City of Birmingham
A Walkable Community

MEMORANDUM

Engineering Dept.

DATE: **December 8, 2014**

TO: **Joseph A. Valentine, City Manager**

FROM: **Paul T. O'Meara, City Engineer**
Jana Ecker, Planning Director
Mark Clemence, Deputy Chief of Police

SUBJECT: **Multi-Modal Transportation Board**
2015 Projects Update

The Multi-Modal Transportation Board (MMTB) held its first meeting on June 19, 2014. It has met four more times since. The majority of business conducted to date has focused on City road projects scheduled for construction in 2015. The following lists are 2015 projects that the MMTB has discussed this year (the streets with bold type are specifically listed in the Multi-Modal Transportation Master Plan):

Road Reconstruction Projects:
Oak St. – Glenhurst Dr. to Lakepark Dr.
Martin St. – Southfield Rd. to Chester St.
Maryland Blvd. – Southlawn Blvd. to 14 Mile Rd.
Henrietta St. – Northlawn Blvd. to 14 Mile Rd.
Southlawn Blvd. – Bates St. to Pierce St.

Road Resufacing Projects:
Derby Rd. – CN Railroad Bridge to Eton Rd.
Chester St. – Maple Rd. to Martin St.
Mansfield Rd. – Sheffield Rd. to 14 Mile Rd.

As you know, the Master Plan proposed substantial changes to this segment of Oak St. The majority of this report is focused on that project. To begin, a brief discussion is provided relative to the other streets so that a comprehensive set of suggested resolutions can be provided at the end.

2015 Projects Referenced in the Multi-Modal Master Plan

First, all streets planned for work next year will receive updated handicap ramps at each intersection, in accordance with the Americans with Disabilities Act (ADA). Federal standards dictate the design of these improvements, and they are requirements placed on the City regardless of the Master Plan. All can be considered improvements for pedestrians using these corridors.

Other than Oak St., the above sections of Martin St., Chester St., Derby Rd., and Southlawn Blvd. are referenced in the Master Plan:

1. Martin St. & Chester St. – The reconstruction of Martin St. adjacent to the Chester St. Parking Structure is referenced in the MM Master Plan, as well as in the Downtown Birmingham 2016 Plan. Proposed improvements include removal of the parking structure traffic control equipment and lane dividers so that Martin St. can function as a normal two-lane City street on this block. We are currently working on obtaining the necessary right-of-way to make this a reality. Since the adjacent one block of Chester St. is now budgeted for resurfacing, intersection improvements referenced in the Master Plan for the southwest corner of Maple Rd. and Chester St. are also planned. (A separate staff report on this project has been submitted in the "Information Only" section of this Commission agenda.) The MMTB endorsed the pedestrian improvements planned for both of these projects.

2. Derby Rd. – The Master Plan suggests that shared lane markings be added to the entire half mile of Derby Rd. from Adams Rd. to Eton Rd., as a "Phase 1" plan improvement. The City recently installed new bike lanes on N. Eton Rd., which terminate at Derby Rd. It is recommended that shared lane markings be added to the upcoming Derby Rd. resurfacing job, as well as the recently paved segment between Adams Rd. and the railroad bridge. The shared lane markings will provide an important link for bicyclists riding through this part of the City. The Master Plan also has labeled this segment of Derby Rd. as part of a larger Phase 2 neighborhood connector route. The route involves other future road work to the west of Adams Rd. that is not yet scheduled. It is recommended that the MMTB have a complete discussion and prioritize the Phase 2 neighborhood connector routes at a later date. Signs marking the connector route can be added to this segment at the time the City is ready to implement the entire route.

3. Southlawn Blvd. – Two short blocks of this much longer street are being reconstructed in 2015. The Master Plan has identified these two blocks as part of a much longer Phase 2 neighborhood connector route (see attached). Due to its relatively low traffic volumes, the fact that Southlawn Blvd. could be part of a larger bike network will not change the suggested width of the street. (We plan to rebuild the road to match its current width.) Similar to Derby Rd., the entire connector route needs to be reviewed holistically by the MMTB at a later date. Once the City is ready to implement the entire route, signs can be added to this street independent of this project.

2015 Projects Not Referenced in the Multi-Modal Master Plan

The other streets listed have not been identified for any Multi-Modal improvements. All will still receive pedestrian improvements in the form of handicap ramp upgrades. The MMTB endorsed this approach.

Oak St.

The Master Plan provided detailed recommendations for the intersection of Oak St. and Chesterfield Ave., as well as for a new road cross-section from Chesterfield Ave. to Lakepark Rd. Several ideas were identified as having potential at the intersection. For the street segment, the Plan suggested that parking be eliminated on one side (varying down the street from one side to the other), and making room for the installation of bike lanes.

Over the course of several meetings, the MMTB gathered data and commissioned study on the part of the City's transportation engineering consultant, Fleis & Vandenbrink (F&V). On November 20, staff presented a final conceptual plan that was endorsed by the MMTB. A public hearing was held on December 4 to take public comment, and to finalize a recommendation to the City Commission. The final plans as recommended by the MMTB (dated December 8, 2014), are attached to this report for your reference. The following briefly describes the steps taken by the MMTB in arriving at this conclusion, broken down by the various segments:

a. Lakepark Dr. to Chesterfield Ave.

If bike lanes were introduced on this corridor, the street would have to have been widened (which the right-of-way could not support), or parking would have to be reduced or eliminated. The author of the Master Plan had observed that demand for parking on this corridor seemed low most of the time. Without the ability to spend much time probing the issue deeper, he recommended that parking on one side be eliminated, with the center travel lanes weaving back and forth a total of three times in six blocks.

In early September, with help from the Board, an internet based survey was put together, and all residents with frontage on Oak St. were invited to answer questions designed to ascertain their interest in maintaining parking on Oak St. The results of the survey were reviewed in early October. Between the two study segments, 67% and 83% of those surveyed stated that parking on Oak St. was important to them. However, discussions with those present at the October 2 MMTB meeting found more support in general for its removal. It became clear that the survey may have been over-represented by a group that did not want to see the road changed, and it was deemed unreliable.

The parking lane transitions as depicted in the Master Plan were not designed with American Assoc. of State Highway and Transportation Officials (AASHTO) standards in mind. The transitions, in fact, would have to extend to about half of each block, eliminating parking for each half block as a part of the transition. Further discussions with the public led the Board to believe that the demand for parking was strongest near Quarton Elementary School, and tended to be a lot lower as one moved further east. The ultimate recommendation for parking on this segment reflected both the desire to narrow the street as much as possible (typically with no parking allowed), while acknowledging the need for parking closer to the school. The final recommendation below reflects that fact. As shown on the attached plans, bike lanes are provided throughout. Parking is provided on the south side between Chesterfield Ave. and Suffield Ave. Between Suffield Ave. and Lakepark Dr., a narrower (30 ft.) wide road without parking is recommended. The new street will be reduced in width by 25%, encouraging slower speeds.

Finally, since there is a long downgrade in both directions of Oak St. at the Rouge River, a traffic island (similar in design to those recently installed on Lincoln Ave.) is proposed on the west side of the Lakepark Dr. intersection. The traffic island will create a visual obstruction seen well in advance coming from both directions, encouraging motorists to check their speeds as they proceed down the hill. The island will also improve crossing for pedestrians headed for the park at Quarton Lake.

b. <u>Chesterfield Ave. to Glenhurst Dr.</u>

For many years, Quarton Elementary School has operated a student loading zone (to and from parents' vehicles) on Oak St. itself, at the north face of the school. From past experience, staff knew that this operation was problematic and worthy of improvements, if possible (the Master Plan did not make any recommendations in this area). Serious study of this area could not begin until school reconvened in September, and until the City's transportation engineering consultant had been engaged.

F&V was directed to study the current student loading facilities, as well as the operation of the traffic signal at Chesterfield Ave. After collecting data, F&V recommended that the road reconstruction represented an important opportunity to fix the current situation. The current student loading area is undersized and poorly executed. Due to the current situation, some parents are inclined to use other areas to drop off students, such as the north side of Oak St., parts of Chesterfield Ave., or Oak St. east of Chesterfield Ave. Motorists and pedestrians arriving from various locations and angles can create an uncertain environment where people are arriving from too many directions. The current situation is a liability problem for the City, and it should not be ignored.

Staff and F&V met with school staff on this topic at least three times. Based on their current position, and knowing what has happened historically, it does not appear that the school has sufficient land area to move the student loading area on to school property. Given this limitation and after further study, and after receiving input from F&V, the attached design was prepared and presented to the MMTB, as well as the to the Birmingham Board of Education.

The design as presented offers several benefits:

- By narrowing Oak St., and sharing the remaining space between the street and the north face of the school, enough room exists to build a separated, two lane parent drop off/pick up area, as well as a wide sidewalk adjacent.
- Removing the loading activities from the main street separates this activity from all through traffic attempting to pass through on Oak St.
- The length of the loading area as shown would be approximately doubled in length, using the entire Oak St. frontage of the school property. Design manuals suggest that the length of the loading area is needed given the current demand for parents to access the school each day. The area will work as designed if parents are encouraged to:
    1. Use the right lane to stop and unload or load, using the full length of the lane (not waiting to move up to the front door, as is often done now.) The right lane should NOT be treated as a parking or standing area during the beginning and end of the school day.
    2. Use the left lane for travel through the area, and to not allow students to exit vehicles from this lane.
    3. Turn right only when exiting this area, to reduce back ups in the loading zone (parents would be allowed to enter the loading zone lanes from either the west or east, an improvement over the current design).
    4. During the middle of the day, when school is in session, but traffic demand is low, visitors to the school could use the right lane for short term parking.

5. Staff using the on-site parking lot would be required to use the two new lanes to enter and exit the lot. Since school staff closes all traffic from the lot during peak traffic times, this will not be a problem.

- The new design, coupled with suggested efficiencies to be gained at the Chesterfield Ave. intersection (below) would make this area more desirable for parents, thereby reducing the temptation to find other areas to drop off children (making the whole operation safer).

The construction of this concept requires approval of the Birmingham Board of Education. It was presented to the Board (through staff) in November. The attached letter from Superintendent Nerad dated today confirms that no decision will be made on this item in the short time frame needed for 2015 construction. Since this block is at one end of the project limits, the City still has a viable project for 2015 if it is removed at this time. Glenhurst Dr. to the north of Oak St. is proposed for reconstruction in 2018, so the work can be postponed until then. The recommendation below includes the Chesterfield Ave. intersection, as well as the rest of the project easterly to Lakepark Dr. We will continue to assist the Board of Education and the School District staff as they work through this proposal, with the idea that both the school and the City can arrive at a reasonable compromise well in time for construction in 2018.

c. Glenhurst Dr. to West City Limit

The concept plan recently prepared depicts new pavement markings to the west City limit for the inclusion of bike lanes. Now that the block in front of the school is not being constructed, we do not recommend any changes to this area at this time. The plan helps provide a guide of what could be done in the future once the block in front of the school is rebuilt.

d. Chesterfield Ave. Intersection

As noted above, the Master Plan studied this intersection and offered suggestions for the future. Recommendations were quite varied, ranging from the installation of a roundabout, to modifying the timing of the existing signal, to removing the signal. No firm conclusion was reached because there were not sufficient resources in the Master Plan budget to complete the amount of study needed. To pick up where the Master Plan left off, F&V was directed to study the current functioning of the intersection, and make recommendations for the future.

After collecting both vehicular and pedestrian counts, as well as field observations, F&V determined that, based on current traffic volumes, a traffic signal is not warranted at this location, nor is 4-way STOP control. It is recommended that the traffic signal be removed, and that a 2-way STOP (for Chesterfield Ave.) replace it, supplemented by two Rectangular Rapid Flashing Beacons (RRFBs) for pedestrian traffic crossing Oak St. At their meeting of November 20, F&V provided detailed information to the MMTB as to the various conditions that need to be present to make the signal (or 4-way STOP) the preferred method of traffic control here. Simulated traffic analysis software also was presented to demonstrate how the intersection works currently, as well as how it would work as either a 4-way or 2-way STOP. F&V will be present and ready to provide this information to the City Commission during the December 15 meeting as well. The basis of the recommendation can be summarized as follows:

- Traffic volumes on Oak St. are low enough (even during school peak periods) that sufficient gaps exist for pedestrians to comfortably cross this street.
- Removing the need to stop the flow of traffic on Oak St. (with each traffic signal cycle) creates efficiencies that do not currently exist:
    1. Eastbound traffic exiting the parent loading zone can leave the area with less wait time, which makes its use more desirable to the public, and in turn makes the need to use other areas (that are not as safe) less desirable.
    2. In the past, motorists were allowed to make left and right turns on to Chesterfield Ave. during school peak periods. Left turning vehicles had to wait for oncoming traffic to clear, while both left and right turning vehicles had to wait for pedestrians to clear the crosswalks. While they were waiting to do so, all through traffic on Oak St. was stopped, causing waiting vehicle lines that backed cars westward into the parent loading zone. The school asked the City to implement a unique "NO TURNS" ban for half hour periods during peak traffic periods, which reduces this problem. Instead, though, it forces traffic to select other streets further east to turn north or south, thereby increasing total miles driven in the neighborhood. By allowing most Oak St. vehicles to not stop at this intersection (except when pedestrians are crossing), the NO TURNS ban can be removed, and motorists can again drive to their next destination in a more efficient manner.

As part of the review of the warrants, F&V demonstrated that sufficient pedestrian demand exists to warrant the RRFB signs. The flashing beacons can be activated by any pedestrians at any time of day. While the signs do not require Oak St. traffic to stop, we expect that many motorists will stop. The crossing guard would remain at this location, as well, to assist students when walking to and from the school.

During the public hearing held on December 4, some residents raised objections to the removal of the traffic signal. However, having studied in detail as to the reasoning for this recommendation, the MMTB members remained convinced that removal of the signal is the best approach for this intersection.

Summary

Presented below are two resolutions for the consideration of the Commission. Resolution A confirms the direction given to the Engineering Dept. relative to the design of all of the 2015 streets other than Oak St.

Resolution B endorses the conceptual plans for the Oak St. project, from the Chesterfield Ave. intersection, east throught the Lakepark Dr. intersection.

SUGGESTED RESOLUTION A:

To endorse the Multi-Modal Transportation Board's review of the following 2015 construction projects as they relate to the Multi-Modal Transportation Master Plan:

Maryland Blvd. – Southlawn Blvd. to 14 Mile Rd.
Henrietta St. – Northlawn Blvd. to 14 Mile Rd.

Southlawn Blvd. – Bates St. to Pierce St.
Martin St. – Southfield Rd. to Chester St.
Mansfield Rd. – Sheffield Rd. to 14 Mile Rd.
Chester St. – Maple Rd. to Martin St.
Derby Rd. – CN Railroad Bridge to Eton Rd.

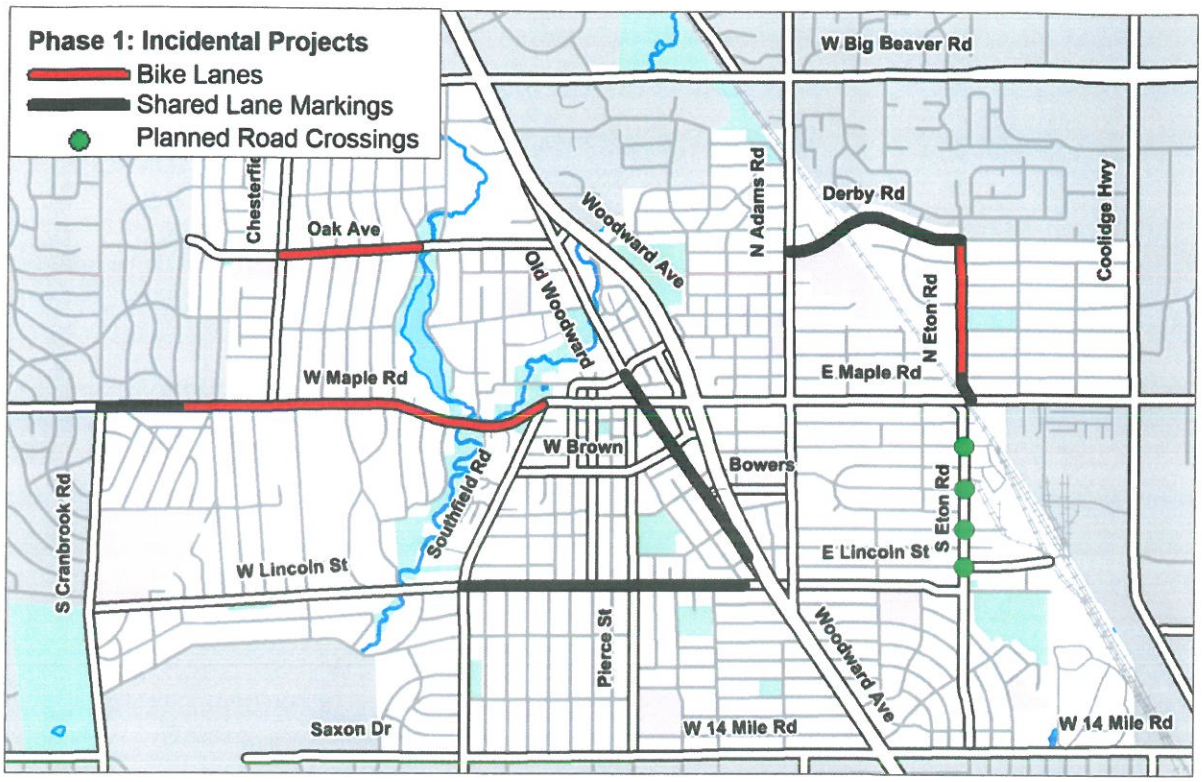
And to direct the Engineering Dept. to proceed with these designs as described.

SUGGESTED RESOLUTION B:

To accept the recommended conceptual plans presented by the Multi-Modal Transportation Board, dated December 8, 2014, directing the Engineering Dept. to proceed with the design of Oak St. from Chesterfield Ave. to Lakepark Dr. Further, to direct staff to continue to work with the Board of Education and the School District staff toward finalizing a workable redesign of Oak St. in front of Quarton Elementary School, for further review by the Multi-Modal Transportation Board, and for future construction tentatively planned for 2018.

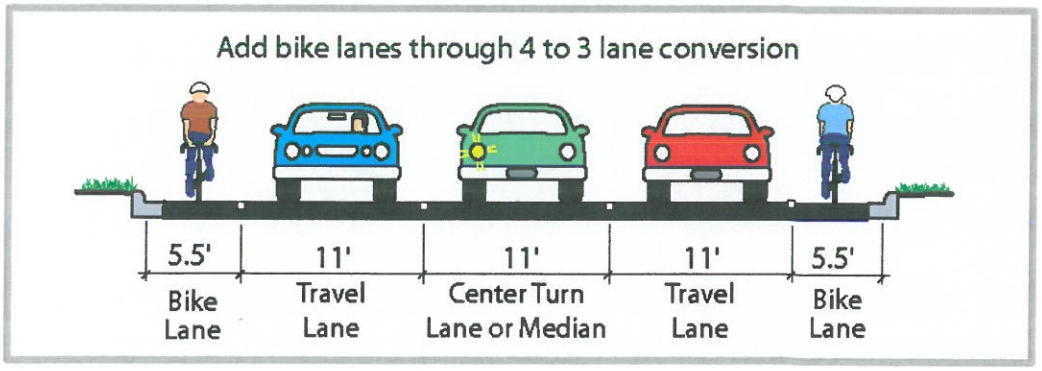
PHASE 1: INCIDENTAL PROJECTS

The following is a list of projects that could be implemented as part of the City's Capital Improvement Plan (CIP) with incidental costs.



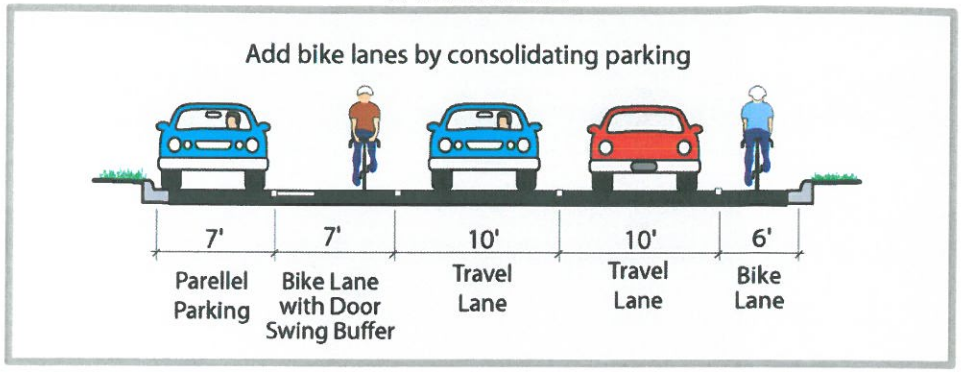
Add bike lanes to W Maple Road between Waddington Street and Southfield Road through a four-lane to three-lane conversion as part of the 2015 road resurfacing project.

W MAPLE ROAD

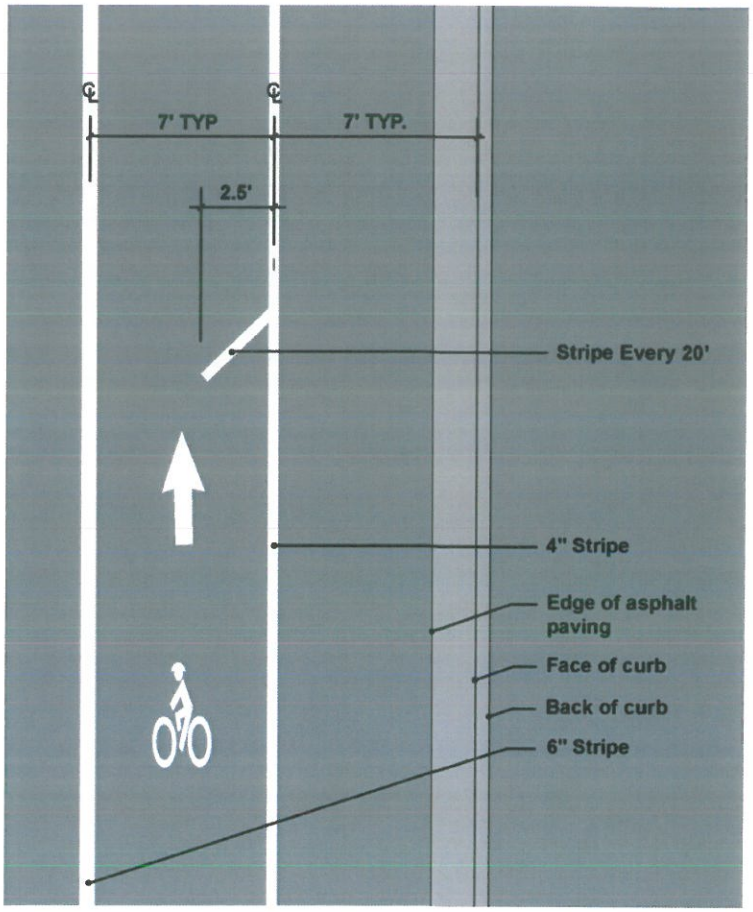


Add bike lanes to N Eton Road between Derby Road and Yorkshire Road by consolidating the parking to the west side of the road as part of the 2014 road reconstruction project.

N ETON ROAD



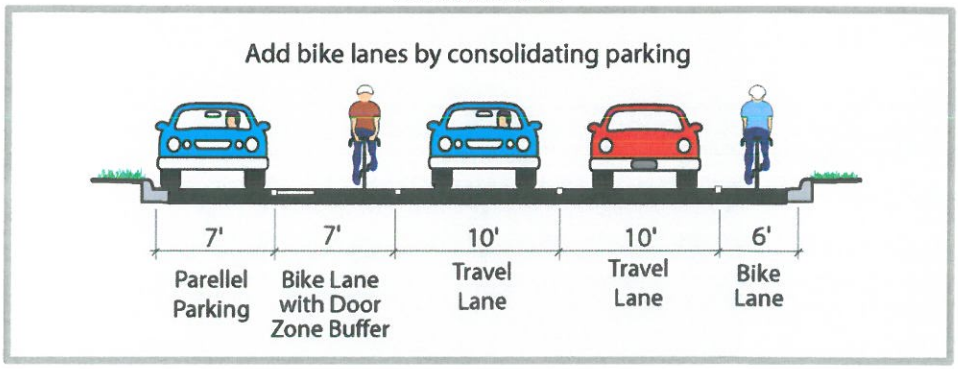
Markings for the door swing zone of the parked cars are proposed within the bike lane when it is adjacent to on-street parking.

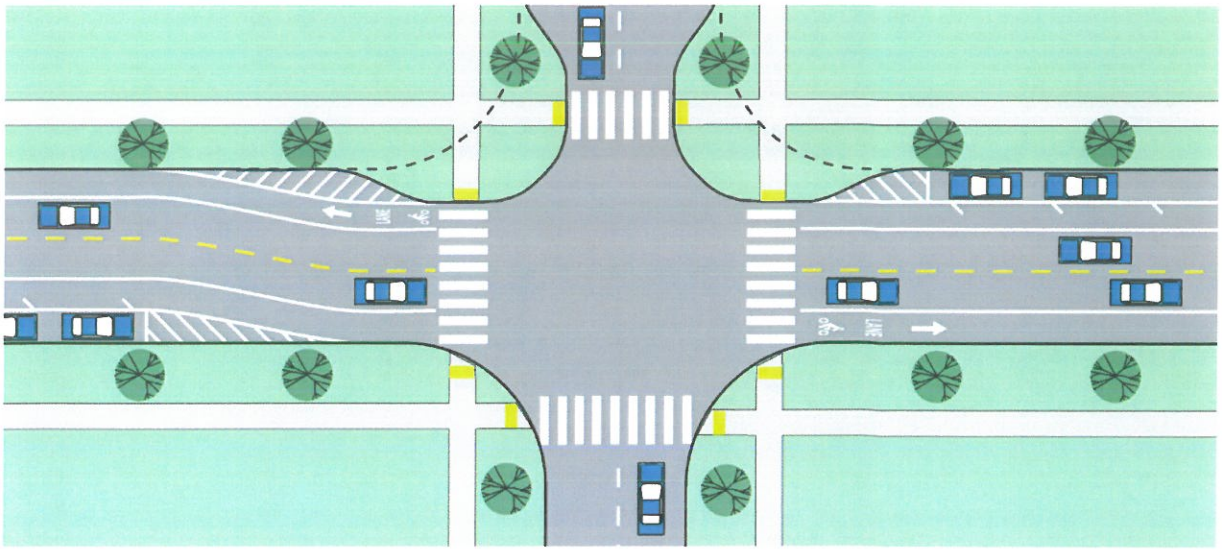


Add bike lanes to Oak Avenue between Chesterfield Avenue and Lake Park Drive by consolidating the parking to one side of the road as part of the 2016 road reconstruction project. To provide additional traffic calming the consolidated parking should alternate from the north side of the road to the south side of the road every few blocks, changing sides where there are proposed curb extensions:

- Chesterfield Avenue to Suffield Avenue – Parking on south side
- Suffield Avenue to Puritan Avenue – Parking on north side
- Puritan Avenue to Lake Park Drive – Parking on south side

OAK AVENUE





Pavement markings for the door swing zone are proposed between the on-street parking and the bike lane. See previous page for details.

Add shared lane markings to the following corridors:

- Derby Road between N Adams Road and the Railroad Overpass (2013 reconstruction project)
- Derby Road between the Railroad Overpass and N Eton Road (2014 resurfacing project)
- Lincoln Street between Southfield Road and Ann Street (2014 resurfacing project)
- N Eton Road between Yorkshire Road and E Maple Road (2014 reconstruction project)
- W Maple Road between Cranbrook Road and Waddington Street (2015 resurfacing project)
- N Old Woodward Avenue between Willits Street and W Maple Road (2016 reconstruction project)
- S Old Woodward Avenue between W Maple Road and E Brown Street (2016 reconstruction project)
- S Old Woodward Avenue between E Brown Street and Landon Road (2017 reconstruction project)

Four new road crossings are planned on S Eton Road between E Maple Road and E Lincoln Street in 2013. The plans for these crossing include basic improvements such as pavement markings. As part of Phase 2 it is recommended that curb extensions be implemented at these crossing locations as well.

PHASE 1 INCIDENTAL PROJECTS:				
Road	**From**	**To**	**Quantity**	**Unit**
Bike Lanes:				
N Eton Rd	Yorkshire Rd	Derby Rd	0.40	MI
W Maple Rd	Waddington St	Southfield Rd	1.12	MI
Oak Ave	Chesterfield Ave	Lake Park Dr	0.40	MI
Shared Lane Markings (placed every 200' - 250'):				
Derby Rd	N Adams Rd	Railroad Overpass	0.17	MI
Derby Rd	Railroad Overpass	N Eton Rd	0.36	MI
Lincoln St	Southfield Rd	Ann St	0.80	MI
W Maple Rd	Cranbrook Rd	Waddington St	0.20	MI
N Old Woodward Ave	Willits St	W Maple Rd	0.10	MI
S Old Woodward Ave	W Maple Rd	E Brown St	0.17	MI
S Old Woodward Ave	E Brown St	Landon Rd	0.43	MI
Road Crossings				
S Eton Rd	at Villa Rd		1	EACH
S Eton Rd	at Bowers St		1	EACH
S Eton Rd	at Holland St		1	EACH
S Eton Rd	at Cole St		1	EACH

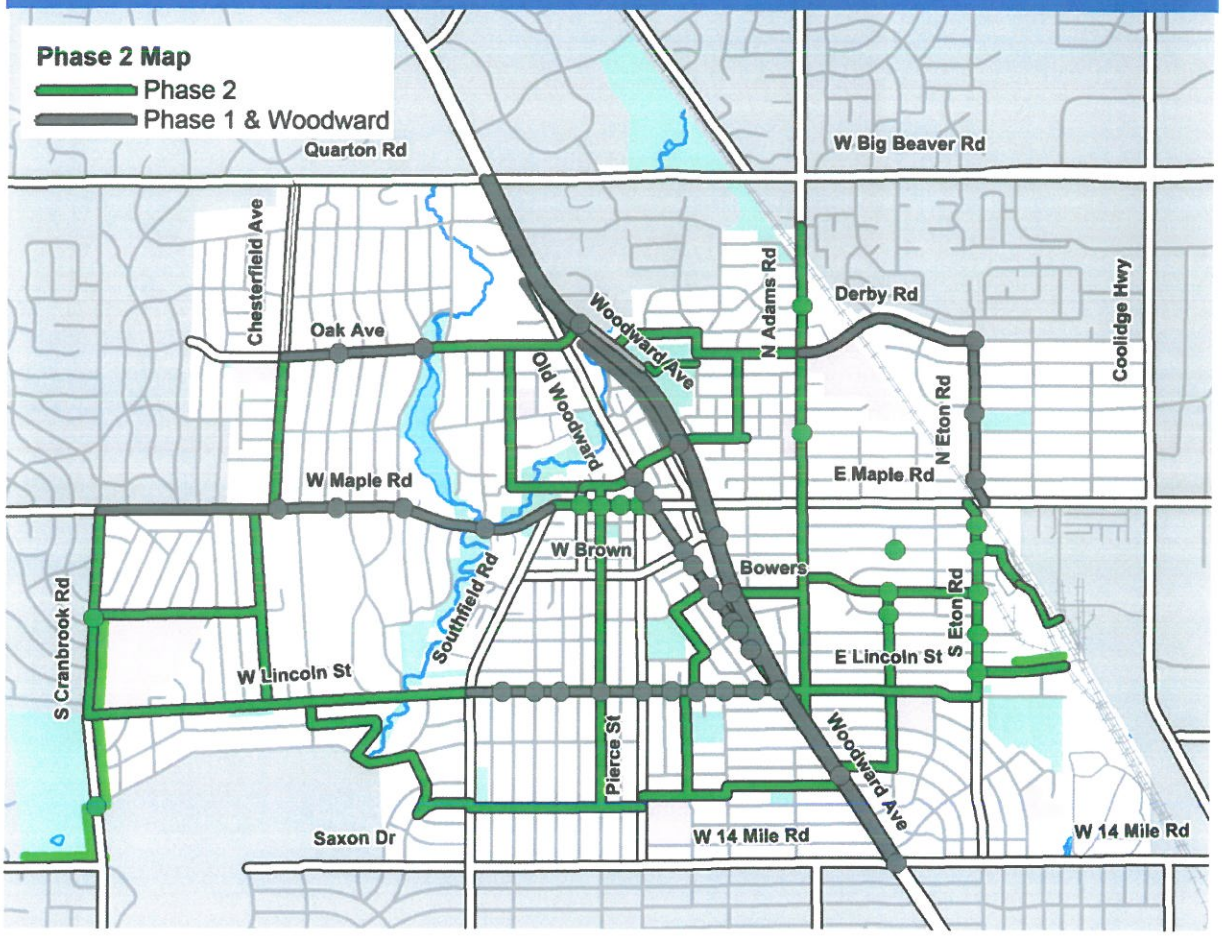
4.3 PHASE 2

PHASE 2: OVERVIEW

Phase 2 objective is to provide connections across the community and create a backbone for the City's long-range multi-modal system. This phase achieves this by building on the existing multi-modal system.

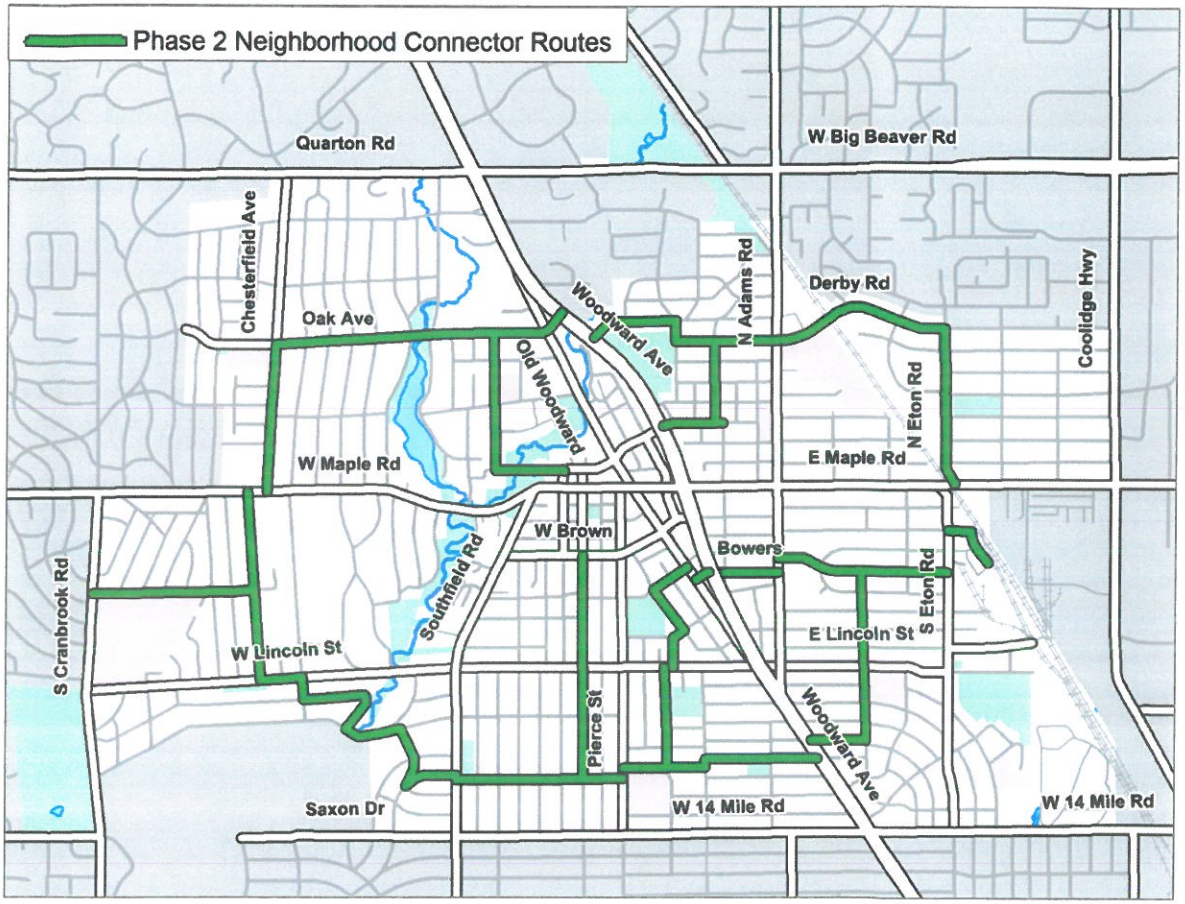
The following pages provide a more detailed breakdown of Phase 2.

FIGURE 4.3A. PHASE 2



PHASE 2: PROPOSED NEIGHBORHOOD CONNECTOR ROUTES

The following map displays the neighborhood connector routes that should be implemented first. Initially, implementation along these routes is as simple as providing wayfinding signage identifying the direction of the route and key destinations. Eventually, other enhancements such as rain gardens, traffic calming measures, and street art may be incorporated. Please note that some of these routes are dependent on road crossings which are proposed in Phase 1 and Phase 2.



In Phase 2 only wayfinding signage is proposed. In the future, the City may consider adding some additional enhancements such as mini traffic circles, pavement markings, chicanes, street diverters, and pedestrian street lighting.

PHASE 2 NEIGHBORHOOD CONNECTOR ROUTES:				
Road	**From**	**To**	**Quantity**	**Unit**
Wayfinding Signs:				
Midvale	S Cranbrook Rd	Larchlea Dr	0.47	MI
Larchlea Dr	W Maple Rd	W Lincoln St	0.57	MI
W Lincoln St	Larchlea Dr	Pleasant St	0.13	MI
Pleasant St	W Lincoln St	Fairway Dr	0.08	MI
Fairway Dr	Pleasant St	Northlawn Blvd	0.30	MI
Northlawn Blvd	Fairway Dr	Latham St	0.18	MI
Latham St	Northlawn Blvd	Worthington Rd	0.16	MI
Worthington Rd	Latham St	Southfield Rd	0.16	MI
W Southlawn Blvd	Southfield Rd	Peirce St	0.36	MI
Pierce St	W Southlawn Blvd	W Southlawn Blvd	0.03	MI
E Southlawn Blvd	Pierce St	Grand St	0.24	MI
Grant St	E Southlawn Blvd	Emmons Ave	0.03	MI
Emmons Ave	Grant St	Woodward Ave	0.35	MI
Chapin Ave	Woodward Ave	Troy St	0.17	MI
Torry St	Haynes St	Chapin Ave	0.45	MI
Pathway (north of Torry St)	Bowers St	Haynes St	0.08	MI
Bowers St	Adams Rd	S Eton Rd	0.52	MI
Adams Rd	Bowers St	Bowers St	0.03	MI
Bowers St	Woodward Ave	Adams Rd	0.18	MI
Bowers St	S Old Woodward Ave	Woodward Ave	0.07	MI
S Old Woodward Ave	E Frank St	Bowers St	0.03	MI
E Frank St	Purdy St	S Old Woodward Ave	0.11	MI
Purdy St	E Frank St	George St	0.15	MI
George St	Floyd St	Purdy St	0.03	MI
Floyd St	George St	E Lincoln St	0.08	MI
E Lincoln St	Edgewood Rd	Floyd St	0.03	MI
Edgewood Rd	E Lincoln St	E Southlawn Blvd	0.3	MI
S Bates St	W Brown St	Southlawn Blvd	0.66	MI
Washington Blvd	W Lincoln St	W Southlawn Blvd	0.34	MI
Chesterfield Ave	Oak Ave	W Maple Rd	0.44	MI
Oak Ave	Chesterfield Ave	Woodward Ave	0.87	MI
Greenwood St	Oak Ave	Willits St	0.4	MI
Willits St	Greenwood St	N Chester St	0.2	MI
Woodward Ave Sidepath	Oak Ave	Wimbleton Dr	0.13	MI
Wimbleton Dr	Wooddward Ave	Oxford St	0.26	MI
Oxford St	Wimbleton Dr	Mohegan St	0.06	MI
Mohegan St	Oxford St	N Adams Rd	0.3	MI
Poppleton St	Mohegan St	Oakland Ave	0.25	MI
Oakland Ave	Poppleton St	Woodward Ave	0.15	MI
Derby Rd	N Adams Rd	N Eton Rd	0.53	MI
E Eton St	Derby Rd	E Maple Rd	0.48	MI
E Maple Rd Sidepath	S Eton Rd	N Eton Rd	0.06	MI
S Eton St Sidepath	E Maple Rd	Yosemite Blvd	0.09	MI
Villa Ave	S Eton Rd	Villa Rd	0.09	MI
Villa Rd	Villa Ave	Proposed Pathway	0.12	MI
Proposed Pathway extending from Villa Rd to Troy Transit Station			0.2	MI

5.4 DOWNTOWN

Downtown Birmingham contains many of the elements of a bicycle and pedestrian friendly downtown such as short street blocks, small shops and business that line the street, seating and other amenities. The design of the downtown environment has a direct effect on the degree to which people enjoy walking, biking and taking transit. If designed appropriately, the environment serves not only the people who currently walk, bike and use transit but also entices those who do not.

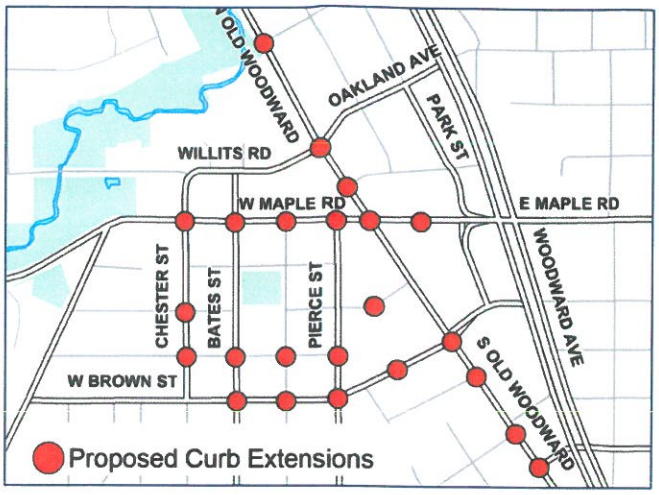
PEDESTRIAN IMPROVEMENTS:

One of the biggest inhibitors to pedestrian activity in the downtown is the stepped curb. Stepped curbs are located in numerous areas in the downtown and present hazardous situations for some pedestrians, especially when they are located at crosswalks where there are no ramps. The near-term recommendation is to remove the stepped curb by installing curb extensions with ramps at road crossings. In the long-term the stepped curb should be eliminated through the downtown by re-grading the road.

The entrance to the City parking garage located on Martin Street between Southfield Road and Chester Street presents a challenging environment for pedestrians. Due to the numerous entrances to the parking garage there is no indication for pedestrians on how to navigate across the entrance.

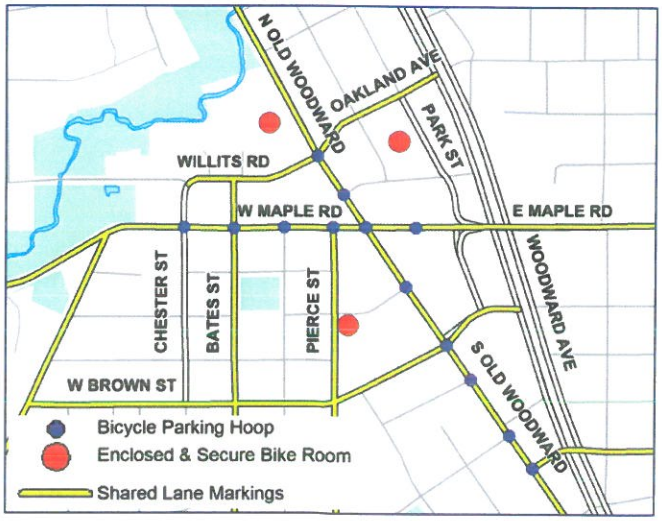
It is recommended that high visibility crosswalks markings be painted across the parking garage entrance as well as providing a sidewalk across the "pork chop" diverter island located between the parking garage entrances.

As previously noted, curb extensions are proposed throughout the downtown as a near-term solution to the stepped curbs. Curb extensions also shorten crossing distances for pedestrians and increase visibility between pedestrians and motorists at intersections. The following map shows all of the locations for proposed curb extensions in the downtown. Please note that some of the proposed curb-extensions align with the City of Birmingham's Alley & Passages Plan 2012.



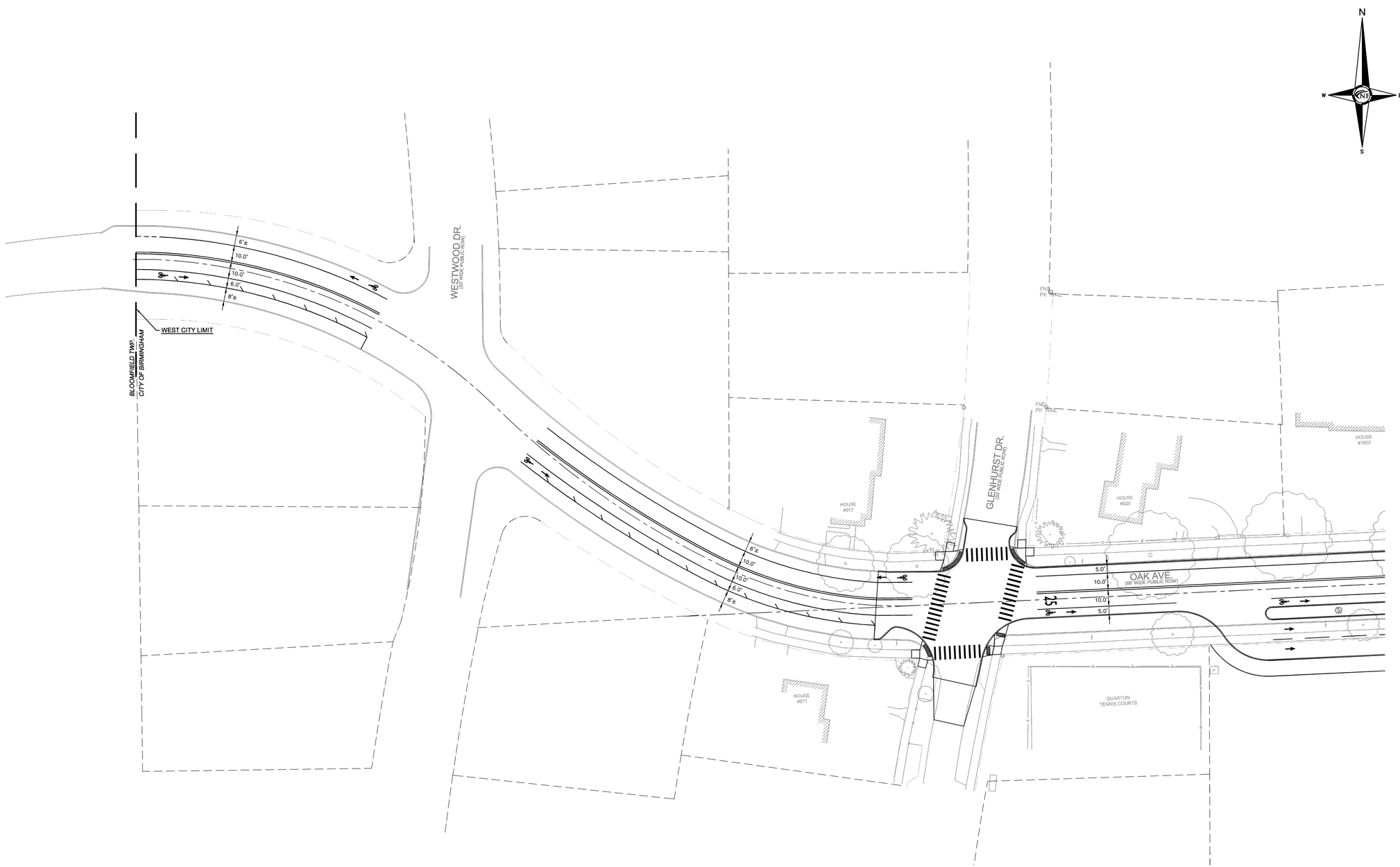
PROPOSED BICYCLE FACILITIES:

Due to the limited road width and demand for on-street parking, Shared Lane Markings are proposed in the downtown on Maple Road, Old Woodward Avenue, Willits Road, Oakland Avenue, Bates Street, Brown Street, and Pierce Street.



In 2012, the City installed an extensive number of bicycle hoops. In addition to these hoops, 44 bike hoops are proposed in the downtown area in coordination with the proposed curb-extensions. The City has also been experimenting with seasonal bicycle parking. Seasonal bike racks should be placed where there are large curb extensions or adjacent to outdoor dining decks.

For long-term bicycle storage, enclosed and secured bike rooms are proposed in the City's parking decks. Initially, a bike room should be installed in the Pierce Street Parking Garage, and if successful, additional rooms should be placed in other parking garages in the downtown.



NF ENGINEERS

CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

PROJECT
Oak Avenue
Paving Project

CLIENT
City of Birmingham
A Walkable Community
Engineering Department
151 Martin Street
Birmingham, MI 48012

PROJECT LOCATION
Part of the Center Section 26, Town 2 North, Range 10 East, City of Birmingham, Oakland County, Michigan

SHEET
Conceptual Plan
(West City Limit
Pavement Marking Plan)

811
Know what's below
Call before you dig.

REVISIONS
12-08-14 Per MMTB

DRAWN BY:
PT

DESIGNED BY:
PT/BB

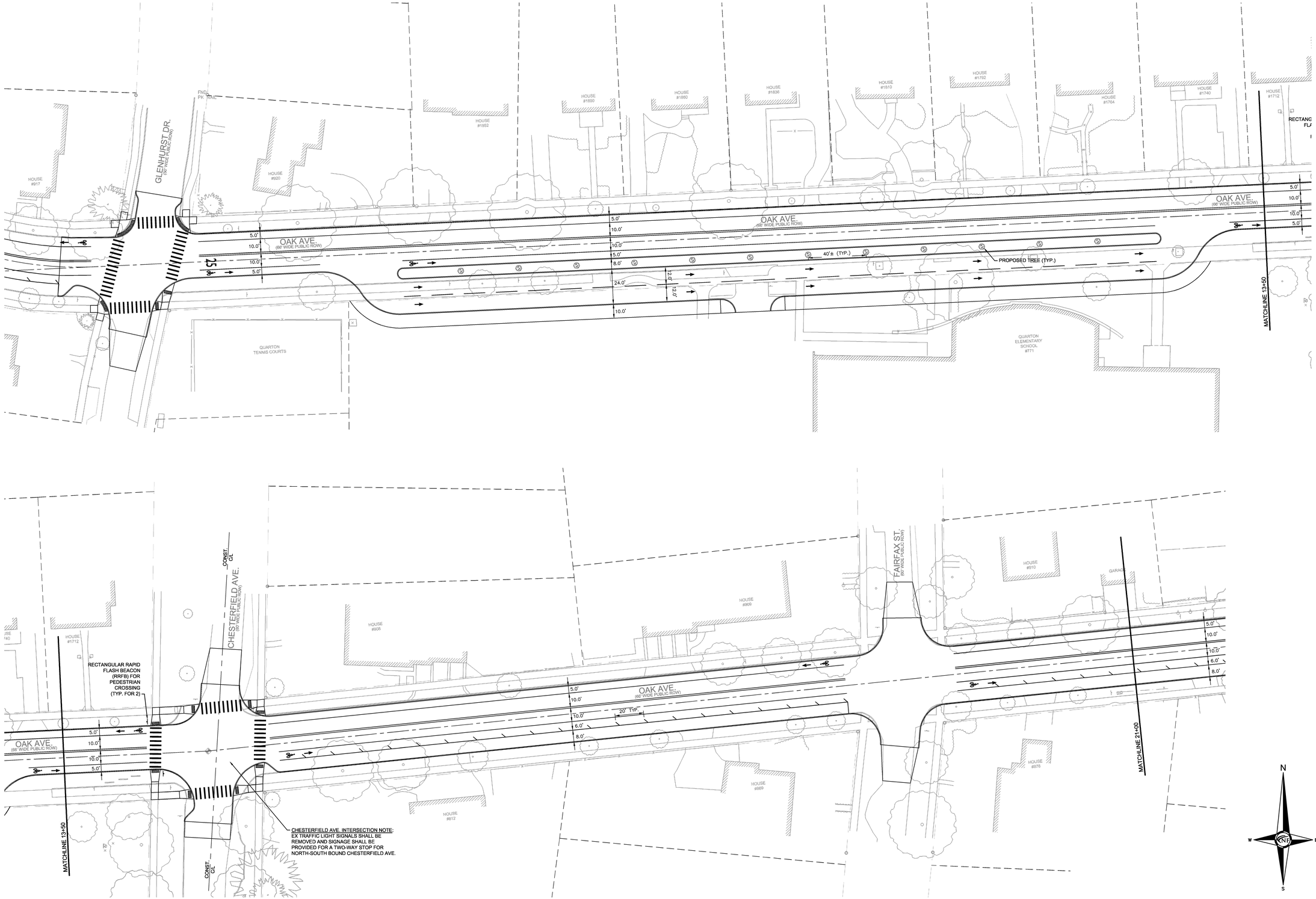
APPROVED BY:
BB/GY

DATE:
November 26, 2014

SCALE:
1" = 30'

NFE JOB NO.
I164

SHEET NO.
1



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SHEET
Conceptual Plan
(1 of 2)

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APPROVED BY:
BB/GY

DATE:
November 26, 2014

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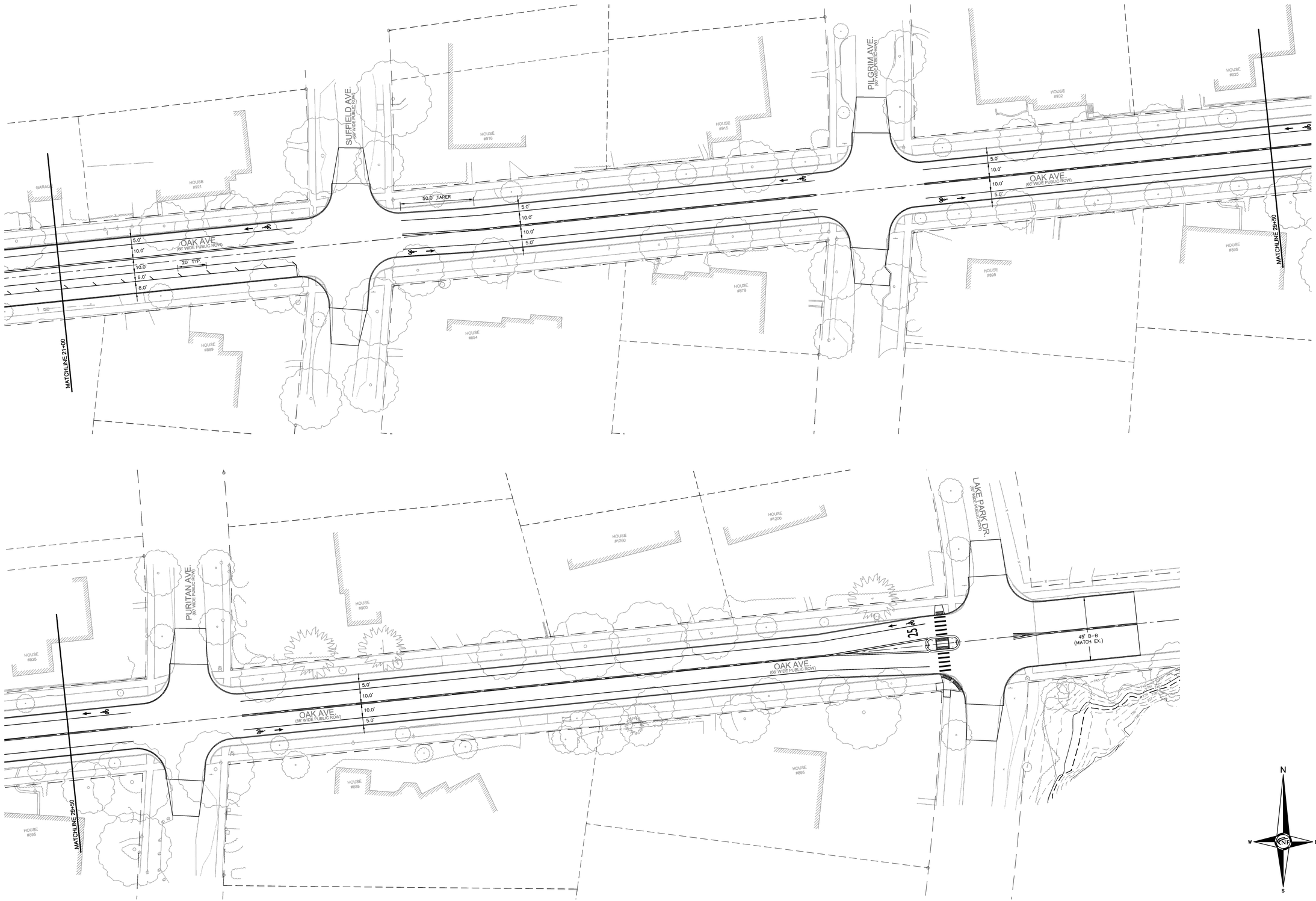
1" = 30'

NFE JOB NO.
I164

SHEET NO.
1 of 2



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A Walkable Community

Engineering Department
151 Martin Street
Birmingham, MI 48012

PROJECT LOCATION
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SHEET
Conceptual Plan
(2 of 2)

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DATE:
November 26, 2014

SCALE:
1" = 30'

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I164

SHEET NO.
2 of 2

Birmingham
PUBLIC SCHOOLS
Achievement.
Character.
Community.

Daniel A. Nerad, Ed.D.
Superintendent

31301 Evergreen Road
Beverly Hills, MI 48025-3800
(248) 203-3004 ■ Fax (248) 203-3009
dnerad@birmingham.k12.mi.us

December 10, 2014

Joe Valentine
City Manager
City of Birmingham
151 Martin Street
Birmingham, MI 48009

Dear Mr. Valentine,

I want to begin this letter by thanking you and your staff for your assistance in addressing the traffic safety related issues at Quarton Elementary School. I understand the City is planning to renovate Oak Street and when doing so would like to work with the District to address our traffic-related concerns at Quarton, in particular at drop off and pick up times. I also realize that this is a long-standing problem and a variety of solutions have been examined over time. I do, however, appreciate working together to attempt to resolve this situation.

As you know, there have been recent discussions between the City and School District on this matter and, as a result, a potential solution has been identified aimed at meeting the City's needs to renovate Oak Street and the District's need to address the traffic issues surrounding the school. Having had some time to review and discuss this option, I can share with you that a variety of concerns exist with the present plan.

At this time, I would welcome the ongoing assistance of your staff to meet with representatives of the School District to attempt to address these concerns. It would be my wish that we attempt to conclude any additional discussions over the next few months with the goal of identify solutions to the concerns with the present option and/or to identify additional options that the City and School District would fine satisfactory. In essence, I am requesting that we take more time to study this matter.

I realize this request will have to be considered within the timelines you have established for this process. Knowing that any viable solution to this matter will be long standing, I believe it would serve us well to take this additional time to study this matter and to seek options that both parties would find satisfactory.

Sincerely,

Daniel A. Nerad

Daniel A. Nerad, Superintendent of Schools

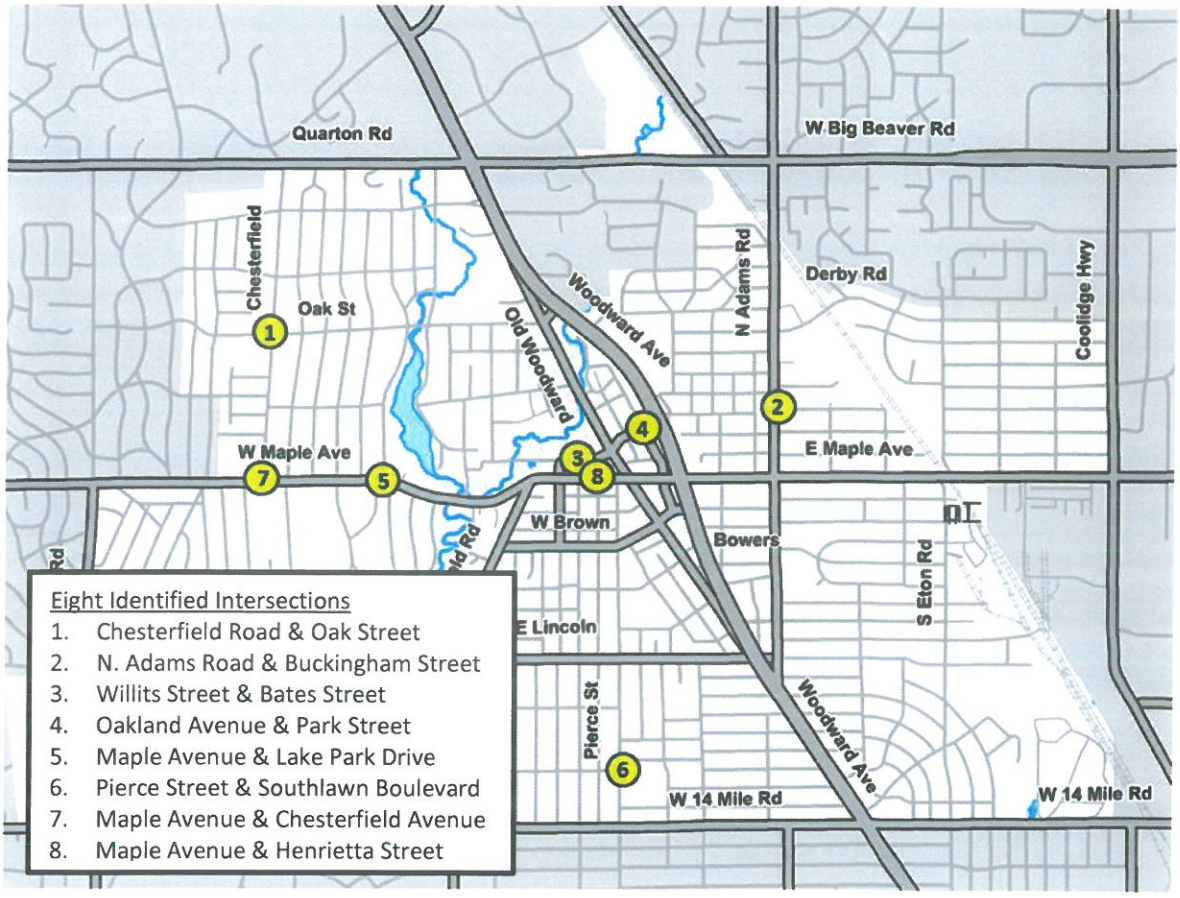
cc: School Board Trustees
Jill Ghiardi-Coignet, principal
Debbie Piesz, Assistant Superintendent
Steve King, Manager of Operations

CITY OF BIRMINGHAM MULTIMODAL TRANSPORTATION PLAN

GENERAL CONDITIONS OF EIGHT INTERSECTIONS

1.1 INTRODUCTION

This report summarizes the existing conditions at eight signalized intersections identified on the map below. The City of Birmingham selected these intersections as part of an effort to identify operational improvements to better balance the needs of transit vehicles, motorists, pedestrians and bicyclists.



The intersections noted above share some common characteristics, as described below. Supplemental analysis, or a description and evaluation of these characteristics, follows several characteristics listed.

1. All of the intersections are signalized and pre-timed, or fixed, meaning that the signal continually runs on the same pattern of timings and the vehicle and pedestrian indications (i.e. a green light or white walking person) are provided during each signal cycle regardless of whether vehicles or pedestrians are present.

- Pre-timed signals are beneficial to pedestrians because they are not required to push a button to receive the WALK indication (i.e. white walking person).
- Pre-timed signals can be inefficient for motor vehicles, especially during off-peak times. For instance, the minor street could receive the green indication when there are no cars present. These off-peak inefficiencies are addressed by putting the signal in flashing operation during off-peak hours, typically overnight, as seen at many of these signals. Flashing operation usually means the major street receives a flashing yellow indication, while the minor street receives a flashing red indication, operating like a two-way stop. In some cases all approaches may receive a flashing red indication and the signal will operate like an all-way stop.

2. Most intersections have crosswalks on all legs, or all but one leg, of the intersection.
3. All intersections have pedestrian WALK (white walking man), flashing DON'T WALK (flashing yellow hand) or DON'T WALK (solid yellow hand) indications and most have countdown timers, which indicate to the pedestrians how much time they have remaining to cross the street. Countdown timers typically decrease the number of pedestrians remaining in the crosswalk at the onset of the DON'T WALK indication, but increase the number of pedestrians violating the flashing DON'T WALK indication.
4. No bicycle facilities (e.g. striped bike lane, shared lane marking, etc.), indications (bicycle signal), or Accessible Pedestrian Signal accommodations (as described in the Americans with Disabilities Act) are provided at the study intersections.

The following terms will be used later in this report. For clarification, they are defined below for reference:

- An **indication** is the display that tells the user(s) how to behave. For instance a red indication tells the vehicle(s) to stop.
- A **signal cycle** is the series of all phases of the signal, from the onset of the green indication for one movement until the next onset of the green indication for that movement. The **cycle length** is the time to complete one cycle. Cycle length is a strong indicator of delay for all users at the intersection.
- A **phase** is the part of the cycle assigned to one or more traffic movement(s), containing a green, yellow, and red indication for vehicles and a WALK, flashing DON'T WALK, and DON'T WALK indication for concurrent pedestrian movement, where applicable.
- The **all-red time** is the time provided at the end of each phase for vehicles to clear the intersection before the next stream of vehicles is released.
- Similarly, **buffer time** is the time provided between the pedestrian flashing DON'T WALK indication and the release of the conflicting stream of traffic when the DON'T WALK indication is displayed. While the MUTCD requires a buffer time of 3 seconds, none of the intersections studied currently have buffer time.

- The **pedestrian clearance time** is the time required for the pedestrian to cross the road, given a certain walking speed and the distance the pedestrian must walk. The pedestrian clearance time includes the time of the flashing DON'T WALK indication and the buffer time.

The following pages provide documentation of existing conditions at each of the eight intersections, including:

- Photos illustrating current conditions at the intersection as observed in November 2012.
- Location and Surroundings information, including:
  - The functional classification describes the purpose of the street, from arterials, which increase mobility and have many users, to local and private roads, which provide access for fewer users. Roadway classification is based on the roadway classifications provided on the "Functional Classification of Roadway" map and includes arterials, collectors, other significant roads, local roads, and private roads.
  - Average Daily Traffic (ADT), when available, of the intersecting streets, which helps illustrate the expected traffic volumes on the intersecting streets.
  - Surrounding land uses, which indicate potential users at the intersection and whether the location is urban, suburban, or rural.
- Intersection Characteristics and Signal Operations information, including:
  - Number of phases
  - Cycle length
  - Adequacy of pedestrian clearance time (or time of the flashing DON'T WALK indication when there is no buffer time)
    - Existing and required pedestrian clearance time is compared to determine whether pedestrians have enough time to cross the road.
    - The required pedestrian clearance time is based on a 3.5 feet per second walking speed, except in areas with adjacent schools, where the assumed walking speed is 3.0 feet per second to account for the slower walking speed of school children.
- Additional Observations, including any other notable observations that are relative to the operations or characteristics of the intersections

CITY OF BIRMINGHAM MULTIMODAL TRANSPORTATION PLAN

GENERAL CONDITIONS OF EIGHT INTERSECTIONS

1.2 OAK AND CHESTERFIELD

LOCATION & SURROUNDINGS

The intersection of Oak Avenue and Chesterfield Avenue is northwest of downtown Birmingham. Oak Avenue is a significant local road connecting Covington Road to the west and Woodward Avenue to the east. Chesterfield Avenue is a significant local road connecting Quarton Road to the north and Maple Road to the south. The area surrounding this intersection is primarily residential with the Quarton School, an elementary school, at the southwest corner of the intersection. There is no ADT data available at this location.

INTERSECTION CHARACTERTICS & SIGNAL OPERATIONS

The following describes the intersection characteristics and signal operations:

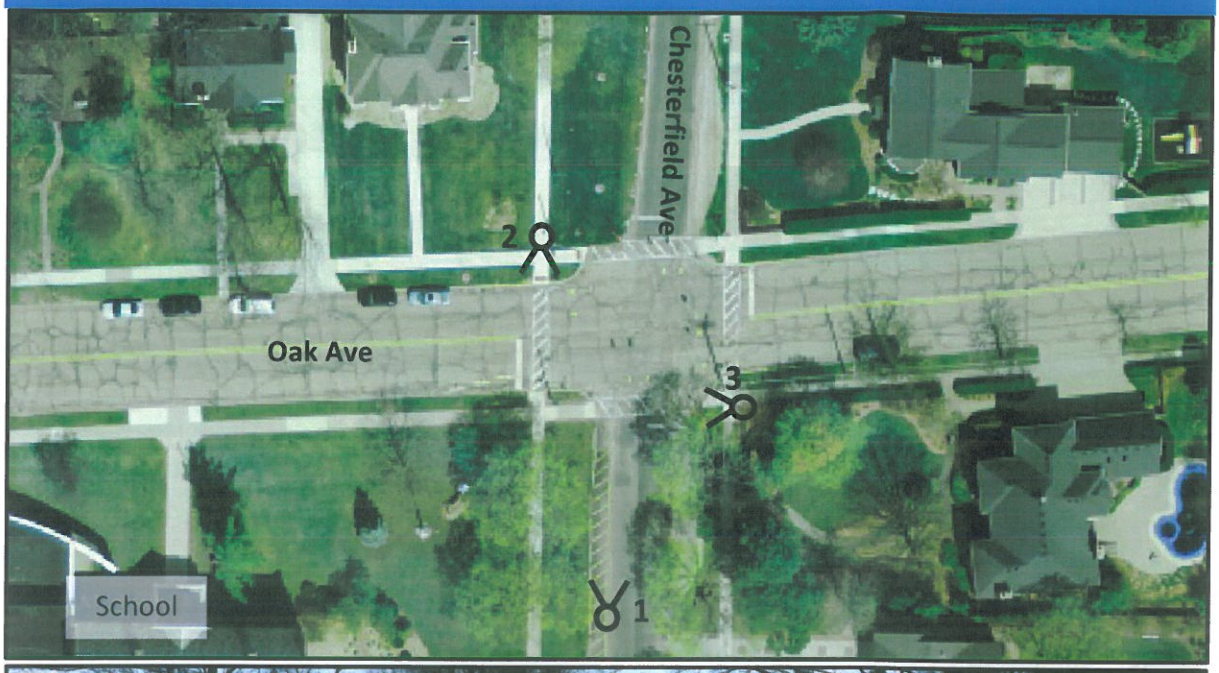
- 50-second cycle length with fixed timings in two phases:
  - Chesterfield Avenue (north/south) vehicles and pedestrians
  - Oak Avenue (east/west) vehicles and pedestrians
- Crosswalks at all legs of the intersection
- Pedestrian indications with countdown timers at all crossings
- No buffer time for pedestrians
- Flashing DON'T WALK times (based on 3.0 feet/second walking speed to accommodate school children):
  - 10 seconds for the north and south crosswalks (parallel to Oak Avenue)
    - Clearance time <u>met</u> for north crosswalk
    - Clearance time <u>not met</u> for south crosswalk
  - 10 seconds for the east and west crosswalks (parallel to Chesterfield Avenue)
    - Clearance time <u>not met</u> for east or west crosswalk
- Operates in flashing mode from 10 PM to 6 AM daily

ADDITIONAL OBSERVATIONS

- Posted signs indicate that turns are restricted on all approaches between 8:30AM-9:00AM and 3:30PM-4:00PM.
- A crossing guard helps students cross the street during arrival and dismissal periods.

Traffic volumes noticeably increase during arrival and dismissal periods. Additionally, student pick-up and drop-off significantly increases activity at and surrounding the intersection, especially on Oak Avenue west of the intersection. Parents were observed parking to walk children into the school, students crossed Oak Avenue by themselves and vehicles backed up on Oak Avenue from the signal along the school frontage through the pick-up/drop-off area.

FIG. 1.2A. OAK AND CHESTERFIELD



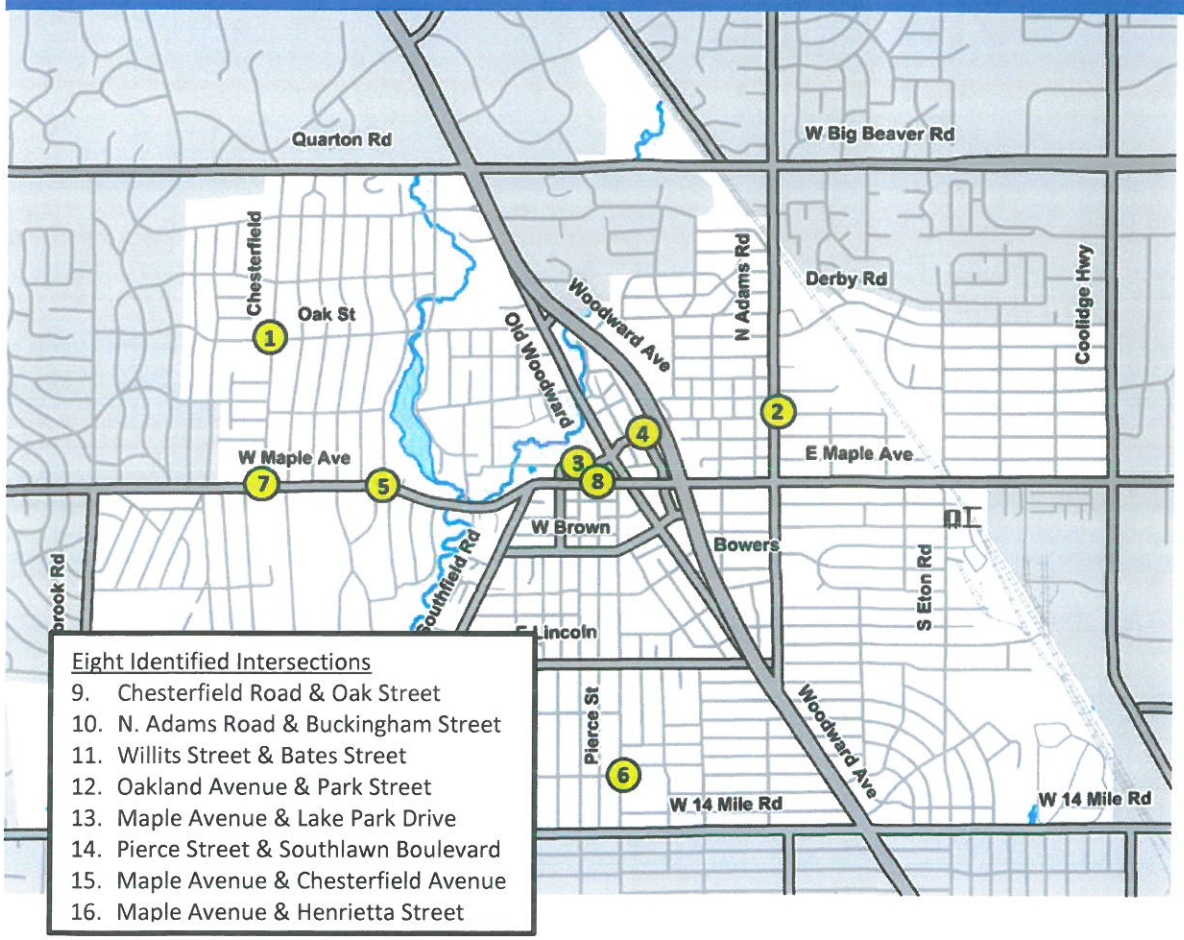
CITY OF BIRMINGHAM MULTIMODAL TRANSPORTATION PLANN

EIGHT INTERSECTION RECOMMENDATIONS

2.1 INTRODUCTION

The City of Birmingham identified eight signalized intersections that may benefit from operational improvements to better balance the needs of transit vehicles, motorists, pedestrians and bicyclists. The previous "Existing Conditions at Eight Intersections" report summarized the existing conditions at these intersections, which are shown on the map below and selected by the City of Birmingham. This recommendations report introduces potential intersection improvements and outlines next steps to implementing these improvements.

FIG 2.1A. MAP OF INTERSECTION LOCATIONS



RECOMMENDATION INTERSECTON ALTERNATIVES

The following table outlines one or more alternatives each intersection. For each alternative the potential improvements are noted in the table. Prior to any physical changes to the intersections, a comprehensive engineering study will be conducted for each intersection to identify the preferred alternative and refine the proposed improvements.

FIG 2.1B. SUMMARY OF RECOMMENDED IMPROVEMENTS

	Add Curb Extensions	Add Median Island	Add Crosswalk	Implement Road Diet	Convert to Roundabout	Remove Signal	Add Countdown Timers	Update Pedestrian Times	Add Leading Pedestrian Interval	Shorten Signal Cycle Length	Add/Extend Flashing Operation	Add Detection	Other Improvements
1. Oak & Chesterfield													
Roundabout Alternative					X	X							X
Signalized Alternative	X							X			X	X	X
Stop-Controlled Alternative	X					X							X
2. Adams & Buckingham													
Signalized Alternative			X					X		X	X	X	
Stop-Controlled Alternative		X				X							
3. Willits & Bates													
Signalized Alternative	X							X	X	X			X
Stop-Controlled Alternative	X					X							
4. Oakland & Park													
Signalized Alternative	X			X				X	X		X	X	X
5. Maple & Lake Park													
Non-Road-Diet Alternative			X				X	X		X		X	
Signalized Road-Diet Alt.		X	X	X			X	X		X	X	X	
Stop-Controlled Road-Diet Alt.		X		X		X							
6. Pierce & Southlawn													
Signalized Alternative	X							X			X	X	
Stop-Controlled Alternative		X	X			X							
7. Maple & Chesterfield													
Non-Road Diet Alternative							X	X		X		X	
Road-Diet Alternative		X		X			X	X		X	X	X	
8. Maple & Henrietta													
Signalized Alternative	X							X	X	X			
Stop-Controlled Alternative	X					X							X

OVERVIEW OF RECOMMENDED INTERSECTION IMPROVEMENT TREATMENTS

A brief description of each improvement identified in Figure 2.1B, Recommended Intersection Improvements, is provided on the following pages. Additional details including benefits, limitations and next steps are outlined in Appendix E.

GEOMETRIC IMPROVEMENTS:

- **Adding curb extensions** shortens the crossing distance for pedestrians, improves visibility between pedestrians and motorists, adds more pedestrian queuing space and may reduce vehicle turning speed.
- **Adding a median island** provides refuge for pedestrians crossing the road. A median island allows the pedestrian to cross in two stages, which increases crossing opportunities.
- **Adding a crosswalk** improves pedestrian connectivity and decreases pedestrian delay. In many cases, adding a crosswalk does not affect signal timing and is a very cost-effective way to improve pedestrian conditions at an intersection.

OPERATIONAL IMPROVEMENTS:

- **Implementing a road diet** may slow traffic and reduces pedestrian crossing distance and can create space for a bike lane or parking lane, which provides an additional buffer from traffic for pedestrians.
- **Converting an intersection to a roundabout** may reduce delay and potential conflicts for motorists at the intersection.
- **Removing a signal** and converting the intersection to a two- or all-way stop-controlled intersection may reduce delay to all users. At locations where signals are to be removed, geometric improvements may be required to provide pedestrian and bicyclists safer opportunities to cross roadways. Before removing the traffic signal, the intersection should be adjusted to operate in flash operation 24-hours per day as a pilot of removing the signal.

SIGNAL IMPROVEMENTS:

- **Adding countdown timers** informs pedestrians of the remaining time they have to cross the street and may reduce conflicts between motorist and pedestrians
- **Updating pedestrian times** includes adding a pedestrian buffer time and changing the pedestrian change interval (flashing DON'T WALK time) to allow more time for pedestrians to cross the street.

- **Adding leading pedestrian intervals** allows pedestrians to get a head start in crossing the intersection before conflicting turning vehicles are released.
- **Shortening the signal cycle length** reduces pedestrian and motorist delay where appropriate.
- **Adding/Extending flashing operation** reduces delay for all users at times of day when demand is low and can be added or implemented at more hours of the day at locations where traffic is high during peak hours and low during the remaining hours of the day. At locations where signals operate in flash, geometric improvements may be required to provide pedestrian and bicyclists safer opportunities to cross roadways.
- **A semi-actuated signal** responds to traffic on the minor street and pedestrians crossing the major street to reduce delay when traffic volumes on the minor street are relatively low. During peak hours, the minor streets will actuate each cycle (i.e. at least every 80 seconds), creating gaps for motorists exiting adjacent side streets.
- **Other improvements include** widening a median island to provide additional queuing space for pedestrians, changing the signal phasing to better accommodate all users, and implementing safe routes to school strategies to improve operations during student arrival and dismissal periods.

CITY OF BIRMINGHAM MULTIMODAL TRANSPORTATION PLAN

EIGHT INTERSECTION RECOMMENDATIONS

2.3 OAK AND CHESTERFIELD

RECOMMENDATIONS

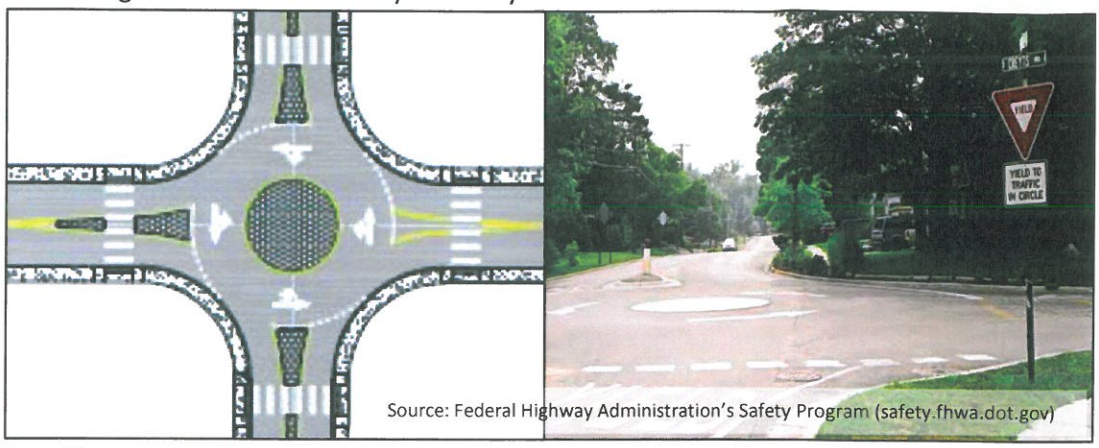
Consider the following recommendations at the intersection of Oak Avenue and Chesterfield Avenue:

General Recommendation

- Implement education and encouragement Safe Routes to School programs.
  - Benefits
    - Encouraging walking and bicycling to school can reduce traffic congestion on streets adjacent to this intersection, improving safety and operations at this intersection.
    - Implementing a drop-off and pick-up procedure specific to the school needs and educating students and parents on how to safely cross the street can improve efficiency and safety of operations.
    - Schools can make small programmatic changes with a large impact.
  - Next Steps
    - Encourage Quarton Elementary School to utilize National Center for Safe Routes to School resources (http://guide.saferoutes.org/) and the Michigan Safe Routes to School program (http://saferoutesmichigan.org/) to improve safety and health of their students. Michigan provides one-on-one training and technical assistance.

Roundabout Alternative

- Remove the signal and convert the intersection to a roundabout. A roundabout is a circulation intersection where motorists entering the roundabout yield to motorists circulating within the circulatory roadway.



Source: Federal Highway Administration's Safety Program (safety.fhwa.dot.gov)

Benefits
  - Minimizes potential conflicts as all motorists must only yield to pedestrians and motorists already in the roundabout.
  - Improves traffic flow at low-volume intersections because there is constant traffic flow through the roundabout and no approach is ever stopped at a red light.
- Limitations
  - Pedestrians must divert somewhat from their natural path on the crosswalk to cross at a roundabout crosswalk, which is located before the entry flare of the roundabout.
  - Pedestrians must wait to cross until motorists yield to them or they have an adequate gap in traffic.
- Next steps
  - Evaluate construction feasibility for a roundabout with an inscribed circle diameter of 45 to 90 feet, based on the 2010 National Cooperative Highway Research Program (NCHRP) Report 672.
  - Collect traffic counts and perform a traffic analysis. If total traffic at this intersection is fewer than 15,000 vehicles per day, a roundabout is feasible, based on the NCHRP Report 672. If total traffic at the intersection is greater than 15,000 vehicles per day, a detailed capacity analysis based on Chapter 21 in the 2010 Highway Capacity Manual should be performed.

Signalized Alternative

- Add detection and convert the intersection to semi-actuated operation.
- Extend hours of flashing operation. This could be implemented as a short-term solution.
- Add curb extensions, especially on Oak Avenue at southwest corner where flexible posts are currently preventing parking on the corner.
- Update pedestrian times (i.e. add pedestrian buffer time and adjust flashing DON'T WALK times).

Stop-Controlled Alternative

- Remove the signal and convert intersection to stop-controlled operation.
- Add curb extensions, especially on Oak Avenue at southwest corner where flexible posts are currently preventing parking on the corner.

MEMO

VIA EMAIL

To:	**Paul O'Meara, PE** **City of Birmingham**
From:	**Michael J. Labadie, PE** **Steven J. Russo, E.I.T.** **Fleis & VandenBrink**
Date:	**November 11, 2014**
Re:	**Summary of Traffic Engineering Analyses for the Oak Street/Chesterfield Avenue Intersection, and** **Information Regarding the Pick –up and Drop-off Zone for Quarton School**

Introduction

Fleis & VandenBrink (F&V) has completed various traffic engineering analyses of the Oak Street & Chesterfield Avenue intersection for the Oak Street Concept development. These analyses included an evaluation of the appropriate warrants from the Michigan Manual of Uniform Traffic Control Devices (MMUTCD) for traffic signals, two-way stop, and all-way stop control. Further, level of service (LOS) analyses and simulations were completed for each traffic control option using new AM and PM peak hour) turning movement counts.

Another element of the concept development for Oak Street is the pick-up and drop-off activities at Quarton School. F&V was asked to assist in the development of a concept that would remove the on-street process that is currently being used at the school. F&V assisted the City Engineering Department in the development and evaluation of a concept that mostly fits on the school property, adequately addresses the anticipated demand and will work within the Oak Street concepts under consideration.

Traffic Signal Warrants

The MMUTCD states, "An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location. The investigation of need for a traffic control signal shall include an analysis of factors related to the existing operation and safety at the study location and the potential to improve these conditions, and the applicable factors contained in the following traffic signal warrants".

There are nine warrants, some use traffic volume thresholds as criteria, others use traffic crashes, pedestrian volumes, school crossing, at grade railroad crossing, coordinated signal system or roadway network. The warrants that apply to the intersection of Oak Street and Chesterfield Avenue are traffic volume, pedestrian and school crossing. The results of the evaluation of these warrants are summarized in the following (with the details included in the attachments to this memo):

- None of the traffic or pedestrian volume warrants are met. The intersection traffic and pedestrian volumes are significantly outside of the necessary thresholds.

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- The school crossing warrant is not met. The School Crossing warrant is intended for application where the fact that schoolchildren cross the major street is the principal reason for signalization. In order for this warrant to be met, the frequency of adequate gaps in the vehicular traffic stream during the period when schoolchildren are using the crossing, has to be less than the number of minutes in the same period and there must be a minimum of 20 schoolchildren during the highest crossing hour. The applicable information is; in the AM there is a car traveling on Oak Street in front of the school every 8.5 seconds. In the PM there is a car traveling on Oak Street every 11.1 seconds. The approximate "acceptable gap" time is 13 seconds for the current street width and 10 seconds for the 30' street proposal. There were 97 pedestrians crossing Oak street in the AM and 87 in the PM. The proper use of school crossing guards, etc. is recommended prior to the installation of a traffic signal. From what information is available this procedure was not followed at this location, since a traffic signal is in place at this intersection.
- A Rectangular Rapid Flashing Beacon (RRFB) (see image in attachment) is warranted based on the pedestrian volume criteria for this Beacon. Although not currently in the MMUTCD, the RRFB has been given interim approval by the Federal Highway Administration (FHWA).

Two-Way and All-Way Stop Control Warrants

The MMUTCD uses some of the same criteria to warrant the use of stop and yield intersection control as is used for traffic signals. Traffic, bicycle and pedestrian volume thresholds, crashes, etc. are used. However, information regarding available sight distance and approach speeds are also key elements in this determination. The information provided in the attachments indicates that a two-way stop control, with Chesterfield Avenue stopping for Oak Street is appropriate. This is based on the restricted sight distance looking east from the north and south approaches, and the higher traffic volume on Oak Street.

Pick-up and Drop-off Lane

The stacking space for the pickup / drop-off area should range from 500' to 1,125' depending upon what method is used to determine it. The concept that is shown on the plan (s) has approximately 600' in length. We believe that if used properly this proposed length will adequately serve the school demand.

The concept for the pickup / drop-off area is a one way operation, enter at the west and exit at the east. Left turns in at the west end would be allowed, lefts turn out would not be permitted. Parents park their vehicle against the south curb and their child exits the vehicle on the passenger side. The parent pulls away from the curb and uses the drive lane to exit at the east end. Parents are to park where there is an available space in the drop-off area, not wait in line to drop their child at the front door of the school. Children are not to be dropped off in the drive lane. The lane on the south side could be used for parking during non-pickup or drop-off times. This operation will significantly reduce the potential for pedestrian-vehicle conflicts and thus will be much more safe if it properly followed by the parents.

Level of Service

Descriptions of LOS "A" through "F" as defined in the Highway Capacity Manual (HCM) are attached for signalized and unsignalized intersections. Typically LOS D is considered acceptable, with LOS A representing minimal delay and LOS F indicating failing conditions. The results of the analysis of existing conditions are attached and summarized in Table 1.

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro (Version 8) traffic analysis software. The results of the analysis of existing conditions were

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based on the existing lane use and traffic control, the existing traffic volumes, and the methodologies presented in the HCM 2000.

Table 1

Existing Intersection Operations

			AM Peak		PM Peak	
Intersection	Control	Approach	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Oak Avenue	Signalized	EB	10.0	A	9.2	A
& Chesterfield Avenue		WB	8.7	A	8.3	A
		NB	13.1	B	12.8	B
		SB	13.4	B	12.8	B
		Overall	**10.3**	**B**	**9.7**	**A**

The results are what should be expected for this intersection with traffic signal control.

Weekday Traffic on Oak Street

24-Hour bi-directional count information was collected along Oak Street east of Fairfax Street and west of Glenhurst Drive. The count information is attached and summarized in Table 2 below.

Table 2

24-Hour Count Comparison

Street	Approach	E. of Fairfax	W. of Glenhurst
Oak Avenue	EB	1380	1792
	WB	1550	1666
	Total	**2930**	**3458**

The weekday traffic using Oak Street is within the range that would be expected for a street such as Oak Street.

Attached: Synchro Results
Traffic Volume Data
MMUTCD Warrant Analyses

27725 Stansbury Boulevard, Suite 150
Farmington Hills, MI 48334
P: 248.536.0080
F: 248.536.0079
www.fveng.com

Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington, MI 48094 Ph. (586) 786-5407

Traffic Study Performed for:

Fleis & Vandenbrink

Project: Chesterfield Ave
Location: City of Birmingham
Weather: Cloudy, 60's
Board: DMM #21

File Name : TMC1_Oak&Chesterfield
Site Code : TMC 1
Start Date : 10/8/2014
Page No : 1

Groups Printed- Pass. Cars - Single Units - Buses/Semi's

	Chesterfield Avenue Southbound					Oak Street Westbound					Chesterfield Avenue Northbound					Oak Street Eastbound					
Start Time	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	8	2	0	11	2	9	6	0	17	5	4	0	1	10	1	15	0	0	16	54
07:15 AM	2	8	1	0	11	0	19	4	3	26	7	1	2	0	10	2	32	1	2	37	84
07:30 AM	3	3	2	0	8	5	25	1	1	32	6	3	2	0	11	1	32	0	0	33	84
07:45 AM	2	21	4	0	27	2	26	4	0	32	5	0	2	1	8	6	52	0	4	62	129
Total	8	40	9	0	57	9	79	15	4	107	23	8	6	2	39	10	131	1	6	148	351
08:00 AM	0	13	4	2	19	3	50	11	0	64	7	2	8	3	20	3	47	1	0	51	154
08:15 AM	6	20	1	0	27	2	32	5	0	39	6	3	1	6	16	4	49	2	0	55	137
08:30 AM	0	17	0	12	29	0	20	0	3	23	0	13	0	19	32	0	74	0	23	97	181
08:45 AM	0	24	0	20	44	1	27	1	24	53	0	21	0	27	48	0	88	2	47	137	282
Total	6	74	5	34	119	6	129	17	27	179	13	39	9	55	116	7	258	5	70	340	754
**** BREAK ****																					
03:00 PM	2	7	2	4	15	2	13	5	0	20	4	10	3	1	18	3	31	2	0	36	89
03:15 PM	0	9	2	0	11	1	30	5	0	36	7	6	3	0	16	1	21	0	1	23	86
03:30 PM	1	14	0	3	18	1	41	9	3	54	0	10	0	8	18	0	21	0	4	25	115
03:45 PM	0	12	1	18	31	0	26	1	23	50	1	16	1	61	79	0	72	0	57	129	289
Total	3	42	5	25	75	4	110	20	26	160	12	42	7	70	131	4	145	2	62	213	579
04:00 PM	2	7	2	0	11	3	25	5	8	41	6	5	2	16	29	4	40	2	9	55	136
04:15 PM	2	7	1	2	12	2	22	0	0	24	7	8	2	1	18	4	38	1	0	43	97
04:30 PM	1	9	1	1	12	1	28	5	0	34	4	5	2	0	11	2	20	0	2	24	81
04:45 PM	2	6	1	6	15	2	26	5	1	34	6	6	6	3	21	11	33	2	6	52	122
Total	7	29	5	9	50	8	101	15	9	133	23	24	12	20	79	21	131	5	17	174	436
05:00 PM	2	9	2	0	13	5	25	3	0	33	7	10	9	1	27	4	26	2	0	32	105
05:15 PM	0	7	0	1	8	2	26	8	0	36	8	9	1	1	19	3	22	1	1	27	90
05:30 PM	1	7	1	2	11	1	31	10	2	44	6	6	0	1	13	3	31	1	1	36	104
05:45 PM	1	15	1	2	19	2	21	8	0	31	9	8	1	1	19	4	28	0	0	32	101
Total	4	38	4	5	51	10	103	29	2	144	30	33	11	4	78	14	107	4	2	127	400
Grand Total	28	223	28	73	352	37	522	96	68	723	101	146	45	151	443	56	772	17	157	1002	2520
Apprch %	8	63.4	8	20.7		5.1	72.2	13.3	9.4		22.8	33	10.2	34.1		5.6	77	1.7	15.7		
Total %	1.1	8.8	1.1	2.9	14	1.5	20.7	3.8	2.7	28.7	4	5.8	1.8	6	17.6	2.2	30.6	0.7	6.2	39.8	
Pass. Cars	28	213	25	73	339	37	516	96	68	717	99	145	45	151	440	55	767	17	157	996	2492
% Pass. Cars	100	95.5	89.3	100	96.3	100	98.9	100	100	99.2	98	99.3	100	100	99.3	98.2	99.4	100	100	99.4	98.9
Single Units	0	10	3	0	13	0	6	0	0	6	2	1	0	0	3	1	4	0	0	5	27
% Single Units	0	4.5	10.7	0	3.7	0	1.1	0	0	0.8	2	0.7	0	0	0.7	1.8	0.5	0	0	0.5	1.1
Buses/Semi's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Buses/Semi's																					

Comments: Traffic study conducted during typical weekday (Wed) fron 7:00-9:00 AM morning & 3:00-6:00 PM afternoon peak hours while school was in session. Signalized intersection, with ped signals all quadrants, no push buttons. All approaches signed NO TURNS 8:30-9:00 AM & 3:30-4:00 PM.

Traffic Data Collection, TDC

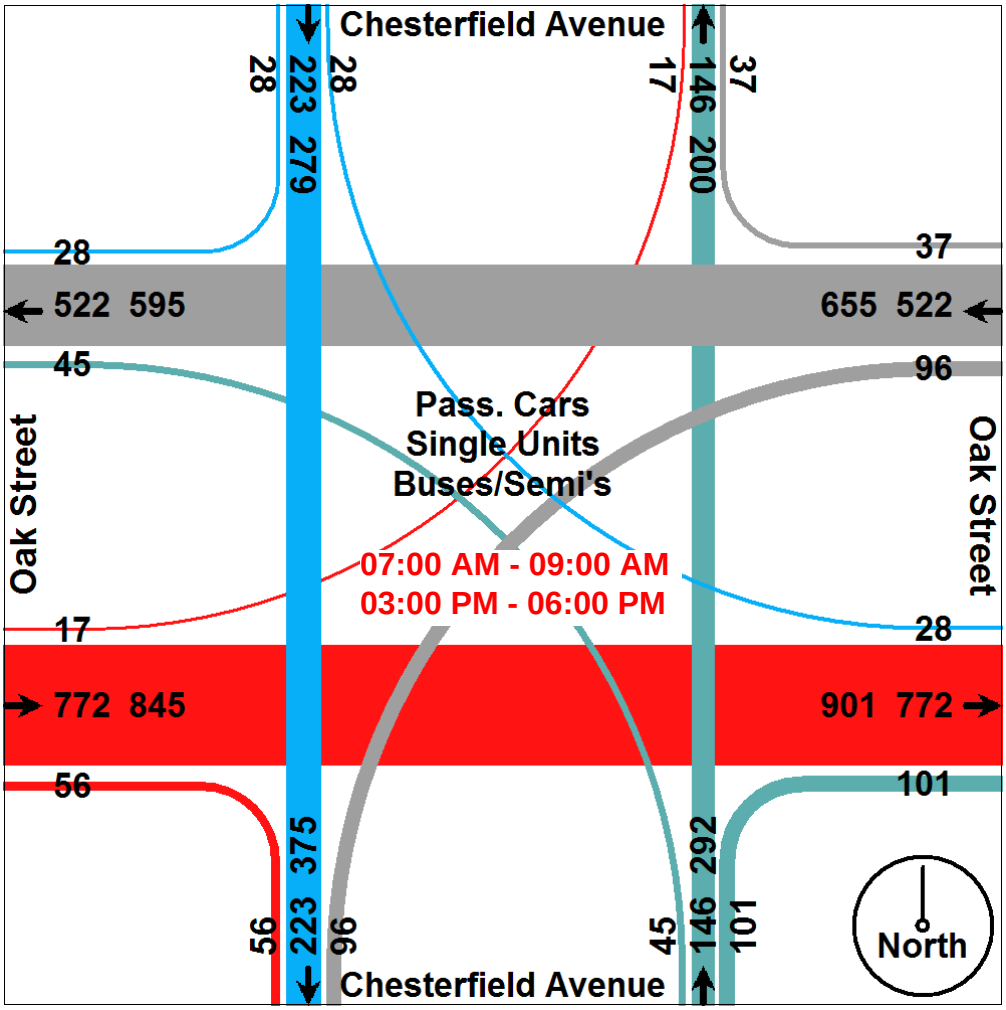
7504 Sawgrass Drive, Washington, MI 48094 Ph. (586) 786-5407

Traffic Study Performed for:

Fleis & Vandenbrink

Project: Chesterfield Ave
Location: City of Birmingham
Weather: Cloudy, 60's
Board: DMM #21

File Name : TMC1_Oak&Chesterfield
Site Code : TMC 1
Start Date : 10/8/2014
Page No : 2



Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington, MI 48094 Ph. (586) 786-5407

Traffic Study Performed for:

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Project: Chesterfield Ave
Location: City of Birmingham
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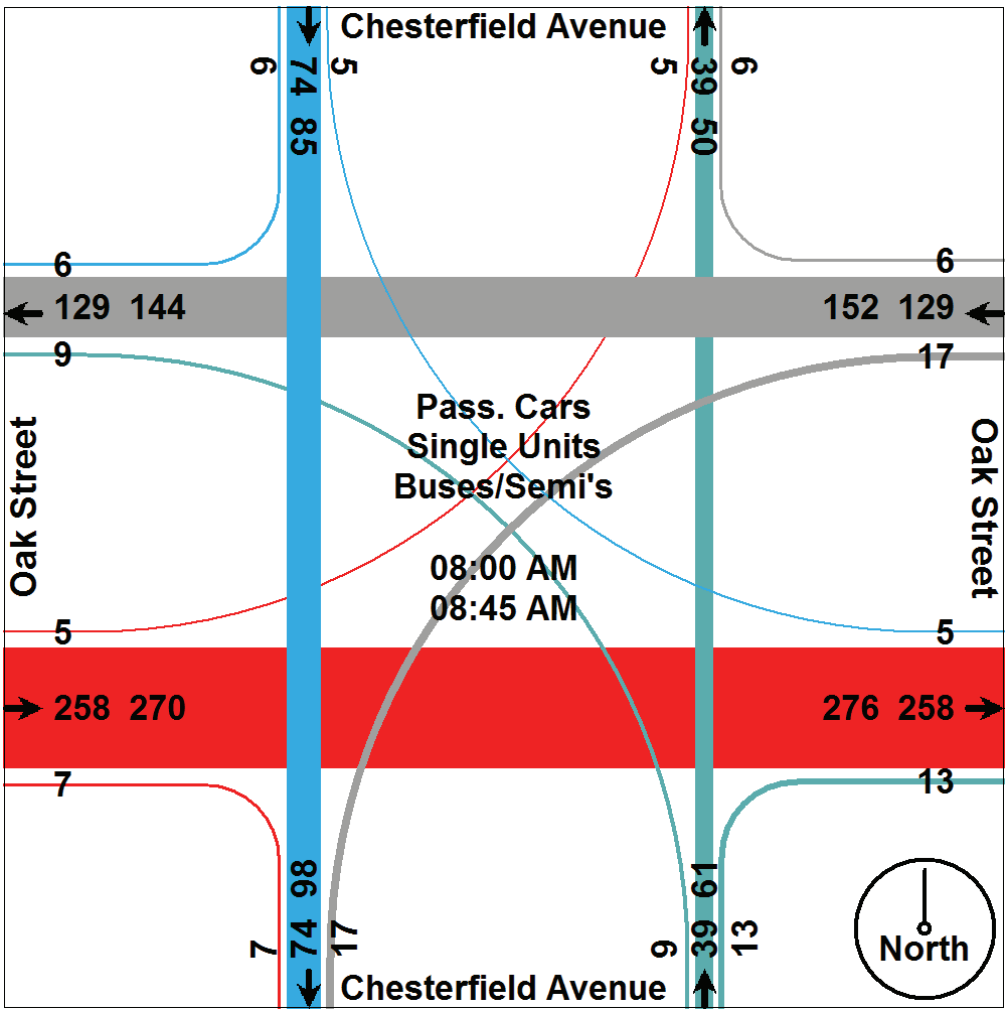
File Name : TMC1_Oak&Chesterfield
Site Code : TMC 1
Start Date : 10/8/2014
Page No : 3

	Chesterfield Avenue Southbound				Oak Street Westbound				Chesterfield Avenue Northbound				Oak Street Eastbound				
Start Time	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	13	**4**	17	**3**	**50**	**11**	**64**	**7**	2	**8**	17	3	47	1	51	149
08:15 AM	**6**	20	1	**27**	2	32	5	39	6	3	1	10	**4**	49	**2**	55	131
08:30 AM	0	17	0	17	0	20	0	20	0	13	0	13	0	74	0	74	124
08:45 AM	0	**24**	0	24	1	27	1	29	0	**21**	0	**21**	0	**88**	2	**90**	**164**
Total Volume	6	74	5	85	6	129	17	152	13	39	9	61	7	258	5	270	568
% App. Total	7.1	87.1	5.9		3.9	84.9	11.2		21.3	63.9	14.8		2.6	95.6	1.9		
PHF	.250	.771	.313	.787	.500	.645	.386	.594	.464	.464	.281	.726	.438	.733	.625	.750	.866
Pass. Cars	6	69	5	80	6	126	17	149	12	38	9	59	7	258	5	270	558
% Pass. Cars	100	93.2	100	94.1	100	97.7	100	98.0	92.3	97.4	100	96.7	100	100	100	100	98.2
Single Units	0	5	0	5	0	3	0	3	1	1	0	2	0	0	0	0	10
% Single Units	0	6.8	0	5.9	0	2.3	0	2.0	7.7	2.6	0	3.3	0	0	0	0	1.8
Buses/Semi's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses/Semi's	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington, MI 48094 Ph. (586) 786-5407

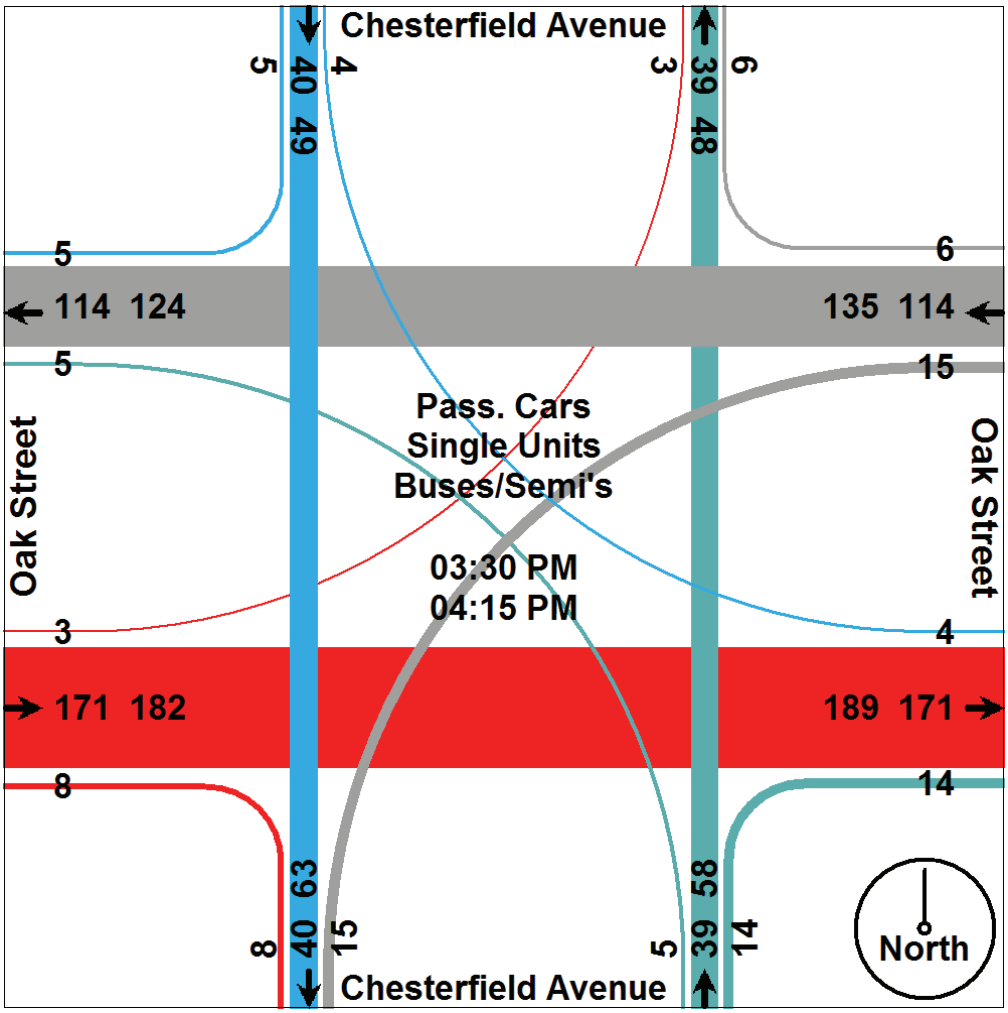
Traffic Study Performed for:

Fleis & Vandenbrink

Project: Chesterfield Ave
Location: City of Birmingham
Weather: Cloudy, 60's
Board: DMM #21

File Name : TMC1_Oak&Chesterfield
Site Code : TMC 1
Start Date : 10/8/2014
Page No : 4

	Chesterfield Avenue Southbound				Oak Street Westbound				Chesterfield Avenue Northbound				Oak Street Eastbound				
Start Time	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	1	**14**	0	**15**	1	**41**	**9**	**51**	0	10	0	10	0	21	0	21	97
03:45 PM	0	12	1	13	0	26	1	27	1	**16**	1	**18**	0	**72**	0	**72**	**130**
04:00 PM	**2**	7	**2**	11	**3**	25	5	33	6	5	**2**	13	**4**	40	**2**	46	103
04:15 PM	2	7	1	10	2	22	0	24	**7**	8	2	17	4	38	1	43	94
Total Volume	5	40	4	49	6	114	15	135	14	39	5	58	8	171	3	182	424
% App. Total	10.2	81.6	8.2		4.4	84.4	11.1		24.1	67.2	8.6		4.4	94	1.6		
PHF	.625	.714	.500	.817	.500	.695	.417	.662	.500	.609	.625	.806	.500	.594	.375	.632	.815
Pass. Cars	5	36	2	43	6	113	15	134	13	39	5	57	8	168	3	179	413
% Pass. Cars	100	90.0	50.0	87.8	100	99.1	100	99.3	92.9	100	100	98.3	100	98.2	100	98.4	97.4
Single Units	0	4	2	6	0	1	0	1	1	0	0	1	0	2	0	2	10
% Single Units	0	10.0	50.0	12.2	0	0.9	0	0.7	7.1	0	0	1.7	0	1.2	0	1.1	2.4
Buses/Semi's	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Buses/Semi's	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0.5	0.2



Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington MI. 48094 (586) 586-5407

Traffic Study Performed For:

Fleis & Vandenbrink

Project: Birmingham Quarton School Study
Count Type: 24 Hr. ATR Count
Weather: Sunny, 60' Degs.
Count By: M.Matich Pav't : Asphalt 2 Lanes

CHESTERFIELDNOAK_VOL
Chesterfield Ave.
(400' North of Oak Ave.)
Station ID: 2-Way Count
Site Code: ATR 2SB
Date Start: 07-Oct-14

Start	06-Oct-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	*	*	0	3	1	0	*	*	*	*	*	*	0	2
01:00	*	*	*	*	0	0	0	1	*	*	*	*	*	*	0	0
02:00	*	*	*	*	0	0	0	0	*	*	*	*	*	*	0	0
03:00	*	*	*	*	0	0	0	0	*	*	*	*	*	*	0	0
04:00	*	*	*	*	0	0	1	1	*	*	*	*	*	*	0	0
05:00	*	*	*	*	3	0	5	0	*	*	*	*	*	*	4	0
06:00	*	*	*	*	8	5	11	7	*	*	*	*	*	*	10	6
07:00	*	*	*	*	54	15	62	15	*	*	*	*	*	*	58	15
08:00	*	*	*	*	**81**	**53**	**72**	**52**	*	*	*	*	*	*	**76**	**52**
09:00	*	*	*	*	49	33	40	18	*	*	*	*	*	*	44	26
10:00	*	*	*	*	26	26	38	34	*	*	*	*	*	*	32	30
11:00	*	*	*	*	26	28	34	30	*	*	*	*	*	*	30	29
12:00 PM	*	*	35	44	38	36	**32**	**37**	*	*	*	*	*	*	35	39
01:00	*	*	35	17	27	19	25	24	*	*	*	*	*	*	29	20
02:00	*	*	37	36	28	30	18	14	*	*	*	*	*	*	28	27
03:00	*	*	**53**	**45**	**56**	**49**	*	*	*	*	*	*	*	*	**54**	**47**
04:00	*	*	47	35	41	35	*	*	*	*	*	*	*	*	44	35
05:00	*	*	42	43	47	47	*	*	*	*	*	*	*	*	44	45
06:00	*	*	28	30	47	41	*	*	*	*	*	*	*	*	38	36
07:00	*	*	30	26	23	25	*	*	*	*	*	*	*	*	26	26
08:00	*	*	14	14	11	30	*	*	*	*	*	*	*	*	12	22
09:00	*	*	8	17	8	7	*	*	*	*	*	*	*	*	8	12
10:00	*	*	4	3	5	4	*	*	*	*	*	*	*	*	4	4
11:00	*	*	2	5	0	4	*	*	*	*	*	*	*	*	1	4
Lane	0	0	335	315	578	490	339	233	0	0	0	0	0	0	577	477
Day	0		650		1068		572		0		0		0		1054	
AM Peak	-	-	-	-	08:00	08:00	08:00	08:00	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	-	-	81	53	72	52	-	-	-	-	-	-	76	52
PM Peak	-	-	15:00	15:00	15:00	15:00	12:00	12:00	-	-	-	-	-	-	15:00	15:00
Vol.	-	-	53	45	56	49	32	37	-	-	-	-	-	-	54	47

Comb. Total	0	650	1068	572	0	0	0	1054

ADT ADT 1,055 AADT 1,055

Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington MI. 48094 (586) 586-5407

Traffic Study Performed For:

Fleis & Vandenbrink

Project: Birmingham Quarton School Study
Count Type: 24 Hr. ATR Count
Weather: Sunny, 60' Degs.
Count By: M.Matich Pav't : Asphalt 2 Lanes

CHESTERFIELDSOAK_VOL
Chesterfield Ave.
(450' South of Oak Ave.)
Station ID: 2-Way Count
Site Code: ATR 2NB
Date Start: 07-Oct-14

Start	06-Oct-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	*	*	0	0	0	1	*	*	*	*	*	*	0	0
01:00	*	*	*	*	0	0	0	1	*	*	*	*	*	*	0	0
02:00	*	*	*	*	0	1	0	2	*	*	*	*	*	*	0	2
03:00	*	*	*	*	0	0	1	1	*	*	*	*	*	*	0	0
04:00	*	*	*	*	0	2	1	3	*	*	*	*	*	*	0	2
05:00	*	*	*	*	2	5	5	2	*	*	*	*	*	*	4	4
06:00	*	*	*	*	14	12	13	9	*	*	*	*	*	*	14	10
07:00	*	*	*	*	64	31	79	43	*	*	*	*	*	*	72	37
08:00	*	*	*	*	**102**	**66**	**84**	**67**	*	*	*	*	*	*	**93**	**66**
09:00	*	*	*	*	78	49	62	36	*	*	*	*	*	*	70	42
10:00	*	*	*	*	39	32	50	35	*	*	*	*	*	*	44	34
11:00	*	*	*	*	45	45	50	39	*	*	*	*	*	*	48	42
12:00 PM	*	*	49	43	58	44	**51**	**54**	*	*	*	*	*	*	53	47
01:00	*	*	39	29	46	28	43	37	*	*	*	*	*	*	43	31
02:00	*	*	50	54	43	47	37	19	*	*	*	*	*	*	43	40
03:00	*	*	72	**67**	69	**69**	*	*	*	*	*	*	*	*	70	**68**
04:00	*	*	**77**	46	68	52	*	*	*	*	*	*	*	*	72	49
05:00	*	*	70	55	**76**	67	*	*	*	*	*	*	*	*	**73**	61
06:00	*	*	53	41	63	46	*	*	*	*	*	*	*	*	58	44
07:00	*	*	42	30	29	37	*	*	*	*	*	*	*	*	36	34
08:00	*	*	19	16	24	36	*	*	*	*	*	*	*	*	22	26
09:00	*	*	13	13	8	18	*	*	*	*	*	*	*	*	10	16
10:00	*	*	6	5	9	5	*	*	*	*	*	*	*	*	8	5
11:00	*	*	4	3	5	4	*	*	*	*	*	*	*	*	4	4
Lane	0	0	494	402	842	696	476	349	0	0	0	0	0	0	837	664
Day	0		896		1538		825		0		0		0		1501	
AM Peak	-	-	-	-	08:00	08:00	08:00	08:00	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	-	-	102	66	84	67	-	-	-	-	-	-	93	66
PM Peak	-	-	16:00	15:00	17:00	15:00	12:00	12:00	-	-	-	-	-	-	17:00	15:00
Vol.	-	-	77	67	76	69	51	54	-	-	-	-	-	-	73	68

Comb. Total	0	896	1538	825	0	0	0	1501

ADT ADT 1,501 AADT 1,501

Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington MI. 48094 (586) 586-5407

Traffic Study Performed For:

Fleis & Vandenbrink

Project: Birmingham Quarton School Study
Count Type: 24 Hr. ATR Count
Weather: Sunny, 60' Degs.
Count By: M.Matich Pav't : Asphalt 1 Lane

OAKECHESTERFIELD_WB
Oak Ave.
(225' East of Chesterfield Ave.)
Station ID: Westbound
Site Code: ATR 02WB
Date Start: 07-Oct-14

Start Time	Mon 06-Oct-14	Tue	Wed	Thu	Fri	Average Day	Sat	Sun	Week Average
12:00 AM	*	*	5	2	*	4	*	*	4
01:00	*	*	0	2	*	1	*	*	1
02:00	*	*	1	2	*	2	*	*	2
03:00	*	*	0	2	*	1	*	*	1
04:00	*	*	0	0	*	0	*	*	0
05:00	*	*	1	1	*	1	*	*	1
06:00	*	*	19	17	*	18	*	*	18
07:00	*	*	109	101	*	105	*	*	105
08:00	*	*	**156**	**137**	*	**146**	*	*	**146**
09:00	*	*	66	80	*	73	*	*	73
10:00	*	*	77	94	*	86	*	*	86
11:00	*	*	87	107	*	97	*	*	97
12:00 PM	*	81	91	**88**	*	87	*	*	87
01:00	*	61	85	73	*	73	*	*	73
02:00	*	85	101	*	*	93	*	*	93
03:00	*	83	**147**	*	*	115	*	*	115
04:00	*	120	122	*	*	121	*	*	121
05:00	*	**155**	138	*	*	**146**	*	*	**146**
06:00	*	141	136	*	*	138	*	*	138
07:00	*	87	86	*	*	86	*	*	86
08:00	*	59	75	*	*	67	*	*	67
09:00	*	43	34	*	*	38	*	*	38
10:00	*	14	13	*	*	14	*	*	14
11:00	*	2	6	*	*	4	*	*	4
Total	0	931	1555	706	0	1516	0	0	1516
% Avg. WkDay	0.0%	61.4%	102.6%	46.6%	0.0%	100.0%			
% Avg. Week	0.0%	61.4%	102.6%	46.6%	0.0%	100.0%	0.0%	0.0%	
AM Peak	-	-	08:00	08:00	-	08:00	-	-	08:00
Vol.	-	-	156	137	-	146	-	-	146
PM Peak	-	17:00	15:00	12:00	-	17:00	-	-	17:00
Vol.	-	155	147	88	-	146	-	-	146
Total	0	931	1555	706	0	1516	0	0	1516

ADT ADT 1,504 AADT 1,504

Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington MI. 48094 (586) 586-5407

Traffic Study Performed For:

Fleis & Vandenbrink

Project: Birmingham Quarton School Study
Count Type: 24 Hr. ATR Count
Weather: Sunny, 60' Degs.
Count By: M.Matich Pav't : Asphalt 2 Lanes

OAKWFAIRFAX_VOL
Oak Ave.
(200' East of Fairfax St.)
Station ID: 2 Way Count
Site Code: ATR 3
Date Start: 07-Oct-14

Start	06-Oct-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	3	2	2	2	*	*	*	*	*	*	2	2
01:00	*	*	*	*	0	0	1	3	*	*	*	*	*	*	0	2
02:00	*	*	*	*	0	1	1	2	*	*	*	*	*	*	0	2
03:00	*	*	*	*	1	0	0	1	*	*	*	*	*	*	0	0
04:00	*	*	*	*	0	2	0	2	*	*	*	*	*	*	0	2
05:00	*	*	*	*	2	1	4	0	*	*	*	*	*	*	3	0
06:00	*	*	*	*	26	15	31	13	*	*	*	*	*	*	28	14
07:00	*	*	*	*	125	101	135	105	*	*	*	*	*	*	130	103
08:00	*	*	*	*	**225**	**121**	**209**	**125**	*	*	*	*	*	*	**217**	**123**
09:00	*	*	*	*	75	61	65	61	*	*	*	*	*	*	70	61
10:00	*	*	*	*	56	64	60	90	*	*	*	*	*	*	58	77
11:00	*	*	*	*	63	70	83	95	*	*	*	*	*	*	73	82
12:00 PM	*	*	*	*	64	101	**66**	**90**	*	*	*	*	*	*	65	96
01:00	*	*	73	54	52	74	55	75	*	*	*	*	*	*	60	68
02:00	*	*	70	85	86	115	48	45	*	*	*	*	*	*	68	82
03:00	*	*	**162**	129	**135**	**167**	*	*	*	*	*	*	*	*	**148**	148
04:00	*	*	111	**157**	119	166	*	*	*	*	*	*	*	*	115	**162**
05:00	*	*	106	140	117	163	*	*	*	*	*	*	*	*	112	152
06:00	*	*	85	131	94	142	*	*	*	*	*	*	*	*	90	136
07:00	*	*	58	74	72	85	*	*	*	*	*	*	*	*	65	80
08:00	*	*	35	51	34	56	*	*	*	*	*	*	*	*	34	54
09:00	*	*	16	34	21	27	*	*	*	*	*	*	*	*	18	30
10:00	*	*	10	12	6	13	*	*	*	*	*	*	*	*	8	12
11:00	*	*	8	3	4	3	*	*	*	*	*	*	*	*	6	3
Lane	0	0	734	870	1380	1550	760	709	0	0	0	0	0	0	1370	1491
Day	0		1604		2930		1469		0		0		0		2861	
AM Peak	-	-	-	-	08:00	08:00	08:00	08:00	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	-	-	225	121	209	125	-	-	-	-	-	-	217	123
PM Peak	-	-	15:00	16:00	15:00	15:00	12:00	12:00	-	-	-	-	-	-	15:00	16:00
Vol.	-	-	162	157	135	167	66	90	-	-	-	-	-	-	148	162

Comb. Total	0	1604	2930	1469	0	0	0	2861

ADT ADT 2,871 AADT 2,871

Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington MI. 48094 (586) 586-5407

Traffic Study Performed For:

Fleis & Vandenbrink

Project: Birmingham Quarton School Study
Count Type: 24 Hr. ATR Count
Weather: Sunny, 60' Degs.
Count By: M.Matich Pav't : Asphalt 1 Lane

OAKWCHESTERFIELD_EB
Oak Ave.
(175' West of Chesterfield Ave.)
Station ID: Eastbound
Site Code: ATR 2EB
Date Start: 07-Oct-14

Start Time	Mon 06-Oct-14	Tue	Wed	Thu	Fri	Average Day	Sat	Sun	Week Average
12:00 AM	*	*	3	2	*	2	*	*	2
01:00	*	*	0	1	*	0	*	*	0
02:00	*	*	0	0	*	0	*	*	0
03:00	*	*	1	0	*	0	*	*	0
04:00	*	*	0	1	*	0	*	*	0
05:00	*	*	5	5	*	5	*	*	5
06:00	*	*	32	33	*	32	*	*	32
07:00	*	*	148	145	*	146	*	*	146
08:00	*	*	**266**	**253**	*	**260**	*	*	**260**
09:00	*	*	109	86	*	98	*	*	98
10:00	*	*	80	71	*	76	*	*	76
11:00	*	*	81	90	*	86	*	*	86
12:00 PM	*	93	101	**102**	*	99	*	*	99
01:00	*	95	72	64	*	77	*	*	77
02:00	*	80	81	*	*	80	*	*	80
03:00	*	**181**	**151**	*	*	**166**	*	*	**166**
04:00	*	137	151	*	*	144	*	*	144
05:00	*	118	132	*	*	125	*	*	125
06:00	*	101	104	*	*	102	*	*	102
07:00	*	65	74	*	*	70	*	*	70
08:00	*	34	30	*	*	32	*	*	32
09:00	*	15	17	*	*	16	*	*	16
10:00	*	9	5	*	*	7	*	*	7
11:00	*	10	4	*	*	7	*	*	7
Total	0	938	1647	853	0	1630	0	0	1630

% Avg. WkDay	0.0%	57.5%	101.0%	52.3%	0.0%		100.0%							
% Avg. Week	0.0%	57.5%	101.0%	52.3%	0.0%		100.0%		0.0%	0.0%				
AM Peak	-	-	08:00	08:00	-	-	08:00	-	-	-	-	08:00	-	-
Vol.	-	-	266	253	-	-	260	-	-	-	-	260	-	-
PM Peak	-	15:00	15:00	12:00	-	-	15:00	-	-	-	-	15:00	-	-
Vol.	-	181	151	102	-	-	166	-	-	-	-	166	-	-
Total	0	938	1647	853	0		1630		0	0		1630		

ADT ADT 1,623 AADT 1,623

Traffic Data Collection, TDC

7504 Sawgrass Drive, Washington MI. 48094 (586) 586-5407

Traffic Study Performed For:

Fleis & Vandenbrink

Project: Birmingham Quarton School Study
Count Type: 24 Hr. ATR Count
Weather: Sunny, 60' Degs.
Count By: M.Matich Pav't : Asphalt 2 Lanes

OAKWGLENHURST_VOL
Oak Ave.
(150' West of Glenhurst Ave.)
Station ID: 2 Way Count
Site Code: ATR 1
Date Start: 07-Oct-14

Start	06-Oct-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	2	4	3	3	*	*	*	*	*	*	2	4
01:00	*	*	*	*	0	0	1	2	*	*	*	*	*	*	0	1
02:00	*	*	*	*	1	1	1	2	*	*	*	*	*	*	1	2
03:00	*	*	*	*	1	1	1	3	*	*	*	*	*	*	1	2
04:00	*	*	*	*	1	0	2	0	*	*	*	*	*	*	2	0
05:00	*	*	*	*	11	1	11	1	*	*	*	*	*	*	11	1
06:00	*	*	*	*	42	19	39	18	*	*	*	*	*	*	40	18
07:00	*	*	*	*	192	105	184	102	*	*	*	*	*	*	188	104
08:00	*	*	*	*	**238**	**175**	**228**	**149**	*	*	*	*	*	*	**233**	**162**
09:00	*	*	*	*	107	69	106	90	*	*	*	*	*	*	106	80
10:00	*	*	*	*	87	79	92	101	*	*	*	*	*	*	90	90
11:00	*	*	*	*	95	87	107	116	*	*	*	*	*	*	101	102
12:00 PM	*	*	92	90	99	104	**109**	**99**	*	*	*	*	*	*	100	98
01:00	*	*	96	62	78	92	68	75	*	*	*	*	*	*	81	76
02:00	*	*	88	91	101	106	*	*	*	*	*	*	*	*	94	98
03:00	*	*	151	157	133	**154**	*	*	*	*	*	*	*	*	142	156
04:00	*	*	**160**	127	155	133	*	*	*	*	*	*	*	*	**158**	130
05:00	*	*	140	**166**	**165**	149	*	*	*	*	*	*	*	*	152	**158**
06:00	*	*	135	160	125	153	*	*	*	*	*	*	*	*	130	156
07:00	*	*	80	91	83	95	*	*	*	*	*	*	*	*	82	93
08:00	*	*	45	65	46	73	*	*	*	*	*	*	*	*	46	69
09:00	*	*	19	43	21	43	*	*	*	*	*	*	*	*	20	43
10:00	*	*	9	14	8	16	*	*	*	*	*	*	*	*	8	15
11:00	*	*	6	3	1	7	*	*	*	*	*	*	*	*	4	5
Lane	0	0	1021	1069	1792	1666	952	761	0	0	0	0	0	0	1792	1663
Day	0		2090		3458		1713		0		0		0		3455	
AM Peak	-	-	-	-	08:00	08:00	08:00	08:00	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	-	-	238	175	228	149	-	-	-	-	-	-	233	162
PM Peak	-	-	16:00	17:00	17:00	15:00	12:00	12:00	-	-	-	-	-	-	16:00	17:00
Vol.	-	-	160	166	165	154	109	99	-	-	-	-	-	-	158	158

Comb. Total	0	2090	3458	1713	0	0	0	3455

ADT ADT 3,434 AADT 3,434

Summary of Warrants

Spot Number:	0		
Major Street:	Oak Avenue	Minor Street:	Chesterfield Avenue
Intersection:	Oak Avenue at Chesterfield Avenue		
City/Twp:	Birmingham, MI		
Date Performed:	10/10/2014	Performed By:	F&V
Date Volumes Collected:	10/7/2014		

Warrant	Condition	Is Warrant Met
Data Has Been Validated		**YES**
WARRANT 1: Eight-Hour Vehicular Volume		**NO**
	Condition A	NO
	Condition B	NO
	Condition A&B	N/A
WARRANT 2: Four-Hour Vehicular Volume	(100%)	**NO**
WARRANT 3: Peak-Hour Vehicular Volume	(100%)	**#N/A**
	Condition A	**#N/A**
	Condition B	**NO**
WARRANT 4: Pedestrian Volume	(100%)	**NO**
	Four Hour	NO
	Peak Hour	NO
(Threshold)	HAWK	NO
(Threshold)	RRFB	YES
WARRANT 5: School Crossing		**NO**
WARRANT 6: Coordinated Signal System		**NO**
WARRANT 7: Crash Experience		**NO**
	Condition A	NO
	Condition B	NO
WARRANT 8: Roadway Network		**NO**
WARRANT 9: Intersection Near a Grade Crossing		**#N/A**

Issue to Be Addressed by Signalization:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 1: Eight-Hour Vehicular Volume

Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

1	: No. of Lanes on Major St?
1	: No. of Lanes on Minor St?
25	: Speed limit or 85th Percentile? (MPH)
NO	: Is the intersection within an Isolated community?
	: if answer 4 is Yes, then what is the of the population isolated community?
0%	: Have other remedial measures been tried?

USE 100% WARRANTS 1A AND 1B. DO NOT USE COMBINATION OF A & B

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?	Combination Major A	Combination Minor A	Combination Major B	Combination Minor B	Warrant Condition A&B met?
Time	E-W	N-S											
00:01 - 01:00	6	0	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
01:00 - 02:00	1	0	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
02:00 - 03:00	2	2	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
03:00 - 04:00	1	0	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
04:00 - 05:00	0	2	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
05:00 - 06:00	6	4	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
06:00 - 07:00	50	10	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
07:00 - 08:00	245	57	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
08:00 - 09:00	422	85	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
09:00 - 10:00	171	44	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
10:00 - 11:00	162	34	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
11:00 - 12:00	183	42	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
12:00 - 13:00	186	47	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
13:00 - 14:00	150	31	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
14:00 - 15:00	173	40	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
15:00 - 16:00	285	61	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
16:00 - 17:00	281	59	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
17:00 - 18:00	267	74	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
18:00 - 19:00	240	44	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
19:00 - 20:00	156	34	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
20:00 - 21:00	99	26	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
21:00 - 22:00	54	16	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
22:00 - 23:00	21	5	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO
23:00 - 00:00	11	4	500	150	NO	750	75	NO	N/A	N/A	N/A	N/A	NO

Number of Hours that met the warrant 1A =	0
Number of Hours that met the warrant 1B =	0
Number of Hours that met the warrant 1 A & B =	0

A. Is the Minimum Vehicular Volume Warrant Met? (Condition A)	NO
B. Is the Interruption of Continuous Traffic Met? (Condition B)	NO
C. Combination of Warrants A and B Criteria Met?	N/A

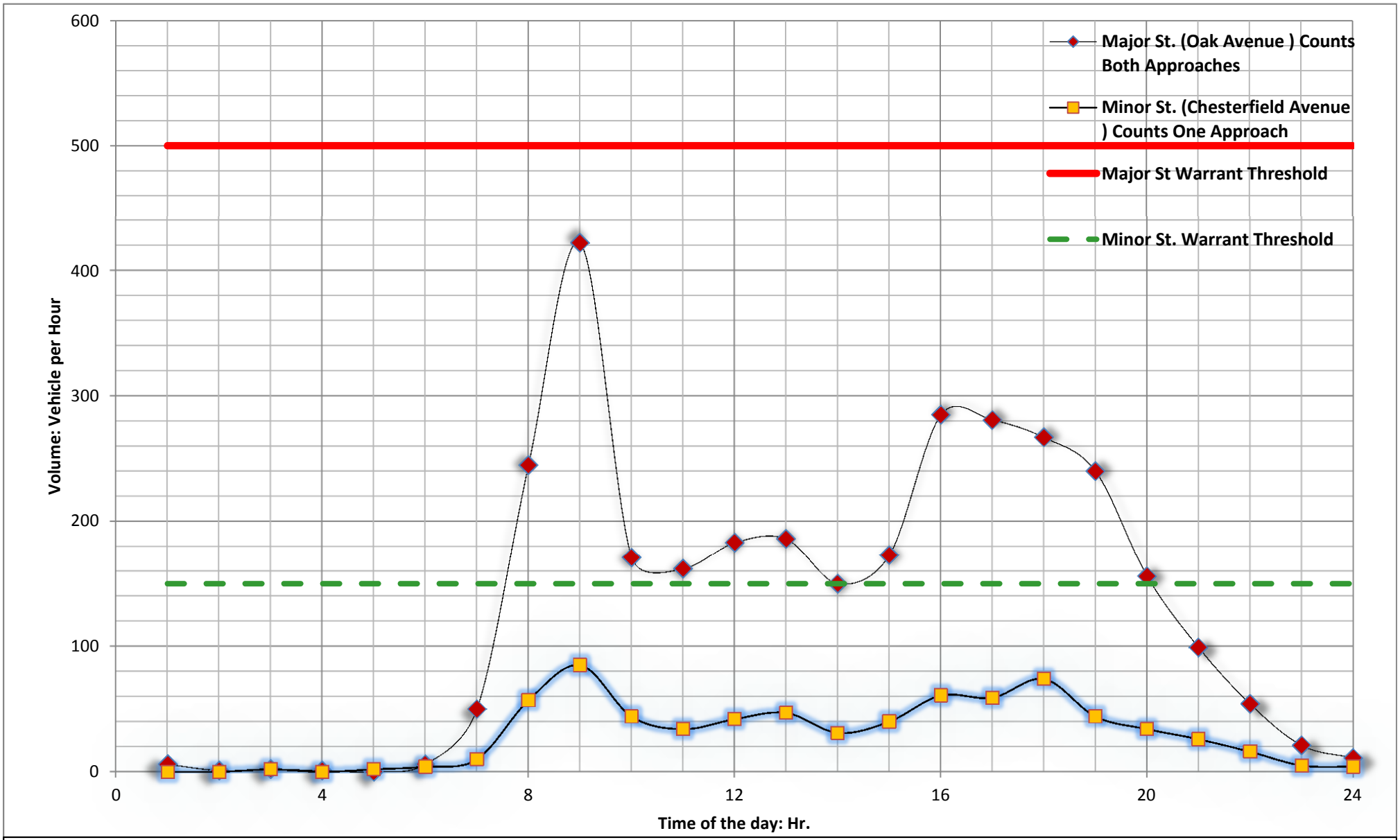


FIGURE 1: WARRANT **1A**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? NO

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? NO

Spot Number:

Oak Avenue @ Chesterfield Avenue

NO. OF LANES ON MAJOR ST.? 1

NO. OF LANES ON MINOR ST.? 1

Number of Hours that met the Warrant: 0

Does this intersection meet Warrant 1A for signal installation? NO

Data Collection Date: 10/7/2014

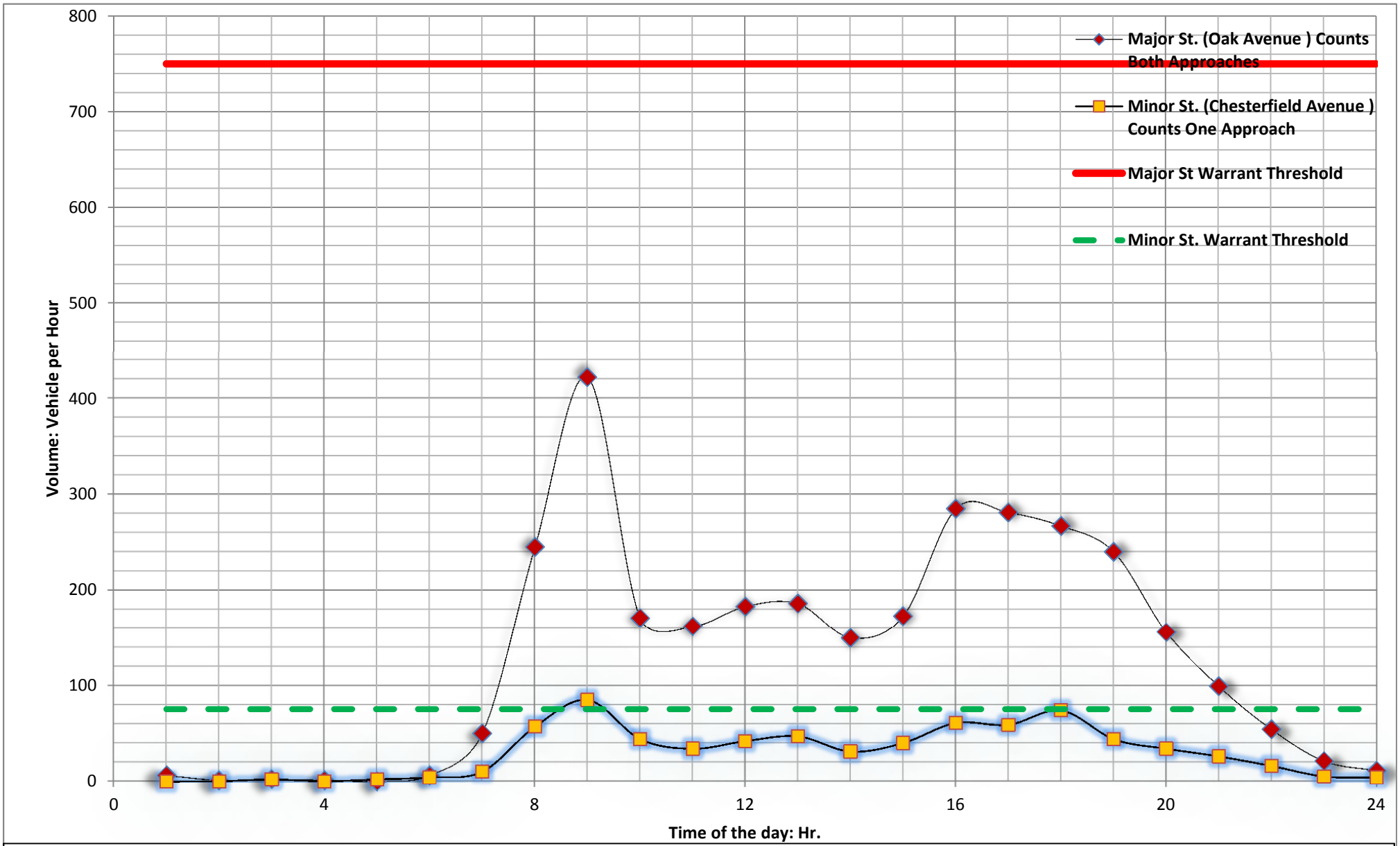


FIGURE 1: WARRANT **1B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ...

1- DUE TO SPEED? **NO**

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? **NO**

Spot Number:

Oak Avenue @ Chesterfield Avenue

NO. OF LANES ON MAJOR ST.? **1**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **0**

Does this intersection meet Warrant 1B for signal installation? **NO**

Data Collection Date: **10/7/2014**

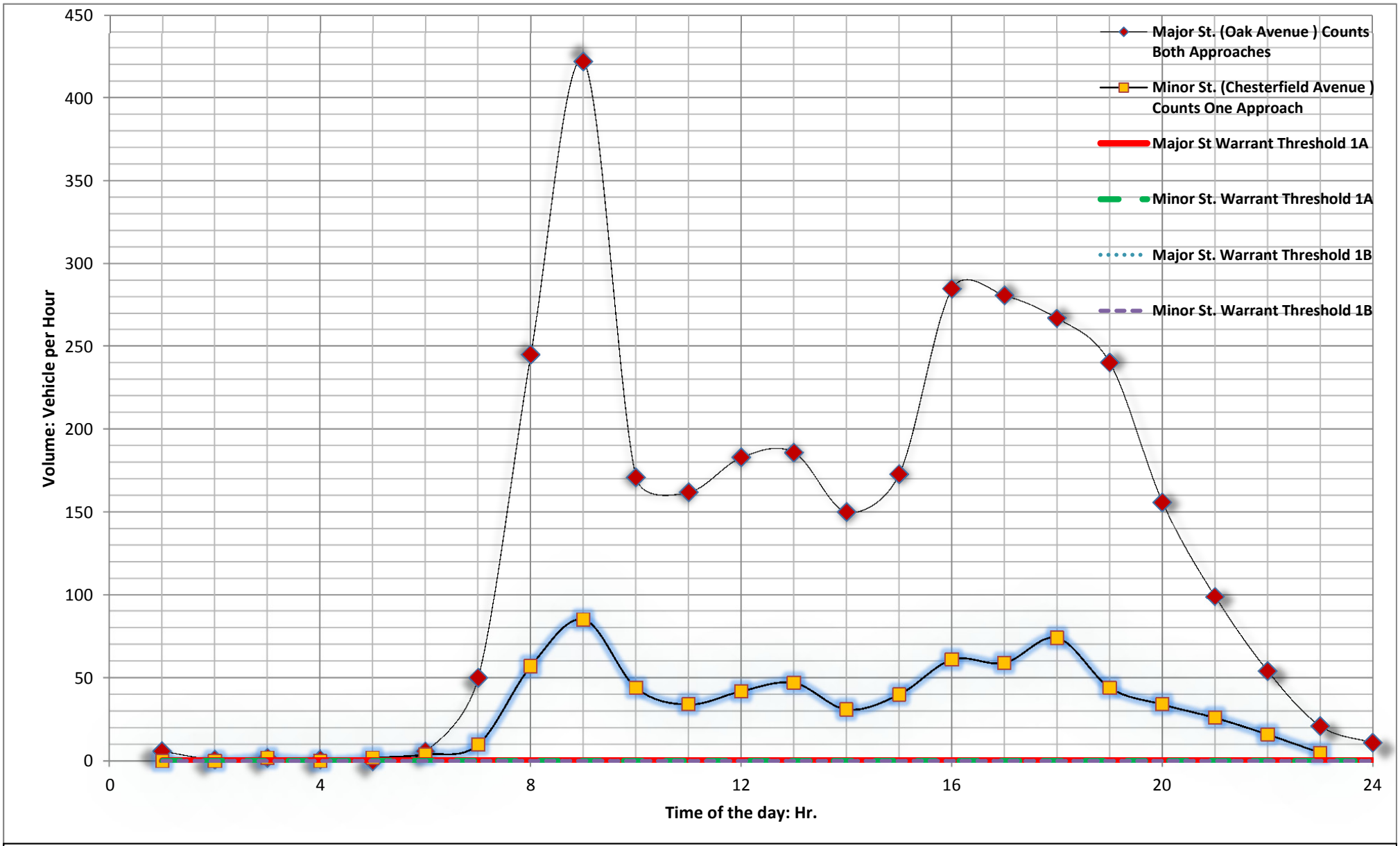


FIGURE 3: WARRANT **1A&B**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 56% ...

1- DUE TO SPEED? NO

2- DUE TO ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000? NO

Spot Number:

Oak Avenue @ Chesterfield Avenue

NO. OF LANES ON MAJOR ST.? 1

NO. OF LANES ON MINOR ST.? 1

Number of Hours that met the Warrant: 0

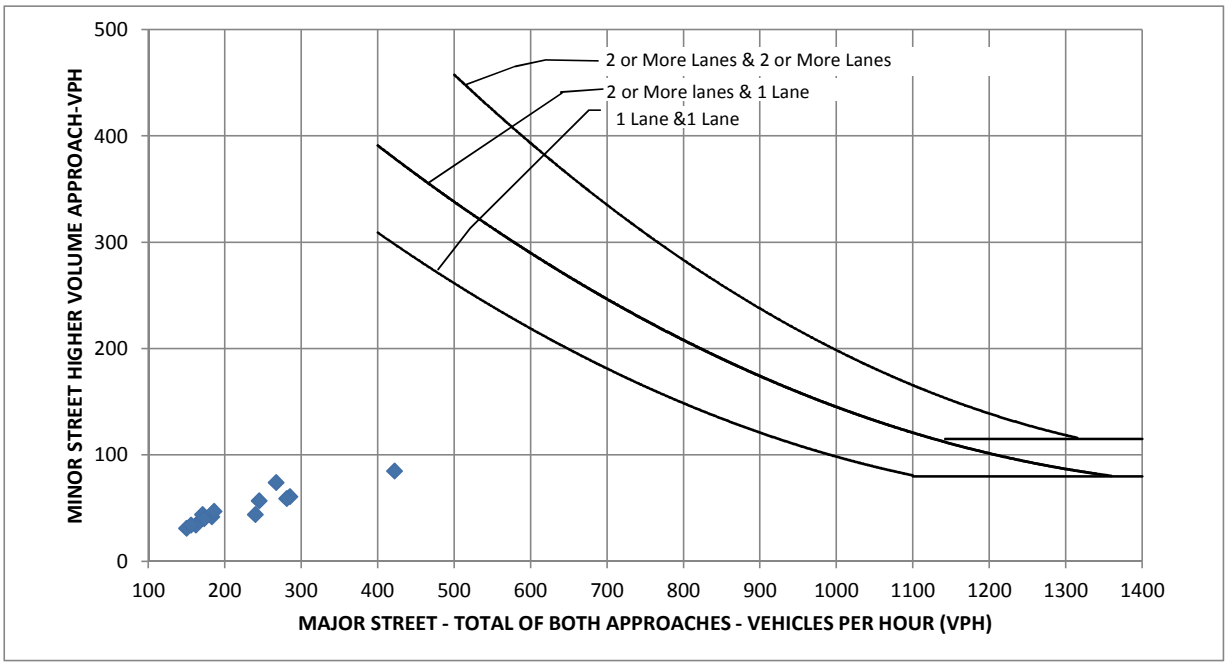
Does this intersection meet Warrant 1A&B for signal installation? N/A

Data Collection Date: 10/7/2014

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 2: Four-Hour Vehicular Volume

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

1	: No. of Lanes on Major St.
1	: No. of Lanes on Minor St.
25	: Speed limit or 85th Percentile? (MPH)
NO	: Is the intersection within an Isolated community?
	: What is the of the population isolated community?



How Many Hours Are Met	0
Is Warrant 2 (100%) Met?	NO

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 A: Peak-Hour Vehicular Volume

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

NOT MET	0	: Total Stop Time Delay (hrs)
	1	: Minor Street Approach Lanes
	0	: Total Approaches
	#N/A	: Minor Approach Volume
	#N/A	: Total Entering Volume
	0:00	: Peak Hour

Is Warrant 3 A Met?	**#N/A**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 3 B(100%): Peak-Hour Vehicular Volume

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

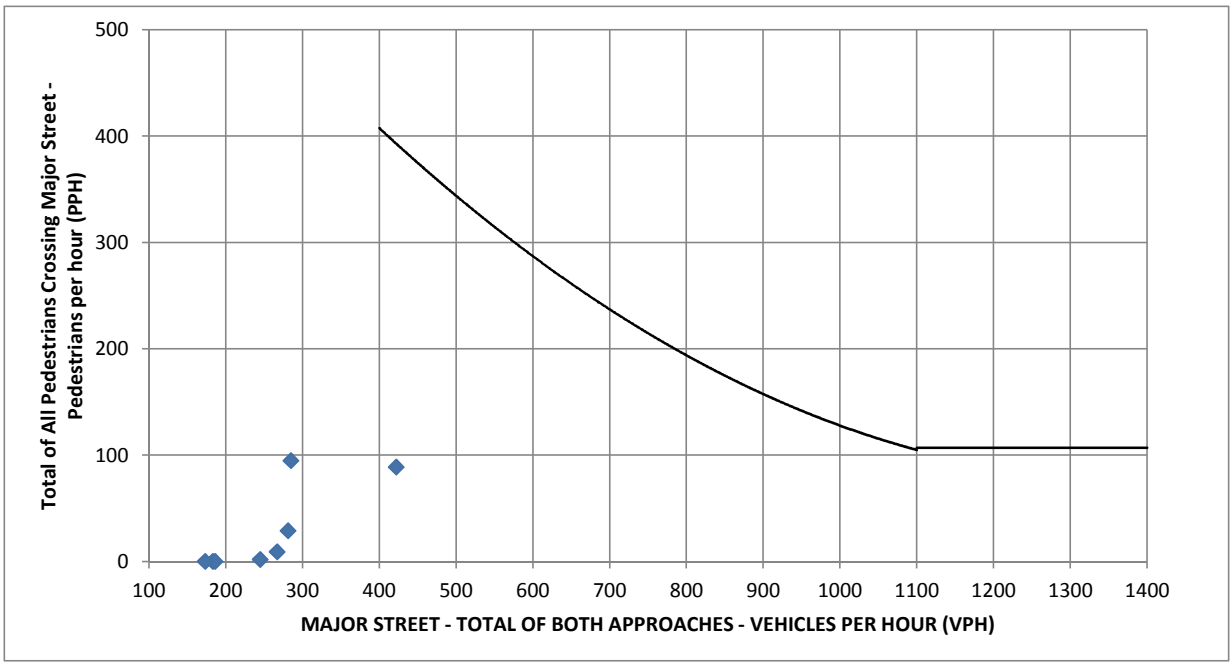
1	: No. of Lanes on Major St.
1	: No. of Lanes on Minor St.
25	: Speed limit or 85th Percentile? (MPH)
NO	: Is the intersection within an Isolated community?
	: What is the of the population isolated community?

How Many Hours Are Met	0
Is Warrant 3 B (100%) Met?	NO

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 4 (100%): Four-Hour Pedestrian Volume

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

2000	: Distance to Nearest Signal or Stop Control on Major Road
0%	: Percentage Reduction in Pedestrian Volumes
25	: Speed limit or 85th Percentile? (MPH)
NO	: Is the intersection within an Isolated community?
	: What is the of the population isolated community?



How Many Hours Are Met	0
Is Warrant 4 B (100%): Four Hour Met?	NO

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 5: School Crossing

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

2000	: Distance to Nearest Signal or Stop Control on Major Road
0	: Width of Street
0	: Number of Children per Group
3	: Safe Gap (Seconds)

0	: Number of Gaps in Study Period
0	: Study Period (Minutes)
0	: Number of School Children

Is Warrant 5 Met?	**NO**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 6: Coordinated Signal System

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

The Progressive Movement warrant is satisfied when:

1. On a one-way street or a street which has predominantly unidirectional traffic, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning, or

2. On a two-way street, adjacent signals do not provide the necessary degree of a platooning and the proposed or adjacent signals could constitute a progressive signal system.

The installation of a signal according to this warrant should not be considered where the resultant signal spacing is less than 1,000 feet.

Is Warrant 6 Met?	**NO**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 7: Crash Experience

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

1	: No. of Lanes on Major St?
1	: No. of Lanes on Minor St?
0%	: Has adequate trial of remedial measure with adequate enforcement been tried?
0%	: Have there been 5 or more crashes susceptible to correction by Signalization occurred in a 12 month period?

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition A Major Volume	Condition A Minor Volume	Warrant Condition A Met?	Condition B Major Volume	Condition B Minor Volume	Warrant Condition B Met?
Time	E-W	N-S						
00:01 - 01:00	6	0	400	120	NO	600	60	NO
01:00 - 02:00	1	0	400	120	NO	600	60	NO
02:00 - 03:00	2	2	400	120	NO	600	60	NO
03:00 - 04:00	1	0	400	120	NO	600	60	NO
04:00 - 05:00	0	2	400	120	NO	600	60	NO
05:00 - 06:00	6	4	400	120	NO	600	60	NO
06:00 - 07:00	50	10	400	120	NO	600	60	NO
07:00 - 08:00	245	57	400	120	NO	600	60	NO
08:00 - 09:00	422	85	400	120	NO	600	60	NO
09:00 - 10:00	171	44	400	120	NO	600	60	NO
10:00 - 11:00	162	34	400	120	NO	600	60	NO
11:00 - 12:00	183	42	400	120	NO	600	60	NO
12:00 - 13:00	186	47	400	120	NO	600	60	NO
13:00 - 14:00	150	31	400	120	NO	600	60	NO
14:00 - 15:00	173	40	400	120	NO	600	60	NO
15:00 - 16:00	285	61	400	120	NO	600	60	NO
16:00 - 17:00	281	59	400	120	NO	600	60	NO
17:00 - 18:00	267	74	400	120	NO	600	60	NO
18:00 - 19:00	240	44	400	120	NO	600	60	NO
19:00 - 20:00	156	34	400	120	NO	600	60	NO
20:00 - 21:00	99	26	400	120	NO	600	60	NO
21:00 - 22:00	54	16	400	120	NO	600	60	NO
22:00 - 23:00	21	5	400	120	NO	600	60	NO
23:00 - 00:00	11	4	400	120	NO	600	60	NO

Number of Hours that met the warrant 7A =	0
Number of Hours that met the warrant 7B =	0

A. Is the Minimum Vehicular Volume Warrant Met Based on Crash Patterns? (Condition A)	NO
B. Is the Interruption of Continuous Traffic Met Based on Crash Patterns? (Condition B)	NO

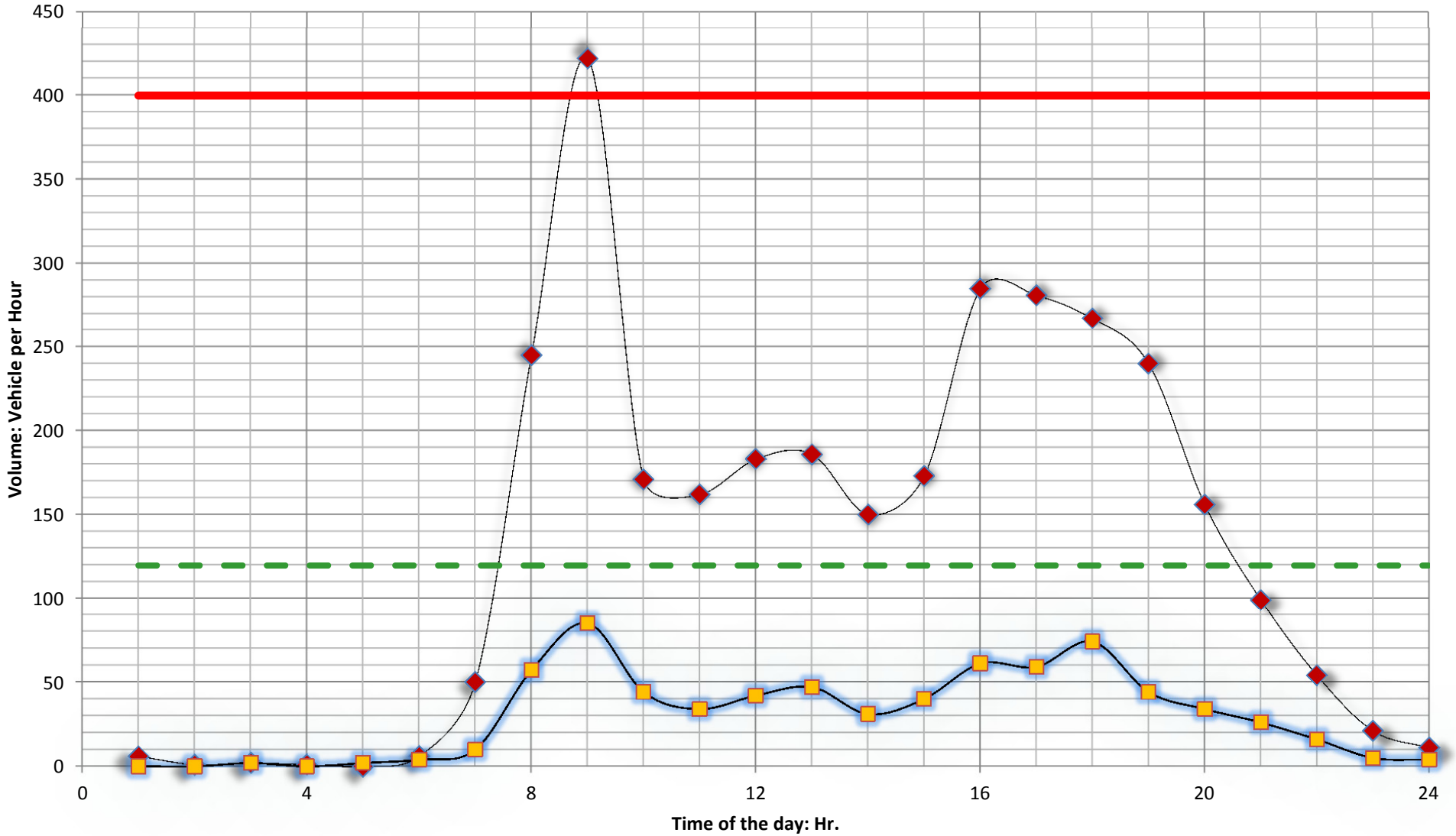


FIGURE 1: WARRANT **7A**

Spot Number:

Oak Avenue @ Chesterfield Avenue

NO. OF LANES ON MAJOR ST.? 1

NO. OF LANES ON MINOR ST.? 1

Number of Hours that met the Warrant: 0

Does this intersection meet Warrant 7A for signal installation? NO

- Major St. (Oak Avenue) Counts Both Approaches
- Minor St. (Chesterfield Avenue) Counts One Approach
- Major St Warrant Threshold
- Minor St. Warrant Threshold

Data Collection Date: 10/7/2014

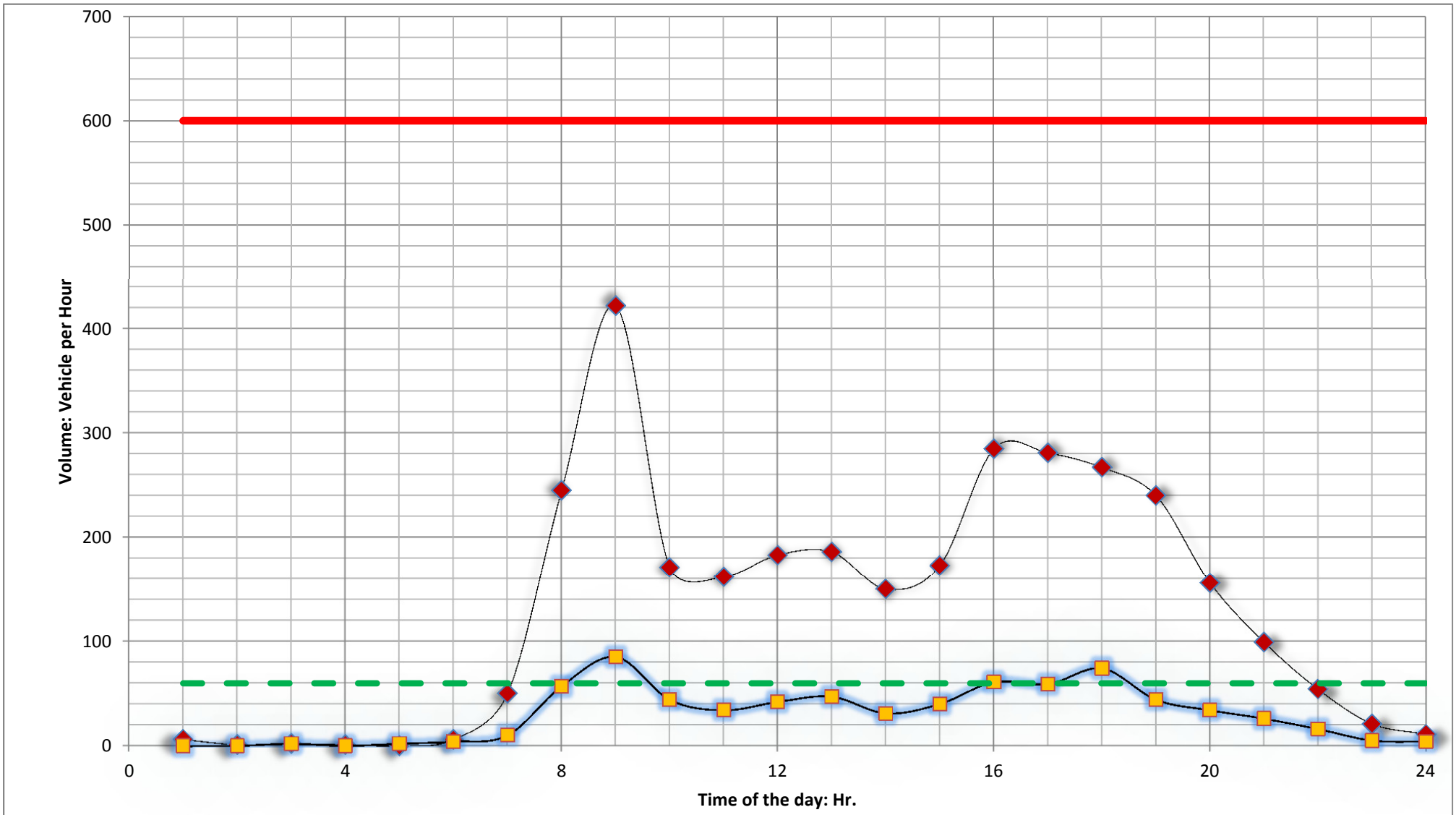


FIGURE 2: WARRANT **7B**

Spot Number:

Oak Avenue @ Chesterfield Avenue

NO. OF LANES ON MAJOR ST.? **1**

NO. OF LANES ON MINOR ST.? **1**

Number of Hours that met the Warrant: **0**

Does this intersection meet Warrant 7B for signal installation? **NO**

- Major St. (Oak Avenue) Counts Both Approaches
- Minor St. (Chesterfield Avenue) Counts One Approach
- Major St Warrant Threshold
- Minor St. Warrant Threshold

Data Collection Date: **10/7/2014**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 8: Roadway Network

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

The need for a traffic signal control study is applicable when the common intersection of two or more major routes meets one or both of the following criteria :

(1) has a total existing, or immediately projected, entering volume of at least 1,000 vehicles during the peak hour and has five-year projected volumes, based on an engineering study, which meet one or more of Warrants 1, 2, and 3 during an average weekday; or

(2) has a total existing or immediately projected entering volume of at least 1,000 vehicles for each of any five hours of a non-normal business day (Saturday and/or Sunday).

Is Warrant 8 Met?	**NO**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Signal Warrants (Section 4C)
WARRANT 9: Intersection Near a Grade Crossing

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

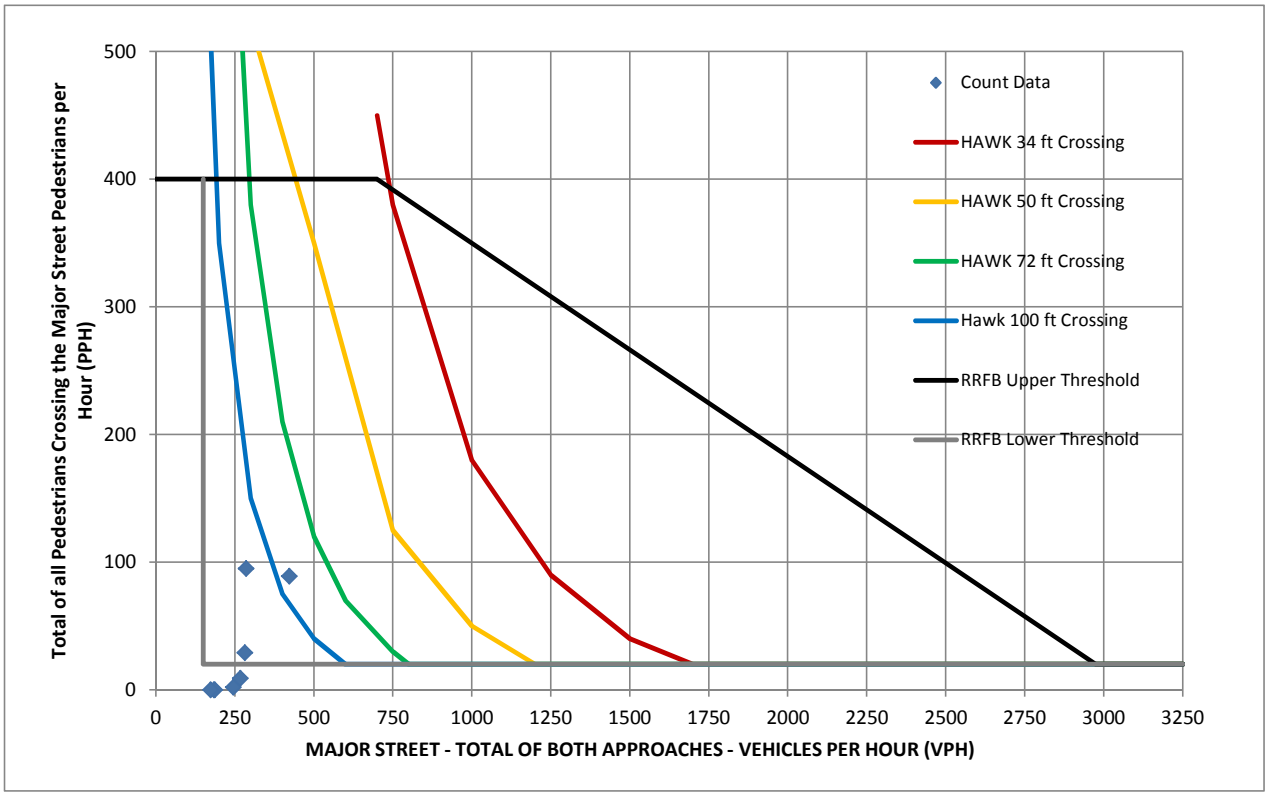
Adjustment Factors		
	0	: Clear Storage Distance (ft)
	0	: Number of Approach Lanes Crossing Tracks
	0	: Peak Hour
	#N/A	: Peak Hour Major Street Volume
	#N/A	: Peak Hour Minor Street Volume
fail	0	: Trains per Day
1	0%	: Percentage High Occupancy Busses
#N/A	0	: Percentage Tractor Trailers
	#N/A	: Adjusted Minor Street Volume
	#N/A	: Is Figure 4C-10 Satisfied?

Is Warrant 9 Met?	**#N/A**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Pedestrian Device Thresholds (Section 4F)
ALTERNATE PEDESTRIAN DEVICES (SPEED <= 35 mph)

Spot Number:	0		
Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/10/2014	by	F&V

2000	: Distance to Nearest Signal or Stop Control on Major Road
25	: Speed limit or 85th Percentile? (MPH)
40	: Crosswalk Length
0	: Sight Distance Sufficient?



Is the Ped Volume Warrant Met? (See W4 Tabs for Details)	NO
Is the School Crossing Warrant Met? (See W5 Tabs for Details)	NO
Pedestrian Hybrid Beacon	
How Many Hours Are Met (HAWK)?	0
Can a HAWK be Considered?	NO
Rectangular Rapid Flashing Beacon	
Hours Meeting RRFB Minimum Criteria Met?	3
Are all Data Points below the RRFB Upper Threshold?	YES
Can an RRFB be Considered?	YES

Summary of Multi-Way STOP Warrants

Spot Number:	0		
Major Street:	Oak Avenue	Minor Street:	Chesterfield Avenue
Intersection:	Oak Avenue at Chesterfield Avenue		
City/Twp:	City of Birmingham		
Date Performed:	10/21/2014	Performed By:	F&V
Date Volumes Collected:	10/8/2014		
Data Has Been Validated			**YES**

Warrant	Condition	Is Warrant Met
CRITERIA B: Crash History		**NO**
CRITERIA C: Minimum Volumes		**NO**
CRITERIA D: 80% Criteria B, C1, C2		**NO**
	Volume Criteria	**NO**
	Crash Criteria	**NO**

Issue to Be Addressed by Multi-way STOP Control:

0

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Multi-Way STOP Warrants (Section 2B.07)
CRITERIA B: CRASH HISTORY

Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.

NO	**: Have there been 5 or more crashes in a 12 month period susceptible to correction by Multi-way stop installation?**

Is Criteria B Met?	**NO**

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Multi-way STOP Warrants (Section 2B.07)
Criteria C: Minimum Volumes

Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/21/2014	by	F&V

NO	**: Have there been 5 or more crashes in a 12 month period susceptible to correction by Multi-way stop installation?**
1	**: No. of Lanes on Major St?**
1	**: No. of Lanes on Minor St?**
25	**: Speed limit or 85th Percentile? (MPH)**

USE 100% FOR CONDITION C

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition C Major Volume	Condition C Minor Volume	Warrant Condition C Met?
Time	**E-W**	**N-S**			
00:01 - 01:00	6	0	300	200	**NO**
01:00 - 02:00	1	0	300	200	**NO**
02:00 - 03:00	2	2	300	200	**NO**
03:00 - 04:00	1	0	300	200	**NO**
04:00 - 05:00	0	2	300	200	**NO**
05:00 - 06:00	6	8	300	200	**NO**
11:00 - 12:00	183	72	300	200	**NO**
12:00 - 13:00	186	82	300	200	**NO**
13:00 - 14:00	150	60	300	200	**NO**
14:00 - 15:00	173	68	300	200	**NO**
15:00 - 16:00	285	111	300	200	**NO**
16:00 - 17:00	281	100	300	200	**NO**
17:00 - 18:00	267	120	300	200	**NO**
18:00 - 19:00	240	82	300	200	**NO**
19:00 - 20:00	156	60	300	200	**NO**
20:00 - 21:00	99	38	300	200	**NO**
21:00 - 22:00	54	24	300	200	**NO**
22:00 - 23:00	21	9	300	200	**NO**
23:00 - 00:00	11	5	300	200	**NO**

Number of Hours that met Criteria C = 0

A. Is Criteria C Met? NO

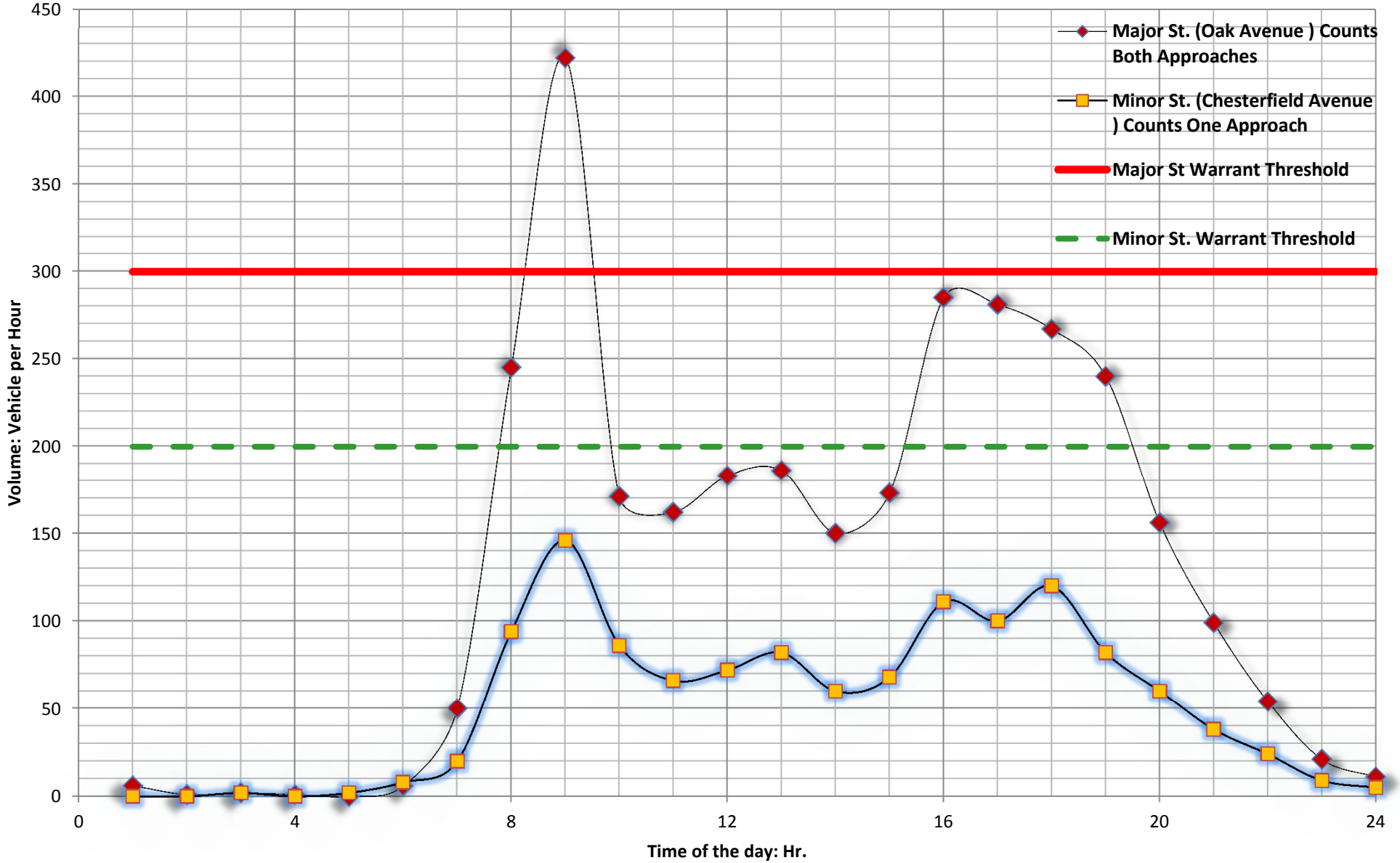


FIGURE 1: **CRITERIA C**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ... NO

1- DUE TO SPEED? NO

Spot Number:

Oak Avenue @ Chesterfield Avenue

NO. OF LANES ON MAJOR ST.? 1

NO. OF LANES ON MINOR ST.? 1

Number of Hours that met the Criteria: 0

Does this intersection meet Criteria C for Multi-way stop installation? NO

Data Collection Date: 10/8/2014

Michigan Manual of Uniform Traffic Control Devices
Worksheet for Multi-way STOP Warrants (Section 2B.07)
Criteria D: 80% of Criteria B, C.1, and C.2

Intersection:	Oak Avenue @ Chesterfield Avenue		
Date	10/21/2014	by	F&V

NO	: Have there been 5 or more crashes in a 12 month period susceptible to correction by Multi-way stop installation?
1	: No. of Lanes on Major St?
1	: No. of Lanes on Minor St?
25	: Speed limit or 85th Percentile? (MPH)
0	: # of crashes in a 12 month period susceptible to correction by Multi-way stop installation?

USE 80% FOR CONDITION D

	Major Volume (Both Apr.)	Minor Volume (One Apr.)	Condition D Major Volume	Condition D Minor Volume	Warrant Condition D Met?
Time	E-W	N-S			
00:01 - 01:00	6	0	240	160	NO
01:00 - 02:00	1	0	240	160	NO
02:00 - 03:00	2	2	240	160	NO
03:00 - 04:00	1	0	240	160	NO
04:00 - 05:00	0	2	240	160	NO
10:00 - 11:00	162	66	240	160	NO
11:00 - 12:00	183	72	240	160	NO
12:00 - 13:00	186	82	240	160	NO
13:00 - 14:00	150	60	240	160	NO
14:00 - 15:00	173	68	240	160	NO
15:00 - 16:00	285	111	240	160	NO
16:00 - 17:00	281	100	240	160	NO
17:00 - 18:00	267	120	240	160	NO
18:00 - 19:00	240	82	240	160	NO
19:00 - 20:00	156	60	240	160	NO
20:00 - 21:00	99	38	240	160	NO
21:00 - 22:00	54	24	240	160	NO
22:00 - 23:00	21	9	240	160	NO
23:00 - 00:00	11	5	240	160	NO

Number of Hours that met Criteria C = 0

A. Is the Minimum Vehicular Volume Criteria Met?	NO
B. Is the crash criteria met?	NO
C. Is Criteria D met?	NO

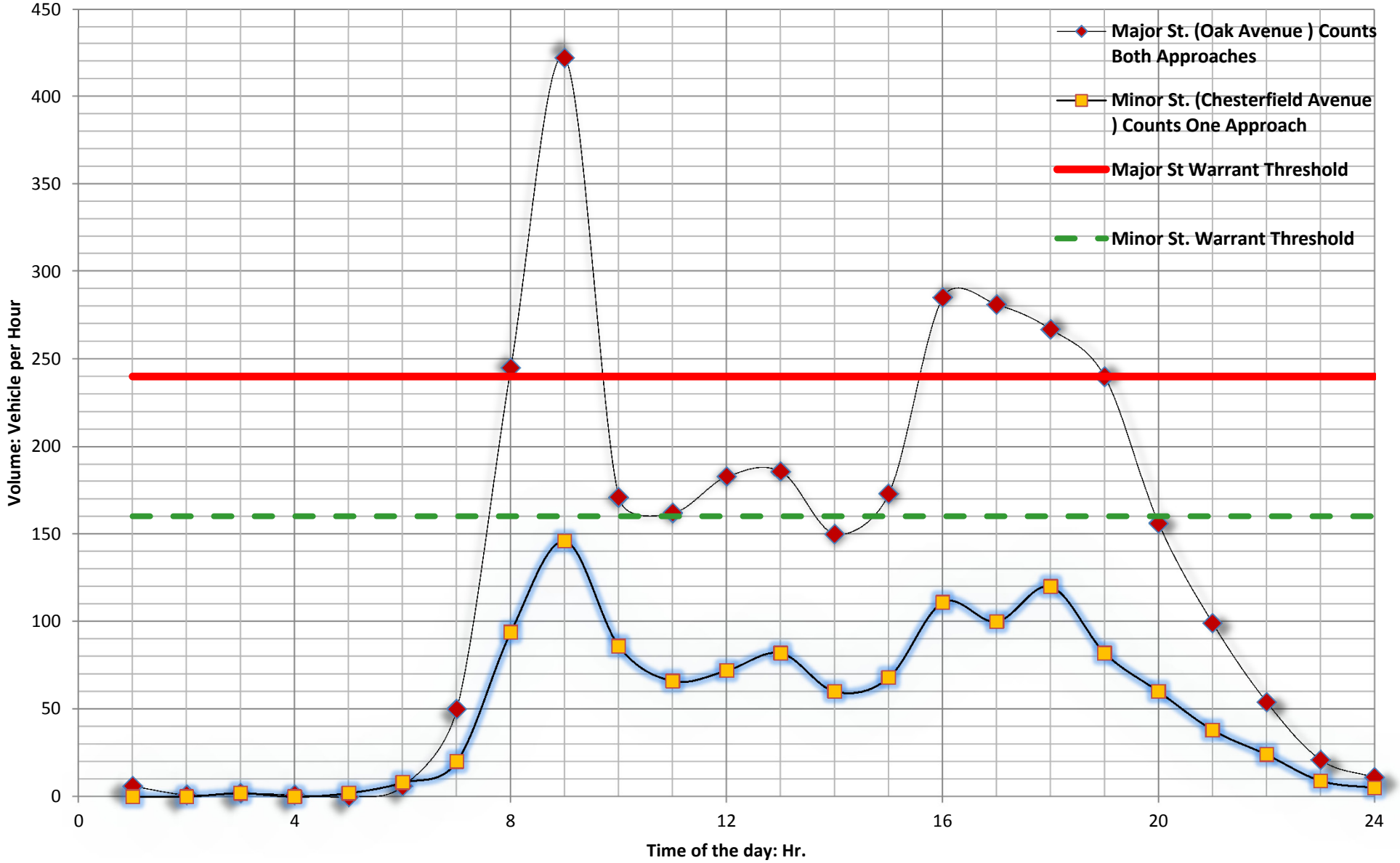


FIGURE 1: **CRITERIA C**

IS THERE A REDUCTION IN THE WARRANT THRESHOLDS TO 70% ... NO

1- DUE TO SPEED? NO

Spot Number:

Oak Avenue @ Chesterfield Avenue

NO. OF LANES ON MAJOR ST.? 1

NO. OF LANES ON MINOR ST.? 1

Number of Hours that met the Criteria: 0

Does this intersection meet Volume Criteria D for Multi-way stop installation? NO

Data Collection Date: 10/8/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	258	7	17	129	6	9	39	13	5	74	6
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.6			5.6			5.7			5.7	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.99	
Flpb, ped/bikes		1.00			0.99			0.98			1.00	
Frt		1.00			0.99			0.97			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		1944			1919			1827			1908	
Flt Permitted		0.99			0.94			0.96			0.99	
Satd. Flow (perm)		1933			1808			1757			1885	
Peak-hour factor, PHF	0.75	0.75	0.75	0.59	0.59	0.59	0.73	0.73	0.73	0.79	0.79	0.79
Adj. Flow (vph)	7	344	9	29	219	10	12	53	18	6	94	8
RTOR Reduction (vph)	0	2	0	0	3	0	0	12	0	0	6	0
Lane Group Flow (vph)	0	358	0	0	255	0	0	71	0	0	102	0
Confl. Peds. (#/hr)	34		55	55		34	70		27	27		70
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		23.4			23.4			15.3			15.3	
Effective Green, g (s)		23.4			23.4			15.3			15.3	
Actuated g/C Ratio		0.47			0.47			0.31			0.31	
Clearance Time (s)		5.6			5.6			5.7			5.7	
Lane Grp Cap (vph)		904			846			537			576	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.14			0.04			c0.05	
v/c Ratio		0.40			0.30			0.13			0.18	
Uniform Delay, d1		8.7			8.2			12.5			12.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			0.9			0.5			0.7	
Delay (s)		10.0			9.2			13.1			13.4	
Level of Service		A			A			B			B	
Approach Delay (s)		10.0			9.2			13.1			13.4	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	171	8	15	114	6	5	39	14	4	40	5
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.6			5.6			5.7			5.7	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.99			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			0.99			0.99			0.99	
Frt		0.99			0.99			0.97			0.99	
Flt Protected		1.00			0.99			1.00			1.00	
Satd. Flow (prot)		1928			1907			1829			1886	
Flt Permitted		1.00			0.95			0.98			0.98	
Satd. Flow (perm)		1921			1819			1800			1855	
Peak-hour factor, PHF	0.63	0.63	0.63	0.66	0.66	0.66	0.81	0.81	0.81	0.82	0.82	0.82
Adj. Flow (vph)	5	271	13	23	173	9	6	48	17	5	49	6
RTOR Reduction (vph)	0	3	0	0	3	0	0	12	0	0	4	0
Lane Group Flow (vph)	0	286	0	0	202	0	0	59	0	0	56	0
Confl. Peds. (#/hr)	23		86	86		23	70		34	34		70
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		23.4			23.4			15.3			15.3	
Effective Green, g (s)		23.4			23.4			15.3			15.3	
Actuated g/C Ratio		0.47			0.47			0.31			0.31	
Clearance Time (s)		5.6			5.6			5.7			5.7	
Lane Grp Cap (vph)		899			851			550			567	
v/s Ratio Prot												
v/s Ratio Perm		c0.15			0.11			c0.03			0.03	
v/c Ratio		0.32			0.24			0.11			0.10	
Uniform Delay, d1		8.3			8.0			12.5			12.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.9			0.7			0.4			0.3	
Delay (s)		9.2			8.6			12.8			12.8	
Level of Service		A			A			B			B	
Approach Delay (s)		9.2			8.6			12.8			12.8	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	25	258	27	17	129	6	9	39	13	5	74	6
Peak Hour Factor	0.75	0.75	0.75	0.59	0.59	0.59	0.73	0.73	0.73	0.79	0.79	0.79
Hourly flow rate (vph)	33	344	36	29	219	10	12	53	18	6	94	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	413	258	84	108
Volume Left (vph)	33	29	12	6
Volume Right (vph)	36	10	18	8
Hadj (s)	0.00	0.03	-0.06	0.00
Departure Headway (s)	4.8	5.0	5.7	5.7
Degree Utilization, x	0.55	0.36	0.13	0.17
Capacity (veh/h)	717	676	543	552
Control Delay (s)	13.6	10.9	9.6	9.9
Approach Delay (s)	13.6	10.9	9.6	9.9
Approach LOS	B	B	A	A

Intersection Summary			
Delay	11.9		
Level of Service	B		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	23	171	28	15	114	6	5	39	14	4	40	5
Peak Hour Factor	0.63	0.63	0.63	0.66	0.66	0.66	0.81	0.81	0.81	0.82	0.82	0.82
Hourly flow rate (vph)	37	271	44	23	173	9	6	48	17	5	49	6

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	352	205	72	60
Volume Left (vph)	37	23	6	5
Volume Right (vph)	44	9	17	6
Hadj (s)	-0.02	0.03	-0.09	-0.01
Departure Headway (s)	4.5	4.7	5.2	5.3
Degree Utilization, x	0.44	0.27	0.10	0.09
Capacity (veh/h)	780	731	618	602
Control Delay (s)	10.9	9.4	8.8	8.8
Approach Delay (s)	10.9	9.4	8.8	8.8
Approach LOS	B	A	A	A

Intersection Summary			
Delay	10.1		
Level of Service	B		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	258	27	17	129	6	9	39	13	5	74	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.75	0.75	0.75	0.59	0.59	0.59	0.73	0.73	0.73	0.79	0.79	0.79
Hourly flow rate (vph)	33	344	36	29	219	10	12	53	18	6	94	8
Pedestrians		70			27			55			34	
Lane Width (ft)		12.0			10.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		6			2			5			3	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	263			435			889	804	444	816	817	328
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	263			435			889	804	444	816	817	328
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			92	81	97	97	66	99
cM capacity (veh/h)	1265			1073			157	278	575	212	273	653

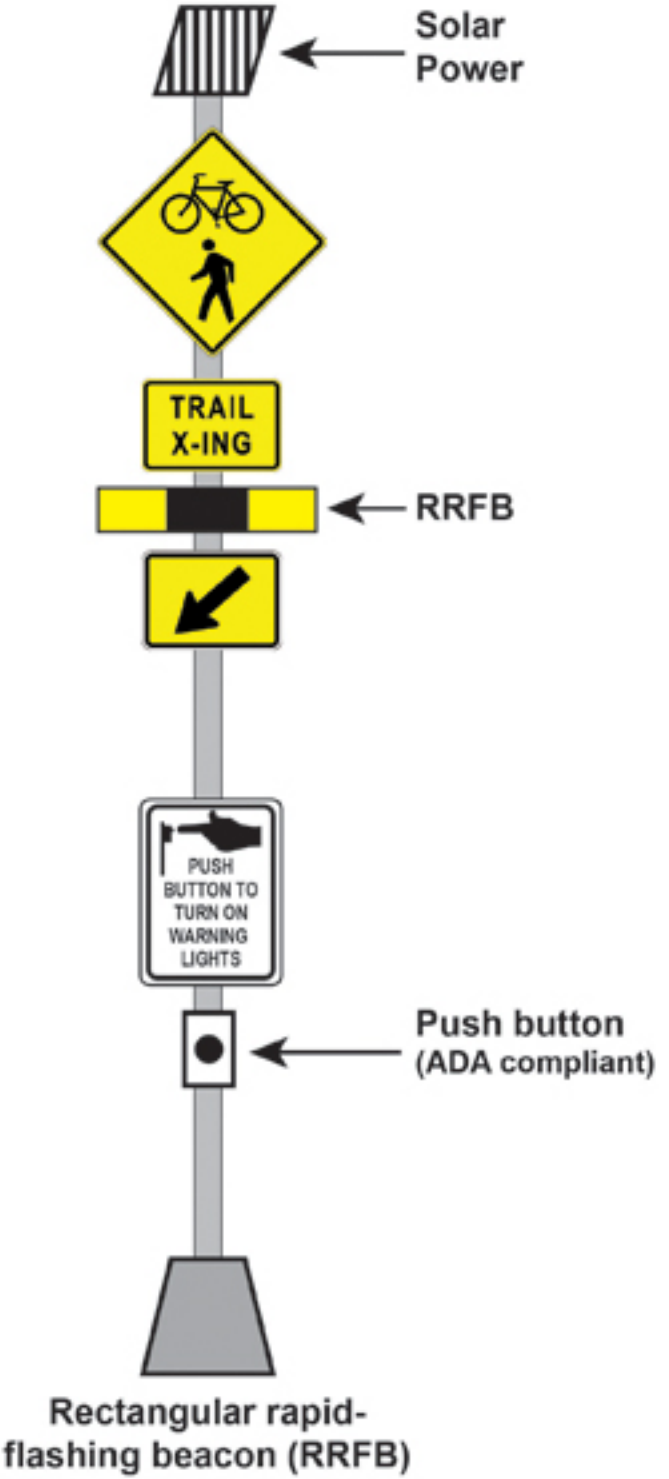
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	413	258	84	108
Volume Left	33	29	12	6
Volume Right	36	10	18	8
cSH	1265	1073	277	280
Volume to Capacity	0.03	0.03	0.30	0.38
Queue Length 95th (ft)	2	2	31	43
Control Delay (s)	0.9	1.2	23.5	25.7
Lane LOS	A	A	C	D
Approach Delay (s)	0.9	1.2	23.5	25.7
Approach LOS			C	D

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	23	171	28	15	114	6	5	39	14	4	40	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.63	0.63	0.63	0.66	0.66	0.66	0.81	0.81	0.81	0.82	0.82	0.82
Hourly flow rate (vph)	37	271	44	23	173	9	6	48	17	5	49	6
Pedestrians		70			34			86			23	
Lane Width (ft)		12.0			10.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		6			2			7			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	205			402			776	703	414	688	721	270
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	205			402			776	703	414	688	721	270
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			98			97	85	97	98	84	99
cM capacity (veh/h)	1340			1074			216	314	579	266	307	710

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	352	205	72	60
Volume Left	37	23	6	5
Volume Right	44	9	17	6
cSH	1340	1074	338	321
Volume to Capacity	0.03	0.02	0.21	0.19
Queue Length 95th (ft)	2	2	20	17
Control Delay (s)	1.0	1.1	18.5	18.8
Lane LOS	A	A	C	C
Approach Delay (s)	1.0	1.1	18.5	18.8
Approach LOS			C	C

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		


Solar
Power
TRAIL
X-ING
RRFB
PUSH
BUTTON TO
TURN ON
WARNING
LIGHTS
Push button
(ADA compliant)
Rectangular rapid-
flashing beacon (RRFB)

DRAFT

CITY OF BIRMINGHAM
MULTI-MODAL TRANSPORTATION BOARD
THURSDAY, DECEMBER 4, 2014
City Commission Room
151 Martin Street, Birmingham, Michigan

Minutes of the regular meeting of the City of Birmingham Multi-Modal Transportation Board held Thursday, December 4, 2014. Chairperson Johanna Slanga convened the meeting at 6 p.m.

A. ROLL CALL

Present: Chairperson Johanna Slanga; Board Members Stuart Bordman, Andy Lawson, Jeff Surnow

Absent: Board Members Lara Edwards, Adriana Tatuch, Amanda Warner

Administration: Lauren Chapman, Asst. City Planner
Mark Clemence, Deputy Chief of Police
Brendan Cousino, Asst. City Engineer
Jana Ecker, Planning Director
Paul O'Meara, City Engineer
Carole Salutes, Recording Secretary

B. INTRODUCTIONS Mike Labadie from Fleis & Vandenbrink ("F&V"), Transportation Engineering Consultants

C. REVIEW AGENDA (approved)

D. APPROVAL OF MINUTES, MEETING OF NOVEMBER 20, 2014

Moved and seconded to approve the Minutes of November 20, 2014 as presented.

Motion carried, 4-0.

Absent: Edwards, Tatuch, Warner

E. PUBLIC HEARING - OAK ST. PAVING PROJECT

Addressing the audience, Mr. O'Meara reported the City is following the Multi-Modal Master Plan as a guide and Oak St. was identified as one of the corridors where changes could be made for the better. This board has been studying it for several months and has come up with a concept that will hopefully be finalized in the near future so that construction can be started in May 2015. He went through a PowerPoint that showed highlights of the plan, moving east to west along Oak

St. toward Quarton Elementary School. Reconstructing the block in front of Quarton Elementary School must be accomplished while the school is on summer break. Substantial sewer work must be done prior to the summer season beginning in mid-June, therefore,construction should start about May 1. The School Board has not taken a position at this time. This board along with the City Commission will hopefully take a position on the design in general with the idea that the portion in front of the school cannot be constructed without the School Board's authorization.

The chairperson suggested adding another sharrow heading west along Oak St. from Chesterfield to Glenhurst.

The chairperson opened up comments from the public at 6:16 p.m.

Mr. Tom Shenonis, a resident on Cranbrook, received clarification that a driver turning east out of the parking lot at Quarton Elementary School will be able to turn north or south onto Chesterfield. He was told the cost to the school district to fund their part of the project is estimated at $215 thousand.

Ms. Lois Casey, 1860 Oak St., wondered how large trucks will back into the school. Mr. O'Meara replied they have not yet heard from the school about the size of the trucks. He affirmed that the City is looking at lining the City sewers that run to the residences along there.

Mr. Gregory Mistervich, 1810 Oak St., said that allowing cars to park on the north side of Oak St. results in parents dragging children across traffic. Also, cars parked on the north side of the street cut down his sight line when pulling out. Therefore, he doesn't think that allowing parking on the north side is a good idea.

Mr. John Hammer, who lives in the third house west of Chesterfield, likes the idea of the separation of drop-off from through traffic but wasn't sure how it would work. Mr. Labadie stated the idea is to train parents and students to pull up to an available space, drop off and leave. For pick-ups, the student gets into the car and off they go. Other schools in the area have dealt successfully with similar and worse challenges. Mr. Cousino added the proposed drop-off area is twice as long as the existing.

Responding further to Mr. Hammer, Mr. Labadie talked about how traffic studies have shown that the traffic signal should be removed and replaced with flashing beacons and a crossing guard.

Ms. Ecker explained that parent training will be in the form of communications from the school to the parents to inform them of the process.

Mr. Matthew McArdle, 940 Glenhurst, voiced concern about having greater visibility. A traffic signal breaks up traffic in a different way than a stop sign would. Mr. Labadie thought moving the stop bar up 6 or 8 ft. would probably allow better site distance. They will check it out.

Mr. Frank Faga, 912 Westwood, stated the problem on Oak St. is speeding and people passing, usually on the right. He spoke in favor of extending a couple of extra feet of narrow Oak between Glenhurst and Westwood to the edge of Birmingham. Mr. O'Meara explained they could add white pavement markings to make it feel narrower.

Maria, who lives on Willow Lane, said she likes the idea of narrowing Oak St., but is not in favor of losing the traffic light. She indicated that Bud, the crossing guard, was shocked that the traffic light would be removed. She suggested the light could be changed to a blinking red or yellow when the traffic is not heavy.

Mr. Bill Beacham, 701 Puritan, asked about the purpose of the project and the purpose of putting in "no turns" during drop-off. Mr. O'Meara responded that the road is old and it is time for it to be rehabbed. Chairperson Slanga added the goal of the Multi-Modal Plan is to make the streets safer and more complete. Mr. Beacham agreed there should be no parking on the north side of Oak St. Parking should be allowed on the south side of Oak St. up to Fairfax. The crossing guard has said it is "insane" to remove the traffic light.

Mr. Phil Stanger who lives on Pilgrim, received information that bump-outs are meant to slow traffic and to make the crosswalks shorter and safer for pedestrians. There are no bump-outs in the section where the bike paths exist.

Mr. Rich Buckston, 895 Puritan, asked whether they would consider parking on the south side and not the north side in the section by Quarton. Mr. O'Meara did not see the benefit of encouraging parking between two active traffic areas

Ms. Lois Casey said the people that are parking on the north side of Oak are not the residents who live there. They are workers who park all day. She was in favor of permit parking on the north side for residents only.

Mr. Dan Teahan was worried about traffic dumping onto Chesterfield and not having a light there because it will be opened up to turns. In the past when turns were allowed he watched the traffic crossing guard get hit even with a traffic signal. He was not sure parents will adapt to this and comply. Ms. Ecker said the best the City and the board can do is to design the road as well as possible so that it is clear to people what they are supposed to do.

Mr. David Hocker, whose residence is on the SE corner of Pilgrim and Oak St., thought if they are going to narrow Oak St. they need to know what is going to

happen with Maple Rd. Narrowing Oak St. and narrowing Maple Rd. will probably cause a huge problem. The residents need to know the plan for all of that before they can make a real judgment as to whether this is an acceptable solution for Oak St. They should have a systematic view and not a road-by-road consideration. Further, narrowing down Oak St. will most likely create some issues for emergency workers who will need some ease of access. He was in favor of a multi-modal design, but suggested just including it in the current footprint of the road. As to removing the light at Chesterfield, a red light and a green light eliminate any room for error rather than leaving it up to the driver to make a decision.

The Board discussed the feasibility of changing the plan back to not allow parking on the north side across from the school.
Mr. O'Meara said if the board is leaning toward taking away parking on the north side of Oak St., staff could send a letter to the affected people who live between Chesterfield and Glenhurst to let them know the direction this is headed and that the City Commission will review it. If they have concerns they should raise them at that time.

Mr. Labadie thought from a traffic operations standpoint it would be good to eliminate parking there if the residents do not really care. Personally he thinks that to make it a more pleasant place parking is not needed, especially if the residents don't want it.

Board members agreed to put forth the proposal to modify the parking status on the block between Glenhurst and Chesterfield. There would be no parking but the road would remain the same width and a 5 ft. bike lane would be painted in lieu of parking. They also suggested the idea of running the bike lane all the way west to the City limits.

Motion by Mr. Bordman
Seconded by Mr. Surnow to recommend to the City Commission the plan dated November 26, 2014 with the modification of no parking on the north side of Oak St. between Glenhurst and Chesterfield, and including bike lanes all the way to the western City limits.

The public was invited to comment at 8:05 p.m.

Mr. Dan Teahan suggested the board be open to the idea of going back to the seven affected residences several months after everything is up and running to ensure everything is going as intended.

Mr. John Hammer received clarification that those seven residences will be surveyed for their comments before the final approval.

Mr. Dan Teahan cautioned that once the traffic signal is removed and turns are allowed the crossing guard has four corners to control.

Motion carried, 4-0.

VOICE VOTE
Yeas: Bordman, Surnow, Lawson, Slanga
Nays: None
Absent: Edwards, Tatuch, Warner

The chairperson closed the public hearing at 8:09 p.m.

F. MEETING OPEN TO THE PUBLIC FOR ITEMS NOT ON THE AGENDA

(no discussion)

G. MISCELLANEOUS COMMUNICATIONS

1. Multi-Modal Articles (general reading)

2. W. Maple Rd. Project

Chairperson Slanga noted there have been letters provided by residents both in favor and opposed. Additionally there have been petitions and comments that were made at board meetings. She asked staff to send a letter to the City Commission that includes some of the general information that has been received by the board. W. Maple Rd. is the next project this board will be studying. The board intends to study every option that is available, whether or not it is contained in the Multi Modal Plan. They will hold a public hearing and consider all comments from residents.

H. ADJOURNMENT

No further business being evident, the chairperson adjourned the meeting at 8:15 p.m.

_____
Jana Ecker, Planning Director

_____
Paul O'Meara, City Engineer

December 9, 2014

TO: Oak St. Property Owners
Glenhurst Dr. to Chesterfield Ave.

RE: Oak St. Paving Project

Dear Property Owner,

As you may be aware, the City is planning to reconstruct the above segment of Oak St. in 2015. A plan has been recommended by the City's Multi-Modal Transportation Board to modify the street in an effort to:

- Improve the student loading area currently being used at Quarton Elementary School.
- Improve on-street facilities for bicyclists through this area.

After several months of study and public meetings, the Board has made a recommendation to the City Commission that will reduce the width of Oak St. in front of your home. The proposal is suggesting that all on-street parking be removed on this block. Instead, two traffic lanes and two bike lanes would be installed. A separate paved area would also be constructed on the south side of the road to better accommodate student loading activities at the school.

Before this new plan becomes official, it must be approved by both the Birmingham City Commission and the Birmingham Board of Education. The City Commission is scheduled to review this plan at their meeting of **Monday, December 15, 2014, at 7:30 PM.** If you are concerned about the loss of on-streett parking in front of your home, it is important that you let our office know as soon as possible. Due to the short time available, written messages via email to me at the address below would be most effective. Or, you are also welcome to attend the meeting (at City Hall) and express your concerns to the Commission in person.

If you have any questions, or if you would like to see the most recently prepared plan, please call me at **248-530-1836**, or send an email at **pomeara@bhamgov.org**. Your opinions and concerns will be relayed to the Commission before a final decision is made.

Sincerely,

Paul T. O'Meara, P.E.
City Engineer

City of Birmingham

Paul O'Meara <pomeara@bhamgov.org>

Re: Feedback Regarding Oak Street Paving Project

1 message

Paul O'Meara <pomeara@bhamgov.org> Wed, Dec 10, 2014 at 11:54 AM
To: Anne Kennedy <annekendo@yahoo.com>
Cc: "lpierce@bhamgov.org" <lpierce@bhamgov.org>, "Cousino, Brendan" <BCousino@bhamgov.org>, Joe Valentine <Jvalentine@bhamgov.org>, "Ecker, Jana" <Jecker@bhamgov.org>, Mark Clemence <Mclemence@bhamgov.org>
Bcc: Mike Labadie <mlabadie@fveng.com>, Paul O'Meara <Pomeara@bhamgov.org>

Ms. Kennedy,

Thanks for taking the time to write out your thoughts. I would like to respond to your concerns in the order your raised them:

1. Relative to your comments on installing parking on your block, the proposal to put parking on the north side only was tied to the fact that the Board was recommending parking on the north side across from the school. Based on the comments from the public at the hearing, they have changed their recommendation, and are now suggesting that there would be no parking on the north side across from the school. If that happens, the alignment of the road would change there, and then it becomes more logical to install parking on the south side only (and not the north side). I have attached the most recent conceptual drawing of this area to better explain that. Also you have noted that there is typically not much demand for parking on your block. Note that if parking is eliminated from the block the school is on, as well as the four blocks east of Suffield, there will be a lot less places to park. Demand is expected to increase for the few areas where it would be left.

2. Staff agrees with your comment about the current turn restrictions. We hope that these can be eliminated.

3. I appreciate your observations about the proposal to remove the signal. Our traffic analysis says that there are enough gaps to allow children to cross the street, so there should be enough gaps in traffic to allow you to pull out as well. The "no turns" restrictions, as you noted, currently make this problem worse. We agree that the safety of the school children is paramount. While it may appear that we are focusing on making traffic flow more efficiently, the purpose of this is that the better the parent loading zone works, the more people will be using it. The more they use it, the less desire there is to have cars parked in various other locations, and children walking in from other directions. This then makes the environment safer for the school children. Your idea to put the signal on flash for awhile has merit, and could well be implemented prior to the final decision being made. It may be considered during the next public discussion with the City Commission.

4. You have suggested removal of the centerline yellow lane markings on Oak. Actually, we are suggesting not only keeping that, but adding white lines to delineate the bike lanes and parking lane. The lane markings will make the road feel narrower, even where it is being rebuilt at the same width, which will reduce speeds. I encourage you to look at N. Eton Rd. on the northeast side of Birmingham. That was just rebuilt this year using the same concept. It feels like a smaller street, even though it is almost the same width as it was before, when it had no lane markings at all.

Please let me know if you have any further questions or comments.

On Tue, Dec 9, 2014 at 3:38 PM, Anne Kennedy <annekendo@yahoo.com> wrote:

> To: Multi-Modal Transportation Board
> Re: Feedback Regarding Oak Street Paving Project
>
> My house is located on the northeast corner of Fairfax and Oak. I am opposed to allowing any on street parking on Oak between Suffield and Fairfax. According to the Oak Street

Paving Project summary, the parking lane was included due to greater parking demand closer to Quarton School. I've lived in my home for over seven years and the only time I've seen anyone park on Oak between Suffield and Fairfax for Quarton School is on the first day of school and once or twice a year during school events. I don't support a parking lane for 2 or 3 hours of parking demand per year when parents can easily park on Fairfax and walk the same distance. If a parking lane is included for some reason, my recommendation is for parking on the south side only which would eliminate pedestrians having to cross Oak to get to Quarton School.

I am in favor of removing the current turning restrictions at Oak and Chesterfield. As soon as that change was made, the majority of drivers headed eastbound on Oak who can't turn at Chesterfield instead turn at Fairfax. This makes crossing Fairfax at Oak dangerous during the beginning and ending of the school day and my family have almost been hit by eastbound cars turning onto Fairfax multiple times. I have previously contacted the Quarton School principal and the Birmingham police chief regarding my concerns about this intersection. The turning restrictions at Chesterfield just pushed the problem with drivers turning without checking for pedestrians down a block to an unsupervised intersection.

I need more information before I can decide on the proposed removal of the traffic signal at Oak and Chesterfield. I have a hard time backing out of my driveway on Oak during school drop-off and pick-up times and rush hour due to the volume of traffic on Oak and often the only gap in traffic occurs due to the traffic signal. Before a decision to remove the signal is made, I believe there should be a trial period with the light set to flashing. I don't think the signal is needed except during the morning & afternoon rush hours, but I can't imagine there are enough gaps in the traffic for schoolchildren to safely cross without a signal or some other method to ensure cars on Oak will stop. I think the focus of the Oak and Chesterfield intersection should be on schoolchildren safety and not on improved traffic flow.

Lastly, I support any method to reduce traffic speeds on Oak. Since living at the corner of Fairfax and Oak there have been two separate car accidents on Oak where cars hit trees and a fence in my yard so we definitely need to make Oak safer. One suggestion I have is to remove the two-way lane markings down the center of Oak which make the street feel more like a major road than a neighborhood street.

Sincerely,

Anne Kennedy
910 Fairfax

--
Paul T. O'Meara
City of Birmingham, MI
City Engineer

City of Birmingham

Paul O'Meara <pomeara@bhamgov.org>

Re: Feedback Regarding Oak Street Paving Project

1 message

Anne Kennedy <annekendo@yahoo.com> Thu, Dec 11, 2014 at 11:49 AM
Reply-To: Anne Kennedy <annekendo@yahoo.com>
To: Paul O'Meara <pomeara@bhamgov.org>
Cc: "lpierce@bhamgov.org" <lpierce@bhamgov.org>, "Cousino, Brendan" <BCousino@bhamgov.org>, Joe Valentine <Jvalentine@bhamgov.org>, "Ecker, Jana" <Jecker@bhamgov.org>, Mark Clemence <Mclemence@bhamgov.org>

Paul,

Thanks for the detailed reply. I still am very opposed to any parking on Oak between Fairfax and Suffield. You note that if parking is eliminated on the four blocks east of Suffield as well as the block Quarton School is on there will be few areas left to park. Even with these reductions in parking I believe there will be little or no demand to park on my block, and if the need is there, folks can park on Fairfax, Suffield, Pilgrim, etc. Since there have been multiple accidents on my block of Oak in the last few years I would like the street narrowed to slow down traffic vs becoming a parking lot for folks too lazy to turn onto Fairfax and park there.

Also, there is a Derby bus stop on the southwest corner of Fairfax & Oak and I would like to slow down traffic and make this intersection as safe as possible for pedestrians. Schoolchildren cross Oak at Fairfax in the dark each morning ~7:30 am to get to the bus stop and the cars speeding down Oak do not slow down for them. I think reducing the width of Oak at this intersection will make it safer for the Derby bus stop.

Thanks again for allowing feedback on this project!

Sincerely,

Anne Kennedy
910 Fairfax

From: Paul O'Meara <pomeara@bhamgov.org>
To: Anne Kennedy <annekendo@yahoo.com>
Cc: "lpierce@bhamgov.org" <lpierce@bhamgov.org>; "Cousino, Brendan" <BCousino@bhamgov.org>; Joe