

MULTI-MODAL TRANSPORTATION BOARD
THURSDAY, FEBRUARY 6, 2020
6:00 PM
CITY COMMISSION ROOM
151 MARTIN STREET, BIRMINGHAM

1. Roll Call
2. Introductions
3. Review of the Agenda
4. Approval of Minutes, Meeting of **January 2, 2020**
5. **Stop Sign Warrant Studies**
 - a. **Glenhurst & Oak**
 - b. **Bennaville & Edgewood**
 - c. **Bennaville & Grant**
6. **Bicycle Parking in Public Parking Decks**
7. Meeting Open to the Public for items not on the Agenda
8. Miscellaneous Communications
9. Next Meeting – **March 5 , 2020**
10. Adjournment

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**CITY OF BIRMINGHAM MULTI-MODAL
TRANSPORTATION BOARD THURSDAY,
January 2, 2020
City Commission Room
151 Martin Street, Birmingham, Michigan**

Minutes of the regular meeting of the City of Birmingham Multi-Modal Transportation Board held Thursday, January 2, 2020.

Chairwoman Johanna Slanga convened the meeting at 6:01 p.m.

1. ROLL CALL

Present: Chairwoman Johanna Slanga; Vice-Chairwoman Lara Edwards; Board Members Amy Folberg, Daniel Rontal, Katie Schafer (arrived 6:04 p.m.), Doug White, Joe Zane

Absent: None

Administration:

Jana Ecker, Planning Director
Scott Grewe, Police Commander
Paul O'Meara, City Engineer
Austin Fletcher, Assistant City Engineer
Nicole Ciurla, Assistant City Planner
Laura Eichenhorn, Transcriptionist

Fleis and Vandenbrink:

Justin Rose

MKSK:

Ben Palevsky

2. Introductions

Planning Director Ecker introduced Nicole Ciurla, Assistant Planner.

3. Review Agenda

4. Approval of MMTB Minutes of November 7, 2019

Motion by Dr. Rontal

Seconded by Mr. White to approve the MMTB Minutes of November 7, 2019 as submitted.

Motion carried, 6-0.

VOICE VOTE

Yeas: Rontal, White, Edwards, Folberg, Slanga, Zane

Nays: None

5. Adams Road Corridor Traffic Signal Coordination

City Engineer O'Meara and Mr. Rose presented the item. Mr. Rose stated that if the cost estimate were approved for the left turn phasing at Adams and Lincoln then F&V would analyze the intersection at both off peak and on peak times.

Motion by Dr. Rontal

Seconded by Mr. Zane to recommend, regarding the Adams Rd. corridor: a. Implementing traffic signal coordination of the Derby Rd., Buckingham Rd., and Bowers St. intersections. b. Directing F&V to prepare a cost estimate, accident data and synchro models for the proposed implementation of a new protected left turn phase at the Lincoln Ave. intersection; and, c. Look into restriping and enforcement of the hatching in front of 1170 E. Lincoln.

Motion carried, 7-0.

ROLL CALL VOTE

Yeas: Rontal, Zane, White, Edwards, Folberg, Slanga, Schafer

Nays: None

6. Meeting Open to the Public for items not on the Agenda

Enid Livingston reviewed the concerns set forth in her letter included in the agenda packet and dated December 23, 2019.

Chairwoman Slanga requested that staff review, during a morning, afternoon, and a weekend, the effects of the No Left Hand Turn sign which prohibit southbound traffic on Park Street from turning eastbound onto Oakland Avenue to access Woodward, and that staff return to the MMTB with recommendations at the February 6, 2020 meeting.

Ms. Livingston added that on Park Street going northbound, near the parking structure, the signage indicates that the left lane is left turn only and the right lane is right turns and through traffic. The markings on the street, however, indicate that the left lane is left turns and through traffic, and the right lane is right turn only.

Staff concurred that they would review that area for signage-street marking discrepancies.

7. Miscellaneous Communications

8. Next Meeting – February 6, 2020

9. Adjournment

No further business being evident, the board members adjourned at 6:33 p.m.

Jana Ecker, Planning Director

Paul O'Meara, City Engineer

DRAFT



MEMORANDUM

Engineering Dept.
Planning Dept.
Police Dept.

DATE: January 31, 2020

TO: Multi-Modal Transportation Board

FROM: Austin Fletcher, City Engineer
Jana Ecker, Planning Director
Scott Grewe, Police Commander

SUBJECT: Stop sign request on Oak at Glenhurst

INTRODUCTION

On January 13th the City Manager received an email from resident Neil Gray regarding a request to add stop signs on Oak at Glenhurst making the intersection a 4-way stop. Mr. Gray was contacted and provided his concerns for the intersection.

BACKGROUND

The intersection currently has stop signs for north and southbound traffic at Oak. Mr. Gray noted the curve to the west gives drivers limited vision approaching the intersection, which is adjacent to school property. Due to the proximity to the school, Mr. Gray states, pedestrian traffic is high especially with younger children.

Staff has also received several complaints at this intersection due to traffic for Quarton School. The complaints have been related to traffic backing up through the intersection during drop off and pick up times restricting north and southbound traffic.

SUMMARY

A request was received from a resident to make the intersection of Oak and Glenhurst a four way stop. After contacting Mr. Gray staff contacted Fleis & Vandenbrink and asked they review the intersection and provide a recommendation. Recent traffic counts were sent to F&V for their review process.

There was one reported accident at this intersection in the last three years. A vehicle northbound on Glenhurst was unable to stop at the stop sign due to icy conditions and slid into the intersection causing an accident in February of 2019.

Recent traffic counts are attached for review.

SUGGESTED RECOMMENDATION

To request F&V due further evaluation of the intersection to review pedestrian enhancements to add to the safety of the intersection.

MEMO

VIA EMAIL

To: Cmdr. Scott Grewe, Operations Commander
Birmingham Police

From: Julie M. Kroll, PE, PTOE
Fleis & VandenBrink Engineering

Date: January 31, 2020

Re: Oak Ave. & Glenhurst Dr. Multi-Way Stop Evaluation

Fleis & VandenBrink (F&V) staff is pleased to present this memorandum to the City Birmingham for your use evaluating the recommended traffic control signing for the intersection of Glenhurst Drive & Oak Avenue. This study was performed to determine what intersection traffic control should be provided at the study intersection.

The guidance regarding regulatory traffic measures is provided in the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD)* Sections 2B.04 and 2B.07. Additional information is provided in the American Association of State Highway and Transportation Officials (AASHTO) *Geometric Design of Highway and Streets (Green Book)*. F&V referenced the *MMUTCD* and additional documents to evaluate the existing intersection conditions and develop a recommendation. The results of the analysis and the recommendations are included herein.

INTERSECTION CONTROL ANALYSIS

The study intersection of Glenhurst Drive & Oak Avenue is a four-leg intersection with stop-control on the Glenhurst Drive approaches. A neighborhood resident has requested that all-way stop is considered at this intersection. Concerns raised by the resident include: Oak Street geometry and pedestrian traffic volumes associated with the adjacent Quarton Elementary. Section 2B.07 of the *MMUTCD* provides the following criterion to evaluate for the consideration of multi-way stop control at an intersection.

- A. *Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
- B. *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.*
- C. *Minimum volumes:*
 - 1 *The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and*
 - 2 *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but*
 - 3 *If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.*
- D. *Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.*

A. TRAFFIC SIGNAL

Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal. **Not met.**

A traffic signal is not warrant or recommended at this intersection.

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. **Not met.**

A crash analysis was performed for the study intersection using the most recent 3-years of available data. The results of the analysis showed there was one crashes at this intersection in 2016. The crash was a result of a northbound vehicle failure to yield at the existing stop sign on Glenhurst Road. Since there was only one crash at this intersection, no crash pattern (5 or more crashes in 12 months) exists that would indicate the need to install stop signs on Oak Ave., therefore this criteria is not met.

C. TRAFFIC VOLUMES

1 The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour (vph), for any 8 hours of an average day. **Not met.**

The traffic volume data on Oak Ave. was reviewed and the average hourly volumes exceeds 300 vph for only one hour of the day; therefore, the traffic volumes fall below the given threshold of 8 hours of a given day

2 The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; **Not met.**

The highest peak hourly volumes on Glenhurst Drive are 62 vph; therefore, the traffic volumes fall below the given threshold.

3 If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2. **Not met.**

Existing speed data was provided by the Birmingham Police Department as summarized below. The evaluation was completed assuming the 85th percentile approach speed of 29 mph below the 40 mph threshold; therefore, the 70% volume evaluation is not applicable.

85TH PERCENTILE SPEEDS (MPH)

Count Location	NB	SB	Combined
Oak Avenue	29 mph	29 mph	29 mph

D. 80% CRITERIA

Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition. **Not met.**

Criterion B, C.1 and C.2 were evaluated at 80% of the minimum values and none of the criterion are met based on these reduced thresholds.

SUMMARY

The results of the analysis show that multi-way stop intersection control is not warranted for the intersection of Oak Avenue and Glenhurst Drive. The analysis results are summarized below.

Multi-Way Stop Sign Criterion (MMUTCD Section 2B.07)		Met?
A. Signal	<i>Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.</i>	No
B. Crashes	<i>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.</i>	No
C. Traffic Volumes	<ol style="list-style-type: none"> <i>The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day.</i> <i>The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but</i> <i>If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.</i> 	No
D. 80% Criteria	<i>Where no single criterion is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criterion C.3 is excluded from this condition.</i>	No
Multi-Way Stop Control Recommended		No

RECOMMENDATIONS

- Based on the results of this study, Multi-Way Stop Control is **not warranted or recommended** at the intersection of Oak Avenue and Glenhurst Drive.
- A pedestrian road safety audit (RSA) is recommended at this intersection to provide a focused evaluation of the intersection. Additional information regarding a pedestrian RSA is attached.

If you have any questions or concerns regarding this engineering analysis, please contact our office.

KAT:jmk

Chapter 3: PEDESTRIANS IN THE ROAD SAFETY AUDIT PROCESS

This section provides the user with detailed information pertaining to pedestrians in the RSA process. More detailed information about RSAs, to include creating RSA policies and procedures and generalized prompt lists, are included in the *FHWA Road Safety Audit Guidelines* released in 2006.

3.1 What is an RSA?

As described in Chapter 1, an RSA is a formal safety examination of a future roadway plan or project or an in-service facility that is conducted by an independent, experienced multidisciplinary RSA team.

The primary focus of an RSA is safety (as opposed to mobility, access, aesthetics, etc.), although other aspects are considered. The intent of an RSA is to consider the potential safety issues of all users under all conditions. The RSA may be applied to any type of facility and can examine the potential safety issues for any type of road, throughout the project development process, and on completed facilities.

The RSA is not a simple standards check. Standards checks are part of the design process to ensure adherence to standards and guidelines. Although the RSA team may identify safety issues by comparing items of concern to standards, it is generally done with the intention of identifying areas where combinations of minimum standards may interact with road user behaviors to generate a potential safety issue.

The RSA team has no mandate to change a design that is being audited. The RSA team is charged with reviewing a project to identify its safety implications, and suggesting measures (for the design team's or responsible agency's consideration) that can reasonably be implemented within the project schedule and available budget.

3.2 What Should be Audited?

In addition to using the traditional RSA as a tool to improve safety performance of facilities under their jurisdiction, public agencies may wish to conduct *pedestrian-oriented RSAs*. Though all RSAs could include a review of pedestrian and bicycle safety, a pedestrian-oriented RSA may be undertaken to improve an identified pedestrian safety problem which may have resulted from inadequate consideration of pedestrian needs in the planning and design process.

A pedestrian-oriented RSA may also be conducted on projects in the planning or design stage. Examples of projects with a substantial pedestrian component include projects near significant pedestrian generators, such as transit stations, multi-family housing, schools, school bus stops, assisted living facilities, or in a downtown area or commercial district. Other areas that may benefit from an RSA include:

- Work zones.
- Arterial streets.
- Off-street paths (including walkways or pedestrian/bicycle bridges).

While the focus of a pedestrian-oriented RSA is to identify pedestrian safety concerns, it still considers the safety of all modes, especially how they relate to each other. When one mode is given preference over another, safety issues often arise. The tools in this guide are designed to be used in both traditional and pedestrian-oriented RSAs.

3.3 Who Should Conduct RSAs?

An increasing number of state departments of transportation (DOTs) are using RSAs as a proactive tool for improving safety. Many pedestrian issues occur on arterial roadways which are typically owned by state DOTs. This guide can be used by state DOTs to help ensure pedestrian safety is integrated into the RSA process.

Pedestrian safety is a major concern for many local agencies and as such, they may find a greater need for conducting a pedestrian-oriented RSA. The challenge is to assemble an independent team given the staffing limitations of most local agencies. Since independence is a requirement of an RSA, the local agency should contact the state DOT, the Local Technical Assistance Program (LTAP) center, the FHWA division office, or the FHWA resource center for assistance in finding team members. The local agency may also find it helpful to contact adjacent local agencies directly to put together an independent team; however they must ensure that the team has adequate training and experience. Considerations for the RSA team responsibilities, skills, and size are discussed in Section 3.5 of this report.

More detailed information on how a local agency can assemble an RSA team can be found in NCHRP Synthesis 321, Roadway Safety Tools for Local Agencies.

3.4 When Should RSAs be Conducted?

RSAs can be conducted at any one of several stages of a project: Pre-construction (planning, preliminary design, final design); Construction (work zone traffic control plan, pre-opening); and Post-construction (existing roads open to traffic). Agencies should strive to start an RSA at the earliest feasible stage of a project. An RSA in the early stages of planning and design can identify issues when they can most easily be rectified. RSAs on existing projects are helpful in identifying pedestrian safety issues in that many agencies devote less resources to understanding pedestrian issues and therefore may be unaware of problems or may not be experienced with detailed pedestrian facility design. It is a common perception that public officials may think a pedestrian problem may not exist based on a review of pedestrian crashes. However, as discussed in Section 2.3, we know that many pedestrian crashes go unreported, or there are no pedestrian crashes because there are no pedestrians and no pedestrian facilities. RSAs can help agencies better understand pedestrian issues in their jurisdiction.



RSAs conducted on new pedestrian facilities during or after the construction stage can evaluate the effectiveness of permanent and temporary traffic control devices.

3.5 How is an RSA Conducted?

The typical eight steps followed in conducting an RSA at any stage of a project are described in this section. Suggestions for ensuring pedestrians are adequately considered in this process are provided.

Typical 8 RSA Steps		Responsibilities	
		Project Owner/ Design Team	RSA Team
Step 1	Identify project or existing road for RSA	✓	
Step 2	Select multi-disciplinary RSA team	✓	
Step 3	Conduct start-up meeting to exchange information	✓	✓
Step 4	Perform field reviews under various conditions		✓
Step 5	Conduct RSA analysis and prepare report of findings		✓
Step 6	Present RSA findings to Project Owner / Design Team	✓	✓
Step 7	Prepare formal response	✓	
Step 8	Incorporate findings into project when appropriate	✓	

The responsibilities of the project owner/design team and the RSA team vary during the course of an RSA.

Step 1: Identify Project or Existing Road for RSA

The project owner identifies the project(s) to be audited. The owner should develop clear parameters for the RSA. The parameters should define the RSA scope, schedule for completion, RSA team requirements, required tasks and requirements on the content and format of the RSA report, and how responses to the RSA report will be handled.

Step 2: Select Multi-disciplinary RSA Team

The project owner is responsible for selecting the RSA team or the RSA team leader. The RSA team must be independent of the project being audited. The RSA team's independence assures that there is no potential conflict of interest and a fair and unbiased evaluation will be conducted. The project owner may select a set of qualified individuals from within its own organization, another road authority, or hire an outside group. If a consultant is selected to conduct the RSA, the project owner may want to also provide input into the desired RSA team skills.

The project owner should also ensure that the RSA team represents a group of individuals that, combined, possess a set of skills that will ensure the most critical aspects of the project are addressed. RSA team members should have a background in road safety, traffic operations and/or road design. For RSAs with a significant pedestrian component and in particular, pedestrian-oriented RSAs, a pedestrian specialist should be included on the RSA team. A pedestrian specialist's insight and knowledge will assist the RSA team with identifying issues that are not obvious to team members having general or other areas of expertise. Ideally, the pedestrian specialist will have experience in planning and designing pedestrian facilities,

and will have formal training on accessibility and pedestrian-specific design. Individuals representing other specialty areas, such as transit operations, enforcement, and emergency-response personnel may be aware of constraints and problems that affect pedestrians. Persons with independent local knowledge from neighborhood pedestrian organizations may also provide valuable insights into potential safety issues affecting pedestrians.

The size of the RSA team may vary. While three members may be adequate for some projects, that number may not be sufficient for larger, more complex projects. The best practice is to have the smallest team that brings all the necessary knowledge and experience to the process.

Step 3: Conduct Start-up Meeting to Exchange Information

The purpose of the pre-audit meeting is to:

- Hand over all relevant data, information, and drawings to the RSA team.
- Review the scope and objectives of the RSA.
- Delegate responsibilities.
- Agree upon a schedule for the completion of the RSA.
- Set up lines of communication between the RSA team leader, the project owner, and the design team.
- Communicate matters of importance to the RSA team.

If possible, the project owner/design team should provide data describing pedestrians such as pedestrian crash data, pedestrian traffic volumes, peak and off peak hours of pedestrian travel, locations of key pedestrian generators, and citizen requests and complaints. The design team should inform the RSA team of design constraints, standards used, results of previous RSAs, and any issues arising, if applicable. The RSA team must also be aware of local traffic laws, statutes, and customary usage affecting pedestrians. The design and operation of pedestrian facilities should be consistent with local laws and customs governing issues such as pedestrians in unmarked crosswalks. At the end of the meeting, all parties should have a clear understanding of the scope of the RSA to be undertaken and each of their roles and responsibilities.

Step 4: Perform Field Reviews Under Various Conditions

Design drawings and other project information should be reviewed prior to and after the field review. Field reviews should be conducted for each RSA stage and type of RSA but are particularly useful in post-construction or RSAs of existing facilities. During the site visit, members of the RSA team should review the entire site, noting issues. Issues identified in the review of project data should be verified in the field.

A thorough site review for an RSA with a significant pedestrian component will include the following actions as a minimum:

- **Include a walk-through.** The RSA team should include both daytime and night-time observations to experience conditions from not only the perspective of a pedestrian, but from all other roadway users. This is very important in identifying elements that may increase the risk of collision for pedestrians. Ideally, the RSA team will walk the most traveled pedestrian paths

The field review is a key task in the RSA process.

and note potential issues in not only facility design, but also pedestrian behavior and behavior of other modes. The field review should also include visits during both peak and non-peak traffic conditions. Pedestrian safety, mobility, and access are heavily influenced by traffic conditions and different issues may be present under different traffic conditions.

- **Consider a wide range of pedestrian abilities.** A wide range of pedestrian experience and capabilities must be accommodated. Pedestrian designs should accommodate child pedestrians who lack experience and development judging vehicles and safe gaps for crossing, as well as adults with differing hearing, vision, cognitive, and mobility levels.
- **Consider visibility of pedestrians, especially at night.** Pedestrians may enter the road at locations when drivers are focused on other tasks. Pedestrians may also have very limited visibility relative to motor vehicles, especially at night. These factors increase the risk of collision, especially in situations where drivers are watching for potentially conflicting vehicles, such as where right-turns-on-red are permitted at channelized right turn lanes. Where risk factors are identified, measures to increase motorists' visibility of pedestrians, or reduce motor vehicle speeds on the approach to conflict points, may be beneficial.
- **Examine the treatment and transition of pedestrian facilities at the project limits.** Pedestrian facilities should be designed with attention to connecting facilities at the project limits and during construction. Discontinuities in facilities can result in pedestrians being forced to share the road with vehicles, exposing them to increased risk of collisions. It is also important to become aware of pedestrian and driver behaviors beyond the project limits. Designs outside of the project limits may have a significant effect on pedestrian and driver behavior. An example of this is a traffic calming project that diverts cut-through traffic from a neighborhood, increasing the volume on main streets. If this volume leads to congestion, it could increase frustration of both drivers and pedestrians.



The median pictured above seems to adequately protect pedestrians from through traffic. However, review of the same site at night reveals that there are in fact safety concerns for pedestrians in the crosswalk. Street lighting is blocked by trees, which may reduce visibility of pedestrians in the crosswalk, especially to vehicles turning left from the side street (not pictured, to the right of the photo).

The Field Manual, consisting of the prompt list instructions (Chapter 4), the guidelines (Chapter 5), and the prompt lists (Appendix A) are designed to be used during the field review to remind the RSA team to look at all aspects of pedestrian safety. This is done by the RSA team reviewing the prompt lists in the field for each type of pedestrian facility encountered and annotating any issues on paper. A more detailed description of the organization of the guidelines and prompt lists and how to use them is provided in Chapter 4.

Step 5: Conduct RSA Analysis and Prepare Report of Findings

The RSA team prepares an analysis of the safety issues identified based on the field visit and the review of documents. Prior to preparing a report, the team may meet with the project owner/design team to discuss preliminary findings. The purpose of this meeting is to establish a basis for writing the RSA report and to insure that the report will address issues that are within the scope of the RSA process.

The RSA report is a concise document, typically only a few pages in length. It should include a brief description of the project, a listing of the RSA team members and their qualifications, a listing of the materials used in conducting the RSA and a summary of findings/suggestions. It should include pictures and diagrams that may be useful to further illustrate points made. The Field Manual will help the RSA team prepare the RSA report to ensure all points are covered. RSA examples are provided as an illustration of how problems can be identified and how suggestions can be made.

Often the RSA report may include a crash risk assessment of each issue which can be used to identify a priority. This assessment is based on the expected crash frequency and the expected severity of a crash. Expected crash frequency is qualitatively estimated on the basis of expected exposure (how many road users will likely be exposed to the identified safety issue) and probability (how likely is it that a collision will result from the identified issue). Expected crash severity is qualitatively estimated on the basis of factors such as anticipated speeds, expected collision types, and the likelihood that vulnerable road users will be exposed. These two risk elements (frequency and severity) are then combined to obtain a qualitative risk assessment on the basis of the matrix shown in Table 2.

Speed greatly affects the severity of the crash when a pedestrian is involved. At 40 mph, there is an 85 percent chance of a pedestrian fatality; the fatality rate drops to 45 percent at 30 mph, at 20 mph the fatality rate is only 5 percent⁽¹¹⁾. Based on these data, it is clear that vehicular collisions involving pedestrians will tend to have higher severity ratings than for vehicular-only collisions, typically in the serious to fatal range. This type of qualitative rating scheme underscores the vulnerability of pedestrians, but it is not the only rating method that can be applied. It is up to the RSA team to agree upon an assessment method suitable to the purposes of the RSA being conducted. The method should consider the relationship between speed and severity described above.

Table 2. Crash Risk Assessment

FREQUENCY RATING	SEVERITY RATING			
	<i>Minor</i>	<i>Moderate</i>	<i>Serious</i>	<i>Fatal</i>
<i>Frequent</i>	Moderate-High	High	Highest	Highest
<i>Occasional</i>	Moderate	Moderate-High	High	Highest
<i>Infrequent</i>	Low	Moderate	Moderate-High	High
<i>Rare</i>	Lowest	Low	Moderate	Moderate-High

Step 6: Present RSA Findings to Project Owner/Design Team

The RSA team presents the results of the RSA to the project owner/design team. This is a further opportunity for discussion and clarification and the project owner/design team may wish the RSA team to present additional detailed information on the RSA findings.

Step 7: Prepare Formal Response

Once the project owner and the design team have reviewed the RSA report, they should jointly prepare a written response to its findings. The response should outline what actions the project owner and/or design team will take to each safety concern listed in the RSA report. A letter report format, signed by the project owner, is a valid method of responding to the RSA report. Since pedestrian issues typically have a high degree of public involvement, particularly at the local level, presenting the RSA findings in a public meeting or making the report available to the public may help garner support for the RSA process and the RSA findings.

Step 8: Incorporate Findings into the Project when Appropriate

After the response report is prepared, the project owner/design team implements the agreed-upon safety improvements or creates and documents a plan for implementation of the safety improvements. An important consideration is to develop a program to evaluate the RSA program and share 'lessons learned' within the organization.

3.6 Anticipated Challenges in Conducting Pedestrian-Oriented RSAs

While the number of agencies implementing RSA programs is increasing, there are numerous challenges faced by organizations to achieve the full integration of RSAs in their pedestrian safety programs. The following are some of the key challenges:

- **Identifying the projects that are prime candidates to be audited.** In many cases, the issue of pedestrian safety is not given a high priority—for example, on building construction projects that close sidewalks. Procedures need to be established that ensure that pedestrian issues are addressed in all projects. Using the RSA for those projects that are identified as having a significant impact on pedestrian flows can potentially have major benefits. Refer to Section 3.4 for additional information on the types of projects for which pedestrian RSAs should be considered.
- **Using the RSA process at schools.** Schools pose unique pedestrian safety problems because of the age of pedestrians and the mix of pedestrian, bicycle, and vehicular traffic. Potential issues are exacerbated with the increasing number of students driven to school, thereby increasing the number of drop-off and pick-up points. Because of the uniqueness and complexity of a school's problems, a review by an independent RSA team helps assure that a balanced approach is taken to address safety. School officials and parents are closely involved with the problems and are acutely aware of day-to-day operation of the school facility and have strong opinions regarding problems and their solutions. The value of the RSA team's findings is in the independent perspective of the task and the need to consider a variety of stakeholder viewpoints and perceptions in the process.

- **Convincing agencies of the need for an independent, experienced auditor on pedestrian focused projects.** Many communities have been conducting RSAs or similar environmental assessments with untrained or informal auditors such as community members. While local community members who often use the facilities being audited have a strong awareness of many problems observed on those facilities, they may not have the background knowledge necessary to identify relationships to the built environment and potential solutions. Another problem with local community members using the RSA is that they may be used to certain situations and not perceive them as threatening and potentially risky as an outside trained auditor might; “fresh eyes” may be needed to take into consideration a variety of safety concerns and provide innovative recommendations to mitigate issues. Although outside RSA team members may not have an institutional memory of the facilities being audited, they may 1) carry less bias in terms of considering safety issues, 2) be better trained to comprehensively assess the environment and identify relationships between safety, behavior, and the physical and social environment, and 3) be in a better position to coordinate findings with the responsible parties to promote change and implement improvements.
- **Ensuring the needs of all roadway users are considered.** Whereas the focus of this guide and materials is on pedestrians, it is paramount that the needs of all users are considered when conducting an RSA. This includes not only understanding design principles, but also the laws that affect all users. Failure to consider all users appropriately may result in potential safety issues going unnoticed by the RSA team or inappropriate suggestions being made for all road users. For example, installation of a sign or signal for one type of user may create sight distance issues for another type. The intent of this guide is to assist RSA teams in considering potential pedestrian issues, not to lead teams to place any lower priority on other road users.
- **Understanding the different relationships between agencies and the public in pedestrian-oriented RSAs.** Pedestrian-oriented RSAs may involve local pedestrian and community groups either as part of the RSA team, or as advocates for specific issues or concerns. Members of these groups may be able to add more details on the pedestrian’s perspective of facilities, thus further ensuring the needs of users are met. Sometimes an RSA may even be initiated at the request of such a group. It is important for the RSA team to consider the role these organizations may play in the improvement process when planning an RSA and suggesting mitigation strategies.



Many pedestrian issues, such as closing a driveway to reduce pedestrian-vehicle conflicts, require local agencies to work with private land owners.



Site Code:

Oak
Suffield / Pilgrim
Latitude: 0' 0.0000 Undefined

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Lane1 Total
11/5/2019	0	0	4	51	460	731	167	7	1	0	0	0	0	0	1421
11/6/2019	0	1	9	59	615	887	160	9	1	0	0	0	0	0	1741
11/7/2019	0	0	8	43	623	936	235	19	3	0	0	0	0	0	1867
11/8/2019	0	0	1	2	72	114	31	1	0	0	0	0	0	0	221
Lane1 Total	0	1	22	155	1770	2668	593	36	5	0	0	0	0	0	5250

85 percentile = 29

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Lane2 Total
11/5/2019	0	0	8	67	413	616	158	4	1	0	1	0	0	0	1268
11/6/2019	0	0	18	96	575	717	171	11	1	0	0	0	0	0	1589
11/7/2019	0	0	6	74	526	707	176	14	0	0	0	0	0	0	1503
11/8/2019	0	0	2	4	33	55	26	2	1	0	0	0	0	0	123
Lane2 Total	0	0	34	241	1547	2095	531	31	3	0	1	0	0	0	4483

85 percentile = 29

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Combined Total
11/5/2019	0	0	12	118	873	1347	325	11	2	0	1	0	0	0	2689
11/6/2019	0	1	27	155	1190	1604	331	20	2	0	0	0	0	0	3330
11/7/2019	0	0	14	117	1149	1643	411	33	3	0	0	0	0	0	3370
11/8/2019	0	0	3	6	105	169	57	3	1	0	0	0	0	0	344
Combined Total	0	1	56	396	3317	4763	1124	67	8	0	1	0	0	0	9733

85 percentile = 29

Birmingham Police Department

Birmingham, MI 48009



Site Code:

N. Glenhurst

Raynole / Oak

Latitude: 0' 0.0000 Undefined

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Lane1 Total
9/10/2019	0	142	115	0	90	98	12	48	8	6	1	4	5	75	604
9/11/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/12/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/13/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lane1 Total	0	142	115	0	90	98	12	48	8	6	1	4	5	75	604

85 percentile = 46

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Lane2 Total
9/10/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/11/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/12/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/13/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lane2 Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

85 percentile = 0

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Combined Total
9/10/2019	0	142	115	0	90	98	12	48	8	6	1	4	5	75	604
9/11/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/12/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9/13/2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combined Total	0	142	115	0	90	98	12	48	8	6	1	4	5	75	604

85 percentile = 46

On Mon, Jan 13, 2020 at 11:08 AM Neil Gray <cabin20@gmail.com> wrote:

Mr. Valentine,

I am sorry to bother you with this, but I am hopeful that you can lead me in the right direction. I represent a group of local residents from my Quarton lake neighborhood and we would like to propose the installation of a new stop sign at an intersection that we feel is unsafe. The intersection is Oak and Glenhurst, it is currently a 2 way stop, but due to the amount of families with children who cross the street at the crosswalk to Quarton elementary, and the almost blind curve to the west on Oak, we believe that it should be a 4 way stop. Please let me know what we can do in order to have the city look into this change.

Thank you

Neil Gray 1901 Kenwood Ct

1/31/2020

Re: New Stop Sign - sgrewa@bhamgov.org - City of Birmingham MI Mail

Neil Gray

to Scott

Cmdr. Grewe,

Thank you for getting in touch so promptly. Myself and my neighbors use the crosswalk to cross Oak at Glenhurst to get our children to Quarton school, use the tennis courts and playground. Although there is a crossing guard during school drop off and pick up hours, the intersection is dangerous for pedestrians due to the curve on the west side of Glenhurst. Cars coming from the west can't see if people are starting to cross the intersection from the north. Although you have generous police patrols in the area, and there is signage marking the school zone, cars still come quickly around that corner and it is unsafe for little kids. In speaking with the crossing guard at the intersection, he agreed that it is still a challenge when he is there. It is currently a 2 way stop, for traffic moving north and south, but we believe that if we made it into a 4 way stop, vehicles would have to slow to a stop and pedestrians would have much more protection.

Please let me know what other information I can provide and where we go from here.

Thank you so much,

Neil Gray

1901 Kenwood Ct,



MEMORANDUM

Engineering Dept.
Planning Dept.
Police Dept.

DATE: January 31, 2020

TO: Multi-Modal Transportation Board

FROM: Austin Fletcher, City Engineer
Jana Ecker, Planning Director
Scott Grewe, Police Commander

SUBJECT: Stop sign on Bennaville

INTRODUCTION

On January 17th staff was notified that the Department of Public Services received a request to install a stop sign at the location of Edgewood and Bennaville.

BACKGROUND

The Police Department reviewed the intersection and noted that while there was no stop sign on Bennaville at Edgewood or at Grant all other similar intersections in the area currently have stop signs.

SUMMARY

A request was received by DPS to add a stop sign on Bennaville. A review of the intersection at Grant and Edgewood was completed. There have been no reported accidents at Bennaville and Edgewood or at Bennaville and Grant in the last three years.

Fleis & Vandenbrink were contacted and asked to review the intersection and provide a recommendation. Recent traffic counts were sent to F&V for their review process.

SUGGESTED RECOMMENDATION

To install a Stop Sign on Bennaville at Grant and on Bennaville at Edgewood.

MEMO

VIA EMAIL

To: Cmdr. Scott Grewe, Operations Commander
Birmingham Police

From: Julie M. Kroll, PE, PTOE
Fleis & VandenBrink Engineering

Date: January 31, 2020

Re: Bennaville Ave. & Grant Street Traffic Control Evaluation

Fleis & VandenBrink (F&V) staff is pleased to present this memorandum to the City Birmingham for your use evaluating the recommended traffic control signing for the intersection of Bennaville Avenue & Grant Street. This study was performed to determine what intersection traffic control measures (if any) should be provided at the study intersection.

The guidance regarding regulatory traffic measures is provided in the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD)* Section 2B.04 and 2B.06. Additional information is provided in the American Association of State Highway and Transportation Officials (AASHTO) *Geometric Design of Highway and Streets (Green Book)*. F&V referenced the *MMUTCD* and additional documents to evaluate the existing intersection conditions and develop a recommendation. The results of the analysis and the recommendations are included herein.

INTERSECTION CONTROL ANALYSIS

The study intersection of Bennaville Avenue & Grant Street is a three-leg intersection with no traffic control measures on any approaches. The intersection location and geometry is shown in the attached exhibit. A neighborhood resident has requested that traffic control measures are considered at this intersection. Section 2B.06 of the *MMUTCD* provides the following set of criteria to evaluate in order to determine when the installation of a stop sign should be considered at an intersection.

The use of STOP signs on the minor-street approaches should be considered if engineering judgment indicates that a stop is always required because of one or more of the following conditions:

- A. The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day;*
- B. A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway; and/or*
- C. Crash records indicate that three or more crashes that are susceptible to correction by the installation of a STOP sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway.*

A. TRAFFIC VOLUMES

*The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day. **Not met.***

The BPD collected traffic volume data in 2016 along Bennaville Avenue, with a maximum of 351 vehicles per day. There were no traffic volumes available on Grant Street; however, the volumes are less than those required to meet the minimum traffic volumes criteria at this intersection.

B. SIGHT DISTANCE

*A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway. **Met.***

F&V conducted an evaluation of the corner clearance for the intersection of Bennaville Avenue & Grant Street and compared existing conditions to the requirements for corner clearance outlined in the AASHTO *Green Book*.

The intersection sight distance evaluation was completed assuming an 85th percentile speed of 25 mph for both approaches and the sight distance triangles are shown on the attached figure. The evaluation indicates that the study intersection of Bennaville Avenue & Grant Street has the necessary intersection corner clearance provided that there are no vehicles parked within 50 feet of the intersection. Since there are no parking restrictions on Grant Street it is feasible that a vehicle would be parked within the sight triangle.

C. CRASH HISTORY

*Crash records indicate that three or more crashes that are susceptible to correction by the installation of a STOP sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway. **Not met.***

A crash analysis was performed for the study intersection using the most recent 3-years of available data. The results of the analysis showed there were two crashes in the vicinity of the study intersection within in the last 3 years. The crashes occurred in 2016 and 2018 and both were related to on-street parking. Neither of the two crashes were of a type that could be corrected with signage at the intersection, therefore this criteria is not met.

SUMMARY

The results of the analysis show stop control on Bennaville Avenue is warranted. The analysis results are summarized below.

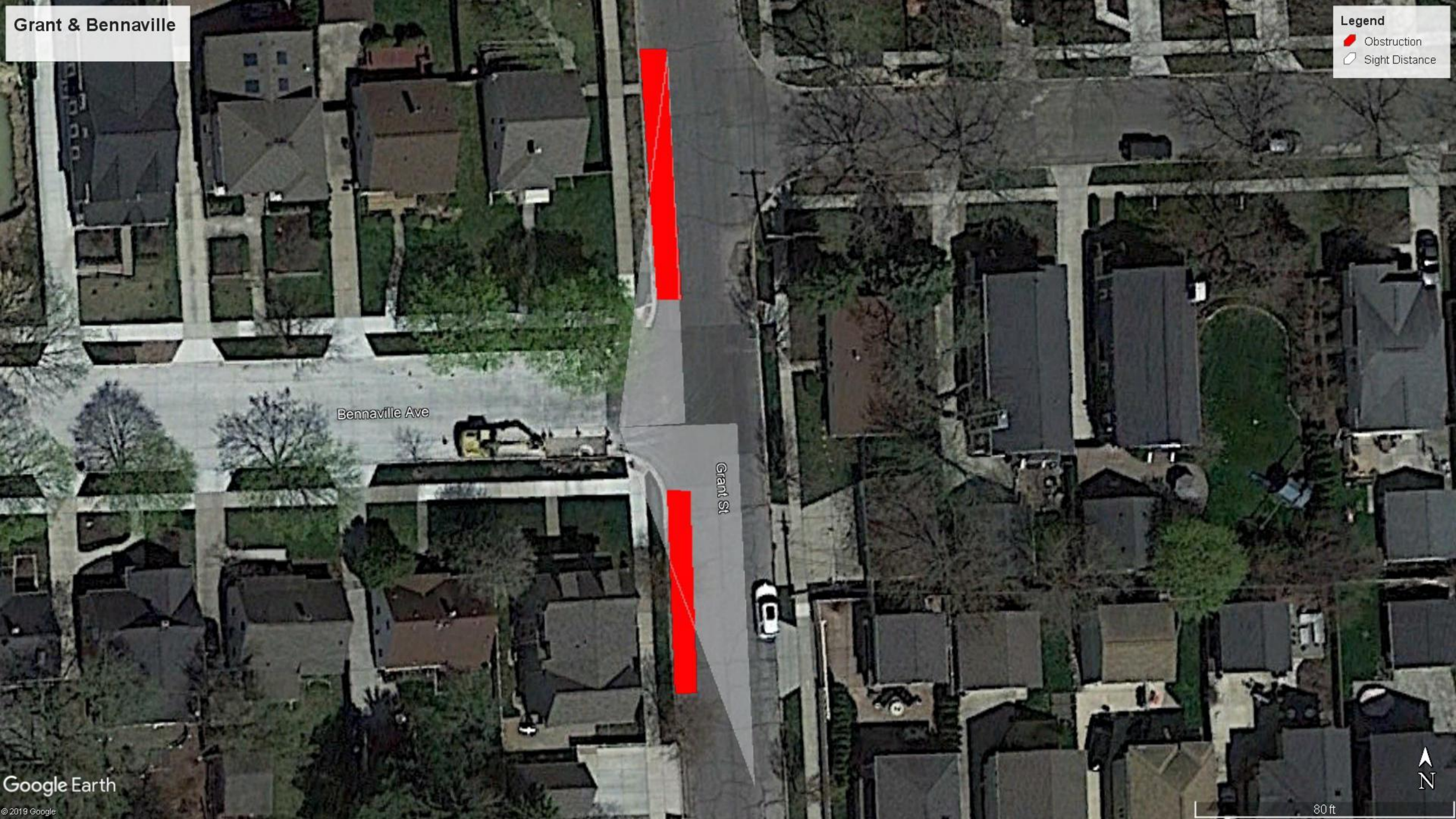
Stop Sign Criterion (MMUTCD Section 2B.06)		Met?
A. Traffic Volumes	<i>The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day.</i>	No
B. Sight Distance	<i>A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway.</i>	Yes
C. Crashes	<i>Crash records indicate that three or more crashes that are susceptible to correction by the installation of a STOP sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway.</i>	No
Stop Control Recommended		Yes

RECOMMENDATIONS

- Based on the results of this study, Minor Street Stop Control is **warranted based on limited sight distance** at the intersection of Bennaville Avenue & Grant Street.
- If parking is restricted on Grant Street within 50-ft of the intersection, the approach would *not* meet the criterion for stop control.

If you have any questions or concerns regarding this engineering analysis, please contact our office.

KAT:jmk



Grant & Bennaville

Legend

-  Obstruction
-  Sight Distance

Bennaville Ave

Grant St



MEMO

VIA EMAIL

To: Cmdr. Scott Grewe, Operations Commander
Birmingham Police

From: Julie M. Kroll, PE, PTOE
Fleis & VandenBrink Engineering

Date: January 31, 2020

Re: Bennaville Ave. & Edgewood Rd. Traffic Control Evaluation

Fleis & VandenBrink (F&V) staff is pleased to present this memorandum to the City Birmingham for your use evaluating the recommended traffic control signing for the intersection of Bennaville Avenue & Edgewood Road. This study was performed to determine what intersection traffic control measures (if any) should be provided at the study intersection.

The guidance regarding regulatory traffic measures is provided in the *Michigan Manual of Uniform Traffic Control Devices (MMUTCD)* Sections 2B.04 and 2B.06. Additional information is provided in the American Association of State Highway and Transportation Officials (AASHTO) *Geometric Design of Highway and Streets (Green Book)*. F&V referenced the *MMUTCD* and additional documents to evaluate the existing intersection conditions and develop a recommendation. The results of the analysis and the recommendations are included herein.

INTERSECTION CONTROL ANALYSIS

The study intersection of Bennaville Avenue & Edgewood Road is a three-leg intersection with no traffic control measures on any approaches. The intersection location and geometry is shown on the attached exhibit. A neighborhood resident has requested that traffic control measures are considered at this intersection. Section 2B.06 of the *MMUTCD* provides the following set of criteria to evaluate in order to determine when the installation of a stop sign should be considered at an intersection.

The use of STOP signs on the minor-street approaches should be considered if engineering judgment indicates that a stop is always required because of one or more of the following conditions:

- A. The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day;*
- B. A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway; and/or*
- C. Crash records indicate that three or more crashes that are susceptible to correction by the installation of a STOP sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway.*

A. TRAFFIC VOLUMES

*The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day. **Not met.***

The BPD collected traffic volume data in 2019 along Edgewood Road, with a maximum of 848 vehicles per day. The volumes provided for Bennaville Avenue were collected by BPD in 2016, with a maximum of 351 vehicles per day. Therefore, the traffic volumes fall well below the given thresholds.

B. SIGHT DISTANCE

*A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway. **Met.***

F&V conducted an evaluation of the corner clearance for the intersection of Bennaville Avenue & Edgewood Road and compared existing conditions to the requirements for corner clearance outlined in the AASHTO *Green Book*.

The intersection sight distance evaluation was completed assuming an 85th percentile speed of 25 mph for both approaches and the sight distance triangles are shown on the attached figure. The evaluation indicates that the study intersection of Bennaville Avenue and Edgewood Road has the necessary intersection corner clearance provided there are no vehicles parked within 50 feet of the intersection. Since there are no parking restrictions on Edgewood Road it is feasible that a vehicle would be parked within the sight triangle.

C. CRASH HISTORY

*Crash records indicate that three or more crashes that are susceptible to correction by the installation of a STOP sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway. **Not met.***

The Birmingham Police Department (BPD) performed a crash analysis for the study intersection using the 3-years of available data. The results of the analysis showed there are no crashes at the study intersection within the last 3 years.

SUMMARY

The results of the analysis show stop control on Bennaville Avenue is warranted. The analysis results are summarized below.

Stop Sign Criterion (MMUTCD Section 2B.06)		Met?
A. Traffic Volumes	<i>The vehicular traffic volumes on the through street or highway exceed 6,000 vehicles per day.</i>	No
B. Sight Distance	<i>A restricted view exists that requires road users to stop in order to adequately observe conflicting traffic on the through street or highway.</i>	Yes
C. Crashes	<i>Crash records indicate that three or more crashes that are susceptible to correction by the installation of a STOP sign have been reported within a 12-month period, or that five or more such crashes have been reported within a 2-year period. Such crashes include right-angle collisions involving road users on the minor-street approach failing to yield the right-of-way to traffic on the through street or highway.</i>	No
Stop Control Recommended		Yes

RECOMMENDATIONS


- Based on the results of this study, Minor Street Stop Control is **warranted based on limited sight distance** at the intersection of Bennaville Avenue & Edgewood Road.
- If parking is restricted on Edgewood Road within 50-ft of the intersection, the approach would *not* meet the criterion for stop control.


If you have any questions or concerns regarding this engineering analysis, please contact our office.

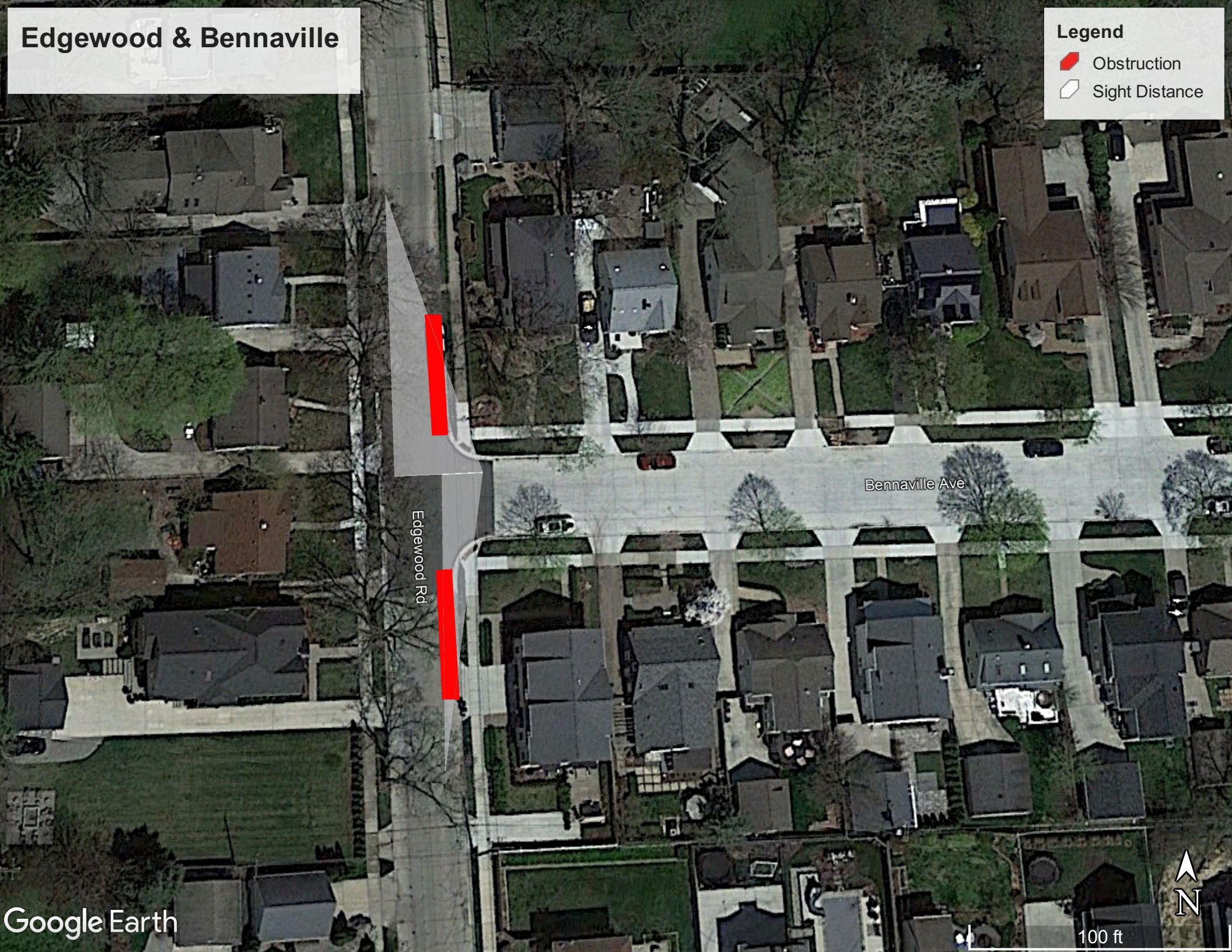
KAT:jmk

Edgewood & Bennaville

Legend

 Obstruction

 Sight Distance





Site Code: 185

Edgewood
Southlawn / Bennaville
Latitude: 0' 0.0000 Undefined

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Lane1 Total
5/28/2019	0	4	111	246	15	0	0	0	0	0	0	0	0	0	376
5/29/2019	0	3	121	259	31	3	0	0	0	0	0	0	0	0	417
5/30/2019	0	3	104	278	23	0	0	0	0	0	0	0	0	0	408
5/31/2019	0	0	10	14	0	0	0	0	0	0	0	0	0	0	24
Lane1 Total	0	10	346	797	69	3	0	0	0	0	0	0	0	0	1225

85 percentile = 18

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Lane2 Total
5/28/2019	0	2	32	170	139	9	0	0	0	0	0	0	0	0	352
5/29/2019	0	0	50	175	186	20	0	0	0	0	0	0	0	0	431
5/30/2019	0	0	24	179	168	14	0	0	0	0	0	0	0	0	385
5/31/2019	0	0	2	10	0	0	0	0	0	0	0	0	0	0	12
Lane2 Total	0	2	108	534	493	43	0	0	0	0	0	0	0	0	1180

85 percentile = 22

Date\Speed (MPH)	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	>65	Combined Total
5/28/2019	0	6	143	416	154	9	0	0	0	0	0	0	0	0	728
5/29/2019	0	3	171	434	217	23	0	0	0	0	0	0	0	0	848
5/30/2019	0	3	128	457	191	14	0	0	0	0	0	0	0	0	793
5/31/2019	0	0	12	24	0	0	0	0	0	0	0	0	0	0	36
Combined Total	0	12	454	1331	562	46	0	0	0	0	0	0	0	0	2405

85 percentile = 21



MEMORANDUM

Planning Department

DATE: January 30, 2020

TO: Multi-Modal Transportation Board

FROM: Nicole Ciurla, Assistant City Planner

APPROVED: Jana L. Ecker, Planning Director
Commander Scott Grewe, Police Department
Austin Fletcher, City Engineer

SUBJECT: Bicycle Parking within Municipal Parking Structures

Introduction

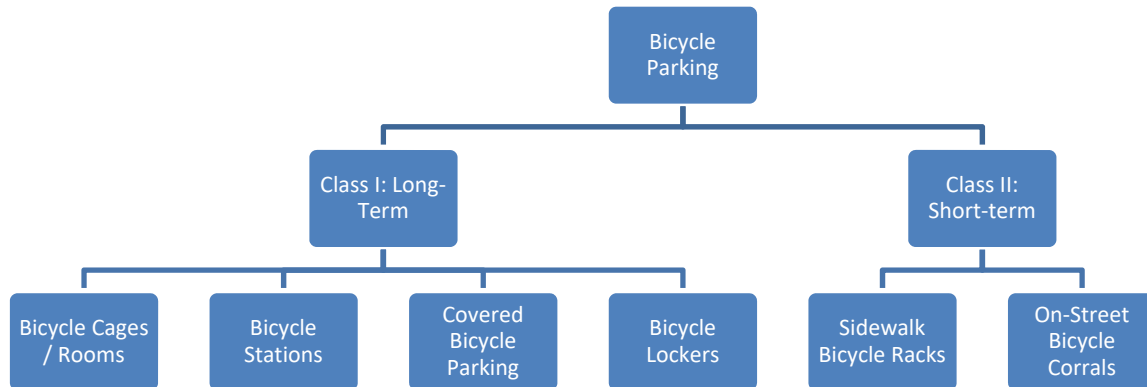
The City of Birmingham is exploring the possibility of installing bicycle parking in its five municipal parking structures. The Multi-Modal Transportation Plan (MMTP) encourages the use of bicycles as a means of transportation to and from the Central Business District. City Staff has a goal of providing secure and covered bike parking without sacrificing any parking spots.

The MMTP recommends "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." Those who ride their bike to work or to downtown on a regular basis and wish to park it in a location that is more secure than a typical open bike rack are the intended users of secured and covered bike parking.

The Advisory Parking Committee discussed this subject at their December 2016 meeting. Assistant Planner Sean Campbell presented on: considerations for establishing bicycle parking in parking structures; information about how several cities successfully activated excess space within parking structures for bike storage; and information about a suggested location for a bike parking facility. Committee members did not see any negatives; and believed that installation of bicycle parking facilities dovetails well with the promotion of multi-modal transportation. The committee's consensus was to go forward with the vision to provide bicycle parking in parking structures.

The purpose of this agenda item is to educate the Multi-Modal Transportation Board how bike parking could be facilitated in parking garages. The strategies outlined in this report will help inform decision making in the City regarding how it plans to implement this project.

Bicycle Parking Classifications



Bicycle parking generally falls into two categories: short-term and long-term, also referred to as class II and class I, respectively. Class II parking best serves people leaving bicycles for two hours or less. While racks for short-term parking should be designed, built and installed with security in mind, overall there is an emphasis on convenience and accessibility. The City's Bicycle Parking Plan to date (all phases) is class II bike parking.



Class I parking is for bicycle parking needs of longer than two hours and for people who bike that may be willing to travel further to access it in exchange for greater security and protection from the elements. Any bike parking within municipal parking structures would be considered Class I because it would be covered.

The four main types of Class I bike parking are: cages/rooms, stations, covered parking and bicycle lockers. City staff is not asking the Board to consider bicycle lockers at this time. Bicycle lockers have a relatively high cost and low benefit due to their limited capacity.

Covered Bicycle Parking

Currently there are three bike racks located at the entrance/exit of the Chesterfield Parking Structure. The racks are covered which gives bikes some protection from the elements.



Bicycle Cages and Rooms

Bicycle cages and rooms restrict access exclusively to people parking bicycles inside a secure designated area. Typical access control to bicycle cages and rooms is with a key, keypad or cardkey. Bicycle rooms are typically restricted to a distinct group such as residents or employees of a given building. Cages are often located in building basements or in parking garages. Bike

Bicycle Parking within Municipal Parking Structures

cages have proven to be very effective both in providing secure storage and utilizing otherwise unused space in parking structures.

Velodome Shelters (one popular vendor of this product) offers customizable bike cages that range in width from 1' to 10' (in 1' increments), can have either hinged or sliding doors, welded wire or woven wire mesh panels, secured by a key lock, keypad, fob or an electronic card reader, and comes in 8 different colors. The company performs on-site installation of cages in the designated space.



Image Source: Arlington County, VA

Bicycle stations



Image Source: City of Melbourne

Like bicycle cages and rooms, bicycle stations provide secure bicycle parking locations indoors where access is controlled by an attendant, card key or key pad. Bicycle stations differ from these other facilities in that they can offer additional amenities to people who bike like an attendant, showers and/or lockers, and bicycle repairs and rentals, and/or sales of bicycle parts and supplies. Hanging racks with vertical offset or stacking double-decker racks are commonly used.

A

barrier to bike commuting for many workers is lack of access to showers or changing areas. Trip-end facilities at work are significant determinants of bicycling to work. Commuters with showers, lockers, and bike parking at work are five times more likely to commute by bicycle when compared to individuals without any bicycle facilities at work. When individuals are only provided bike parking, but not showers or lockers at the workplace, they are only 1.8 times more likely to cycle to work when compared to those without any bicycle facilities.

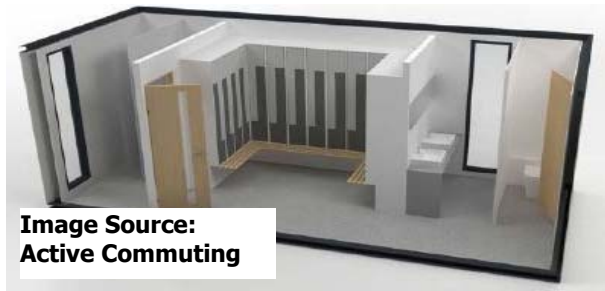
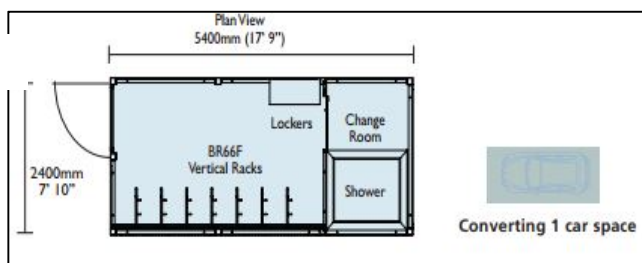


Image Source: Active Commuting

Trip-end facilities should provide bicyclists with:

- Sufficient and adequate secure parking and storage facilities for their bicycles
- Adequate facilities for storing clothes and belongings, like lockers
- Change rooms, preferably with showers, toilets and sinks.

Image Source: Securabike



The facilities should be easily accessible and located less than 100 feet from the entrance. Active Commuting and Securabike provide design and siting assistance and sell modules that incorporate end-of-trip facilities.

Additional Considerations

Bicycle Parking within Municipal Parking Structures

Cost

Baltimore instituted a monthly/yearly parking pass program. Pass holders show their pass to the parking booth attendant or wave it at a scanner to receive access to the garage. In a parking pass program, bicyclists are entitled to more enhanced facilities. These include, but are not limited to bike lockers and cages, and shower/change facilities. The revenue generated from the program funds maintenance and facility improvements over time.

The MMTP notes that a monthly user fee could offset the cost for such facilities. The City could sell keys at monthly and/or yearly rates at the Central Parking Office or City Hall. City staff recommends that the individuals who currently have a monthly parking permit (currently \$70) be given access to any new bike parking facilities in City parking garages for an introductory period. After that, commuters would have the opportunity to purchase a separate pass for Class I bicycle parking.

Signage



Signage is an important element that provides bicyclists with information regarding distance, destination, and direction. Toronto owes much of the success of its bike system to the provision of adequate wayfinding that helps bicyclists navigate around the city. Birmingham should install signage that guides and informs bicyclists about various bike infrastructure in the City including bike parking in parking garages.

Location

Bicycle parking in parking garages must be either on the same level as the entrance to the garage from the street or accessible via automobile ramps designed to serve bicyclists (with slope of less than 5% or less than 8% with a landing every 30 feet), or near an elevator that is large enough to accommodate bicycles. In the most conventional examples of bike parking in parking garages, the facilities for bikes are typically installed on the ground level or the underground floors of the structure. Doing this minimizes the interaction between motorists and bicyclists.

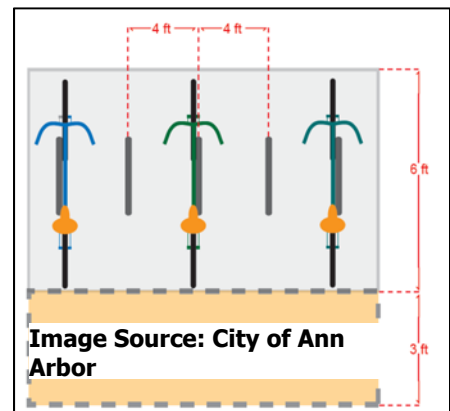
A physical barrier designed to prevent motor vehicles from driving into bicycles (such as an elevated surface) is a safe and effective way to accommodate bike parking in garages.



Adequate clearance

Bike parking facilities must provide ample room for maneuvering and any ADA ramps. Ann Arbor has set space and size requirements for bike parking facilities and has outlined them in their Bike Parking Manual. They require all racks to have spaces that are two-feet wide and six-feet long with a three-foot access aisle. The placement of bike parking facilities also cannot interfere with the required 6-foot pedestrian walkway.

Adequate clearance from walls and other fixed objects is necessary to allow parking of bicycles. Aisle spacing should allow for:



Bicycle Parking within Municipal Parking Structures

- simultaneous users;
- entry and exit from the space;
- if hanging racks are used, they must allow for the use of “U” locks that can secure the bicycle frame and the dimensions of the rack must provide adequate clear distance behind the rack for easy maneuvering;
- if space allows, hanging and/or stacked racks should be used in combination with standard floor racks since they are easier to use; and
- if stacked racks are used, the second level should offer a device that assists with lifting the bicycle up on the rack.

Wheeling Ramp

If the easiest way to access the facility is via stairs, a wheeling ramp should be provided. Wheeling ramps make stairs accessible to bicyclists. They enable bicyclists to go up or down staircases without having to physically carry their bike. Several designs of ramps are available. The success of a wheeling ramp mainly depends on the choice of ramp materials, as well as the gradient and length of the stairs. In general, short and shallow ramps are more useful than long and steep ramps, as less strength is required to wheel a bicycle up and down the stairs. Below are some examples of successful wheeling ramps and their characteristics:

- Stairs filled in with concrete



Advantages: This is a permanent type of ramp that is stable, safe and easy to use. If the concrete is patterned, it provides adhesion and the ramp does not become slippery when wet.

Disadvantages: The ramp cannot be moved if the cycle parking is relocated, and may be more costly to construct.

- Metal ramps



Advantages: This ramp type can easily be retrofitted to an existing set of stairs, and moved later if required. A strong profile gives good grip for the bicycle wheels as seen in Figure 8.

Disadvantages: Not as stable as concrete ramps. May become slippery in wet weather.

The use of strong metal is highly recommended to avoid damage through heavy usage and vandalism.

- Wheel channels

Bicycle Parking within Municipal Parking Structures



Advantages: This ramp type can be easily retrofitted and moved. It is very efficient where space is tight. Riders are able to guide bike wheels securely in the channel.

Disadvantages: These ramps are slightly harder to use than wider ramps, as the front wheels need to be inserted into the ramp with more precision. Wide tires can catch on the side walls.

All three ramp types work well if used to suit the site requirements. Below are some important installation considerations:

- It is usually easier to go down a ramp than come up it. As most bicyclists prefer to stand to the left of their bike when pushing it, the ramp should be installed on the right hand side of the stairs (when ascending) if possible.
- If there is sufficient space, two parallel ramps allow the bicyclist to choose which side they would like to stand on.
- Situate wheeling ramps as far as possible from walls or other obstacles.
- Ramps should be clearly visible to avoid accidents. Using bright colors or painting the adjacent floor can accomplish this.
- Fix ramps securely to avoid any trip hazards.
- Wheeling ramps should provide a good grip, especially when wet.
- Separate wheeling ramps from pedestrian access with metal railings, where possible.

Lighting

Additional lighting should be provided for bicycle facilities. Ann Arbor adopted lighting requirements specifically for bike parking. The City has effectuated a minimum illumination level of 0.4 foot candles and a maximum uniformity ratio of 10 to 1. The lighting requirements ensure that bike parking areas provide illumination levels at all unobstructed points of the bicycle parking area. The illumination levels are measured three feet above the lot surface.

Suggested Recommendation

To direct City Staff to research and subsequently present recommended bike parking solutions for each of the City's five municipal parking structures.



MEMORANDUM

Planning Division

DATE: January 14, 2020

TO: Joseph A. Valentine, City Manager

FROM: Jana L. Ecker, Planning Director

SUBJECT: Multi-Modal Transportation Initiatives

INTRODUCTION:

In November of 2013, the City of Birmingham adopted the Multi-Modal Transportation Plan (the Plan). The Plan had several goals for the City, including the formation of the Multi-Modal Transportation Board to review all transportation projects in the City.

The goal of the Multi-Modal Transportation Board is to assist in maintaining the safe and efficient movement of motorized and non-motorized vehicles and pedestrians on the streets and walkways of the City and to advise the City Commission on the implementation of the Multi-Modal Transportation Plan and to review all transportation projects.

BACKGROUND:

The City Commission created the Multi-Modal Transportation Board (MMTB) as recommended in the Plan. Since its formation, the MMTB has received extensive training in many areas of transportation planning. The purpose of this training is to provide all board members with a solid educated foundation of knowledge for their role in reviewing all of the City's transportation projects, both to ensure that they are designed in accordance with the goals and objectives of the Plan, and also in accordance with national best practices and current planning and engineering standards.

Multi-Modal Training

City staff arranges for ongoing training sessions to provide board members with the required knowledge to review and analyze proposed transportation related projects. The training sessions also focus on current and upcoming transportation trends. All training sessions are recorded on DVDs that are distributed to new board members upon joining the board in order to help prepare them for their new role. Over the past year, the board has received training on the following topics:

- SMART Transit Services – A representative from SMART conducted a presentation to the MMTB to educate them on regular bus and transit routes within and around Birmingham, including the new FAST service on Woodward, and to update board members on new technology upgrades and amenities (such as on real time tracking, signal priority etc.) that have been added to enhance transit ridership services. Information was also provided on how SMART works with communities and local development patterns to ensure transit routes serve the more densely populated areas with walkable amenities nearby;

- Transit Oriented Development (TOD) – A representative from MKSK educated the MMTB on TOD, which is development that is typically very pedestrian, bicycle and transit oriented, less dependent on individual motor vehicle travel, and contains a mix of uses and higher densities. Best practices and examples of TOD were provided in cities similar in size and character to Birmingham, and how these could be applied in Birmingham;
- Mobility Oriented Development (MOD) – A representative from the Regional Transit Authority also educated the board on mobility-oriented development (MOD), which explores how different modes of transportation access the major transit corridors and how development fits into that. Factors which influence transit usage were also discussed, including proximity, convenience, quality of the transit stop and amenities, travel time reliability, and the permanence of a stop or station; and
- Regional Transit Initiatives – A representative from the Regional Transit Authority also updated the MMTB on a study they are conducting regarding MOD along Woodward and along the Ann Arbor-Detroit Rail Corridor. Other RTA pilot programs were discussed, including using ride sharing to facilitate on-demand service for seniors, people with disabilities and individuals living in lower density areas, as well as the RTA's plan to use new technology for regional transit service, fares and booking. The Bus Rapid Transit line in Cleveland was also discussed as a possibility for the Woodward Corridor.

The next training topic that will be presented to the MMTB will be green infrastructure options for street and right-of-way design.

Bicycle Parking/Infrastructure

In 2012, the City commission approved a Downtown Bicycle Parking Plan that consisted of three phases that called for the installation of 101 bike racks at 80 locations. More recently, the City Commission allocated \$15,000 for bicycle parking in the FY 17-18 budget. A total of roughly 154 bike racks have been installed throughout the City since 2012.

The Multi-Modal Transportation Plan also recommended that the City provide active transportation hubs at key locations around town. The Plan defines active transportation hubs as "wayfinding kiosks that serve as orientation and resource centers for multi-modal trips." The Multi-Modal Transportation Plan recommended the placement of bicycle maintenance stations at Booth Park, Quarton Lake Park, in the Rail District and at City Hall. The City has now approved and installed four bicycle maintenance stations and air pumps.

In addition, the following bicycle infrastructure elements recommended in the MMTP have been completed to date:

Implemented Bicycle Infrastructure					
Infrastructure type	Phase	Street	Between		Year
Bike Lane	1	Oak	Chesterfield	Lakeside	
Bike Lane	1	N. Eton	Yorkshire	Derby	
Buffered Bike Lanes/Sharrows	2	* S. Eton	E. Maple	14 Mile	2019
Bike Parking	1	Throughout commercial areas			Ongoing
Sharrows	1	W. Lincoln	Southfield	Ann	
Bicycle Repair Station	3	Shain, Quarton Lake, Kenning, and Booth Parks			2018

* S. Eton is currently implemented on a trial basis

The MMTB has also considered each of the remaining bicycle infrastructure recommendations contained in the MMTP. The MMTB's goal is to prioritize the legs of the neighborhood connector route leading to and from the City's elementary and middle schools, and to request needed funding during the 2020-2021 budget cycle for the following multi-modal recommendations:

- Policy and ordinance changes regarding number, type and distribution of bicycle parking in private developments;
- Installation of bicycle parking facilities in public parking garages in Downtown Birmingham;
- Installation of sharrows on portions of Maple, Oak, W. Lincoln and Adams Roads;
- Installation of bicycle lanes / shared paths on portions of Cranbrook and N. Adams; and;
- Completion of the Neighborhood Connector Route.

Complete Street Improvements

Several complete street improvements have been implemented across the City over the past several years. In particular, the MMTB has studied and reviewed the following complete street projects recently:

- Signal timing and pedestrian improvements on Maple, including both of the intersections at North Eton and South Eton to improve operations, traffic congestion, and to enhance the pedestrian experience;
- Signal timing and reconfiguration and leading pedestrian interval enhancements at Willits and N. Old Woodward to enhance the operation and safety of the intersection for motorists, pedestrians and transit users, both during the reconstruction of Maple Road, and beyond;
- Intersection design and signal changes at Maple Road and Southfield to create a safer intersection that controls vehicular traffic and speed, improves the pedestrian crossing experience, and enhances the aesthetic impact of this western entry into Downtown Birmingham;
- Cranbrook Road between 14 and 15 Mile Roads to improve safety, narrow the road and add pedestrian and bicycle facilities; and
- As an extension of the 2018 S. Old Woodward project, the 2020 Maple Road reconstruction project will include complete roadway reconstruction on E. Maple from Woodward to Old Woodward, and W. Maple from Pierce to Chester and include mid-block crossings, pedestrian bulb outs, enhanced greenery, parallel parking and improved streetscape amenities.

Motor Vehicle Parking / Infrastructure

As a result of Phase 1 of the S. Old Woodward reconstruction project, unused areas were created adjacent to the angled parking spaces on Old Woodward. Over the past year, the City has changed the previous no parking policy in these areas, and installed parking spaces for mopeds by adding three 3'x6' spaces. The moped parking areas were completed in 2019.

Over the past two years, the City also contracted with a parking consultant to conduct an evaluation of current zoning code parking requirements for private development in the Central

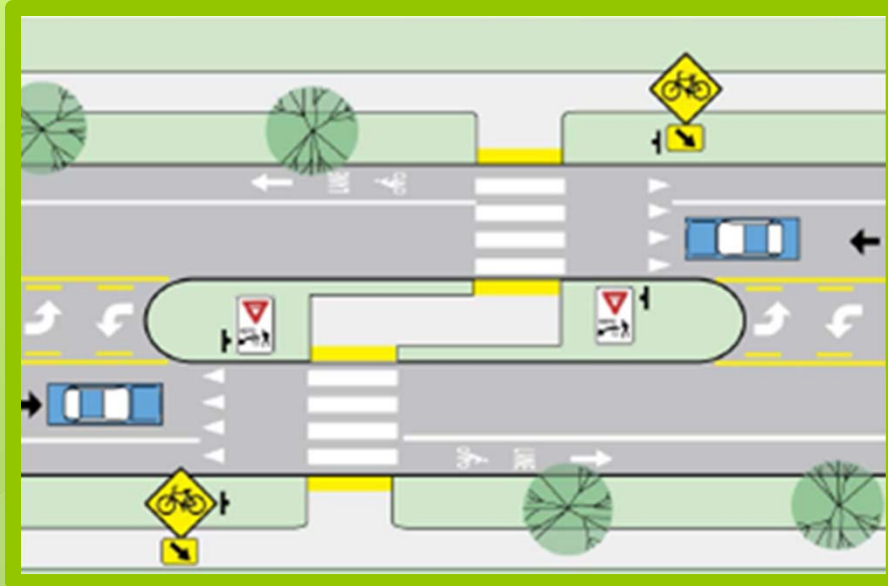
Business District, the Triangle District, and the Rail District. The purpose of the study is to provide an analysis of the current parking requirements effect on land use, density, size, location, and cost of development, and to provide a summary and analysis of current and future parking trends occurring or expected to occur in walkable urban communities of comparable size and character to Birmingham. This study was also to provide specific recommendations for updating the City's current parking regulations to provide development incentives, increase residential density, and encourage more affordable residential units in the studied areas. As the updating process began in 2019 for the Birmingham Master Plan, this project was provided to the City's master plan consultants, and the results and findings will be incorporated into the final recommendations of the Birmingham 2040 Master Plan once it is completed. In addition, public engagement during the master plan project has also spurred the discussion and study of residential permit parking on streets throughout the City, including creating a simplified system, different options, and allowing for individual neighborhoods to select from options that work best in their area of the City. These findings and recommendations for the future will also be incorporated in the final draft of the Birmingham 2040 Master Plan.

Mode Shift Program

Given the ongoing public perception of parking shortages within the City, the City may wish to investigate conducting a pilot project to reduce parking demand by encouraging mode shift from primarily single person vehicle trips to alternate transportation modes, such as ride sharing, transit use, bicycle use, and walking. New and emerging technology could be utilized to assist with the implementation and to attract interest. Similar programs have been created and conducted in other cities across Michigan and the U.S. Such programs could be considered for implementation in Birmingham to:

- Reduce demand for the parking structures in Downtown Birmingham;
- Reduce the spillover of employee parking in the neighborhoods;
- Reduce traffic congestion for Birmingham residents and commuters; and
- Provide affordable transportations options for employees working in Downtown Birmingham.

January 25, 2020



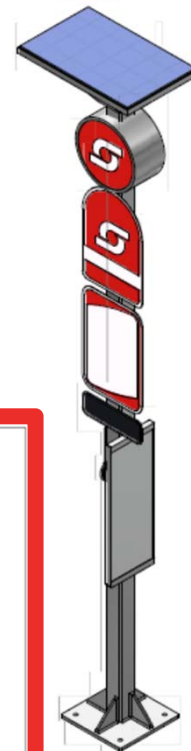
Multi-Modal Transportation Board Update



Multi-Modal Planning

- Adoption of the Multi-Modal Transportation Plan in 2013
 - The Plan serves as a guide for transportation projects
 - Outlined goals for the City, including the formation of the Multi-Modal Transportation Board
- Multi-Modal Transportation Board created in 2014
 - To assist in maintaining the safe and efficient movement of motorized and non-motorized vehicles and pedestrians on the streets and walkways of the City
 - To advise the City Commission on the implementation of the MMTP and review all transportation projects
 - Ongoing training provided to members





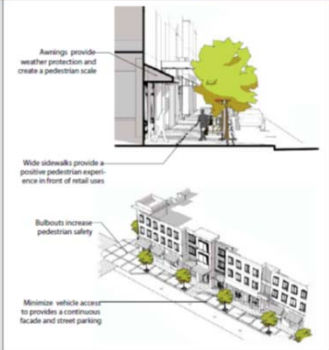
Transit Oriented Development

- Transit-oriented development, or TOD, is an approach to development that focuses on land uses around a transit station or within a transit corridor. Typically, it is characterized by:

- A mix of uses
- Moderate to high density
- Pedestrian orientation/connectivity
- Transportation choices
- Reduced parking
- High quality design
- TOD occurs within one-quarter mile, or a five to seven minute walk, of a transit station



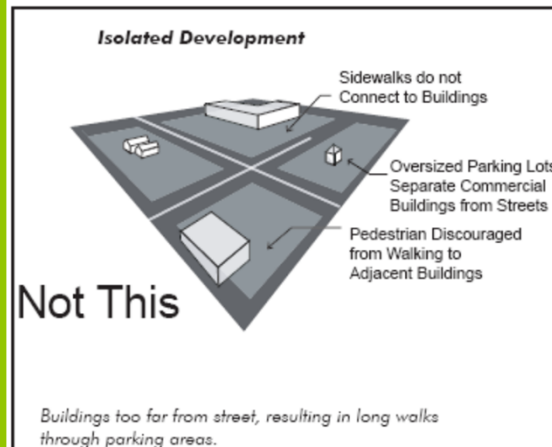
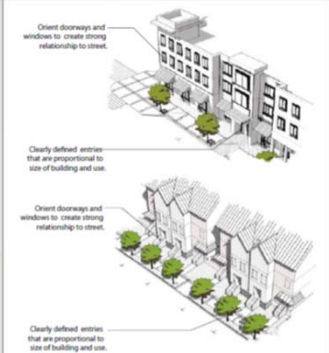
- f. On primary pedestrian routes such as Park Boulevard and California Ave, climate and weather protection where possible, such as covered waiting areas, building projections and colonnades, and awnings;
- g. Streetscape or pedestrian amenities that contribute to the area's streetscape environment such as street trees, bulb-outs, benches, landscape elements, and public art; and
- h. Vehicle access from alleys or sidestreets where they exist, with pedestrian access from the public street.



2. Street Building Facades

Street facades shall be designed to provide a strong relationship with the sidewalks and the street(s), to create an environment that supports and encourages pedestrian activity through design elements such as:

- a. Facade articulation reflecting the rhythm of nearby commercial and residential areas such as California Avenue;
- b. Placement and orientation of doorways, windows, and landscape elements to create strong, direct relationships with the street;
- c. Facades that include projecting eaves and overhangs, porches, and other architectural elements that provide human scale and help break up building mass;
- d. Entries and windows that face onto the street;
- e. Entries that are clearly defined features of front facades, and that have a scale that is in proportion to the size and type of the building and number of units being accessed; larger buildings should have a more prominent building entrance, while maintaining a pedestrian scale; and
- f. Residential units and storefronts that have a presence on the street and are not walled-off or oriented exclusively inward.



Mobility Oriented Development

"If you can connect people's lives by designing a place that provides an efficient commute and easy access to places to relax, shop, eat and live, there is no need to use a car. I myself am able to visit my gym, buy gifts and groceries, dine out and commute to work all from the one area around my local station in Hong Kong, so why drive? Whilst ensuring that the station is commercial it has the added benefits of helping the environment and making the development more sustainable."

Diane Legge Kemp, Vice President CallisonRTKL



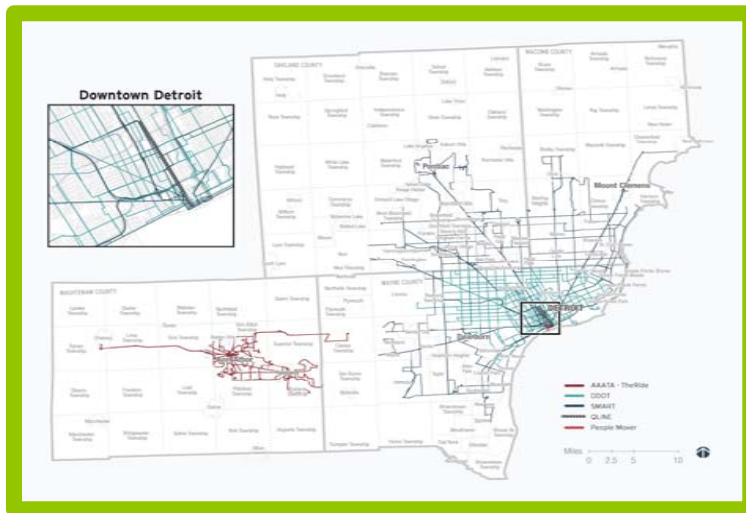
MOBILITY ORIENTED DEVELOPMENT – URBAN TRANSIT HUB



Image: Image: CallisonRTKL
Image: CallisonRTKL

Regional Efforts

- Existing



RTA

**REGIONAL
TRANSIT AUTHORITY
OF SOUTHEAST MICHIGAN**

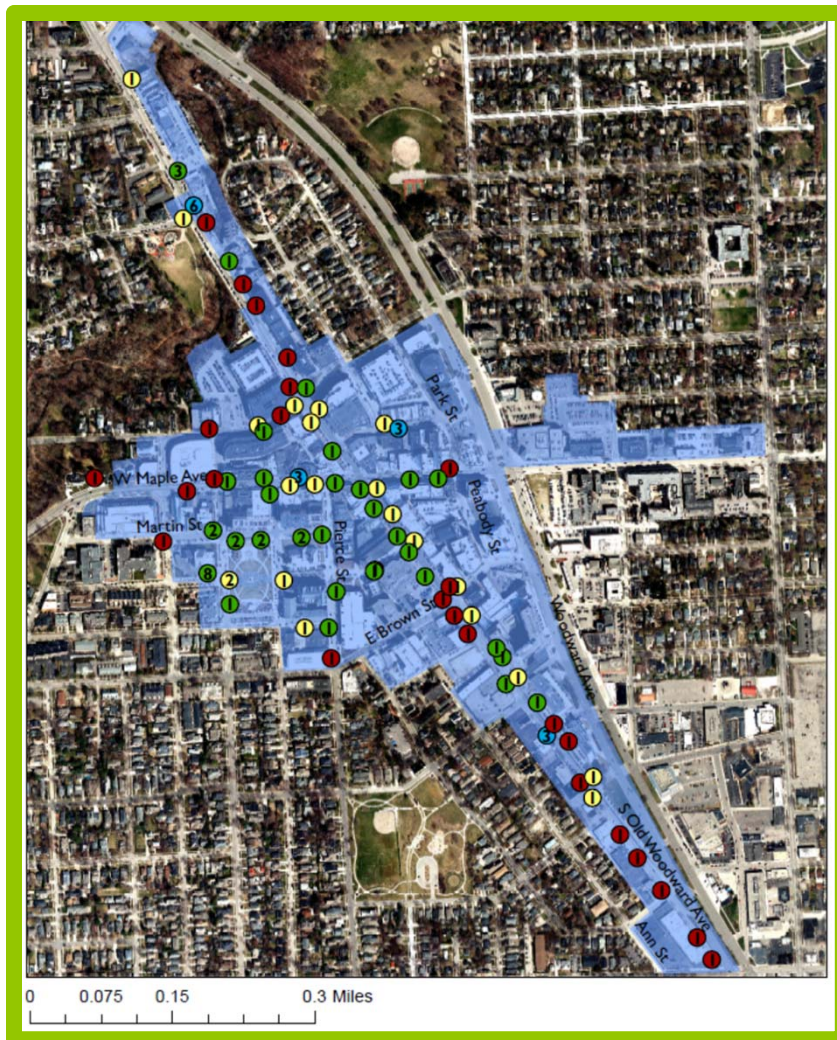
- Proposed:



Green Infrastructure



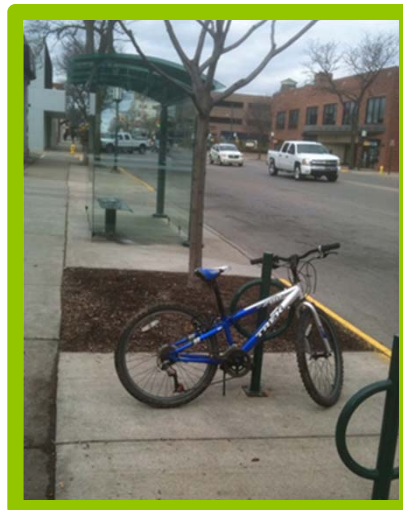
Bicycle Infrastructure



Completed Bicycle Projects

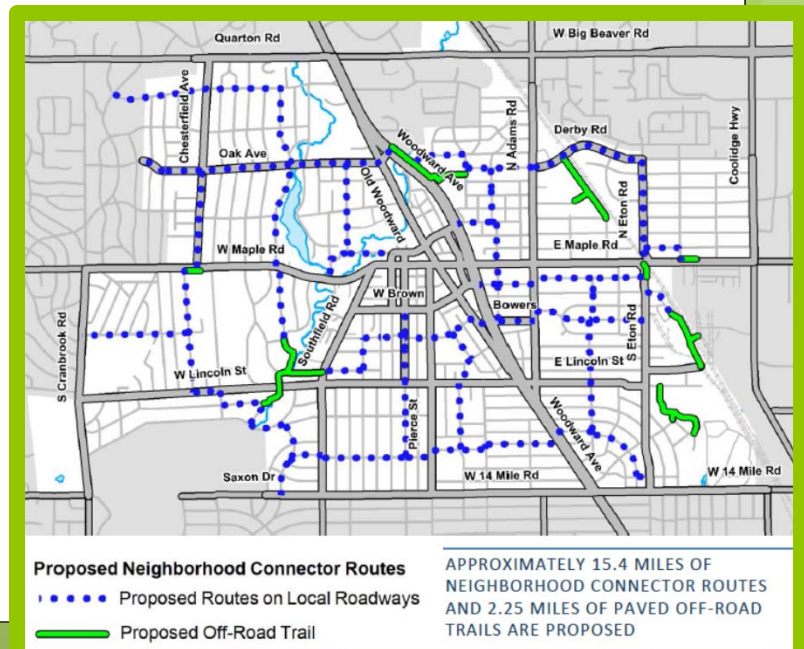
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Sharrows	1	W. Lincoln	Southfield	Ann	
Bicycle Repair Station	3	Shain, Quarton Lake, Kenning, and Booth Parks			2018

* S. Eton is currently implemented on a trial basis



Next Steps:

- Policy and ordinance changes regarding number, type and distribution of bicycle parking in private developments;
- Installation of bicycle parking facilities public parking garages in Downtown Birmingham;
- Installation of sharrows on portions of Maple, Oak, W. Lincoln and Adams Roads;
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- Completion of the Neighborhood Connector Route.



Complete Streets

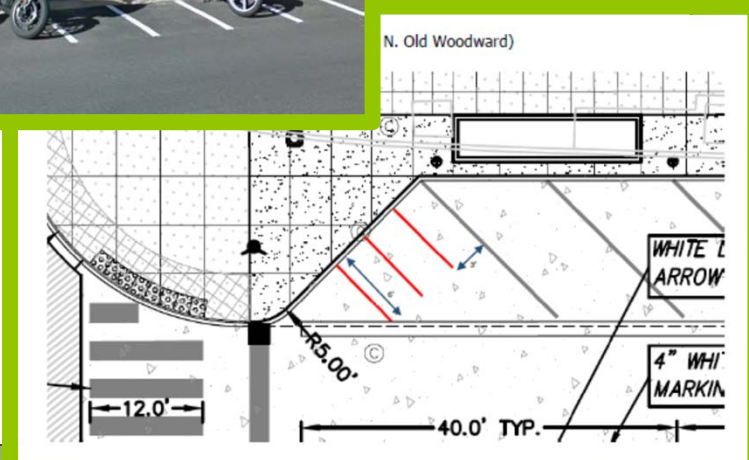
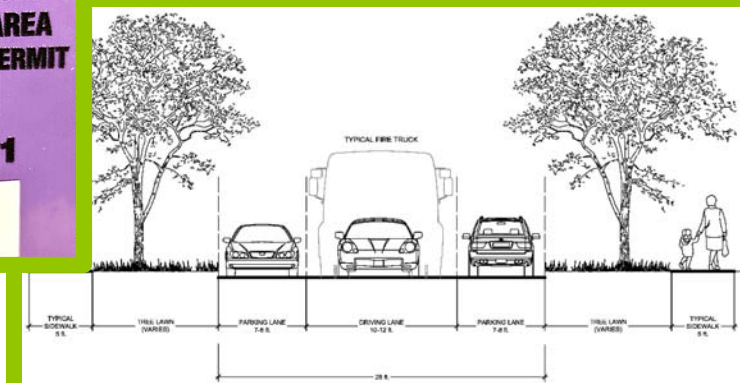
- The design of streets for all modes, users, and abilities
- Benefits include:
 - Increased safety
 - Increased public health
 - Reduced health care costs
 - Reduced greenhouse gas emissions



Motor Vehicle Parking

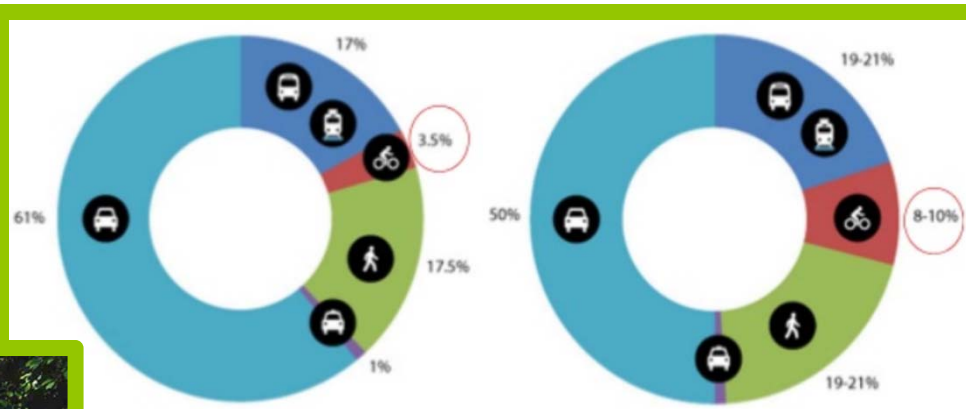
**CITY OF BIRMINGHAM
TRIANGLE DISTRICT AREA
RESIDENTIAL PARKING PERMIT**

**Expires
December 31
2020**



Mode Shift Program

- Increase use of all modes of transportation
- Reduce parking demand





Questions?

**YOU'RE
INVITED!**

RTA

WOODWARD AVENUE CORRIDOR MOBILITY ORIENTED DEVELOPMENT WORKSHOP

WEDNESDAY, FEBRUARY 19TH

10:00 - 12:00 P.M.

**PLEASANT RIDGE COMMUNITY CENTER
4 RIDGE ROAD
PLEASANT RIDGE, MI 48069**

AT THIS WORKSHOP, YOU CAN EXPECT:

- LUNCH WILL BE PROVIDED!
- A PRESENTATION OVERVIEW OF THE PROJECT, INCLUDING EXISTING CONDITIONS, MARKET ANALYSIS, AND BEST PRACTICES
- INTERACTIVE EXERCISES TO:
 - CONFIRM THE LOCATION OF STATIONS AND TYPOLOGY FRAMEWORK
 - DETERMINE CURRENT REGULATORY, MOBILITY, AND DEVELOPMENT GAPS THAT MAY EXIST TO HELP ACHIEVE TOD/MOD BEST PRACTICES

PLEASE RSVP TO THE WORKSHOP HERE:

[HTTPS://WWW.SURVEYMONKEY.COM/R/WOODWARDMODWORKSHOP](https://www.surveymonkey.com/r/woodwardmodworkshop)

QUESTIONS? CONTACT:

JEROMIE WINSOR, AECOM, JEROMIE.WINSOR@AECOM.COM



**Mobility - Oriented
Development Study**

BICYCLE PARKING SOLUTIONS

A RESOURCE GUIDE FOR IMPROVING
SECURE BICYCLE PARKING IN NEW YORK CITY



TRANSPORTATION
ALTERNATIVES



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INTRODUCTION



PUBLIC WORK STANDS AND INFLATION DEVICES ARE BECOMING MORE COMMONPLACE
(PRODUCT: SARIS CYCLE AID STATION)

Biking is booming in New York City thanks to an expanding network of bike lanes and greenways. As more New Yorkers discover the joy and efficiency of riding a bike, secure bike parking becomes increasingly important. Real estate brokers and building managers now advertise secure bike parking to prospective clients and tenants. Cutting-edge technology companies like Google and Foursquare provide indoor bike parking for their employees. Discerning customers plan their shopping in neighborhoods with a secure place to lock up.

New York has welcomed several innovations in bike parking over the last decade, including the city's first bike corral (on-street bike parking), the landmark Bike Access to Office Buildings Law and the conversion of 12,000 decommissioned parking meters into bike racks.

While the Big Apple's bike parking network has improved over time, secure bike parking remains one of the biggest barriers to riding a bike for New Yorkers. This guide is meant to assist building managers, business owners and community members in providing secure bike parking for their tenants, customers and neighbors.

THE LAW

EXISTING BUILDINGS

In 2009, Transportation Alternatives secured passage of the Bike Access to Office Buildings Law. The law gives employees who work in buildings with a freight elevator a formal process for requesting bicycle access in their workplace. Under the law, employees can, with their employer's approval, demand that their building manager develop a Bicycle Access Plan. The plan details how employees can bring their bike into the building, including designating acceptable entrances, pathways to freight elevators and any available bike storage space in the building. Appendix D provides a detailed, step-by-step guide for employees, their employers and building managers to request and implement a Bicycle Access Plan.

NEW AND RENOVATED BUILDINGS

Most new or renovated commercial buildings are required to install one bike parking space per 7,500-10,000 square feet.

PARKING GARAGES

Parking garages with a capacity of more than 100 cars are obligated to provide at least one bike parking spot for every ten car parking spots, for a total of up to 20 parking spots for bikes. Garages with bike parking must also provide a bike rack and lock to which customers may secure their bikes.

TAKE ACTION

The Bike Access to Office Buildings Law has one major limitation: building managers are required to allow tenants to bring their bikes inside the buildings only during regular freight elevator operating hours. Because many freight elevators stop working at 5 pm or earlier, many tenants can't leave with their bikes at the end of the day. Council Member Brad Lander has introduced an amendment to the law – Intro

522 - which would enable tenants to take their bikes on a building's passenger elevator after the freight elevator is closed. Call or e-mail your council member today and ask them to support Intro 522. Google "Find my council member" or e-mail bike@transalt.org to find yours.

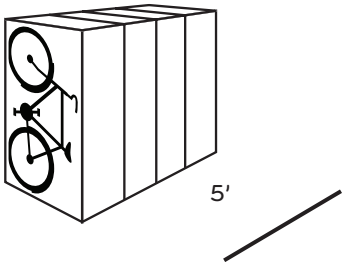
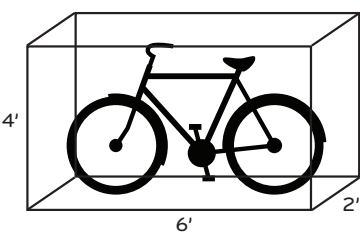
SPACE REQUIREMENTS

BICYCLE PARKING = SPACE EFFICIENCY

Secure bike parking requires relatively little space and can be installed in almost any part of a building. Many buildings have some unused space —at the end of hallways, in the lobby, underneath stairs and on underground levels — that can easily be converted to bike parking. A space of 14 feet by 6 feet can store up to a dozen bicycles.

SPACE REQUIREMENTS

For horizontal parking, allow for two feet by six feet for each bicycle parking space. For vertical parking, allow for four feet by two feet and a height of six feet for each space. While these are general standards to follow, certain bike racks can accommodate more bikes in less space (See Appendix A for a full list of bike rack suppliers). Install bike racks so they are easily accessible to tenants and their bikes. Staggering the height of hanging racks can also increase space efficiency. To allow room for maneuvering provide an aisle of at least five feet behind parked bikes.



SECURE INDOOR PARKING

There are several ways to accommodate secure bike parking in a workplace. The keys to successful parking are solid equipment, security and accessibility.

1. DEDICATED AREA OR ROOM FOR BICYCLE PARKING

A bike room is one of the safest and most convenient ways to provide bike parking for your tenants. An effective bike room is easily accessible, well-lit and secured by a locking door if possible. Locate the room near a building entrance and install bike racks along the wall or floor. Wall-mounted racks are increasingly popular because of their space efficiency. Twelve hanging bikes can fit in a 14' x 6' space, but standing racks can also be practical for bigger spaces.

2. IN-OFFICE BICYCLE PARKING

Thanks to the Bicycle Access to Office Buildings Law, tenants may use buildings' freight elevators to bring their bikes into their office spaces. Hanging racks work particularly well in tight office spaces. Foursquare, for example, provides dozens of standing bike racks in its office. While this might not be appropriate for all offices, storing bikes in an office provides an additional layer of security for bicycles and an additional convenience for employees who commute by bike.

3. PARKING GARAGES

Many garages have unused space near ground level entrances that can be easily converted to bicycle parking. Bike parking should be well lit, visible and in a convenient location and separate from car parking. To allow for sufficient space to maneuver bikes, place bike racks about two feet from walls, allowing enough space for the front wheels to hang over the rack. Any New York City garage with a capacity of more than 100 automobiles is required to provide bike parking. See page 6 for details.



VERTICAL BIKE RACKS MAXIMIZE THE NUMBER OF BIKES THAT CAN BE STORED IN A LIMITED AMOUNT OF SPACE. (PRODUCT: SARIS VERTICAL WALL RACK)



PG.10 BIKE PARKING IS A GREAT MEDIUM FOR ADVERTISING YOUR BUSINESS OR ORGANIZATION
(PRODUCT: SARIS BRANDED BIKE DOCK)

SECURE OUTDOOR BIKE PARKING

1. BIKE LOCKERS

Bike lockers provide optimal security while protecting bikes from rain and snow. They can be located inside or outside where sufficient space is available. Lockers cost approximately \$500 and can park two bicycles in a 5' x 2' space. Some bike lockers can be stacked to provide more space. See Appendix B for a full list of bike locker suppliers.

2. LOCKED FENCED-IN AREAS

New York University, John Jay and Brooklyn colleges all have secure outdoor bicycle parking. The space allocated for this type of parking should be accessible with an ID, swipe card, or key and should be located close to a building entrance. The space requirements vary depending on demand, but are comparable to the space required for indoor racks. Security guards provide an additional level of security at big outdoor bike parking locations. See Appendix A for a listing of bike rack suppliers.

3. BIKESTATIONS

Bikestations are privately or publically managed indoor bike parking facilities that are often combined with other services for bicyclists, including repair stations, bike rentals, changing rooms or bike shops. In most cases, individuals can pay to reserve a regular, 24-hour parking spot in a bikestation as a member or park their bike temporarily for free. Bikestations are often located near public transportation hubs, which make them popular with commuters. There are currently no bikestations in New York City, but cities like Washington DC, San Francisco and Long Beach, California have thriving stations. See Appendix C for a list of bikestation locations and companies.

A GUIDE FOR BUILDING MANAGERS AND LANDLORDS

The most important qualities of successful residential bike parking are accessibility and security. Bike rooms are one of the most popular residential parking solutions because many New York City apartments are too small to accommodate bikes. A relatively small room (14' x 10') can store up to a dozen bicycles. Bike rooms should be accessible on the ground floor or in the basement if possible, well-lit and secure. Locking rooms are best. If possible, tenants should have 24-hour access to the room.

Old boiler rooms or under-utilized space beneath stairs, in parking garages, hallways or lobbies can all also accommodate bike parking. This space should be as secure and accessible as possible. Install bike racks for tenants to lock their bikes to and place the parking as close to a building entrance as possible. Remember to leave an aisle with a width of at least five feet behind parked bikes to allow room for maneuvering. For more detailed information on bike rack installation, see the Space Requirements section on Page 7.

If possible, allow tenants to access passenger or freight elevators with their bikes. Many New Yorkers rely on their bike as their primary mode of transportation and keeping a bike in an apartment is often the easiest mode of storage. Bikes track no more dirt or water into a building than a baby carriage and pose no additional insurance risk.

See Appendix A for a full list of bike rack suppliers.

A GUIDE FOR TENANTS

Like any change to your building, installing secure bike parking requires the approval of your building management. Many co-op boards or landlords will be open to the idea, provided you can suggest space and demonstrate that bike parking will be used. Others may take some convincing. These simple steps will help increase your chances of winning your building management's approval.

FIND A SPACE

Identifying potential areas for bike parking is key to making a successful pitch to your building management. Note the dimensions of the space, access from entrances and how many bikes it can accommodate.

TEAM UP

Collect the names of other tenants in your building who want bike parking before you approach your building management. Co-op boards or landlords are more likely to take your request seriously if you can demonstrate broad demand for secure bike storage.

MAKE YOUR CASE

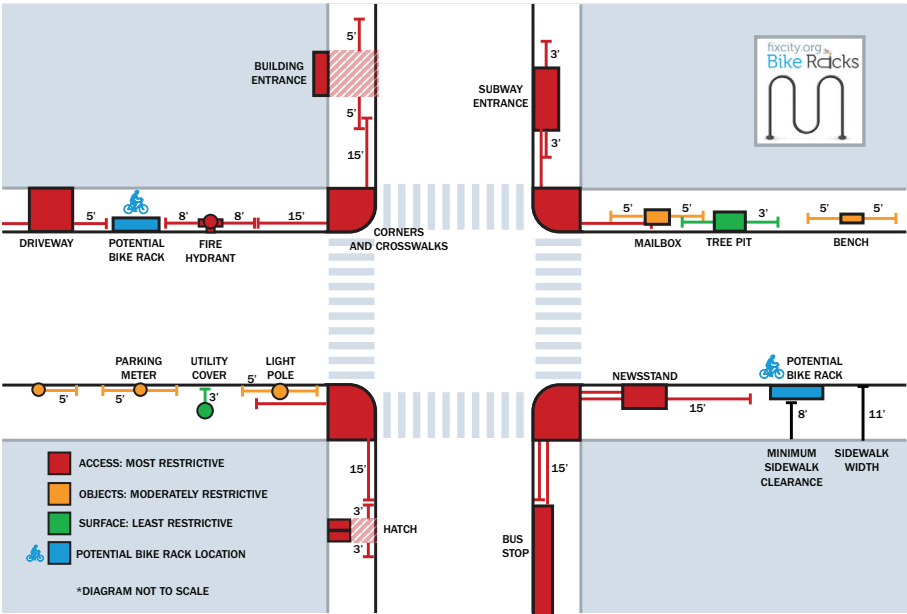
Come prepared with these facts about secure bike parking:

- Secure indoor bike parking boosts property values and attracts quality tenants.
- Installing secure bike parking is cheap and often doesn't require any construction or renovation.
- Bikes do not affect standard wear and tear of high trafficked lobbies and track in no more dirt than the occasional dirty shoe, boot, baby carriage or umbrella.

REQUESTING BIKE RACKS FROM THE CITY

The New York City Department of Transportation installs free sidewalk bike racks based on community demand through its CityRacks program. Due to the program’s popularity, there is currently an extensive backlog of requests. The best strategy for getting racks installed through the program is to team up with local businesses, civic associations and community boards to request racks in bulk for your neighborhood. The following page offers a step-by-step guide to this process.

Business owners and community members can also purchase and install their own bike rack by filling out a permit, found here: www.nyc.gov/html/dot/downloads/pdf/self-install-rackapp.pdf. See below for a guide to siting a bike rack on your street.



GO TO [TINYURL.COM/SITINGGUIDE](http://tinyurl.com/sitingguide) FOR FULL SITING GUIDE

IMAGE COURTESY OPENPLANS

STRATEGIES FOR SUCCESS

Some simple steps you can take to get the DOT to prioritize installing racks in your neighborhood:

- 1** Print out CityRacks applications (www.nyc.gov/html/dot/downloads/pdf/cityrackapp.pdf) and ask local business owners to fill them out. Collect as much information about the business and sidewalk space as possible.
- 2** Use our siting guide to double check the feasibility of the location. Collect all of the CityRacks applications after business owners fill them out.
- 3** Take a picture of each business and the sidewalk in front of it.
- 4** Put all of the businesses or organizations in a spreadsheet. Include their name and address, owner's name and contact information, approximate width of the sidewalk and any major obstructions outside the business (e.g., fire hydrants, street trees, wheelchair ramps).
- 5** Send the spreadsheet to your local community board and ask them to provide feedback and write a letter of support for the racks. A community board may submit the applications to the DOT on your behalf. (See page 16 for tips.) You can also ask civic associations, business improvement districts and other local stakeholders to draft letters of support. In general, the more support you have, the better.
- 6** E-mail your council member and let them know you're submitting a bulk request for bike racks. Ask for help moving your request through the community board.
- 7** If the community board does not submit the applications to the DOT for you, deliver or mail the CityRacks applications, spreadsheet, photos of businesses' sidewalks and letters of support to:

NEW YORK CITY DEPARTMENT OF TRANSPORTATION
CITYRACKS PROGRAM
55 WATER STREET
NEW YORK, NY, 10041

STRATEGIES FOR SUCCESS (CONTINUED)

TIP: BE PATIENT

The Department of Transportation may take several months to process your request. Be patient and don't hesitate to reach out to T.A. with any questions: bike@transalt.org.

TIP: ENVISION THE BIGGER PICTURE OF BIKE PARKING

It's best to present your request to the community board or local business owners as a comprehensive plan for improving bike parking in your neighborhood. If possible, talk about how your proposal will fill gaps in existing bike parking in your neighborhood and supplement other pieces of the bike network, including bike lanes or greenways. It's also helpful to mention how reliable bike parking will encourage people to explore your neighborhood on bike, boosting local business and incentivizing safe, environmentally responsible forms of transportation. Don't hesitate to reach out to Transportation Alternatives for help working with your community board at bike@transalt.org.



A BIKE CORRAL PROVIDES PARKING FOR 10 TO 15 BIKES IN A SPOT PREVIOUSLY USED BY ONE CAR

SUCCESS STORY: CROWN HEIGHTS, BROOKLYN

Brooklyn residents and Transportation Alternatives activists Chris McNally and Judy Bartlett noticed a dearth of bike racks in Crown Heights. With the help of some friends, Chris and Judy collected over 80 CityRacks applications from neighborhood businesses. They presented the applications to the local community board, who voted to submit the applications to the DOT. A few months later, the DOT installed the first of many new bike racks in Crown Heights.

BIKE CORRALS

Bike Corrals repurpose a car parking spot or no-standing zone with parking for 10 to 20 bikes. Installing bike parking on the street frees up valuable sidewalk space and enhances the visibility and attractiveness of nearby storefronts. Bike Corrals also have a 'day-lighting' effect at dangerous intersections because they prevent cars and trucks from double parking, making it easier for pedestrians to see on-coming traffic. They're a win for business, too, because they allow 10 to 20 times as many customers to park directly outside a local business than a conventional parking spot.

The Department of Transportation partners with local business owners to install bike corrals for free throughout the five boroughs. Business partners are responsible for maintaining the corral, including sweeping out leaves, planting flowers in DOT-provided planters and clearing snow. Go to www.nyc.gov/html/dot/html/bicyclists/bike-corrals.shtml to learn more and request a bike corral for your block.

SUCCESS STORY: COBBLE HILL, BROOKLYN

For years, trucks would illegally park in a no-standing zone on the corner of Smith and Sackett streets in Brooklyn's Cobble Hill neighborhood, making it difficult for drivers and pedestrians crossing Smith Street to see on-coming traffic. In 2011, after several serious car crashes at the intersection, the DOT installed a bike corral in the no-standing zone to prevent illegal parking and increase visibility. Since the corral's installation, crash rates at the intersection have dropped dramatically. Today, the corral is regularly filled to capacity with bikes.

REMOVING ABANDONED BIKES

The NYC Department of Sanitation is charged with removing abandoned or "derelict" bicycles that are locked to public property. Derelict bikes are defined as having a combination of three or more damaged, rusted or missing components, including forks, back wheels, pedals, etc. Under current guidelines, the Department of Sanitation posts a notice on a derelict bike stating that the bike will be removed a week after the posting. If the owner does not remove the bike from the public property within seven days, the Department of Sanitation removes and disposes of the bike.

Given the scarcity of secure bike parking in New York, removing abandoned bikes creates more space to lock up and improves the aesthetic landscape of New York's streets. Call 311 to submit a complaint about a derelict bike.

INTRODUCING BIKE VALET

Bike valet is like a coat check...for your bike! At dozens of NYC's top events, including Central Park Summer Stage, Celebrate Brooklyn and Brooklyn Bridge Park's Movies With A View, T.A. staff and volunteers set up a secure area of bike racks, and offer free valet service to event goers who arrive by bike. Patrons receive a branded claim ticket and leave their bikes with trained staff. T.A. bike valet brings convenience and peace of mind to event patrons and provides a secure, orderly site plan for event planners. The service is free to users and provides a useful service and an added feel-good component at some of New York City's premiere outdoor summer events.

To request bike valet for your event, learn more about sponsorship and to find bike valet locations in New York City, visit: TRANSALT.ORG/BIKEVALET.

BIKE VALET SPONSORS INCLUDE:



T.A. BIKE VALET AT BROOKLYN BRIDGE PARK'S MOVIES WITH A VIEW.

TRANSPORTATION ALTERNATIVES CORPORATE MEMBERSHIP

LET T.A. HELP YOU INSTALL SECURE BIKE PARKING!

Installing bike parking for your company can be a complicated process but Transportation Alternatives is here to help! Transportation Alternatives' Corporate Membership Program allows your company to enjoy great membership privileges, year-round health benefits for your employees and a bike parking consultation with industry experts. When you sign your company up, staff will help you determine the best bicycle friendly site, identify current problems, assess your needs and recommend the best style of bike rack for your workplace.

T.A.'s corporate members are prominent businesses that provide critical support to T.A.'s campaigns for biking, walking and public transit, while demonstrating a commitment to safer streets and a sustainable New York City. Visit transalt.org/corporate for more information and to enroll.



COMMON QUESTIONS & ANSWERS

Q: WHAT ABOUT NEW YORK STATE BUILDING RULES AND REGULATIONS?

A: Building owners and managers sometimes cite concerns about fire codes and liability as deterrents to providing bike facilities. New York State building regulations, however, do not restrict sensible bike parking.

They state that because bicycles emit no exhaust and are not flammable, they are not considered hazardous and pose no regulatory problems. Bikes are not fire hazards. Storage of bicycles in designated rooms keeps them out of the way and poses no safety risks. Bicycle racks installed in a lobby or at the end of a hallway can easily be located to satisfy fire and building inspectors.

The Bike Access to Office Buildings Law guarantees that employees who have space set aside for bikes in their workplace can no longer be refused building access by security or building management. See Appendix D for information about how you can propose bike parking in your office building.

Q: WHAT ABOUT LIABILITY?

A: Loss of personal property is not a potential liability issue for private landowners, since owners and managers never assume "possession" or "control" of the individual bikes. By posting signs, building managers alert bike owners of the personal responsibility they assume when locking up their bike. Bike racks provided within the building operate under the "At Your Own Risk" policy as long as signage is clearly posted. Ask tenants to sign waivers to further reinforce their individual accountability. In buildings with indoor bicycle parking, owner liability for damaged or stolen bicycles has not been a problem.

Q: WHAT ABOUT RESTRICTIONS ON BIKES MENTIONED IN THE BUILDING'S LEASE?

A: A lease stating restrictions on bicycles can be easily modified.

Q: DO BICYCLES IN THE BUILDING AFFECT OUR INSURANCE?

A: The presence of indoor bike parking does not affect standard insurance policies for industrial, commercial or office buildings.

Q: WHAT ABOUT DAMAGE TO THE LOBBY AND BUILDING INTERIOR?

A: Bikes do not affect standard wear and tear of high traffic lobbies. Bikes track no more dirt than people with the occasional dirty shoe, boot, baby carriage or umbrella.

Q: IS THERE A POSSIBILITY OF BICYCLES OR BIKE RACKS CAUSING INJURY?

A: There are no documented cases of injury caused by a bicycle within a building. Moreover, a bicycle rack is a large and readily observable object that is not inherently dangerous. Hazards associated with indoor bicycle parking are negligible.

Q: CAN I LOCK MY BIKE TO CITY PROPERTY, INCLUDING STREET SIGNS?

A: The rules regarding bike parking to street signs are unclear, which means that there is always a chance your bike could be removed. If you do lock to street signs, try not to block the sidewalk for pedestrians. As for private property, including scaffolding, fences, railings and awning posts, it is up to the property owner or manager. Locking to a bike rack is always your best bet. Here's a helpful guide to parking on the street:

BAD BIKE PARKING CHOICES

- **Trees:** Parking at a tree will get you a \$1,000 fine.
- **Street Sign Posts with Missing Signage:** Your bike and lock can be lifted up and off the sign. Be sure that the post is secure in the ground.
- **"X" Bars of Scaffolding**
These beams can easily be detached with wrenches.
- **Bus Stop Signs:** This will block people from getting on and off the bus.
- **Doormen or Security Guards**
They will not leave their posts if someone runs off with your bike.
- **Unattended:** Even for "just a minute." A thief will have the speed advantage.

GOOD BIKE PARKING CHOICES

- **Designated Bike Racks**
- **NYC Circle Racks**
- **Inverted-U Racks**
- **Ribbon Racks**
- **Spiral Racks Double-U Rack, etc.**
- **Garages with Designated Bike Parking**
Parking garages with capacity for more than 99 cars are required to provide bike parking
- **Covered Bike Parking Shelters** –
Located a popular subway stops. They resemble bus shelters. The NYC DOT has mapped out their locations.

Google "CityRacks" for all public rack info.

APPENDIXES

APPENDIX A

BIKE RACK SUPPLIERS

RACK & GO

EXCLUSIVE VENDOR OF SARIS BIKE RACKS AND
ACCESSORIES IN THE NEW YORK METRO AREA

420-B TARRYTOWN ROAD
WHITE PLAINS, NY 10607
CONTACT: 1-866-517-RACK
GOCONTACT@RACKANDGO.COM

SARIS PARKING - 5253 VERONA ROAD, MADISON WI 53711, (800) 783-7257,
WWW.SARISPARKING.COM

DERORACKS - 504 MALCOM AVE SE, SUITE 100, MINNEAPOLIS, MN 55414
NYC CONTACT: (917) 463-3769, WWW.DERO.COM

BIKE SECURITY RACKS CO - 14 AVON PLACE, CAMBRIDGE, MA 02140, (800) 545-2757,
WWW.BIKERACKS.COM

BIKE-UP BICYCLE PARKING SYSTEMS - 6 ANTARES DRIVE, PHASE II, UNIT #10B,
NEPEAN, ON, K2E 8A9 CANADA 1-800-661-3506, WWW.BIKEUP.COM

BRANDIR INT'L, INC. - 521 5TH AVENUE, 17TH FLOOR, NEW YORK, NY 10175
(212) 505-6500, WWW.BRANDIR.COM

CREATIVE PIPE, INC. - PO BOX 2458, RANCHO MIRAGE, CA, 92270 (800) 644-8467,
WWW.CREATIVEPIPE.COM

MADRAX - 1080 UNIEK DRIVE, WAUNAKEE, WI, 53597, (800) 448-7931,
WWW.MADRAX.COM

SPORTWORKS - WWW.SPORTWORKS.COM

APPENDIX B

BIKE LOCKER SUPPLIERS

CYCLE-SAFE, INC. - 5211 CASCADE ROAD SE, SUITE 210, GRAND RAPIDS, MI 49546,
(888) 950-6531, WWW.CYCLE-SAFE.COM

BIKE GARD, INC. - PO BOX 520, REXBURG, ID 83440, (208) 356-0744
WWW.BIKEGARD.NET

AMERICAN BICYCLE SECURITY CO. - PO BOX 7359, VENTURA, CA 93006, (800) 245-3723,
WWW.AMERIBIKE.COM

MADRAX - 1080 UNIEK DRIVE, WAUNAKEE, WI 53597, (800) 448-7931,
WWW.MADRAX.COM

SUNSHINE U-LOK CO. - 31316 VIA COLINAS, SUITE 102, WESTLAKE VILLAGE, CA, 91362
(818) 707-0110, WWW.SUNSHINEU-LOK.COM

APPENDIX C

BIKESTATIONS AND OTHER BIKE PARKING RESOURCES

BIKESTATION - 110 WEST OCEAN BOULEVARD SUITE 19, LONG BEACH, CA 90802,
(877) 572-BIKE, WWW.BIKESTATION.COM

MCDONALD'S CYCLE CENTER - 239 EAST RANDOLPH STREET, CHICAGO, IL 60601,
312-729-1000, INFO@BIKECHICAGO.COM

THE BIKE RACK - 2148 EAST 4TH STREET, CLEVELAND, OH 44115, (216) 771-7120,
WWW.CLEVELANDBIKERACK.COM

BIKESTATION DC - 50 MASSACHUSETTS AVENUE NE, WASHINGTON, DC. 20002,
(202) 962-0206, WWW.BIKESTATION.COM

ALTA PLANNING BIKE PARKING SERVICES - (877) 347-5417,
ALTAPLANNING.COM/APP_CONTENT/FILES/ALTA-BIKEPARKING_QUALS.PDF

APPENDIX D

Thanks to the 2009 Bike Access to Office Buildings Law (Local Law 52) championed by Transportation Alternatives, New Yorkers now have a formal process for requesting indoor bike parking in their workplaces.

OVERVIEW OF LOCAL LAW 52

Local Law 52 aims to increase bicycle commuting by providing bicyclists with the opportunity to securely park their bikes at their workplace or other designated areas. If a building is primarily occupied by offices, has a freight elevator and was in existence on December 11, 2009, then it is subject to the law. All that is required to set things in motion is a tenant's request for a Bicycle Access Plan.

BENEFITS OF LOCAL LAW 52

Local Law 52 benefits both individual bicyclists and the greater city. On an individual level, the law facilitates a healthy and active lifestyle while supporting a cost-free commuting option. On a citywide level, by encouraging everyday commuter bicycling, the law supports a carbon-free mode of transportation and helped reduce overcrowding on the city's subways and buses.

BICYCLE ACCESS PLANS

LOCAL LAW 52, § 28-504.3

The responsibilities and rights of all the stakeholders involved in the application of this law are detailed below. This section describes the step-by-step process of securing bicycle access to a commercial building.

Step 1: Employee approaches employer (tenant/sub-tenant of building) and requests permission to bring his or her bicycle into the office.

Step 2: If the employer is in agreement, the process continues. Under the provisions of the law, an employer is not mandated to accept an employee's request.

Step 3: The employer requests in writing — on a form provided by the Department of Transportation via the DOT's website — that the owner, lessee, manager or other person who controls the building complete a Bicycle Access Plan.

In order to officially initiate the request, the employer must also send a printed copy of the online request for access to the above mentioned parties by certified mail, return receipt requested.

Step 4: Within 30 days of receiving the employer's request, the owner, lessee, manager or other person who controls the building must complete and implement the Bicycle Access Plan. Requests for exceptions to compliance are discussed in the next section.

Step 5: The specific Bicycle Access Plan must be completed by the owner, lessee, or manager on a form provided by the DOT. It must include, at a minimum, the location of entrances, a proposed route to freight elevators that accommodate bicycle access, the proposed route to a designated area for bicycle parking on an accessible level, if such bicycle parking is made available, and such other information as the DOT may require. The plan must provide bicycle access, at a minimum, to the requesting tenant or subtenant and its employees during the regular operating hours of the freight elevator, if the freight elevator is to be used as part of the Bicycle Access Plan.

Note: A building's existing Bicycle Access Plan may be amended in the future to accommodate requests from additional building tenants or subtenants.

Step 6: Every owner, lessee, manager or other person in control of a building who has not applied for an exception must, within 35 days of receipt of the request for bicycle access, either post each bicycle access plan that is in effect in the building lobby or post a notice in the building lobby indicating that such a plan is available in the office of the building manager upon request.

BUILDING ACCESS EXCEPTIONS

LOCAL LAW 52, §28-504.4

Under the law, an owner, lessee, manager or other person in control of a building, after receiving a request by a tenant or subtenant for bicycle access, is permitted to pursue one of the two exceptions to the law. Bicycle access to the requested building need not be provided if an owner, lessee, manager or other person who controls a building applies to the DOT for an exception is granted the exception. A copy of the completed request for an exception must be sent to the DOT by certified mail, return receipt requested, within 15 days of receipt of a request for a bicycle access plan. In addition, the request for an exception must also be sent to the tenant or subtenant

within 30 days of the date of receipt of said tenant or subtenant's request for a bicycle access plan. Notification to the requesting tenant or subtenant must include copies of all supporting documentation provided to the DOT.

A REQUEST FOR AN EXCEPTION TO THE BICYCLE ACCESS PLAN CAN BE BASED ON EITHER OF THE FOLLOWING TWO GROUNDS:

1. ALTERNATE BICYCLE PARKING AVAILABLE:

Alternate, sufficient and secure, no-cost bike parking is available on the premises or within three blocks or 750 feet of the building. In order to qualify as secure, entry and exit to the parking must either be locked, monitored or restricted from the general public. There must also be structures for bicyclists to lock their bikes to. The alternate bike parking must accommodate the number of bicycles specified by the tenant in their request for a Bicycle Access Plan. This request for exception must contain documentation supporting the existence of alternate bicycle parking and that the parking is available to, or under the control of, the owner, lessee, manager or other person who controls the building. Proof of availability or control of alternate parking may include, but is not limited to, a copy of a deed, lease, title, permit or contract dictating control.

Upon receipt of the request for exception, both the Department of Transportation and the Department of Buildings will conduct an inspection of the suggested alternate bicycle parking.

Based upon the inspection, the DOT shall issue a final determination as to whether to grant a letter of exception. The agency will so do by certified mail, return receipt requested, to the owner, lessee, manager, or other person in control of the building.

If the exception is denied, a Bicycle Access Plan facilitating access to the requesting tenant or subtenant's space must be implemented within 20 days of receipt of the agency's final determination.

2. SAFETY RISK IN FREIGHT ELEVATOR:

An exemption can be granted if the building's freight elevator is not available due to unique circumstances involving substantial safety risks directly related to its use for bicycle access. A request for exception based on these grounds needs to include an engineer's certification in regard to unique and substantial safety risks.

Upon receipt of the request for exception, the Department of Buildings will conduct an inspection of the freight elevators in the building. Based upon this inspection, the Department of Buildings will issue a final determination as to whether to grant the exception and a letter of exception, or denial of exception, will be sent by the DOT via certified mail, return receipt requested, to the owner, lessee, manager, or other person in control of the building.

If the exception is denied, a Bicycle Access Plan facilitating access to the requesting tenant or subtenant's space must be implemented within 20 days of receipt of the City's final determination.

If the exception is approved, the owner, lessee, manager or other person in control of the building is exempted from the provisions of this law. A copy of the letter of exception must be posted in the building lobby within five days of receipt of the agencies' final determination, or alternatively, a notice indicating that the letter of exception is available for review in the office of the building manager upon request must be posted in the building lobby.

EMERGENCIES AND FIRE CODES

LOCAL LAW 52, §28-504.5 AND §28-504.8

In an emergency, whenever elevator use is prohibited, bicycles cannot be removed from the building via elevators, stairwells or fire escapes. The New York City Fire Code prohibits building entrances and egresses from being blocked in any manner. This is a fairly straightforward rule and applies universally. It doesn't matter if you are dealing with a box of office papers, your favorite office plant, a baby stroller, or a bicycle. Whatever the object is, it cannot be placed in such a way as to block an entrance or egress to a building. Local Law 52 does not in any way contravene this important element of the fire code and in fact specifically reinforces this point by stating that

no bicycles brought into a building pursuant to the law shall be parked in any manner that violates the fire code, building code and or any other applicable law, rule or code.

HOW EMPLOYEES, EMPLOYERS AND BUILDING OWNERS CAN SET BICYCLE ACCESS IN MOTION

EMPLOYEES: Depending on the size of your office and existing corporate structure, there are different ways for employees to begin the process of requesting bicycle access. If you work in a relatively small office, you can probably speak with your employer or boss directly. If you work in a larger office, you will most likely need to speak with someone in human resources, environmental affairs or corporate responsibility.

EMPLOYERS: If you are interested in the law or think you may have employees who would like to bike to work, reach out to your staff to begin to assess the level of interest. Start thinking about where you would accommodate bicycles in your office.

BUILDING OWNERS OR MANAGERS: Start talking to your tenants and think about whether you want to allow bicycle access or apply for an alternate bicycle parking exception. If you think you will apply for an exception, begin to look into space on a ground floor, in a basement or in a nearby building.

THE DOT WEBSITE AND 311

All official information about the Bike Access to Office Buildings Law, Local Law 52, can be found on the DOT's website: NYC.GOV/BIKESINBUILDINGS. In addition to the actual Bicycle Access Plan request and exception forms, the website general background information and resources to help you understand and comply with the bill. Along with the DOT's website, the city's existing 311 operator system is available to answer questions about the law and, if required, your specific case. You can also reach out directly to the Bikes in Buildings program at the DOT by e-mail at BIKESINBUILDINGS@DOT.NYC.GOV

GO Park



- Bike Lockers & Shelters
- Public Inflation & Work Stands
- Corporate Bike Commuter Programs
- Indoor & Outdoor Solutions
- Short Term & Long Term Parking
- Custom & Branded Racks
- Expert Installation
- Commercial & Residential
- Cycling Infrastructure
- Bike Share

RACK & GO

Bicycle Parking & Commuting Solutions

420B Tarrytown Road, White Plains, NY 10607
1.866.517.RACK > 914.358.4052 > fx.914.358.4055

RACKANDGO.COM

Preferred Bike Parking Partner of



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TRANSPORTATION
ALTERNATIVES

127 WEST 26TH STREET, SUITE 1002
NEW YORK, NY 10001
212 629-8080 | TRANSALT.ORG



MEMORANDUM

Planning Department

DATE: January 31, 2020

TO: Multi-Modal Transportation Board

FROM: Nicole Ciurla, Assistant City Planner

APPROVED: Jana L. Ecker, Planning Director
Commander Scott Grewe, Police Department
Austin Fletcher, City Engineer

SUBJECT: Bicycle Parking within Municipal Parking Structures

Introduction

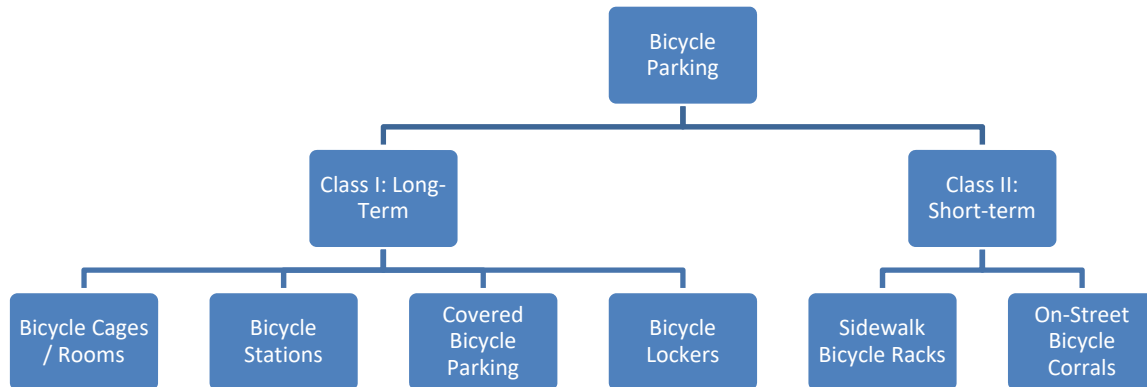
The City of Birmingham is exploring the possibility of installing bicycle parking in its five municipal parking structures. The Multi-Modal Transportation Plan (MMTP) encourages the use of bicycles as a means of transportation to and from the Central Business District. City Staff has a goal of providing secure and covered bike parking without sacrificing any parking spots.

The MMTP recommends "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." Those who ride their bike to work or to downtown on a regular basis and wish to park it in a location that is more secure than a typical open bike rack are the intended users of secured and covered bike parking.

The Advisory Parking Committee discussed this subject at their December 2016 meeting. Assistant Planner Sean Campbell presented on: considerations for establishing bicycle parking in parking structures; information about how several cities successfully activated excess space within parking structures for bike storage; and information about a suggested location for a bike parking facility. Committee members did not see any negatives; and believed that installation of bicycle parking facilities dovetails well with the promotion of multi-modal transportation. The committee's consensus was to go forward with the vision to provide bicycle parking in parking structures.

The purpose of this agenda item is to educate the Multi-Modal Transportation Board how bike parking could be facilitated in parking garages. The strategies outlined in this report will help inform decision making in the City regarding how it plans to implement this project.

Bicycle Parking Classifications



Bicycle parking generally falls into two categories: short-term and long-term, also referred to as class II and class I, respectively. Class II parking best serves people leaving bicycles for two hours or less. While racks for short-term parking should be designed, built and installed with security in mind, overall there is an emphasis on convenience and accessibility. The City's Bicycle Parking Plan to date (all phases) is class II bike parking.



Class I parking is for bicycle parking needs of longer than two hours and for people who bike that may be willing to travel further to access it in exchange for greater security and protection from the elements. Any bike parking within municipal parking structures would be considered Class I because it would be covered.

The four main types of Class I bike parking are: cages/rooms, stations, covered parking and bicycle lockers. City staff is not asking the Board to consider bicycle lockers at this time. Bicycle lockers have a relatively high cost and low benefit due to their limited capacity.

Covered Bicycle Parking

Currently there are three bike racks located at the entrance/exit of the Chesterfield Parking Structure. The racks are covered which gives bikes some protection from the elements.



Bicycle Cages and Rooms

Bicycle cages and rooms restrict access exclusively to people parking bicycles inside a secure designated area. Typical access control to bicycle cages and rooms is with a key, keypad or cardkey. Bicycle rooms are typically restricted to a distinct group such as residents or employees of a given building. Cages are often located in building basements or in parking garages. Bike

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cages have proven to be very effective both in providing secure storage and utilizing otherwise unused space in parking structures.

Velodome Shelters (one popular vendor of this product) offers customizable bike cages that range in width from 1' to 10' (in 1' increments), can have either hinged or sliding doors, welded wire or woven wire mesh panels, secured by a key lock, keypad, fob or an electronic card reader, and comes in 8 different colors. The company performs on-site installation of cages in the designated space.



Image Source: Arlington County, VA

Bicycle stations



Image Source: City of Melbourne

Like bicycle cages and rooms, bicycle stations provide secure bicycle parking locations indoors where access is controlled by an attendant, card key or key pad. Bicycle stations differ from these other facilities in that they can offer additional amenities to people who bike like an attendant, showers and/or lockers, and bicycle repairs and rentals, and/or sales of bicycle parts and supplies. Hanging racks with vertical offset or stacking double-decker racks are commonly used.

A

barrier to bike commuting for many workers is lack of access to showers or changing areas. Trip-end facilities at work are significant determinants of bicycling to work. Commuters with showers, lockers, and bike parking at work are five times more likely to commute by bicycle when compared to individuals without any bicycle facilities at work. When individuals are only provided bike parking, but not showers or lockers at the workplace, they are only 1.8 times more likely to cycle to work when compared to those without any bicycle facilities.

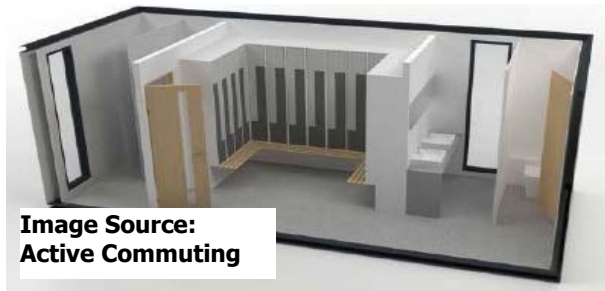
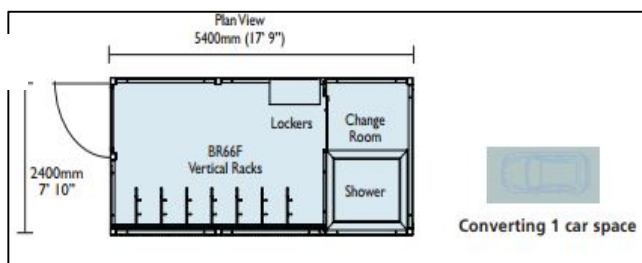


Image Source: Active Commuting

Trip-end facilities should provide bicyclists with:

- Sufficient and adequate secure parking and storage facilities for their bicycles
- Adequate facilities for storing clothes and belongings, like lockers
- Change rooms, preferably with showers, toilets and sinks.

Image Source: Securabike



The facilities should be easily accessible and located less than 100 feet from the entrance. Active Commuting and Securabike provide design and siting assistance and sell modules that incorporate end-of-trip facilities.

Additional Considerations

Bicycle Parking within Municipal Parking Structures

Cost

Baltimore instituted a monthly/yearly parking pass program. Pass holders show their pass to the parking booth attendant or wave it at a scanner to receive access to the garage. In a parking pass program, bicyclists are entitled to more enhanced facilities. These include, but are not limited to bike lockers and cages, and shower/change facilities. The revenue generated from the program funds maintenance and facility improvements over time.

The MMTP notes that a monthly user fee could offset the cost for such facilities. The City could sell keys at monthly and/or yearly rates at the Central Parking Office or City Hall. City staff recommends that the individuals who currently have a monthly parking permit (currently \$70) be given access to any new bike parking facilities in City parking garages for an introductory period. After that, commuters would have the opportunity to purchase a separate pass for Class I bicycle parking.

Signage



Signage is an important element that provides bicyclists with information regarding distance, destination, and direction. Toronto owes much of the success of its bike system to the provision of adequate wayfinding that helps bicyclists navigate around the city. Birmingham should install signage that guides and informs bicyclists about various bike infrastructure in the City including bike parking in parking garages.

Location

Bicycle parking in parking garages must be either on the same level as the entrance to the garage from the street or accessible via automobile ramps designed to serve bicyclists (with slope of less than 5% or less than 8% with a landing every 30 feet), or near an elevator that is large enough to accommodate bicycles. In the most conventional examples of bike parking in parking garages, the facilities for bikes are typically installed on the ground level or the underground floors of the structure. Doing this minimizes the interaction between motorists and bicyclists.

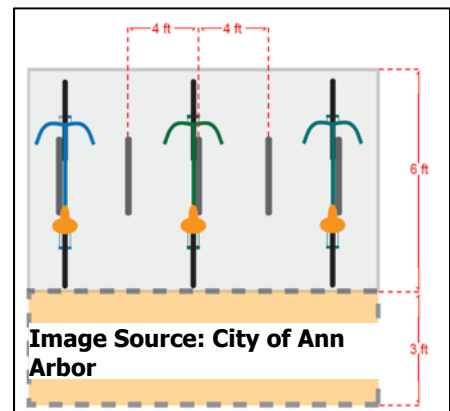
A physical barrier designed to prevent motor vehicles from driving into bicycles (such as an elevated surface) is a safe and effective way to accommodate bike parking in garages.



Adequate clearance

Bike parking facilities must provide ample room for maneuvering and any ADA ramps. Ann Arbor has set space and size requirements for bike parking facilities and has outlined them in their Bike Parking Manual. They require all racks to have spaces that are two-feet wide and six-feet long with a three-foot access aisle. The placement of bike parking facilities also cannot interfere with the required 6-foot pedestrian walkway.

Adequate clearance from walls and other fixed objects is necessary to allow parking of bicycles. Aisle spacing should allow for:



Bicycle Parking within Municipal Parking Structures

- simultaneous users;
- entry and exit from the space;
- if hanging racks are used, they must allow for the use of “U” locks that can secure the bicycle frame and the dimensions of the rack must provide adequate clear distance behind the rack for easy maneuvering;
- if space allows, hanging and/or stacked racks should be used in combination with standard floor racks since they are easier to use; and
- if stacked racks are used, the second level should offer a device that assists with lifting the bicycle up on the rack.

Wheeling Ramp

If the easiest way to access the facility is via stairs, a wheeling ramp should be provided. Wheeling ramps make stairs accessible to bicyclists. They enable bicyclists to go up or down staircases without having to physically carry their bike. Several designs of ramps are available. The success of a wheeling ramp mainly depends on the choice of ramp materials, as well as the gradient and length of the stairs. In general, short and shallow ramps are more useful than long and steep ramps, as less strength is required to wheel a bicycle up and down the stairs. Below are some examples of successful wheeling ramps and their characteristics:

- Stairs filled in with concrete



Advantages: This is a permanent type of ramp that is stable, safe and easy to use. If the concrete is patterned, it provides adhesion and the ramp does not become slippery when wet.

Disadvantages: The ramp cannot be moved if the cycle parking is relocated, and may be more costly to construct.

- Metal ramps



Advantages: This ramp type can easily be retrofitted to an existing set of stairs, and moved later if required. A strong profile gives good grip for the bicycle wheels as seen in Figure 8.

Disadvantages: Not as stable as concrete ramps. May become slippery in wet weather.

The use of strong metal is highly recommended to avoid damage through heavy usage and vandalism.

- Wheel channels

Bicycle Parking within Municipal Parking Structures



Advantages: This ramp type can be easily retrofitted and moved. It is very efficient where space is tight. Riders are able to guide bike wheels securely in the channel.

Disadvantages: These ramps are slightly harder to use than wider ramps, as the front wheels need to be inserted into the ramp with more precision. Wide tires can catch on the side walls.

All three ramp types work well if used to suit the site requirements. Below are some important installation considerations:

- It is usually easier to go down a ramp than come up it. As most bicyclists prefer to stand to the left of their bike when pushing it, the ramp should be installed on the right hand side of the stairs (when ascending) if possible.
- If there is sufficient space, two parallel ramps allow the bicyclist to choose which side they would like to stand on.
- Situate wheeling ramps as far as possible from walls or other obstacles.
- Ramps should be clearly visible to avoid accidents. Using bright colors or painting the adjacent floor can accomplish this.
- Fix ramps securely to avoid any trip hazards.
- Wheeling ramps should provide a good grip, especially when wet.
- Separate wheeling ramps from pedestrian access with metal railings, where possible.

Lighting

Additional lighting should be provided for bicycle facilities. Ann Arbor adopted lighting requirements specifically for bike parking. The City has effectuated a minimum illumination level of 0.4 foot candles and a maximum uniformity ratio of 10 to 1. The lighting requirements ensure that bike parking areas provide illumination levels at all unobstructed points of the bicycle parking area. The illumination levels are measured three feet above the lot surface.

Suggested Recommendation

To direct City Staff to research and subsequently present recommended bike parking solutions for each of the City's five municipal parking structures.