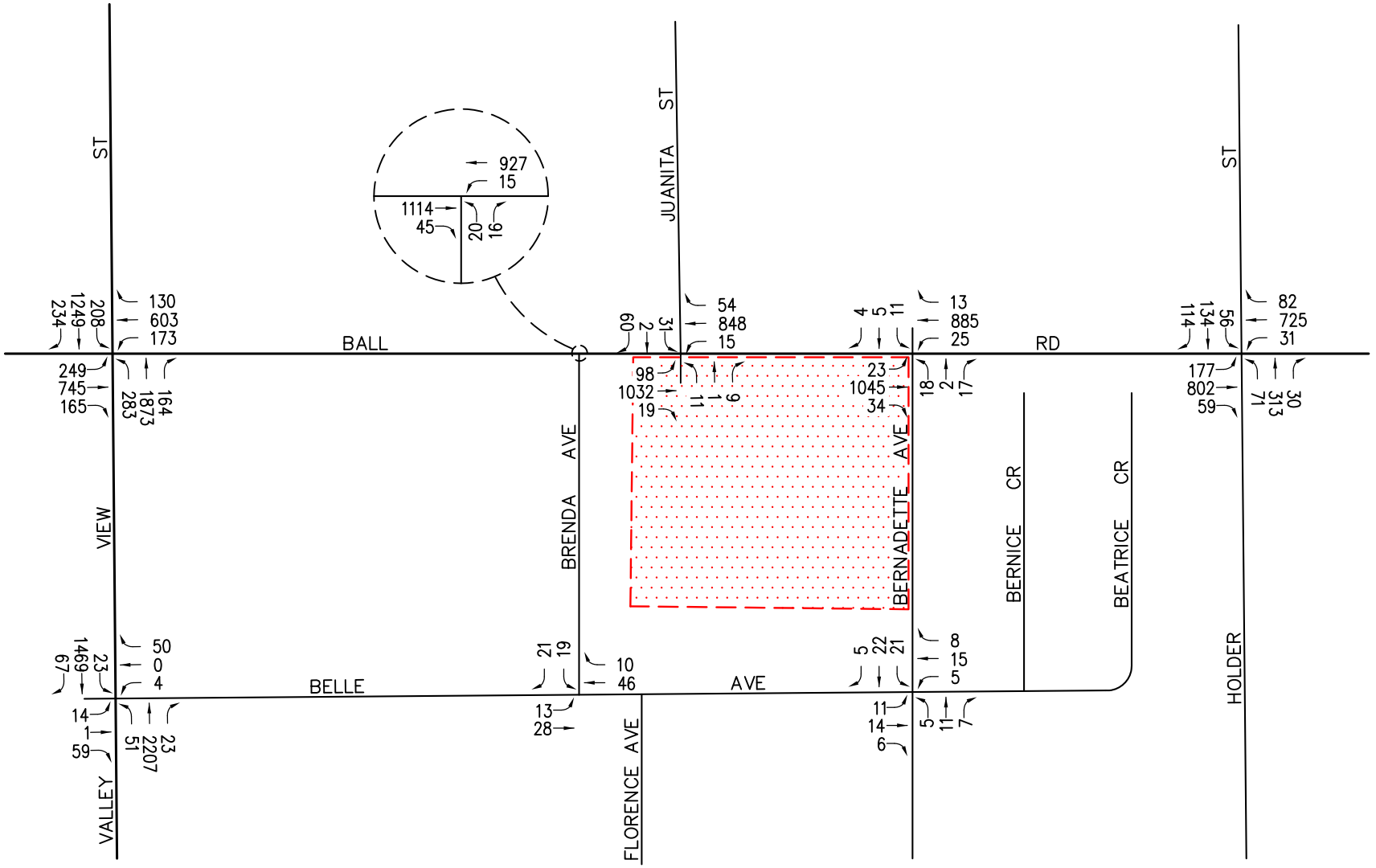
KEY

= PROJECT SITE

FIGURE 5-4

EXISTING WITH PROJECT AM PEAK HOUR PROJECT TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



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KEY

= PROJECT SITE

FIGURE 5-5

EXISTING WITH PROJECT PM PEAK HOUR PROJECT TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Ambient Traffic Growth

Horizon year 2017, background traffic growth estimates have been calculated using an ambient traffic growth factor. The ambient traffic growth factor is intended to include unknown and future cumulative projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area. The future growth in traffic volumes has been calculated at one percent (1.0%) per year. Applied to the Year 2014 existing traffic volumes, this factor results in a 3.0% growth in existing volumes to the opening year horizon (Year 2017).

6.2 Cumulative Projects Traffic Characteristics

In order to make a realistic estimate of future on-street conditions prior to implementation of the proposed Project, the status of other known development projects (cumulative projects) within a two-mile radius of the proposed project has been researched at the Cities of Buena Park, Anaheim, Los Alamitos, La Palma, and Cypress in December 2014. With this information, the potential impact of the proposed Project can be evaluated within the context of the cumulative impact of all ongoing developments. Based on our research, there are five (5) cumulative projects in the City of Cypress that have either been built, but not yet fully occupied, or are being processed for approval; no cumulative projects are planned and/or approved in the other jurisdictions, including Buena Park. These five (5) cumulative projects have been included as part of the cumulative background setting.

Table 6-1 provides a brief description for each of the five (5) cumulative projects. ***Figure 6-1*** graphically illustrates the location of the five (5) cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Table 6-2 summarizes the trip generation potential for all five (5) cumulative projects on a daily and peak hour basis for a typical weekday. As shown, the cumulative projects are expected to generate 13,898 daily trips, with 768 trips (487 inbound, 281 outbound) anticipated during the AM peak hour and 991 trips (565 inbound, 426 outbound) produced during the PM peak hour.

The anticipated AM and PM peak hour cumulative projects traffic volumes at the eight (8) key study intersections are presented in ***Figures 6-2*** and ***6-3***, respectively. ***Figures 6-4*** and ***6-5*** present Year 2017 AM and PM Cumulative peak hour traffic volumes at the eight (8) key study intersections, respectively. It should be noted that the Year 2017 Cumulative traffic volumes include ambient traffic growth as well as the traffic from the five (5) cumulative projects.

6.3 Year 2017 With Project Traffic Volumes

The estimates of Project-generated traffic volumes were added to the Year 2017 Without Project traffic conditions to develop traffic projections for the Year 2017 With Project traffic conditions. ***Figures 6-6*** and ***6-7*** present the anticipated AM and PM peak hour Year 2017 With Project traffic volumes, respectively, at the eight (8) key study intersections.

TABLE 6-1

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[4]

No.	Location/Address	Project Description	Location
1.	13 Acre Retail/Commercial Project	143,556 SF retail; 9,353 SF sit-down restaurant	NW Corner of Katella Avenue and Winners Circle
2.	Cottonwood Church	245,843 SF church; 28,000 SF specialty retail; 33,600 SF community college	NW Corner of Katella Avenue and Lexington Drive
3.	Mackay Elementary School	47 single family dwelling units	8721 Cypress Avenue
4.	Habitat for Humanity	15 condominium units	6122 Lincoln Avenue
5.	Bonanni Development	76 condominium units	6178 & 6182 Lincoln Avenue

Notes:

- SF = Square-feet

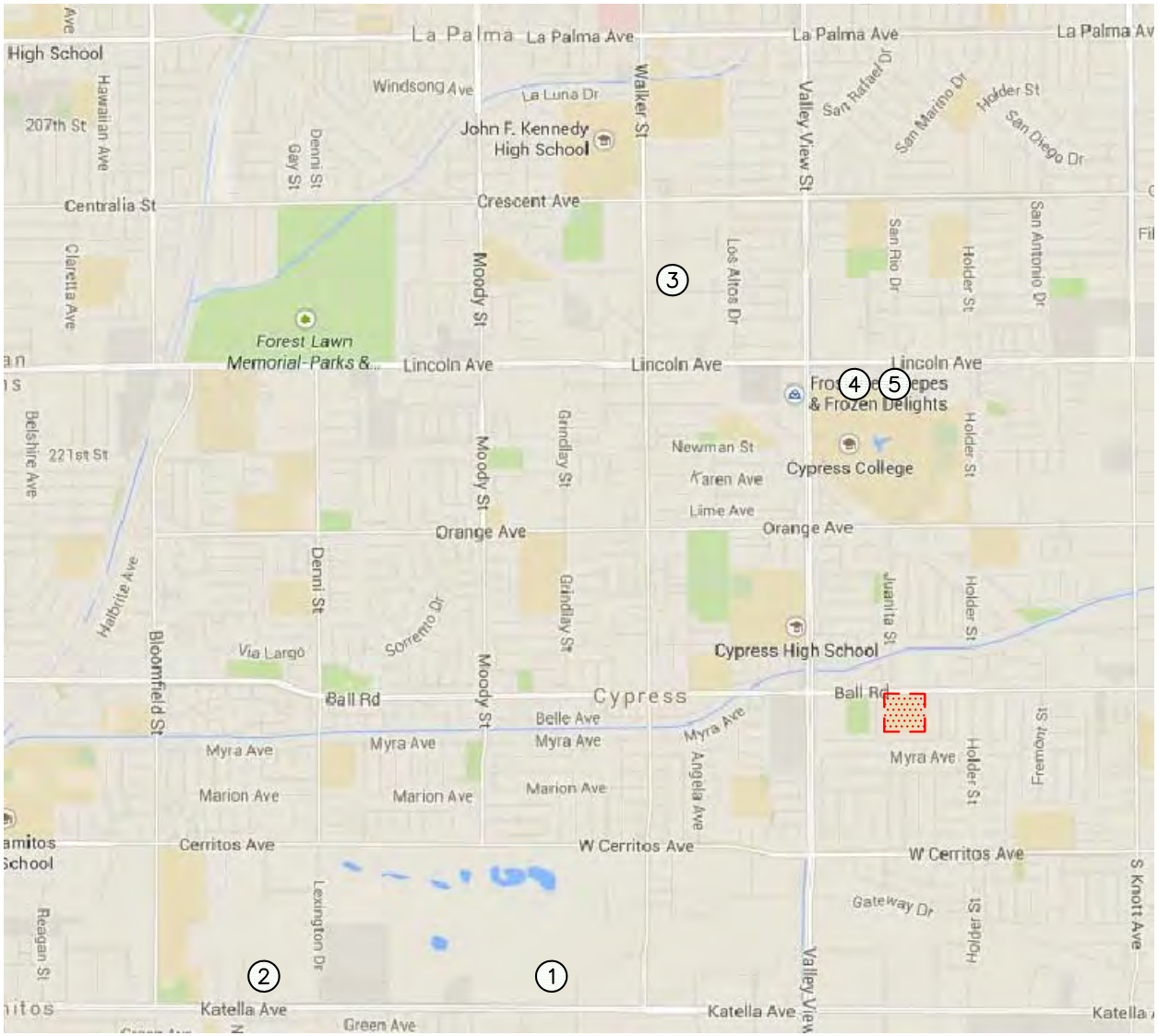
[4] Source: City of Cypress staff.

TABLE 6-2

CUMULATIVE PROJECTS TRAFFIC GENERATION FORECAST[5]

Cumulative Project No.		Daily 2-Way	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
1.	13 Acre Retail/Commercial Project	6,786	96	59	155	194	195	389
2.	Cottonwood Church	6,128	375	163	538	309	198	507
3.	Mackay Elementary School	454	9	26	35	30	17	47
4.	Habitat for Humanity	88	1	6	7	5	3	8
5.	Bonanni Development	442	6	27	33	27	13	40
Total Cumulative Projects Trips		**13,898**	**487**	**281**	**768**	**565**	**426**	**991**

[5] Source: *Trip Generation, 9th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2012)*; and *Traffic Impact Study for the Proposed 8721 Cypress Avenue Project in the City of Cypress*, prepared by Kimley-Horn and Associates, Inc. Where applicable, pass-by adjustment factors were utilized and are reflected in the cumulative projects trip generation potential.



KEY

1. 13 ACRE RETAIL/COMMERCIAL PROJECT
2. COTTONWOOD CHURCH
3. MACKAY ELEMENTARY SCHOOL
4. HABITAT FOR HUMANITY
5. BONANNI DEVELOPMENT

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N NO SCALE

SOURCE: GOOGLE

KEY

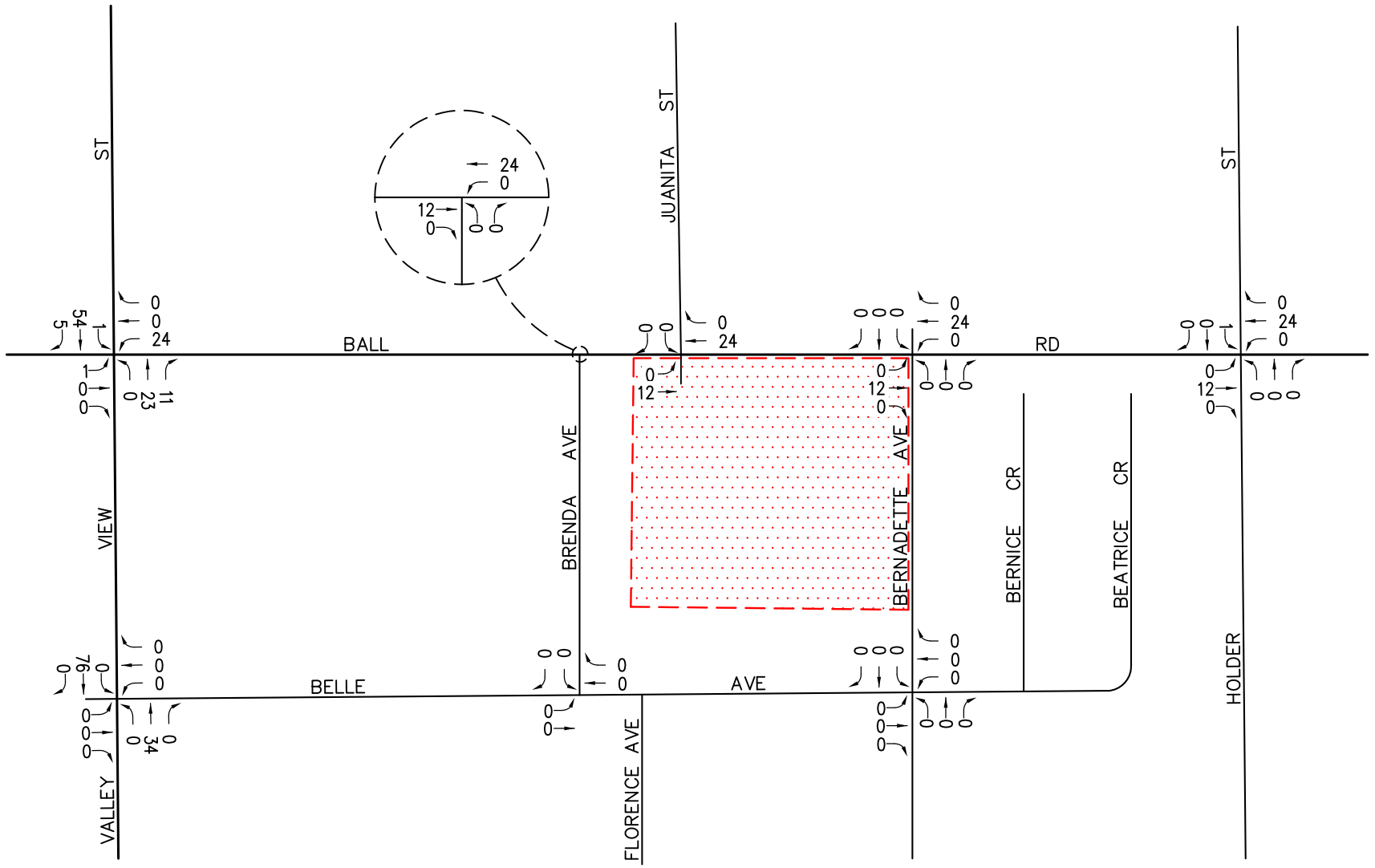
(#) = CUMULATIVE PROJECT LOCATION

= PROJECT SITE

FIGURE 6-1

LOCATION OF CUMULATIVE PROJECTS

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



n:\3500\2143536 - dickerson school site 67-du project, buena park\dwg\3536f6-2.dwg LDP 15:35:14 12-18-2014 lam

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

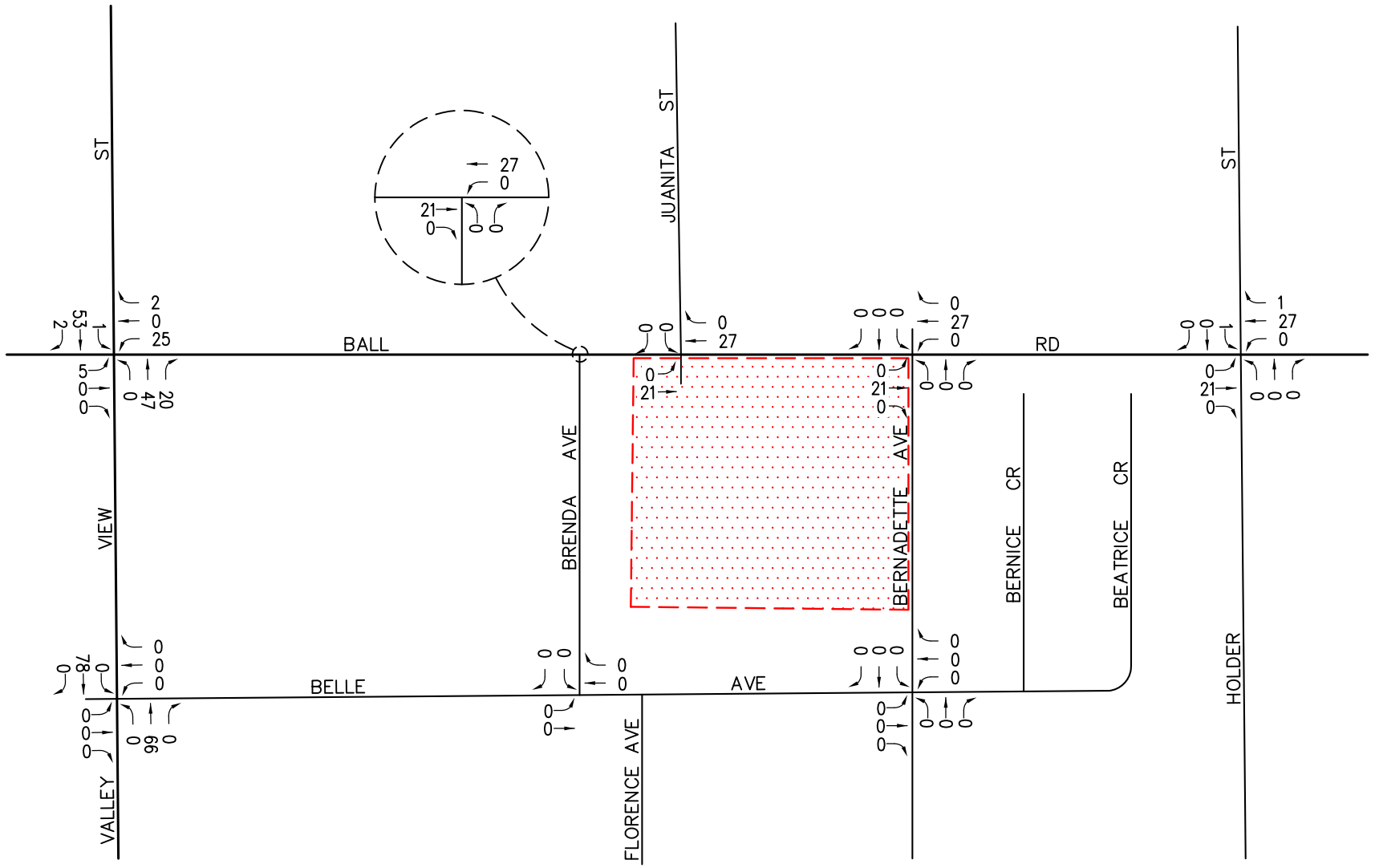
KEY

= PROJECT SITE

FIGURE 6-2

AM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



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N NO SCALE

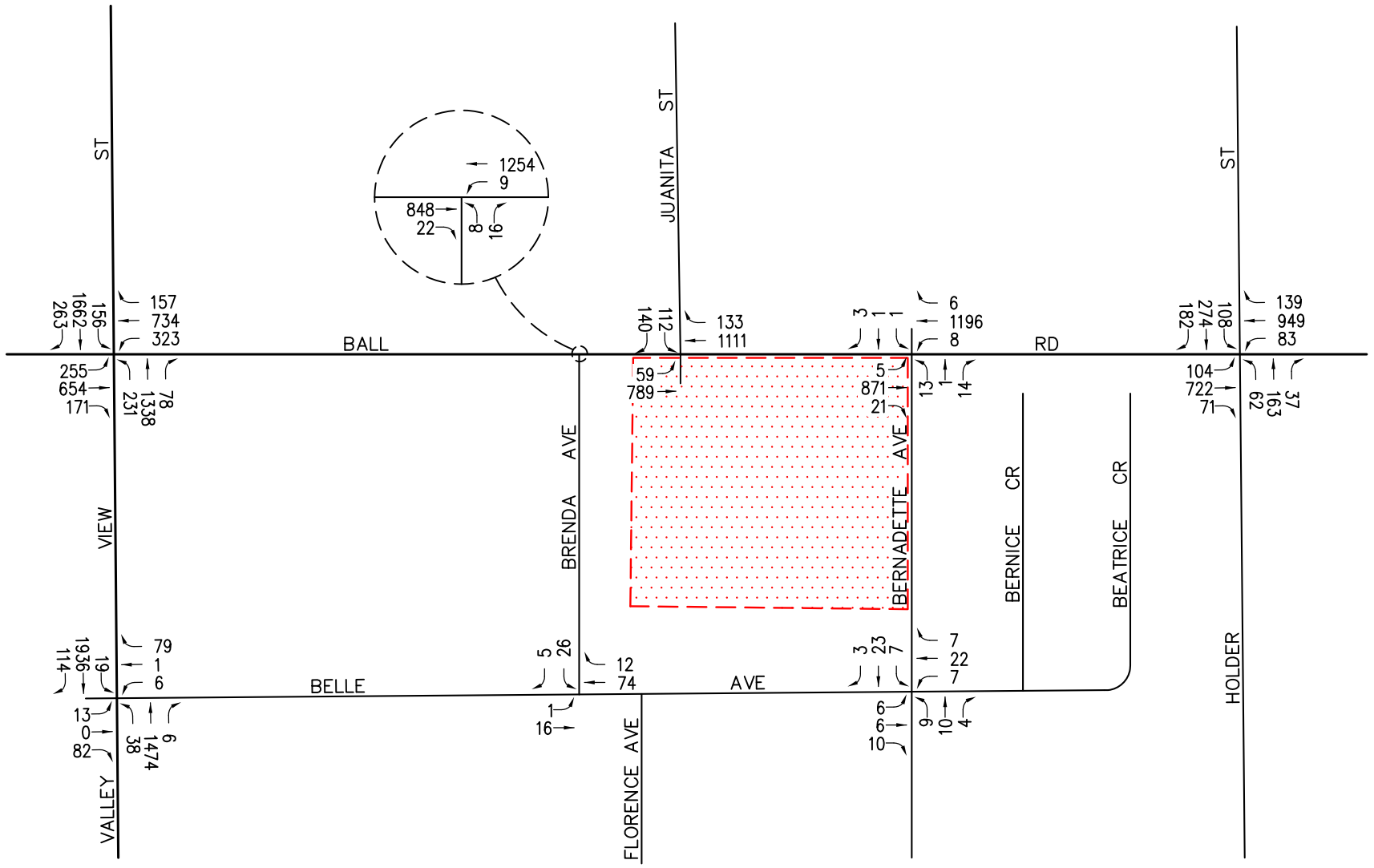
KEY

= PROJECT SITE

FIGURE 6-3

PM PEAK HOUR CUMULATIVE PROJECTS TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

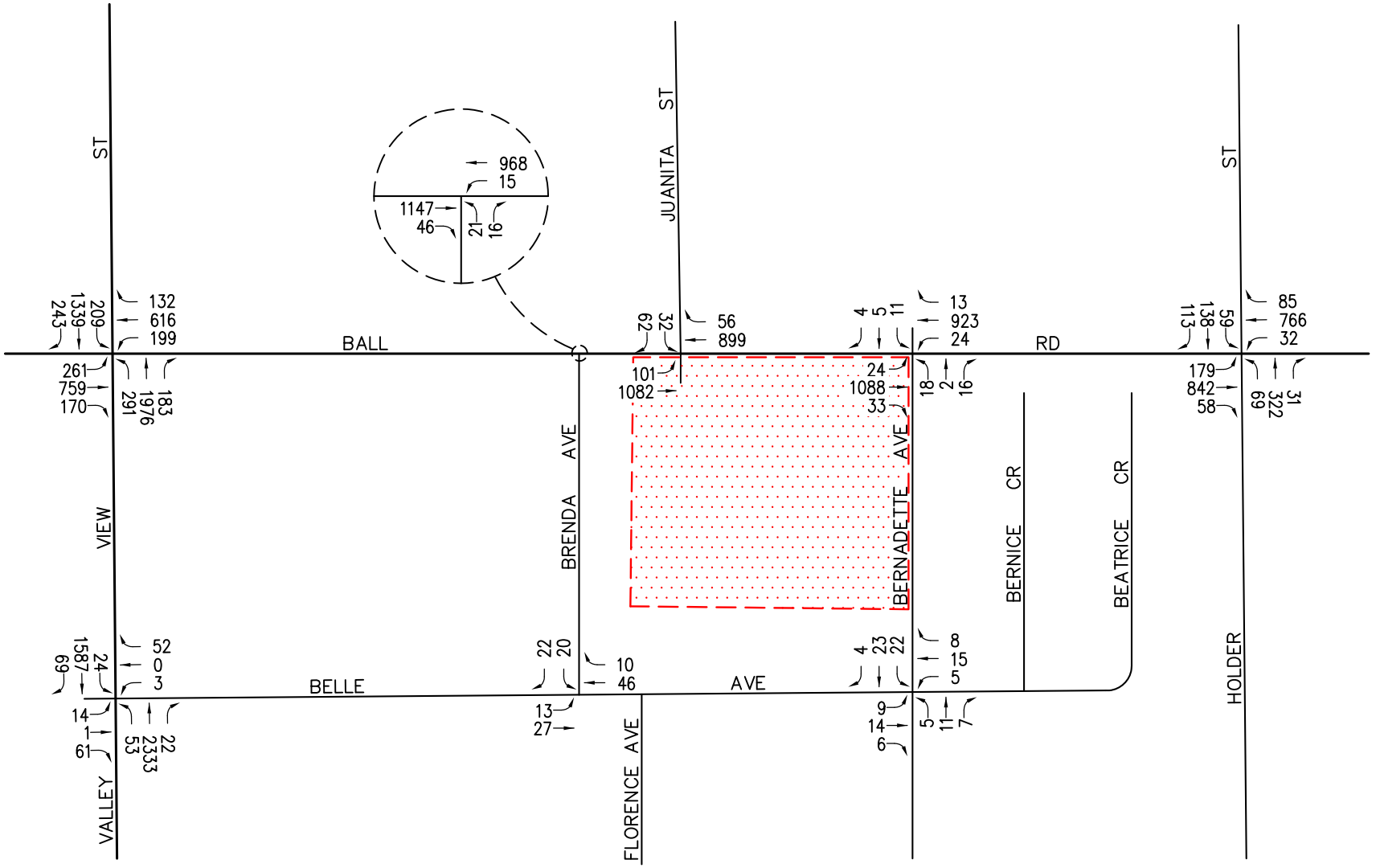
KEY

= PROJECT SITE

FIGURE 6-4

YEAR 2017 AM PEAK HOUR WITHOUT PROJECT TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

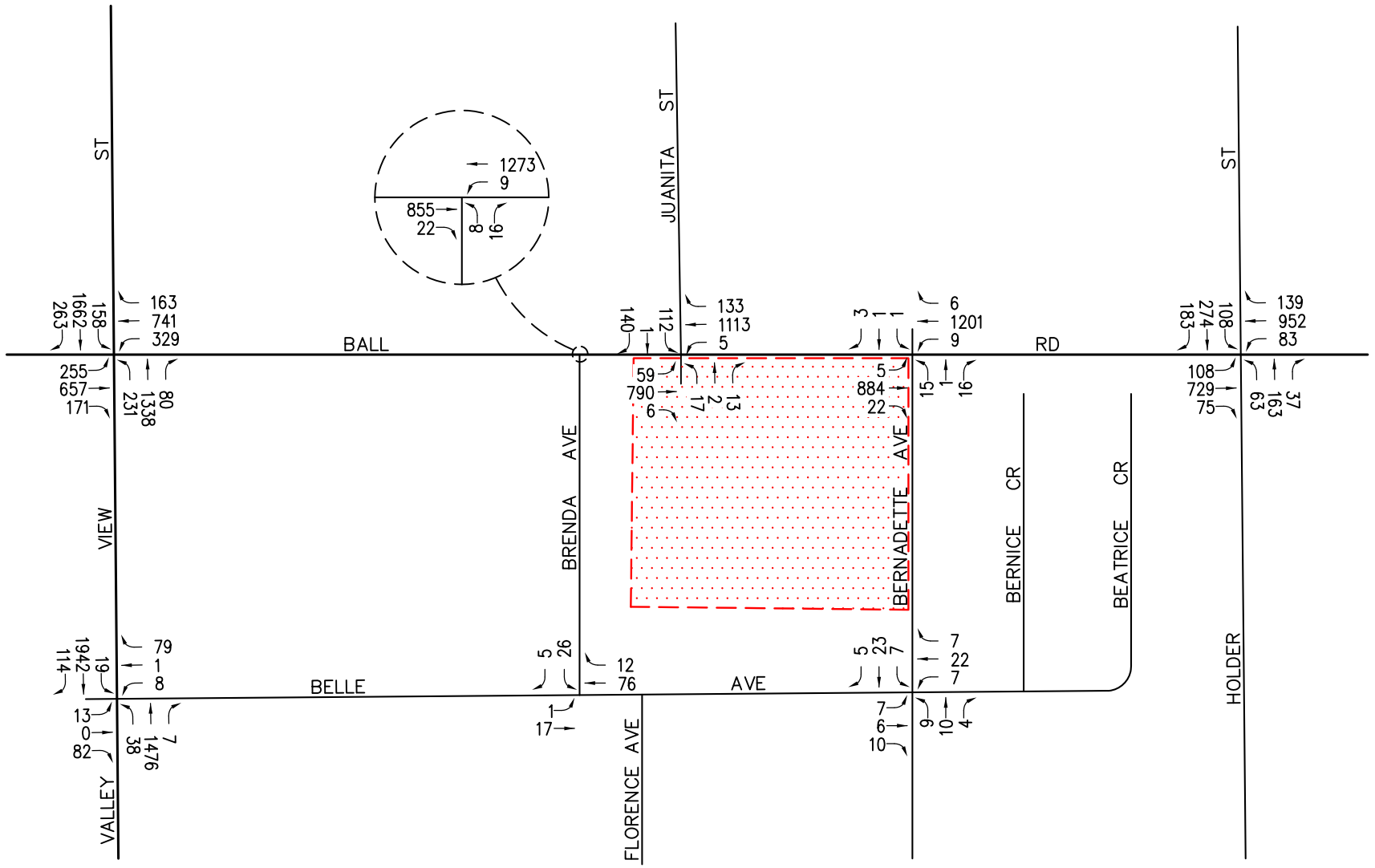
KEY

= PROJECT SITE

FIGURE 6-5

YEAR 2017 PM PEAK HOUR WITHOUT PROJECT TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



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N NO SCALE

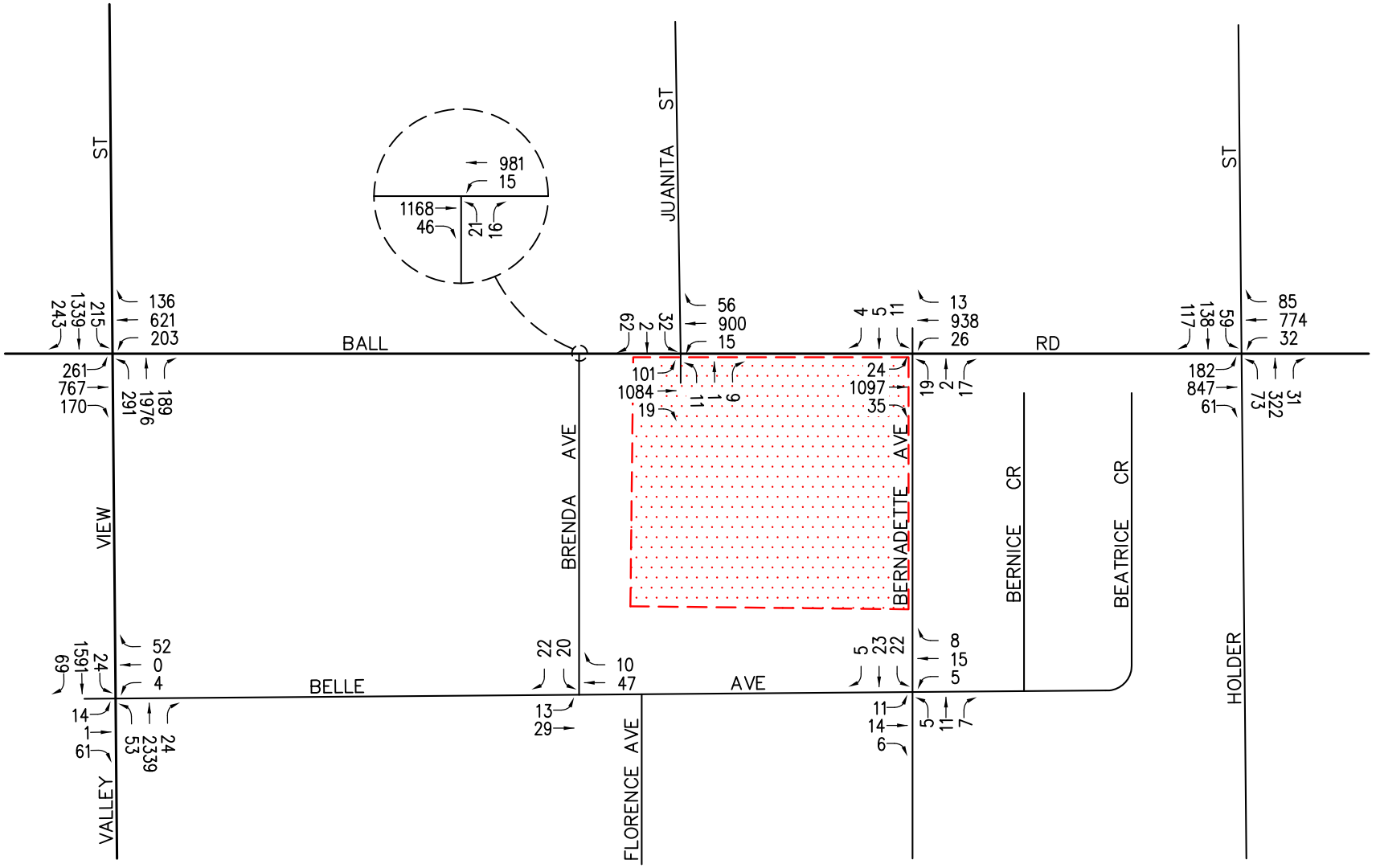
KEY

= PROJECT SITE

FIGURE 6-6

YEAR 2017 AM PEAK HOUR WITH PROJECT TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



n:\3500\2143536 - dickerson school site 67-du project, buena park\dwg\3536f6-7.dwg LDP 15:59:11 12-18-2014 lam

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= PROJECT SITE

FIGURE 6-7

YEAR 2017 PM PEAK HOUR WITH PROJECT TRAFFIC VOLUMES

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

7.0 TRAFFIC IMPACT ANALYSIS METHODOLOGY

The relative impact of the proposed Project during the AM peak hour and PM peak hour was evaluated based on analysis of future operating conditions at the eight (8) key study intersections, without, then with, the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future service level characteristics at each study intersection. The significance of the potential impacts of the Project at each key intersection was then evaluated using the following traffic impact criteria. As noted earlier, no trip credit was applied to account for the existing land use to provide a conservative traffic impact assessment for the proposed Project.

7.1 Impact Criteria and Thresholds

7.1.1 *ICU Analysis (Signalized Intersections)*

For the signalized intersection ICU analysis, a significant impact occurs at the key study intersection if:

- the Project causes the LOS to degrade from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F) per the City of Buena Park and City of Cypress LOS standards, or
- the Project increases traffic demand at the study intersection by at least 2% of capacity (ICU increase $\geq$ 0.020) at an intersection already operating at an unacceptable level of service (LOS E or F).
- For intersections within the City of Cypress, a Project's impact is considered significant if project-related traffic increases the ICU value by at least 0.01 at an intersection already operating at an unacceptable level of service (LOS E or F).

7.1.2 *HCM Analysis (Signalized Intersections)*

For the signalized intersection HCM analysis, a significant impact occurs at the key study intersection if:

- the Project causes the LOS to degrade from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F), or
- the Project increases the delay at the study intersection by at least 2.0 seconds at an intersection already operating at an unacceptable level of service (LOS E or F).

7.1.3 *HCM Analysis (Unsignalized Intersections)*

At unsignalized intersections, a "significant" adverse traffic impact is defined as a Project that causes:

- an intersection's LOS to degrade from an acceptable level (LOS D or better) to an unacceptable level (LOS E or F), or
- a 2.0 second or more increase in delay (seconds per vehicle) at an intersection operating at a deficient condition.

7.2 Traffic Impact Analysis Scenarios

The following scenarios are those for which LOS calculations have been performed using the ICU and HCM methodologies at the eight (8) key intersections for existing with project, opening year (Year 2017) traffic conditions:

A. Existing Traffic,
B. Existing with Project conditions,
C. Existing with Project conditions with mitigation (as required),
D. Existing traffic with ambient growth of 1% to the year the project will be completed with cumulative project traffic,
E. Traffic in (d) with proposed Project traffic,
F. Traffic in (e) with mitigation (as required).

8.0 EXISTING CONDITIONS TRAFFIC IMPACT ANALYSIS

The existing conditions analysis establishes the basis for the future forecasts for the Project. The existing conditions analysis reflects existing traffic counts as well as existing lane configurations for all analyzed intersections.

8.1 Existing Conditions Intersection Capacity Analysis (ICU Methodology)

Table 8-1 summarizes the peak hour Level of Service results at the three (3) existing signalized key study intersections for existing traffic conditions, with and without the Project, based on the *Intersection Capacity Utilization (ICU)* Method of Analysis. The first column (1) of ICU/LOS values in *Table 8-1* presents a summary of Existing AM and PM peak hour traffic conditions. The second column (2) in *Table 8-1* presents forecast Existing With Project traffic conditions. The third column (3) of *Table 8-1* shows the increase in ICU value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and the significance impact criteria defined in this report. The fourth column (4) of *Table 8-1* presents the Level of Service with the implementation of traffic mitigation improvements, if necessary.

8.1.1 *Existing Traffic Conditions (ICU Methodology)*

Review of column (1) of *Table 8-1* indicates that for the Existing traffic conditions, all three (3) signalized key study intersections currently operate at acceptable levels of service during the AM or PM peak hour when compared to the LOS standards defined in this report.

8.1.2 *Existing With Project Traffic Conditions (ICU Methodology)*

Review of column (2) of *Table* 8-*1* indicates that for the Existing With Project traffic conditions traffic associated with the proposed Project ***will not*** significantly impact any of the three (3) signalized key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The three (3) key signalized study intersections are forecast to operate at LOS D or better during the AM and PM peak hours. Since there are no significant impacts, no mitigation measures are required. Please note that column four (4) presents the level of service results based on the implementation of recommended mitigation measures identified in *Table 8-2*.

Appendix C contains the ICU/LOS calculation worksheets for the Existing Traffic Conditions (ICU Methodology).

TABLE 8-1

EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS (ICU ANALYSIS)

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Significant Impact		(4) Existing With Project With Mitigation[6]	
			v/c ratio	LOS	v/c ratio	LOS	Increase	Yes/No	v/c ratio	LOS
1. Valley View Street at Ball Road	D	AM	0.798	C	0.802	D	0.004	No	0.805	D
		PM	0.763	C	0.767	C	0.004	No	0.767	C
3. Juanita Street at Ball Road	D	AM	0.512	A	0.522	A	0.010	No	0.523	A
		PM	0.408	A	0.415	A	0.007	No	0.419	A
5. Holder Street at Ball Road	D	AM	0.605	B	0.609	B	0.004	No	0.618	B
		PM	0.622	B	0.626	B	0.004	No	0.638	B

Notes:

- **Bold ICU/LOS** or **HCM/LOS** values indicate adverse service levels based on the City's LOS standards.

[6] The service levels presented herein are representative for forecast traffic conditions of implementation of recommend improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.

8.2 Existing Conditions Intersection Capacity Analysis (HCM Methodology)

Table 8-2 summarizes the peak hour Level of Service results at the eight (8) key study intersections for existing traffic conditions, with and without the Project, based on the *Highway Capacity Manual (HCM)* Method of Analysis. The first column (1) of Delay/LOS values in *Table 8-2* presents a summary of Existing AM and PM peak hour traffic conditions. The second column (2) in *Table* 8-*2* presents forecast Existing with Project traffic conditions. The third column (3) of *Table 8-2* shows the increase in Delay value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the LOS standards and the significance impact criteria defined in this report. The fourth column (4) of *Table 8-2* presents the Level of Service with the implementation of traffic mitigation improvements, if necessary.

8.2.1 *Existing Traffic Conditions (HCM Methodology)*

Review of column (1) of *Table 8-2* indicates that based on the HCM/LOS method analysis, two (2) of the eight (8) key study intersections currently operate at unacceptable levels of service under Existing Traffic Conditions during the AM and/or PM peak hour when compared to the LOS standards defined in this report. The remaining six (6) existing key study intersections currently operate at acceptable levels of service during the AM and PM peak hours.

The intersections of Bernadette Avenue at Ball Road and Belle Avenue at Valley View Street, which are unsignalized, currently operate at unacceptable service levels during the AM and/or PM peak hours. Please note that it is not uncommon that unsignalized public street intersections and/or driveways that have direct access to regional/major arterials, such as Valley View Street and Ball Road, operate at an unacceptable LOS due to the limited gaps in traffic and the high volume of traffic that utilizes these streets as commuter routes.

8.2.2 *Existing With Project Traffic Conditions (HCM Methodology)*

Review of Columns 2 and 3 of *Table 8-2* indicates that traffic associated with the proposed Project will impact two of the eight key study intersections. The remaining six key study intersections are forecast to operate at an acceptable LOS with the addition of Project generated traffic, based on LOS standards and impact criteria identified in this report. The location projected to operate at an adverse LOS is as follows:

		AM Peak Hour		PM Peak Hour	
Key Intersection		Delay	LOS	Delay	LOS
4.	Bernadette Avenue at Ball Road	46.1 s/v	E	92.4 s/v	F
6.	Valley View Street at Belle Avenue	883.0 s/v	F	1,238.7 s/v	F

As shown in Column 4 of *Table 8-2*, the implementation of recommended improvements completely offsets the impacts of the proposed Project and results in a LOS D or better conditions during the weekday AM peak hour and PM peak hour.

Appendix D contains the Delay/LOS calculation worksheets for the Existing Traffic Conditions (HCM Methodology).

TABLE 8-2

EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS (HCM ANALYSIS)

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Significant Impact		(4) Existing With Project With Mitigation[7]	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Increase	Yes/No	Delay (s/v)	LOS
1. Valley View Street at Ball Road	D	AM	50.4	D	50.9	D	0.5	No	51.4	D
		PM	47.5	D	47.9	D	0.4	No	48.0	D
2. Brenda Avenue at Ball Road	*D*	*AM*	*15.1*	*C*	*15.2*	*C*	*0.1*	*No*	*15.2*	*C*
		PM	*22.2*	*C*	*22.7*	*C*	*0.5*	*No*	*23.1*	*C*
3. Juanita Street at Ball Road	D	AM	17.2	B	20.0	B	2.8	No	20.0	B
		PM	16.3	B	18.3	B	2.0	No	18.3	B
4. Bernadette Avenue at Ball Road	*D*	*AM*	***42.8***	***E***	***46.1***	***E***	***3.3***	***Yes***	*13.5*	*B*
		PM	***86.2***	***F***	***92.4***	***F***	***6.2***	***Yes***	*13.7*	*B*
5. Holder Street at Ball Road	D	AM	21.1	C	21.2	C	0.1	No	21.6	C
		PM	21.1	C	21.2	C	0.1	No	21.6	C

Notes:

- **Bold ICU/LOS** or **HCM/LOS** values indicate adverse service levels based on the City's LOS standards.
- s/v = seconds per vehicle.
- *Italics* indicate an unsignalized intersection.

[7] The service levels presented herein are representative for forecast traffic conditions of implementation of recommend improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.

TABLE 8-2 (CONTINUED)

EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS (HCM ANALYSIS)

Key Intersection		Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Existing With Project Traffic Conditions		(3) Significant Impact		(4) Existing With Project With Mitigation[9]	
				Delay (s/v)	LOS	Delay (s/v)	LOS	Increase	Yes/No	Delay (s/v)	LOS
6.	*Valley View Street at*	*D*	*AM*	***861.3***	***F***	***883.0***	***F***	***21.7***	***Yes***	*20.9*	*C*
	Belle Avenue		*PM*	***981.0***	***F***	***1,238.7***	***F***	***257.7***	***Yes***	*26.1*	*D*
7.	*Brenda Avenue at*	*D*	*AM*	*7.3*	*A*	*7.3*	*A*	*0.0*	*No*	--	--
	Belle Avenue		*PM*	*7.2*	*A*	*7.2*	*A*	*0.0*	*No*	--	--
8.	*Bernadette Avenue at*	*D*	*AM*	*7.1*	*A*	*7.1*	*A*	*0.0*	*No*	--	--
	Belle Avenue		*PM*	*7.2*	*A*	*7.2*	*A*	*0.0*	*No*	--	--

Notes:

- **Bold ICU/LOS** or **HCM/LOS** values indicate adverse service levels based on the City's LOS standards.
- s/v = seconds per vehicle.
- *Italics* indicate an unsignalized intersection.

[9] The service levels presented herein are representative for forecast traffic conditions of implementation of recommend improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.

9.0 YEAR 2017 CONDITIONS TRAFFIC IMPACT ANALYSIS

The relative impacts of the added Project traffic volumes generated by proposed Project during the AM and PM peak hour traffic conditions were evaluated based on analysis of future Year 2017 operating conditions at the eight (8) key study intersections, with and without the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future Delay/ICU relationships and service level characteristics at each study intersection. The significance of the potential impacts of the Project at each key intersection were then evaluated using the traffic impact criteria mentioned in this report.

9.1 Year 2017 Conditions Intersection Capacity Analysis (ICU Methodology)

Table 9-1 summarizes the AM and PM peak hour Level of Service results at the three (3) signalized key study intersections for the Year 2017 traffic conditions, based on the *Intersection Capacity Utilization (ICU)* Method of Analysis. The first column (1) of ICU/LOS values in *Table 9-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 8-1*). The second column (2) presents forecast Year 2017 Without Project traffic conditions and the third column (3) identifies forecast Year 2017 With Project traffic conditions. The fourth column (4) shows the increase in ICU value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the significant impact criteria mentioned in this report. The fifth column (5) presents the resultant level of service with the inclusion of recommended traffic improvements, if needed, to achieve an acceptable level of service.

9.1.1 *Year 2017 Without Project Traffic Conditions (ICU Methodology)*

Review of column (2) of *Table 9-1* indicates that for the Year 2017 Without Project traffic conditions, all three (3) signalized key study intersections are forecast to operate at an acceptable level of service during the AM or PM peak hours when compared to the LOS standards defined in this report.

9.1.2 *Year 2017 With Project Traffic Conditions (ICU Methodology)*

Review of column (3) of *Table 9-1* indicates that for the Year 2017 With Project traffic conditions, all three (3) signalized key study intersections are forecast to operate at an acceptable level of service during the AM or PM peak hours when compared to the LOS standards defined in this report. As such, the proposed Project ***will not*** have a significant impact under the Year 2017 With Project traffic conditions when compared to the LOS criteria defined in this report. Since there are no significant impacts, no mitigation measures are required. Please note that column five (5) presents the level of service results based on the implementation of recommended mitigation measures identified in *Table 9-2*.

Appendix E contains the ICU/LOS calculation worksheets for the Year 2017 Traffic Conditions (ICU Methodology).

TABLE 9-1

YEAR 2017 PEAK HOUR INTERSECTION CAPACITY ANALYSIS (ICU ANALYSIS)

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2017 Without Project Traffic Conditions		(3) Year 2017 With Project Traffic Conditions		(4) Significant Impact		(5) Year 2017 With Project With Mitigation[11]	
			v/c ratio	LOS	v/c ratio	LOS	v/c ratio	LOS	Increase	Yes/No	v/c ratio	LOS
1. Valley View Street at Ball Road	D	AM	0.798	C	0.832	D	0.836	D	0.004	No	0.839	D
		PM	0.763	C	0.796	C	0.800	C	0.004	No	0.800	C
3. Juanita Street at Ball Road	D	AM	0.512	A	0.533	A	0.544	A	0.011	No	0.544	A
		PM	0.408	A	0.427	A	0.434	A	0.007	No	0.438	A
5. Holder Street at Ball Road	D	AM	0.605	B	0.629	B	0.633	B	0.004	No	0.642	B
		PM	0.622	B	0.648	B	0.652	B	0.004	No	0.664	B

Notes:

- **Bold ICU/LOS** or **HCM/LOS** values indicate adverse service levels based on the City's LOS standards.

[11] The service levels presented herein are representative for forecast traffic conditions of implementation of recommend improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.

9.2 Year 2017 Conditions Intersection Capacity Analysis (HCM Methodology)

Table 9-2 summarizes the AM and PM peak hour Level of Service results at the key study intersections for the Year 2017 traffic conditions, based on the *Highway Capacity Manual (HCM)* Method of Analysis. The first column (1) of Delay/LOS values in *Table 9-2* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 8-2*). The second column (2) presents forecast Year 2017 Without Project traffic conditions and the third column (3) identifies forecast Year 2017 With Project traffic conditions. The fourth column (4) shows the increase in Delay value due to the added peak hour Project trips and indicates whether the traffic associated with the Project will have a significant impact based on the significant impact criteria mentioned in this report. The fifth column (5) presents the resultant level of service with the inclusion of recommended traffic improvements, where needed, to achieve an acceptable level of service.

9.2.1 *Year 2017 Without Project Traffic Conditions (HCM Methodology)*

Review of column (2) of *Table 9-2* indicates that for the Year 2017 Without Project traffic conditions, two (2) of the eight (8) key study intersections are forecast to operate at unacceptable levels of service during the AM and/or PM peak hours when compared to the LOS standards defined in this report. The remaining six (6) key study intersections are forecast to operate at acceptable levels of service during the AM and PM peak hours.

9.2.2 *Year 2017 With Project Traffic Conditions (HCM Methodology)*

Review of Columns 3 and 4 of *Table 9-2* indicates that traffic associated with the proposed Project will cumulatively impact two of the eight key study intersections. The remaining six key study intersections are forecast to operate at an acceptable LOS with the addition of Project generated traffic, based on LOS standards and impact criteria identified in this report. The location projected to operate at an adverse LOS is as follows:

		AM Peak Hour		PM Peak Hour	
Key Intersection		Delay	LOS	Delay	LOS
4.	Bernadette Avenue at Ball Road	47.4 s/v	E	102.3 s/v	F
6.	Valley View Street at Belle Avenue	1,116.7 s/v	F	2,547.4 s/v	F

As shown in Column 5 of *Table 9-2*, the implementation of recommended improvements completely offsets the cumulative impacts of the proposed Project and results in a LOS D or better conditions during the weekday AM peak hour and PM peak hour.

Appendix F contains the Delay/LOS calculation worksheets for the Year 2017 Traffic Conditions (HCM Methodology).

TABLE 9-2

YEAR 2017 PEAK HOUR INTERSECTION CAPACITY ANALYSIS (HCM ANALYSIS)

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2017 Without Project Traffic Conditions		(3) Year 2017 With Project Traffic Conditions		(4) Significant Impact		(5) Year 2017 With Project With Mitigation[12]	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Increase	Yes/No	Delay (s/v)	LOS
1. Valley View Street at Ball Road	D	AM	50.4	D	52.3	D	52.9	D	0.6	No	53.4	D
		PM	47.5	D	48.8	D	49.2	D	0.4	No	49.3	D
2. Brenda Avenue at Ball Road	*D*	*AM*	*15.1*	*C*	*15.2*	*C*	*15.3*	*C*	*0.1*	*No*	*15.4*	*C*
		PM	*22.2*	*C*	*22.8*	*C*	*23.3*	*C*	*0.5*	*No*	*23.7*	*C*
3. Juanita Street at Ball Road	D	AM	17.2	B	17.2	B	20.0	B	2.8	No	20.0	B
		PM	16.3	B	16.3	B	18.2	B	1.9	No	18.2	B
4. Bernadette Avenue at Ball Road	*D*	*AM*	***42.8***	***E***	***44.1***	***E***	***47.4***	***E***	***3.3***	***Yes***	*13.7*	*B*
		PM	***86.2***	***F***	***92.9***	***F***	***102.3***	***F***	***9.4***	***Yes***	*13.9*	*B*
5. Holder Street at Ball Road	D	AM	21.1	C	21.2	C	21.3	C	0.1	No	21.7	C
		PM	21.1	C	21.3	C	21.4	C	0.1	No	21.8	C

Notes:

- **Bold ICU/LOS** or **HCM/LOS** values indicate adverse service levels based on the City's LOS standards.
- s/v = seconds per vehicle.
- *Italics* indicate an unsignalized intersection.

[12] The service levels presented herein are representative for forecast traffic conditions of implementation of recommend improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.

TABLE 9-2 (CONTINUED)

YEAR 2017 PEAK HOUR INTERSECTION CAPACITY ANALYSIS (HCM ANALYSIS)

Key Intersection	Minimum Acceptable LOS	Time Period	(1) Existing Traffic Conditions		(2) Year 2017 Without Project Traffic Conditions		(3) Year 2017 With Project Traffic Conditions		(4) Significant Impact		(5) Year 2017 With Project With Mitigation[14]	
			Delay (s/v)	LOS	Delay (s/v)	LOS	Delay (s/v)	LOS	Increase	Yes/No	Delay (s/v)	LOS
6. Valley View Street at	*D*	*AM*	***861.3***	***F***	***1,090.0***	***F***	***1,116.7***	***F***	***26.7***	***Yes***	*22.2*	*C*
Belle Avenue		*PM*	***981.0***	***F***	***1,665.6***	***F***	***2,547.4***	***F***	***881.8***	***Yes***	*27.6*	*D*
7. Brenda Avenue at	*D*	*AM*	*7.3*	*A*	*7.3*	*A*	*7.3*	*A*	*0.0*	*No*	--	--
Belle Avenue		*PM*	*7.2*	*A*	*7.2*	*A*	*7.2*	*A*	*0.0*	*No*	--	--
8. Bernadette Avenue at	*D*	*AM*	*7.1*	*A*	*7.1*	*A*	*7.1*	*A*	*0.0*	*No*	--	--
Belle Avenue		*PM*	*7.2*	*A*	*7.2*	*A*	*7.2*	*A*	*0.0*	*No*	--	--

Notes:

- **Bold ICU/LOS** or **HCM/LOS** values indicate adverse service levels based on the City's LOS standards.
- s/v = seconds per vehicle.
- *Italics* indicate an unsignalized intersection.

[14] The service levels presented herein are representative for forecast traffic conditions of implementation of recommend improvements at the Bernadette Avenue/Ball Road intersection and Valley View Street/Belle Avenue intersection. The recommended improvements include the prohibition of left-turn movements (right-turn only movements will be allowed) from Bernadette Avenue onto Ball Road and from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period. Due to these restrictions, U-turns are required at the closest available location.

9.3 Traffic Signal Warrant Analysis

The level of service analysis at the unsignalized intersections are supplemented with an assessment of the need for signalization. This assessment has been conducted for Existing Plus Project and Year 2017 Cumulative Plus Project traffic conditions.

For this study, the need for signalization is assessed on the basis of the peak-hour traffic signal warrant (Warrant #3) described in the *California Manual on Uniform Traffic Control Devices (MUTCD).* Warrant #3 has two parts: 1) Part A evaluates peak hour vehicle delay for traffic on the minor street approach with the highest delay and 2) Part B evaluates peak-hour traffic volumes on the major and minor streets. This method provides an indication of whether peak-hour traffic conditions or peak-hour traffic volume levels are, or would be, sufficient to justify installation of a traffic signal.

Table 9-3 summarizes the results of the peak-hour traffic signal warrant analysis conducted for Brenda Avenue at Ball Road, Bernadette Avenue at Ball Road, and Belle Avenue at Valley View Street, as well as Brenda Avenue at Belle Avenue and Bernadette Avenue at Belle Avenue. As shown, the peak hour traffic signal warrants were not met at any of the key unsignalized intersections.

Appendix G contains the traffic signal warrant worksheets.

TABLE 9-3

TRAFFIC SIGNAL WARRANT ANALYSIS SUMMARY[16]

Key Intersection	Time Period	Existing With Project Traffic Conditions		Year 2017 With Project Traffic Conditions	
		Part A of Warrant 3 Satisfied?	Part B of Warrant 3 Satisfied?	Part A of Warrant 3 Satisfied?	Part B of Warrant 3 Satisfied?
2. Brenda Avenue at Ball Road	AM	No	No	No	No
	PM	No	No	No	No
4. Bernadette Avenue at Ball Road	AM	No	No	No	No
	PM	No	No	No	No
6. Valley View Street at Belle Avenue	AM	No	No	No	No
	PM	No	No	No	No
7. Brenda Avenue at Belle Avenue	AM	No	No	No	No
	PM	No	No	No	No
8. Bernadette Avenue at Belle Avenue	AM	No	No	No	No
	PM	No	No	No	No

[16] Signal warrant checks based on Warrant 3, Part A - Peak-Hour Delay Warrant and Part B - Peak-Hour Volume Warrant are contained in the California MUTCD.

10.0 SITE ACCESS AND INTERNAL CIRCULATION EVALUATION

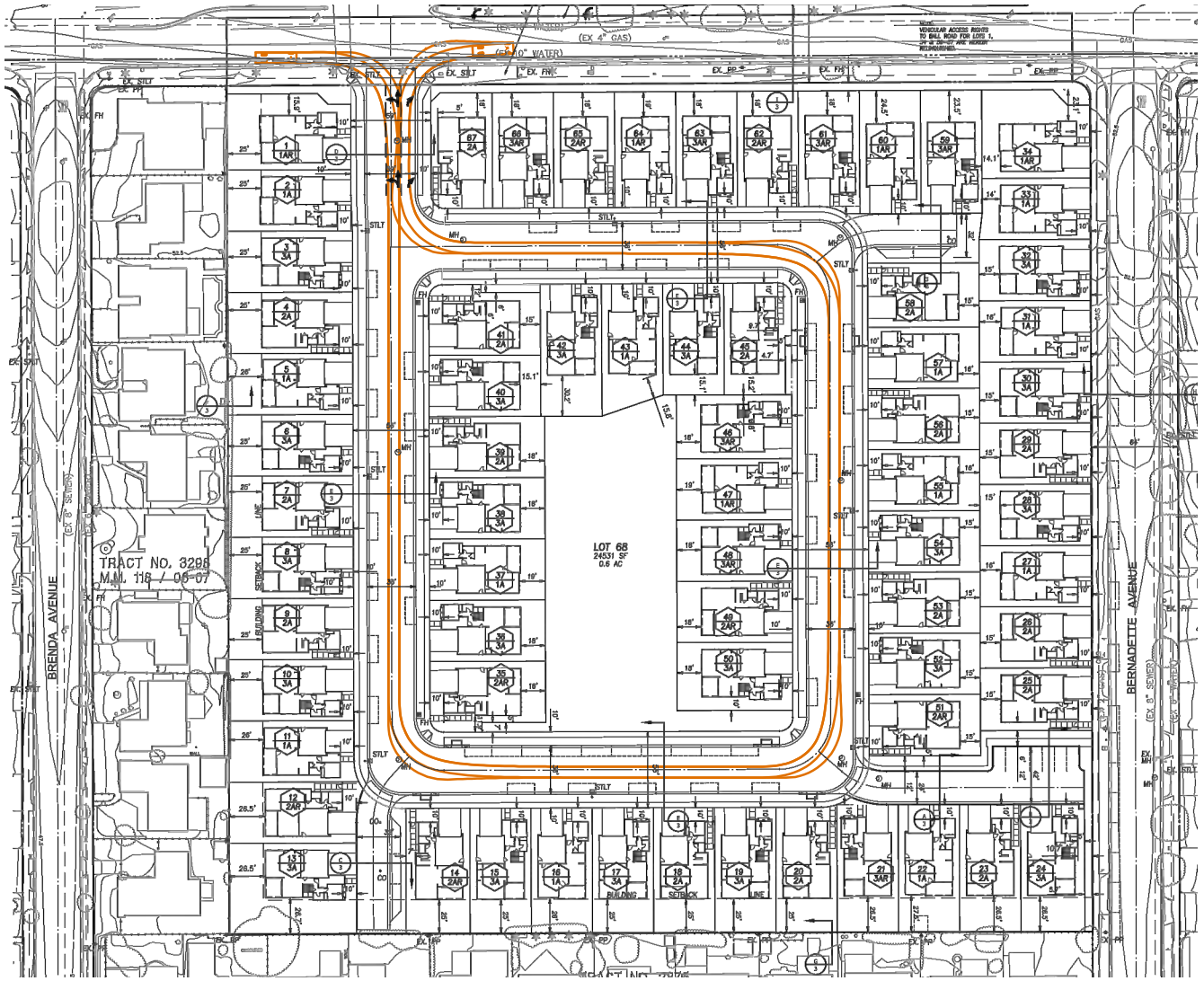
10.1 Level of Service Analysis For Project Access

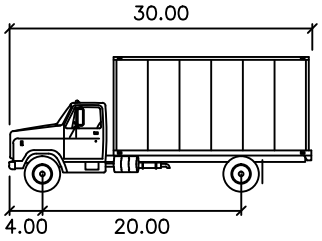
Primary access to the Project site will be provided via proposed full-access driveway at the intersection of Ball Road and Juanita Street, with a secondary/emergency access located on the west side of Bernadette Avenue. As indicated in *Tables 8-1, 8-2, 9-1* and *9-2*, the intersection of Ball Road at Juanita Street, with the addition of the proposed project driveway, is forecast to continue to operate at an acceptable service level (LOS D or better) during the AM peak hour and PM peak hour. Therefore, project site access is considered adequate.

10.2 Internal Circulation Evaluation

The on-site circulation layout of the proposed Project, based upon the conceptual site plans on an overall basis is adequate. Our evaluation of the on-site circulation shown on the preliminary site plans was performed using the *Turning Vehicle Templates*, developed by Jack E. Leisch & Associates and *AutoTURN for AutoCAD* computer software that simulates turning maneuvers for various types of vehicles. The turning templates were utilized to ensure that small service/delivery trucks (i.e., UPS, FedEx, and trash trucks), fire trucks and passenger vehicles could properly access and circulate through the Project site. A fire truck turning template and small truck (SU-30) turning template was utilized in this evaluation.

Based on our evaluation, curb return radii have been confirmed and are generally adequate for small service/delivery trucks (Fedex, UPS), trash trucks and fire trucks**.** The design of the entry/exit points of the project driveways are adequate for expected traffic volumes. ***Figures 10-1*** present the turning movements required of a small truck (SU-30) to circulate throughout the site. ***Figure 10-2*** present the turning movements required of a fire truck to circulate throughout the site. ***Figures 10-3*** present the turning movements required of a small truck (WB-40) to circulate throughout the site.





SU	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

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SOURCE: CHARLES HARTMAN & ASSOC.

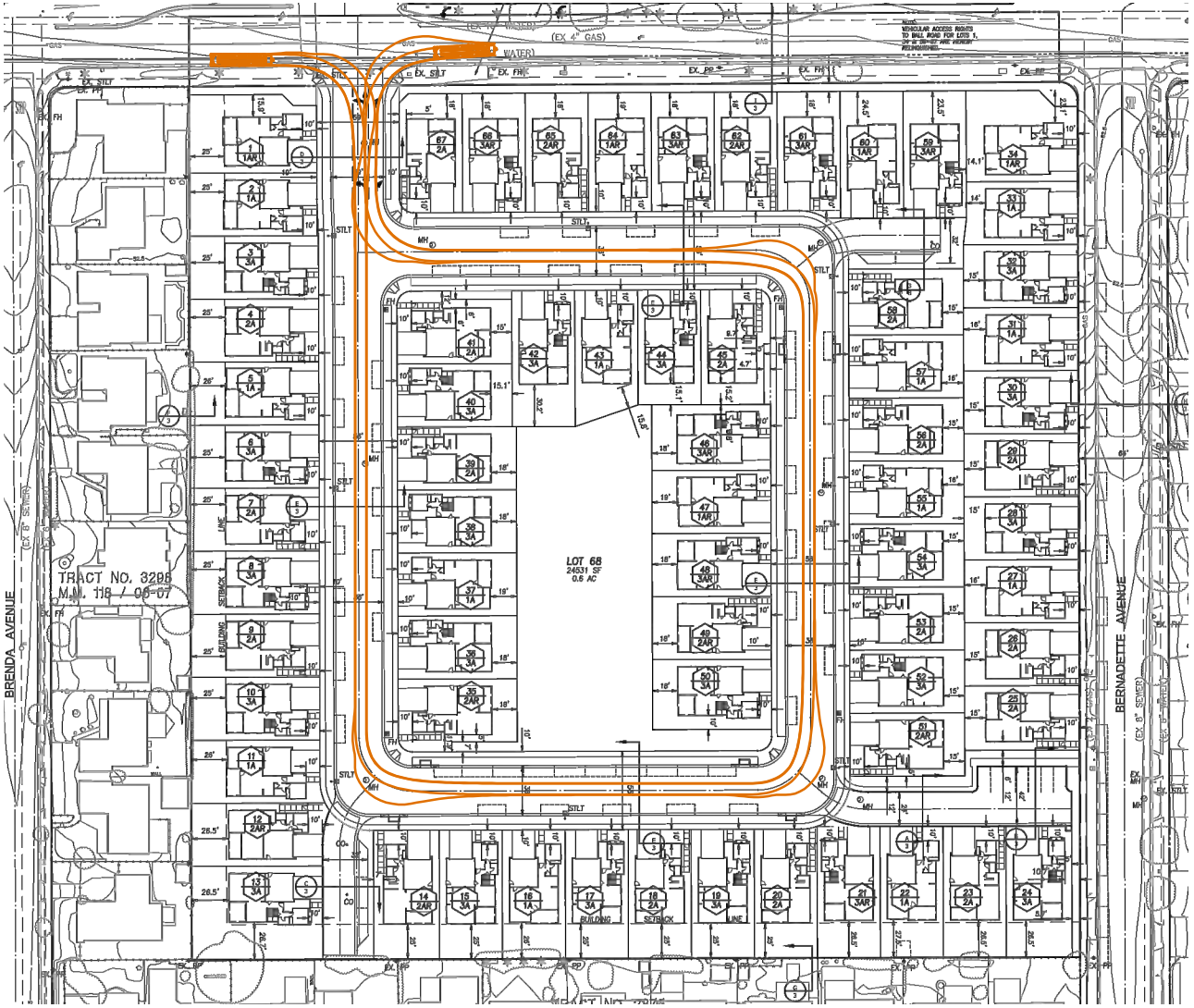
LINSCOTT LAW & GREENSPAN engineers

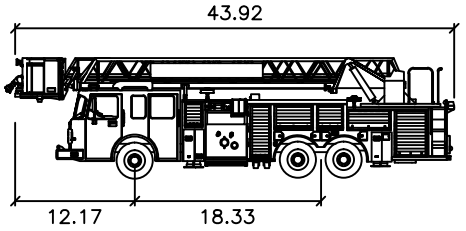
N NO SCALE

FIGURE 10-1

SU-30 TRUCK TURNING ANALYSIS

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK





Smeal Platform RM 87ft

	feet
Width	: 8.33
Track	: 7.83
Lock to Lock Time	: 6.0
Steering Angle	: 48.0

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LINSCOTT LAW & GREENSPAN engineers

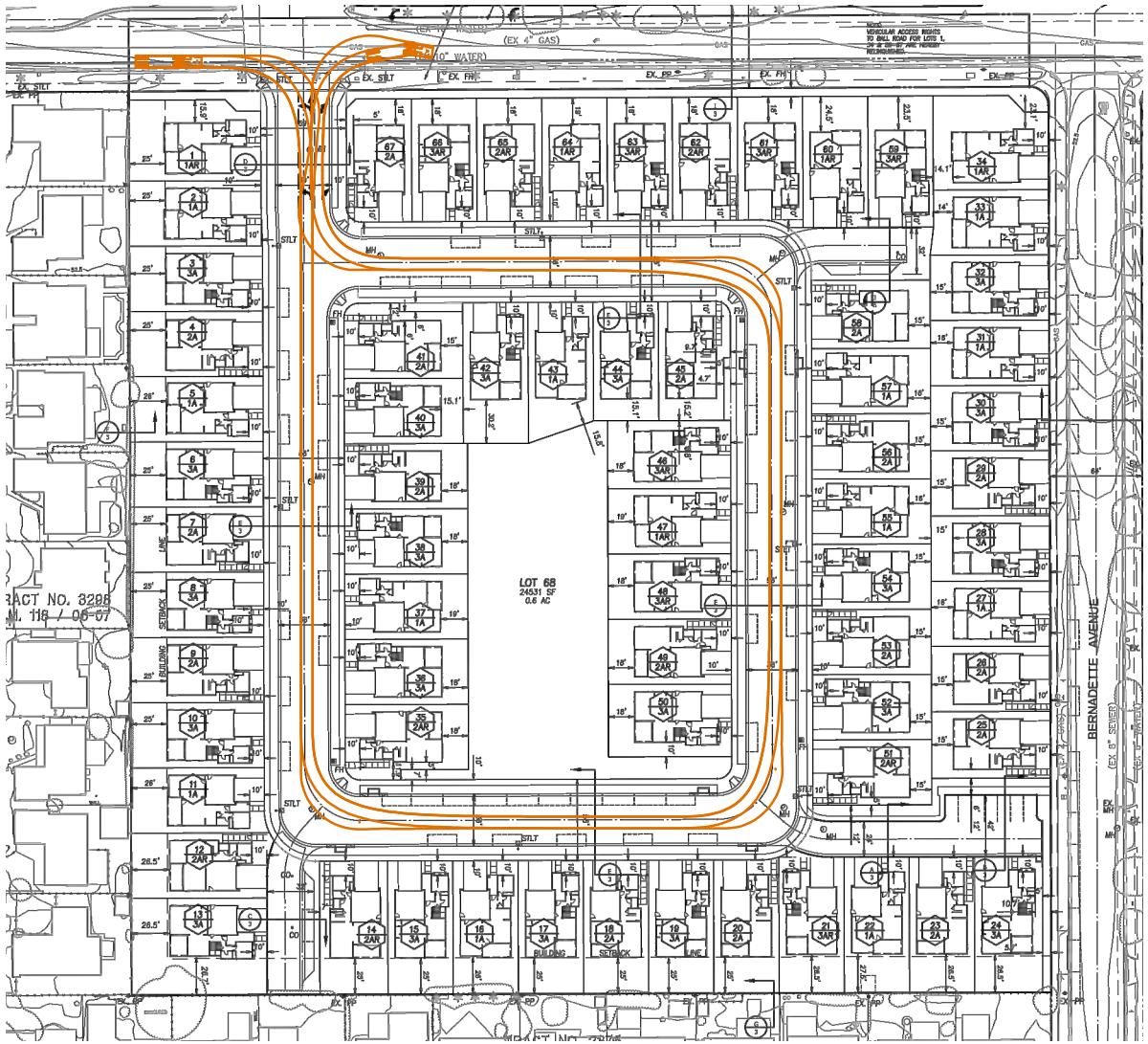
N NO SCALE

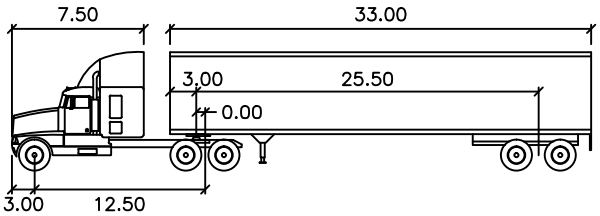
SOURCE: CHARLES HARTMAN & ASSOC.

FIGURE 10-2

FIRE TRUCK TURNING ANALYSIS

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK





WB–40 feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 20.3
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.00		

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: CHARLES HARTMAN & ASSOC.

FIGURE 10–3

WB–40 TRUCK TURNING ANALYSIS

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

11.0 RECOMMENDED IMPROVEMENTS

For those intersections where projected traffic volumes are expected to result in poor operating conditions, this report identifies roadway improvements that change the intersection geometry to increase capacity. These capacity improvements involve roadway widening and/or restriping to reconfigure (add lanes) to specific approaches of a key intersection. The identified improvements are expected to: mitigate the impact of area-wide deficiencies and/or improve Levels of Service to an acceptable range

11.1 Existing With Project Traffic Conditions (ICU Analysis)

The results of the "Existing With Project" ICU analysis presented previously in *Table 8-1* indicates that the proposed Project will not impact any of the three (3) signalized key study intersections. As there are no significant impacts, no traffic mitigation measures are required or recommended for the study intersections.

11.2 Existing With Project Traffic Conditions (HCM Analysis)

The results of the "Existing With Project" HCM analysis presented previously in *Table 8-2* indicates that the proposed Project will impact two (2) of the eight (8) key study intersections. The following improvements listed below have been identified to mitigate the traffic impacts of the Project in the Existing Plus Project traffic conditions at the two (2) significantly impacted intersections and reduce it to "less than significant". The Project may be expected to construct and/or pay a fair-share of the construction costs to implement these mitigation measures:

- No. 6 – Valley View Street at Belle Avenue: Restrict eastbound and westbound left-turn movements from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period (right-turn movements would continue to be allowed). Install all necessary regulatory signs per the City of Buena Park Standard Design Guidelines and/or CA MUTCD. Implementation of this improvement will require the approval of the City of Buena Park.
- No. 8 – Bernadette Avenue at Ball Road: Restrict northbound and southbound left-turn movements from Bernadette Avenue onto Ball Road during the weekday AM peak period and PM peak period (right-turn movements would continue to be allowed). Install all necessary regulatory signs per the City of Buena Park Standard Design Guidelines and/or CA MUTCD. Implementation of this improvement will require the approval of the City of Buena Park.

11.3 Year 2017 With Project Traffic Conditions (ICU Analysis)

The results of the "Year 2017 With Project" ICU analysis presented previously in *Table 9-1* indicates that the proposed Project will not impact any of the three (3) signalized key study intersections. As there are no significant impacts, no traffic mitigation measures are required or recommended for the study intersections.

11.4 Year 2017 With Project Traffic Conditions (HCM Analysis)

The results of the "Year 2017 With Project" HCM analysis presented previously in *Table 9-2* indicates that the proposed Project will impact two (2) of the eight (8) key study intersections. The following improvements listed below have been identified to mitigate the traffic impacts of the Project in the Year 2017 Plus Project traffic conditions at the two (2) significantly impacted intersections and reduce it to "less than significant". The Project may be expected to construct and/or pay a fair-share of the construction costs to implement these mitigation measures:

- No. 6 – Valley View Street at Belle Avenue: *(Same as recommended Existing Plus Project Traffic Conditions in Section 11.2)* Restrict eastbound and westbound left-turn movements from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period (right-turn movements would continue to be allowed). Install all necessary regulatory signs per the City of Buena Park Standard Design Guidelines and/or CA MUTCD. Implementation of this improvement will require the approval of the City of Buena Park.
- No. 8 – Bernadette Avenue at Ball Road: *(Same as recommended Existing Plus Project Traffic Conditions in Section 11.2)* Restrict northbound and southbound left-turn movements from Bernadette Avenue onto Ball Road during the weekday AM peak period and PM peak period (right-turn movements would continue to be allowed). Install all necessary regulatory signs per the City of Buena Park Standard Design Guidelines and/or CA MUTCD. Implementation of this improvement will require the approval of the City of Buena Park.

11.5 Project-Specific Improvements

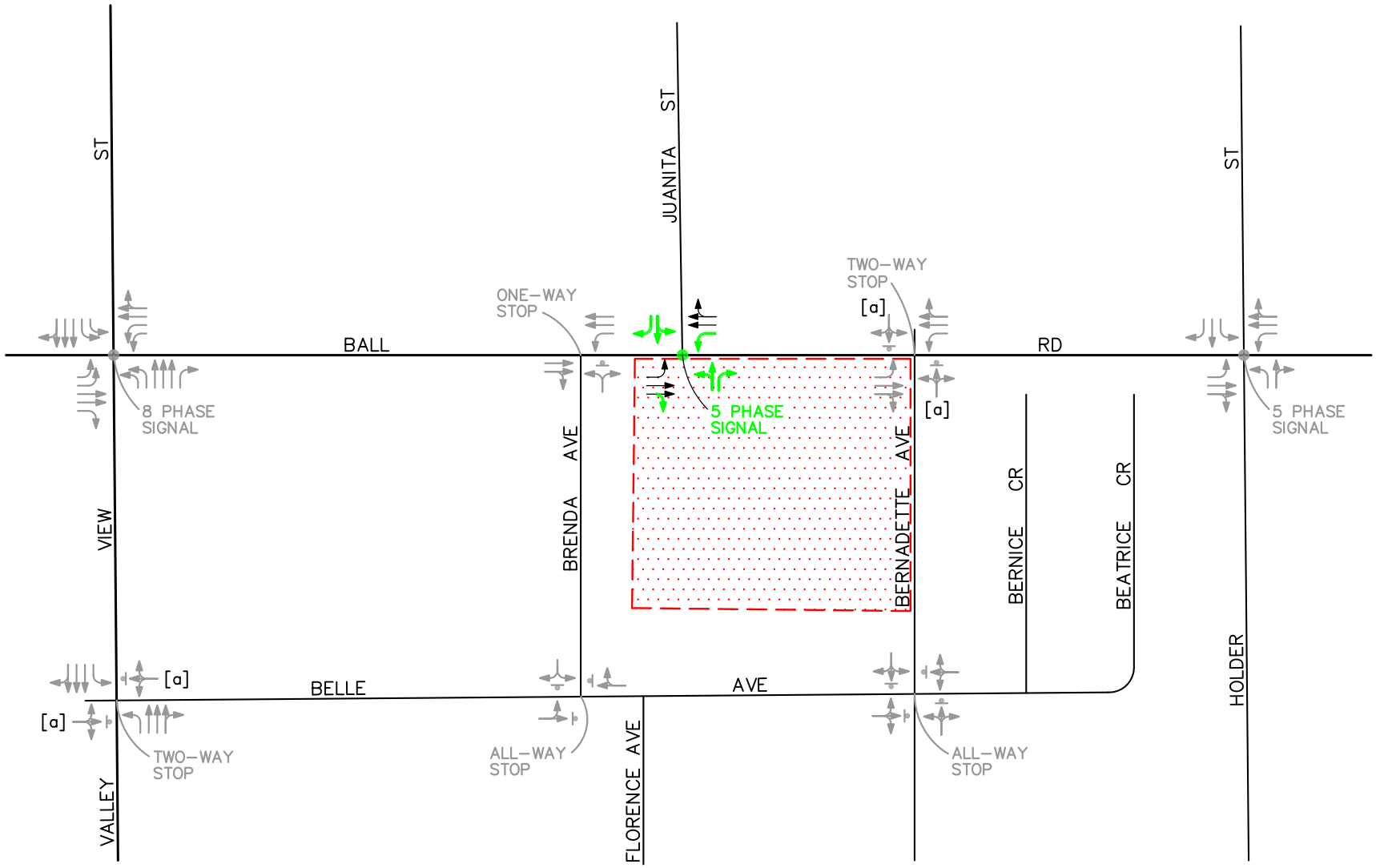
In order to facilitate full access to the primary driveway at Ball Road and Juanita Street, the following improvements, which are subject to the approval of the City of Cypress and the City of Buena Park, are recommended:

- Modify the existing median on Ball Road to provide a dedicated westbound left-turn lane,
- Restripe the southbound approach on Juanita Street to provide one left/through option lane, and a right-turn lane,
- Construct new site driveway to provide a northbound (outbound) left/through option lane and a right-turn lane and one departure (inbound) lane;
- Modify the existing traffic signal and install new traffic signal equipment as well as install the appropriate pavement markings and striping, as necessary.
- Install traffic signal poles, mast arms and equipment for northbound traffic from the project site at the Ball Road/Juanita Street intersection.
- Add traffic control for the proposed westbound left-turn from Ball Road onto the project site.

- Add traffic control as appropriate for the southbound through movement for Juanita Street onto the project site.
- Implement appropriate traffic signal timing for the new layout of the Ball Road/Juanita Street intersection.
- Add a pedestrian crossing across the Driveway of this intersection.
- All improvement identified above are to be completed as a part of the Project to accommodate the proposed primary access driveway and are subject to the approval of the City of Cypress and the City of Buena Park.

In addition, with the conversion of the school site to residential development, the Project will modify/remove all existing signage related to school zones that are associated with the former Elizabeth Dickerson Elementary School (and would be in conflict with implementation of the Project) and replace all "yellow" crosswalks with standard white paint to conform to the most current *CA MUTCD*. The limits of the work will be determined by the City of Buena Park Public Works Department.

Figure 11-1 graphically illustrates the planned and/or recommended improvements at the project driveway associated with the development of the Project site plan as well as those locations where mitigation measures are required.



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

- ← = EXISTING APPROACH LANE ASSIGNMENT
- ← = PLANNED IMPROVEMENT
- ● = TRAFFIC SIGNAL, ⊤ = STOP SIGN
- ▭ = PROJECT SITE
- [a] = TURN RESTRICTIONS DURING AM AND PM PEAK HOURS

FIGURE 11-1

PLANNED AND RECOMMENDED IMPROVEMENTS

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

12.0 CONGESTION MANAGEMENT PROGRAM (CMP) COMPLIANCE ASSESSMENT

This analysis is consistent with the requirements and procedures outlined in the current *Orange County Congestion Management Program (CMP).* The CMP requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System (HS). Per the CMP guidelines, this number is based on the desire to analyze any impacts that will be 3.0% or more of the existing CMP highway system facilities' capacity.

However, as noted in this traffic study, the proposed Project is expected to generate 638 daily trips, and thus does not meet the criteria required for a CMP traffic analysis. Therefore, it is concluded that the proposed Project will not have any significant traffic impacts on the Congestion Management Program Highway System.

13.0 SUMMARY OF FINDINGS AND CONCLUSIONS

- ***Project Description*** – The Project site is a 9.53 acre parcel of land that is generally located south of Ball Road and west of Bernadette Avenue in the City of Buena Park, California. The subject property is currently developed with the former Elizabeth Dickerson Elementary School. The proposed Project consists of a 67-unit single family subdivision, with a recreation area of approximately 0.50 acres. Primary access to the Project site will be provided via proposed full-access driveway at the intersection of Ball Road and Juanita Street. Access to 10 of the proposed homes, located on the west side of Bernadette Avenue, will be provided via driveways on this residential street. These 10 homes will front Bernadette Avenue and face the existing homes on the east side. The proposed Project is expected to be completed by 2017.

- ***Study Scope*** – Eight (8) key study intersections have been identified for evaluation. Of the eight identified intersections, all eight are located within the City of Buena Park, with six also bordering the City of Cypress. The eight intersections listed below provide regional and local access to the study area and define the extent of the boundaries for this traffic impact investigation.

  Key Study Intersections

  1) Valley View Street at Ball Road (City of Buena Park/Cypress)
  2) Brenda Avenue at Ball Road (City of Buena Park/Cypress)
  3) Juanita Street at Ball Road (City of Buena Park/Cypress)
  4) Bernadette Avenue at Ball Road (City of Buena Park/Cypress)
  5) Holder Street at Ball Road (City of Buena Park/Cypress)
  6) Valley View Street at Belle Avenue (City of Buena Park/Cypress)
  7) Brenda Avenue at Belle Avenue (City of Buena Park)
  8) Bernadette Avenue at Belle Avenue (City of Buena Park)

- ***Project Trip Generation*** – The proposed Project is forecast to generation 638 daily trips, with 50 trips (13 inbound, 37 outbound) produced in the AM peak hour and 67 trips (42 inbound, 25 outbound) produced in the PM peak hour.

- ***Cumulative Projects Traffic Characteristics –*** Five (5) cumulative projects were considered as part of the cumulative background setting. The five cumulative projects are expected to generate 13,898 daily trips, with 768 trips (487 inbound, 281 outbound) anticipated during the AM peak hour and 991 trips (565 inbound, 426 outbound) produced during the PM peak hour.

ICU Methodology

- ***Existing Traffic Conditions*** – All of the three (3) signalized key study intersections currently operate at acceptable service levels during the AM and PM peak hours.

- ***Existing With Project Traffic Conditions*** – The proposed Project ***will not*** significantly impact any of the three (3) signalized key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The three (3) signalized key study intersections

are forecast to continue to operate at LOS D or better and are forecast to continue to operate at acceptable service levels during the AM and PM peak hours with the addition of Project generated traffic to existing traffic.

- ***Year 2017 With Project Traffic Conditions*** – The proposed Project ***will not*** significantly impact any of the three (3) signalized key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The three (3) signalized key study intersections are forecast to continue to operate at LOS D or better with the addition of project generated traffic in the Year 2017.

HCM Methodology

- ***Existing Traffic Conditions*** – Two (2) of the eight key study intersections currently operate at unacceptable service levels during the AM and/or PM peak hours. The remaining six (6) key study intersections currently operate at acceptable service levels during the AM and PM peak hours.

- ***Existing With Project Traffic Conditions*** – The proposed Project ***will*** significantly impact two (2) of the eight (8) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The remaining six key study intersections are forecast to operate at an acceptable LOS with the addition of Project generated traffic, based on LOS standards and impact criteria identified in this report. The location projected to operate at an adverse LOS is as follows:

		AM Peak Hour		PM Peak Hour	
Key Intersection		Delay	LOS	Delay	LOS
4.	Bernadette Avenue at Ball Road	46.1 s/v	E	92.4 s/v	F
6.	Valley View Street at Belle Avenue	883.0 s/v	F	1,238.7 s/v	F

Implementation of recommended improvements completely offsets the cumulative impacts of the proposed Project and results in a LOS D or better conditions during the weekday AM peak hour and PM peak hour.

- ***Year 2017 With Project Traffic Conditions*** – The proposed Project ***will*** significantly impact two (2) of the eight (8) key study intersections, when compared to the LOS standards and significant impact criteria specified in this report. The remaining six key study intersections are forecast to operate at an acceptable LOS with the addition of Project generated traffic, based on LOS standards and impact criteria identified in this report. The location projected to operate at an adverse LOS is as follows:

		AM Peak Hour		PM Peak Hour	
Key Intersection		Delay	LOS	Delay	LOS
4.	Bernadette Avenue at Ball Road	47.4 s/v	E	102.3 s/v	F
6.	Valley View Street at Belle Avenue	1,116.7 s/v	F	2,547.4 s/v	F

Implementation of recommended improvements completely offsets the cumulative impacts of the proposed Project and results in a LOS D or better conditions during the weekday AM peak hour and PM peak hour.

- ***Site Access and Internal Circulation*** – Site access and internal circulation for the Project is adequate. An assessment of the proposed site plan indicates that a (SU-30) service truck and fire truck, as well as a moving truck (WB-40) can access the Project site and circulate throughout site.

- ***Recommended Improvements –*** The following improvements listed below have been identified to mitigate the traffic impacts of the Project under Existing Plus Project and Year 2017 Cumulative Plus Project traffic conditions and reduce it to "less than significant". The Project may be expected to construct and/or pay a fair-share of the construction costs to implement these mitigation measures:

  - No. 6 – Valley View Street at Belle Avenue: Restrict eastbound and westbound left-turn movements from Belle Avenue onto Valley View Street during the weekday AM peak period and PM peak period (right-turn movements would continue to be allowed). Install all necessary regulatory signs per the City of Buena Park Standard Design Guidelines and/or CA MUTCD. Implementation of this improvement will require the approval of the City of Buena Park.
  - No. 8 – Bernadette Avenue at Ball Road: Restrict northbound and southbound left-turn movements from Bernadette Avenue onto Ball Road during the weekday AM peak period and PM peak period (right-turn movements would continue to be allowed). Install all necessary regulatory signs per the City of Buena Park Standard Design Guidelines and/or CA MUTCD. Implementation of this improvement will require the approval of the City of Buena Park.

- ***Project Specific Improvements –*** In order to facilitate full access to the primary driveway at Ball Road and Juanita Street, the following improvements are recommended:

  - Modify the existing median on Ball Road to provide a dedicated westbound left-turn lane,
  - Restripe the southbound approach on Juanita Street to provide one left/through option lane, and a right-turn lane,
  - Construct new site driveway to provide a northbound (outbound) left/through option lane and a right-turn lane and one departure (inbound) lane;
  - Modify the existing traffic signal and install new traffic signal equipment as well as install the appropriate pavement markings and striping, as necessary.
  - Install traffic signal poles, mast arms and equipment for northbound traffic from the project site at the Ball Road/Juanita Street intersection.
  - Add traffic control for the proposed westbound left-turn from Ball Road onto the project site.
  - Add traffic control as appropriate for the southbound through movement for Juanita Street onto the project site.
  - Implement appropriate traffic signal timing for the new layout of the Ball Road/Juanita Street intersection.
  - Add a pedestrian crossing across the Driveway of this intersection.

- All improvement identified above are to be completed as a part of the Project to accommodate the proposed primary access driveway and are subject to the approval of the City of Cypress and the City of Buena Park.

In addition, to conform to the most current CA MUTCD, the Project will implement the following signing and striping improvements, which would be required with the conversion of the school site to residential development:

- Modify/remove all existing signage related to school zones that are associated with the former Elizabeth Dickerson Elementary School (and would be in conflict with implementation of the Project), and
- Replace all "yellow" crosswalks with standard white paint.
- The limits of the work will be determined by the City of Buena Park Public Works Department.

- ***CMP Compliance Assessment –*** No significant impacts are expected to occur on the Orange County Congestion Management Program roadway network due to the development and full occupancy of the proposed Project.

APPENDIX A

TRAFFIC STUDY SCOPE OF WORK

MEMORANDUM

To:	Dennis D. Barnes, P.E., T.E. Traffic and Transportation Manager Public Works Department City of Buena Park	Date:	November 20, 2014
From:	Richard E. Barretto, P.E., Principal LLG, Engineers	LLG Ref:	2.14.3536.1
Subject:	***Traffic Study Scope of Work for the Dickerson School Site Residential Project – Buena Park, California***		

Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit the following Traffic Study Scope of Work for the proposed single-family residential development to be located at 10051 Bernadette Avenue at the Elizabeth Dickerson School site (herein referred to as Project) in the City of Buena Park, California for your review and approval. The work program provided herein is based on our prior coordination efforts for this project and the preliminary project information provided by the project applicant, William Lyon Homes.

Traffic Study Scope of Work

The Traffic Impact Analysis for the proposed Project will satisfy the traffic impact requirements of the City of Buena Park Department of Public Works Traffic Engineering Division and be consistent with the requirements and procedures outlined in the current *Congestion Management Program (CMP) for Orange County.* Given the location of the Project site and proximity to the City of Cypress, the traffic impact criteria of this adjacent jurisdiction will be considered.

A. **Project Address/Location:** The Project site is a 9.53 acre parcel of land that is generally located south of Ball Road and west of Bernadette Avenue in the City of Buena Park, California. The subject property is currently developed with the former Elizabeth Dickerson Elementary School.

   See attached ***Figure 1-1,*** a Vicinity Map that illustrates the general location of the Project and surrounding street system. ***Figure 2-1*** is an existing aerial photograph of the Project site.

B. **Project Description:** The proposed Project includes construction of a 67-unit single family subdivision, with a recreation area of approximately 0.50 acres. Access to the Project site will be provided via a proposed driveway located at the signalized intersection of Ball Road and Juanita Avenue, with an "emergency vehicle access only" driveway located on Bernadette Avenue. Access to 10 of the proposed homes, located on the west side of Bernadette Avenue, will be provided via driveways on this residential street; these 10 homes will front Bernadette Avenue and face the existing homes on the east side.

LINSCOTT LAW & GREENSPAN engineers

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San Diego
Woodland Hills

As a project design feature, the proposed intersection improvements to be completed as a part of the Project at the Ball Road/Juanita Avenue intersection to accommodate the proposed primary access driveway, subject to the approval of the City of Cypress and the City of Buena Park, include:

- Modification of the existing median on Ball Road to provide a dedicated westbound left-turn lane,
- Restriping the southbound approach to provide one left-turn lane, and an option through/right-turn lane,
- Construction of the new site driveway to provide a northbound (outbound) left-turn lane and an option through/right-turn lane and one departure (inbound) lane; and.
- Modification of the existing traffic signal as well as install the appropriate pavement markings and striping, as necessary

Pending confirmation of the Project applicant, the proposed Project is expected to be completed by 2017. ***Figures 2-2*** illustrates the conceptual site plan for the Project prepared by Bassenian Lagoni Architecture + Planning + Interiors.

C. Traffic Study Locations: Based on our discussions and review of the project vicinity, the following eight (8) key study intersections represent a list of study intersections to be evaluated in the Project's traffic impact study.

Study Intersections

1. Valley View Street at Ball Road (City of Cypress/City of Buena Park)
2. Brenda Avenue at Ball Road (City of Cypress/City of Buena Park)
3. Juanita Street at Ball Road (City of Cypress/City of Buena Park)
4. Bernadette Avenue at Ball Road (City of Cypress/City of Buena Park)
5. Holder Street at Ball Road (City of Cypress/City of Buena Park)
6. Valley View Street at Belle Avenue (City of Buena Park)
7. Brenda Avenue at Belle Avenue (City of Buena Park)
8. Bernadette Avenue at Belle Avenue (City of Buena Park)

D. Traffic Counts: AM peak period and PM peak period traffic counts for the eight (8) key study intersections have been collected during a typical weekday between the hours of 6:00 AM and 9:00 AM and 3:00 PM and 7:00 PM per the City's requirements. The traffic counts were collected in November 2014.

E. Project Trip Generation: The trip generation potential of the proposed Project was estimated using the average rates for ITE Land Use 210: Single-Family Detached Housing published in the *Trip Generation, 9th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2012)*. For the existing land use, the average trips rates for ITE Land Use 520: Elementary School was utilized to estimate the trip generation potential of the vacant elementary school.

While the upper portion of ***Table 1*** summarizes the trip generation rates used in forecasting the vehicular trips generated by the proposed Project and Existing Land Use, the middle portion provides a summary of the Project's daily, and AM and PM peak hour trip generation potential as well as the existing site's trip generation "budget".

A review of the middle portion of *Table 1* shows the trip generation forecast for the proposed Project. As shown, the proposed Project is forecast to generate 638 daily trips, with 50 trips (13 inbound, 37 outbound) produced in the AM peak hour and 67 trips (42 inbound, 25 outbound) produced in the PM peak hour.

As shown, the existing "elementary school" land use has a trip generation potential of 774 daily trips, with 270 trips (150 inbound, 120 outbound) produced in the AM peak hour and 90 trips (42 inbound, 48 outbound) produced in the PM peak hour.

As shown in *Row A of Table 1*, a comparison of the trips generated by the proposed Project to the trips generated by the Existing Land Use shows that that the implementation of the proposed Project will result in 136 fewer daily trips, 220 fewer AM peak hour trips, and 23 fewer PM peak hour trips. Given the elementary school is now vacant, this trip generation comparison is provided for information purposes only and no trip credit was applied for the existing land use.

F. **Trip Distribution:** See attached ***Figure 5-1*** for the Project Trip Distribution Pattern as well as a tabular summary on ***Table 2***.

Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- location of site access points in relation to the surrounding street system,
- the site's proximity to major traffic carriers and regional access routes,
- physical characteristics of the circulation system such as lane channelization and presence of traffic signals that affect travel patterns,
- presence of traffic congestion in the surrounding vicinity,
- ingress/egress availability at the project site, and
- input from City staff.

G. **Analysis Methodology and Scenarios:** Per City guidelines, the LOS calculations will be based on *Intersection Capacity Utilization (ICU)* methodology and/or *Highway Capacity Manual (HCM) methodology*. The Project's potential impact will be based on the City of Buena Park and/or the governing city's significant impact criteria. The following scenarios are those for which LOS calculations will be performed using the ICU and HCM methodologies:

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a. Existing Traffic,
b. Existing plus Project conditions,
c. Existing plus Project conditions plus mitigation (as required),
d. Existing traffic plus ambient growth of 1% to the year the project (Year 2017) will be completed plus cumulative project traffic,
e. Traffic in (d) plus proposed Project traffic,
f. Traffic in (e) plus mitigation (as required).

Related projects, planned and/or approved, to be considered in this analysis will be research at the Planning Departments for Buena Park, Cypress, Anaheim and other adjacent jurisdictions. The related projects will be included as part of the cumulative setting.

H. Other Issues:

- Evaluate site access and internal circulation.
- Conduct LOS calculations at the proposed project driveway.
- Conduct a queuing assessment at the intersection of Juanita Street and Ball Road to confirm stacking/storage requirements of existing and proposed left-turn lanes at this intersection.

* * * * * * * * * * *

We appreciate the opportunity to provide this scope of work. Should you have any questions, please call me at (949) 825-6175. Thank You.

Approved by:

Dennis D Barnes — 12/2/14

City of Buena Park — Date

cc: File
Garrett Milovich, Transportation Engineer I

Attachment

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TABLE 1

PROJECT TRAFFIC GENERATION FORECAST[1]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Generation Rates:							
▪ 210: Single-Family Detached Housing (TE/DU)	9.52	0.19	0.56	0.75	0.63	0.37	1.00
▪ 520: Elementary School (TE/Student)	1.29	0.25	0.20	0.45	0.07	0.08	0.15
Generation Forecasts:							
Proposed Project							
▪ Dickerson School Site Residential Project (67 DU)	638	13	37	50	42	25	67
Existing Land Use							
▪ Existing Elementary School (closed – estimated to be 600 students)	-774	-150	-120	-270	-42	-48	-90
(A) Total "Net" Project Trip Generation:- Proposed Project - Existing Land Use	*-136*	*-137*	*-83*	*-220*	*+0*	*-23*	*-23*

Notes:
TE/DU = Trip end per dwelling unit

[1] Source: *Trip Generation, 9th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2012)].

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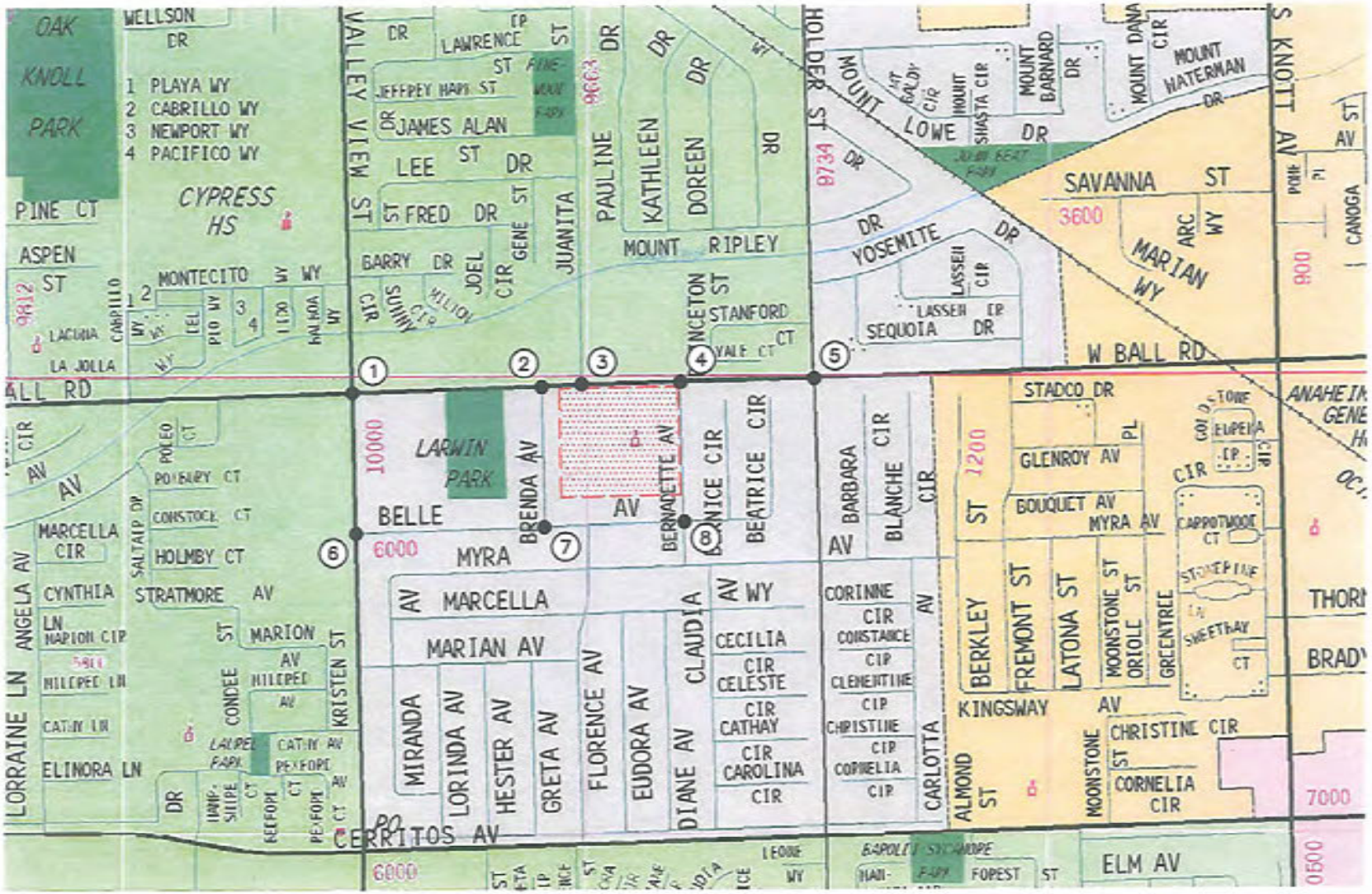
TABLE 2

PROJECT DIRECTIONAL DISTRIBUTION PATTERN

Apartment Distribution Percentage	Orientation/Direction
15%	To/from the north via Valley View Street
20%	To/from the south via Valley View Street
5%	To/from the north via Juanita Street
10%	To/from the north via Holder Street
10%	To/from the south via Holder Street
20%	To/from the west via Ball Road
20%	To/from the east via Ball Road
100%	**Total**



n:\3500\2143536 - dickerson school site 67-du project, buena park\dwg\353681-1.dwg LDP 15:17:07 11-20-2014 mlovich

A-7

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N NO SCALE

SOURCE: THOMAS BROS.

KEY

(#) = STUDY INTERSECTION
= PROPOSED PROJECT
= CITY OF CYPRESS
= CITY OF BUENA PARK
= CITY OF ANAHEIM
= CITY OF STANTON

FIGURE 1–1

VICINITY MAP

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

n:\3500\3143538 - dickerson school site 67-du project, buena park\dwg\3536f2-1.dwg LDP 15:18:46 11-20-2014 mlevieh

8-V

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N NO SCALE

SOURCE: BING

KEY

= PROPOSED PROJECT

FIGURE 2-1

EXISTING SITE

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

n:\3500\2143536 - dickerson school site 67-du project, buena park\dwg\3536f2-2.dwg LDP 15:13:50 11-20-2014 milovich

SOURCE: BASSENIAN LAGONI

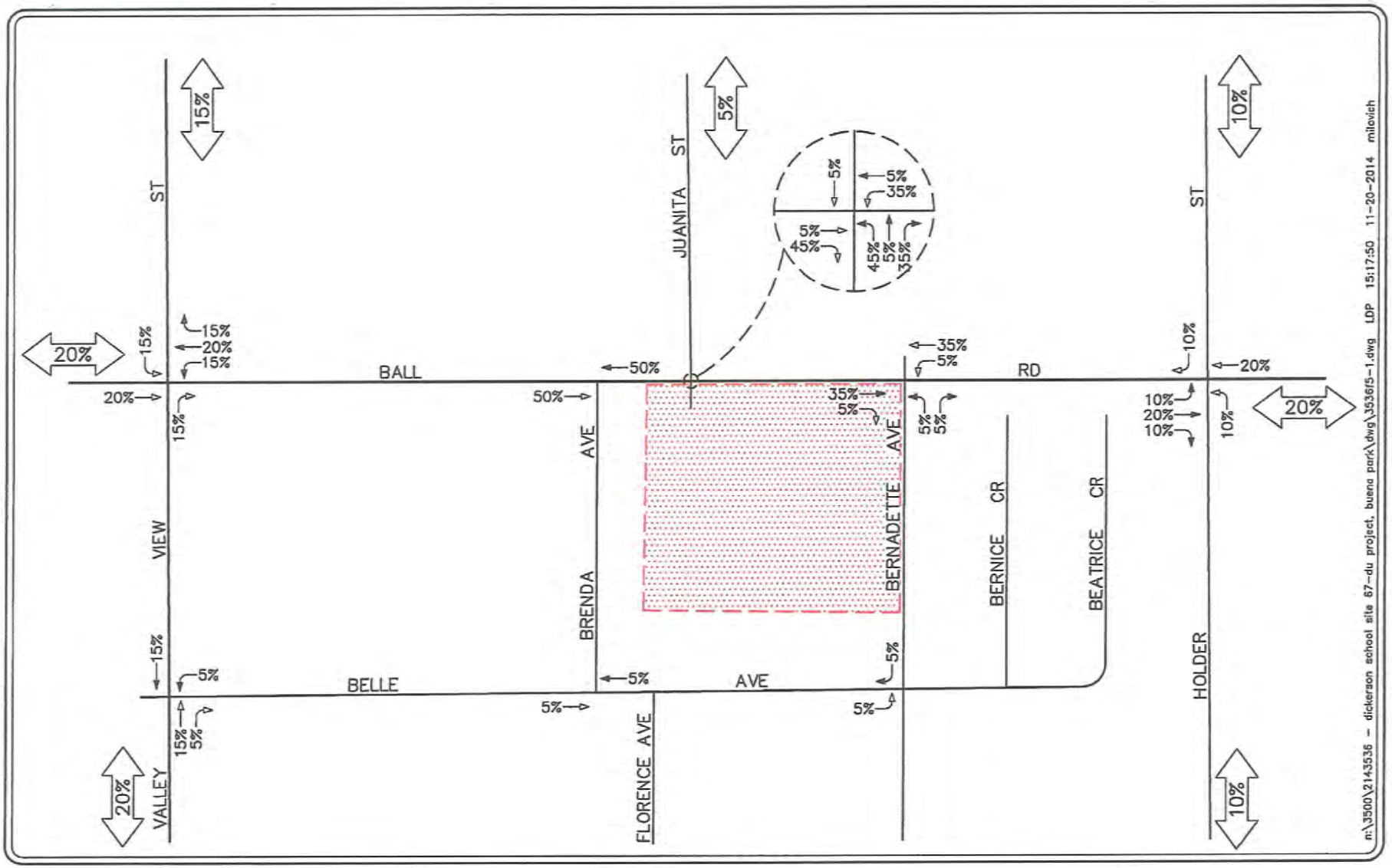
LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

FIGURE 2-2

PROPOSED SITE PLAN

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

KEY

= INBOUND PERCENTAGE

= OUTBOUND PERCENTAGE

= PROJECT SITE

FIGURE 5-1

PROJECT TRAFFIC DISTRIBUTION PATTERN

DICKERSON SCHOOL SITE RESIDENTIAL PROJECT, BUENA PARK

APPENDIX B

EXISTING TRAFFIC COUNT DATA

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Buena Park	PROJECT #:	SC0473
Thu, Nov 6, 14	NORTH & SOUTH:	Valley View	LOCATION #:	1
	EAST & WEST:	Ball	CONTROL:	SIGNAL

NOTES:

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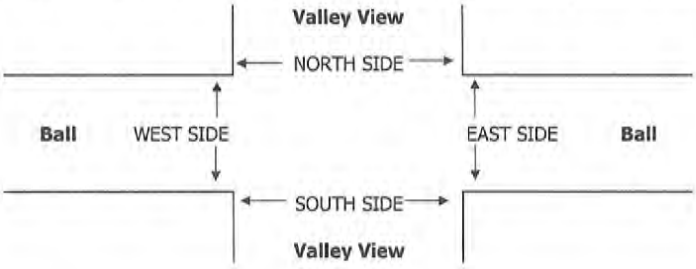
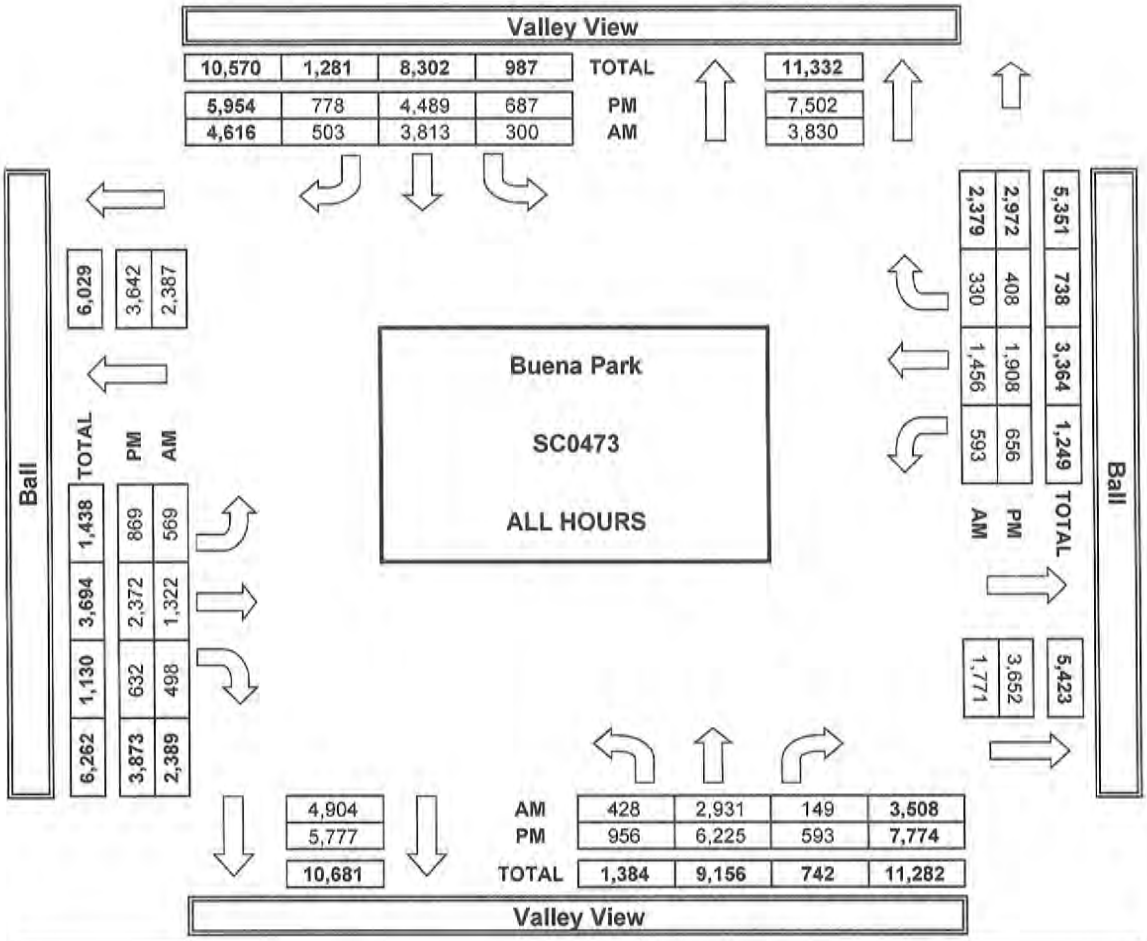
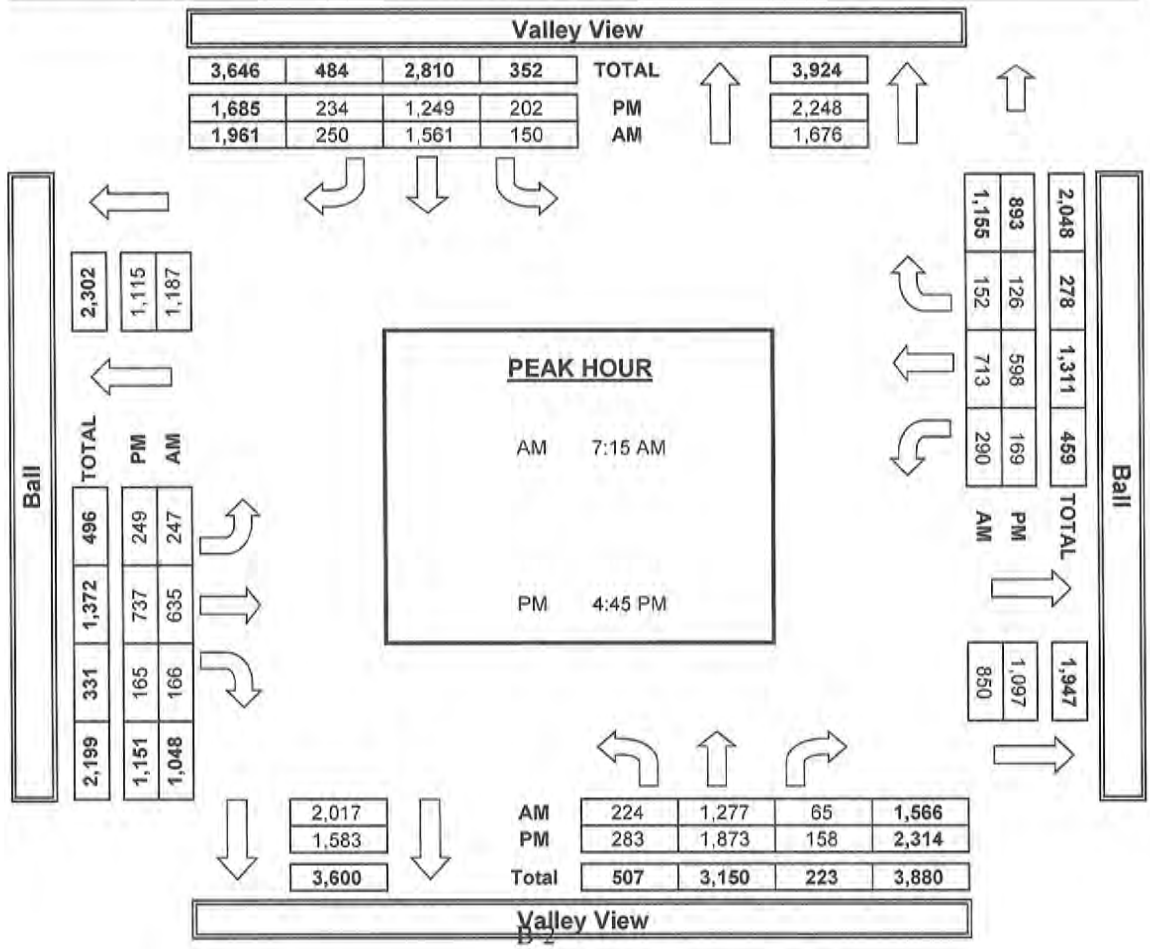
		NORTHBOUND Valley View			SOUTHBOUND Valley View			EASTBOUND Ball			WESTBOUND Ball				U-TURNS				
	LANES:	NL 2	NT 3	NR 1	SL 2	ST 3	SR 0	EL 2	ET 2	ER 1	WL 2	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	6:00 AM	6	98	5	6	183	12	13	29	26	20	49	13	460	0	1	0	0	1
	6:15 AM	14	121	13	7	211	13	26	64	29	39	73	11	621	0	2	0	0	2
	6:30 AM	19	189	6	16	259	47	46	63	36	41	84	29	835	0	1	1	0	2
	6:45 AM	24	200	7	34	368	75	38	76	48	44	103	29	1,046	1	3	0	0	4
	7:00 AM	43	234	7	18	288	33	44	102	44	42	139	28	1,022	1	1	0	2	4
	7:15 AM	54	323	12	31	341	64	70	112	33	62	197	45	1,344	2	2	2	1	7
	7:30 AM	77	342	16	49	369	65	69	170	33	59	229	60	1,538	2	14	1	0	17
	7:45 AM	54	344	18	39	427	83	66	170	44	92	150	32	1,519	2	20	1	0	23
	8:00 AM	39	268	19	31	424	38	42	183	56	77	137	15	1,329	4	11	1	0	16
	8:15 AM	33	270	15	21	352	28	52	155	62	44	92	19	1,143	0	3	4	0	7
	8:30 AM	33	277	15	18	298	14	49	110	42	37	101	24	1,018	1	4	1	0	6
	8:45 AM	32	265	16	30	293	31	54	88	45	36	102	25	1,017	0	2	2	1	5
	VOLUMES	428	2,931	149	300	3,813	503	569	1,322	498	593	1,456	330	12,986	13	64	13	4	94
	APPROACH %	12%	84%	4%	6%	83%	11%	24%	55%	21%	25%	61%	14%						
	APP/DEPART	3,521	/	3,894	4,680	/	4,917	2,402	/	1,775	2,383	/	2,400	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	224	1,277	65	150	1,561	250	247	635	166	290	713	152	5,730					
	APPROACH %	14%	82%	4%	8%	80%	13%	24%	61%	16%	25%	62%	13%						
	PEAK HR FACTOR		0.900			0.893			0.932			0.830		0.931					
	APP/DEPART	1,566	/	1,676	1,961	/	2,017	1,048	/	850	1,155	/	1,187	0					
PM	3:00 PM	42	363	25	51	324	50	50	134	27	45	99	22	1,232	3	8	5	1	17
	3:15 PM	57	315	31	51	264	38	43	125	46	41	85	23	1,119	2	7	8	0	17
	3:30 PM	46	364	32	23	291	53	44	130	50	37	97	20	1,187	3	3	3	0	9
	3:45 PM	59	375	40	54	264	43	66	119	28	40	99	26	1,213	2	6	3	0	11
	4:00 PM	64	388	40	46	229	45	63	150	39	45	120	31	1,260	2	6	2	1	11
	4:15 PM	52	342	43	36	288	51	54	132	38	43	112	34	1,225	0	4	4	0	8
	4:30 PM	75	389	39	42	251	70	57	163	39	37	147	29	1,338	5	2	8	0	15
	4:45 PM	54	440	41	55	317	63	74	162	45	34	129	31	1,445	0	4	3	3	10
	5:00 PM	73	456	37	48	302	51	60	189	45	59	183	29	1,532	2	2	5	0	9
	5:15 PM	75	501	44	56	327	59	49	185	40	45	127	36	1,544	0	3	2	1	6
	5:30 PM	81	476	36	43	303	61	66	201	35	31	159	30	1,522	3	1	5	3	12
	5:45 PM	59	416	56	53	334	39	50	171	41	44	127	23	1,413	7	5	3	0	15
	6:00 PM	60	394	30	36	281	71	64	152	48	36	119	16	1,307	2	4	1	1	8
	6:15 PM	54	402	36	33	282	40	57	115	44	41	113	18	1,235	2	1	1	1	5
	6:30 PM	62	291	37	30	245	24	36	125	23	38	97	24	1,032	0	2	0	2	4
	6:45 PM	43	313	26	30	187	20	36	119	44	40	95	16	969	2	4	1	0	7
	VOLUMES	956	6,225	593	687	4,489	778	869	2,372	632	656	1,908	408	20,737	35	62	54	13	164
	APPROACH %	12%	80%	8%	12%	75%	13%	22%	61%	16%	22%	64%	14%						
	APP/DEPART	7,809	/	7,564	6,016	/	5,812	3,927	/	3,665	2,985	/	3,696	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	283	1,873	158	202	1,249	234	249	737	165	169	598	126	6,043					
	APPROACH %	12%	81%	7%	12%	74%	14%	22%	64%	14%	19%	67%	14%						
	PEAK HR FACTOR		0.933			0.953			0.953			0.824		0.978					
	APP/DEPART	2,314	/	2,248	1,685	/	1,583	1,151	/	1,097	893	/	1,115	0					



AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

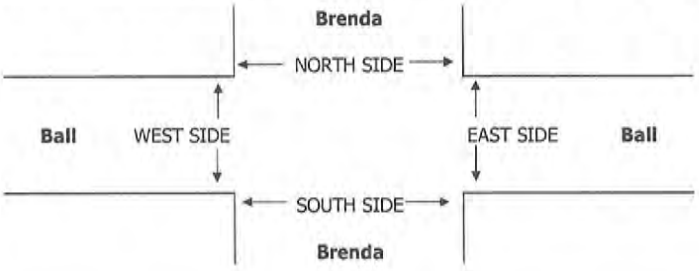
PREPARED BY: AimTD LLC tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Buena Park	PROJECT #:	SC0473
Thu, Nov 6, 14	NORTH & SOUTH:	Brenda	LOCATION #:	2
	EAST & WEST:	Ball	CONTROL:	Stop S Way

NOTES:

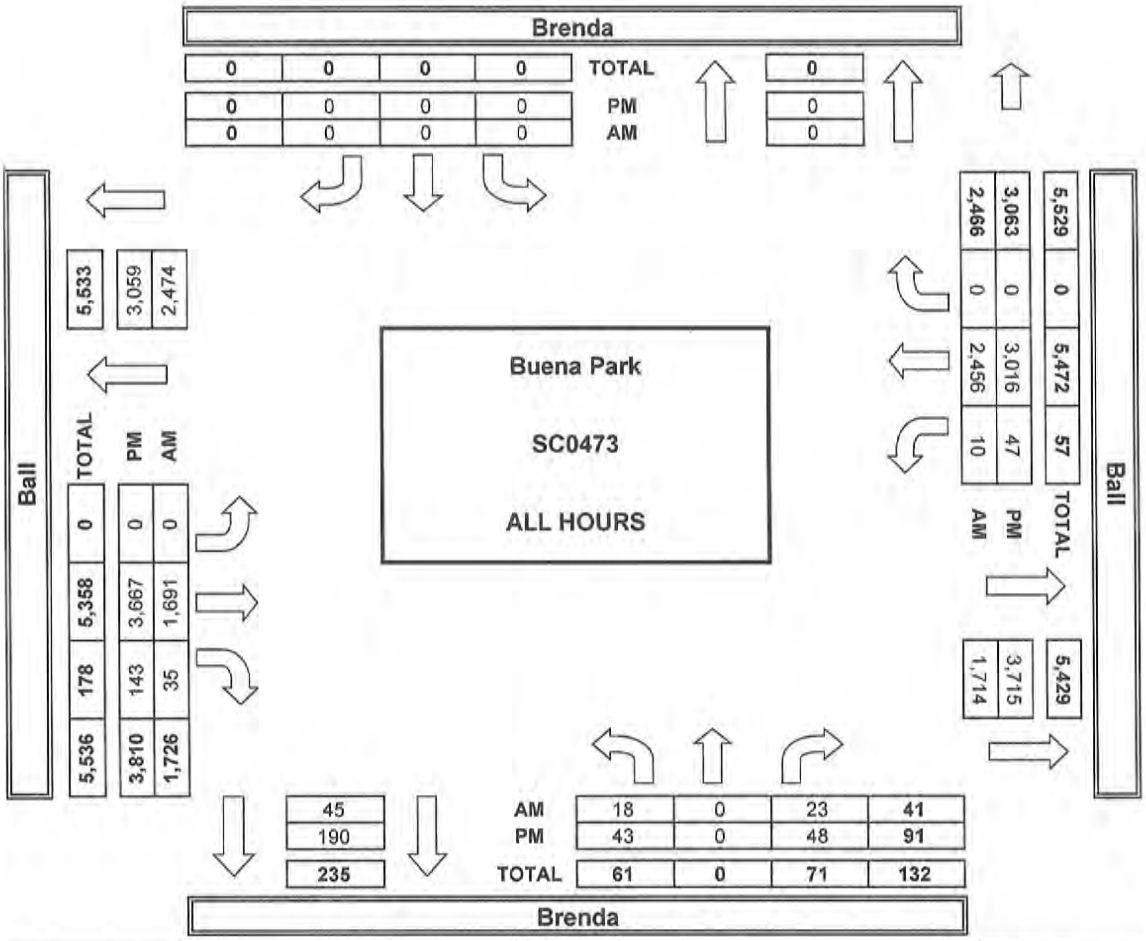
N ▲ ◄ W E ► S ▼

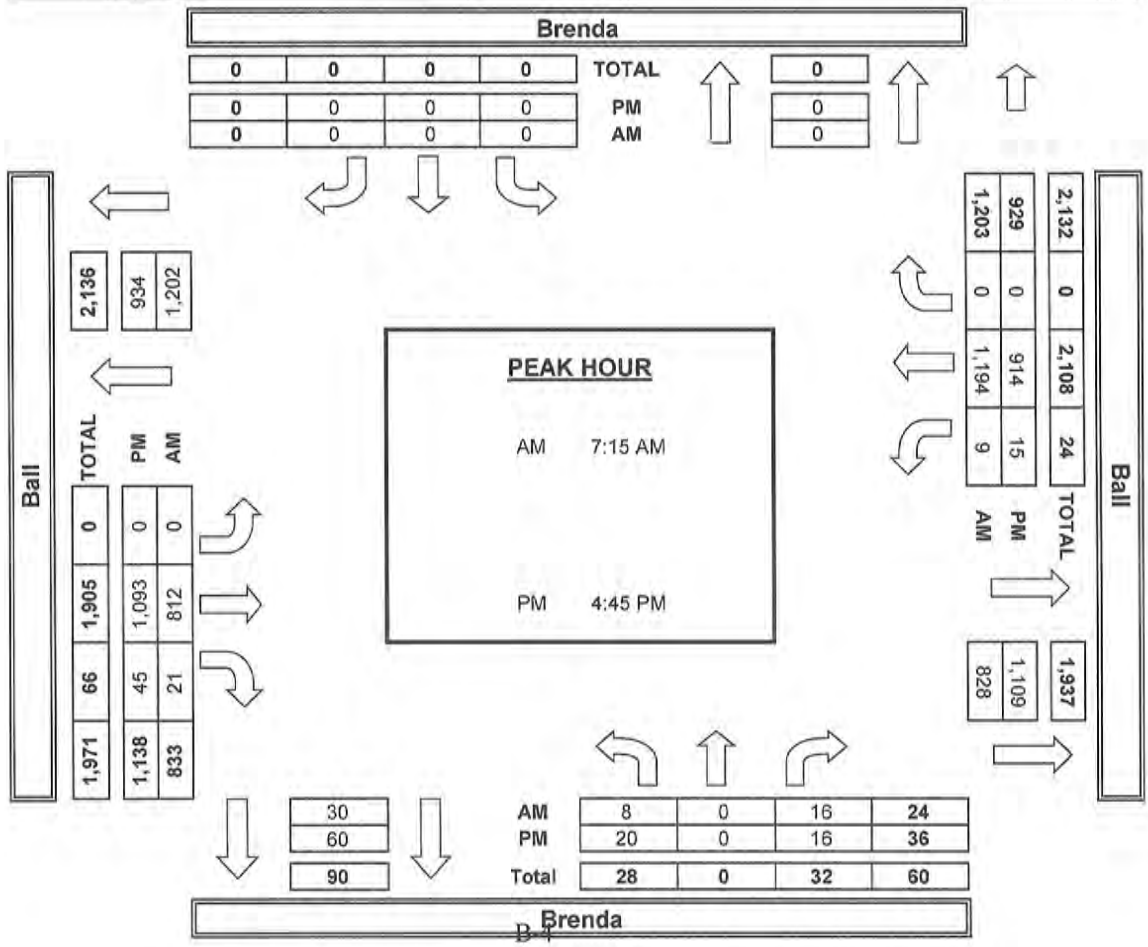
		NORTHBOUND Brenda			SOUTHBOUND Brenda			EASTBOUND Ball			WESTBOUND Ball				U-TURNS				
	LANES:	NL 0	NT X	NR 0	SL X	ST X	SR X	EL X	ET 2	ER 0	WL 1	WT 2	WR X	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	6:00 AM	2	0	1	0	0	0	0	32	0	0	88	0	123	0	0	0	0	0
	6:15 AM	2	0	1	0	0	0	0	73	1	0	121	0	198	0	0	0	0	0
	6:30 AM	2	0	1	0	0	0	0	83	0	0	146	0	232	0	0	0	0	0
	6:45 AM	0	0	0	0	0	0	0	108	5	0	192	0	305	0	0	0	0	0
	7:00 AM	1	0	0	0	0	0	0	103	1	0	196	0	301	0	0	0	0	0
	7:15 AM	3	0	3	0	0	0	0	167	3	3	295	0	474	0	0	0	0	0
	7:30 AM	1	0	9	0	0	0	0	203	7	3	364	0	587	0	0	0	0	0
	7:45 AM	2	0	3	0	0	0	0	230	5	3	292	0	535	0	0	0	1	1
	8:00 AM	2	0	1	0	0	0	0	212	6	0	243	0	464	0	0	0	0	0
	8:15 AM	2	0	2	0	0	0	0	196	3	1	191	0	395	0	0	0	1	1
	8:30 AM	0	0	1	0	0	0	0	153	3	0	153	0	310	0	0	0	0	0
	8:45 AM	1	0	1	0	0	0	0	131	1	0	175	0	309	0	0	0	0	0
	VOLUMES	18	0	23	0	0	0	0	1,691	35	10	2,456	0	4,235	0	0	0	2	2
	APPROACH %	44%	0%	56%	0%	0%	0%	0%	98%	2%	0%	100%	0%						
	APP/DEPART	41	/	0	0	/	45	1,726	/	1,716	2,468	/	2,474	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	8	0	16	0	0	0	0	812	21	9	1,194	0	2,060					
	APPROACH %	33%	0%	67%	0%	0%	0%	0%	97%	3%	1%	99%	0%						
	PEAK HR FACTOR		0.600			0.000			0.886			0.819		0.877					
	APP/DEPART	24	/	0	0	/	30	833	/	828	1,203	/	1,202	0					
PM	3:00 PM	1	0	6	0	0	0	0	228	5	2	170	0	412	0	0	0	1	1
	3:15 PM	1	0	4	0	0	0	0	209	4	0	159	0	377	0	0	0	0	0
	3:30 PM	0	0	3	0	0	0	0	181	4	1	159	0	348	0	0	0	0	0
	3:45 PM	2	0	3	0	0	0	0	198	4	2	190	0	399	0	0	0	1	1
	4:00 PM	0	0	4	0	0	0	0	232	8	2	186	0	432	0	0	0	0	0
	4:15 PM	3	0	2	0	0	0	0	237	8	5	181	0	436	0	0	0	1	1
	4:30 PM	4	0	2	0	0	0	0	213	9	3	190	0	421	0	0	0	1	1
	4:45 PM	2	0	0	0	0	0	0	272	8	3	215	0	500	0	0	0	0	0
	5:00 PM	4	0	7	0	0	0	0	242	13	5	273	0	544	0	0	0	0	0
	5:15 PM	5	0	4	0	0	0	0	314	10	5	199	0	537	0	0	0	0	0
	5:30 PM	9	0	5	0	0	0	0	265	14	2	227	0	522	0	0	0	0	0
	5:45 PM	3	0	2	0	0	0	0	272	12	4	199	0	492	0	0	0	0	0
	6:00 PM	2	0	2	0	0	0	0	223	13	6	179	0	425	0	0	0	0	0
	6:15 PM	3	0	1	0	0	0	0	229	7	3	180	0	423	0	0	0	1	1
	6:30 PM	1	0	2	0	0	0	0	163	12	1	168	0	347	0	0	0	0	0
	6:45 PM	3	0	1	0	0	0	0	189	12	3	141	0	349	0	0	0	0	0
	VOLUMES	43	0	48	0	0	0	0	3,667	143	47	3,016	0	6,969	0	0	0	5	5
	APPROACH %	47%	0%	53%	0%	0%	0%	0%	96%	4%	2%	98%	0%						
	APP/DEPART	91	/	0	0	/	190	3,810	/	3,720	3,068	/	3,059	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	20	0	16	0	0	0	0	1,093	45	15	914	0	2,103					
	APPROACH %	56%	0%	44%	0%	0%	0%	0%	96%	4%	2%	98%	0%						
	PEAK HR FACTOR		0.643			0.000			0.878			0.835		0.966					
	APP/DEPART	36	/	0	0	/	60	1,138	/	1,109	929	/	934	0					



AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

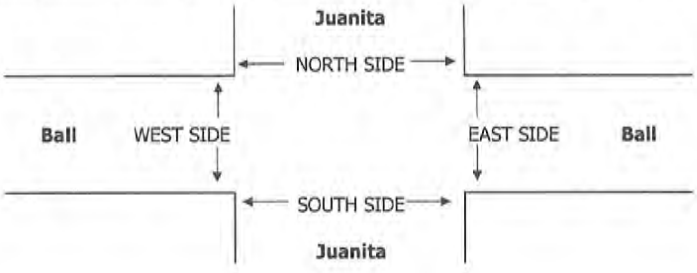
PREPARED BY: AimTD LLC tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Buena Park	PROJECT #:	SC0473
Thu, Nov 6, 14	NORTH & SOUTH:	Juanita	LOCATION #:	3
	EAST & WEST:	Ball	CONTROL:	SIGNAL

NOTES:

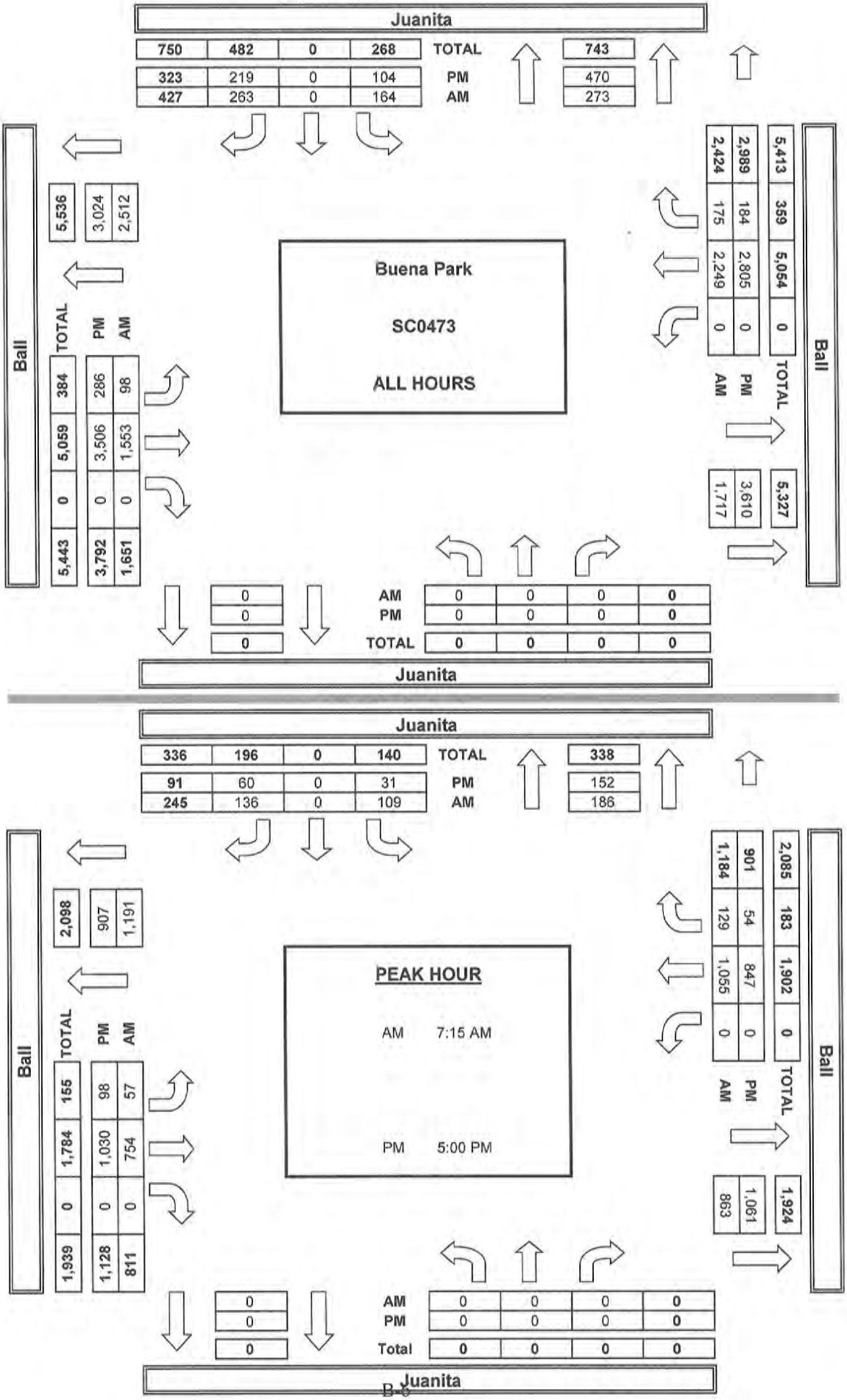
N ▲ ◄ W E ► S ▼

		NORTHBOUND Juanita			SOUTHBOUND Juanita			EASTBOUND Ball			WESTBOUND Ball				U-TURNS				
	LANES:	NL X	NT X	NR X	SL 0	ST X	SR 0	EL 1	ET 2	ER X	WL X	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	6:00 AM	0	0	0	2	0	8	4	24	0	0	86	1	125	0	0	0	0	0
	6:15 AM	0	0	0	7	0	19	6	61	0	0	115	3	211	0	0	1	0	1
	6:30 AM	0	0	0	11	0	16	2	68	0	0	130	14	241	0	0	0	0	0
	6:45 AM	0	0	0	10	0	23	3	97	0	0	182	7	322	0	0	0	0	0
	7:00 AM	0	0	0	9	0	23	5	90	0	0	182	10	319	0	0	0	0	0
	7:15 AM	0	0	0	22	0	34	11	154	0	0	264	31	516	0	0	2	0	2
	7:30 AM	0	0	0	63	0	39	20	161	0	0	291	69	643	0	0	0	0	0
	7:45 AM	0	0	0	19	0	34	11	221	0	0	272	17	574	0	0	0	0	0
	8:00 AM	0	0	0	5	0	29	15	218	0	0	228	12	507	0	0	0	0	0
	8:15 AM	0	0	0	1	0	15	11	194	0	0	184	4	409	0	0	0	0	0
	8:30 AM	0	0	0	9	0	12	6	143	0	0	149	0	319	0	0	0	0	0
	8:45 AM	0	0	0	6	0	11	4	122	0	0	166	7	316	0	0	0	0	0
	VOLUMES	0	0	0	164	0	263	98	1,553	0	0	2,249	175	4,505	0	0	3	0	3
	APPROACH %	0%	0%	0%	38%	0%	62%	6%	94%	0%	0%	93%	7%						
	APP/DEPART	0	/	273	427	/	0	1,654	/	1,717	2,424	/	2,515	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	0	0	0	109	0	136	57	754	0	0	1,055	129	2,240					
	APPROACH %	0%	0%	0%	44%	0%	56%	7%	93%	0%	0%	89%	11%						
	PEAK HR FACTOR		0.000			0.600			0.870			0.822		0.871					
	APP/DEPART	0	/	186	245	/	0	811	/	863	1,184	/	1,191	0					
PM	3:00 PM	0	0	0	8	0	11	11	215	0	0	157	9	411	0	0	0	0	0
	3:15 PM	0	0	0	8	0	8	15	195	0	0	143	12	381	0	0	0	0	0
	3:30 PM	0	0	0	9	0	12	13	167	0	0	145	11	357	0	0	0	0	0
	3:45 PM	0	0	0	6	0	9	13	185	0	0	178	10	401	0	0	0	0	0
	4:00 PM	0	0	0	6	0	13	9	224	0	0	174	7	433	0	0	0	0	0
	4:15 PM	0	0	0	5	0	13	16	231	0	0	169	11	445	0	0	0	0	0
	4:30 PM	0	0	0	6	0	17	20	207	0	0	174	16	440	0	0	0	0	0
	4:45 PM	0	0	0	4	0	13	18	256	0	0	208	6	505	0	0	1	0	1
	5:00 PM	0	0	0	5	0	17	16	230	0	0	253	19	540	0	0	0	0	0
	5:15 PM	0	0	0	10	0	15	27	284	0	0	190	10	536	0	0	0	0	0
	5:30 PM	0	0	0	9	0	11	32	255	0	0	222	9	538	0	0	0	0	0
	5:45 PM	0	0	0	7	0	17	23	261	0	0	182	16	506	0	0	1	0	1
	6:00 PM	0	0	0	6	0	12	27	225	0	0	165	12	447	0	0	0	0	0
	6:15 PM	0	0	0	8	0	24	17	222	0	0	169	9	449	0	0	0	0	0
	6:30 PM	0	0	0	4	0	15	20	165	0	0	149	15	368	0	0	0	1	1
	6:45 PM	0	0	0	3	0	12	9	184	0	0	127	12	347	0	0	0	0	0
	VOLUMES	0	0	0	104	0	219	286	3,506	0	0	2,805	184	7,107	0	0	2	1	3
	APPROACH %	0%	0%	0%	32%	0%	68%	8%	92%	0%	0%	94%	6%						
	APP/DEPART	0	/	470	323	/	0	3,794	/	3,611	2,990	/	3,026	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	0	0	0	31	0	60	98	1,030	0	0	847	54	2,120					
	APPROACH %	0%	0%	0%	34%	0%	66%	9%	91%	0%	0%	94%	6%						
	PEAK HR FACTOR		0.000			0.910			0.907			0.828		0.981					
	APP/DEPART	0	/	152	91	/	0	1,128	/	1,061	901	/	907	0					



AimTD LLC

TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

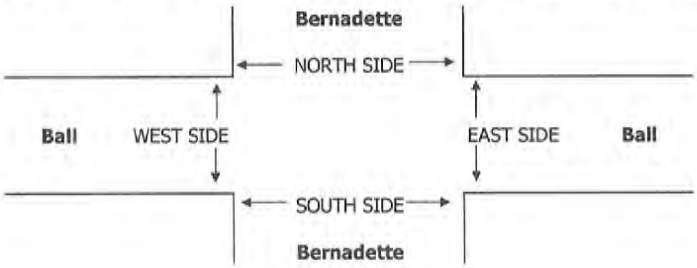
PREPARED BY: AimTD LLC tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Buena Park	PROJECT #:	SC0473
Thu, Nov 6, 14	NORTH & SOUTH:	Bernadette	LOCATION #:	4
	EAST & WEST:	Ball	CONTROL:	SIGNAL

NOTES:

N ▲ ◄ W E ► S ▼

		NORTHBOUND Bernadette			SOUTHBOUND Bernadette			EASTBOUND Ball			WESTBOUND Ball				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	6:00 AM	0	0	0	1	0	0	0	27	1	0	88	0	117	0	0	0	1	1
	6:15 AM	1	0	2	1	0	0	2	67	2	0	128	3	206	0	0	0	0	0
	6:30 AM	0	0	2	0	0	0	0	71	0	1	139	0	213	0	0	1	1	2
	6:45 AM	2	0	3	1	0	0	0	98	1	0	200	1	306	0	0	0	0	0
	7:00 AM	4	0	1	0	0	0	1	104	2	0	198	0	310	0	0	0	3	3
	7:15 AM	3	0	1	0	0	0	0	193	2	2	281	3	485	0	0	0	0	0
	7:30 AM	6	0	4	0	1	1	0	184	9	2	321	1	529	0	0	0	1	1
	7:45 AM	0	0	5	0	0	0	2	233	1	3	287	1	532	0	0	0	1	1
	8:00 AM	4	1	4	1	0	2	3	224	8	1	249	1	498	0	0	0	2	2
	8:15 AM	1	0	4	0	0	1	3	209	3	2	193	0	416	0	0	0	0	0
	8:30 AM	2	0	0	2	0	0	3	154	1	2	152	3	319	0	0	0	0	0
	8:45 AM	4	0	5	2	0	0	2	126	6	5	166	0	316	0	0	0	1	1
	VOLUMES	27	1	31	8	1	4	16	1,690	36	18	2,402	13	4,258	0	0	1	10	11
	APPROACH %	46%	2%	53%	62%	8%	31%	1%	97%	2%	1%	99%	1%						
	APP/DEPART	59	/	30	13	/	55	1,743	/	1,739	2,443	/	2,434	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	13	1	14	1	1	3	5	834	20	8	1,138	6	2,044					
	APPROACH %	46%	4%	50%	20%	20%	60%	1%	97%	2%	1%	99%	1%						
	PEAK HR FACTOR		0.700			0.417			0.910			0.889		0.961					
	APP/DEPART	28	/	12	5	/	29	859	/	849	1,152	/	1,154	0					
PM	3:00 PM	3	0	3	2	0	2	2	216	8	4	157	1	398	0	0	0	2	2
	3:15 PM	0	1	3	2	3	0	9	201	2	4	136	5	366	0	0	0	1	1
	3:30 PM	1	0	4	7	0	1	3	164	6	3	144	3	336	0	0	0	3	3
	3:45 PM	2	0	4	1	0	2	3	189	7	6	173	2	389	0	0	0	2	2
	4:00 PM	1	0	1	2	0	0	3	215	6	3	172	5	408	0	0	0	2	2
	4:15 PM	5	0	1	1	1	2	1	230	4	5	169	2	421	0	1	0	2	3
	4:30 PM	3	0	4	1	1	2	4	217	5	4	175	5	421	0	0	0	3	3
	4:45 PM	5	1	6	6	2	2	5	248	6	3	210	3	497	0	0	0	2	2
	5:00 PM	6	0	5	2	2	1	6	227	8	6	256	4	523	0	0	0	0	0
	5:15 PM	4	0	3	2	0	1	8	290	13	7	185	5	518	0	0	2	3	5
	5:30 PM	2	1	2	1	1	0	4	271	5	7	219	1	514	0	0	1	1	2
	5:45 PM	2	0	6	1	1	3	3	275	4	4	190	0	489	0	0	0	1	1
	6:00 PM	0	1	4	1	0	3	3	243	5	7	161	3	431	0	0	0	2	2
	6:15 PM	1	1	3	2	0	1	2	228	5	3	182	1	429	0	0	0	3	3
	6:30 PM	4	2	4	0	0	1	1	178	3	1	156	2	352	0	0	0	0	0
	6:45 PM	2	0	2	2	0	1	2	195	2	0	132	2	340	0	0	0	1	1
	VOLUMES	41	7	55	33	11	22	59	3,587	89	67	2,817	44	6,864	0	1	3	28	32
	APPROACH %	40%	7%	53%	50%	17%	33%	2%	96%	2%	2%	96%	2%						
	APP/DEPART	103	/	111	67	/	167	3,738	/	3,703	2,956	/	2,883	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	17	2	16	11	5	4	23	1,036	32	23	870	13	2,052					
	APPROACH %	49%	6%	46%	55%	25%	20%	2%	95%	3%	3%	96%	1%						
	PEAK HR FACTOR		0.729			0.500			0.877			0.852		0.981					
	APP/DEPART	35	/	38	20	/	60	1,091	/	1,063	906	/	891	0					



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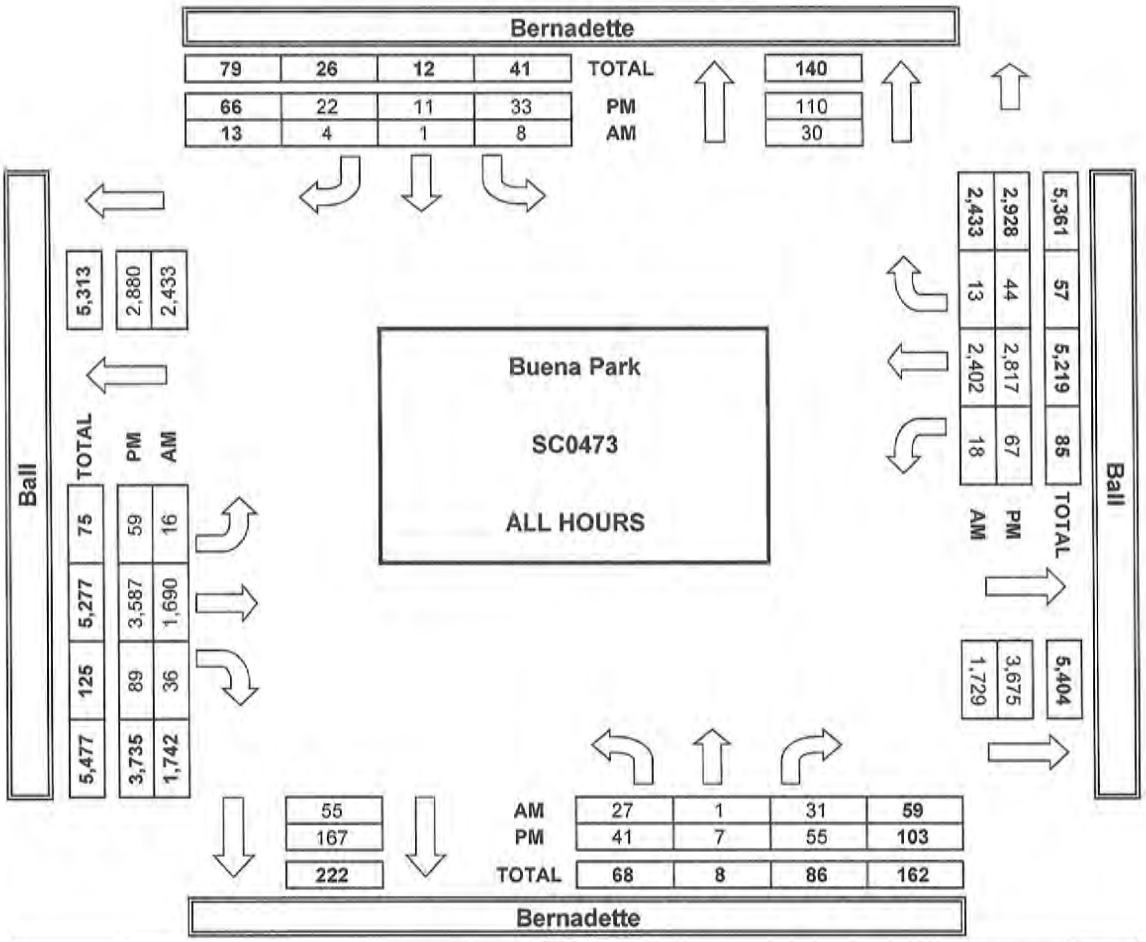
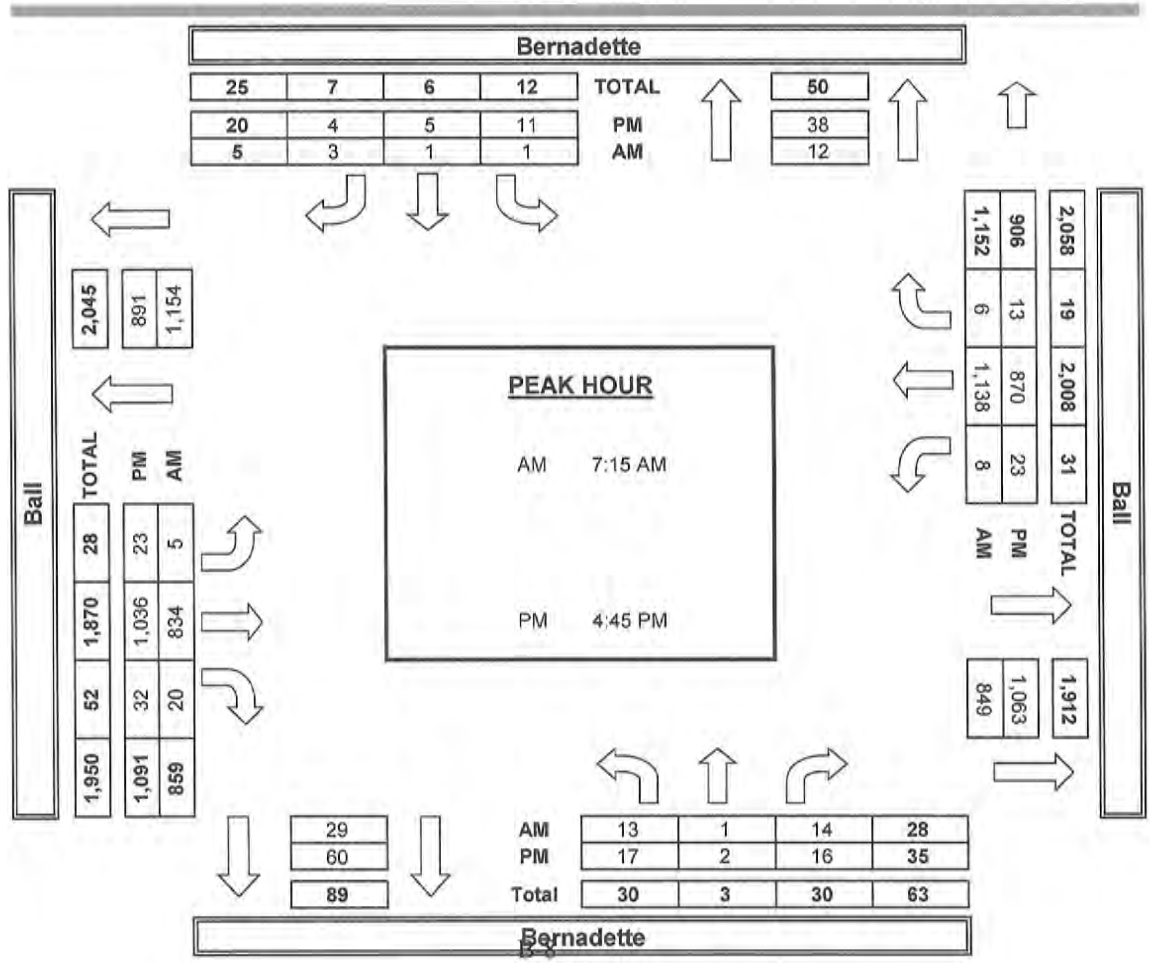
TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

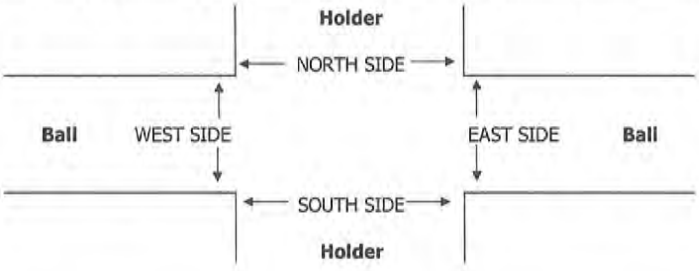
PREPARED BY: AimTD LLC tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Buena Park	PROJECT #:	SC0473
Thu, Nov 6, 14	NORTH & SOUTH:	Holder	LOCATION #:	5
	EAST & WEST:	Ball	CONTROL:	SIGNAL

NOTES:

N ▲ ◄ W E ► S ▼

		NORTHBOUND (Holder)			SOUTHBOUND (Holder)			EASTBOUND (Ball)			WESTBOUND (Ball)				U-TURNS				
	LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	6:00 AM	2	5	1	10	15	16	4	36	1	2	77	1	170	0	0	0	0	0
	6:15 AM	4	10	1	5	28	18	4	77	4	3	105	1	260	0	0	1	0	1
	6:30 AM	8	3	1	9	28	30	9	82	5	1	146	5	327	0	0	0	0	0
	6:45 AM	8	12	4	14	35	23	18	96	7	11	153	17	398	0	0	0	0	0
	7:00 AM	9	24	9	25	52	28	7	105	9	7	145	26	446	0	0	0	0	0
	7:15 AM	14	31	5	14	59	45	16	139	10	11	281	32	657	0	0	1	0	1
	7:30 AM	25	39	11	31	73	51	25	182	19	26	287	44	813	0	0	0	0	0
	7:45 AM	12	43	5	38	90	45	32	187	24	26	173	39	714	0	0	0	0	0
	8:00 AM	9	45	15	21	44	36	28	181	16	18	157	20	590	0	0	0	0	0
	8:15 AM	11	30	9	11	40	19	21	133	16	12	104	18	424	0	0	0	0	0
	8:30 AM	9	24	8	9	34	20	11	127	4	14	123	28	411	0	0	0	0	0
	8:45 AM	6	29	10	11	21	19	19	105	2	6	164	32	424	0	0	0	1	1
	VOLUMES	117	295	79	198	519	350	194	1,450	117	137	1,915	263	5,637	0	0	2	1	3
	APPROACH %	24%	60%	16%	19%	49%	33%	11%	82%	7%	6%	83%	11%						
	APP/DEPART	491	/	752	1,067	/	773	1,763	/	1,728	2,316	/	2,384	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	60	158	36	104	266	177	101	689	69	81	898	135	2,774					
	APPROACH %	24%	62%	14%	19%	49%	32%	12%	80%	8%	7%	81%	12%						
	PEAK HR FACTOR		0.847			0.790			0.884			0.780		0.853					
	APP/DEPART	254	/	394	547	/	416	859	/	829	1,114	/	1,135	0					
PM	3:00 PM	7	26	2	16	37	20	21	192	16	2	132	6	477	0	0	1	0	1
	3:15 PM	6	29	6	13	29	26	28	176	13	6	126	17	475	0	0	0	0	0
	3:30 PM	8	44	7	16	35	24	26	155	7	7	135	14	478	0	1	1	0	2
	3:45 PM	17	47	4	12	35	27	48	146	7	4	142	16	505	0	0	0	0	0
	4:00 PM	11	43	3	16	32	26	38	209	7	6	162	17	570	0	0	3	0	3
	4:15 PM	11	53	7	20	42	31	29	175	10	3	154	21	556	0	0	1	0	1
	4:30 PM	15	47	3	14	39	27	24	195	14	1	189	18	586	0	0	0	0	0
	4:45 PM	13	50	8	20	30	29	37	190	19	10	168	22	596	0	0	2	0	2
	5:00 PM	29	89	10	11	35	41	37	224	10	7	176	24	693	0	0	1	0	1
	5:15 PM	14	81	5	17	44	25	53	209	12	9	189	16	674	0	0	0	0	0
	5:30 PM	11	93	7	8	25	15	47	174	15	5	184	20	604	0	0	1	0	1
	5:45 PM	9	58	5	7	26	22	41	214	14	5	160	28	589	0	0	1	0	1
	6:00 PM	14	63	6	11	29	22	28	160	14	11	166	24	548	0	0	2	0	2
	6:15 PM	7	44	5	13	23	15	36	140	7	5	136	19	450	0	0	2	0	2
	6:30 PM	9	40	5	6	25	22	27	142	6	5	134	11	432	0	0	1	0	1
	6:45 PM	9	18	6	9	22	22	29	141	5	5	119	13	398	0	0	2	0	2
	VOLUMES	190	825	89	209	508	394	549	2,842	176	91	2,472	286	8,650	0	1	18	0	19
	APPROACH %	17%	75%	8%	19%	46%	35%	15%	80%	5%	3%	87%	10%						
	APP/DEPART	1,104	/	1,661	1,112	/	775	3,585	/	3,140	2,849	/	3,074	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	67	313	30	56	134	110	174	797	56	31	717	82	2,567					
	APPROACH %	16%	76%	7%	19%	45%	37%	17%	78%	5%	4%	86%	10%						
	PEAK HR FACTOR		0.801			0.862			0.937			0.970		0.926					
	APP/DEPART	410	/	569	300	/	221	1,027	/	883	830	/	894	0					



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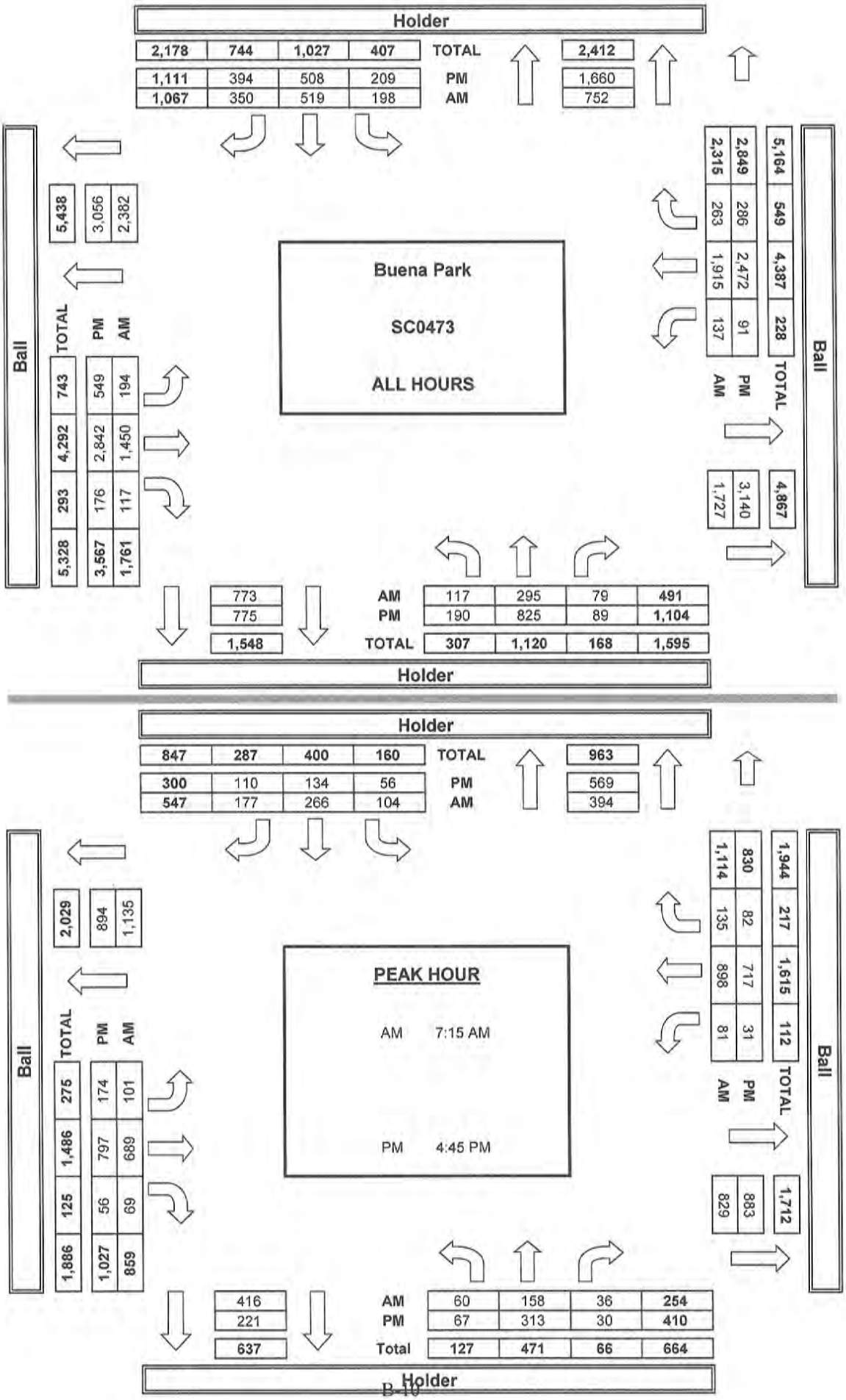
TURNING MOVEMENT COUNTS



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Buena Park	PROJECT #:	SC0473
Thu, Nov 6, 14	NORTH & SOUTH:	Valley View	LOCATION #:	6
	EAST & WEST:	Belle	CONTROL:	Stop E Way

NOTES:

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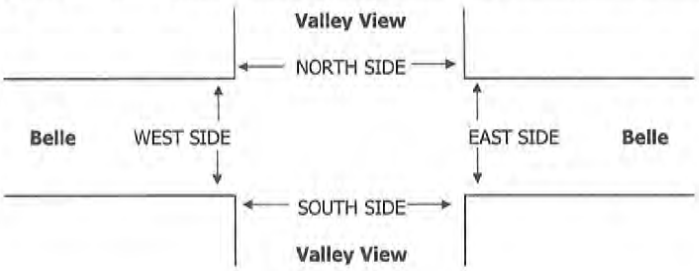
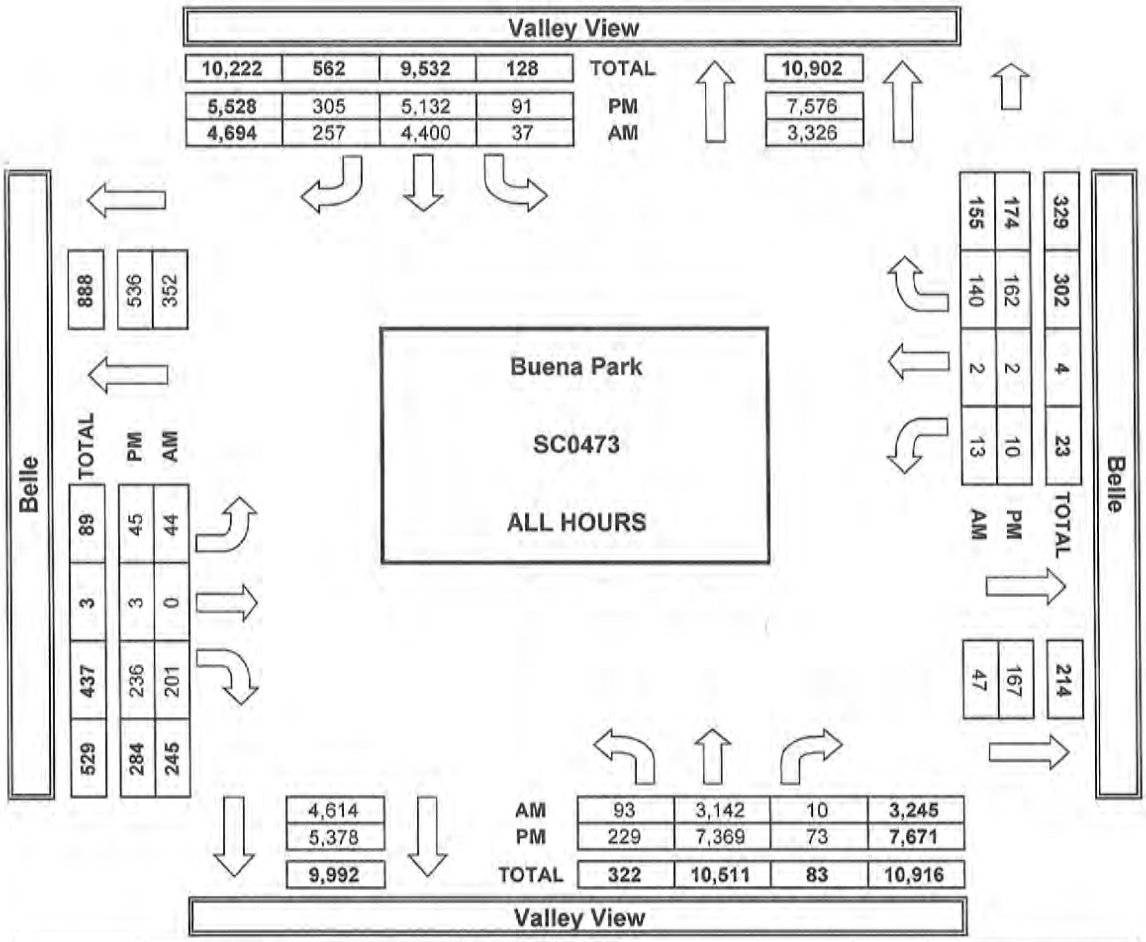
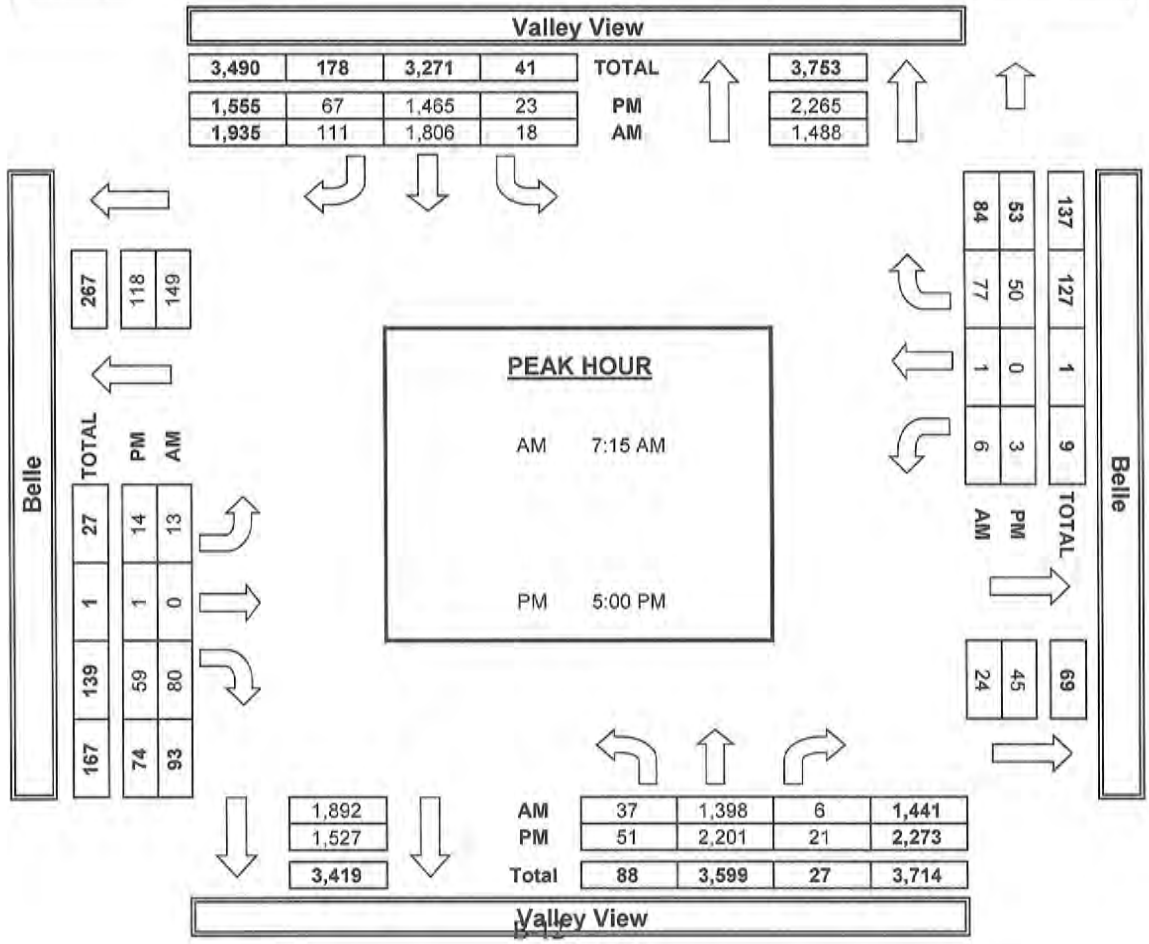
		NORTHBOUND Valley View			SOUTHBOUND Valley View			EASTBOUND Belle			WESTBOUND Belle				U-TURNS				
	LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	6:00 AM	4	96	0	1	209	10	3	0	12	0	0	1	336	0	0	0	0	0
	6:15 AM	6	120	0	0	235	15	5	0	10	3	0	10	404	0	0	0	0	0
	6:30 AM	3	187	1	4	291	22	4	0	13	1	0	9	535	0	1	0	0	1
	6:45 AM	10	216	0	2	410	21	1	0	15	0	0	7	682	0	0	0	0	0
	7:00 AM	10	263	1	0	351	19	4	0	18	0	0	9	675	0	0	0	0	0
	7:15 AM	7	342	1	6	391	24	3	0	15	2	0	21	812	0	1	0	0	1
	7:30 AM	9	392	2	4	414	26	1	0	25	0	0	27	900	0	0	0	0	0
	7:45 AM	13	379	2	3	504	31	3	0	20	1	0	15	971	0	3	0	0	3
	8:00 AM	8	285	1	5	497	30	6	0	20	3	1	14	870	1	2	0	0	3
	8:15 AM	5	279	1	7	418	25	5	0	21	1	0	13	775	0	1	0	0	1
	8:30 AM	10	287	0	4	346	20	4	0	21	0	0	10	702	0	1	0	0	1
	8:45 AM	8	296	1	1	334	14	5	0	11	2	1	4	677	0	1	0	0	1
	VOLUMES	93	3,142	10	37	4,400	257	44	0	201	13	2	140	8,350	1	10	0	0	11
	APPROACH %	3%	97%	0%	1%	94%	5%	18%	0%	82%	8%	1%	90%						
	APP/DEPART	3,246	/	3,336	4,704	/	4,615	245	/	47	155	/	352	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	37	1,398	6	18	1,806	111	13	0	80	6	1	77	3,553					
	APPROACH %	3%	97%	0%	1%	93%	6%	14%	0%	86%	7%	1%	92%						
	PEAK HR FACTOR		0.894			0.899			0.894			0.778		0.915					
	APP/DEPART	1,441	/	1,488	1,935	/	1,892	93	/	24	84	/	149	0					
PM	3:00 PM	21	403	3	7	336	33	0	0	12	2	0	11	828	0	5	0	0	5
	3:15 PM	8	375	6	7	312	14	5	0	17	0	0	6	750	0	4	0	0	4
	3:30 PM	18	417	7	4	331	22	4	1	12	1	0	11	828	0	4	0	0	4
	3:45 PM	19	443	2	5	285	17	4	0	19	0	0	13	807	0	9	0	0	9
	4:00 PM	16	471	3	5	272	18	2	0	16	0	0	5	808	0	3	0	0	3
	4:15 PM	18	413	7	7	323	16	3	0	15	0	0	8	810	0	3	0	0	3
	4:30 PM	13	482	2	9	286	22	4	0	17	0	0	7	842	0	5	0	0	5
	4:45 PM	12	515	5	3	370	16	2	0	13	0	0	11	947	0	2	0	0	2
	5:00 PM	12	540	4	7	378	17	6	0	9	1	0	12	986	1	1	0	0	2
	5:15 PM	15	592	5	9	358	20	3	0	20	0	0	9	1,031	0	6	0	0	6
	5:30 PM	12	561	3	3	345	14	2	1	17	0	0	17	975	0	5	0	0	5
	5:45 PM	12	508	9	4	384	16	3	0	13	2	0	12	963	0	4	0	0	4
	6:00 PM	18	461	9	4	319	25	0	0	12	2	1	10	861	0	1	0	0	1
	6:15 PM	17	462	3	8	322	20	1	0	18	1	0	14	866	0	3	0	0	3
	6:30 PM	9	359	0	5	273	19	2	0	13	0	1	13	694	0	2	0	0	2
	6:45 PM	9	367	5	4	238	16	4	1	13	1	0	3	661	0	0	0	0	0
	VOLUMES	229	7,369	73	91	5,132	305	45	3	236	10	2	162	13,715	1	57	0	0	58
	APPROACH %	3%	96%	1%	2%	93%	6%	16%	1%	83%	6%	1%	93%						
	APP/DEPART	7,672	/	7,633	5,585	/	5,379	284	/	167	174	/	536	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	51	2,201	21	23	1,465	67	14	1	59	3	0	50	3,955					
	APPROACH %	2%	97%	1%	1%	94%	4%	19%	1%	80%	6%	0%	94%						
	PEAK HR FACTOR		0.929			0.962			0.804			0.779		0.959					
	APP/DEPART	2,273	/	2,265	1,555	/	1,527	74	/	45	53	/	118	0					



AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Buena Park	PROJECT #:	SC0473
Thu, Nov 6, 14	NORTH & SOUTH:	Brenda	LOCATION #:	7
	EAST & WEST:	Belle	CONTROL:	Stop All Ways

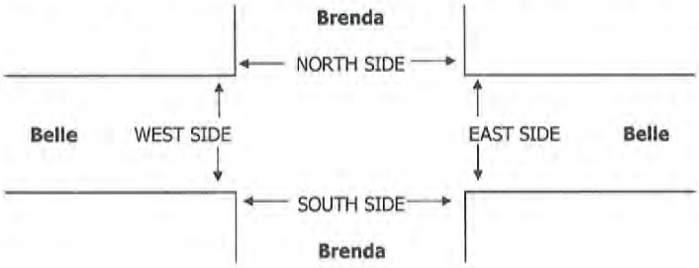
NOTES:

N ▲ ◄ W E ► S ▼

		NORTHBOUND Brenda			SOUTHBOUND Brenda			EASTBOUND Belle			WESTBOUND Belle			
	LANES:	NL X	NT X	NR X	SL 0	ST X	SR 0	EL 0	ET 1	ER X	WL X	WT 1	WR 0	TOTAL
AM	6:00 AM	0	0	0	1	0	0	1	0	0	0	1	1	4
	6:15 AM	0	0	0	2	0	0	0	0	0	0	8	1	11
	6:30 AM	0	0	0	1	0	0	2	4	0	0	9	0	16
	6:45 AM	0	0	0	3	0	0	0	4	0	0	6	1	14
	7:00 AM	0	0	0	3	0	1	0	0	0	0	10	1	15
	7:15 AM	0	0	0	3	0	2	0	5	0	0	19	2	31
	7:30 AM	0	0	0	10	0	1	0	4	0	0	24	8	47
	7:45 AM	0	0	0	7	0	2	0	3	0	0	15	0	27
	8:00 AM	0	0	0	5	0	0	1	4	0	0	14	2	26
	8:15 AM	0	0	0	1	0	1	3	3	0	0	13	0	21
	8:30 AM	0	0	0	2	0	1	0	4	0	0	10	0	17
	8:45 AM	0	0	0	2	0	1	1	3	0	0	9	1	17
	VOLUMES	0	0	0	40	0	9	8	34	0	0	138	17	247
	APPROACH %	0%	0%	0%	82%	0%	18%	19%	81%	0%	0%	89%	11%	
	APP/DEPART	0	/	25	49	/	0	42	/	75	156	/	147	0
	BEGIN PEAK HR		7:15 AM											
	VOLUMES	0	0	0	25	0	5	1	16	0	0	72	12	131
	APPROACH %	0%	0%	0%	83%	0%	17%	6%	94%	0%	0%	86%	14%	
	PEAK HR FACTOR		0.000			0.682			0.850			0.656		0.697
	APP/DEPART	0	/	13	30	/	0	17	/	41	84	/	77	0
PM	3:00 PM	0	0	0	2	0	4	2	6	0	0	6	0	20
	3:15 PM	0	0	0	4	0	0	2	11	0	0	9	2	28
	3:30 PM	0	0	0	3	0	2	2	9	0	0	9	0	25
	3:45 PM	0	0	0	3	0	1	0	5	0	0	12	3	24
	4:00 PM	0	0	0	9	0	1	0	9	0	0	3	1	23
	4:15 PM	0	0	0	7	0	0	4	9	0	0	6	2	28
	4:30 PM	0	0	0	8	0	2	0	8	0	0	5	1	24
	4:45 PM	0	0	0	8	0	3	1	4	0	0	7	4	27
	5:00 PM	0	0	0	10	0	0	2	10	0	0	10	4	36
	5:15 PM	0	0	0	5	0	0	5	11	0	0	8	4	33
	5:30 PM	0	0	0	7	0	3	2	6	0	0	14	2	34
	5:45 PM	0	0	0	4	0	4	5	7	0	0	10	1	31
	6:00 PM	0	0	0	4	0	6	2	8	0	0	12	4	36
	6:15 PM	0	0	0	4	0	8	4	5	0	0	9	3	33
	6:30 PM	0	0	0	3	0	3	0	5	0	0	7	3	21
	6:45 PM	0	0	0	6	0	1	0	6	0	0	7	3	23
	VOLUMES	0	0	0	87	0	38	31	119	0	0	134	37	455
	APPROACH %	0%	0%	0%	70%	0%	30%	21%	79%	0%	0%	78%	22%	
	APP/DEPART	0	/	75	132	/	0	150	/	208	173	/	172	0
	BEGIN PEAK HR		5:30 PM											
	VOLUMES	0	0	0	19	0	21	13	26	0	0	45	10	134
	APPROACH %	0%	0%	0%	48%	0%	53%	33%	67%	0%	0%	82%	18%	
	PEAK HR FACTOR		0.000			0.833			0.609			0.859		0.931
	APP/DEPART	0	/	23	40	/	0	39	/	45	55	/	66	0

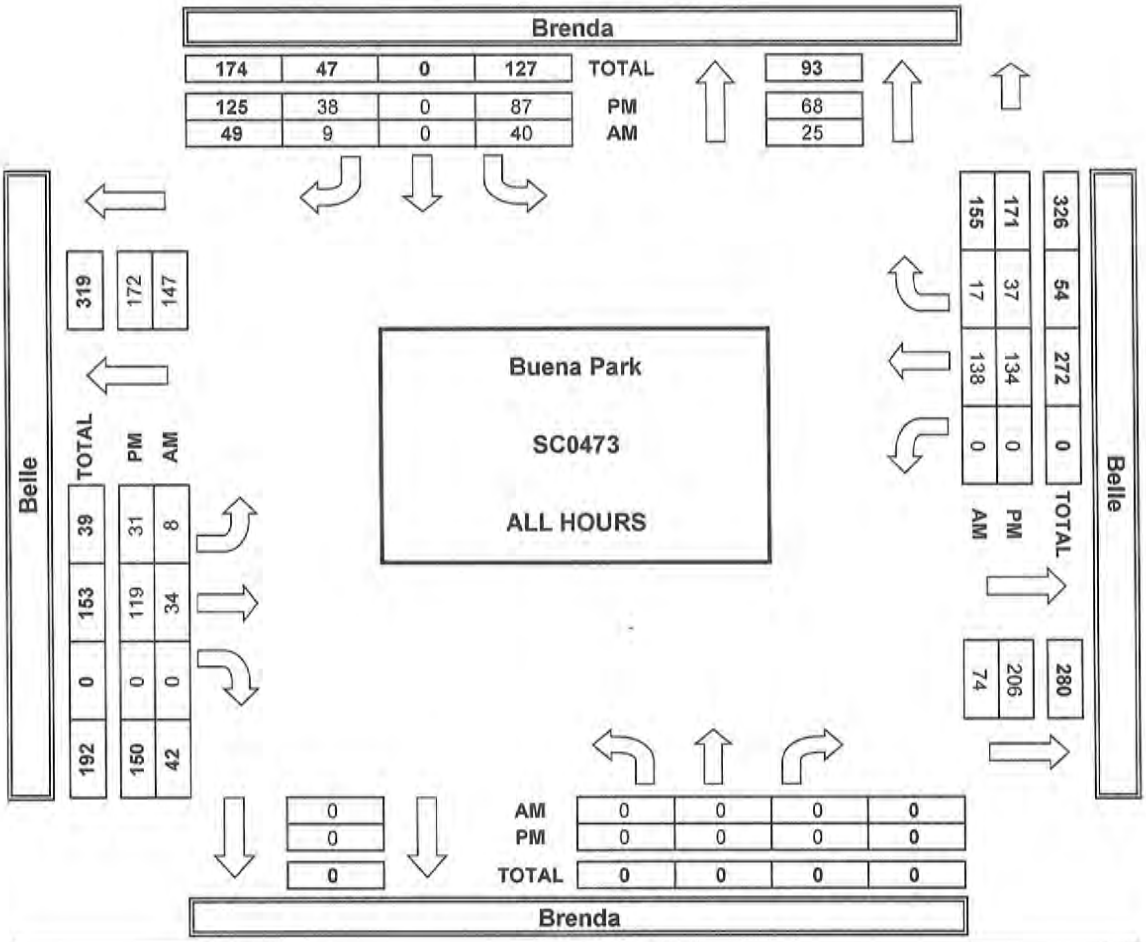
U-TURNS

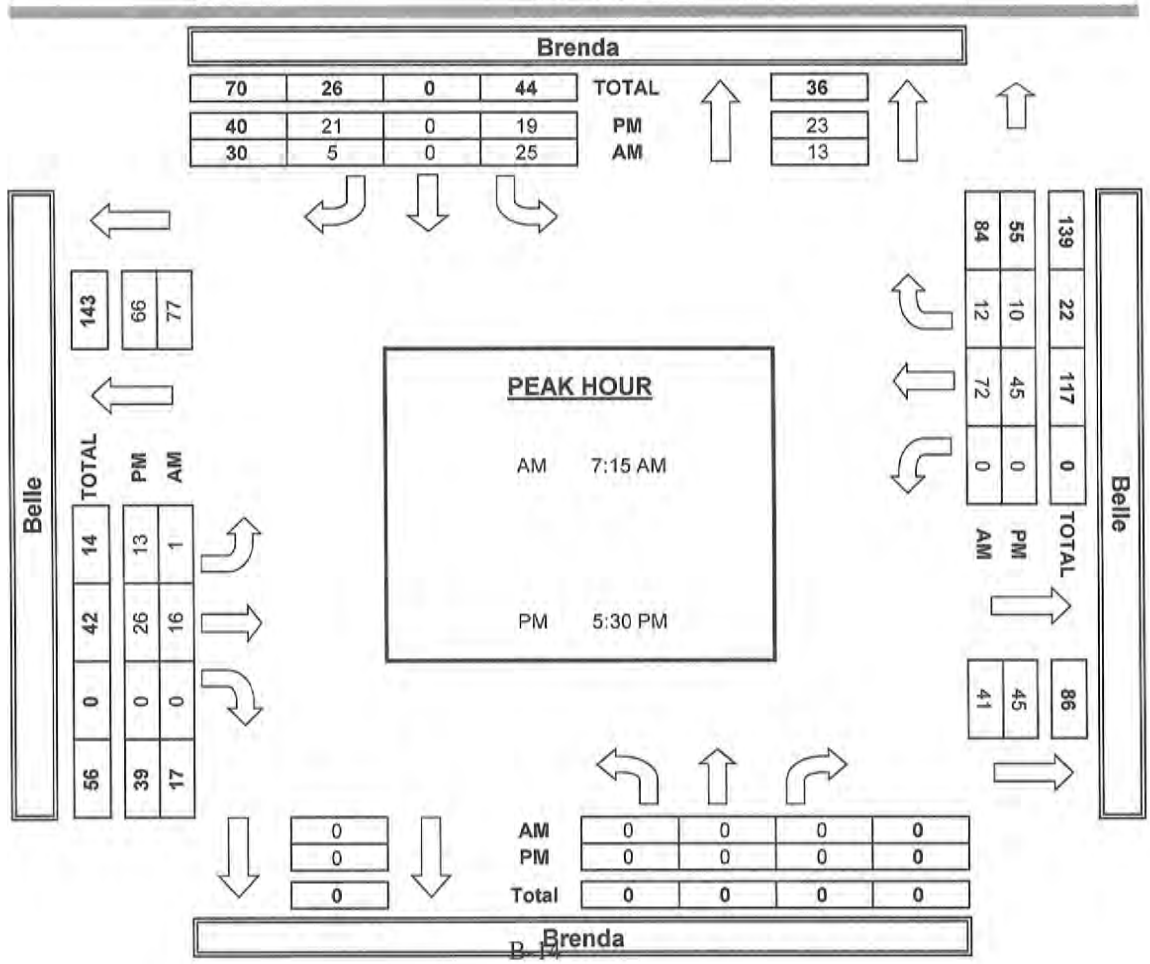
NB X	SB X	EB X	WB X	TTL
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	3	0	1	4
0	2	0	1	3
0	1	0	0	1
0	0	0	0	0
0	1	0	0	1
0	7	0	2	9



AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

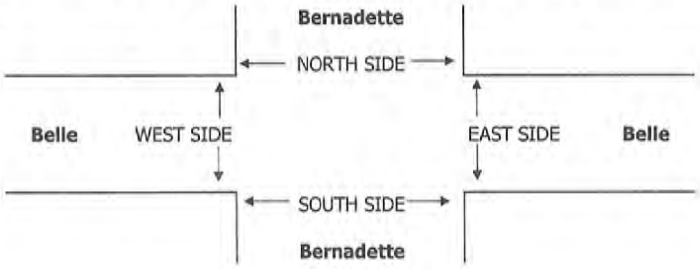
PREPARED BY: AimTD LLC tel: 951 249 3226 pacific@aimtd.com

DATE:	LOCATION:	Buena Park	PROJECT #:	SC0473
Thu, Nov 6, 14	NORTH & SOUTH:	Bernadette	LOCATION #:	8
	EAST & WEST:	Belle	CONTROL:	Stop All Ways

NOTES:

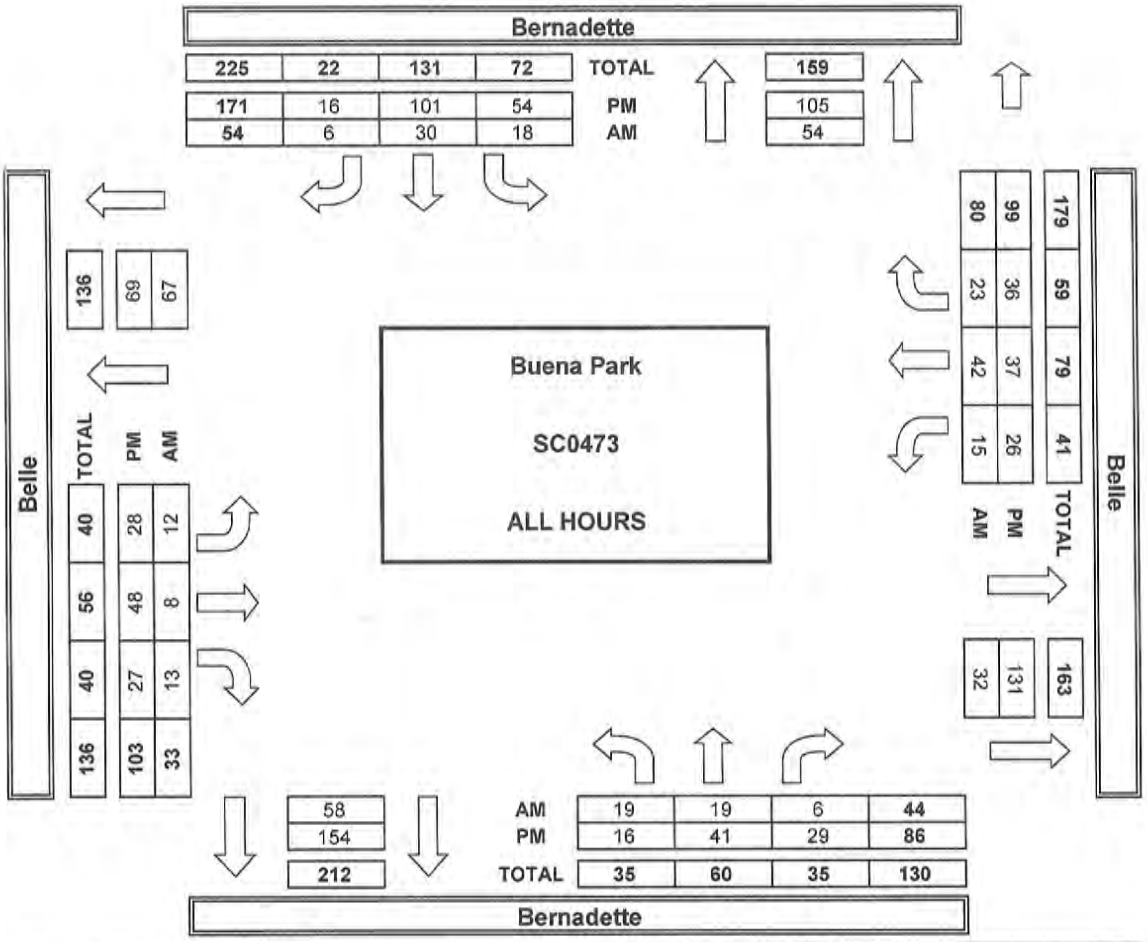
N ▲ S ▼ W ◄ E ►

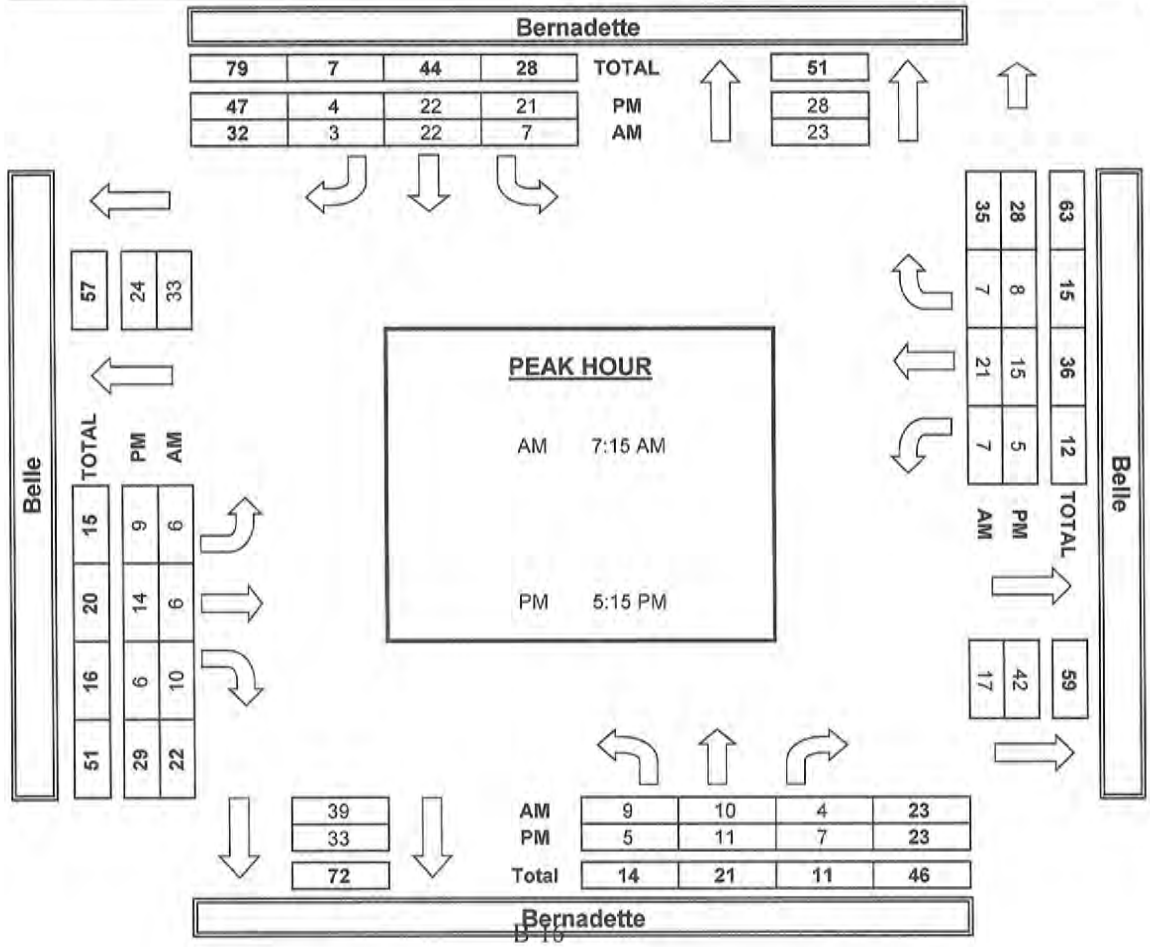
		NORTHBOUND Bernadette			SOUTHBOUND Bernadette			EASTBOUND Belle			WESTBOUND Belle				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	6:00 AM	0	0	0	1	0	0	0	0	0	1	1	1	4	0	0	0	0	0
	6:15 AM	1	1	0	1	1	1	0	0	0	0	2	2	9	0	0	0	0	0
	6:30 AM	2	1	0	0	1	0	0	0	1	1	6	1	13	0	0	0	0	0
	6:45 AM	0	2	0	0	1	0	1	0	1	2	4	2	13	0	0	0	0	0
	7:00 AM	2	3	0	0	1	0	0	0	0	3	2	1	12	0	0	0	0	0
	7:15 AM	2	3	0	2	4	1	0	0	3	2	6	0	23	1	0	0	0	1
	7:30 AM	3	4	0	1	9	2	1	2	0	1	2	3	28	0	0	0	0	0
	7:45 AM	1	1	2	2	3	0	3	2	4	2	8	1	29	0	0	0	0	0
	8:00 AM	3	2	2	2	6	0	2	2	3	2	5	3	32	0	0	0	0	0
	8:15 AM	3	0	1	2	2	1	2	0	0	0	1	2	14	0	0	0	0	0
	8:30 AM	2	0	0	3	0	0	2	1	0	0	3	2	13	0	0	0	0	0
	8:45 AM	0	2	1	4	2	1	1	1	1	1	2	5	21	0	0	0	0	0
	VOLUMES	19	19	6	18	30	6	12	8	13	15	42	23	212	1	0	0	0	1
	APPROACH %	43%	43%	14%	33%	56%	11%	36%	24%	39%	19%	53%	29%						
	APP/DEPART	45	/	54	54	/	59	33	/	32	80	/	67	0					
	BEGIN PEAK HR		7:15 AM																
	VOLUMES	9	10	4	7	22	3	6	6	10	7	21	7	112					
	APPROACH %	39%	43%	17%	22%	69%	9%	27%	27%	45%	20%	60%	20%						
	PEAK HR FACTOR		0.821			0.667			0.611			0.795		0.875					
	APP/DEPART	23	/	23	32	/	39	22	/	17	35	/	33	0					
PM	3:00 PM	1	3	3	5	4	0	2	3	3	1	0	3	28	0	0	0	0	0
	3:15 PM	0	1	1	2	4	2	2	5	2	4	3	2	28	0	0	0	0	0
	3:30 PM	3	2	0	1	8	1	2	3	3	2	2	0	27	0	0	0	0	0
	3:45 PM	1	3	1	4	6	2	1	1	0	0	4	2	25	0	0	0	0	0
	4:00 PM	0	1	0	3	7	1	1	2	2	4	3	1	25	0	0	0	0	0
	4:15 PM	0	2	3	3	5	1	2	3	0	2	0	3	24	0	0	0	0	0
	4:30 PM	3	4	2	3	6	1	1	4	2	1	2	2	31	0	0	0	0	0
	4:45 PM	0	3	2	4	6	0	1	2	3	0	2	4	27	0	0	0	0	0
	5:00 PM	1	5	1	2	7	2	5	3	1	2	2	1	32	0	0	0	0	0
	5:15 PM	0	6	3	7	7	0	2	2	1	0	3	3	34	0	0	0	0	0
	5:30 PM	1	1	0	2	9	1	2	3	3	2	3	1	28	0	0	0	0	0
	5:45 PM	1	2	1	5	3	2	2	4	1	3	6	3	33	0	0	0	0	0
	6:00 PM	3	2	3	7	3	1	3	5	1	0	3	1	32	0	0	0	0	0
	6:15 PM	1	1	5	0	6	1	1	2	0	0	3	3	23	0	0	0	0	0
	6:30 PM	1	3	0	4	8	0	0	1	3	1	0	2	23	0	0	0	0	0
	6:45 PM	0	2	4	2	12	1	1	5	2	4	1	5	39	0	0	0	0	0
	VOLUMES	16	41	29	54	101	16	28	48	27	26	37	36	459	0	0	0	0	0
	APPROACH %	19%	48%	34%	32%	59%	9%	27%	47%	26%	26%	37%	36%						
	APP/DEPART	86	/	105	171	/	154	103	/	131	99	/	69	0					
	BEGIN PEAK HR		5:15 PM																
	VOLUMES	5	11	7	21	22	4	9	14	6	5	15	8	127					
	APPROACH %	22%	48%	30%	45%	47%	9%	31%	48%	21%	18%	54%	29%						
	PEAK HR FACTOR		0.639			0.839			0.806			0.583		0.934					
	APP/DEPART	23	/	28	47	/	33	29	/	42	28	/	24	0					



AimTD LLC

TURNING MOVEMENT COUNTS





Prepared by NDS/ATD

VOLUME

Juanita St N/O Lawrence St

Day: Thursday
Date: 12/11/2014

City: Buena Park
Project #: CA14_1333_001

DAILY TOTALS	NB	SB	EB	WB	Total
	1,023	744	0	0	1,767

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	1		3				4		12:00	11		10				21	
00:15	0		1				1		12:15	11		7				18	
00:30	0		1				1		12:30	19		11				30	
00:45	1	2	1	6			2	8	12:45	15	56	15	43			30	99
01:00	1		1				2		13:00	13		11				24	
01:15	1		1				2		13:15	10		15				25	
01:30	1		0				1		13:30	14		10				24	
01:45	0	3	3	5			3	8	13:45	18	55	12	48			30	103
02:00	2		1				3		14:00	14		7				21	
02:15	0		1				1		14:15	10		13				23	
02:30	0		1				1		14:30	23		15				38	
02:45	0	2	1	4			1	6	14:45	27	74	15	50			42	124
03:00	1		0				1		15:00	16		22				38	
03:15	0		1				1		15:15	20		14				34	
03:30	0		0				0		15:30	14		17				31	
03:45	1	2	1	2			2	4	15:45	18	68	11	64			29	132
04:00	1		2				3		16:00	20		8				28	
04:15	0		0				0		16:15	14		13				27	
04:30	1		1				2		16:30	22		18				40	
04:45	2	4	1	4			3	8	16:45	21	77	11	50			32	127
05:00	0		0				0		17:00	14		11				25	
05:15	3		0				3		17:15	16		16				32	
05:30	1		0				1		17:30	23		15				38	
05:45	3	7	1	1			4	8	17:45	24	77	14	56			38	133
06:00	4		6				10		18:00	23		8				31	
06:15	8		3				11		18:15	25		16				41	
06:30	6		6				12		18:30	15		8				23	
06:45	11	29	9	24			20	53	18:45	13	76	5	37			18	113
07:00	14		10				24		19:00	19		6				25	
07:15	21		19				40		19:15	7		8				15	
07:30	47		43				90		19:30	13		7				20	
07:45	48	130	28	100			76	230	19:45	11	50	8	29			19	79
08:00	11		12				23		20:00	9		6				15	
08:15	10		9				19		20:15	13		4				17	
08:30	15		7				22		20:30	9		4				13	
08:45	12	48	11	39			23	87	20:45	6	37	7	21			13	58
09:00	10		6				16		21:00	7		4				11	
09:15	8		10				18		21:15	7		11				18	
09:30	10		11				21		21:30	7		5				12	
09:45	10	38	7	34			17	72	21:45	10	31	10	30			20	61
10:00	15		8				23		22:00	6		3				9	
10:15	15		9				24		22:15	9		3				12	
10:30	10		9				19		22:30	7		2				9	
10:45	10	50	6	32			16	82	22:45	4	26	3	11			7	37
11:00	17		12				29		23:00	8		7				15	
11:15	16		10				26		23:15	4		1				5	
11:30	17		11				28		23:30	4		3				7	
11:45	13	63	9	42			22	105	23:45	2	18	1	12			3	30
TOTALS		378		293				671	TOTALS		645		451				1096
SPLIT %		56.3%		43.7%				38.0%	SPLIT %		58.9%		41.1%				62.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,023	744	0	0	1,767

AM Peak Hour	07:00	07:15	07:00	PM Peak Hour	17:30	14:45	14:30
AM Pk Volume	130	102	230	PM Pk Volume	95	68	152
Pk Hr Factor	0.677	0.593	0.639	Pk Hr Factor	0.950	0.773	0.905
7 - 9 Volume	178	139	317	4 - 6 Volume	154	106	260
7 - 9 Peak Hour	07:00	07:15	07:00	4 - 6 Peak Hour	16:00	16:30	17:00
7 - 9 Pk Volume	130	102	230	4 - 6 Pk Volume	77	56	133
Pk Hr Factor	0.677	0.593	0.639	Pk Hr Factor	0.875	0.778	0.875

APPENDIX C

EXISTING WITH PROJECT LEVEL OF SERVICE CALCULATION WORKSHEETS (ICU METHODOLOGY)

AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.798
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	52	Level Of Service:	C

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	224	1277	65	150	1561	250	247	635	166	290	713	152
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	224	1277	65	150	1561	250	247	635	166	290	713	152
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	224	1277	65	150	1561	250	247	635	166	290	713	152
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	224	1277	65	150	1561	250	247	635	166	290	713	152
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	224	1277	65	150	1561	250	247	635	166	290	713	152
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	224	1277	65	150	1561	250	247	635	166	290	713	152
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3400	5100	2125	3400	4396	704	3400	3400	2125	3400	2803	597
Capacity Analysis Module:												
Vol/Sat:	0.07	0.25	0.03	0.04	0.36	0.36	0.07	0.19	0.08	0.09	0.25	0.25
Crit Moves:	****				****		****				****	

AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.512
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	24	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	1	0	2	0	0	0
Volume Module:												
Base Vol:	0	0	0	109	0	136	57	754	0	0	1055	129
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	109	0	136	57	754	0	0	1055	129
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	109	0	136	57	754	0	0	1055	129
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	109	0	136	57	754	0	0	1055	129
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	109	0	136	57	754	0	0	1055	129
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	109	0	136	57	754	0	0	1055	129
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.78	0.22
Final Sat.:	0	0	0	1700	0	1700	1700	3400	0	0	3030	370
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.06	0.00	0.08	0.03	0.22	0.00	0.00	0.35	0.35
Crit Moves:						****	****				****	

AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.605
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	29	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	60	158	36	104	266	177	101	689	69	81	898	135
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	60	158	36	104	266	177	101	689	69	81	898	135
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	60	158	36	104	266	177	101	689	69	81	898	135
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	60	158	36	104	266	177	101	689	69	81	898	135
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	60	158	36	104	266	177	101	689	69	81	898	135
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	60	158	36	104	266	177	101	689	69	81	898	135
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.82	0.18	1.00	1.74	0.26
Final Sat.:	1700	1385	315	1700	1700	2125	1700	3091	309	1700	2956	444
Capacity Analysis Module:												
Vol/Sat:	0.04	0.11	0.11	0.06	0.16	0.08	0.06	0.22	0.22	0.05	0.30	0.30
Crit Moves:	****				****		****				****	

PM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.763
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxx
Optimal Cycle:	45	Level Of Service:	C

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	283	1873	158	202	1249	234	249	737	165	169	598	126
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	283	1873	158	202	1249	234	249	737	165	169	598	126
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	283	1873	158	202	1249	234	249	737	165	169	598	126
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	283	1873	158	202	1249	234	249	737	165	169	598	126
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	283	1873	158	202	1249	234	249	737	165	169	598	126
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	283	1873	158	202	1249	234	249	737	165	169	598	126
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.53	0.47	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3400	5100	2125	3400	4295	805	3400	3400	2125	3400	2808	592
Capacity Analysis Module:												
Vol/Sat:	0.08	0.37	0.07	0.06	0.29	0.29	0.07	0.22	0.08	0.05	0.21	0.21
Crit Moves:		****		****			****				****	

PM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.408
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	20	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	1	0	2	0	0	1
Volume Module:												
Base Vol:	0	0	0	31	0	60	98	1030	0	0	847	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	31	0	60	98	1030	0	0	847	54
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	31	0	60	98	1030	0	0	847	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	31	0	60	98	1030	0	0	847	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	31	0	60	98	1030	0	0	847	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	31	0	60	98	1030	0	0	847	54
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.88	0.12
Final Sat.:	0	0	0	1700	0	1700	1700	3400	0	0	3196	204
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.04	0.06	0.30	0.00	0.00	0.26	0.27
Crit Moves:						****	****					****

PM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.622
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	30	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	67	313	30	56	134	110	174	797	56	31	717	82
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	67	313	30	56	134	110	174	797	56	31	717	82
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	67	313	30	56	134	110	174	797	56	31	717	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	67	313	30	56	134	110	174	797	56	31	717	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	67	313	30	56	134	110	174	797	56	31	717	82
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	67	313	30	56	134	110	174	797	56	31	717	82
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.87	0.13	1.00	1.79	0.21
Final Sat.:	1700	1551	149	1700	1700	2125	1700	3177	223	1700	3051	349
Capacity Analysis Module:												
Vol/Sat:	0.04	0.20	0.20	0.03	0.08	0.05	0.10	0.25	0.25	0.02	0.23	0.24
Crit Moves:		****		****			****					****

AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.802
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	52	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	224	1277	67	152	1561	250	247	638	166	296	720	158
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	224	1277	67	152	1561	250	247	638	166	296	720	158
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	224	1277	67	152	1561	250	247	638	166	296	720	158
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	224	1277	67	152	1561	250	247	638	166	296	720	158
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	224	1277	67	152	1561	250	247	638	166	296	720	158
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	224	1277	67	152	1561	250	247	638	166	296	720	158
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3400	5100	2125	3400	4396	704	3400	3400	2125	3400	2788	612
Capacity Analysis Module:												
Vol/Sat:	0.07	0.25	0.03	0.04	0.36	0.36	0.07	0.19	0.08	0.09	0.26	0.26
Crit Moves:	****				****		****				****	

AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.522
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	25	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	17	2	13	109	1	136	57	755	6	5	1057	129
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	13	109	1	136	57	755	6	5	1057	129
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	13	109	1	136	57	755	6	5	1057	129
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	2	13	109	1	136	57	755	6	5	1057	129
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	2	13	109	1	136	57	755	6	5	1057	129
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	2	13	109	1	136	57	755	6	5	1057	129
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.89	0.11	1.00	0.99	0.01	1.00	1.00	1.98	0.02	1.00	1.78	0.22
Final Sat.:	1521	179	1700	1685	15	1700	1700	3373	27	1700	3030	370
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.06	0.06	0.08	0.03	0.22	0.22	0.00	0.35	0.35
Crit Moves:	****					****	****				****	

AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.609
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	29	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	61	158	36	104	266	178	105	696	73	81	901	135
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	61	158	36	104	266	178	105	696	73	81	901	135
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	61	158	36	104	266	178	105	696	73	81	901	135
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	61	158	36	104	266	178	105	696	73	81	901	135
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	61	158	36	104	266	178	105	696	73	81	901	135
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	61	158	36	104	266	178	105	696	73	81	901	135
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.81	0.19	1.00	1.74	0.26
Final Sat.:	1700	1385	315	1700	1700	2125	1700	3077	323	1700	2957	443
Capacity Analysis Module:												
Vol/Sat:	0.04	0.11	0.11	0.06	0.16	0.08	0.06	0.23	0.23	0.05	0.30	0.30
Crit Moves:	****				****		****				****	

PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.767
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	46	Level Of Service:	C

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	283	1873	164	208	1249	234	249	745	165	173	603	130
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	283	1873	164	208	1249	234	249	745	165	173	603	130
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	283	1873	164	208	1249	234	249	745	165	173	603	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	283	1873	164	208	1249	234	249	745	165	173	603	130
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	283	1873	164	208	1249	234	249	745	165	173	603	130
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	283	1873	164	208	1249	234	249	745	165	173	603	130
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.53	0.47	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3400	5100	2125	3400	4295	805	3400	3400	2125	3400	2797	603
Capacity Analysis Module:												
Vol/Sat:	0.08	0.37	0.08	0.06	0.29	0.29	0.07	0.22	0.08	0.05	0.22	0.22
Crit Moves:		****		****			****				****	

PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.415
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	20	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	11	1	9	31	2	60	98	1032	19	15	848	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	1	9	31	2	60	98	1032	19	15	848	54
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	1	9	31	2	60	98	1032	19	15	848	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	11	1	9	31	2	60	98	1032	19	15	848	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	1	9	31	2	60	98	1032	19	15	848	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	1	9	31	2	60	98	1032	19	15	848	54
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.92	0.08	1.00	0.94	0.06	1.00	1.00	1.96	0.04	1.00	1.88	0.12
Final Sat.:	1558	142	1700	1597	103	1700	1700	3339	61	1700	3196	204
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.02	0.02	0.04	0.06	0.31	0.31	0.01	0.27	0.27
Crit Moves:	****					****	****				****	

PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.626
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	31	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	71	313	30	56	134	114	177	802	59	31	725	82
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	71	313	30	56	134	114	177	802	59	31	725	82
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	313	30	56	134	114	177	802	59	31	725	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	71	313	30	56	134	114	177	802	59	31	725	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	313	30	56	134	114	177	802	59	31	725	82
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	71	313	30	56	134	114	177	802	59	31	725	82
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.86	0.14	1.00	1.80	0.20
Final Sat.:	1700	1551	149	1700	1700	2125	1700	3167	233	1700	3055	345
Capacity Analysis Module:												
Vol/Sat:	0.04	0.20	0.20	0.03	0.08	0.05	0.10	0.25	0.25	0.02	0.24	0.24
Crit Moves:		****		****			****				****	

AM Existing Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.805
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	53	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	233	1277	67	152	1561	250	247	638	166	296	720	158
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	233	1277	67	152	1561	250	247	638	166	296	720	158
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	233	1277	67	152	1561	250	247	638	166	296	720	158
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	233	1277	67	152	1561	250	247	638	166	296	720	158
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	233	1277	67	152	1561	250	247	638	166	296	720	158
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	233	1277	67	152	1561	250	247	638	166	296	720	158
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3400	5100	2125	3400	4396	704	3400	3400	2125	3400	2788	612
Capacity Analysis Module:												
Vol/Sat:	0.07	0.25	0.03	0.04	0.36	0.36	0.07	0.19	0.08	0.09	0.26	0.26
Crit Moves:	****				****		****				****	

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AM Existing Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.523
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	25	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	17	2	13	109	1	136	57	757	6	5	1059	129
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	13	109	1	136	57	757	6	5	1059	129
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	13	109	1	136	57	757	6	5	1059	129
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	2	13	109	1	136	57	757	6	5	1059	129
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	2	13	109	1	136	57	757	6	5	1059	129
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	2	13	109	1	136	57	757	6	5	1059	129
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.89	0.11	1.00	0.99	0.01	1.00	1.00	1.98	0.02	1.00	1.78	0.22
Final Sat.:	1521	179	1700	1685	15	1700	1700	3373	27	1700	3031	369
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.06	0.06	0.08	0.03	0.22	0.22	0.00	0.35	0.35
Crit Moves:	****					****	****				****	

AM Existing Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.618
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	30	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	61	158	36	104	266	178	121	696	73	81	901	135
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	61	158	36	104	266	178	121	696	73	81	901	135
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	61	158	36	104	266	178	121	696	73	81	901	135
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	61	158	36	104	266	178	121	696	73	81	901	135
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	61	158	36	104	266	178	121	696	73	81	901	135
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	61	158	36	104	266	178	121	696	73	81	901	135
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.81	0.19	1.00	1.74	0.26
Final Sat.:	1700	1385	315	1700	1700	2125	1700	3077	323	1700	2957	443
Capacity Analysis Module:												
Vol/Sat:	0.04	0.11	0.11	0.06	0.16	0.08	0.07	0.23	0.23	0.05	0.30	0.30
Crit Moves:	****				****		****				****	

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PM Existing Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.767
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	46	Level Of Service:	C

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	287	1873	164	208	1249	234	249	745	165	173	603	130
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	287	1873	164	208	1249	234	249	745	165	173	603	130
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	287	1873	164	208	1249	234	249	745	165	173	603	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	287	1873	164	208	1249	234	249	745	165	173	603	130
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	287	1873	164	208	1249	234	249	745	165	173	603	130
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	287	1873	164	208	1249	234	249	745	165	173	603	130
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.53	0.47	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3400	5100	2125	3400	4295	805	3400	3400	2125	3400	2797	603
Capacity Analysis Module:												
Vol/Sat:	0.08	0.37	0.08	0.06	0.29	0.29	0.07	0.22	0.08	0.05	0.22	0.22
Crit Moves:		****		****			****				****	

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PM Existing Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.419
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	21	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	11	1	9	31	2	60	98	1048	19	15	864	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	1	9	31	2	60	98	1048	19	15	864	54
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	1	9	31	2	60	98	1048	19	15	864	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	11	1	9	31	2	60	98	1048	19	15	864	54
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	1	9	31	2	60	98	1048	19	15	864	54
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	1	9	31	2	60	98	1048	19	15	864	54
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.92	0.08	1.00	0.94	0.06	1.00	1.00	1.96	0.04	1.00	1.88	0.12
Final Sat.:	1558	142	1700	1597	103	1700	1700	3339	61	1700	3200	200
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.02	0.02	0.04	0.06	0.31	0.31	0.01	0.27	0.27
Crit Moves:	****					****	****				****	

PM Existing Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.638
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	32	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	71	313	30	56	134	114	197	802	59	31	725	82
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	71	313	30	56	134	114	197	802	59	31	725	82
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	313	30	56	134	114	197	802	59	31	725	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	71	313	30	56	134	114	197	802	59	31	725	82
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	71	313	30	56	134	114	197	802	59	31	725	82
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	71	313	30	56	134	114	197	802	59	31	725	82
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.86	0.14	1.00	1.80	0.20
Final Sat.:	1700	1551	149	1700	1700	2125	1700	3167	233	1700	3055	345
Capacity Analysis Module:												
Vol/Sat:	0.04	0.20	0.20	0.03	0.08	0.05	0.12	0.25	0.25	0.02	0.24	0.24
Crit Moves:		****		****			****				****	

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APPENDIX D

EXISTING WITH PROJECT LEVEL OF SERVICE CALCULATION WORKSHEETS (HCM METHODOLOGY)

AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.859
Loss Time (sec):	16	Average Delay (sec/veh):	50.4
Optimal Cycle:	115	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	224	1277	65	150	1561	250	247	635	166	290	713	152
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	224	1277	65	150	1561	250	247	635	166	290	713	152
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	224	1277	65	150	1561	250	247	635	166	290	713	152
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	243	1388	71	163	1697	272	268	690	180	315	775	165
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	243	1388	71	163	1697	272	268	690	180	315	775	165
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	243	1388	71	163	1697	272	268	690	180	315	775	165
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3432	5083	1583	3432	4290	687	3432	3538	1583	3432	2840	606
Capacity Analysis Module:												
Vol/Sat:	0.07	0.27	0.04	0.05	0.40	0.40	0.08	0.20	0.11	0.09	0.27	0.27
Crit Moves:	****				****			****		****		
Green/Cycle:	0.08	0.42	0.42	0.07	0.42	0.42	0.08	0.28	0.28	0.10	0.30	0.30
Volume/Cap:	0.94	0.65	0.11	0.65	0.94	0.94	0.95	0.69	0.40	0.94	0.91	0.91
Delay/Veh:	100.3	30.6	22.8	64.4	45.7	45.7	99.4	43.3	38.1	92.7	55.6	55.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	100.3	30.6	22.8	64.4	45.7	45.7	99.4	43.3	38.1	92.7	55.6	55.6
LOS by Move:	F	C	C	E	D	D	F	D	D	F	E	E
HCM2kAvgQ:	8	16	2	4	32	32	9	14	6	10	23	23

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AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[15.1]

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	1	0	1 0 2	0	0
Volume Module:												
Base Vol:	8	0	16	0	0	0	0	812	21	9	1194	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	16	0	0	0	0	812	21	9	1194	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	16	0	0	0	0	812	21	9	1194	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	9	0	17	0	0	0	0	883	23	10	1298	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	0	17	0	0	0	0	883	23	10	1298	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1563	2211	453	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	905	xxxx	xxxxx
Potent Cap.:	105	45	560	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	760	xxxx	xxxxx
Move Cap.:	104	44	560	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	760	xxxx	xxxxx
Total Cap:	234	146	xxxxx	133	144	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.8	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	382	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		15.1		xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:		C		*			*			*		

Note: Queue reported is the number of cars per lane.

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AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	120	Critical Vol./Cap.(X):	0.523
Loss Time (sec):	12	Average Delay (sec/veh):	17.2
Optimal Cycle:	68	Level Of Service:	B

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	29	0	29	6	6	0	0	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	1	0	2	0	0	0	0	1	1	0
Volume Module:												
Base Vol:	0	0	0	109	0	136	57	754	0	0	1055	129
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	109	0	136	57	754	0	0	1055	129
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	109	0	136	57	754	0	0	1055	129
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	118	0	148	62	820	0	0	1147	140
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	118	0	148	62	820	0	0	1147	140
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	118	0	148	62	820	0	0	1147	140
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	0.93	0.93	1.00	1.00	0.92	0.92
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.78	0.22
Final Sat.:	0	0	0	1805	0	1615	1769	3538	0	0	3102	379
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.07	0.00	0.09	0.04	0.23	0.00	0.00	0.37	0.37
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.24	0.00	0.24	0.06	0.66	0.00	0.00	0.60	0.60
Volume/Cap:	0.00	0.00	0.00	0.27	0.00	0.38	0.61	0.35	0.00	0.00	0.61	0.61
Delay/Veh:	0.0	0.0	0.0	37.3	0.0	38.6	66.1	9.2	0.0	0.0	15.7	15.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	37.3	0.0	38.6	66.1	9.2	0.0	0.0	15.7	15.7
LOS by Move:	A	A	A	D	A	D	E	A	A	A	B	B
HCM2kAvgQ:	0	0	0	4	0	5	3	7	0	0	16	16

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AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: E[42.8]

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	13	1	14	1	1	3	5	834	20	8	1138	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	1	14	1	1	3	5	834	20	8	1138	6
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	13	1	14	1	1	3	5	834	20	8	1138	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	14	1	15	1	1	3	5	907	22	9	1237	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	14	1	15	1	1	3	5	907	22	9	1237	7
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1565	2189	464	1722	2197	622	1243	xxxx	xxxxx	928	xxxx	xxxxx
Potent Cap.:	77	46	550	59	46	435	567	xxxx	xxxxx	745	xxxx	xxxxx
Move Cap.:	74	45	550	55	45	435	567	xxxx	xxxxx	745	xxxx	xxxxx
Volume/Cap:	0.19	0.02	0.03	0.02	0.02	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.4	xxxx	xxxxx	9.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	125	xxxxx	xxxx	105	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.9	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	42.8	xxxxx	xxxxx	41.0	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	E	*	*	E	*	*	*	*	*	*	*
ApproachDel:		42.8			41.0			xxxxxx			xxxxxx	
ApproachLOS:		E			E			*			*	

Note: Queue reported is the number of cars per lane.

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AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.976
Loss Time (sec):	12	Average Delay (sec/veh):	21.1
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1	0	1 0	1	0	1 0	1	1 0	1	0
Volume Module:												
Base Vol:	60	158	36	104	266	177	101	689	69	81	898	135
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	60	158	36	104	266	177	101	689	69	81	898	135
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	60	158	36	104	266	177	101	689	69	81	898	135
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	65	172	39	113	289	192	110	749	75	88	976	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	65	172	39	113	289	192	110	749	75	88	976	147
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	65	172	39	113	289	192	110	749	75	88	976	147
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.42	0.97	0.97	0.53	1.00	0.85	0.93	0.92	0.92	0.93	0.91	0.91
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.82	0.18	1.00	1.74	0.26
Final Sat.:	806	1504	343	1009	1900	1615	1769	3171	318	1769	3014	453
Capacity Analysis Module:												
Vol/Sat:	0.08	0.11	0.11	0.11	0.15	0.12	0.06	0.24	0.24	0.05	0.32	0.32
Crit Moves:					****		****				****	
Green/Cycle:	0.32	0.32	0.32	0.32	0.32	0.32	0.51	0.42	0.42	0.59	0.46	0.46
Volume/Cap:	0.25	0.35	0.35	0.35	0.47	0.37	0.41	0.56	0.56	0.22	0.71	0.71
Delay/Veh:	23.0	23.7	23.7	23.9	25.0	23.9	14.5	20.0	20.0	10.0	21.1	21.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.0	23.7	23.7	23.9	25.0	23.9	14.5	20.0	20.0	10.0	21.1	21.1
LOS by Move:	C	C	C	C	C	C	B	B	B	B	C	C
HCM2kAvgQ:	2	5	5	3	7	4	2	9	9	1	14	14

AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 26.3 Worst Case Level Of Service: F[861.3]

Street Name:	Valley View Street						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0	2	1 0	1 0	2	1 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	37	1398	6	18	1806	111	13	0	80	6	1	77
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	37	1398	6	18	1806	111	13	0	80	6	1	77
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	37	1398	6	18	1806	111	13	0	80	6	1	77
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	40	1520	7	20	1963	121	14	0	87	7	1	84
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	40	1520	7	20	1963	121	14	0	87	7	1	84
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	7.5	6.5	6.9	7.5	6.5	6.9
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	2084	xxxx	xxxxx	1526	xxxx	xxxxx	2650	3669	715	2297	3726	510
Potent Cap.:	270	xxxx	xxxxx	443	xxxx	xxxxx	11	5	378	21	5	514
Move Cap.:	270	xxxx	xxxxx	443	xxxx	xxxxx	6	4	378	14	4	514
Volume/Cap:	0.15	xxxx	xxxx	0.04	xxxx	xxxx	2.21	0.00	0.23	0.46	0.29	0.16
Level Of Service Module:												
2Way95thQ:	0.5	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	20.7	xxxx	xxxxx	13.5	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	C	*	*	B	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	42	xxxxx	xxxx	99	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.9	xxxxx	xxxxx	5.4	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	861	xxxxx	xxxxx	146	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			861.3			146.3		
ApproachLOS:	*			*			F			F		

Note: Queue reported is the number of cars per lane.

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AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #7 Brenda Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.100
Loss Time (sec):	0	Average Delay (sec/veh):	7.3
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Brenda Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0	0 0	0	0 1!	0 0	0 1	0	0 0	0	0 1	0
Volume Module:												
Base Vol:	0	0	0	25	0	5	1	16	0	0	72	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	25	0	5	1	16	0	0	72	12
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	25	0	5	1	16	0	0	72	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	27	0	5	1	17	0	0	78	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	27	0	5	1	17	0	0	78	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	27	0	5	1	17	0	0	78	13
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.83	0.00	0.17	0.06	0.94	0.00	0.00	0.86	0.14
Final Sat.:	0	0	0	701	0	140	52	825	0	0	785	131
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.04	xxxx	0.04	0.02	0.02	xxxx	xxxx	0.10	0.10
Crit Moves:						****	****				****	
Delay/Veh:	0.0	0.0	0.0	7.3	0.0	7.3	7.1	7.1	0.0	0.0	7.3	7.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.3	0.0	7.3	7.1	7.1	0.0	0.0	7.3	7.3
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx				7.3			7.1			7.3	
Delay Adj:	xxxxx				1.00			1.00			1.00	
ApprAdjDel:	xxxxxx				7.3			7.1			7.3	
LOS by Appr:	*				A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

AM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Bernadette Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.043
Loss Time (sec):	0	Average Delay (sec/veh):	7.1
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Bernadette Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	9	10	4	7	22	3	6	6	10	7	21	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	10	4	7	22	3	6	6	10	7	21	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	10	4	7	22	3	6	6	10	7	21	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	10	11	4	8	24	3	7	7	11	8	23	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	11	4	8	24	3	7	7	11	8	23	8
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	11	4	8	24	3	7	7	11	8	23	8
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.39	0.44	0.17	0.22	0.69	0.09	0.27	0.27	0.46	0.20	0.60	0.20
Final Sat.:	344	383	153	192	604	82	252	252	420	179	537	179
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.04
Crit Moves:	****				****			****			****	
Delay/Veh:	7.1	7.1	7.1	7.2	7.2	7.2	6.9	6.9	6.9	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.1	7.1	7.1	7.2	7.2	7.2	6.9	6.9	6.9	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.1			7.2			6.9			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.1			7.2			6.9			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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PM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.880
Loss Time (sec):	16	Average Delay (sec/veh):	47.5
Optimal Cycle:	124	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	283	1873	158	202	1249	234	249	737	165	169	598	126
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	283	1873	158	202	1249	234	249	737	165	169	598	126
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	283	1873	158	202	1249	234	249	737	165	169	598	126
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	308	2036	172	220	1358	254	271	801	179	184	650	137
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	308	2036	172	220	1358	254	271	801	179	184	650	137
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	308	2036	172	220	1358	254	271	801	179	184	650	137
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.53	0.47	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3432	5083	1583	3432	4178	783	3432	3538	1583	3432	2846	600
Capacity Analysis Module:												
Vol/Sat:	0.09	0.40	0.11	0.06	0.32	0.32	0.08	0.23	0.11	0.05	0.23	0.23
Crit Moves:		****		****			****				****	
Green/Cycle:	0.11	0.44	0.44	0.07	0.40	0.40	0.09	0.31	0.31	0.06	0.28	0.28
Volume/Cap:	0.82	0.92	0.25	0.92	0.82	0.82	0.92	0.73	0.36	0.91	0.80	0.80
Delay/Veh:	69.8	41.0	23.3	96.6	37.9	37.9	90.7	42.2	35.2	100.7	47.9	47.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	69.8	41.0	23.3	96.6	37.9	37.9	90.7	42.2	35.2	100.7	47.9	47.9
LOS by Move:	E	D	C	F	D	D	F	D	D	F	D	D
HCM2kAvgQ:	8	32	4	7	23	23	8	16	6	6	17	17

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PM Existing
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HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C[22.2]

Street Name:	Brenda Avenue									Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T - R	L	-	T - R	L	-	T - R	L	-	T - R			
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled					
Rights:	Include			Include			Include			Include					
Lanes:	0	0	1! 0 0	0	0	0 0 0	0	0	1 1 0	1	0	2 0 0			
Volume Module:															
Base Vol:	20	0	16	0	0	0	0	1093	45	15	914	0			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Initial Bse:	20	0	16	0	0	0	0	1093	45	15	914	0			
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	20	0	16	0	0	0	0	1093	45	15	914	0			
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
PHF Volume:	22	0	17	0	0	0	0	1188	49	16	993	0			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
FinalVolume:	22	0	17	0	0	0	0	1188	49	16	993	0			
Critical Gap Module:															
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx			
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx			
Capacity Module:															
Cnflict Vol:	1742	2239	618	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1237	xxxx	xxxxx			
Potent Cap.:	79	43	437	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	570	xxxx	xxxxx			
Move Cap.:	78	42	437	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	570	xxxx	xxxxx			
Total Cap:	185	146	xxxxx	171	139	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
Volume/Cap:	0.12	0.00	0.04	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.03	xxxx	xxxx			
Level Of Service Module:															
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx			
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.5	xxxx	xxxxx			
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*			
Movement:	LT	-	LTR - RT	LT	-	LTR - RT	LT	-	LTR - RT	LT	-	LTR - RT			
Shared Cap.:	xxxx	249	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx			
SharedQueue:	xxxxx	0.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shrd ConDel:	xxxxx	22.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx			
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*			
ApproachDel:		22.2			xxxxxx			xxxxxx			xxxxxx				
ApproachLOS:		C			*			*			*				

Note: Queue reported is the number of cars per lane.

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PM Existing
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HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	140	Critical Vol./Cap.(X):	0.392
Loss Time (sec):	12	Average Delay (sec/veh):	16.3
Optimal Cycle:	68	Level Of Service:	B

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	29	0	29	6	6	0	0	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	1	0	2	0	0	1	1	0
Volume Module:												
Base Vol:	0	0	0	31	0	60	98	1030	0	0	847	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	31	0	60	98	1030	0	0	847	54
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	31	0	60	98	1030	0	0	847	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	34	0	65	107	1120	0	0	921	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	34	0	65	107	1120	0	0	921	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	34	0	65	107	1120	0	0	921	59
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	0.93	0.93	1.00	1.00	0.92	0.92
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.88	0.12
Final Sat.:	0	0	0	1805	0	1615	1769	3538	0	0	3296	210
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.04	0.06	0.32	0.00	0.00	0.28	0.28
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.21	0.00	0.21	0.13	0.71	0.00	0.00	0.58	0.58
Volume/Cap:	0.00	0.00	0.00	0.09	0.00	0.19	0.48	0.45	0.00	0.00	0.48	0.48
Delay/Veh:	0.0	0.0	0.0	45.0	0.0	46.1	58.6	8.9	0.0	0.0	17.2	17.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	45.0	0.0	46.1	58.6	8.9	0.0	0.0	17.2	17.2
LOS by Move:	A	A	A	D	A	D	E	A	A	A	B	B
HCM2kAvgQ:	0	0	0	1	0	2	5	11	0	0	13	13

PM Existing
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HCM Analysis

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2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 2.5 Worst Case Level Of Service: F[86.2]

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0 1	1	0	1 0 1	1	0
Volume Module:												
Base Vol:	17	2	16	11	5	4	23	1036	32	23	870	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	16	11	5	4	23	1036	32	23	870	13
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	16	11	5	4	23	1036	32	23	870	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	18	2	17	12	5	4	25	1126	35	25	946	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	18	2	17	12	5	4	25	1126	35	25	946	14
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1719	2203	580	1617	2214	480	960	xxxx	xxxxx	1161	xxxx	xxxxx
Potent Cap.:	59	45	462	70	44	537	725	xxxx	xxxxx	609	xxxx	xxxxx
Move Cap.:	50	42	462	61	41	537	725	xxxx	xxxxx	609	xxxx	xxxxx
Volume/Cap:	0.37	0.05	0.04	0.20	0.13	0.01	0.03	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.1	xxxx	xxxxx	11.2	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT - LTR		RT	LT - LTR		RT	LT - LTR		RT	LT - LTR		RT
Shared Cap.:	xxxx	82	xxxxx	xxxx	65	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	1.9	xxxxx	xxxxx	1.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	81.7	xxxxx	xxxxx	86.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:		81.7			86.2		xxxxxx			xxxxxx		
ApproachLOS:		F			F		*			*		

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	80	Critical Vol./Cap.(X):	0.985
Loss Time (sec):	12	Average Delay (sec/veh):	21.1
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	67	313	30	56	134	110	174	797	56	31	717	82
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	67	313	30	56	134	110	174	797	56	31	717	82
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	67	313	30	56	134	110	174	797	56	31	717	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	73	340	33	61	146	120	189	866	61	34	779	89
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	73	340	33	61	146	120	189	866	61	34	779	89
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	73	340	33	61	146	120	189	866	61	34	779	89
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.64	0.99	0.99	0.34	1.00	0.85	0.93	0.92	0.92	0.93	0.92	0.92
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.87	0.13	1.00	1.79	0.21
Final Sat.:	1220	1711	164	650	1900	1615	1769	3272	230	1769	3127	358
Capacity Analysis Module:												
Vol/Sat:	0.06	0.20	0.20	0.09	0.08	0.07	0.11	0.26	0.26	0.02	0.25	0.25
Crit Moves:		****					****				****	
Green/Cycle:	0.34	0.34	0.34	0.34	0.34	0.34	0.56	0.40	0.40	0.47	0.36	0.36
Volume/Cap:	0.18	0.59	0.59	0.28	0.23	0.22	0.49	0.66	0.66	0.10	0.69	0.69
Delay/Veh:	18.9	23.4	23.4	20.1	19.2	19.2	12.3	20.8	20.8	12.3	23.6	23.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.9	23.4	23.4	20.1	19.2	19.2	12.3	20.8	20.8	12.3	23.6	23.6
LOS by Move:	B	C	C	C	B	B	B	C	C	B	C	C
HCM2kAvgQ:	1	8	8	1	3	2	3	11	11	1	11	11

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2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 29.6 Worst Case Level Of Service: F[981.0]

Street Name:	Valley View Street						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 1!	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	51 2201		21	23 1465		67	14	1	59	3	0	50
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	51 2201		21	23 1465		67	14	1	59	3	0	50
Added Vol:	0 0	0	0	0 0	0	0	0 0	0	0	0 0	0	0
PasserByVol:	0 0	0	0	0 0	0	0	0 0	0	0	0 0	0	0
Initial Fut:	51 2201		21	23 1465		67	14	1	59	3	0	50
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92
PHF Volume:	55 2392		23	25 1592		73	15	1	64	3	0	54
Reduct Vol:	0 0	0	0	0 0	0	0	0 0	0	0	0 0	0	0
FinalVolume:	55 2392		23	25 1592		73	15	1	64	3	0	54
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx			4.1 xxxx xxxxx			7.5	6.5	6.9	7.5	6.5	6.9
FollowUpTim:	2.2 xxxx xxxxx			2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	1665 xxxx xxxxx			2415 xxxx xxxxx			2587	4205	567	3096	4230	809
Potent Cap.:	391 xxxx xxxxx			200 xxxx xxxxx			13	2	472	5	2	328
Move Cap.:	391 xxxx xxxxx			200 xxxx xxxxx			9	2	472	2	2	328
Volume/Cap:	0.14 xxxx xxxx			0.12 xxxx xxxx			1.76	0.68	0.14	1.93	0.00	0.17
Level Of Service Module:												
2Way95thQ:	0.5 xxxx xxxxx			0.4 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	15.7 xxxx xxxxx			25.6 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	C	*	*	D	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx	31	xxxxx	xxxx	27	xxxxx
SharedQueue:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	9.4	xxxxx	xxxxx	6.9	xxxxx
Shrd ConDel:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	981	xxxxx	xxxxx	814	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			981.0			814.0		
ApproachLOS:	*			*			F			F		

Note: Queue reported is the number of cars per lane.

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PM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #7 Brenda Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.066
Loss Time (sec):	0	Average Delay (sec/veh):	7.2
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Brenda Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	19	0	21	13	26	0	0	45	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	19	0	21	13	26	0	0	45	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	19	0	21	13	26	0	0	45	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	21	0	23	14	28	0	0	49	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	21	0	23	14	28	0	0	49	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	21	0	23	14	28	0	0	49	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.47	0.00	0.53	0.33	0.67	0.00	0.00	0.82	0.18
Final Sat.:	0	0	0	431	0	476	289	578	0	0	744	165
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.05	xxxx	0.05	0.05	0.05	xxxx	xxxx	0.07	0.07
Crit Moves:				****				****				****
Delay/Veh:	0.0	0.0	0.0	7.1	0.0	7.1	7.3	7.3	0.0	0.0	7.2	7.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.1	0.0	7.1	7.3	7.3	0.0	0.0	7.2	7.2
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx				7.1			7.3			7.2	
Delay Adj:	xxxxx				1.00			1.00			1.00	
ApprAdjDel:	xxxxxx				7.1			7.3			7.2	
LOS by Appr:	*				A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1

PM Existing
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Bernadette Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.059
Loss Time (sec):	0	Average Delay (sec/veh):	7.2
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Bernadette Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	5	11	7	21	22	4	9	14	6	5	15	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	11	7	21	22	4	9	14	6	5	15	8
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	11	7	21	22	4	9	14	6	5	15	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	5	12	8	23	24	4	10	15	7	5	16	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	12	8	23	24	4	10	15	7	5	16	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	12	8	23	24	4	10	15	7	5	16	9
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.22	0.48	0.30	0.45	0.47	0.08	0.31	0.48	0.21	0.18	0.54	0.28
Final Sat.:	196	430	274	388	406	74	273	424	182	160	479	255
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.06	0.06	0.06	0.04	0.04	0.04	0.03	0.03	0.03
Crit Moves:		****		****				****			****	
Delay/Veh:	7.0	7.0	7.0	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.0	7.0	7.0	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.0			7.3			7.2			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.0			7.3			7.2			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.862
Loss Time (sec):	16	Average Delay (sec/veh):	50.9
Optimal Cycle:	117	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	224	1277	67	152	1561	250	247	638	166	296	720	158
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	224	1277	67	152	1561	250	247	638	166	296	720	158
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	224	1277	67	152	1561	250	247	638	166	296	720	158
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	243	1388	73	165	1697	272	268	693	180	322	783	172
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	243	1388	73	165	1697	272	268	693	180	322	783	172
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	243	1388	73	165	1697	272	268	693	180	322	783	172
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3432	5083	1583	3432	4290	687	3432	3538	1583	3432	2823	619
Capacity Analysis Module:												
Vol/Sat:	0.07	0.27	0.05	0.05	0.40	0.40	0.08	0.20	0.11	0.09	0.28	0.28
Crit Moves:	****				****			****		****		
Green/Cycle:	0.08	0.42	0.42	0.07	0.42	0.42	0.08	0.28	0.28	0.10	0.30	0.30
Volume/Cap:	0.95	0.65	0.11	0.65	0.95	0.95	0.95	0.69	0.40	0.95	0.92	0.92
Delay/Veh:	101.2	30.9	23.1	64.5	46.2	46.2	98.2	43.4	38.1	93.0	56.9	56.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	101.2	30.9	23.1	64.5	46.2	46.2	98.2	43.4	38.1	93.0	56.9	56.9
LOS by Move:	F	C	C	E	D	D	F	D	D	F	E	E
HCM2kAvgQ:	8	16	2	4	32	32	9	14	6	10	23	23

AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[15.2]

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	1	0	1 0 2	0	0
Volume Module:												
Base Vol:	8	0	16	0	0	0	0	819	21	9	1213	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	16	0	0	0	0	819	21	9	1213	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	16	0	0	0	0	819	21	9	1213	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	9	0	17	0	0	0	0	890	23	10	1318	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	0	17	0	0	0	0	890	23	10	1318	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1580	2240	457	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	913	xxxx	xxxxx
Potent Cap.:	102	43	557	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	755	xxxx	xxxxx
Move Cap.:	101	42	557	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	755	xxxx	xxxxx
Total Cap:	231	143	xxxxx	129	141	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.8	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	378	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		15.2			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Note: Queue reported is the number of cars per lane.

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	120	Critical Vol./Cap.(X):	0.550
Loss Time (sec):	12	Average Delay (sec/veh):	20.0
Optimal Cycle:	68	Level Of Service:	C

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	6	6	29	29	29	6	18	18	6	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	17	2	13	109	1	136	57	755	6	5	1057	129
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	13	109	1	136	57	755	6	5	1057	129
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	13	109	1	136	57	755	6	5	1057	129
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	18	2	14	118	1	148	62	821	7	5	1149	140
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2	14	118	1	148	62	821	7	5	1149	140
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	2	14	118	1	148	62	821	7	5	1149	140
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.79	0.79	0.85	0.70	0.70	0.85	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.89	0.11	1.00	0.99	0.01	1.00	1.00	1.98	0.02	1.00	1.78	0.22
Final Sat.:	1350	159	1615	1320	12	1615	1769	3506	28	1769	3103	379
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.09	0.09	0.09	0.04	0.23	0.23	0.00	0.37	0.37
Crit Moves:					****		****				****	
Green/Cycle:	0.24	0.24	0.24	0.24	0.24	0.24	0.06	0.54	0.54	0.12	0.60	0.60
Volume/Cap:	0.06	0.06	0.04	0.37	0.37	0.38	0.62	0.43	0.43	0.03	0.62	0.62
Delay/Veh:	35.0	35.0	34.8	38.6	38.6	38.6	66.2	16.6	16.6	47.1	15.7	15.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.0	35.0	34.8	38.6	38.6	38.6	66.2	16.6	16.6	47.1	15.7	15.7
LOS by Move:	D	D	C	D	D	D	E	B	B	D	B	B
HCM2kAvgQ:	1	1	0	4	4	5	3	9	9	0	16	16

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #4 Bernadette Avenue at Ball Road

****

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: E[46.1]

****

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	15	1	16	1	1	3	5	847	21	9	1143	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	1	16	1	1	3	5	847	21	9	1143	6
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	15	1	16	1	1	3	5	847	21	9	1143	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	16	1	17	1	1	3	5	921	23	10	1242	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	16	1	17	1	1	3	5	921	23	10	1242	7
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1584	2211	472	1737	2220	624	1249	xxxx	xxxxx	943	xxxx	xxxxx
Potent Cap.:	74	45	544	57	44	433	564	xxxx	xxxxx	735	xxxx	xxxxx
Move Cap.:	71	44	544	53	43	433	564	xxxx	xxxxx	735	xxxx	xxxxx
Volume/Cap:	0.23	0.02	0.03	0.02	0.03	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.4	xxxx	xxxxx	10.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	122	xxxxx	xxxx	102	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	1.1	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	46.1	xxxxx	xxxxx	42.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	E	*	*	E	*	*	*	*	*	*	*
ApproachDel:		46.1			42.2			xxxxxx			xxxxxx	
ApproachLOS:		E			E			*			*	

****

Note: Queue reported is the number of cars per lane.

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.977
Loss Time (sec):	12	Average Delay (sec/veh):	21.2
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	61	158	36	104	266	178	105	696	73	81	901	135
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	61	158	36	104	266	178	105	696	73	81	901	135
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	61	158	36	104	266	178	105	696	73	81	901	135
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	66	172	39	113	289	193	114	757	79	88	979	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	66	172	39	113	289	193	114	757	79	88	979	147
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	66	172	39	113	289	193	114	757	79	88	979	147
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.42	0.97	0.97	0.53	1.00	0.85	0.93	0.92	0.92	0.93	0.91	0.91
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.81	0.19	1.00	1.74	0.26
Final Sat.:	806	1504	343	1009	1900	1615	1769	3157	331	1769	3018	452
Capacity Analysis Module:												
Vol/Sat:	0.08	0.11	0.11	0.11	0.15	0.12	0.06	0.24	0.24	0.05	0.32	0.32
Crit Moves:					****		****				****	
Green/Cycle:	0.32	0.32	0.32	0.32	0.32	0.32	0.52	0.43	0.43	0.59	0.45	0.45
Volume/Cap:	0.26	0.35	0.35	0.35	0.47	0.37	0.43	0.56	0.56	0.23	0.71	0.71
Delay/Veh:	23.0	23.7	23.7	23.9	25.0	23.9	14.6	20.0	20.0	10.1	21.4	21.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.0	23.7	23.7	23.9	25.0	23.9	14.6	20.0	20.0	10.1	21.4	21.4
LOS by Move:	C	C	C	C	C	C	B	C	C	B	C	C
HCM2kAvgQ:	2	5	5	3	7	4	2	10	10	1	14	14

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 28.4 Worst Case Level Of Service: F[883.0]

Street Name:	Valley View Street						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 1!	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	37 1400		7	18 1812		111	13	0	80	8	1	77
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	37 1400		7	18 1812		111	13	0	80	8	1	77
Added Vol:	0 0	0	0	0 0	0	0	0	0	0	0	0	0
PasserByVol:	0 0	0	0	0 0	0	0	0	0	0	0	0	0
Initial Fut:	37 1400		7	18 1812		111	13	0	80	8	1	77
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92
PHF Volume:	40 1522		8	20 1970		121	14	0	87	9	1	84
Reduct Vol:	0 0	0	0	0 0	0	0	0	0	0	0	0	0
FinalVolume:	40 1522		8	20 1970		121	14	0	87	9	1	84
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx			4.1 xxxx xxxxx			7.5	6.5	6.9	7.5	6.5	6.9
FollowUpTim:	2.2 xxxx xxxxx			2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	2090 xxxx xxxxx			1529 xxxx xxxxx			2657	3679	717	2302	3735	511
Potent Cap.:	268 xxxx xxxxx			441 xxxx xxxxx			11	5	377	21	4	513
Move Cap.:	268 xxxx xxxxx			441 xxxx xxxxx			6	4	377	14	4	513
Volume/Cap:	0.15 xxxx xxxx			0.04 xxxx xxxx			2.25	0.00	0.23	0.62	0.30	0.16
Level Of Service Module:												
2Way95thQ:	0.5 xxxx xxxxx			0.1 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	20.8 xxxx xxxxx			13.5 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	C	*	*	B	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	41	xxxxx	xxxx	86	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.0	xxxxx	xxxxx	6.4	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	883	xxxxx	xxxxx	209	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			883.0			209.0		
ApproachLOS:	*			*			F			F		

Note: Queue reported is the number of cars per lane.

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AM Existing Plus Project
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HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #7 Brenda Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.102
Loss Time (sec):	0	Average Delay (sec/veh):	7.3
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Brenda Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	25	0	5	1	17	0	0	74	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	25	0	5	1	17	0	0	74	12
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	25	0	5	1	17	0	0	74	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	27	0	5	1	18	0	0	80	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	27	0	5	1	18	0	0	80	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	27	0	5	1	18	0	0	80	13
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.83	0.00	0.17	0.06	0.94	0.00	0.00	0.86	0.14
Final Sat.:	0	0	0	700	0	140	49	827	0	0	788	128
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.04	xxxx	0.04	0.02	0.02	xxxx	xxxx	0.10	0.10
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	7.4	0.0	7.4	7.2	7.2	0.0	0.0	7.3	7.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.4	0.0	7.4	7.2	7.2	0.0	0.0	7.3	7.3
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx				7.4			7.2			7.3	
Delay Adj:	xxxxx				1.00			1.00			1.00	
ApprAdjDel:	xxxxxx				7.4			7.2			7.3	
LOS by Appr:	*				A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Bernadette Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.043
Loss Time (sec):	0	Average Delay (sec/veh):	7.1
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Bernadette Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	9	10	4	7	22	5	7	6	10	7	21	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	10	4	7	22	5	7	6	10	7	21	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	10	4	7	22	5	7	6	10	7	21	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	10	11	4	8	24	5	8	7	11	8	23	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	11	4	8	24	5	8	7	11	8	23	8
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	11	4	8	24	5	8	7	11	8	23	8
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.39	0.44	0.17	0.20	0.65	0.15	0.30	0.26	0.44	0.20	0.60	0.20
Final Sat.:	344	382	153	182	573	130	279	239	398	179	536	179
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.04
Crit Moves:	****				****			****			****	
Delay/Veh:	7.1	7.1	7.1	7.2	7.2	7.2	7.0	7.0	7.0	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.1	7.1	7.1	7.2	7.2	7.2	7.0	7.0	7.0	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.1			7.2			7.0			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.1			7.2			7.0			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.886
Loss Time (sec):	16	Average Delay (sec/veh):	47.9
Optimal Cycle:	127	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	283	1873	164	208	1249	234	249	745	165	173	603	130
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	283	1873	164	208	1249	234	249	745	165	173	603	130
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	283	1873	164	208	1249	234	249	745	165	173	603	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	308	2036	178	226	1358	254	271	810	179	188	655	141
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	308	2036	178	226	1358	254	271	810	179	188	655	141
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	308	2036	178	226	1358	254	271	810	179	188	655	141
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.53	0.47	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3432	5083	1583	3432	4178	783	3432	3538	1583	3432	2832	610
Capacity Analysis Module:												
Vol/Sat:	0.09	0.40	0.11	0.07	0.32	0.32	0.08	0.23	0.11	0.05	0.23	0.23
Crit Moves:		****		****			****				****	
Green/Cycle:	0.11	0.44	0.44	0.07	0.40	0.40	0.09	0.31	0.31	0.06	0.28	0.28
Volume/Cap:	0.82	0.92	0.26	0.92	0.82	0.82	0.92	0.74	0.36	0.92	0.81	0.81
Delay/Veh:	69.8	41.5	23.6	96.6	37.8	37.8	91.5	42.7	35.3	101.1	48.6	48.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	69.8	41.5	23.6	96.6	37.8	37.8	91.5	42.7	35.3	101.1	48.6	48.6
LOS by Move:	E	D	C	F	D	D	F	D	D	F	D	D
HCM2kAvgQ:	8	32	4	7	23	23	8	16	6	6	17	17

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PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C[22.7]

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!		0 0	0 0	0	0 0	0 0	1	1 0	1 0	2	0 0
Volume Module:												
Base Vol:	20	0	16	0	0	0	0	1114	45	15	927	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	0	16	0	0	0	0	1114	45	15	927	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	0	16	0	0	0	0	1114	45	15	927	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	22	0	17	0	0	0	0	1211	49	16	1008	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	22	0	17	0	0	0	0	1211	49	16	1008	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1772	2276	630	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1260	xxxx	xxxxx
Potent Cap.:	76	41	429	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	559	xxxx	xxxxx
Move Cap.:	74	39	429	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	559	xxxx	xxxxx
Total Cap:	180	143	xxxxx	167	135	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.12	0.00	0.04	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	243	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	22.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		22.7			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Note: Queue reported is the number of cars per lane.

PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	140	Critical Vol./Cap.(X):	0.408
Loss Time (sec):	12	Average Delay (sec/veh):	18.3
Optimal Cycle:	68	Level Of Service:	B

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	6	6	29	29	29	6	18	18	6	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	11	1	9	31	2	60	98	1032	19	15	848	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	1	9	31	2	60	98	1032	19	15	848	54
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	1	9	31	2	60	98	1032	19	15	848	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	12	1	10	34	2	65	107	1122	21	16	922	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	1	10	34	2	65	107	1122	21	16	922	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	12	1	10	34	2	65	107	1122	21	16	922	59
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.84	0.84	0.85	0.78	0.78	0.85	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.92	0.08	1.00	0.94	0.06	1.00	1.00	1.96	0.04	1.00	1.88	0.12
Final Sat.:	1466	133	1615	1383	89	1615	1769	3463	64	1769	3296	210
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.02	0.02	0.04	0.06	0.32	0.32	0.01	0.28	0.28
Crit Moves:						****		****		****		
Green/Cycle:	0.21	0.21	0.21	0.21	0.21	0.21	0.13	0.66	0.66	0.04	0.58	0.58
Volume/Cap:	0.04	0.04	0.03	0.12	0.12	0.19	0.48	0.49	0.49	0.22	0.48	0.48
Delay/Veh:	44.4	44.4	44.3	45.3	45.3	46.1	58.6	11.8	11.8	66.2	17.2	17.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.4	44.4	44.3	45.3	45.3	46.1	58.6	11.8	11.8	66.2	17.2	17.2
LOS by Move:	D	D	D	D	D	D	E	B	B	E	B	B
HCM2kAvgQ:	0	0	0	1	1	2	5	13	13	1	13	13

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PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 2.7 Worst Case Level Of Service: F[92.4]

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	18	2	17	11	5	4	23	1045	34	25	885	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	18	2	17	11	5	4	23	1045	34	25	885	13
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	2	17	11	5	4	23	1045	34	25	885	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	20	2	18	12	5	4	25	1136	37	27	962	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	20	2	18	12	5	4	25	1136	37	27	962	14
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1742	2235	586	1642	2246	488	976	xxxx	xxxxx	1173	xxxx	xxxxx
Potent Cap.:	57	43	458	67	42	531	715	xxxx	xxxxx	603	xxxx	xxxxx
Move Cap.:	47	40	458	58	39	531	715	xxxx	xxxxx	603	xxxx	xxxxx
Volume/Cap:	0.41	0.05	0.04	0.21	0.14	0.01	0.03	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.2	xxxx	xxxxx	11.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	79	xxxxx	xxxx	62	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	2.2	xxxxx	xxxxx	1.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	90.7	xxxxx	xxxxx	92.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:		90.7			92.4			xxxxxx			xxxxxx	
ApproachLOS:		F			F			*			*	

Note: Queue reported is the number of cars per lane.

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PM Existing Plus Project
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HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	80	Critical Vol./Cap.(X):	0.985
Loss Time (sec):	12	Average Delay (sec/veh):	21.2
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	71	313	30	56	134	114	177	802	59	31	725	82
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	71	313	30	56	134	114	177	802	59	31	725	82
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	313	30	56	134	114	177	802	59	31	725	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	77	340	33	61	146	124	192	872	64	34	788	89
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	340	33	61	146	124	192	872	64	34	788	89
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	77	340	33	61	146	124	192	872	64	34	788	89
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.64	0.99	0.99	0.34	1.00	0.85	0.93	0.92	0.92	0.93	0.92	0.92
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.86	0.14	1.00	1.80	0.20
Final Sat.:	1220	1711	164	650	1900	1615	1769	3262	240	1769	3131	354
Capacity Analysis Module:												
Vol/Sat:	0.06	0.20	0.20	0.09	0.08	0.08	0.11	0.27	0.27	0.02	0.25	0.25
Crit Moves:		****					****				****	
Green/Cycle:	0.34	0.34	0.34	0.34	0.34	0.34	0.56	0.40	0.40	0.47	0.36	0.36
Volume/Cap:	0.19	0.59	0.59	0.28	0.23	0.23	0.50	0.67	0.67	0.10	0.70	0.70
Delay/Veh:	19.0	23.4	23.4	20.1	19.2	19.2	12.5	20.9	20.9	12.3	23.9	23.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.0	23.4	23.4	20.1	19.2	19.2	12.5	20.9	20.9	12.3	23.9	23.9
LOS by Move:	B	C	C	C	B	B	B	C	C	B	C	C
HCM2kAvgQ:	1	8	8	1	3	2	4	11	11	1	11	11

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HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 35.9 Worst Case Level Of Service: F[1238.7]

Street Name:	Valley View Street						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 1!	0	0	0 0 1!	0	0
Volume Module:												
Base Vol:	51 2207		23	23 1469		67	14	1	59	4	0	50
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	51 2207		23	23 1469		67	14	1	59	4	0	50
Added Vol:	0 0	0		0 0	0		0 0	0		0 0	0	
PasserByVol:	0 0	0		0 0	0		0 0	0		0 0	0	
Initial Fut:	51 2207		23	23 1469		67	14	1	59	4	0	50
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.92 0.92	0.92		0.92 0.92	0.92		0.92 0.92	0.92		0.92 0.92	0.92	
PHF Volume:	55 2399		25	25 1597		73	15	1	64	4	0	54
Reduct Vol:	0 0	0		0 0	0		0 0	0		0 0	0	
FinalVolume:	55 2399		25	25 1597		73	15	1	64	4	0	54
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx			4.1 xxxx xxxxx			7.5	6.5	6.9	7.5	6.5	6.9
FollowUpTim:	2.2 xxxx xxxxx			2.2 xxxx xxxxx			3.5	4.0	3.3	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	1670 xxxx xxxxx			2424 xxxx xxxxx			2594	4218	569	3105	4242	812
Potent Cap.:	390 xxxx xxxxx			198 xxxx xxxxx			13	2	471	5	2	326
Move Cap.:	390 xxxx xxxxx			198 xxxx xxxxx			9	2	471	2	2	326
Volume/Cap:	0.14 xxxx xxxx			0.13 xxxx xxxx			1.78	0.69	0.14	2.71	0.00	0.17
Level Of Service Module:												
2Way95thQ:	0.5 xxxx xxxxx			0.4 xxxx xxxxx			xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	15.8 xxxx xxxxx			25.7 xxxx xxxxx			xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	C	*	*	D	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx	31	xxxxx	xxxx	20	xxxxx
SharedQueue:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	9.4	xxxxx	xxxxx	7.7	xxxxx
Shrd ConDel:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx	1002	xxxxx	xxxxx	1239	xxxxx
Shared LOS:	*	*	*	*	*	*	*	F	*	*	F	*
ApproachDel:	xxxxxx			xxxxxx			1002.3			1238.7		
ApproachLOS:	*			*			F			F		

Note: Queue reported is the number of cars per lane.

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HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #7 Brenda Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.067
Loss Time (sec):	0	Average Delay (sec/veh):	7.2
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Brenda Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	19	0	21	13	28	0	0	46	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	19	0	21	13	28	0	0	46	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	19	0	21	13	28	0	0	46	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	0	21	0	23	14	30	0	0	50	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	21	0	23	14	30	0	0	50	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	21	0	23	14	30	0	0	50	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.47	0.00	0.53	0.32	0.68	0.00	0.00	0.82	0.18
Final Sat.:	0	0	0	430	0	475	275	592	0	0	746	162
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.05	xxxx	0.05	0.05	0.05	xxxx	xxxx	0.07	0.07
Crit Moves:						****		****			****	
Delay/Veh:	0.0	0.0	0.0	7.1	0.0	7.1	7.3	7.3	0.0	0.0	7.2	7.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.1	0.0	7.1	7.3	7.3	0.0	0.0	7.2	7.2
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx				7.1			7.3			7.2	
Delay Adj:	xxxxx				1.00			1.00			1.00	
ApprAdjDel:	xxxxxx				7.1			7.3			7.2	
LOS by Appr:	*				A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1

PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Bernadette Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.060
Loss Time (sec):	0	Average Delay (sec/veh):	7.2
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Bernadette Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	5	11	7	21	22	5	11	14	6	5	15	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	11	7	21	22	5	11	14	6	5	15	8
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	11	7	21	22	5	11	14	6	5	15	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	5	12	8	23	24	5	12	15	7	5	16	9
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	12	8	23	24	5	12	15	7	5	16	9
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	12	8	23	24	5	12	15	7	5	16	9
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.22	0.48	0.30	0.44	0.46	0.10	0.35	0.46	0.19	0.18	0.54	0.28
Final Sat.:	195	430	273	381	399	91	310	395	169	160	479	255
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.06	0.06	0.06	0.04	0.04	0.04	0.03	0.03	0.03
Crit Moves:		****		****			****				****	
Delay/Veh:	7.1	7.1	7.1	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.1	7.1	7.1	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.1			7.3			7.2			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.1			7.3			7.2			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

AM Existing Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.866
Loss Time (sec):	16	Average Delay (sec/veh):	51.4
Optimal Cycle:	118	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2	1 0	2 0	2 0	1	2 0	1	1 0
Volume Module:												
Base Vol:	233	1277	67	152	1561	250	247	638	166	296	720	158
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	233	1277	67	152	1561	250	247	638	166	296	720	158
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	233	1277	67	152	1561	250	247	638	166	296	720	158
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	253	1388	73	165	1697	272	268	693	180	322	783	172
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	253	1388	73	165	1697	272	268	693	180	322	783	172
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	253	1388	73	165	1697	272	268	693	180	322	783	172
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3432	5083	1583	3432	4290	687	3432	3538	1583	3432	2823	619
Capacity Analysis Module:												
Vol/Sat:	0.07	0.27	0.05	0.05	0.40	0.40	0.08	0.20	0.11	0.09	0.28	0.28
Crit Moves:	****				****			****			****	
Green/Cycle:	0.08	0.42	0.42	0.07	0.42	0.42	0.08	0.28	0.28	0.10	0.30	0.30
Volume/Cap:	0.95	0.65	0.11	0.65	0.95	0.95	0.95	0.69	0.40	0.95	0.92	0.92
Delay/Veh:	101.4	30.8	23.0	64.4	47.2	47.2	98.5	43.4	38.1	94.3	57.1	57.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	101.4	30.8	23.0	64.4	47.2	47.2	98.5	43.4	38.1	94.3	57.1	57.1
LOS by Move:	F	C	C	E	D	D	F	D	D	F	E	E
HCM2kAvgQ:	8	16	2	4	33	33	9	14	6	10	23	23

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AM Existing Plus Project - Mitigation
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HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[15.2]

Street Name:	Brenda Avenue									Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0 1! 0	0	0	0 0 0	0	0	0 1	1 0	1	0 2	0 0
Volume Module:												
Base Vol:	8	0	16	0	0	0	0	821	21	9	1215	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	16	0	0	0	0	821	21	9	1215	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	16	0	0	0	0	821	21	9	1215	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	9	0	17	0	0	0	0	892	23	10	1321	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	9	0	17	0	0	0	0	892	23	10	1321	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1584	2244	458	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	915	xxxx	xxxxx
Potent Cap.:	101	43	556	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	753	xxxx	xxxxx
Move Cap.:	100	42	556	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	753	xxxx	xxxxx
Total Cap:	230	142	xxxxx	129	140	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.8	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	- LTR	- RT	LT	- LTR	- RT	LT	- LTR	- RT	LT	- LTR	- RT
Shared Cap.:	xxxx	377	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		15.2			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Note: Queue reported is the number of cars per lane.

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HCM Analysis

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2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	120	Critical Vol./Cap.(X):	0.551
Loss Time (sec):	12	Average Delay (sec/veh):	20.0
Optimal Cycle:	68	Level Of Service:	C

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	6	6	29	29	29	6	18	18	6	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	1	0	0	1	0	1	0	1	1	0	1
Volume Module:												
Base Vol:	17	2	13	109	1	136	57	757	6	5	1059	129
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	13	109	1	136	57	757	6	5	1059	129
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	13	109	1	136	57	757	6	5	1059	129
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	18	2	14	118	1	148	62	823	7	5	1151	140
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2	14	118	1	148	62	823	7	5	1151	140
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	2	14	118	1	148	62	823	7	5	1151	140
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.79	0.79	0.85	0.70	0.70	0.85	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.89	0.11	1.00	0.99	0.01	1.00	1.00	1.98	0.02	1.00	1.78	0.22
Final Sat.:	1350	159	1615	1320	12	1615	1769	3506	28	1769	3103	378
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.09	0.09	0.09	0.04	0.23	0.23	0.00	0.37	0.37
Crit Moves:					****		****				****	
Green/Cycle:	0.24	0.24	0.24	0.24	0.24	0.24	0.06	0.54	0.54	0.12	0.60	0.60
Volume/Cap:	0.06	0.06	0.04	0.37	0.37	0.38	0.62	0.43	0.43	0.03	0.62	0.62
Delay/Veh:	35.0	35.0	34.8	38.6	38.6	38.6	66.3	16.6	16.6	47.1	15.7	15.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	35.0	35.0	34.8	38.6	38.6	38.6	66.3	16.6	16.6	47.1	15.7	15.7
LOS by Move:	D	D	C	D	D	D	E	B	B	D	B	B
HCM2kAvgQ:	1	1	0	4	4	5	3	9	9	0	16	16

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HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B[13.5]

Street Name:	Bernadette Avenue									Ball Road								
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	0	0	1	0	0	0	0	1	1	0	1	1	0	1	0	1	1	0
Volume Module:																				
Base Vol:	0	0	32	0	0	5	5	848	22	9	1158	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	32	0	0	5	5	848	22	9	1158	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	32	0	0	5	5	848	22	9	1158	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	35	0	0	5	5	922	24	10	1259	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	35	0	0	5	5	922	24	10	1259	8
Critical Gap Module:																				
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:																				
Cnflict Vol:	xxxx	xxxx	473	xxxx	xxxx	633	1266	xxxx	xxxxx	946	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	543	xxxx	xxxx	427	556	xxxx	xxxxx	734	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	543	xxxx	xxxx	427	556	xxxx	xxxxx	734	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	0.06	xxxx	xxxx	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	0.2	xxxx	xxxx	0.0	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	12.1	xxxxx	xxxx	13.5	11.5	xxxx	xxxxx	10.0	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	B	B	*	*	A	*	*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	12.1			13.5			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

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2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.977
Loss Time (sec):	12	Average Delay (sec/veh):	21.6
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0 1	0	1	0 1	0	1	1 0	1	0	1 1 0
Volume Module:												
Base Vol:	61	158	36	104	266	178	121	696	73	81	901	135
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	61	158	36	104	266	178	121	696	73	81	901	135
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	61	158	36	104	266	178	121	696	73	81	901	135
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	66	172	39	113	289	193	132	757	79	88	979	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	66	172	39	113	289	193	132	757	79	88	979	147
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	66	172	39	113	289	193	132	757	79	88	979	147
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.42	0.97	0.97	0.53	1.00	0.85	0.93	0.92	0.92	0.93	0.91	0.91
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.81	0.19	1.00	1.74	0.26
Final Sat.:	806	1504	343	1009	1900	1615	1769	3157	331	1769	3018	452
Capacity Analysis Module:												
Vol/Sat:	0.08	0.11	0.11	0.11	0.15	0.12	0.07	0.24	0.24	0.05	0.32	0.32
Crit Moves:					****		****				****	
Green/Cycle:	0.32	0.32	0.32	0.32	0.32	0.32	0.53	0.43	0.43	0.59	0.44	0.44
Volume/Cap:	0.26	0.35	0.35	0.35	0.47	0.37	0.47	0.56	0.56	0.23	0.73	0.73
Delay/Veh:	23.0	23.7	23.7	23.9	25.0	23.9	14.9	20.0	20.0	10.1	22.5	22.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.0	23.7	23.7	23.9	25.0	23.9	14.9	20.0	20.0	10.1	22.5	22.5
LOS by Move:	C	C	C	C	C	C	B	C	C	B	C	C
HCM2kAvgQ:	2	5	5	3	7	4	3	10	10	1	15	15

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2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: C[20.9]

Street Name:	Valley View Street						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 0	0	1	0 0 0	0	1
Volume Module:												
Base Vol:	37 1413		7	18 1820		112	0	0	93	0	0	86
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	37 1413		7	18 1820		112	0	0	93	0	0	86
Added Vol:	0 0	0	0	0 0	0	0	0	0	0	0	0	0
PasserByVol:	0 0	0	0	0 0	0	0	0	0	0	0	0	0
Initial Fut:	37 1413		7	18 1820		112	0	0	93	0	0	86
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92	0.92 0.92	0.92	0.92
PHF Volume:	40 1536		8	20 1978		122	0	0	101	0	0	93
Reduct Vol:	0 0	0	0	0 0	0	0	0	0	0	0	0	0
FinalVolume:	40 1536		8	20 1978		122	0	0	101	0	0	93
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx			4.1 xxxx xxxxx			xxxxx xxxx		6.9	xxxxx xxxx		6.9
FollowUpTim:	2.2 xxxx xxxxx			2.2 xxxx xxxxx			xxxxx xxxx		3.3	xxxxx xxxx		3.3
Capacity Module:												
Cnflict Vol:	2100 xxxx xxxxx			1543 xxxx xxxxx			xxxx xxxx		720	xxxx xxxx		516
Potent Cap.:	266 xxxx xxxxx			436 xxxx xxxxx			xxxx xxxx		375	xxxx xxxx		509
Move Cap.:	266 xxxx xxxxx			436 xxxx xxxxx			xxxx xxxx		375	xxxx xxxx		509
Volume/Cap:	0.15 xxxx xxxx			0.04 xxxx xxxx			xxxx xxxx		0.27	xxxx xxxx		0.18
Level Of Service Module:												
2Way95thQ:	0.5 xxxx xxxxx			0.1 xxxx xxxxx			xxxx xxxx		1.1	xxxx xxxx		0.7
Control Del:	20.9 xxxx xxxxx			13.6 xxxx xxxxx			xxxxx xxxx		18.1	xxxxx xxxx		13.6
LOS by Move:	C	*	*	B	*	*	*	*	C	*	*	B
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx xxxxx		
SharedQueue:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx		
Shrd ConDel:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx		
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			18.1			13.6		
ApproachLOS:	*			*			C			B		

Note: Queue reported is the number of cars per lane.

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2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.886
Loss Time (sec):	16	Average Delay (sec/veh):	48.0
Optimal Cycle:	127	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2	1 0	2 0	2 0	1	2 0	1	1 0
Volume Module:												
Base Vol:	287	1873	164	208	1249	234	249	745	165	173	603	130
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	287	1873	164	208	1249	234	249	745	165	173	603	130
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	287	1873	164	208	1249	234	249	745	165	173	603	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	312	2036	178	226	1358	254	271	810	179	188	655	141
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	312	2036	178	226	1358	254	271	810	179	188	655	141
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	312	2036	178	226	1358	254	271	810	179	188	655	141
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.53	0.47	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3432	5083	1583	3432	4178	783	3432	3538	1583	3432	2832	610
Capacity Analysis Module:												
Vol/Sat:	0.09	0.40	0.11	0.07	0.32	0.32	0.08	0.23	0.11	0.05	0.23	0.23
Crit Moves:		****		****			****				****	
Green/Cycle:	0.11	0.44	0.44	0.07	0.40	0.40	0.09	0.31	0.31	0.06	0.28	0.28
Volume/Cap:	0.82	0.92	0.26	0.92	0.82	0.82	0.92	0.74	0.36	0.92	0.81	0.81
Delay/Veh:	69.8	41.5	23.6	96.6	38.0	38.0	91.5	42.7	35.3	101.1	48.6	48.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	69.8	41.5	23.6	96.6	38.0	38.0	91.5	42.7	35.3	101.1	48.6	48.6
LOS by Move:	E	D	C	F	D	D	F	D	D	F	D	D
HCM2kAvgQ:	8	32	4	7	23	23	8	16	6	6	17	17

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2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C[23.1]

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	1	0	1 0 2	0	0
Volume Module:												
Base Vol:	20	0	16	0	0	0	0	1130	45	15	943	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	20	0	16	0	0	0	0	1130	45	15	943	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	20	0	16	0	0	0	0	1130	45	15	943	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	22	0	17	0	0	0	0	1228	49	16	1025	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	22	0	17	0	0	0	0	1228	49	16	1025	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1798	2310	639	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1277	xxxx	xxxxx
Potent Cap.:	73	39	424	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	550	xxxx	xxxxx
Move Cap.:	71	37	424	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	550	xxxx	xxxxx
Total Cap:	176	139	xxxxx	163	132	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.12	0.00	0.04	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.7	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	238	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	23.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		23.1			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Note: Queue reported is the number of cars per lane.

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Intersection #3 Juanita Street at Ball Road

Cycle (sec):	140	Critical Vol./Cap.(X):	0.414
Loss Time (sec):	12	Average Delay (sec/veh):	18.3
Optimal Cycle:	68	Level Of Service:	B

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	6	6	29	29	29	6	18	18	6	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	11	1	9	31	2	60	98	1048	19	15	864	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	1	9	31	2	60	98	1048	19	15	864	54
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	1	9	31	2	60	98	1048	19	15	864	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	12	1	10	34	2	65	107	1139	21	16	939	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	1	10	34	2	65	107	1139	21	16	939	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	12	1	10	34	2	65	107	1139	21	16	939	59
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.84	0.84	0.85	0.78	0.78	0.85	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.92	0.08	1.00	0.94	0.06	1.00	1.00	1.96	0.04	1.00	1.88	0.12
Final Sat.:	1466	133	1615	1383	89	1615	1769	3464	63	1769	3300	206
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.02	0.02	0.04	0.06	0.33	0.33	0.01	0.28	0.28
Crit Moves:						****		****		****		
Green/Cycle:	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.66	0.66	0.04	0.58	0.58
Volume/Cap:	0.04	0.04	0.03	0.12	0.12	0.19	0.49	0.49	0.49	0.22	0.49	0.49
Delay/Veh:	44.4	44.4	44.3	45.3	45.3	46.1	58.9	11.9	11.9	66.2	17.1	17.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.4	44.4	44.3	45.3	45.3	46.1	58.9	11.9	11.9	66.2	17.1	17.1
LOS by Move:	D	D	D	D	D	D	E	B	B	E	B	B
HCM2kAvgQ:	0	0	0	1	1	2	5	13	13	1	13	13

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Intersection #4 Bernadette Avenue at Ball Road

****

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[13.7]

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Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 1			0 0 0 0 1			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	0	0	37	0	0	20	23	1056	39	25	903	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	37	0	0	20	23	1056	39	25	903	15
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	37	0	0	20	23	1056	39	25	903	15
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	0	0	40	0	0	22	25	1148	42	27	982	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	40	0	0	22	25	1148	42	27	982	16
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	595	xxxx	xxxx	499	998	xxxx	xxxxx	1190	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	452	xxxx	xxxx	522	702	xxxx	xxxxx	594	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	452	xxxx	xxxx	522	702	xxxx	xxxxx	594	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	0.09	xxxx	xxxx	0.04	0.04	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	0.3	xxxx	xxxx	0.1	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	13.7	xxxxx	xxxx	12.2	10.3	xxxx	xxxxx	11.4	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	B	B	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	13.7			12.2			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

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Note: Queue reported is the number of cars per lane.

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Intersection #5 Holder Street at Ball Road

Cycle (sec):	80	Critical Vol./Cap.(X):	0.985
Loss Time (sec):	12	Average Delay (sec/veh):	21.6
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	71	313	30	56	134	114	197	802	59	31	725	82
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	71	313	30	56	134	114	197	802	59	31	725	82
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	71	313	30	56	134	114	197	802	59	31	725	82
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	77	340	33	61	146	124	214	872	64	34	788	89
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	340	33	61	146	124	214	872	64	34	788	89
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	77	340	33	61	146	124	214	872	64	34	788	89
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.64	0.99	0.99	0.34	1.00	0.85	0.93	0.92	0.92	0.93	0.92	0.92
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.86	0.14	1.00	1.80	0.20
Final Sat.:	1220	1711	164	650	1900	1615	1769	3262	240	1769	3131	354
Capacity Analysis Module:												
Vol/Sat:	0.06	0.20	0.20	0.09	0.08	0.08	0.12	0.27	0.27	0.02	0.25	0.25
Crit Moves:		****					****				****	
Green/Cycle:	0.34	0.34	0.34	0.34	0.34	0.34	0.56	0.40	0.40	0.46	0.35	0.35
Volume/Cap:	0.19	0.59	0.59	0.28	0.23	0.23	0.54	0.67	0.67	0.10	0.73	0.73
Delay/Veh:	19.0	23.4	23.4	20.1	19.2	19.2	13.4	20.9	20.9	12.7	25.1	25.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.0	23.4	23.4	20.1	19.2	19.2	13.4	20.9	20.9	12.7	25.1	25.1
LOS by Move:	B	C	C	C	B	B	B	C	C	B	C	C
HCM2kAvgQ:	1	8	8	1	3	2	4	11	11	1	11	11

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PM Existing Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: D[26.1]

Street Name:	Valley View Street						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2 1 0			1 0 2 1 0			0 0 0 0 1			0 0 0 0 1		
Volume Module:												
Base Vol:	51	2221	24	23	1473	67	0	0	74	0	0	54
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	51	2221	24	23	1473	67	0	0	74	0	0	54
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	51	2221	24	23	1473	67	0	0	74	0	0	54
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PHF Volume:	55	2414	26	25	1601	73	0	0	80	0	0	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	55	2414	26	25	1601	73	0	0	80	0	0	59
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9
FollowUpTim:	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3
Capacity Module:												
Cnflict Vol:	1674	xxxx	xxxxx	2440	xxxx	xxxxx	xxxx	xxxx	570	xxxx	xxxx	818
Potent Cap.:	388	xxxx	xxxxx	196	xxxx	xxxxx	xxxx	xxxx	470	xxxx	xxxx	323
Move Cap.:	388	xxxx	xxxxx	196	xxxx	xxxxx	xxxx	xxxx	470	xxxx	xxxx	323
Volume/Cap:	0.14	xxxx	xxxx	0.13	xxxx	xxxx	xxxx	xxxx	0.17	xxxx	xxxx	0.18
Level Of Service Module:												
2Way95thQ:	0.5	xxxx	xxxxx	0.4	xxxx	xxxxx	xxxx	xxxx	0.6	xxxx	xxxx	0.7
Control Del:	15.8	xxxx	xxxxx	26.1	xxxx	xxxxx	xxxxx	xxxx	14.2	xxxxx	xxxx	18.6
LOS by Move:	C	*	*	D	*	*	*	*	B	*	*	C
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			14.2			18.6		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the number of cars per lane.

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APPENDIX E

YEAR 2017 WITH PROJECT LEVEL OF SERVICE CALCULATION WORKSHEETS (ICU METHODOLOGY)

AM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.832
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	60	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	231	1338	78	156	1662	263	255	654	171	323	734	157
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	231	1338	78	156	1662	263	255	654	171	323	734	157
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	231	1338	78	156	1662	263	255	654	171	323	734	157
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	231	1338	78	156	1662	263	255	654	171	323	734	157
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	231	1338	78	156	1662	263	255	654	171	323	734	157
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	231	1338	78	156	1662	263	255	654	171	323	734	157
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3400	5100	2125	3400	4403	697	3400	3400	2125	3400	2801	599
Capacity Analysis Module:												
Vol/Sat:	0.07	0.26	0.04	0.05	0.38	0.38	0.08	0.19	0.08	0.10	0.26	0.26
Crit Moves:	****				****		****				****	

AM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.533
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	25	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1	0 0	0 1	1	0 2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	112	0	140	59	789	0	0	1111	133
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	112	0	140	59	789	0	0	1111	133
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	112	0	140	59	789	0	0	1111	133
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	112	0	140	59	789	0	0	1111	133
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	112	0	140	59	789	0	0	1111	133
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	112	0	140	59	789	0	0	1111	133
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.79	0.21
Final Sat.:	0	0	0	1700	0	1700	1700	3400	0	0	3036	364
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.07	0.00	0.08	0.03	0.23	0.00	0.00	0.37	0.37
Crit Moves:						****	****				****	

AM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.629
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	31	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0		1 0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	62	163	37	108	274	182	104	722	71	83	949	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	62	163	37	108	274	182	104	722	71	83	949	139
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	62	163	37	108	274	182	104	722	71	83	949	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	62	163	37	108	274	182	104	722	71	83	949	139
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	62	163	37	108	274	182	104	722	71	83	949	139
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	62	163	37	108	274	182	104	722	71	83	949	139
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.82	0.18	1.00	1.00	1.00	1.00	1.82	0.18	1.00	1.74	0.26
Final Sat.:	1700	1386	315	1700	1700	2125	1700	3096	304	1700	2966	434
Capacity Analysis Module:												
Vol/Sat:	0.04	0.12	0.12	0.06	0.16	0.09	0.06	0.23	0.23	0.05	0.32	0.32
Crit Moves:	****				****		****				****	

PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.796
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	51	Level Of Service:	C

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	291	1976	183	209	1339	243	261	759	170	199	616	132
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	291	1976	183	209	1339	243	261	759	170	199	616	132
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	291	1976	183	209	1339	243	261	759	170	199	616	132
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	291	1976	183	209	1339	243	261	759	170	199	616	132
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	291	1976	183	209	1339	243	261	759	170	199	616	132
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	291	1976	183	209	1339	243	261	759	170	199	616	132
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.54	0.46	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3400	5100	2125	3400	4317	783	3400	3400	2125	3400	2800	600
Capacity Analysis Module:												
Vol/Sat:	0.09	0.39	0.09	0.06	0.31	0.31	0.08	0.22	0.08	0.06	0.22	0.22
Crit Moves:		****		****			****				****	

PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.427
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	21	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 0	0	0 0	1 0	0	0 1	1 0	2	0 0	0 0	1	1 0
Volume Module:												
Base Vol:	0	0	0	32	0	62	101	1082	0	0	899	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	32	0	62	101	1082	0	0	899	56
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	32	0	62	101	1082	0	0	899	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	32	0	62	101	1082	0	0	899	56
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	32	0	62	101	1082	0	0	899	56
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	32	0	62	101	1082	0	0	899	56
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.88	0.12
Final Sat.:	0	0	0	1700	0	1700	1700	3400	0	0	3201	199
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.04	0.06	0.32	0.00	0.00	0.28	0.28
Crit Moves:						****	****				****	

PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.648
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	32	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	69	322	31	59	138	113	179	842	58	32	766	85
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	69	322	31	59	138	113	179	842	58	32	766	85
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	69	322	31	59	138	113	179	842	58	32	766	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	69	322	31	59	138	113	179	842	58	32	766	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	69	322	31	59	138	113	179	842	58	32	766	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	69	322	31	59	138	113	179	842	58	32	766	85
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.87	0.13	1.00	1.80	0.20
Final Sat.:	1700	1551	149	1700	1700	2125	1700	3181	219	1700	3060	340
Capacity Analysis Module:												
Vol/Sat:	0.04	0.21	0.21	0.03	0.08	0.05	0.11	0.26	0.26	0.02	0.25	0.25
Crit Moves:		****			****			****			****	

AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.836
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	61	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	231	1338	80	158	1662	263	255	657	171	329	741	163
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	231	1338	80	158	1662	263	255	657	171	329	741	163
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	231	1338	80	158	1662	263	255	657	171	329	741	163
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	231	1338	80	158	1662	263	255	657	171	329	741	163
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	231	1338	80	158	1662	263	255	657	171	329	741	163
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	231	1338	80	158	1662	263	255	657	171	329	741	163
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3400	5100	2125	3400	4403	697	3400	3400	2125	3400	2787	613
Capacity Analysis Module:												
Vol/Sat:	0.07	0.26	0.04	0.05	0.38	0.38	0.08	0.19	0.08	0.10	0.27	0.27
Crit Moves:	****				****		****				****	

AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.544
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	26	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	17	2	13	112	1	140	59	790	6	5	1113	133
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	13	112	1	140	59	790	6	5	1113	133
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	13	112	1	140	59	790	6	5	1113	133
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	2	13	112	1	140	59	790	6	5	1113	133
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	2	13	112	1	140	59	790	6	5	1113	133
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	2	13	112	1	140	59	790	6	5	1113	133
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.89	0.11	1.00	0.99	0.01	1.00	1.00	1.98	0.02	1.00	1.79	0.21
Final Sat.:	1521	179	1700	1685	15	1700	1700	3374	26	1700	3037	363
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.07	0.07	0.08	0.03	0.23	0.23	0.00	0.37	0.37
Crit Moves:	****					****	****				****	

AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.633
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	31	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	63	163	37	108	274	183	108	729	75	83	952	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	63	163	37	108	274	183	108	729	75	83	952	139
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	63	163	37	108	274	183	108	729	75	83	952	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	63	163	37	108	274	183	108	729	75	83	952	139
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	63	163	37	108	274	183	108	729	75	83	952	139
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	63	163	37	108	274	183	108	729	75	83	952	139
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.82	0.18	1.00	1.00	1.00	1.00	1.81	0.19	1.00	1.75	0.25
Final Sat.:	1700	1386	315	1700	1700	2125	1700	3083	317	1700	2967	433
Capacity Analysis Module:												
Vol/Sat:	0.04	0.12	0.12	0.06	0.16	0.09	0.06	0.24	0.24	0.05	0.32	0.32
Crit Moves:	****				****		****				****	

PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.800
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	52	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	291	1976	189	215	1339	243	261	767	170	203	621	136
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	291	1976	189	215	1339	243	261	767	170	203	621	136
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	291	1976	189	215	1339	243	261	767	170	203	621	136
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	291	1976	189	215	1339	243	261	767	170	203	621	136
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	291	1976	189	215	1339	243	261	767	170	203	621	136
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	291	1976	189	215	1339	243	261	767	170	203	621	136
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.54	0.46	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3400	5100	2125	3400	4317	783	3400	3400	2125	3400	2789	611
Capacity Analysis Module:												
Vol/Sat:	0.09	0.39	0.09	0.06	0.31	0.31	0.08	0.23	0.08	0.06	0.22	0.22
Crit Moves:		****		****			****				****	

PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.434
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	21	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	11	1	9	32	2	62	101	1084	19	15	900	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	1	9	32	2	62	101	1084	19	15	900	56
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	1	9	32	2	62	101	1084	19	15	900	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	11	1	9	32	2	62	101	1084	19	15	900	56
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	1	9	32	2	62	101	1084	19	15	900	56
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	1	9	32	2	62	101	1084	19	15	900	56
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.92	0.08	1.00	0.94	0.06	1.00	1.00	1.97	0.03	1.00	1.88	0.12
Final Sat.:	1558	142	1700	1600	100	1700	1700	3341	59	1700	3201	199
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.02	0.02	0.04	0.06	0.32	0.32	0.01	0.28	0.28
Crit Moves:	****					****	****				****	

PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.652
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	33	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	73	322	31	59	138	117	182	847	61	32	774	85
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	73	322	31	59	138	117	182	847	61	32	774	85
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	73	322	31	59	138	117	182	847	61	32	774	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	73	322	31	59	138	117	182	847	61	32	774	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	73	322	31	59	138	117	182	847	61	32	774	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	73	322	31	59	138	117	182	847	61	32	774	85
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.87	0.13	1.00	1.80	0.20
Final Sat.:	1700	1551	149	1700	1700	2125	1700	3172	228	1700	3064	336
Capacity Analysis Module:												
Vol/Sat:	0.04	0.21	0.21	0.03	0.08	0.06	0.11	0.27	0.27	0.02	0.25	0.25
Crit Moves:		****			****			****			****	

AM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.839
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	62	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	240	1338	80	158	1662	263	255	657	171	329	741	163
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	240	1338	80	158	1662	263	255	657	171	329	741	163
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	240	1338	80	158	1662	263	255	657	171	329	741	163
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	240	1338	80	158	1662	263	255	657	171	329	741	163
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	240	1338	80	158	1662	263	255	657	171	329	741	163
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	240	1338	80	158	1662	263	255	657	171	329	741	163
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3400	5100	2125	3400	4403	697	3400	3400	2125	3400	2787	613
Capacity Analysis Module:												
Vol/Sat:	0.07	0.26	0.04	0.05	0.38	0.38	0.08	0.19	0.08	0.10	0.27	0.27
Crit Moves:	****				****		****				****	

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AM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.544
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	26	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	17	2	13	112	1	140	59	792	6	5	1115	133
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	13	112	1	140	59	792	6	5	1115	133
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	13	112	1	140	59	792	6	5	1115	133
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	17	2	13	112	1	140	59	792	6	5	1115	133
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	17	2	13	112	1	140	59	792	6	5	1115	133
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	17	2	13	112	1	140	59	792	6	5	1115	133
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.89	0.11	1.00	0.99	0.01	1.00	1.00	1.98	0.02	1.00	1.79	0.21
Final Sat.:	1521	179	1700	1685	15	1700	1700	3374	26	1700	3038	362
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.07	0.07	0.08	0.03	0.23	0.23	0.00	0.37	0.37
Crit Moves:	****					****	****				****	

AM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.642
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxx
Optimal Cycle:	32	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	63	163	37	108	274	183	124	729	75	83	952	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	63	163	37	108	274	183	124	729	75	83	952	139
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	63	163	37	108	274	183	124	729	75	83	952	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	63	163	37	108	274	183	124	729	75	83	952	139
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	63	163	37	108	274	183	124	729	75	83	952	139
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	63	163	37	108	274	183	124	729	75	83	952	139
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.82	0.18	1.00	1.00	1.00	1.00	1.81	0.19	1.00	1.75	0.25
Final Sat.:	1700	1386	315	1700	1700	2125	1700	3083	317	1700	2967	433
Capacity Analysis Module:												
Vol/Sat:	0.04	0.12	0.12	0.06	0.16	0.09	0.07	0.24	0.24	0.05	0.32	0.32
Crit Moves:	****				****		****				****	

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PM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.800
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	52	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	295	1976	189	215	1339	243	261	767	170	203	621	136
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	295	1976	189	215	1339	243	261	767	170	203	621	136
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	295	1976	189	215	1339	243	261	767	170	203	621	136
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	295	1976	189	215	1339	243	261	767	170	203	621	136
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	295	1976	189	215	1339	243	261	767	170	203	621	136
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	295	1976	189	215	1339	243	261	767	170	203	621	136
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	2.54	0.46	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3400	5100	2125	3400	4317	783	3400	3400	2125	3400	2789	611
Capacity Analysis Module:												
Vol/Sat:	0.09	0.39	0.09	0.06	0.31	0.31	0.08	0.23	0.08	0.06	0.22	0.22
Crit Moves:		****		****			****				****	

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PM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.438
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	21	Level Of Service:	A

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	11	1	9	32	2	62	101	1100	19	15	916	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	1	9	32	2	62	101	1100	19	15	916	56
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	1	9	32	2	62	101	1100	19	15	916	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	11	1	9	32	2	62	101	1100	19	15	916	56
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	1	9	32	2	62	101	1100	19	15	916	56
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	1	9	32	2	62	101	1100	19	15	916	56
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.92	0.08	1.00	0.94	0.06	1.00	1.00	1.97	0.03	1.00	1.88	0.12
Final Sat.:	1558	142	1700	1600	100	1700	1700	3342	58	1700	3204	196
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.02	0.02	0.04	0.06	0.33	0.33	0.01	0.29	0.29
Crit Moves:	****					****	****				****	

PM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
ICU Analysis

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	100	Critical Vol./Cap.(X):	0.664
Loss Time (sec):	5	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	34	Level Of Service:	B

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	0 1	1 0	1	0 1
Volume Module:												
Base Vol:	73	322	31	59	138	117	203	847	61	32	774	85
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	73	322	31	59	138	117	203	847	61	32	774	85
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	73	322	31	59	138	117	203	847	61	32	774	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	73	322	31	59	138	117	203	847	61	32	774	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	73	322	31	59	138	117	203	847	61	32	774	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	73	322	31	59	138	117	203	847	61	32	774	85
Saturation Flow Module:												
Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.87	0.13	1.00	1.80	0.20
Final Sat.:	1700	1551	149	1700	1700	2125	1700	3172	228	1700	3064	336
Capacity Analysis Module:												
Vol/Sat:	0.04	0.21	0.21	0.03	0.08	0.06	0.12	0.27	0.27	0.02	0.25	0.25
Crit Moves:		****			****			****			****	

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APPENDIX F

YEAR 2017 WITH PROJECT LEVEL OF SERVICE CALCULATION WORKSHEETS (HCM METHODOLOGY)

AM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	135	Critical Vol./Cap.(X):	0.875
Loss Time (sec):	16	Average Delay (sec/veh):	52.3
Optimal Cycle:	124	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	231	1338	78	156	1662	263	255	654	171	323	734	157
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	231	1338	78	156	1662	263	255	654	171	323	734	157
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	231	1338	78	156	1662	263	255	654	171	323	734	157
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	243	1408	82	164	1749	277	268	688	180	340	773	165
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	243	1408	82	164	1749	277	268	688	180	340	773	165
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	243	1408	82	164	1749	277	268	688	180	340	773	165
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3432	5083	1583	3432	4297	680	3432	3538	1583	3432	2839	607
Capacity Analysis Module:												
Vol/Sat:	0.07	0.28	0.05	0.05	0.41	0.41	0.08	0.19	0.11	0.10	0.27	0.27
Crit Moves:	****				****			****		****		
Green/Cycle:	0.07	0.43	0.43	0.07	0.43	0.43	0.08	0.27	0.27	0.10	0.29	0.29
Volume/Cap:	0.95	0.65	0.12	0.65	0.95	0.95	0.93	0.71	0.41	0.95	0.92	0.92
Delay/Veh:	104.8	31.1	23.3	66.4	47.4	47.4	96.6	46.6	40.8	94.8	59.8	59.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	104.8	31.1	23.3	66.4	47.4	47.4	96.6	46.6	40.8	94.8	59.8	59.8
LOS by Move:	F	C	C	E	D	D	F	D	D	F	E	E
HCM2kAvgQ:	8	17	2	5	34	34	9	14	6	11	24	24

AM Cum
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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[15.2]

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	0 0	0	0 0	1 1	0	1 0	2 0	0
Volume Module:												
Base Vol:	8	0	16	0	0	0	0	848	22	9	1254	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	16	0	0	0	0	848	22	9	1254	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	16	0	0	0	0	848	22	9	1254	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	8	0	17	0	0	0	0	893	23	9	1320	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	8	0	17	0	0	0	0	893	23	9	1320	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1583	2243	458	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	916	xxxx	xxxxx
Potent Cap.:	101	43	555	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	753	xxxx	xxxxx
Move Cap.:	100	42	555	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	753	xxxx	xxxxx
Total Cap:	230	143	xxxxx	129	141	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.8	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	377	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		15.2			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Note: Queue reported is the number of cars per lane.

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AM Cum
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HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	130	Critical Vol./Cap.(X):	0.525
Loss Time (sec):	12	Average Delay (sec/veh):	17.2
Optimal Cycle:	68	Level Of Service:	B

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	29	0	29	6	6	0	0	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	1	0	2	0	1	1
Volume Module:												
Base Vol:	0	0	0	112	0	140	59	789	0	0	1111	133
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	112	0	140	59	789	0	0	1111	133
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	112	0	140	59	789	0	0	1111	133
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	118	0	147	62	831	0	0	1169	140
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	118	0	147	62	831	0	0	1169	140
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	118	0	147	62	831	0	0	1169	140
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	0.93	0.93	1.00	1.00	0.92	0.92
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.79	0.21
Final Sat.:	0	0	0	1805	0	1615	1769	3538	0	0	3109	372
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.07	0.00	0.09	0.04	0.23	0.00	0.00	0.38	0.38
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.22	0.00	0.22	0.06	0.68	0.00	0.00	0.63	0.63
Volume/Cap:	0.00	0.00	0.00	0.29	0.00	0.41	0.60	0.34	0.00	0.00	0.60	0.60
Delay/Veh:	0.0	0.0	0.0	42.4	0.0	43.9	69.3	8.5	0.0	0.0	15.0	15.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	42.4	0.0	43.9	69.3	8.5	0.0	0.0	15.0	15.0
LOS by Move:	A	A	A	D	A	D	E	A	A	A	B	B
HCM2kAvgQ:	0	0	0	4	0	5	3	7	0	0	16	16

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2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 0.7 Worst Case Level Of Service: E[44.1]

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	13	1	14	1	1	3	5	871	21	8	1196	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	1	14	1	1	3	5	871	21	8	1196	6
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	13	1	14	1	1	3	5	871	21	8	1196	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	14	1	15	1	1	3	5	917	22	8	1259	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	14	1	15	1	1	3	5	917	22	8	1259	6
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1585	2221	469	1748	2228	633	1265	xxxx	xxxxx	939	xxxx	xxxxx
Potent Cap.:	74	44	546	56	44	428	556	xxxx	xxxxx	738	xxxx	xxxxx
Move Cap.:	71	43	546	53	43	428	556	xxxx	xxxxx	738	xxxx	xxxxx
Volume/Cap:	0.19	0.02	0.03	0.02	0.02	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.5	xxxx	xxxxx	9.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	121	xxxxx	xxxx	101	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.9	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	44.1	xxxxx	xxxxx	42.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	E	*	*	E	*	*	*	*	*	*	*
ApproachDel:		44.1			42.6			xxxxx			xxxxx	
ApproachLOS:		E			E			*			*	

Note: Queue reported is the number of cars per lane.

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HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.983
Loss Time (sec):	12	Average Delay (sec/veh):	21.2
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	62	163	37	108	274	182	104	722	71	83	949	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	62	163	37	108	274	182	104	722	71	83	949	139
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	62	163	37	108	274	182	104	722	71	83	949	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	65	172	39	114	288	192	109	760	75	87	999	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	65	172	39	114	288	192	109	760	75	87	999	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	65	172	39	114	288	192	109	760	75	87	999	146
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.43	0.97	0.97	0.53	1.00	0.85	0.93	0.92	0.92	0.93	0.91	0.91
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.82	0.18	1.00	1.74	0.26
Final Sat.:	809	1505	342	1009	1900	1615	1769	3179	313	1769	3027	443
Capacity Analysis Module:												
Vol/Sat:	0.08	0.11	0.11	0.11	0.15	0.12	0.06	0.24	0.24	0.05	0.33	0.33
Crit Moves:					****		****				****	
Green/Cycle:	0.32	0.32	0.32	0.32	0.32	0.32	0.51	0.43	0.43	0.59	0.46	0.46
Volume/Cap:	0.25	0.35	0.35	0.35	0.47	0.37	0.42	0.56	0.56	0.23	0.72	0.72
Delay/Veh:	23.0	23.7	23.7	24.0	24.9	23.9	14.8	20.0	20.0	10.1	21.3	21.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.0	23.7	23.7	24.0	24.9	23.9	14.8	20.0	20.0	10.1	21.3	21.3
LOS by Move:	C	C	C	C	C	C	B	B	B	B	C	C
HCM2kAvgQ:	2	5	5	3	7	4	2	10	10	1	15	15

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HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #6 Valley View Street at Belle Avenue

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Average Delay (sec/veh): 31.9 Worst Case Level Of Service: F[1090.0]

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Street Name:	Valley View Street									Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	2	1	0	1	0	2	1	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	38	1474		6		19	1936		114		13		0		82	6		1		79
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	38	1474		6		19	1936		114		13		0		82	6		1		79
Added Vol:	0	0		0		0	0		0		0		0		0	0		0		0
PasserByVol:	0	0		0		0	0		0		0		0		0	0		0		0
Initial Fut:	38	1474		6		19	1936		114		13		0		82	6		1		79
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	40	1552		6		20	2038		120		14		0		86	6		1		83
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	40	1552		6		20	2038		120		14		0		86	6		1		83
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx			4.1	xxxx	xxxxx			7.5	6.5		6.9		7.5	6.5		6.9	
FollowUpTim:	2.2	xxxx	xxxxx			2.2	xxxx	xxxxx			3.5	4.0		3.3		3.5	4.0		3.3	
Capacity Module:																				
Cnflict Vol:	2158	xxxx	xxxxx			1558	xxxx	xxxxx			2736	3776		739		2354	3833		520	
Potent Cap.:	252	xxxx	xxxxx			430	xxxx	xxxxx			10	4		364		19	4		506	
Move Cap.:	252	xxxx	xxxxx			430	xxxx	xxxxx			5	3		364		13	3		506	
Volume/Cap:	0.16	xxxx	xxxx			0.05	xxxx	xxxx			2.64	0.00		0.24		0.50	0.34		0.16	
Level Of Service Module:																				
2Way95thQ:	0.6	xxxx	xxxxx			0.1	xxxx	xxxxx			xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	21.9	xxxx	xxxxx			13.8	xxxx	xxxxx			xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	C	*		*		B	*		*		*	*		*		*	*		*	
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx		35	xxxxx		xxxx		90	xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		11.4	xxxxx		xxxxx		5.9	xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		1090	xxxxx		xxxxx		182	xxxxx	
Shared LOS:	*	*		*		*	*		*		*		F	*		*		F	*	
ApproachDel:	xxxxxx					xxxxxx					1090.0					182.0				
ApproachLOS:	*					*					F					F				

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Note: Queue reported is the number of cars per lane.

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AM Cum
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HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #7 Brenda Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.099
Loss Time (sec):	0	Average Delay (sec/veh):	7.3
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Brenda Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	26	0	5	1	16	0	0	74	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	26	0	5	1	16	0	0	74	12
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	26	0	5	1	16	0	0	74	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	27	0	5	1	17	0	0	78	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	27	0	5	1	17	0	0	78	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	27	0	5	1	17	0	0	78	13
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.84	0.00	0.16	0.06	0.94	0.00	0.00	0.86	0.14
Final Sat.:	0	0	0	706	0	136	52	825	0	0	788	128
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.04	xxxx	0.04	0.02	0.02	xxxx	xxxx	0.10	0.10
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	7.3	0.0	7.3	7.1	7.1	0.0	0.0	7.3	7.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.3	0.0	7.3	7.1	7.1	0.0	0.0	7.3	7.3
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx			7.3			7.1			7.3		
Delay Adj:	xxxxx			1.00			1.00			1.00		
ApprAdjDel:	xxxxxx			7.3			7.1			7.3		
LOS by Appr:	*			A			A			A		
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

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AM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

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Intersection #8 Bernadette Avenue at Belle Avenue

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Cycle (sec):	100	Critical Vol./Cap.(X):	0.042
Loss Time (sec):	0	Average Delay (sec/veh):	7.1
Optimal Cycle:	0	Level Of Service:	A

****

Street Name:	Bernadette Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	9	10	4	7	23	3	6	6	10	7	22	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	10	4	7	23	3	6	6	10	7	22	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	10	4	7	23	3	6	6	10	7	22	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	9	11	4	7	24	3	6	6	11	7	23	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	11	4	7	24	3	6	6	11	7	23	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	11	4	7	24	3	6	6	11	7	23	7
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.39	0.44	0.17	0.21	0.70	0.09	0.27	0.27	0.46	0.19	0.62	0.19
Final Sat.:	344	383	153	187	613	80	252	252	420	174	547	174
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.04
Crit Moves:		****			****			****			****	
Delay/Veh:	7.1	7.1	7.1	7.2	7.2	7.2	6.9	6.9	6.9	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.1	7.1	7.1	7.2	7.2	7.2	6.9	6.9	6.9	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.1			7.2			6.9			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.1			7.2			6.9			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	135	Critical Vol./Cap.(X):	0.887
Loss Time (sec):	16	Average Delay (sec/veh):	48.8
Optimal Cycle:	130	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2	1 0	2 0	2 0	1	2 0	1	1 0
Volume Module:												
Base Vol:	291	1976	183	209	1339	243	261	759	170	199	616	132
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	291	1976	183	209	1339	243	261	759	170	199	616	132
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	291	1976	183	209	1339	243	261	759	170	199	616	132
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	306	2080	193	220	1409	256	275	799	179	209	648	139
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	306	2080	193	220	1409	256	275	799	179	209	648	139
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	306	2080	193	220	1409	256	275	799	179	209	648	139
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.54	0.46	2.00	2.00	1.00	2.00	1.65	0.35
Final Sat.:	3432	5083	1583	3432	4203	763	3432	3538	1583	3432	2838	608
Capacity Analysis Module:												
Vol/Sat:	0.09	0.41	0.12	0.06	0.34	0.34	0.08	0.23	0.11	0.06	0.23	0.23
Crit Moves:		****		****			****				****	
Green/Cycle:	0.11	0.45	0.45	0.07	0.41	0.41	0.09	0.30	0.30	0.07	0.27	0.27
Volume/Cap:	0.82	0.91	0.27	0.91	0.82	0.82	0.91	0.76	0.38	0.93	0.83	0.83
Delay/Veh:	71.9	40.7	23.5	97.3	38.0	38.0	91.0	46.6	38.2	102.6	52.6	52.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	71.9	40.7	23.5	97.3	38.0	38.0	91.0	46.6	38.2	102.6	52.6	52.6
LOS by Move:	E	D	C	F	D	D	F	D	D	F	D	D
HCM2kAvgQ:	9	33	5	7	24	24	9	17	6	7	18	18

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PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C[22.8]

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	1	0	1 0 2	0	0
Volume Module:												
Base Vol:	21	0	16	0	0	0	0	1147	46	15	968	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	0	16	0	0	0	0	1147	46	15	968	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	21	0	16	0	0	0	0	1147	46	15	968	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	22	0	17	0	0	0	0	1207	48	16	1019	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	22	0	17	0	0	0	0	1207	48	16	1019	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1773	2282	628	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1256	xxxx	xxxxx
Potent Cap.:	76	40	431	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	561	xxxx	xxxxx
Move Cap.:	74	39	431	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	561	xxxx	xxxxx
Total Cap:	180	142	xxxxx	165	135	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.12	0.00	0.04	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	241	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	22.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		22.8			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Note: Queue reported is the number of cars per lane.

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PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	140	Critical Vol./Cap.(X):	0.400
Loss Time (sec):	12	Average Delay (sec/veh):	16.3
Optimal Cycle:	68	Level Of Service:	B

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	29	0	29	6	6	0	0	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	1	0	2	0	0	0	0	1	1	0
Volume Module:												
Base Vol:	0	0	0	32	0	62	101	1082	0	0	899	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	32	0	62	101	1082	0	0	899	56
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	32	0	62	101	1082	0	0	899	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	34	0	65	106	1139	0	0	946	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	34	0	65	106	1139	0	0	946	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	34	0	65	106	1139	0	0	946	59
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	1.00	1.00	0.95	1.00	0.85	0.93	0.93	1.00	1.00	0.92	0.92
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	2.00	0.00	0.00	1.88	0.12
Final Sat.:	0	0	0	1805	0	1615	1769	3538	0	0	3300	206
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.02	0.00	0.04	0.06	0.32	0.00	0.00	0.29	0.29
Crit Moves:				****			****				****	
Green/Cycle:	0.00	0.00	0.00	0.21	0.00	0.21	0.12	0.71	0.00	0.00	0.58	0.58
Volume/Cap:	0.00	0.00	0.00	0.09	0.00	0.20	0.49	0.46	0.00	0.00	0.49	0.49
Delay/Veh:	0.0	0.0	0.0	45.0	0.0	46.1	59.1	9.0	0.0	0.0	17.1	17.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	45.0	0.0	46.1	59.1	9.0	0.0	0.0	17.1	17.1
LOS by Move:	A	A	A	D	A	D	E	A	A	A	B	B
HCM2kAvgQ:	0	0	0	1	0	2	5	11	0	0	13	13

PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #4 Bernadette Avenue at Ball Road

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Average Delay (sec/veh): 2.6 Worst Case Level Of Service: F[92.9]

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Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0	1! 0	0	0 0	1! 0	0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	18	2	16	11	5	4	24	1088	33	24	923	13
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	18	2	16	11	5	4	24	1088	33	24	923	13
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	18	2	16	11	5	4	24	1088	33	24	923	13
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.95 0.95	0.95		0.95 0.95	0.95		0.95 0.95	0.95		0.95 0.95	0.95	
PHF Volume:	19	2	17	12	5	4	25	1145	35	25	972	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	19	2	17	12	5	4	25	1145	35	25	972	14
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1752	2249	590	1653	2259	493	985	xxxx	xxxxx	1180	xxxx	xxxxx
Potent Cap.:	56	42	456	66	42	527	709	xxxx	xxxxx	599	xxxx	xxxxx
Move Cap.:	47	39	456	57	38	527	709	xxxx	xxxxx	599	xxxx	xxxxx
Volume/Cap:	0.41	0.05	0.04	0.20	0.14	0.01	0.04	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.3	xxxx	xxxxx	11.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	76	xxxxx	xxxx	61	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	2.1	xxxxx	xxxxx	1.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	92.1	xxxxx	xxxxx	92.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:		92.1			92.9			xxxxxx			xxxxxx	
ApproachLOS:		F			F			*			*	

****

Note: Queue reported is the number of cars per lane.

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PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	80	Critical Vol./Cap.(X):	0.985
Loss Time (sec):	12	Average Delay (sec/veh):	21.3
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0		1 0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	69	322	31	59	138	113	179	842	58	32	766	85
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	69	322	31	59	138	113	179	842	58	32	766	85
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	69	322	31	59	138	113	179	842	58	32	766	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	73	339	33	62	145	119	188	886	61	34	806	89
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	73	339	33	62	145	119	188	886	61	34	806	89
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	73	339	33	62	145	119	188	886	61	34	806	89
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.64	0.99	0.99	0.34	1.00	0.85	0.93	0.92	0.92	0.93	0.92	0.92
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.87	0.13	1.00	1.80	0.20
Final Sat.:	1222	1711	165	652	1900	1615	1769	3277	226	1769	3137	348
Capacity Analysis Module:												
Vol/Sat:	0.06	0.20	0.20	0.10	0.08	0.07	0.11	0.27	0.27	0.02	0.26	0.26
Crit Moves:		****					****				****	
Green/Cycle:	0.34	0.34	0.34	0.34	0.34	0.34	0.56	0.40	0.40	0.47	0.36	0.36
Volume/Cap:	0.18	0.59	0.59	0.28	0.23	0.22	0.50	0.67	0.67	0.10	0.71	0.71
Delay/Veh:	18.9	23.3	23.3	20.1	19.2	19.2	12.7	21.0	21.0	12.3	23.8	23.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	18.9	23.3	23.3	20.1	19.2	19.2	12.7	21.0	21.0	12.3	23.8	23.8
LOS by Move:	B	C	C	C	B	B	B	C	C	B	C	C
HCM2kAvgQ:	1	8	8	1	3	2	4	11	11	1	11	11

PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 44.5 Worst Case Level Of Service: F[1665.6]

Street Name:	Valley View Street									Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign					
Rights:	Include			Include			Include			Include					
Lanes:	1	0	2	1	0	1	0	2	1	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	53	2333		22		24	1587		69		14		1		61	3		0		52
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	53	2333		22		24	1587		69		14		1		61	3		0		52
Added Vol:	0	0		0		0	0		0		0		0		0	0		0		0
PasserByVol:	0	0		0		0	0		0		0		0		0	0		0		0
Initial Fut:	53	2333		22		24	1587		69		14		1		61	3		0		52
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	56	2456		23		25	1671		73		15		1		64	3		0		55
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	56	2456		23		25	1671		73		15		1		64	3		0		55
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx			4.1	xxxx	xxxxx			7.5	6.5		6.9		7.5	6.5		6.9	
FollowUpTim:	2.2	xxxx	xxxxx			2.2	xxxx	xxxxx			3.5	4.0		3.3		3.5	4.0		3.3	
Capacity Module:																				
Cnflict Vol:	1743	xxxx	xxxxx			2479	xxxx	xxxxx			2688	4348		593		3187	4373		830	
Potent Cap.:	365	xxxx	xxxxx			189	xxxx	xxxxx			11	2		454		4	2		317	
Move Cap.:	365	xxxx	xxxxx			189	xxxx	xxxxx			7	1		454		1	1		317	
Volume/Cap:	0.15	xxxx	xxxx			0.13	xxxx	xxxx			2.09	0.84		0.14		3.45	0.00		0.17	
Level Of Service Module:																				
2Way95thQ:	0.5	xxxx	xxxxx			0.5	xxxx	xxxxx			xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	16.6	xxxx	xxxxx			27.0	xxxx	xxxxx			xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	C	*		*		D	*		*		*	*		*		*	*		*	
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx		26	xxxxx		xxxx		16	xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		9.8	xxxxx		xxxxx		8.0	xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		1247	xxxxx		xxxxx		1666	xxxxx	
Shared LOS:	*	*		*		*	*		*		*		F	*		*		F	*	
ApproachDel:	xxxxxx			xxxxxx							1247.2					1665.6				
ApproachLOS:	*			*							F					F				

Note: Queue reported is the number of cars per lane.

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PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

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Intersection #7 Brenda Avenue at Belle Avenue

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Cycle (sec):	100	Critical Vol./Cap.(X):	0.065
Loss Time (sec):	0	Average Delay (sec/veh):	7.2
Optimal Cycle:	0	Level Of Service:	A

****

Street Name:	Brenda Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Volume Module:												
Base Vol:	0	0	0	20	0	22	13	27	0	0	46	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	22	13	27	0	0	46	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	22	13	27	0	0	46	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	21	0	23	14	28	0	0	48	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	21	0	23	14	28	0	0	48	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	21	0	23	14	28	0	0	48	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.47	0.01	0.52	0.33	0.67	0.00	0.00	0.82	0.18
Final Sat.:	0	0	0	432	0	475	282	585	0	0	746	162
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.05	0.00	0.05	0.05	0.05	xxxx	xxxx	0.06	0.06
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	7.1	7.1	7.1	7.3	7.3	0.0	0.0	7.2	7.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.1	7.1	7.1	7.3	7.3	0.0	0.0	7.2	7.2
LOS by Move:	*	*	*	A	A	A	A	A	*	*	A	A
ApproachDel:	xxxxxx				7.1			7.3			7.2	
Delay Adj:	xxxxx				1.00			1.00			1.00	
ApprAdjDel:	xxxxxx				7.1			7.3			7.2	
LOS by Appr:	*				A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

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PM Cum
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Bernadette Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.059
Loss Time (sec):	0	Average Delay (sec/veh):	7.2
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Bernadette Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	5	11	7	22	23	4	9	14	6	5	15	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	11	7	22	23	4	9	14	6	5	15	8
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	11	7	22	23	4	9	14	6	5	15	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	5	12	7	23	24	4	9	15	6	5	16	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	12	7	23	24	4	9	15	6	5	16	8
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	12	7	23	24	4	9	15	6	5	16	8
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.22	0.48	0.30	0.45	0.47	0.08	0.31	0.48	0.21	0.18	0.53	0.29
Final Sat.:	196	431	274	390	408	71	273	424	182	160	479	256
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.06	0.06	0.06	0.03	0.03	0.03	0.03	0.03	0.03
Crit Moves:			****	****				****		****		
Delay/Veh:	7.0	7.0	7.0	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.0	7.0	7.0	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.0			7.3			7.2			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.0			7.3			7.2			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

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AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	135	Critical Vol./Cap.(X):	0.879
Loss Time (sec):	16	Average Delay (sec/veh):	52.9
Optimal Cycle:	126	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	231	1338	80	158	1662	263	255	657	171	329	741	163
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	231	1338	80	158	1662	263	255	657	171	329	741	163
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	231	1338	80	158	1662	263	255	657	171	329	741	163
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	243	1408	84	166	1749	277	268	692	180	346	780	172
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	243	1408	84	166	1749	277	268	692	180	346	780	172
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	243	1408	84	166	1749	277	268	692	180	346	780	172
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3432	5083	1583	3432	4297	680	3432	3538	1583	3432	2822	621
Capacity Analysis Module:												
Vol/Sat:	0.07	0.28	0.05	0.05	0.41	0.41	0.08	0.20	0.11	0.10	0.28	0.28
Crit Moves:	****				****			****		****		
Green/Cycle:	0.07	0.43	0.43	0.07	0.43	0.43	0.08	0.27	0.27	0.11	0.30	0.30
Volume/Cap:	0.95	0.65	0.12	0.65	0.95	0.95	0.93	0.71	0.41	0.95	0.93	0.93
Delay/Veh:	105.7	31.4	23.5	66.5	48.0	48.0	97.2	46.7	40.8	95.1	61.0	61.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	105.7	31.4	23.5	66.5	48.0	48.0	97.2	46.7	40.8	95.1	61.0	61.0
LOS by Move:	F	C	C	E	D	D	F	D	D	F	E	E
HCM2kAvgQ:	8	17	2	5	35	35	9	15	6	11	24	24

AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #2 Brenda Avenue at Ball Road

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Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[15.3]

****

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 0 0 0			0 0 1 1 0			1 0 2 0 0		
Volume Module:												
Base Vol:	8	0	16	0	0	0	0	855	22	9	1273	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	16	0	0	0	0	855	22	9	1273	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	16	0	0	0	0	855	22	9	1273	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	8	0	17	0	0	0	0	900	23	9	1340	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	8	0	17	0	0	0	0	900	23	9	1340	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1601	2271	462	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	923	xxxx	xxxxx
Potent Cap.:	99	41	552	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	748	xxxx	xxxxx
Move Cap.:	98	40	552	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	748	xxxx	xxxxx
Total Cap:	227	140	xxxxx	125	138	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	374	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		15.3			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

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Note: Queue reported is the number of cars per lane.

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AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	125	Critical Vol./Cap.(X):	0.554
Loss Time (sec):	12	Average Delay (sec/veh):	20.0
Optimal Cycle:	68	Level Of Service:	C

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	6	6	29	29	29	6	18	18	6	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	17	2	13	112	1	140	59	790	6	5	1113	133
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	13	112	1	140	59	790	6	5	1113	133
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	13	112	1	140	59	790	6	5	1113	133
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	18	2	14	118	1	147	62	832	6	5	1172	140
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2	14	118	1	147	62	832	6	5	1172	140
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	2	14	118	1	147	62	832	6	5	1172	140
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.79	0.79	0.85	0.70	0.70	0.85	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.89	0.11	1.00	0.99	0.01	1.00	1.00	1.98	0.02	1.00	1.79	0.21
Final Sat.:	1348	159	1615	1320	12	1615	1769	3508	27	1769	3110	372
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.09	0.09	0.09	0.04	0.24	0.24	0.00	0.38	0.38
Crit Moves:					****		****				****	
Green/Cycle:	0.23	0.23	0.23	0.23	0.23	0.23	0.06	0.56	0.56	0.11	0.61	0.61
Volume/Cap:	0.06	0.06	0.04	0.38	0.38	0.39	0.61	0.42	0.42	0.03	0.61	0.61
Delay/Veh:	37.4	37.4	37.2	41.3	41.3	41.2	68.2	16.1	16.1	49.4	15.4	15.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	37.4	37.4	37.2	41.3	41.3	41.2	68.2	16.1	16.1	49.4	15.4	15.4
LOS by Move:	D	D	D	D	D	D	E	B	B	D	B	B
HCM2kAvgQ:	1	1	0	4	4	5	3	10	10	0	16	16

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HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: E[47.4]

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	15	1	16	1	1	3	5	884	22	9	1201	6
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	15	1	16	1	1	3	5	884	22	9	1201	6
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	15	1	16	1	1	3	5	884	22	9	1201	6
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	16	1	17	1	1	3	5	931	23	9	1264	6
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	16	1	17	1	1	3	5	931	23	9	1264	6
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1604	2242	477	1763	2251	635	1271	xxxx	xxxxx	954	xxxx	xxxxx
Potent Cap.:	72	43	540	55	42	426	554	xxxx	xxxxx	729	xxxx	xxxxx
Move Cap.:	69	42	540	51	41	426	554	xxxx	xxxxx	729	xxxx	xxxxx
Volume/Cap:	0.23	0.03	0.03	0.02	0.03	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.6	xxxx	xxxxx	10.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	118	xxxxx	xxxx	98	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	1.1	xxxxx	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	47.4	xxxxx	xxxxx	43.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	E	*	*	E	*	*	*	*	*	*	*
ApproachDel:		47.4			43.7			xxxxxx			xxxxxx	
ApproachLOS:		E			E			*			*	

Note: Queue reported is the number of cars per lane.

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HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.984
Loss Time (sec):	12	Average Delay (sec/veh):	21.3
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0		1 0	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	63	163	37	108	274	183	108	729	75	83	952	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	63	163	37	108	274	183	108	729	75	83	952	139
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	63	163	37	108	274	183	108	729	75	83	952	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	66	172	39	114	288	193	114	767	79	87	1002	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	66	172	39	114	288	193	114	767	79	87	1002	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	66	172	39	114	288	193	114	767	79	87	1002	146
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.43	0.97	0.97	0.53	1.00	0.85	0.93	0.92	0.92	0.93	0.91	0.91
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.81	0.19	1.00	1.75	0.25
Final Sat.:	809	1505	342	1009	1900	1615	1769	3163	325	1769	3028	442
Capacity Analysis Module:												
Vol/Sat:	0.08	0.11	0.11	0.11	0.15	0.12	0.06	0.24	0.24	0.05	0.33	0.33
Crit Moves:					****		****				****	
Green/Cycle:	0.32	0.32	0.32	0.32	0.32	0.32	0.52	0.43	0.43	0.59	0.46	0.46
Volume/Cap:	0.25	0.35	0.35	0.35	0.47	0.37	0.44	0.57	0.57	0.23	0.73	0.73
Delay/Veh:	23.0	23.7	23.7	24.0	24.9	23.9	14.9	20.0	20.0	10.2	21.6	21.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.0	23.7	23.7	24.0	24.9	23.9	14.9	20.0	20.0	10.2	21.6	21.6
LOS by Move:	C	C	C	C	C	C	B	C	C	B	C	C
HCM2kAvgQ:	2	5	5	3	7	4	3	10	10	1	15	15

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2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 34.3 Worst Case Level Of Service: F[1116.7]

Street Name:	Valley View Street									Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	2	1	0	1	0	2	1	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	38	1476		7		19	1942		114		13		0	82		8		1	79	
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00		1.00	1.00	
Initial Bse:	38	1476		7		19	1942		114		13		0	82		8		1	79	
Added Vol:	0	0		0		0	0		0		0		0	0		0		0	0	
PasserByVol:	0	0		0		0	0		0		0		0	0		0		0	0	
Initial Fut:	38	1476		7		19	1942		114		13		0	82		8		1	79	
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00		1.00	1.00	
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95		0.95	0.95		0.95		0.95	0.95	
PHF Volume:	40	1554		7		20	2044		120		14		0	86		8		1	83	
Reduct Vol:	0	0		0		0	0		0		0		0	0		0		0	0	
FinalVolume:	40	1554		7		20	2044		120		14		0	86		8		1	83	
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx			4.1	xxxx	xxxxx			7.5	6.5		6.9		7.5	6.5		6.9	
FollowUpTim:	2.2	xxxx	xxxxx			2.2	xxxx	xxxxx			3.5	4.0		3.3		3.5	4.0		3.3	
Capacity Module:																				
Cnflict Vol:	2164	xxxx	xxxxx			1561	xxxx	xxxxx			2743	3785		741		2359	3842		522	
Potent Cap.:	251	xxxx	xxxxx			429	xxxx	xxxxx			10	4		363		19	4		505	
Move Cap.:	251	xxxx	xxxxx			429	xxxx	xxxxx			5	3		363		12	3		505	
Volume/Cap:	0.16	xxxx	xxxx			0.05	xxxx	xxxx			2.69	0.00		0.24		0.68	0.35		0.16	
Level Of Service Module:																				
2Way95thQ:	0.6	xxxx	xxxxx			0.1	xxxx	xxxxx			xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	22.1	xxxx	xxxxx			13.8	xxxx	xxxxx			xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	C	*		*		B	*		*		*	*		*		*	*		*	
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx		34	xxxxx		xxxx		78	xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		11.5	xxxxx		xxxxx		6.9	xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		1117	xxxxx		xxxxx		256	xxxxx	
Shared LOS:	*	*		*		*	*		*		*		F	*		*		F	*	
ApproachDel:	xxxxxx					xxxxxx					1116.7					256.4				
ApproachLOS:	*					*					F					F				

Note: Queue reported is the number of cars per lane.

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HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #7 Brenda Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.101
Loss Time (sec):	0	Average Delay (sec/veh):	7.3
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Brenda Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0	0 0	0 0	1!	0 0	0 1	0	0 0	0 0	0	1 0
Volume Module:												
Base Vol:	0	0	0	26	0	5	1	17	0	0	76	12
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	26	0	5	1	17	0	0	76	12
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	26	0	5	1	17	0	0	76	12
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	27	0	5	1	18	0	0	80	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	27	0	5	1	18	0	0	80	13
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	27	0	5	1	18	0	0	80	13
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.84	0.00	0.16	0.06	0.94	0.00	0.00	0.86	0.14
Final Sat.:	0	0	0	705	0	135	49	827	0	0	790	125
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.04	xxxx	0.04	0.02	0.02	xxxx	xxxx	0.10	0.10
Crit Moves:				****				****			****	
Delay/Veh:	0.0	0.0	0.0	7.4	0.0	7.4	7.2	7.2	0.0	0.0	7.3	7.3
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.4	0.0	7.4	7.2	7.2	0.0	0.0	7.3	7.3
LOS by Move:	*	*	*	A	*	A	A	A	*	*	A	A
ApproachDel:	xxxxxx				7.4			7.2			7.3	
Delay Adj:	xxxxx				1.00			1.00			1.00	
ApprAdjDel:	xxxxxx				7.4			7.2			7.3	
LOS by Appr:	*				A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1

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AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Bernadette Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.042
Loss Time (sec):	0	Average Delay (sec/veh):	7.1
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Bernadette Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	9	10	4	7	23	5	7	6	10	7	22	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	9	10	4	7	23	5	7	6	10	7	22	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	9	10	4	7	23	5	7	6	10	7	22	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	9	11	4	7	24	5	7	6	11	7	23	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	9	11	4	7	24	5	7	6	11	7	23	7
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	9	11	4	7	24	5	7	6	11	7	23	7
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.39	0.44	0.17	0.20	0.66	0.14	0.30	0.26	0.44	0.19	0.62	0.19
Final Sat.:	344	382	153	177	582	127	279	239	399	174	546	174
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.04	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.04
Crit Moves:		****			****			****			****	
Delay/Veh:	7.1	7.1	7.1	7.2	7.2	7.2	7.0	7.0	7.0	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.1	7.1	7.1	7.2	7.2	7.2	7.0	7.0	7.0	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.1			7.2			7.0			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.1			7.2			7.0			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	135	Critical Vol./Cap.(X):	0.892
Loss Time (sec):	16	Average Delay (sec/veh):	49.2
Optimal Cycle:	133	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2	1 0	2 0	2 0	1	2 0	1	1 0
Volume Module:												
Base Vol:	291	1976	189	215	1339	243	261	767	170	203	621	136
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	291	1976	189	215	1339	243	261	767	170	203	621	136
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	291	1976	189	215	1339	243	261	767	170	203	621	136
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	306	2080	199	226	1409	256	275	807	179	214	654	143
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	306	2080	199	226	1409	256	275	807	179	214	654	143
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	306	2080	199	226	1409	256	275	807	179	214	654	143
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.54	0.46	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3432	5083	1583	3432	4203	763	3432	3538	1583	3432	2824	618
Capacity Analysis Module:												
Vol/Sat:	0.09	0.41	0.13	0.07	0.34	0.34	0.08	0.23	0.11	0.06	0.23	0.23
Crit Moves:		****		****			****				****	
Green/Cycle:	0.11	0.45	0.45	0.07	0.41	0.41	0.09	0.29	0.29	0.07	0.27	0.27
Volume/Cap:	0.82	0.91	0.28	0.91	0.82	0.82	0.91	0.77	0.38	0.93	0.84	0.84
Delay/Veh:	71.9	41.1	23.8	97.2	38.0	38.0	91.7	47.2	38.4	103.1	53.4	53.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	71.9	41.1	23.8	97.2	38.0	38.0	91.7	47.2	38.4	103.1	53.4	53.4
LOS by Move:	E	D	C	F	D	D	F	D	D	F	D	D
HCM2kAvgQ:	9	33	5	8	24	24	9	17	6	7	19	19

PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

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Intersection #2 Brenda Avenue at Ball Road

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Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C[23.3]

****

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	1	0	1 0 2	0	0
Volume Module:												
Base Vol:	21	0	16	0	0	0	0	1168	46	15	981	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	0	16	0	0	0	0	1168	46	15	981	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	21	0	16	0	0	0	0	1168	46	15	981	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	22	0	17	0	0	0	0	1229	48	16	1033	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	22	0	17	0	0	0	0	1229	48	16	1033	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1802	2318	639	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1278	xxxx	xxxxx
Potent Cap.:	73	38	424	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	550	xxxx	xxxxx
Move Cap.:	71	37	424	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	550	xxxx	xxxxx
Total Cap:	176	139	xxxxx	162	132	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.13	0.00	0.04	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.7	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	235	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	23.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		23.3			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

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Note: Queue reported is the number of cars per lane.

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PM Cum Plus Project
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HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	140	Critical Vol./Cap.(X):	0.414
Loss Time (sec):	12	Average Delay (sec/veh):	18.2
Optimal Cycle:	68	Level Of Service:	B

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	6	6	29	29	29	6	18	18	6	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	11	1	9	32	2	62	101	1084	19	15	900	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	1	9	32	2	62	101	1084	19	15	900	56
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	1	9	32	2	62	101	1084	19	15	900	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	12	1	9	34	2	65	106	1141	20	16	947	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	1	9	34	2	65	106	1141	20	16	947	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	12	1	9	34	2	65	106	1141	20	16	947	59
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.84	0.84	0.85	0.78	0.78	0.85	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.92	0.08	1.00	0.94	0.06	1.00	1.00	1.97	0.03	1.00	1.88	0.12
Final Sat.:	1470	134	1615	1386	87	1615	1769	3466	61	1769	3301	205
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.02	0.02	0.04	0.06	0.33	0.33	0.01	0.29	0.29
Crit Moves:						****		****		****		
Green/Cycle:	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.66	0.66	0.04	0.58	0.58
Volume/Cap:	0.04	0.04	0.03	0.12	0.12	0.20	0.49	0.50	0.50	0.21	0.49	0.49
Delay/Veh:	44.4	44.4	44.3	45.3	45.3	46.1	59.1	11.9	11.9	66.1	17.1	17.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.4	44.4	44.3	45.3	45.3	46.1	59.1	11.9	11.9	66.1	17.1	17.1
LOS by Move:	D	D	D	D	D	D	E	B	B	E	B	B
HCM2kAvgQ:	0	0	0	1	1	2	5	13	13	1	13	13

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PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 2.9 Worst Case Level Of Service: F[102.3]

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	19	2	17	11	5	4	24	1097	35	26	938	13
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	19	2	17	11	5	4	24	1097	35	26	938	13
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	19	2	17	11	5	4	24	1097	35	26	938	13
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	20	2	18	12	5	4	25	1155	37	27	987	14
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	20	2	18	12	5	4	25	1155	37	27	987	14
Critical Gap Module:												
Critical Gp:	7.5	6.5	6.9	7.5	6.5	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1775	2279	596	1678	2291	501	1001	xxxx	xxxxx	1192	xxxx	xxxxx
Potent Cap.:	54	40	452	63	40	521	700	xxxx	xxxxx	593	xxxx	xxxxx
Move Cap.:	44	37	452	55	37	521	700	xxxx	xxxxx	593	xxxx	xxxxx
Volume/Cap:	0.45	0.06	0.04	0.21	0.14	0.01	0.04	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	10.3	xxxx	xxxxx	11.4	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	B	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	73	xxxxx	xxxx	58	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	2.3	xxxxx	xxxxx	1.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	102	xxxxx	xxxxx	99.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	F	*	*	*	*	*	*	*
ApproachDel:	102.3			99.4			xxxxxx			xxxxxx		
ApproachLOS:	F			F			*			*		

Note: Queue reported is the number of cars per lane.

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PM Cum Plus Project
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HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	80	Critical Vol./Cap.(X):	0.985
Loss Time (sec):	12	Average Delay (sec/veh):	21.4
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0		1 0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	73	322	31	59	138	117	182	847	61	32	774	85
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	73	322	31	59	138	117	182	847	61	32	774	85
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	73	322	31	59	138	117	182	847	61	32	774	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	77	339	33	62	145	123	192	892	64	34	815	89
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	339	33	62	145	123	192	892	64	34	815	89
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	77	339	33	62	145	123	192	892	64	34	815	89
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.64	0.99	0.99	0.34	1.00	0.85	0.93	0.92	0.92	0.93	0.92	0.92
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.87	0.13	1.00	1.80	0.20
Final Sat.:	1222	1711	165	652	1900	1615	1769	3267	235	1769	3140	345
Capacity Analysis Module:												
Vol/Sat:	0.06	0.20	0.20	0.10	0.08	0.08	0.11	0.27	0.27	0.02	0.26	0.26
Crit Moves:		****					****				****	
Green/Cycle:	0.34	0.34	0.34	0.34	0.34	0.34	0.56	0.40	0.40	0.47	0.36	0.36
Volume/Cap:	0.19	0.59	0.59	0.28	0.23	0.23	0.51	0.68	0.68	0.11	0.72	0.72
Delay/Veh:	19.0	23.3	23.3	20.1	19.2	19.2	12.9	21.0	21.0	12.4	24.0	24.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.0	23.3	23.3	20.1	19.2	19.2	12.9	21.0	21.0	12.4	24.0	24.0
LOS by Move:	B	C	C	C	B	B	B	C	C	B	C	C
HCM2kAvgQ:	1	8	8	1	3	2	4	11	11	1	11	11

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PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

****

Intersection #6 Valley View Street at Belle Avenue

****

Average Delay (sec/veh): 56.9 Worst Case Level Of Service: F[2547.4]

****

Street Name:	Valley View Street									Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	2	1	0	1	0	2	1	0	0	0	1!	0	0	0	0	1!	0	0
Volume Module:																				
Base Vol:	53	2339		24		24	1591		69		14		1		61	4		0		52
Growth Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	53	2339		24		24	1591		69		14		1		61	4		0		52
Added Vol:	0	0		0		0	0		0		0		0		0	0		0		0
PasserByVol:	0	0		0		0	0		0		0		0		0	0		0		0
Initial Fut:	53	2339		24		24	1591		69		14		1		61	4		0		52
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95	0.95		0.95		0.95	0.95		0.95		0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	56	2462		25		25	1675		73		15		1		64	4		0		55
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
FinalVolume:	56	2462		25		25	1675		73		15		1		64	4		0		55
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx			4.1	xxxx	xxxxx			7.5	6.5		6.9		7.5	6.5		6.9	
FollowUpTim:	2.2	xxxx	xxxxx			2.2	xxxx	xxxxx			3.5	4.0		3.3		3.5	4.0		3.3	
Capacity Module:																				
Cnflict Vol:	1747	xxxx	xxxxx			2487	xxxx	xxxxx			2694	4361		595		3196	4384		833	
Potent Cap.:	364	xxxx	xxxxx			187	xxxx	xxxxx			11	2		453		4	2		316	
Move Cap.:	364	xxxx	xxxxx			187	xxxx	xxxxx			7	1		453		1	1		316	
Volume/Cap:	0.15	xxxx	xxxx			0.13	xxxx	xxxx			2.12	0.86		0.14		5.03	0.00		0.17	
Level Of Service Module:																				
2Way95thQ:	0.5	xxxx	xxxxx			0.5	xxxx	xxxxx			xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
Control Del:	16.7	xxxx	xxxxx			27.2	xxxx	xxxxx			xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
LOS by Move:	C	*		*		D	*		*		*		*		*	*		*		*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx		26		xxxxx	xxxx		11		xxxxx
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		9.8		xxxxx	xxxxx		8.5		xxxxx
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx		1273		xxxxx	xxxxx		2547		xxxxx
Shared LOS:	*	*		*		*	*		*		*		F		*	*		F		*
ApproachDel:	xxxxxx					xxxxxx					1272.5					2547.4				
ApproachLOS:	*					*					F					F				

****

Note: Queue reported is the number of cars per lane.

****

PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #7 Brenda Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.066
Loss Time (sec):	0	Average Delay (sec/veh):	7.2
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Brenda Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	0	0 0	0	0 1!	0 0	0 1	0	0 0	0	0 1	0
Volume Module:												
Base Vol:	0	0	0	20	0	22	13	29	0	0	47	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	20	0	22	13	29	0	0	47	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	20	0	22	13	29	0	0	47	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	0	21	0	23	14	31	0	0	49	11
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	21	0	23	14	31	0	0	49	11
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	21	0	23	14	31	0	0	49	11
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	0.47	0.01	0.52	0.31	0.69	0.00	0.00	0.82	0.18
Final Sat.:	0	0	0	431	0	474	269	599	0	0	748	159
Capacity Analysis Module:												
Vol/Sat:	xxxx	xxxx	xxxx	0.05	0.00	0.05	0.05	0.05	xxxx	xxxx	0.07	0.07
Crit Moves:				****				****				****
Delay/Veh:	0.0	0.0	0.0	7.1	7.1	7.1	7.3	7.3	0.0	0.0	7.2	7.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	0.0	0.0	7.1	7.1	7.1	7.3	7.3	0.0	0.0	7.2	7.2
LOS by Move:	*	*	*	A	A	A	A	A	*	*	A	A
ApproachDel:	xxxxxx				7.1			7.3			7.2	
Delay Adj:	xxxxx				1.00			1.00			1.00	
ApprAdjDel:	xxxxxx				7.1			7.3			7.2	
LOS by Appr:	*				A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1

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PM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #8 Bernadette Avenue at Belle Avenue

Cycle (sec):	100	Critical Vol./Cap.(X):	0.060
Loss Time (sec):	0	Average Delay (sec/veh):	7.2
Optimal Cycle:	0	Level Of Service:	A

Street Name:	Bernadette Avenue						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0	0 0	1!	0 0
Volume Module:												
Base Vol:	5	11	7	22	23	5	11	14	6	5	15	8
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	5	11	7	22	23	5	11	14	6	5	15	8
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	5	11	7	22	23	5	11	14	6	5	15	8
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	5	12	7	23	24	5	12	15	6	5	16	8
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	5	12	7	23	24	5	12	15	6	5	16	8
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	5	12	7	23	24	5	12	15	6	5	16	8
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.22	0.48	0.30	0.44	0.46	0.10	0.35	0.46	0.19	0.18	0.53	0.29
Final Sat.:	195	430	274	383	400	87	310	395	169	160	479	255
Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.03	0.06	0.06	0.06	0.04	0.04	0.04	0.03	0.03	0.03
Crit Moves:	****					****		****				****
Delay/Veh:	7.0	7.0	7.0	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	7.0	7.0	7.0	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1
LOS by Move:	A	A	A	A	A	A	A	A	A	A	A	A
ApproachDel:		7.0			7.3			7.2			7.1	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		7.0			7.3			7.2			7.1	
LOS by Appr:		A			A			A			A	
AllWayAvgQ:	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0

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AM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Valley View Street at Ball Road

Cycle (sec):	135	Critical Vol./Cap.(X):	0.882
Loss Time (sec):	16	Average Delay (sec/veh):	53.4
Optimal Cycle:	127	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	240	1338	80	158	1662	263	255	657	171	329	741	163
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	240	1338	80	158	1662	263	255	657	171	329	741	163
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	240	1338	80	158	1662	263	255	657	171	329	741	163
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	253	1408	84	166	1749	277	268	692	180	346	780	172
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	253	1408	84	166	1749	277	268	692	180	346	780	172
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	253	1408	84	166	1749	277	268	692	180	346	780	172
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.59	0.41	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3432	5083	1583	3432	4297	680	3432	3538	1583	3432	2822	621
Capacity Analysis Module:												
Vol/Sat:	0.07	0.28	0.05	0.05	0.41	0.41	0.08	0.20	0.11	0.10	0.28	0.28
Crit Moves:	****				****			****		****		
Green/Cycle:	0.08	0.43	0.43	0.07	0.43	0.43	0.08	0.27	0.27	0.11	0.30	0.30
Volume/Cap:	0.96	0.65	0.12	0.65	0.96	0.96	0.93	0.71	0.41	0.96	0.93	0.93
Delay/Veh:	105.8	31.3	23.5	66.4	48.9	48.9	97.5	46.7	40.8	96.3	61.3	61.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	105.8	31.3	23.5	66.4	48.9	48.9	97.5	46.7	40.8	96.3	61.3	61.3
LOS by Move:	F	C	C	E	D	D	F	D	D	F	E	E
HCM2kAvgQ:	9	17	2	5	35	35	9	15	6	11	24	24

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AM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: C[15.4]

Street Name:	Brenda Avenue									Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Stop Sign					Stop Sign					Uncontrolled					Uncontrolled				
Rights:	Include					Include					Include					Include				
Lanes:	0	0	1!	0	0	0	0	0	0	0	0	0	1	1	0	1	0	2	0	0
Volume Module:																				
Base Vol:	8	0	16	0	0	0	0	857	22	9	1275	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	0	16	0	0	0	0	857	22	9	1275	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	8	0	16	0	0	0	0	857	22	9	1275	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	8	0	17	0	0	0	0	902	23	9	1342	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	8	0	17	0	0	0	0	902	23	9	1342	0
Critical Gap Module:																				
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:																				
Cnflict Vol:	1604	2275	463	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	925	xxxx	xxxxx
Potent Cap.:	98	41	551	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	747	xxxx	xxxxx
Move Cap.:	97	40	551	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	747	xxxx	xxxxx
Total Cap:	226	139	xxxxx	125	137	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.04	0.00	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:																				
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.9	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	373	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:	15.4	xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	C	*	*	*

Note: Queue reported is the number of cars per lane.

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AM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	125	Critical Vol./Cap.(X):	0.555
Loss Time (sec):	12	Average Delay (sec/veh):	20.0
Optimal Cycle:	68	Level Of Service:	C

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	6	6	29	29	29	6	18	18	6	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	1	0	0	1	0	1	0	1	1	0	1	0	1	1	0
Volume Module:												
Base Vol:	17	2	13	112	1	140	59	792	6	5	1115	133
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	17	2	13	112	1	140	59	792	6	5	1115	133
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	17	2	13	112	1	140	59	792	6	5	1115	133
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	18	2	14	118	1	147	62	834	6	5	1174	140
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	2	14	118	1	147	62	834	6	5	1174	140
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	18	2	14	118	1	147	62	834	6	5	1174	140
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.79	0.79	0.85	0.70	0.70	0.85	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.89	0.11	1.00	0.99	0.01	1.00	1.00	1.98	0.02	1.00	1.79	0.21
Final Sat.:	1348	159	1615	1320	12	1615	1769	3508	27	1769	3110	371
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.09	0.09	0.09	0.04	0.24	0.24	0.00	0.38	0.38
Crit Moves:					****		****				****	
Green/Cycle:	0.23	0.23	0.23	0.23	0.23	0.23	0.06	0.56	0.56	0.11	0.61	0.61
Volume/Cap:	0.06	0.06	0.04	0.38	0.38	0.39	0.61	0.43	0.43	0.03	0.61	0.61
Delay/Veh:	37.4	37.4	37.2	41.3	41.3	41.2	68.3	16.1	16.1	49.4	15.4	15.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	37.4	37.4	37.2	41.3	41.3	41.2	68.3	16.1	16.1	49.4	15.4	15.4
LOS by Move:	D	D	D	D	D	D	E	B	B	D	B	B
HCM2kAvgQ:	1	1	0	4	4	5	3	10	10	0	16	16

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2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B[13.7]

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 1			0 0 0 0 1			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	0	0	32	0	0	5	5	885	23	9	1216	7
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	32	0	0	5	5	885	23	9	1216	7
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	32	0	0	5	5	885	23	9	1216	7
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	34	0	0	5	5	932	24	9	1280	7
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	34	0	0	5	5	932	24	9	1280	7
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	478	xxxx	xxxx	644	1287	xxxx	xxxxx	956	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	539	xxxx	xxxx	421	546	xxxx	xxxxx	727	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	539	xxxx	xxxx	421	546	xxxx	xxxxx	727	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	0.06	xxxx	xxxx	0.01	0.01	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	0.2	xxxx	xxxx	0.0	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	12.1	xxxxx	xxxx	13.7	11.7	xxxx	xxxxx	10.0	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	B	B	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:		12.1			13.7			xxxxxx			xxxxxx	
ApproachLOS:		B			B			*			*	

Note: Queue reported is the number of cars per lane.

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Intersection #5 Holder Street at Ball Road

Cycle (sec):	90	Critical Vol./Cap.(X):	0.984
Loss Time (sec):	12	Average Delay (sec/veh):	21.7
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0	1	0	1	0	1	0	1	1	0	1	0	1	1	0
Volume Module:																	
Base Vol:	63	163	37	108	274	183	124	729	75	83	952	139
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	63	163	37	108	274	183	124	729	75	83	952	139
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	63	163	37	108	274	183	124	729	75	83	952	139
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	66	172	39	114	288	193	131	767	79	87	1002	146
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	66	172	39	114	288	193	131	767	79	87	1002	146
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	66	172	39	114	288	193	131	767	79	87	1002	146
Saturation Flow Module:																	
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.43	0.97	0.97	0.53	1.00	0.85	0.93	0.92	0.92	0.93	0.91	0.91
Lanes:	1.00	0.81	0.19	1.00	1.00	1.00	1.00	1.81	0.19	1.00	1.75	0.25
Final Sat.:	809	1505	342	1009	1900	1615	1769	3163	325	1769	3028	442
Capacity Analysis Module:																	
Vol/Sat:	0.08	0.11	0.11	0.11	0.15	0.12	0.07	0.24	0.24	0.05	0.33	0.33
Crit Moves:					****		****				****	
Green/Cycle:	0.32	0.32	0.32	0.32	0.32	0.32	0.53	0.43	0.43	0.59	0.45	0.45
Volume/Cap:	0.25	0.35	0.35	0.35	0.47	0.37	0.48	0.57	0.57	0.23	0.74	0.74
Delay/Veh:	23.0	23.7	23.7	24.0	24.9	23.9	15.2	20.0	20.0	10.2	22.7	22.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	23.0	23.7	23.7	24.0	24.9	23.9	15.2	20.0	20.0	10.2	22.7	22.7
LOS by Move:	C	C	C	C	C	C	B	C	C	B	C	C
HCM2kAvgQ:	2	5	5	3	7	4	3	10	10	1	15	15

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Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: C[22.2]

Street Name:	Valley View Street									Belle Avenue								
Approach:	North Bound					South Bound				East Bound					West Bound			
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Uncontrolled					Uncontrolled					Stop Sign					Stop Sign				
Rights:	Include					Include					Include					Include				
Lanes:	1	0	2	1	0	1	0	2	1	0	0	0	0	0	1	0	0	0	0	1
Volume Module:																				
Base Vol:	38	1489			7	19	1950			115	0		0		95	0		0		88
Growth Adj:	1.00	1.00			1.00	1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00
Initial Bse:	38	1489			7	19	1950			115	0		0		95	0		0		88
Added Vol:	0	0			0	0	0			0	0		0		0	0		0		0
PasserByVol:	0	0			0	0	0			0	0		0		0	0		0		0
Initial Fut:	38	1489			7	19	1950			115	0		0		95	0		0		88
User Adj:	1.00	1.00			1.00	1.00	1.00			1.00	1.00		1.00		1.00	1.00		1.00		1.00
PHF Adj:	0.95	0.95			0.95	0.95	0.95			0.95	0.95		0.95		0.95	0.95		0.95		0.95
PHF Volume:	40	1567			7	20	2053			121	0		0		100	0		0		93
Reduct Vol:	0	0			0	0	0			0	0		0		0	0		0		0
FinalVolume:	40	1567			7	20	2053			121	0		0		100	0		0		93
Critical Gap Module:																				
Critical Gp:	4.1	xxxx	xxxxx			4.1	xxxx	xxxxx			xxxxx	xxxx			6.9	xxxxx	xxxx			6.9
FollowUpTim:	2.2	xxxx	xxxxx			2.2	xxxx	xxxxx			xxxxx	xxxx			3.3	xxxxx	xxxx			3.3
Capacity Module:																				
Cnflict Vol:	2174	xxxx	xxxxx			1575	xxxx	xxxxx			xxxx	xxxx			745	xxxx	xxxx			526
Potent Cap.:	249	xxxx	xxxxx			424	xxxx	xxxxx			xxxx	xxxx			361	xxxx	xxxx			502
Move Cap.:	249	xxxx	xxxxx			424	xxxx	xxxxx			xxxx	xxxx			361	xxxx	xxxx			502
Volume/Cap:	0.16	xxxx	xxxx			0.05	xxxx	xxxx			xxxx	xxxx			0.28	xxxx	xxxx			0.18
Level Of Service Module:																				
2Way95thQ:	0.6	xxxx	xxxxx			0.1	xxxx	xxxxx			xxxx	xxxx			1.1	xxxx	xxxx			0.7
Control Del:	22.2	xxxx	xxxxx			13.9	xxxx	xxxxx			xxxxx	xxxx			18.7	xxxxx	xxxx			13.8
LOS by Move:	C	*		*		B	*		*		*		*		C	*		*		B
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx		xxxx	xxxx		xxxxx	
SharedQueue:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shrd ConDel:	xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx		xxxxx	xxxx		xxxxx	
Shared LOS:	*	*		*		*	*		*		*		*		*	*		*		*
ApproachDel:	xxxxxx					xxxxxx					18.7					13.8				
ApproachLOS:	*					*					C					B				

Note: Queue reported is the number of cars per lane.

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Intersection #1 Valley View Street at Ball Road

Cycle (sec):	135	Critical Vol./Cap.(X):	0.892
Loss Time (sec):	16	Average Delay (sec/veh):	49.3
Optimal Cycle:	133	Level Of Service:	D

Street Name:	Valley View Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	31	31	6	31	31	6	37	37	6	37	37
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2 0	3 0	1	2 0	2 1	0	2 0	2 0	1	2 0	1 1	0
Volume Module:												
Base Vol:	295	1976	189	215	1339	243	261	767	170	203	621	136
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	295	1976	189	215	1339	243	261	767	170	203	621	136
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	295	1976	189	215	1339	243	261	767	170	203	621	136
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	311	2080	199	226	1409	256	275	807	179	214	654	143
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	311	2080	199	226	1409	256	275	807	179	214	654	143
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	311	2080	199	226	1409	256	275	807	179	214	654	143
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.89	0.83	0.90	0.87	0.87	0.90	0.93	0.83	0.90	0.91	0.91
Lanes:	2.00	3.00	1.00	2.00	2.54	0.46	2.00	2.00	1.00	2.00	1.64	0.36
Final Sat.:	3432	5083	1583	3432	4203	763	3432	3538	1583	3432	2824	618
Capacity Analysis Module:												
Vol/Sat:	0.09	0.41	0.13	0.07	0.34	0.34	0.08	0.23	0.11	0.06	0.23	0.23
Crit Moves:		****		****			****				****	
Green/Cycle:	0.11	0.45	0.45	0.07	0.41	0.41	0.09	0.29	0.29	0.07	0.27	0.27
Volume/Cap:	0.82	0.91	0.28	0.91	0.82	0.82	0.91	0.77	0.38	0.93	0.84	0.84
Delay/Veh:	71.9	41.1	23.8	97.2	38.2	38.2	91.7	47.2	38.4	103.1	53.4	53.4
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	71.9	41.1	23.8	97.2	38.2	38.2	91.7	47.2	38.4	103.1	53.4	53.4
LOS by Move:	E	D	C	F	D	D	F	D	D	F	D	D
HCM2kAvgQ:	9	33	5	8	24	24	9	17	6	7	19	19

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Intersection #2 Brenda Avenue at Ball Road

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: C[23.7]

Street Name:	Brenda Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0 0	0	0	0 0 1	1	0	1 0 2	0	0
Volume Module:												
Base Vol:	21	0	16	0	0	0	0	1184	46	15	997	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	21	0	16	0	0	0	0	1184	46	15	997	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	21	0	16	0	0	0	0	1184	46	15	997	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	22	0	17	0	0	0	0	1246	48	16	1049	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	22	0	17	0	0	0	0	1246	48	16	1049	0
Critical Gap Module:												
Critical Gp:	6.8	6.5	6.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1827	2352	647	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1295	xxxx	xxxxx
Potent Cap.:	70	36	418	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	542	xxxx	xxxxx
Move Cap.:	68	35	418	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	542	xxxx	xxxxx
Total Cap:	172	136	xxxxx	158	129	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Volume/Cap:	0.13	0.00	0.04	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.03	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	11.8	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	B	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	231	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	23.7	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	*	*	*
ApproachDel:		23.7			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Note: Queue reported is the number of cars per lane.

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PM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #3 Juanita Street at Ball Road

Cycle (sec):	140	Critical Vol./Cap.(X):	0.419
Loss Time (sec):	12	Average Delay (sec/veh):	18.2
Optimal Cycle:	68	Level Of Service:	B

Street Name:	Juanita Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	6	6	6	29	29	29	6	18	18	6	21	21
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0 1	0	0 1	0 1	0	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	11	1	9	32	2	62	101	1100	19	15	916	56
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	1	9	32	2	62	101	1100	19	15	916	56
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	1	9	32	2	62	101	1100	19	15	916	56
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	12	1	9	34	2	65	106	1158	20	16	964	59
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	12	1	9	34	2	65	106	1158	20	16	964	59
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	12	1	9	34	2	65	106	1158	20	16	964	59
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.84	0.84	0.85	0.78	0.78	0.85	0.93	0.93	0.93	0.93	0.92	0.92
Lanes:	0.92	0.08	1.00	0.94	0.06	1.00	1.00	1.97	0.03	1.00	1.88	0.12
Final Sat.:	1470	134	1615	1386	87	1615	1769	3467	60	1769	3304	202
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.02	0.02	0.04	0.06	0.33	0.33	0.01	0.29	0.29
Crit Moves:						****		****		****		
Green/Cycle:	0.21	0.21	0.21	0.21	0.21	0.21	0.12	0.66	0.66	0.04	0.59	0.59
Volume/Cap:	0.04	0.04	0.03	0.12	0.12	0.20	0.50	0.50	0.50	0.21	0.50	0.50
Delay/Veh:	44.4	44.4	44.3	45.3	45.3	46.1	59.4	12.0	12.0	66.1	17.1	17.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.4	44.4	44.3	45.3	45.3	46.1	59.4	12.0	12.0	66.1	17.1	17.1
LOS by Move:	D	D	D	D	D	D	E	B	B	E	B	B
HCM2kAvgQ:	0	0	0	1	1	2	5	13	13	1	13	13

PM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 Bernadette Avenue at Ball Road

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[13.9]

Street Name:	Bernadette Avenue						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 1			0 0 0 0 1			1 0 1 1 0			1 0 1 1 0		
Volume Module:												
Base Vol:	0	0	38	0	0	20	24	1108	40	26	957	15
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	38	0	0	20	24	1108	40	26	957	15
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	38	0	0	20	24	1108	40	26	957	15
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	0	40	0	0	21	25	1166	42	27	1007	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	40	0	0	21	25	1166	42	27	1007	16
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	6.9	xxxxx	xxxx	6.9	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	3.3	xxxxx	xxxx	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	604	xxxx	xxxx	512	1023	xxxx	xxxxx	1208	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	446	xxxx	xxxx	513	686	xxxx	xxxxx	584	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	446	xxxx	xxxx	513	686	xxxx	xxxxx	584	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	0.09	xxxx	xxxx	0.04	0.04	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	0.3	xxxx	xxxx	0.1	0.1	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	13.9	xxxxx	xxxx	12.3	10.4	xxxx	xxxxx	11.5	xxxx	xxxxx
LOS by Move:	*	*	B	*	*	B	B	*	*	B	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	13.9			12.3			xxxxxx			xxxxxx		
ApproachLOS:	B			B			*			*		

Note: Queue reported is the number of cars per lane.

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PM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #5 Holder Street at Ball Road

Cycle (sec):	80	Critical Vol./Cap.(X):	0.985
Loss Time (sec):	12	Average Delay (sec/veh):	21.8
Optimal Cycle:	69	Level Of Service:	C

Street Name:	Holder Street						Ball Road					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Permitted			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	27	27	27	29	29	29	6	18	18	6	22	22
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1 0	0	1 0	1 0	1	0 1	1 0	1	1 0	1 0	1	1 0
Volume Module:												
Base Vol:	73	322	31	59	138	117	203	847	61	32	774	85
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	73	322	31	59	138	117	203	847	61	32	774	85
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	73	322	31	59	138	117	203	847	61	32	774	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	77	339	33	62	145	123	214	892	64	34	815	89
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	77	339	33	62	145	123	214	892	64	34	815	89
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	77	339	33	62	145	123	214	892	64	34	815	89
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.64	0.99	0.99	0.34	1.00	0.85	0.93	0.92	0.92	0.93	0.92	0.92
Lanes:	1.00	0.91	0.09	1.00	1.00	1.00	1.00	1.87	0.13	1.00	1.80	0.20
Final Sat.:	1222	1711	165	652	1900	1615	1769	3267	235	1769	3140	345
Capacity Analysis Module:												
Vol/Sat:	0.06	0.20	0.20	0.10	0.08	0.08	0.12	0.27	0.27	0.02	0.26	0.26
Crit Moves:		****					****				****	
Green/Cycle:	0.34	0.34	0.34	0.34	0.34	0.34	0.56	0.40	0.40	0.46	0.35	0.35
Volume/Cap:	0.19	0.59	0.59	0.28	0.23	0.23	0.55	0.68	0.68	0.11	0.74	0.74
Delay/Veh:	19.0	23.3	23.3	20.1	19.2	19.2	13.9	21.0	21.0	12.7	25.3	25.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	19.0	23.3	23.3	20.1	19.2	19.2	13.9	21.0	21.0	12.7	25.3	25.3
LOS by Move:	B	C	C	C	B	B	B	C	C	B	C	C
HCM2kAvgQ:	1	8	8	1	3	2	4	11	11	1	12	12

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PM Cum Plus Project - Mitigation
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #6 Valley View Street at Belle Avenue

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: D[27.6]

Street Name:	Valley View Street						Belle Avenue					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 0	0	1	0 0 0	0	1
Volume Module:												
Base Vol:	53 2353		25	24 1595		69	0 0		76	0 0		56
Growth Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
Initial Bse:	53 2353		25	24 1595		69	0 0		76	0 0		56
Added Vol:	0 0	0	0	0 0	0	0	0 0	0	0	0 0	0	0
PasserByVol:	0 0	0	0	0 0	0	0	0 0	0	0	0 0	0	0
Initial Fut:	53 2353		25	24 1595		69	0 0		76	0 0		56
User Adj:	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00	1.00 1.00	1.00	1.00
PHF Adj:	0.95 0.95	0.95	0.95	0.95 0.95	0.95	0.95	0.95 0.95	0.95	0.95	0.95 0.95	0.95	0.95
PHF Volume:	56 2477		26	25 1679		73	0 0		80	0 0		59
Reduct Vol:	0 0	0	0	0 0	0	0	0 0	0	0	0 0	0	0
FinalVolume:	56 2477		26	25 1679		73	0 0		80	0 0		59
Critical Gap Module:												
Critical Gp:	4.1 xxxx xxxxx			4.1 xxxx xxxxx			xxxxx xxxx		6.9	xxxxx xxxx		6.9
FollowUpTim:	2.2 xxxx xxxxx			2.2 xxxx xxxxx			xxxxx xxxx		3.3	xxxxx xxxx		3.3
Capacity Module:												
Cnflict Vol:	1752 xxxx xxxxx			2503 xxxx xxxxx			xxxx xxxx		596	xxxx xxxx		839
Potent Cap.:	363 xxxx xxxxx			185 xxxx xxxxx			xxxx xxxx		452	xxxx xxxx		313
Move Cap.:	363 xxxx xxxxx			185 xxxx xxxxx			xxxx xxxx		452	xxxx xxxx		313
Volume/Cap:	0.15 xxxx xxxx			0.14 xxxx xxxx			xxxx xxxx		0.18	xxxx xxxx		0.19
Level Of Service Module:												
2Way95thQ:	0.5 xxxx xxxxx			0.5 xxxx xxxxx			xxxx xxxx		0.6	xxxx xxxx		0.7
Control Del:	16.7 xxxx xxxxx			27.6 xxxx xxxxx			xxxxx xxxx		14.7	xxxxx xxxx		19.1
LOS by Move:	C	*	*	D	*	*	*	*	B	*	*	C
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx xxxxx		
SharedQueue:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx		
Shrd ConDel:	xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx		
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			14.7			19.1		
ApproachLOS:	*			*			B			C		

Note: Queue reported is the number of cars per lane.

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APPENDIX G

SIGNAL WARRANT WORKSHEETS

AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 2 Brenda Avenue at Ball Road	??? / ???	No / No
# 4 Bernadette Avenue at Ball Road	??? / ???	No / No
# 6 Valley View Street at Belle Avenue	??? / ???	No / ~~Yes~~ No
# 7 Brenda Avenue at Belle Avenue	???	No
# 8 Bernadette Avenue at Belle Avenue	???	No

A large amount of vehicles turn right

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #2 Brenda Avenue at Ball Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0 0		0 0 0	0 0		0 0 1	1 0		1 0 2	0 0	
Initial Vol:	8	0	16	0	0	0	0	819	21	9	1213	0
ApproachDel:	15.2			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=24]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2086]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #2 Brenda Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0	0	0 0	0	0	0 0	1	1 0	1 0	2	0 0
Initial Vol:	8	0	16	0	0	0	0	819	21	9	1213	0

Major Street Volume: 2062
Minor Approach Volume: 24
Minor Approach Volume Threshold: -45 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Delay Signal Warrant Report

Intersection #4 Bernadette Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Initial Vol:	15	1	16	1	1	3	5	847	21	9	1143	6
ApproachDel:	46.1			42.2			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=32]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2068]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=5]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2068]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #4 Bernadette Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Initial Vol:	15	1	16	1	1	3	5	847	21	9	1143	6

Major Street Volume: 2031
Minor Approach Volume: 32
Minor Approach Volume Threshold: -41 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #6 Valley View Street at Belle Avenue

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 2	1 0		1 0 2	1 0		0 0 1!	0 0		0 0 1!	0 0	
Initial Vol:	37 1400	7		18 1812	111		13	0	80	8	1	77
ApproachDel:	xxxxxx			xxxxxx			883.0			209.0		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=22.8]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=93]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=3564]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=5.0]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=86]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=3564]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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AM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #6 Valley View Street at Belle Avenue

Future Volume Alternative: Peak Hour Warrant ~~Met~~ Not Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	2	1 0	1 0	2	1 0	0 0	1!	0 0	0 0	1!	0 0
Initial Vol:	37	1400	7	18	1812	111	13	0	80	8	1	77

Major Street Volume: 3385
Minor Approach Volume: 93
Minor Approach Volume Threshold: -159 [less than minimum of 75]

large right turns

SIGNAL WARRANT DISCLAIMER
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AM Existing Plus Project
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #7 Brenda Avenue at Belle Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Initial Vol:	0	0	0	25	0	5	1	17	0	0	74	12

Major Street Volume: 104
Minor Approach Volume: 30
Minor Approach Volume Threshold: 823

SIGNAL WARRANT DISCLAIMER
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2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 Bernadette Avenue at Belle Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	9	10	4	7	22	5	7	6	10	7	21	7

Major Street Volume: 58
Minor Approach Volume: 34
Minor Approach Volume Threshold: 979

SIGNAL WARRANT DISCLAIMER
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PM Existing Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 2 Brenda Avenue at Ball Road	??? / ???	No / No
# 4 Bernadette Avenue at Ball Road	??? / ???	No / No
# 6 Valley View Street at Belle Avenue	??? / ???	No / No
# 7 Brenda Avenue at Belle Avenue	???	No
# 8 Bernadette Avenue at Belle Avenue	???	No

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2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #2 Brenda Avenue at Ball Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0 0		0 0	0 0 0		0 0	1 1 0		1 0	2 0 0	
Initial Vol:	20	0	16	0	0	0	0	1114	45	15	927	0
ApproachDel:	22.7			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=36]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2137]
   SUCCEED - Total volume greater than or equal to 650 for intersection
             with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #2 Brenda Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0	0	0 0	0	0	0 0	1	1 0	1 0	2	0 0
Initial Vol:	20	0	16	0	0	0	0	1114	45	15	927	0

Major Street Volume: 2101
Minor Approach Volume: 36
Minor Approach Volume Threshold: -49 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #4 Bernadette Avenue at Ball Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	1 0 1 1 0	1 0 1 1 0
Initial Vol:	18 2 17	11 5 4	23 1045 34	25 885 13
ApproachDel:	90.7	92.4	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.9]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=37]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2082]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.5]
   FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2082]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #4 Bernadette Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0 1	1	0	1 0 1	1	0
Initial Vol:	18	2	17	11	5	4	23	1045	34	25	885	13

Major Street Volume: 2025
Minor Approach Volume: 37
Minor Approach Volume Threshold: -40 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #6 Valley View Street at Belle Avenue

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0	2	1 0	1 0	2	1 0	0 0	1!	0 0	0 0	1!	0 0
Initial Vol:	51	2207	23	23	1469	67	14	1	59	4	0	50
ApproachDel:	xxxxxx			xxxxxx			1002.3			1238.7		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=20.6]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=74]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=3968]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=18.6]
   SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=54]
   FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=3968]
   SUCCEED - Total volume greater than or equal to 800 for intersection
             with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #6 Valley View Street at Belle Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	51 2207		23	23 1469		67	14		59	4		50

Major Street Volume: 3840
Minor Approach Volume: 74
Minor Approach Volume Threshold: -188 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #7 Brenda Avenue at Belle Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Initial Vol:	0	0	0	19	0	21	13	28	0	0	46	10

Major Street Volume: 97
Minor Approach Volume: 40
Minor Approach Volume Threshold: 842

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 Bernadette Avenue at Belle Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	5	11	7	21	22	5	11	14	6	5	15	8

Major Street Volume: 71
Minor Approach Volume: 31
Minor Approach Volume Threshold: 925

SIGNAL WARRANT DISCLAIMER

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AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 2 Brenda Avenue at Ball Road	??? / ???	No / No
# 4 Bernadette Avenue at Ball Road	??? / ???	No / No
# 6 Valley View Street at Belle Avenue	??? / ???	No / ~~Yes~~ No
# 7 Brenda Avenue at Belle Avenue	???	No
# 8 Bernadette Avenue at Belle Avenue	???	No

A large amount of vehicles turn right

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HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #2 Brenda Avenue at Ball Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 1 1 0	1 0 2 0 0
Initial Vol:	8 0 16	0 0 0	0 855 22	9 1273 0
ApproachDel:	15.3	xxxxxx	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=24]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2183]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #2 Brenda Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0	0	0 0	0	0	0 0 1	1	0	1 0 2	0	0
Initial Vol:	8	0	16	0	0	0	0 855		22	9 1273		0

Major Street Volume: 2159
Minor Approach Volume: 24
Minor Approach Volume Threshold: -55 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #4 Bernadette Avenue at Ball Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			1 0 1 1 0			1 0 1 1 0		
Initial Vol:	15	1	16	1	1	3	5	884	22	9	1201	6
ApproachDel:	47.4			43.7			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=32]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2164]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=5]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2164]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER

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2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #4 Bernadette Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0 0		0 0 1!	0 0		1 0 1	1 0		1 0 1	1 0	
Initial Vol:	15	1	16	1	1	3	5	884	22	9	1201	6

Major Street Volume: 2127
Minor Approach Volume: 32
Minor Approach Volume Threshold: -52 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #6 Valley View Street at Belle Avenue

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	38 1476		7	19 1942		114	13	0	82	8	1	79
ApproachDel:	xxxxxx			xxxxxx			1116.7			256.4		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=29.5]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=95]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=3779]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=6.3]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=88]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=3779]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER

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2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #6 Valley View Street at Belle Avenue

Future Volume Alternative: Peak Hour Warrant ~~Met~~ Not Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 2	1 0		1 0 2	1 0		0 0 1!	0 0		0 0 1!	0 0	
Initial Vol:	38 1476		7	19 1942		114	13	0	82	8	1	79

large right turns

Major Street Volume: 3596
Minor Approach Volume: 95
Minor Approach Volume Threshold: -173 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #7 Brenda Avenue at Belle Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Initial Vol:	0	0	0	26	0	5	1	17	0	0	76	12

Major Street Volume: 106
Minor Approach Volume: 31
Minor Approach Volume Threshold: 818

SIGNAL WARRANT DISCLAIMER

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AM Cum Plus Project
2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Volume Signal Warrant Report [Urban]

Intersection #8 Bernadette Avenue at Belle Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	9	10	4	7	23	5	7	6	10	7	22	7

Major Street Volume: 59
Minor Approach Volume: 35
Minor Approach Volume Threshold: 974

SIGNAL WARRANT DISCLAIMER

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HCM Analysis

Signal Warrant Summary Report

Intersection	Base Met [Del / Vol]	Future Met [Del / Vol]
# 2 Brenda Avenue at Ball Road	??? / ???	No / No
# 4 Bernadette Avenue at Ball Road	??? / ???	No / No
# 6 Valley View Street at Belle Avenue	??? / ???	No / ~~Yes~~No
# 7 Brenda Avenue at Belle Avenue	???	No
# 8 Bernadette Avenue at Belle Avenue	???	No

A large amount of vehicles turn right

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2.14.3536.1 Dickerson School Site 67-DU Project, Buena Park
HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #2 Brenda Avenue at Ball Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0	1! 0	0	0 0	0 0	0	0 0	1 1	0	1 0	2 0	0
Initial Vol:	21	0	16	0	0	0	0	1168	46	15	981	0
ApproachDel:	23.3			xxxxxx			xxxxxx			xxxxxx		

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.2]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=37]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=2247]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER

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HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #2 Brenda Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0	0	0 0	0	0	0 0	1	0	1 0	2	0 0
Initial Vol:	21	0	16	0	0	0	0	1168	46	15	981	0

Major Street Volume: 2210
Minor Approach Volume: 37
Minor Approach Volume Threshold: -61 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Delay Signal Warrant Report

****

Intersection #4 Bernadette Avenue at Ball Road

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Uncontrolled	Uncontrolled
Lanes:	0 0 1! 0 0	0 0 1! 0 0	1 0 1 1 0	1 0 1 1 0
Initial Vol:	19 2 17	11 5 4	24 1097 35	26 938 13
ApproachDel:	102.3	99.4	xxxxxx	xxxxxx

Approach[northbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=1.1]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=38]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2191]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[southbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.6]
FAIL - Vehicle-hours less than 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=20]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=2191]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER

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HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #4 Bernadette Avenue at Ball Road

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Lanes:	0 0 1!	0	0	0 0 1!	0	0	1 0	1	1 0	1 0	1	1 0
Initial Vol:	19	2	17	11	5	4	24	1097	35	26	938	13

Major Street Volume: 2133
Minor Approach Volume: 38
Minor Approach Volume Threshold: -52 [less than minimum of 75]

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Delay Signal Warrant Report

Intersection #6 Valley View Street at Belle Avenue

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	53 2339		24	24 1591		69	14	1	61	4	0	52
ApproachDel:	xxxxxx			xxxxxx			1272.5			2547.4		

Approach[eastbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=26.9]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=76]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=4232]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

Approach[westbound][lanes=1][control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=39.6]
SUCCEED - Vehicle-hours greater than or equal to 4 for one lane approach.
Signal Warrant Rule #2: [approach volume=56]
FAIL - Approach volume less than 100 for one lane approach.
Signal Warrant Rule #3: [approach count=4][total volume=4232]
SUCCEED - Total volume greater than or equal to 800 for intersection with four or more approaches.

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Rural]

Intersection #6 Valley View Street at Belle Avenue

Future Volume Alternative: Peak Hour Warrant ~~Met~~ Not Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Lanes:	1 0 2	1	0	1 0 2	1	0	0 0 1!	0	0	0 0 1!	0	0
Initial Vol:	53 2339		24	24 1591		69	14	1	61	4	0	52

Major Street Volume: 4100
Minor Approach Volume: 76
Minor Approach Volume Threshold: -203 [less than minimum of 75]

large right turns

SIGNAL WARRANT DISCLAIMER
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #7 Brenda Avenue at Belle Avenue

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0	0 0	0	0 0	1! 0	0	0 1	0 0	0	0 0	0 1	0
Initial Vol:	0	0	0	20	0	22	13	29	0	0	47	10

Major Street Volume: 99
Minor Approach Volume: 42
Minor Approach Volume Threshold: 836

SIGNAL WARRANT DISCLAIMER

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PM Cum Plus Project
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HCM Analysis

Peak Hour Volume Signal Warrant Report [Urban]

****

Intersection #8 Bernadette Avenue at Belle Avenue

****

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Lanes:	0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0			0 0 1! 0 0		
Initial Vol:	5	11	7	22	23	5	11	14	6	5	15	8

Major Street Volume: 73
Minor Approach Volume: 31
Minor Approach Volume Threshold: 917

SIGNAL WARRANT DISCLAIMER

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