AGENDA

REGUAR MEETING OF THE BIRMINGHAM MULTI-MODAL TRANSPORTATION BOARD

THURSDAY JUNE 1ST, 2023

151 MARTIN ST., CITY COMMISSION ROOM 205, BIRMINGHAM MI

**************************6:00 pm**************************

The City recommends members of the public wear a mask if they have been exposed to COVID-19 or have a respiratory illness. City staff, City Commission and all board and committee members must wear a mask if they have been exposed to COVID-19 or actively have a respiratory illness. The City continues to provide KN-95 respirators and triple layered masks for attendees.*

A. Roll Call
B. Introductions & Chairpersons Comments
C. Review of the Agenda
D. Approval of Minutes, Meeting of May 4th, 2023
E. New Business
    1. **Adams Road Signal Timing**
    2. **MMTB Field Trip Review**
F. Unfinished Business
    1. **S. Eton Road Design Concepts, 14 Mile to Yosemite**
G. Meeting Open to the Public for items not on the Agenda
H. Miscellaneous Communications
I. Next Meeting – July 6th, 2023
J. Adjournment

*Please note that board meetings will be conducted in person once again. Members of the public can attend in person at Birmingham City Hall or may attend virtually at

Link to Access Virtual Meeting: https://us06web.zoom.us/j/88295194746
Telephone Meeting Access: 929 205 6099 US Toll-free
Meeting ID: 824 7795 4435

City Of Birmingham Multi-Modal Transportation Board
Thursday, May 4, 2023
151 Martin Street, City Commission Room 205, Birmingham, MI

Minutes of the regular meeting of the City of Birmingham Multi-Modal Transportation Board held Thursday, May 4, 2023. Chair White convened the meeting at 6:00 p.m.

A. Rollcall

Present: Chair Doug White, Vice-Chair Tom Peard; Board Members David Hocker, Anthony Long, Victoria Policicchio; Student Representatives Sophie Hanawalt, Angie Sharma

Absent: Board Member Mark Doolittle, Joe Zane; Alternate Board Members Gordon Davies, Patrick Hillberg

Staff: Senior Planner Cowan; City Engineer Coatta, City Transcriptionist Eichenhorn, Police Captain Kearney

F&V: Julie Kroll

MKSK: Brad Strader

B. Introductions & Chair Comments

VC Peard provided introductory comments.

C. Review of the Agenda
D. Approval of MMTB Minutes of March 2, 2023

Motion by VC Peard
Seconded by Mr. Long to approve the MMTB Minutes of March 2, 2023 as amended.

Motion carried, 5-0.

VOICE VOTE
Yeas: Policicchio, Hocker, Peard, White, Long
Nays: None

E. Unfinished Business

1. **S. Eton Road Design Concepts, 14 Mile to Yosemite**

Staff, Mr. Strader, and Ms. Kroll presented the item and answered informational questions from the Board.

Board discussion was as follows:

- There was an increased opportunity to improve the safety of S. Eton since the road was

being reconstructed;
- There should be a bidirectional bike lane on one side of the street, and all of the on-street parking should be preserved;
- Option C3 could be modified to have 20 feet for parking and a 2.5 foot buffer zone on each side;
- It might be possible to reduce the parking while improving the sight distance;
- It did not seem possible to entirely preserve the parking given that drivers and pedestrians reported the sight distances were unsafe and the area does not meet the City's sight distance standards;
- The elimination of the two feet off the amenity zone on the west side maybe be prohibitive for people trying to park;
- It might be appropriate to modify Option C1 for south of Lincoln to preserve but reduce the parking and also to preserve but reduce the amenity zone in order to increase green space; and,
- Staff's and Consultants' work was appreciated by the Board.

In reply to Board discussion, Staff and Consultants said:
- A 2.5 foot buffer zone could be explored, but might cause issues with vehicle door openings entering the bike lane;
- The Police Department was not in favor of maintaining the bidirectional bike lane because it is an unexpected design and creates difficult to manage conditions at the intersection with Yosemite;
- It might be possible to reduce the curb on the west side of the street and to reduce, but not eliminate, parking in order to improve sight distances;
- While it might be possible to do 'Small Car Only' parking in certain spots to improve sight distances, drivers tend to disregard those signs;
- Staff and Consultants would return with a design with bump outs and pedestrian island crossings for north of Lincoln; and,
- Board consensus seemed to be to leave the green space at the intersection of Lincoln and S. Eton instead of potentially using it for parking/

<u>Public Comment</u>

Carol Tardie recommended a four-way stop at Bradford and S. Eton and a sign at 14 Mile and S. Eton that prohibits through traffic between 4 p.m. and 6 p.m.

Larry Bertollini supported no additional parking at Lincoln and S. Eton, the potential removal of the amenity zones, and a potential bidirectional bike lane. He asked if there were catch basins on S. Eton south of Lincoln.

Denise Rumzey supported signage for the public parking in front of Bolyard Lumber and no additional parking at Lincoln and S. Eton. She did not support widening the south part of S. Eton from Lincoln to 14 Mile.

Claudia Unruh reviewed her email to the Board. She added that safety should be the City's priority, that the removal of parking would be an evidence-based change for improving safety significantly, and that she would be interested in learning more about evidence-based traffic calming measures. She asked whether a study had been conducted to prove that on street parking on S. Eton had

to be maintained.

Mr. Long thanked the public for their participation. He said there was a need for parking on S. Eton, especially closer to Maple. He ventured that removing parking from S. Eton would result in more parking on the adjacent streets.

The Chair also thanked the public for their participation.

2. Adams Road – Road Diet DRAFT Review

SP Cowan introduced the item. Ms. Kroll presented the item and answered informational questions from the Board.

In reply to Mr. Hocker, Ms. Kroll said she would solicit feedback from Fire Department on road diets.

VC Peard and Mr. Long said that while they had been skeptical about the Maple road diet, it ended up being a very beneficial change.

Mr. Hocker said the Maple road diet increased the volume of traffic on nearby streets.

Ms. Hanawalt said the Adams road diet might increase traffic and speedi in the Poppleton Park neighborhood. She recommended speaking to the residents of the neighborhood.

F. New Business
G. Meeting Open to the Public for items not on the Agenda
H. Miscellaneous Communications

1. Multi-Modal Transportation Day 2023 Planning

SP Cowan presented the item.

Motion by Ms. Policicchio
Seconded by VC Peard to schedule a special meeting of the Multi-Modal Transportation Board for May 25, 2023 at 12 p.m.

Motion carried, 5-0.

VOICE VOTE
Yeas: Policicchio, Hocker, Peard, White, Long
Nays: None

I. Next Meeting
J. Adjournment

No further business being evident, the Board adjourned at 8:03 p.m.

Brooks Cowan, Senior Planner Director

Laura Eichenhorn, City Transcriptionist

BIRMINGHAM
A WALKABLE CITY

MEMORANDUM

Engineering Department

DATE: May 25, 2023

TO: Multi-Modal Transportation Board

FROM: Melissa Coatta, City Engineer

SUBJECT: Adams Road Traffic Signal Timing Program

INTRODUCTION:

The Road Commission of Oakland County (RCOC) reviewed some of the traffic signal timing at intersections located in the City with the University of Michigan Transportation Research Institute (UMTRI). RCOC made two minor offset changes in December at the intersections of Adams and Derby and Adams and Buckingham which appear to provide better progression for vehicles on Adams.

U of M has developed a program using vehicle trajectory data from GM vehicles to review traffic timing. Attached is their report and will provide a presentation on their research and program.

A Brief Introduction to OSaaS and its Field Implementation in Birmingham, MI

Henry Liu, University of Michigan
12/20/2022

Introduction to OSaaS System

OSaaS (Optimizing Signals as a Service) is an automatic signal retiming system based on vehicle trajectory data. It has the potential to transform the traffic signal retiming practice in twofold: 1. It will eliminate the manual signal retiming process by advancing fixed-time traffic signals from static systems to dynamic systems with periodical parameter updates; 2. Transportation agencies will no longer need to install or maintain infrastructure-based sensors for traffic flow management. Through our trial implementation, we have demonstrated that not only will the OSaaS system improve traffic signal performance, but it also significantly reduces the costs of traffic signal management incurred by transportation agencies.

The system is developed based on vehicle trajectory data from General Motors (GM) vehicles, which are equipped with GNSS receivers and IMUs that provide accurate vehicle position and dynamics information. These vehicles also have cellular wireless communication capability and support quick communication with Cloud services. As a result, the vehicles can act as real-time mobile sensors that enable smart traffic signal operations. Given the wide-spread nature of GM vehicles, and thanks to the accuracy/reliability of the data from these vehicles, OSaaS converts the raw telemetry data into traffic performance measures and performance diagnostics at signalized intersections for automatic optimization. The proposed technologies can be easily scaled to support larger traffic networks because no infrastructure-based instrumentation is needed. With the continued advancement of connected and automated vehicles, it can be foreseen that more vehicle trajectories will be available in the future and will be a more sustainable and scalable data solution to urban traffic monitoring and management.

Figure 1 is the overall framework of OSaaS system. In general, it is a closed-loop integrated system including continuous traffic signal performance monitoring, diagnosis, and optimization. Utilizing the trajectory data as the only input and without requiring any additional infrastructure, OSaaS provides a more scalable, sustainable, and efficient solution to traffic signal retiming which can be potentially applied to all traffic signals. The remaining of this report will further introduce main modules of OSaaS system and field implementation results.

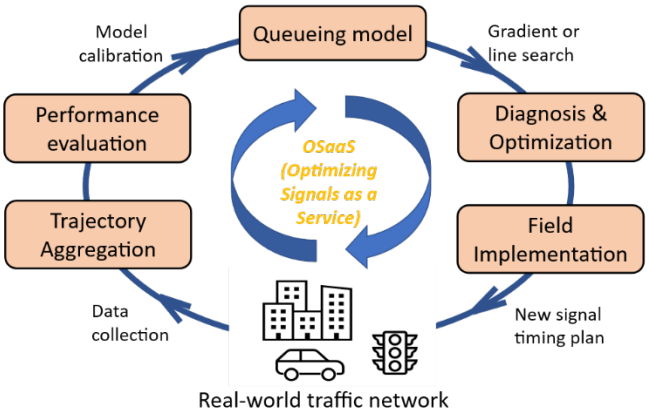


Figure 1: Framework of OSaaS system

Main Modules

Performance evaluation

Performance evaluations are available for each intersection at movement level. Figure 2a shows the aggregated time-space diagram of a certain movement, which can be generated by aggregating trajectories in different cycles within the same time of day (TOD) to a nominal cycle. It can be used to identify the recurrent congestion pattern for a given movement. Figure 2b shows how the delay measurements including control delay and number of stops can be calculated for each trajectory. Control delay and number of stops are frequently used metrics to evaluate signalized intersections. Other measurements can indicate severe congestion issues such as split-failure (when a vehicle cannot pass the intersection within one cycle) and queue spillback (when the downstream queue builds up and blocks the upstream intersection). Both split-failure and spill-over lead to severe congestion or even gridlock and can be mitigated by targeted modification of the traffic signal parameters.

Figure 2c shows the number of observed trajectories across a whole day where different colors represent the numbers of stops experienced by those trajectories. More green means better performance while red indicates spill-over. The delay scatter plot given by Figure 2d can show how control delay changes throughout the day. Each cross represents a trajectory's point when it passes the intersection (horizontal axis) and control delay (vertical axis). Blue and red crosses represent normal and split-failure trajectories, respectively. Figure 2e shows the aggregated time-space diagram of an example corridor at a certain TOD, created by combining the movement time-space diagrams along the path. The corridor aggregated-time space diagram clearly depicts how vehicles traverse the whole corridor and can be used to evaluate coordination performance.

OSaaS can generate plots as shown in Figure 2 for every traffic signals. It can be used to evaluate the mobility performance of existing traffic signal timing plan, helping traffic engineers find the most congested intersections efficiently.

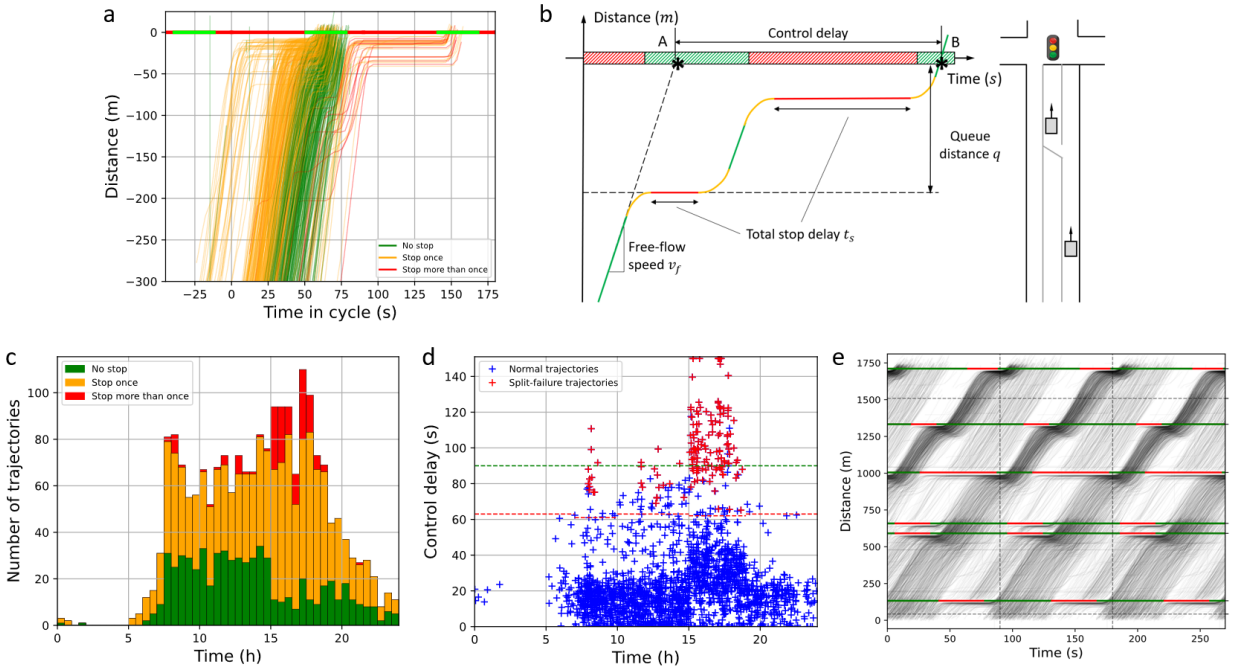


Figure 2: Performance evaluation using vehicle trajectories. (a) Aggregated time-space diagram of a certain movement. (b) Delay performance calculation based on trajectories. (c) Number of observed

trajectories histogram throughout a whole day at 30-minute intervals, (d) Delay scatter plots across a whole day, (e) Time-space diagram generated by combining the movement aggregated time-space diagrams along the path.

Diagnosis & optimization

By assuming that the observed vehicles are randomly distributed among all vehicles in each movement, OSaaS builds a queueing model that constructs the overall average traffic state given partially observed vehicle trajectories even under a low penetration rate (<10%). The queueing model is calibrated by matching the delay metrics between the model and the observed measurements. The calibrated queueing model can also be used to predict and evaluate system performance under different traffic signal parameters.

As shown in Figure 3, OSaaS provides automatic signal timing diagnosis methods that can evaluate four traffic signal parameters: 1.) TOD split, 2.) cycle length, 3.) green splits, and 4.) offsets. Based on the calibrated queueing model, the diagnostic result is generated by identifying the optimality gap with respect to different traffic signal parameters. For each traffic signal parameter, diagnostic result can indicate potential changes that can improve the system performance. For example, whether it is better to increase or decrease the cycle length for a specific intersection. Besides, it also quantifies the potential benefits after changing the traffic signal parameters. Not all intersections that are experiencing congestion will be diagnosed with signal parameter issues. In such cases, if there is a minor optimality gap from the traffic signal parameters, the improvements by changing the traffic signal parameters will be limited. Traffic engineers will then need to pursue other congestion mitigation techniques such as geometric layout and lane configuration changes.

These diagnostic results are directly used for generating new signal timing plans. Specifically, the new signal timing plan is based on the existing signal timing plan while moving a certain step towards the direction guided by the diagnostic results.

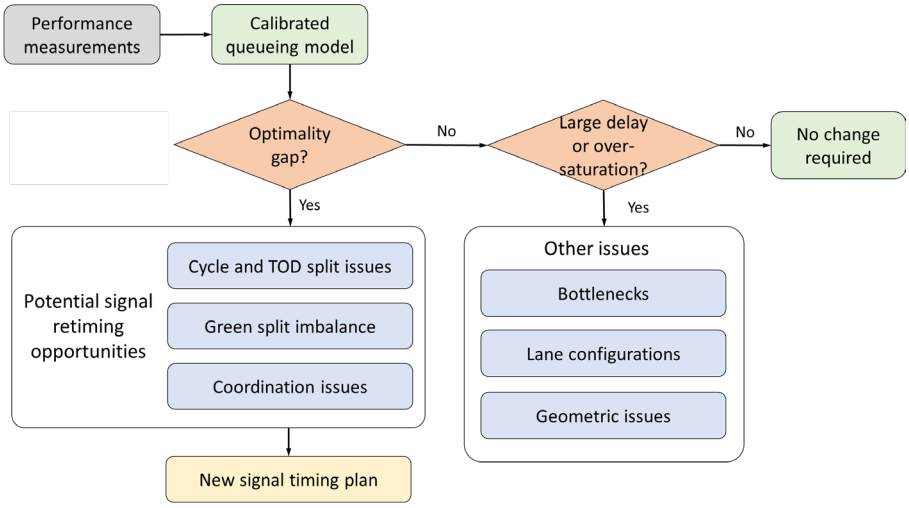


Figure 3: Flowchart of the OSaaS diagnosis module.

Field Implementation

Introduction to the field test

The OSaaS system was tested in the City of Birmingham, Michigan, as shown in Figure 4. Birmingham has a total of 34 signalized intersections including three main corridors and some isolated intersections. More than three quarters of these intersections had not been retimed in more than 2 years. One-month offline data was used for performance evaluation, diagnosis, and optimization. Two isolated intersections were detected with cycle/split issues and two of the three corridors were identified with coordination improvement opportunities. New signal timing plans of these intersections were generated and implemented in late March 2022. Three weeks' data both before and after the implementation was used to evaluate the new signal timing plans.

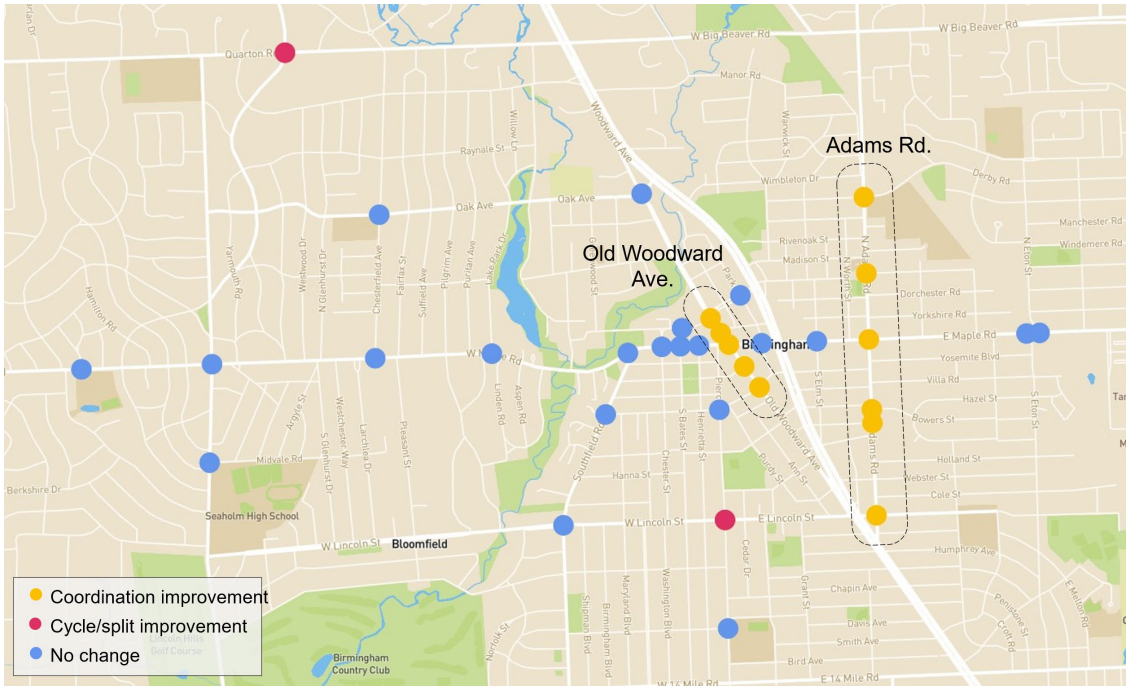


Figure 4: Field implementation. OSaaS is tested and applied to the City of Birmingham, MI.

The following subsections will introduce the before-and-after comparison for both isolated intersections and corridors.

Isolated intersections

New signal timing plans were implemented at two isolated intersections. Here we show Quarton Rd. & Cranbrook Rd. as an example. The TOD boundary changes and their respective cycle lengths are shown in Figure 5. All the parameter changes are reported in Table 1a. The results for selected analysis periods are reported in Table 1b. The intersection also benefited from changing the PM TOD start time from 3:00 PM to 2:00 PM (results shown by the PM* analysis period). The increased cycle length during this hour resulted in a 21.45% reduction in the number of stops. The EVE TOD also experienced reductions in delay and the number of stops.

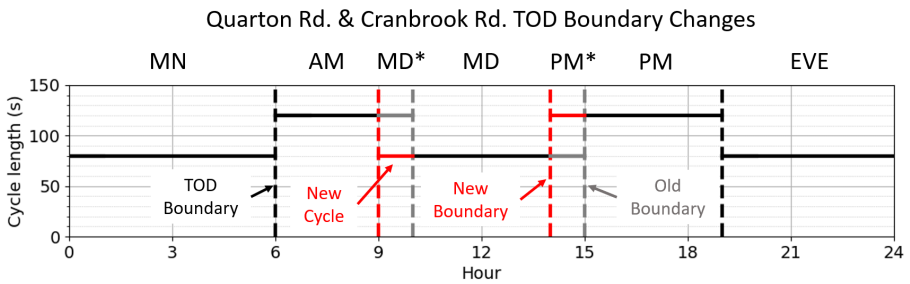


Figure 5: TOD split changes of the tested intersection

Table 1 Isolated Intersection implementation and evaluation.

a. Green splits and cycle lengths adjustment

Intersection	TOD	Original Cycle (s)	New Cycle (s)	Original Major Split (s)	New Major Split (s)	Original Minor split (s)	New minor split (s)
Quarton Rd. & Cranbrook Rd.	AM	120	120	90	94	30	26
	MD	80	80	54	56	26	24
	PM	120	120	90	94	30	26
	EVE	80	80	54	56	26	24

b. Before-and-after comparison of certain TODs for isolated intersections

Intersection	Analysis Period	Avg Delay (Before)	Avg Delay (After)	Delay % Change	Avg Stops (Before)	Avg Stops (After)	Stops % Change
Quarton Rd. & Cranbrook Rd.	06:00-09:00 (AM)	13.19	12.13	-8.03%	0.39	0.35	**-9.51%**
	14:00-15:00 (PM*)	12.65	12.24	-3.17%	0.45	0.36	**-21.45%**
	19:00-24:00 (EVE)	8.80	8.51	-3.29%	0.32	0.31	**-3.09%**

Traffic signal coordination

Table 2 shows the offset optimization of the two corridors and before-and-after comparison. For both corridors including the Adams Rd. and Old Woodward Ave., offsets of three different time of day (TOD) intervals were changed including the morning peak hours (AM, 07:00-10:00), mid-day (MD, 10:00-15:00), and the evening peak hours (PM, 15:00-19:00). Table 2a-b shows the original offsets, new offsets, and the relative changes. New offsets of each TOD were generated from the offset diagnosis and optimization program introduced before. Different metrics such as the average control delay and number of stops were used to evaluate the performance of these two corridors. The average control delay and average number of stops of the corridor are calculated by the total control delay and number of stops divided by the total number of "traversed trajectories"; which is counted by one vehicle passing one signalized intersection. All these metrics are used to evaluate the travel efficiency of the corridor. Since only the offsets were changed and the green splits stayed the same, side street traffic is not influenced and hence it is not included in the performance evaluation.

Table 2c shows the comparison of different metrics before and after the offset optimization. For all three optimized TODs from 07:00 to 19:00, the average control delay of Adams Rd. was decreased by around 15% while the average number of stops was decreased by over 20%. All three TODs performed better than before for both the average control delay and average number of stops. Less improvements were observed in the Old Woodward Ave. through all three TODs; however, certain TODs have much better performance: the average delay was decreased by over 16% during the morning peak hours (AM) while the average number of stops was decreased by over 12% during the evening peak hours. Some TOD intervals such as the mid-day period of the Old

Woodward Ave. did not improve much since the original offsets worked well and there was not a large optimality gap.

Table 2 Offset optimization and before-after comparison.

a. Offsets adjustment of Adams Rd.

Side Street	Time of Day	Original offset (s)	New offset (s)	Change (s)
Buckingham Ave.	07:00 – 10:00 (AM)	40	20	-20
	10:00 – 15:00 (MD)	40	20	-20
	15:00 – 19:00 (PM)	40	30	-10
Bower St.	07:00 – 10:00 (AM)	35	13	-22
	10:00 – 15:00 (MD)	35	13	-22
	15:00 – 19:00 (PM)	25	23	-2
Derby Rd./ Mohegan St.	07:00 – 10:00 (AM)	89	20	-69
	10:00 – 15:00 (MD	89	21	-68
	15:00 – 15:15 (PMa)	89	31	-58
	15:15 – 15:40 (PMb)	89	31	-58

b. Offsets adjustment of Old Woodward Ave.

Side Street	Time of Day	Original offset (s)	New offset (s)	Change (s)
Merrill St.	07:00 – 10:00 (AM)	69	14	-55
	10:00 – 15:00 (MD)	52	22	-30
	15:00 – 19:00 (PM)	53	22	-31
Willits St.	07:00 – 10:00 (AM)	58	32	-26
	15:00 – 19:00 (PM)	77	39	-38
Brown St.	07:00 – 10:00 (AM)	39	22	-17
	10:00 – 15:00 (MD)	10	30	20
	15:00 – 19:00 (PM)	15	30	15
Oakland Ave.	07:00 – 10:00 (AM)	69	50	-19

c. Before-and-after comparison of the offset optimization

Measurements		Adams Rd.				Old Woodward Ave.			
		AM	MD	PM	All	AM	MD	PM	All
Average control delay (second)	Before	13.37	11.92	15.81	13.65	19.40	17.s44	18.20	18.12
	After	10.88	9.97	13.58	11.63	16.30	17.69	17.54	17.34
	Change	**-18.61%**	**-16.36%**	**-14.12%**	**-14.78%**	**-16.01%**	**1.43%**	**-3.63%**	**-4.29%**
Average number of stops	Before	0.46	0.41	0.45	0.44	0.45	0.47	0.50	0.48
	After	0.33	0.31	0.38	0.34	0.43	0.44	0.44	0.44
	Change	**-28.03%**	**-24.85%**	**-15.35%**	**-21.35%**	**-4.11%**	**-5.84%**	**-12.79%**	**-8.58%**

Figure 6 shows more details how the new offsets led to better traffic signal coordination along the corridors. Figure 6a-d shows the aggregated time-space diagram of the Adams Rd. before and after the offset optimization. All the figures are generated using three consecutive weeks' data collected at the mid-day (10:00-17:00) during the weekdays. As shown in Figure 6, the average delay and number of stops of the northbound through traffic were decreased by over 20% and 40%; the southbound also outperformed the previous with a decrease of 9% for both the average delay and number of stops. Rectangular areas M, N, K in Figure 6a-b and the associated areas M', N', K' in Figure 6c-d illustrate where the coordination became better. Before the offset optimization, trajectories that departed from the upstream queue in rectangular areas M, N, and K arrived at downstream intersections during the red time and most of them stopped at least once before passing the downstream intersections. On the contrary, most of these trajectories from the upstream queue directly passed the downstream intersections without any stops as shown in M', N', and K'. By explicitly considering the trajectory arrival and departure distributions within each cycle, the proposed offset optimization program will assign more green bands to the green time with more trajectories passing by. As shown by the rectangular area W in Figure 6b, although there was also a clear wide green band from the upstream to the downstream before the offset optimization; few trajectories traveled within the green band. This coordination failure can be easily identified by the proposed method.

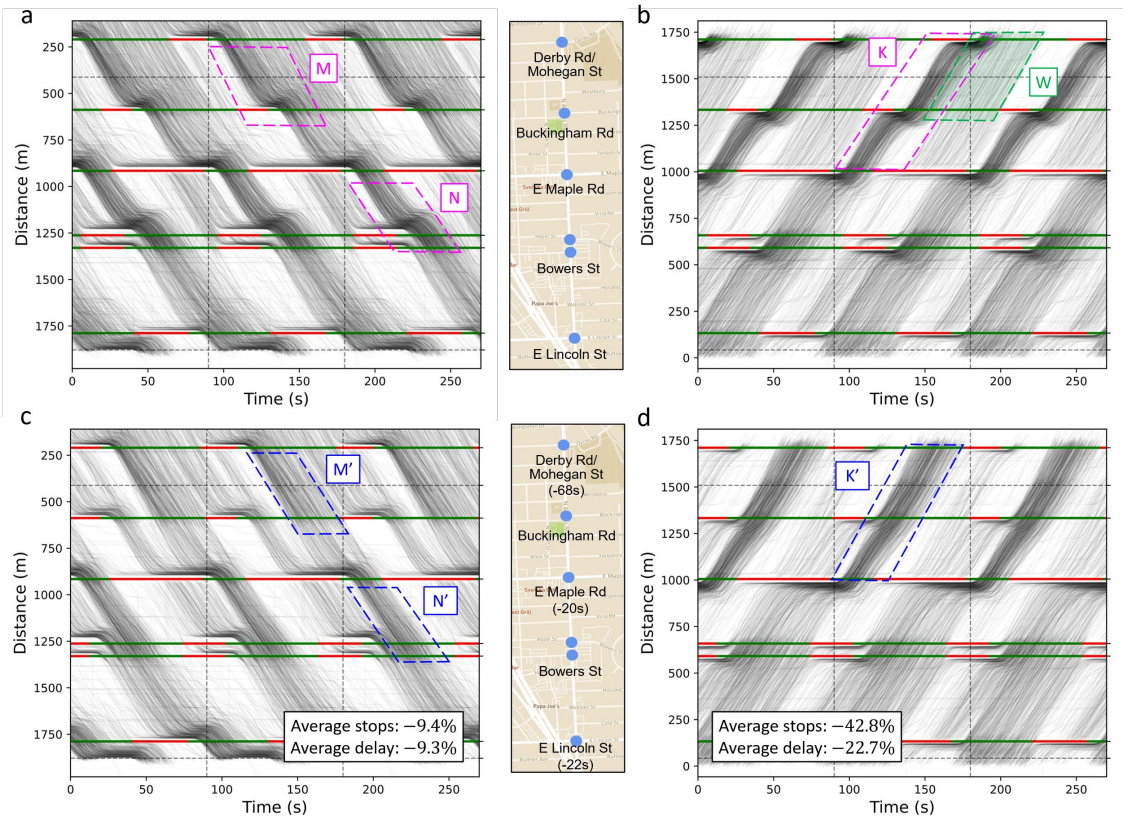


Figure 6: Offset optimization example: Adams Rd. (a) southbound before optimization. (b) northbound before optimization. (c) southbound after optimization. (d) northbound after optimization.

Summary

In summary, OSaaS is a closed-loop integrated system including continuous traffic signal performance monitoring, diagnosis, and optimization. As shown in Figure 7, compared with the existing practice, each re-timing iteration can be significantly shortened, and a more responsive traffic signal retiming is feasible to timely recover the lost opportunities as the traffic demand changes over time. As a result, large portions of the lost opportunity in the current practice will be recovered and the overall cost of congestion and energy at each intersection will be reduced (difference between the blue and green shaded areas). Other expected benefits include maintenance and operational costs. Utilizing the trajectory data as the only input and without requiring any additional infrastructure, OSaaS provides a more scalable, sustainable, and efficient solution to traffic signal retiming and presents the possibility upgrading all existing fixed-time traffic signals to dynamic systems with periodical parameter updates, something that is not currently possible without significant investments in infrastructure-based traffic flow sensors.

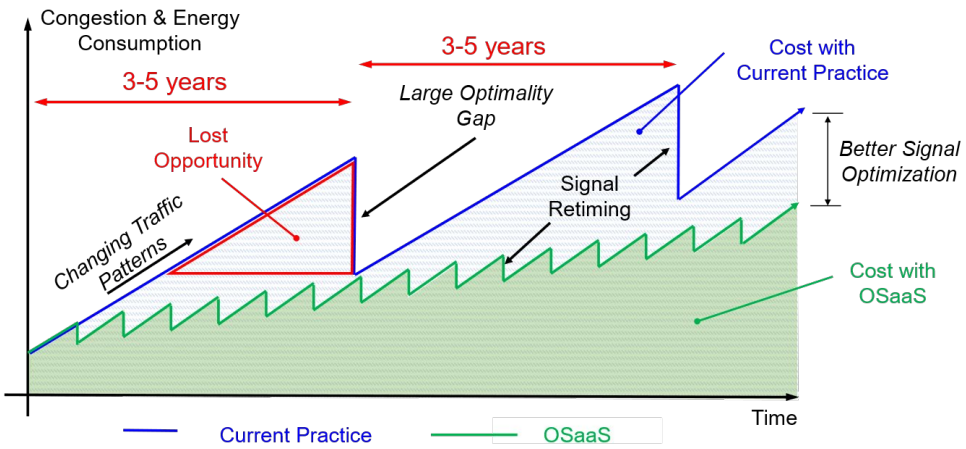


Figure 7: Benefits of traffic signal retiming

MEMORANDUM

Planning Division

DATE: May 25th, 2023

TO: Multi-Modal Transportation Board

FROM: Brooks Cowan, City Planning
Ryan Kearney, Police Lieutenant
Melissa Coatta, Engineering Department
With assistance from:
Brad Strader, MKSK
Julie Kroll, Fleis & Vandenbrink

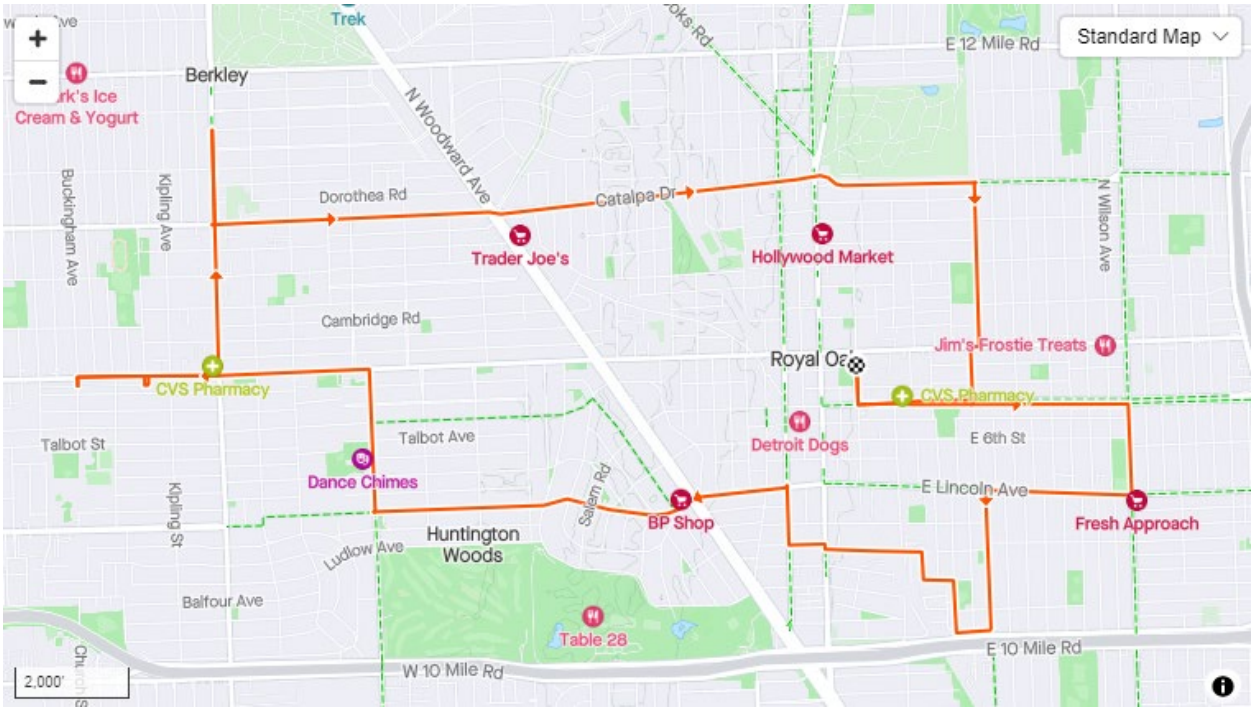
SUBJECT: Multi-Modal Transportation Board Field Trip

The Multi-Modal Transportation Board participated in a field trip to Royal Oak on Thursday May 26th. The board met in Birmingham and got on the SMART 460 bus to Royal Oak from the S. Old Woodward and Merrill bus stop. The 460 local route dropped the board members off in downtown Royal Oak at the corner of Lafayette and 4th street. The participants walked through downtown Royal Oak to get to the Mogo station at 11 Mile, next to the Royal Oak Farmers Market.

Participants rode the bike lanes in Royal Oak along 4th street and Campbell Road. The Sharrow lanes along Lincoln Ave took them into Huntington Woods where more residential roads were enjoyed. The members rode along the sidewalk to visit Oak Park's social district and Mogo station. The bike lane on Coolidge from 11 Mile to 12 was nearly ridden in entirety north and south in order to gain experience of how it feels on the road – this design had only white paint to separate the bike lanes from travel lanes and parking aisles. Participants then rode Catalpa back into Royal Oak and inspected the speed table at Gardenia and Alexander. After dropping off the Mogo bikes at the Farmers Market, the board members were able catch the SMART 460 bus northbound to have it drop them off in downtown Birmigham to end the day.

Board members were able to utilize public transit at designated bus stops, rent bikes, and experience riding various bike lanes with and without buffers, sharrow lanes, sidewalks, and residential roads. The MMTB may wish to discuss the experience and what they learned from the field trip.

Bike Route – 12 miles



Waiting for the bus at S. Old Woodward & Merill

Inspecting the pedestrian island and bike lane on Campbell Road, Royal Oak

Riding the Coolidge lane in Berkley from 11 Mile to 12 Mile – let's take a selfie!

Inspecting the speed hump at Gardenia and Alexander

Bus ride back to Birmingham – Iintersection of Worth, Haynes, and Woodward Ave

MEMORANDUM

Planning Division

DATE: April 27th, 2023

TO: Multi-Modal Transportation Board

FROM: Brooks Cowan, City Planning
Ryan Kearney, Police Lieutenant
Melissa Coatta, Engineering Department
With assistance from:
Brad Strader, MKSK
Julie Kroll, Fleis & Vandenbrink

SUBJECT: S. Eton Roadway Design Study Session

INTRODUCTION:
S. Eton Road is scheduled for resurfacing between Yosemite to 14 Mile during the spring and summer of 2024 as part of the City's Capital Improvements Plan. The Multi-Modal Transportation Board is in the process of reviewing design concepts for S. Eton Road to enhance safety and incorporate multi-modal amenities for all users.

BACKGROUND:
On July 11th, 2011, The City of Birmingham adopted a resolution in support of a complete streets policy encouraging safe transportation design for all users. The resolution concludes with the following:

> *"Now, therefore, be it resolved, that the City of Birmingham City Commission hereby declares its support of complete streets policies and further directs City staff to develop a set of proposed policies and procedures to implement Complete Streets practices to make the City more accommodating to all modes of travel, including walkers, bicyclists and transit riders, of all ages and abilities."*

The subject area has been the topic of a number of studies related to land use and transportation given that S. Eton Road divides single family residential neighborhoods from the Rail District and Kenning Park. The Eton Road Coridor Plan (1999) states that the area (Rail District) will be a mixed use corridor with a range of commercial, service, light industrial and residential uses that serve the needs of the residents of Birmingham. The plan acknowledges Eton Road as an

important link in a regional urban bike route system and recommends a designated bike lane (pg. 38).

In 2000, the City followed up recommendations of the Eton Road Corridor Plan by rezoning the triangular area between S. Eton Road, Lincoln Ave, and the Railroad from Industrial to MX – Mixed Use, thus enabling a higher density of commercial, retail, and residential uses in the subject area. It is of note that all uses in the MX – Mixed Use zone are subject to the off-street parking requirements of the Zoning Ordinance.

In 2013, the City approved the Multi-Modal Transportation Plan which goes into more detail regarding recommedations to enhance pedestrian safety and multi-modal connectivity for the corridor. The Multi-Modal Transportation Plan recommends curb extensions along S. Eton to reduce the pedestrian crossing distance, and high visibility crosswalks to increase driver awareness of such crosswalks (pg. 51-53).

The Multi-Modal Transportation Plan also recommends a buffered bike lane on the west side of S. Eton between Lincoln and Maple, and sharrows on S. Eton between Lincoln and 14 Mile (pg. 56-59). For long term considerations, the Multi-Modal Transportation Plan comments that eventually, bike lanes should be added to all arterial and collector roadways (pg. 54), and that the City may wish to extend its designated bike lanes in place of shared lane markings, stating the following (pg 108):

> *With time, as bicycle levels increase there may be a desire to add a designated bike lane in place of shared lane markings. For many of the roadways this would mean removing on-street parking or widening the roadway. Where the removal of on-street parking is not an option or not desired, the cost to add bike lanes to the roadway independent of a road reconstruction project would be significant. Thus to maximize the impact of finite resources bicycle lanes should be implemented when the road is completely reconstructed.*

In 2016, the City created the Ad-Hoc Rail District Committee which was tasked with recommending an attractive streetscape that creates a walkable environment designed for the safety, comfort, convenience, and enjoyment for all modes of transportation throughout the corridor. The recommendations of the Ad-Hoc Rail District Committee Plan recommended improving pedestrian crossings with bump-outs and better crosswalks along S. Eton. The Committee placed a greater emphasis on enhancing pedestrian crossing near Hazel St. instead of Villa as the Multi-Modal Transportation Plan does. The Committee also recommended concepts with the addition of bike lanes or sharrows to S. Eton from Yosemite to 14 Mile.

The Ad-Hoc Rail District Committee also reviewed the supply and demand of parking on-site vs. on-street in the area to gauge the impact of potentially removing on-street parking along S. Eton. The findings were that the parking demands shifted from office/retail uses in the afternoon to restauraunts in the evening, though very few private parking lots reached full capacity. The Committee pointed out that the 15 publicly available parking spaces in front of Bolyard Lumber are underutilized. The Committee also recommended policy to encourage shared parking in the district by providing the zoning incentives for properties and/or businesses that record a shared parking agreement. Incentives could include parking reductions, setback reductions, height bonuses, landscape credits, or similar offers.

In 2019, temporary road striping with bollards was placed as a trial along S. Eton in an effort to reduce crosswalk distance, provide a protected bike lane, and narrow the street to reduce vehicular speeds. After the trial period, the MMTB was tasked with evaluating the impact of the road pattern on pedestrian, bicycle, and automobile safety.

The City chose the option with both bike lanes on the west side of the street, and not the recommendation of the Ad-Hoc Rail District Committee for directional bike lanes on each side because City staff did not want the large cracks between the asphalt and concrete in the middle of each bike lane. The location of bike lanes would be reassessed when S. Eton would be re-paved.

In 2021, The City's traffic engineering consultants Fleis & Vandebrink (F&V) provided an analysis of the S. Eton striping which includes before and after data for pedestrians, bicyclists, and motorists while comparing accident counts, traffic counts, and traffic speed. The result of the analysis showed that the addition of a bike lane reduced crashes, increased the number of bicyclists, and did not have a significant impact on the adjacent roadway speeds. The final recommendation of the before and after analysis is that a bike facility along S. Eton Road be made permanent, given the following data:

- *The result of the analysis showed an overall crash reduction of 44%.*
- *Vehicle - pedestrian crashes were eliminated*
- *Bicycle volumes more than doubled during the afternoon and over 80% higher on Saturday.*

In September of 2021, the City of Birmingham posted an online survey on Engage Birmingham to obtain resident feedback on the S. Eton temporary striping. Results showed that respondents liked having a protected bike lane along S. Eton, however improvements could be made. Complaints were that the bollards and armadillo dividers were unsightly, the bike lane would gather with sticks and debris, and the beginning and ending of the lanes were inconvienient for cyclists. The poll has been available since 2021 and recently pulled data is included in the attachments.

On October 7th, 2021 (Agenda – Minutes), the Multi-Modal Transportation Board reviewed the analysis report from F&V of pedestrian, bicycle, and vehicular traffic before and after the striping on S. Eton Road. Results of the Engage Birmingham survey were also reviewed. The Board discussed the pros and cons of the current design, and how an opportunity for a more permanent design should be considered when the City repaves S. Eton projected for the summer of 2024.

On November 3rd, 2022 (Agenda – Minutes), The Multi-Modal Transportation Board began a preliminary review of S. Eton design concepts. Staff wanted to narrow down alternatives prior to conducting a more in depth analysis.

The MMTB discussed keeping both bike lanes on the west side versus having bike lanes on each side of the street, where cyclist move in the same direction as vehicular traffic. Feedback regarding the existing design was that the beginning and ending of the bike lane is dangerous for cyclists who have to cross the road and are "dumped" into oncoming traffic at the ending. The MMTB felt that they should consider concepts that include bike lanes on both sides of S. Eton Road during the review process, and asked staff and cosultants to bring such proposals for review.

On January 17th, 2023 (Open House Slides), City staff and its traffic consultants held an open house to present the concepts for S. Eton from 14 Mile to Yosemite Blvd. Members of the public were invited to review the various proposals and provide feedback and commentary. Participants of the open house were asked to vote on their preferred concept. A roll plot containing an aerial image of S. Eton was also provided for participants to place a sticky note on an area where they had comments or concerns for.

On February 2nd, 2023 (Agenda - Minutes), The MMTB reviewed results of the open house and discussed preferences regarding the proposed concepts. In regards to the votes received during the open house, Alternative B received the highest count, which is the concept with raised bike lanes above the curb on each side of the street traveling with the flow of vehicular traffic.

For the west side of S. Eton between Lincoln and Yosemite, city staff discussed the locations of the bike lanes and pedestrian bumpouts in relation to the existing sidewalk, the street trees, driveways, utility poles, and the curb. Staff indicated the bike lanes would be closer to the curb to maintain the existing trees and sidewalk. More detailed analysis would be required on these issues, however staff wanted input on preferences from the MMTB before narrowing their focus.

For the east side of S. Eton between Lincoln and Yosemite, accomodating all existing streetscape along the commercial corridor while adding a bike lane and maintaining on-street parking presents a set of challenges. It is possible to adjust the location of on-street parking spaces to accommodate greater turning visibility. A number of residents and open house participants commented on dificulties with visibilty when turning onto S. Eton from the commercial access streets, particularly around Griffin Claw and Whistle Stop on Palmer Ct and Hazel Ave.

City staff also discussed the stretch of S. Eton between 14 Mile and Lincoln. The traffic pattern could be left as-is with on-street parking on the west side and sharrows painted in the vehicular travel lanes. Or, staff could examine the potential to extend bike lanes from Lincoln to 14 Mile in the City's right-of-way space between the sidewalk and the curb. The MMTB indicated a preference to consider extending the bike lanes all the way to 14 Mile to encourage more connectivity within the City and neighboring communities. A longer bike lane without an abrupt ending where cyclists have to merge into traffic would enhance non-motorized safety and encourage complete streets connectivity.

On March 2nd, 2023 (Agenda – Minutes), the MMTB reviewed a more detailed analysis of proposed concepts for S. Eton Road. In order to address concerns and complaints about parked cars blocking visibility when making turns onto S. Eton, the analysis included an Intersection Sight Distance (ISD) evaluation using the guidelines from the Oakland County Road Commission. The result of the Intersection Sight Distance analysis is that very few parking locations on S. Eton satisfy the visibility safety guidelines. Only three parking spaces on S. Eton between Lincoln and Yosemite pass the sight distance analysis.

Given the issues with sight distance, City staff recommended that the MMTB consider updated alternatives that involve removing on-street parking on S. Eton between Lincoln and Yosemite. Justification by staff to consider removing on-street parking on S. Eton between Lincoln and Yosemite is that each property is required to provide on-site parking per the requirements of the Zoning Ordinance, and all commercial properties along S. Eton have their own parking lot or structure. Removing a few parking spaces at each intersection to improve visibility and increase

safety would leave S. Eton with a 0.4 mile long parking aisle devoted to very few remaining parking spaces.

The Multi-Modal Transportation Board felt it was best to host another open house where residents could comment on the updated concepts being discussed. The MMTB wanted to to review feedback from the public on significant changes such as removing on-street parking north of Lincoln Ave and potentially extending bike lanes south from Lincoln Ave to 14 Mile Road.

On April 18th, 2023 (Poster Boards), the City held a second open house regarding design concepts for S. Eton. The attendance sheet indicated 27 people in attendance. Posterboards were placed around the conference room at the Department of Public Services for attendees to review and discuss with staff. A brief presentation regarding each board was provided and followed by questions from attendees. Visitors were able to vote on their preferred concepts by filling out comment cards and placing stickers on posterboards.

For the alternatives north of Lincoln Ave, concept C3 with street level bike lanes and removal of on-street parking received the most votes between comment cards and the poster board (13 total). Option B3 with raised bike lanes and removal of on-street parking was second with 7 likes, 1 okay, and 1 dislike. Comments supporting these concepts were that bike lanes should be on both sides of the street, current on-street parking makes visibility dangerous, and west side residents do not want their driveway shortened to accommodate a bike lane.

For the alternatives south of Lincoln Ave, the B1 Concept with street level bike lanes extending to 14 Mile received the most votes with 7 between comment cards and the poster board. A write-in of "Neither" was second with 6 votes. There was concern expressed about losing driveway apron space and possible loss of greenspace and trees with the addition of bike lanes extending south from Lincoln Ave through the right-of-way to 14 Mile.

During the MMTB meeting of March 2nd, 2023, staff was asked to look for additional parking opportunities to compensate for the potentional loss of on-street parking along S. Eton's commercial area. On April 4th, 2023, staff presented a potential concept of 7-8 additional parking spaces at the greenspace on the northeast corner of S. Eton and Lincoln to the Parks and Recreation Board. Board members did not appear enthusiastic about the concept, however they suggested presenting it during the S. Eton Open House for feedback. During the open house, comments regarding an additional 7-8 parking spaces at the northeast corner of S. Eton and Lincoln Ave to offset the loss of parking were all in opposition to the proposal. In general, the community appears to be opposed to this concept.

On May 4th, 2023 (Agenda), the MMTB reviewed feedback from the April Open House and updated concepts. Staff recommendations were that if the MMTB wanted to prioritize safety and multi-modal amenities for all modes of transportation, the removal of on-street parking north of Lincoln, and the additional paving of bike lanes to 14 Mile was recommended. If this is too disruptive, then staff recommended the MMTB consider options within the current parameters of the existing street widths.

The MMTB was concerned about removing on-street parking and the impact it would have on the surrounding area. Members felt it would be too disruptive to the adjacent businesses and were concerned about patrons choosing to park in residential areas in lieu of using S. Eton's on street

parking. Upon review of the trade-offs involved, members of the MMTB asked to see what S. Eton would look like if only a few on-street parking spaces were removed in low visibility areas.

The MMTB also commented that they were amenable to reducing the buffer areas between the bike lanes and vehicle lanes to avoid disrupting on-street parking and residential right-of-way. The MMTB also requested alterations to a concept where the west side curb was only moved 1-2 feet to the west. Doing so could allow on-street parking, bike lanes, safety buffers, and minor reductions to the right-of-way space on the residential side.

In regards to the northeast corner of S. Eton and Lincoln, the MMTB commented that they were not in favor of adding parking spaces to the greenspace in order to accommodate for a potential loss of on-street parking. The loss of greenspace was not worth the trade-off.

SUMMARY OF UPDATED S. ETON CONCEPTS FOR REVIEW – JUNE 1ST, 2023:

S. Eton - Lincoln to Yosemite:
Five alternatives have been provided for review. Four of the alternatives work within the existing street width of 40 feet, while one considers widening the street by an additional 1.5 feet on the residential side. Four of the alternatives also propose maintaining on-street parking, while one considers its removal.

If the City were to maintain on-street parking along the east side of S. Eton, City staff recommends that parking spaces be setback 30 feet from pedestrian crosswalks and street intersections, and 5 feet back from all driveways. This would result in 28 parking spaces along S. Eton between Lincoln and Yosemite, a reduction of 23 parking spaces from the existing 51. A 30 foot setback is currently required at intersections with signal control. Given the amount of concerns regarding visibility along S. Eton, City staff recommend applying the 30 foot setback standard to all crosswalks and intersections.

In regards to pedestrian crosswalk enhancements, the location of bumpouts and crossing islands is subject to the location of on-street parking and bike lanes. If parking is placed along the curb, S. Eton will have pedestian bumpouts extending 10 feet on the east side of the street to reduce the pedestrian crossing distance from 40 feet down to 30 feet. If parking is placed between the vehicular lane and bike lane (referred to as "floating parking"), 6 foot pedestrian islands would be provided at select locations. The City cannot provide pedestrian bumpouts if the bike lane is located along the curb.

As discussed during the MMTB meeting May 4th, 2023, the board was comfortable considering reducing bike lane buffer zones to avoid disturbing on-street parking and residential right-of-way. City staff has brought back an alternative recommendation from the 2016 Ad-Hoc Rail District Committee report that includes on-street parking, pedestrian bumpouts, and 5 foot bike lanes within the existing 40 foot street width. This alternative concept is closest to what currently exists on N. Eton which is 39.5 feet wide.

In regards to on-street buffers between vehicular lanes and bike lanes, City staff prefers no raised separation. A striped buffer, rumble strips, and/or a painted bike lane would enable DPS to keep the bike lanes clear of snow and debris with greater ease.

Alternative 1
Maintains existing dimensions of S. Eton with modifications to the flow of cyclists. A designated bike lane would be southbound only, while northbound would include sharrows. City staff do not recommend maintaining the existing northbound bike lane on the west side of the street, therefore it is proposed to be converted to one way in this concept. A 3' buffer would be provided between on the soutbound side and a 4' buffer on the northbound side. On-street parking would remain on the east side of the street with pedestrian bumpouts at each intersection. S. Eton would remain 40' wide.

Alternative 2 (Updated)
Bike lanes going with the flow of traffic for the northbound and southbound lanes. On-street parking would be maintained along the east side of the street with pedestrian bumpouts at each intersection. The northbound bike lane would have a 3' buffer to create separation from the parking lane. Each bike lane would have a width of 5' and would not have a buffer between the vehicle travel lane. S. Eton would remain 40' wide**. This concept is most consistent with what currently exists in Birmingham on N. Eton from Yorkshire to Derby.**

Alternative 3 (Updated)
Bike lanes going with the flow of traffic for the northbound and southbound lanes. The northbound bike lane would be along the curb, therefore S. Eton would have "floating parking" between the vehicle travel lane and bike lane. This concept does not enable pedestrian bump-outs, therefore pedestrian islands would be proposed for the intersections of Hazel Street, Cole Street, and potentially others. S. Eton would remain 40' wide.

Alternative 4
Bike lanes going with the flow of traffic for the northbound and southbound lanes. The northbound bike lane would be along the curb, therefore S. Eton would have "floating parking" between the vehicle travel lane and bike lane. This concept does not enable pedestrian bump-outs, therefore pedestrian islands would be proposed for the intersections of Hazel Street, Cole Street, and potentially others. **S. Eton would be widened by 1.5 on the west side of the street to accommodate additional buffer space between the bike lanes, parking aisle, and vehicle travel lane.**

Alternative 5
Bike lanes going with the flow of traffic for the northbound and southbound lanes. Curbs on the east and west side of the street would remain in the same location. The bike lanes would be street level with the vehicle lane and therefore require a larger buffer space. On-street parking would be removed on the east side of the street to improve visibility and accommodate bike lanes. Pedestrian islands would be implemented instead of bumpouts.

S. Eton: 14 Mile to Lincoln

If the MMTB wishes to extend bike lanes from Lincoln Ave to 14 Mile through the right-of-way, staff recommends considering whether to place the bike lanes above the curb or below the curb. Staff also recommends that the board consider whether the bike lane should be along the curb or between the parking aisle and vehicle travel lane. If the MMTB wishes to keep S. Eton between Lincoln Ave and 14 Mile as-is, additional "Share the Road" signage is recommended.

Alternative 1
Designated on-street bike lanes extended from Lincoln to 14 Mile. S. Eton would be widened from 28 feet to 41 feet to accommodate additional bike lanes and a buffer zone. On-street parking would be located along the curb of the west side of the street with the southbound bike lane between parking and vehicle travel lane.

Alternative 2
Designated on-street bike lanes extended from Lincoln to 14 Mile. S. Eton would be widened from 28 feet to 41 feet to accommodate additional bike lanes and a buffer zone. The designated bike lane would be along the curb with "floating parking" aisle between the bike lane and vehicle travel lane.

Alternative 3
Bike lanes placed above the curb. 10' of additional pavement would be placed on each side of the right-of-way to accommodate new bike lanes. Curb to curb distance would remain the same at 28' with two vehicular travel lanes and on-street parking on the west side of S. Eton.

Alternative 4
No change proposed, keep street dimensions as-is. S. Eton between Lincoln Ave and 14 Mile would maintain two vehicular lanes accomodated by a parking aisle on the west side of the road. Additional sharrows and "Share the Road" signage could be included.

RECOMMENDATION:

Upon review of the proposed concepts for S. Eton, feedback from the community, and concerns regarding on-street parking and residential right-of-way, City staff recommends Alternative 2 for the area between Lincoln and Yosemite. This alternative maintains on-street parking along the curb, accomodates 5' wide bike lanes traveling each direction, and allows pedestrian bumpouts along the east side of the street at each intersection. City staff finds this alternative to provide the most multi-modal amenities with the least amount of commercial and residential disruption.

Alternative 2 is consistent with what currently exists on N. Eton, as well as the recommendations of the 2016 Ad-Hoc Rail District Committee. City staff recommends that this alternative be accompanied by a 30 foot setback for all on-street parking from any intersection or pedestrian crosswalk, and 5 feet back from any driveway in order to enhance visibility. This will reduce the number of parking spaces along S. Eton from 51 to 28 in the subject area. City staff also finds this alternative preferable with on-street parking because it enables pedestian bumpouts at all intersections to reduce crossing distance.

Alternative 5, removing all on-street parking, provides the highest level of safety and prioritization of the health, safety, and welfare for all modes of transportation along S. Eton. However, this option is the most disruptive to the adjacent businesses. Commercial properties in the Rail District are required to provide on-site parking per the requirements of the Zoning Ordinance, though having on-street parking is an additional amenity for businesses.

For the area south of Lincoln Ave, If the MMTB wishes to extend the designated bike lanes to 14 Mile, City staff recommends that the design align with the recommendation for north of Lincoln and that parking be located along the curb. Alternative 1 for south of Lincoln has parking along the curb and would allow pedestrian bumpouts at all intersections while accomodating space for bike lanes.

Pursuing a complete streets policy by extending bike lanes to 14 Mile also presents a set of challenges. Extending bike lanes from Lincoln Ave to 14 Mile requires altering the right-of-way where driveways and greenspace currently exists. Most trees in this area are closer to the sidewalk, however some vegetation would be disrupted as the amenity zone between the sidewalk and bike lane would be reduced from 23' to 15'-18'. The tradeoff of supporting non-motorized transportation in this case means additional impervious surface and some loss of greenspace in the City's right-of-way.

If the MMTB finds that extending designated bike lanes from Lincoln Ave to 14 Mile is too disruptive to adjacent properties, City staff recommends Alternative 4 "leave as-is" and additional "Share the Road" signage to the existing setup.

SUGGESTED ACTION
Move to recommend to the City Commission that S. Eton between Lincoln and Yosemite be designed as indicated in Alternative _____ with the following amenities including:

1. _____
2. _____
3. _____

AND

Move to recommend to the City Commission that S. Eton between Lincoln Ave and 14 Mile be designed as indicated in Alternative _____ with the following amenities including:

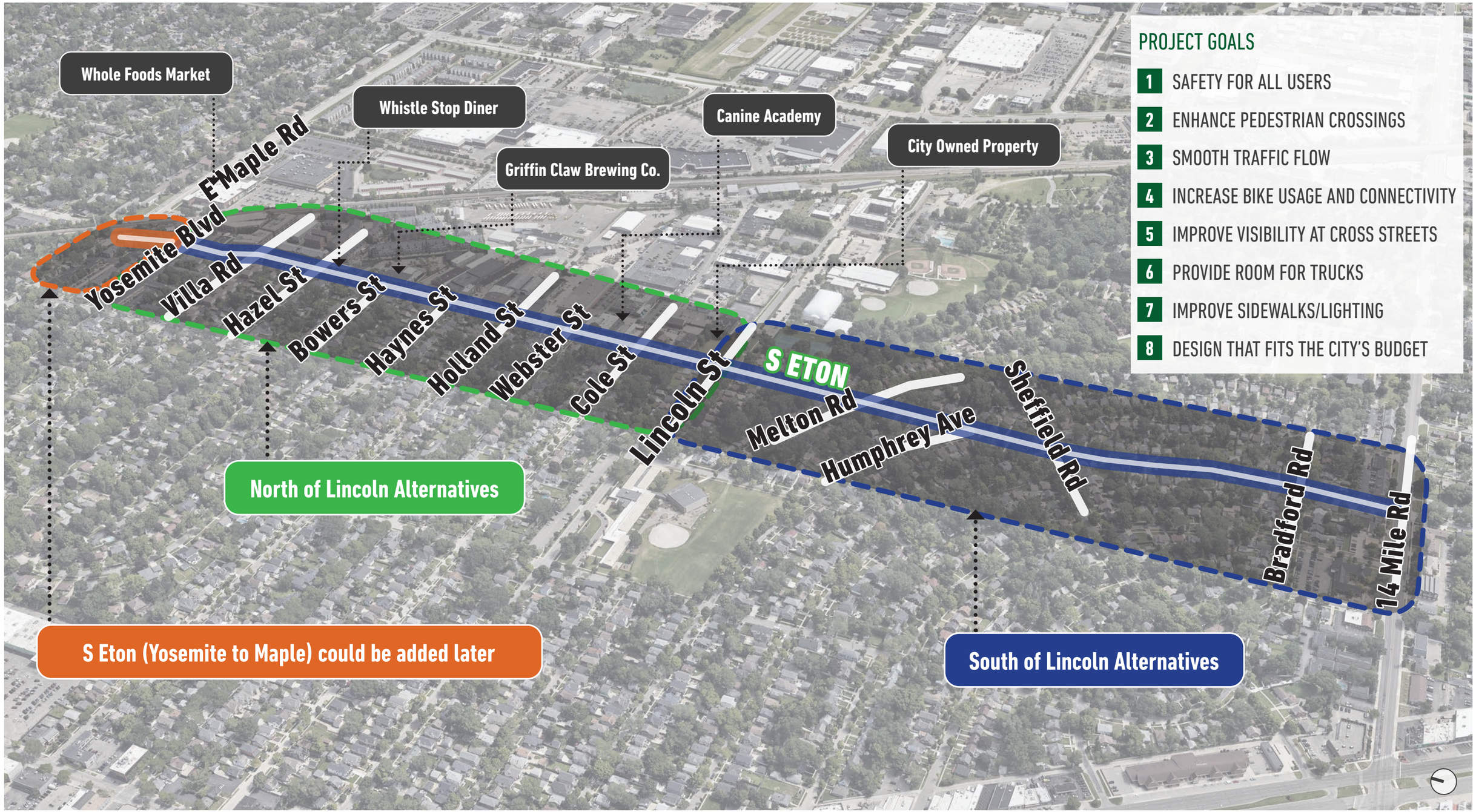
1. _____
2. _____
3. _____

OR

Move to postpone the consideration of design alternatives for S. Eton from Yosemite to 14 Mile to June 1st, 2023 pending the receipt of further information from staff requested by the Multi-Modal Transportation Board.

S. ETON REDESIGN

PROJECT STUDY AREA



PROJECT GOALS

1. SAFETY FOR ALL USERS
2. ENHANCE PEDESTRIAN CROSSINGS
3. SMOOTH TRAFFIC FLOW
4. INCREASE BIKE USAGE AND CONNECTIVITY
5. IMPROVE VISIBILITY AT CROSS STREETS
6. PROVIDE ROOM FOR TRUCKS
7. IMPROVE SIDEWALKS/LIGHTING
8. DESIGN THAT FITS THE CITY'S BUDGET

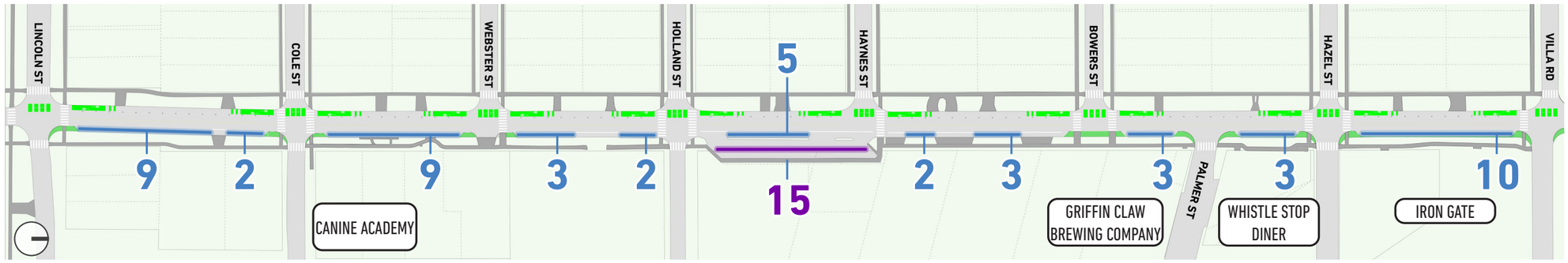
UPDATED ON-STREET PARKING ALONG S ETON

- Updated on-street parking spaces to accommodate the additional sight distance requested
- Extended parking prohibition from the crosswalks to 30’ at all intersections
- No parking permitted within 5’ of driveways

EXISTING ON-STREET PARKING (2023)

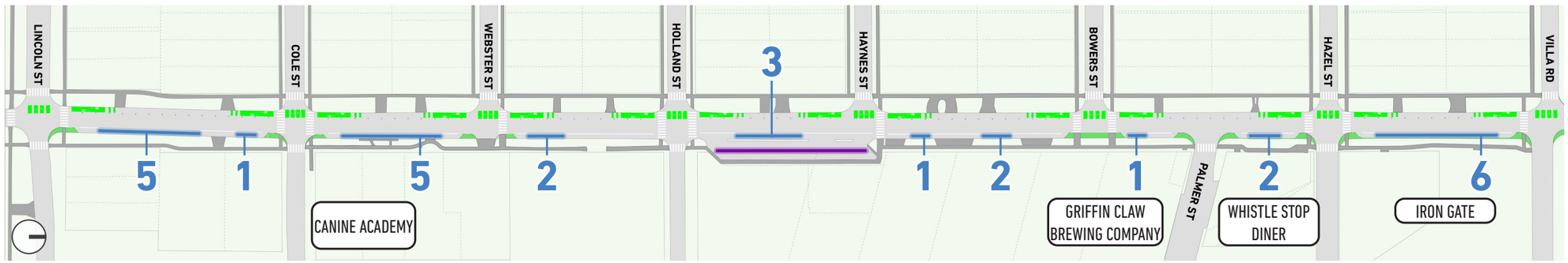
20ft = 1 space
*City standard for requesting on-street parking

ON-STREET PARKING
PUBLIC OFF-STREET SPACES



TOTAL EXISTING ON-STREET PARKING SPOTS: **51**

UPDATED ON-STREET PARKING FOR S ETON ALTERNATIVES



TOTAL UPDATED ON-STREET PARKING SPOTS: **28**

POTENTIAL BUFFER OPTIONS ALONG S ETON

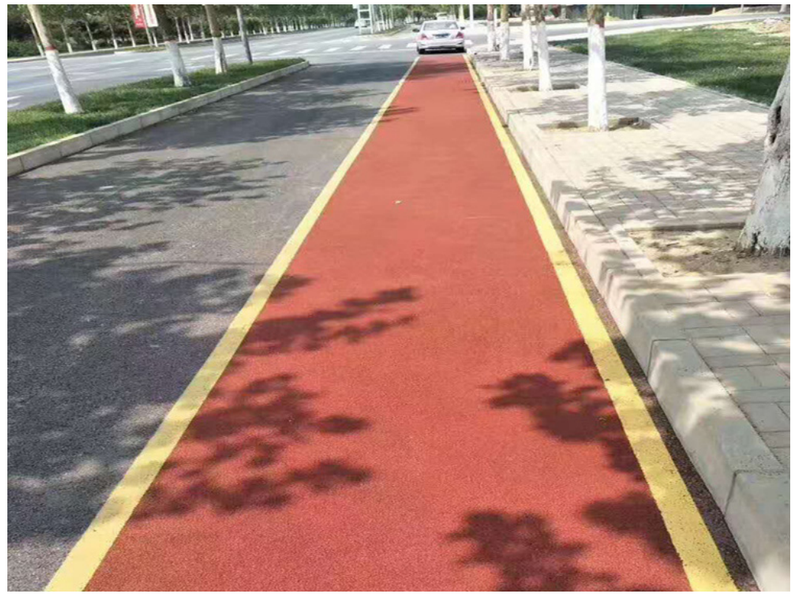
RUMBLE STRIPS

STRIPED PAINTED BUFFER

STAMPED/RIBBED CONCRETE

CONCRETE SPACED MEDIANS

POST BARRIERS WITH BUMPOUTS AT INTERSECTIONS

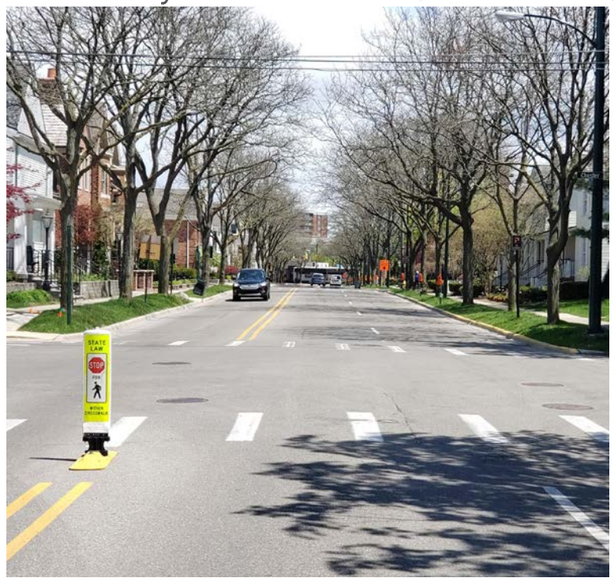


COLORED CONCRETE

PEDESTRIAN ENHANCEMENTS

- Enhanced high visibility crosswalks
- Gateways and signs
- Amenities to alert drivers (signs, flashing beacons, etc.)
- Bump-outs to reduce crossing distance (not applicable for certain design alternatives)
- Pedestrian islands to help crossing at busy intersections (not applicable for certain design alternatives)

Gateway Treatment (Brown St)



Bump-Outs

Pedestrian Signs and Islands

RRFB's

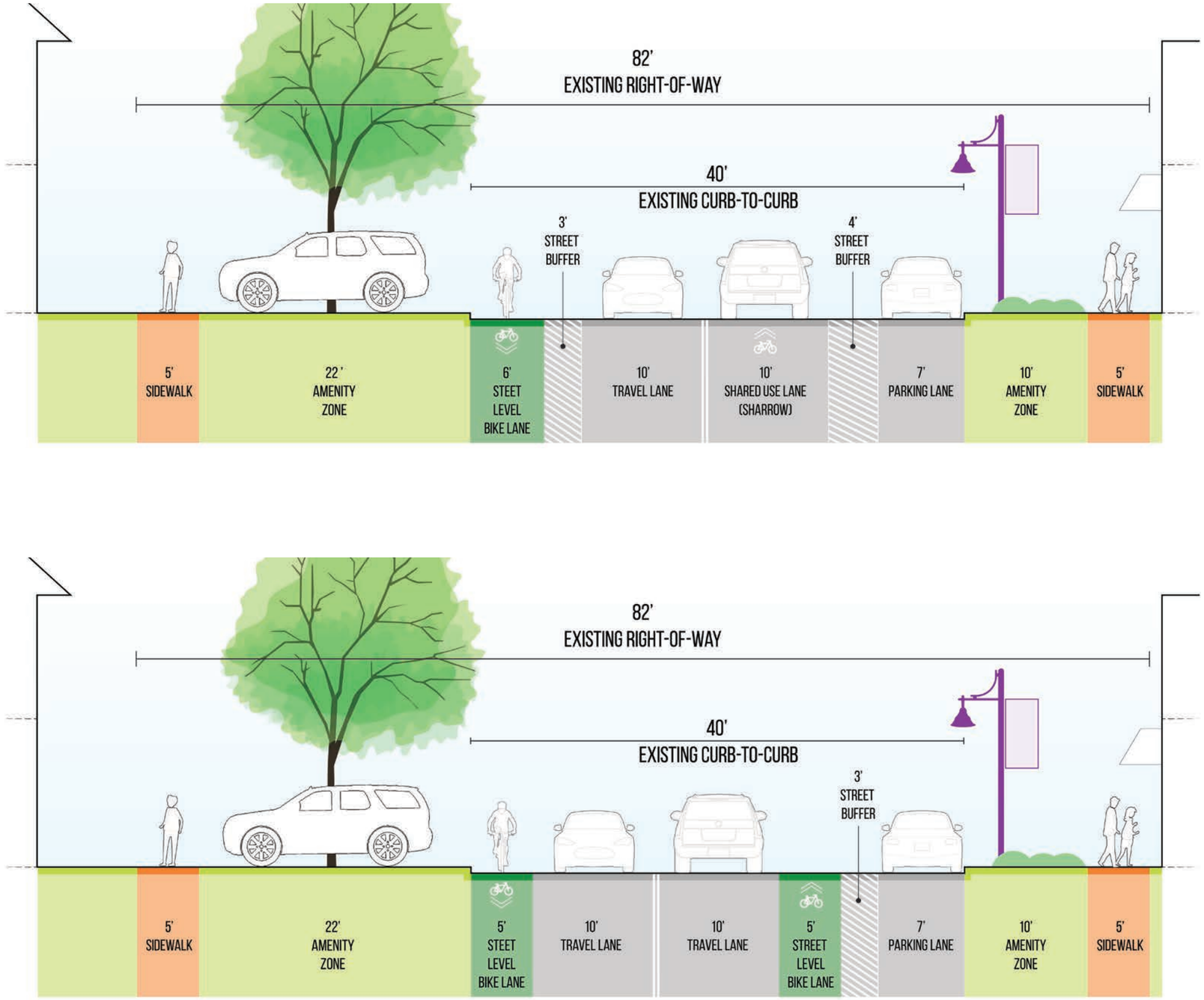
UPDATED S ETON ALTERNATIVES

NORTH OF LINCOLN

UPDATED S ETON NORTH ALTERNATIVES

ALTERNATIVE 1

- Existing Modified Cycle Track
- 2-way cycle track becomes 1-way southbound bike lane with painted street buffer
- Northbound travel lane becomes shared use lane (sharrow)
- Fits within existing 40’ curb-to-curb



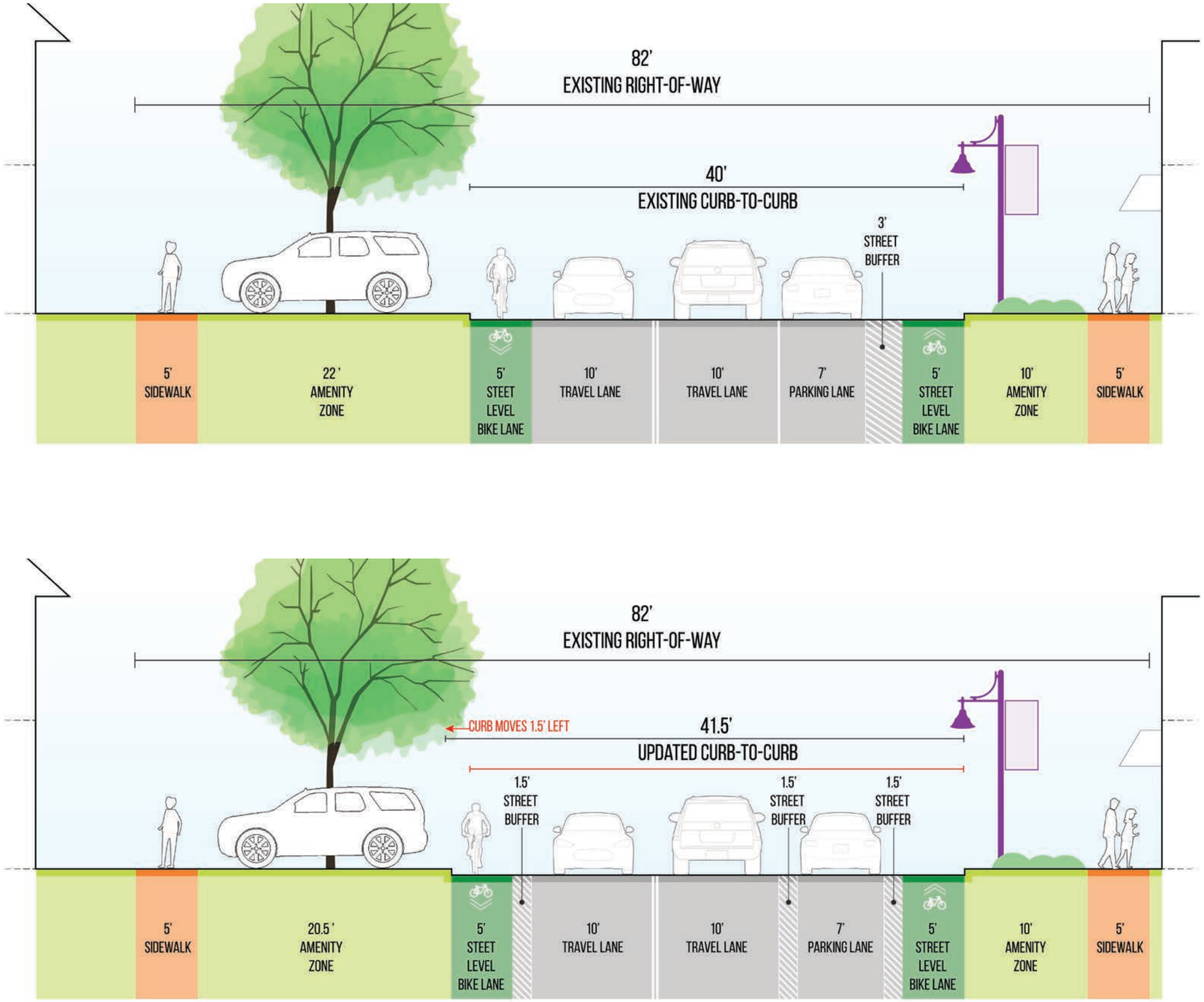
ALTERNATIVE 2

- Curbside Parking Lane Option
- On-street NB and SB bike lanes with on-street parking along east curb
- Includes bumpouts on east side of the street, removal of some on-street parking spaces near intersections with low visibility
- Travel lanes can be 10-11’ and street buffer can be 1-3’ in width
- Fits within existing 40’ curb-to-curb

UPDATED S ETON NORTH ALTERNATIVES

ALTERNATIVE 3

- Curbside Bike Lane Option
- On-street NB and SB bike lanes with NB bike lane along east curb
- Includes mid-block islands/pedestrian crossings at Hazel St and Cole St (other locations TBD) - See “Pedestrian Enhancement Slide”
- Travel lanes can be 10-11’ and street buffer can be 1-3’ in width
- Fits within existing 40’ curb-to-curb



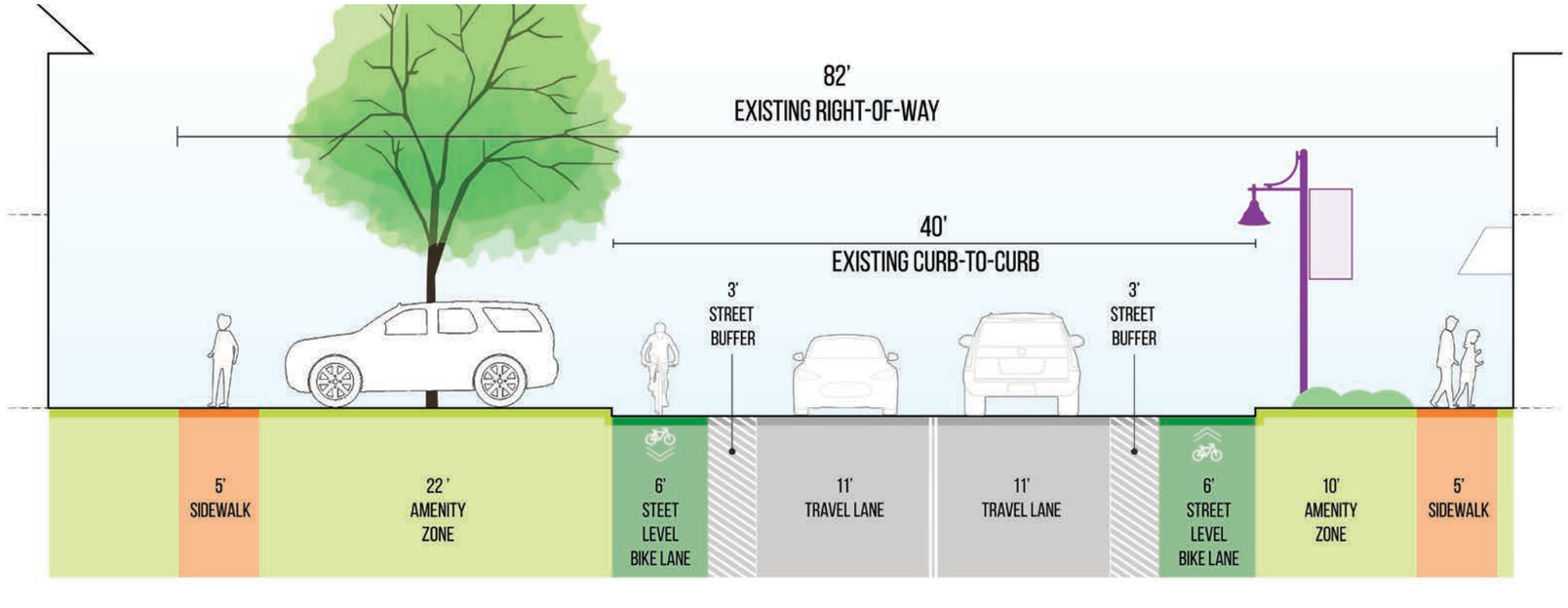
ALTERNATIVE 4

- Floating Parking and Buffered Bike Lanes Option
- On-street NB and SB bike lanes with on-street parking between the bike lane and travel lane
- Buffer on both sides of parking lane
- Updated 41.5’ curb-to-curb width (curb shifts 1.5’ to the left)

UPDATED S ETON NORTH ALTERNATIVES

ALTERNATIVE 5

- Improved Sight Distance
- On-street NB and SB bike lanes
- Removal of on-street parking north of Lincoln St
- Travel lanes increase to 11’ width
- Fits within existing 40’ curb-to-curb

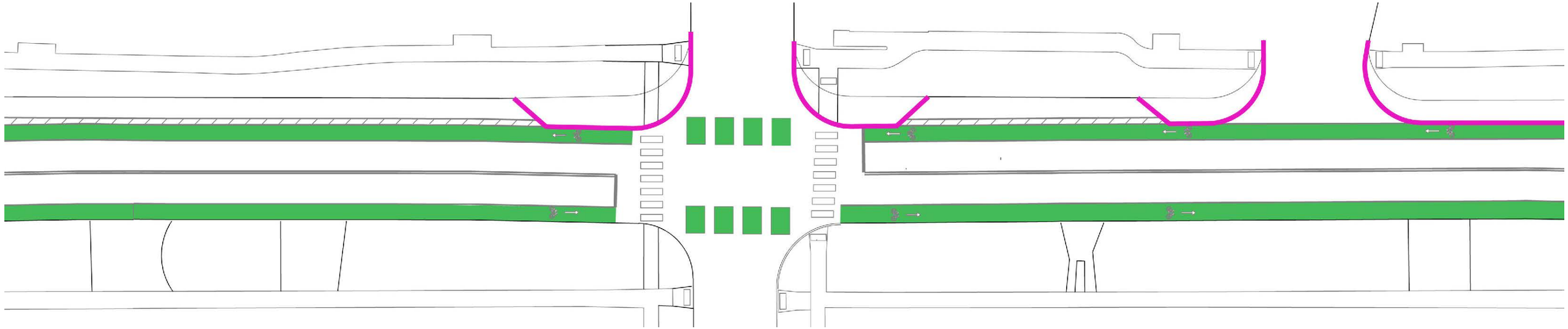


UPDATED S ETON NORTH ALTERNATIVES

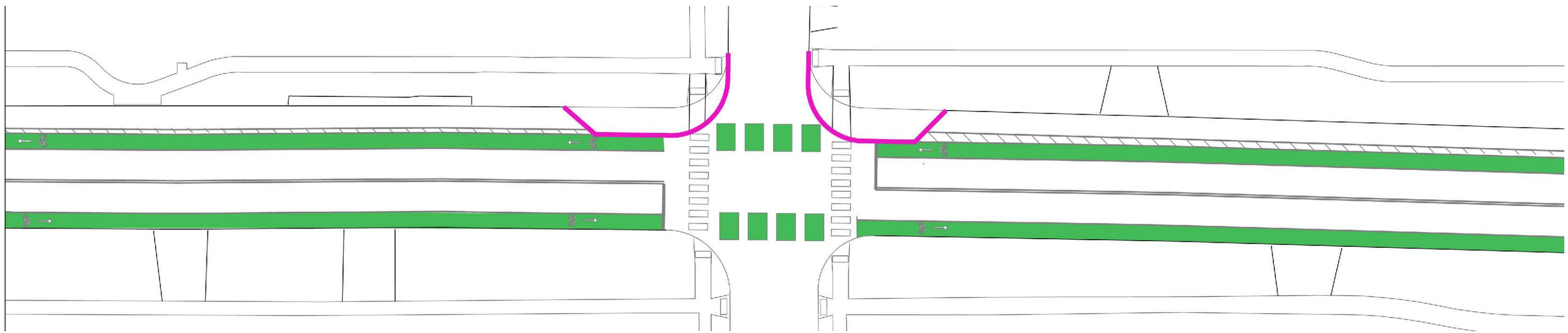
PLAN VIEW OF ALTERNATIVE 2

New Built In Bumpouts

Hazel St Intersection



Cole St Intersection

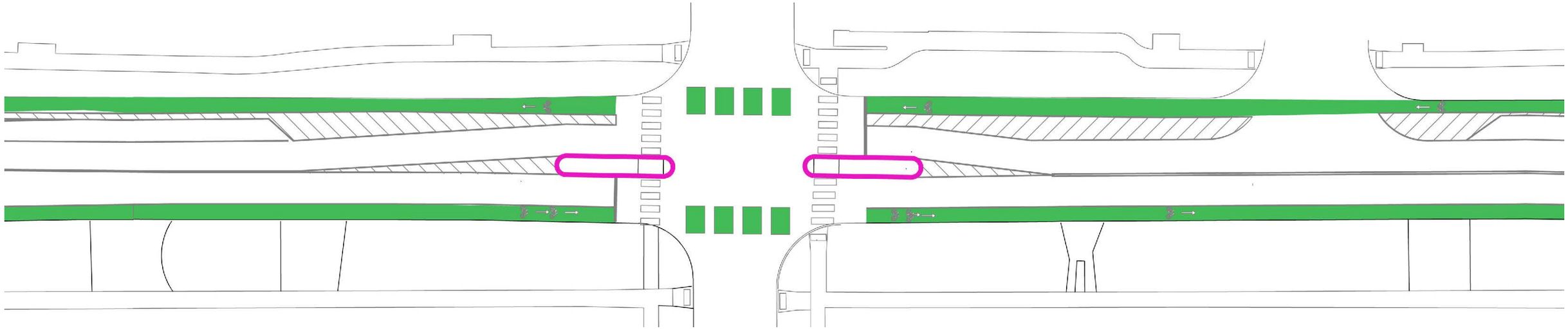


UPDATED S ETON NORTH ALTERNATIVES

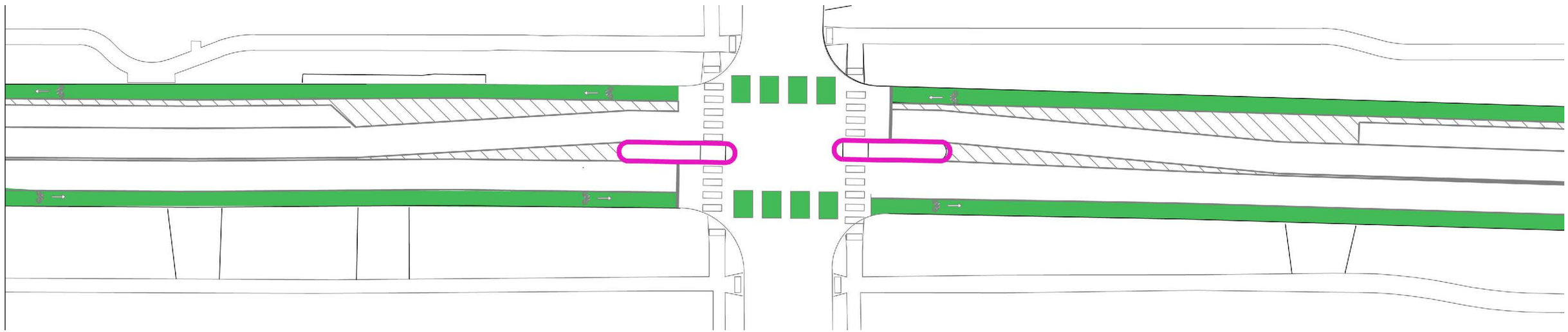
PLAN VIEW OF ALTERNATIVE 3

New Pedestrian Island Crossings

Hazel St Intersection

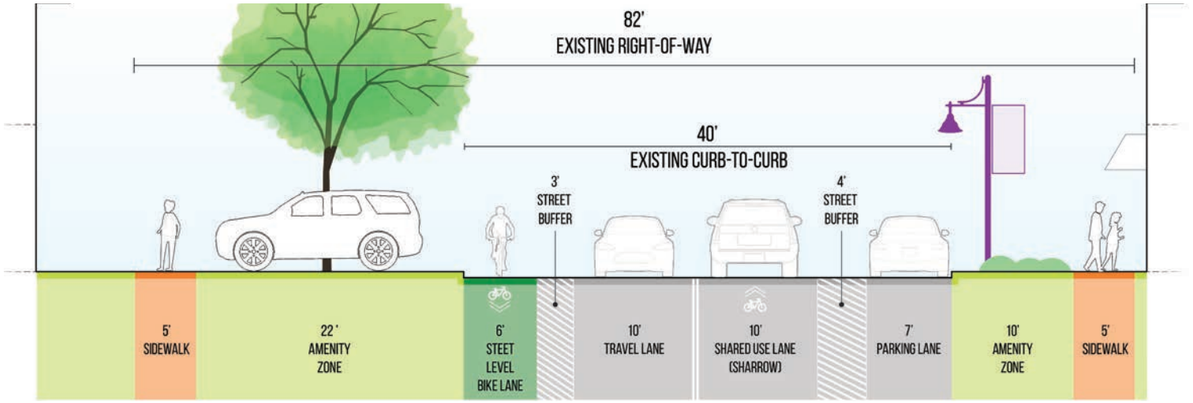


Cole St Intersection

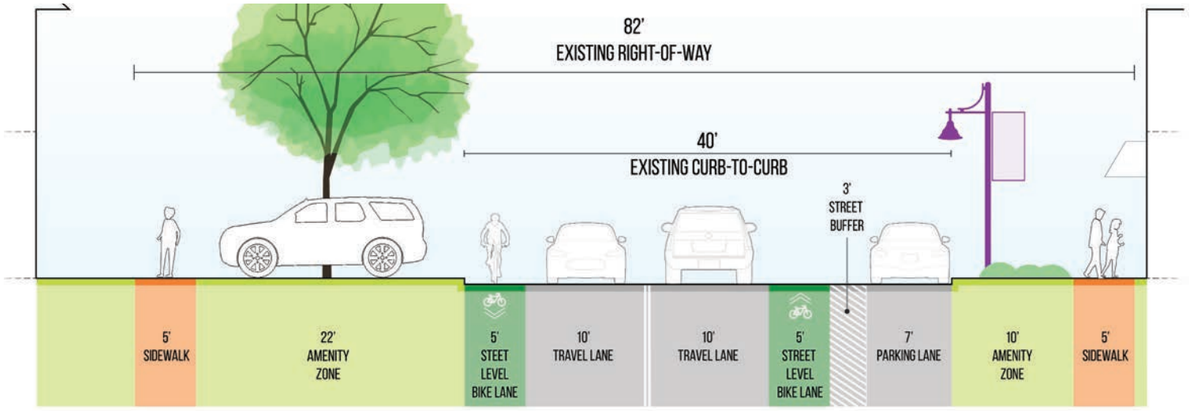


UPDATED S ETON NORTH ALTERNATIVES

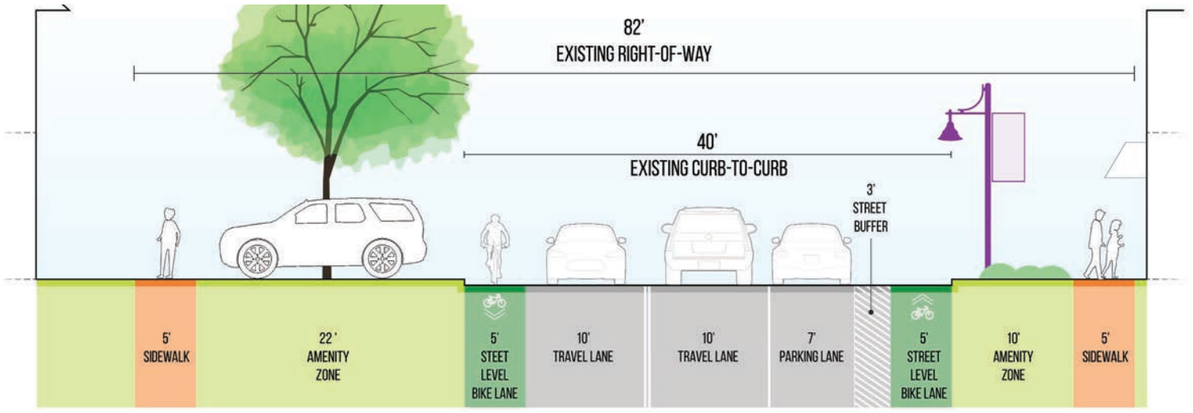
ALT 1 - EXISTING MODIFIED CYCLE TRACK



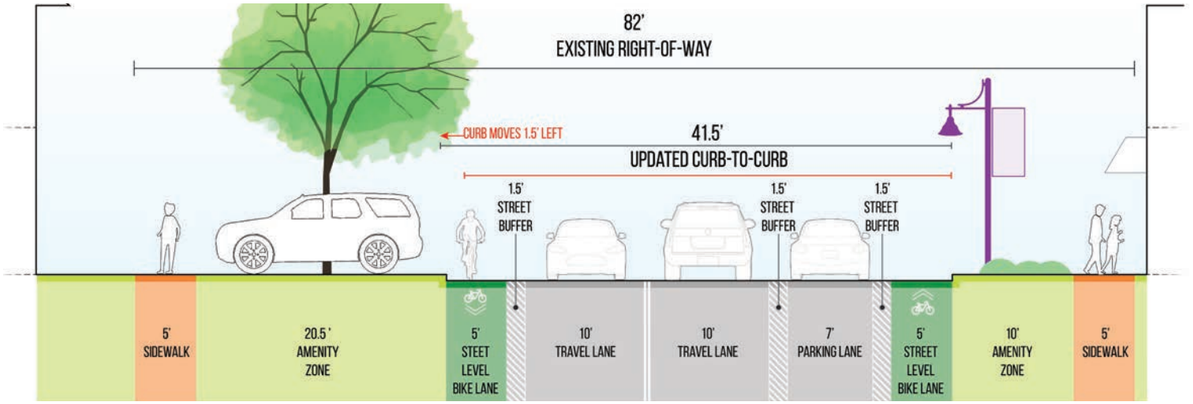
ALT 2 - CURBSIDE PARKING LANE OPTION



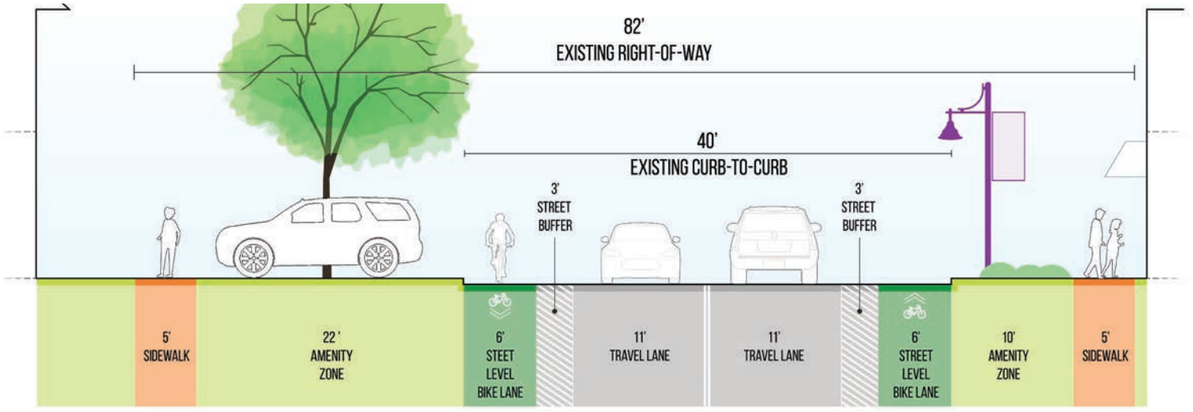
ALT 3 - CURBSIDE BIKE LANE OPTION



ALT 4 - FLOATING PARKING AND BUFFERED BIKE LANES



ALT 5 - IMPROVED SIGHT DISTANCE, NO PARKING



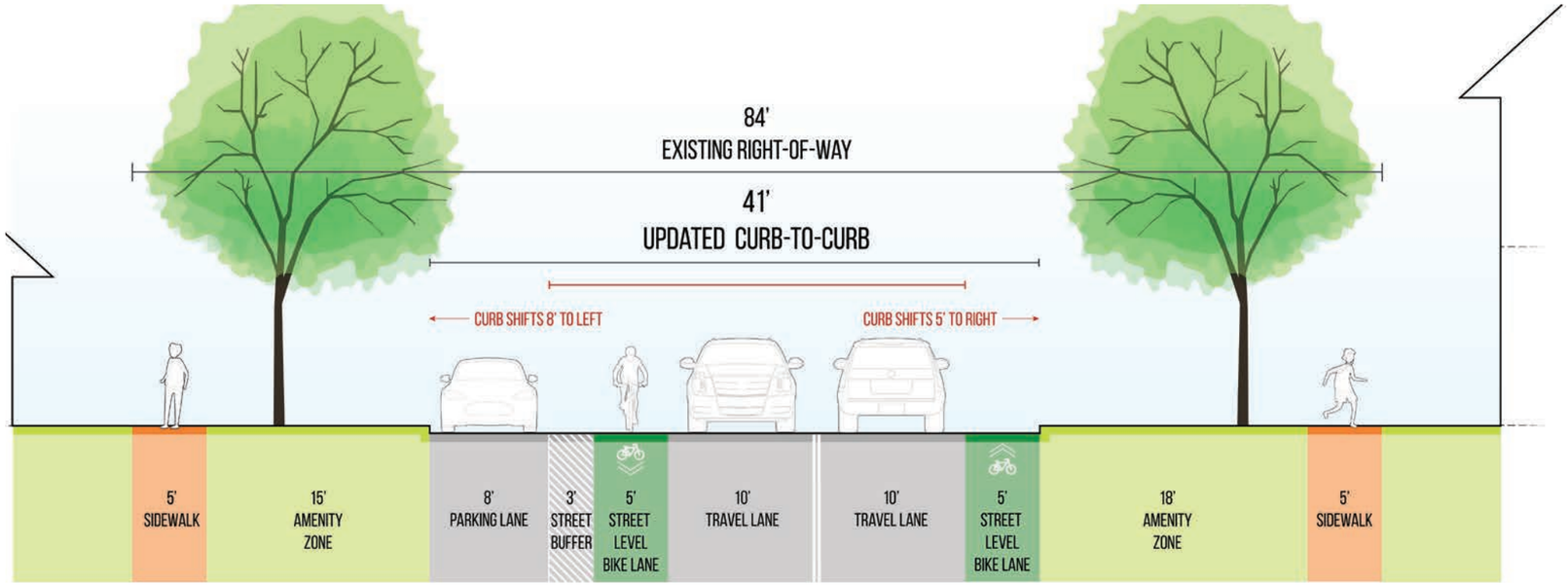
UPDATED S ETON ALTERNATIVES

SOUTH OF LINCOLN

UPDATED S ETON SOUTH ALTERNATIVES

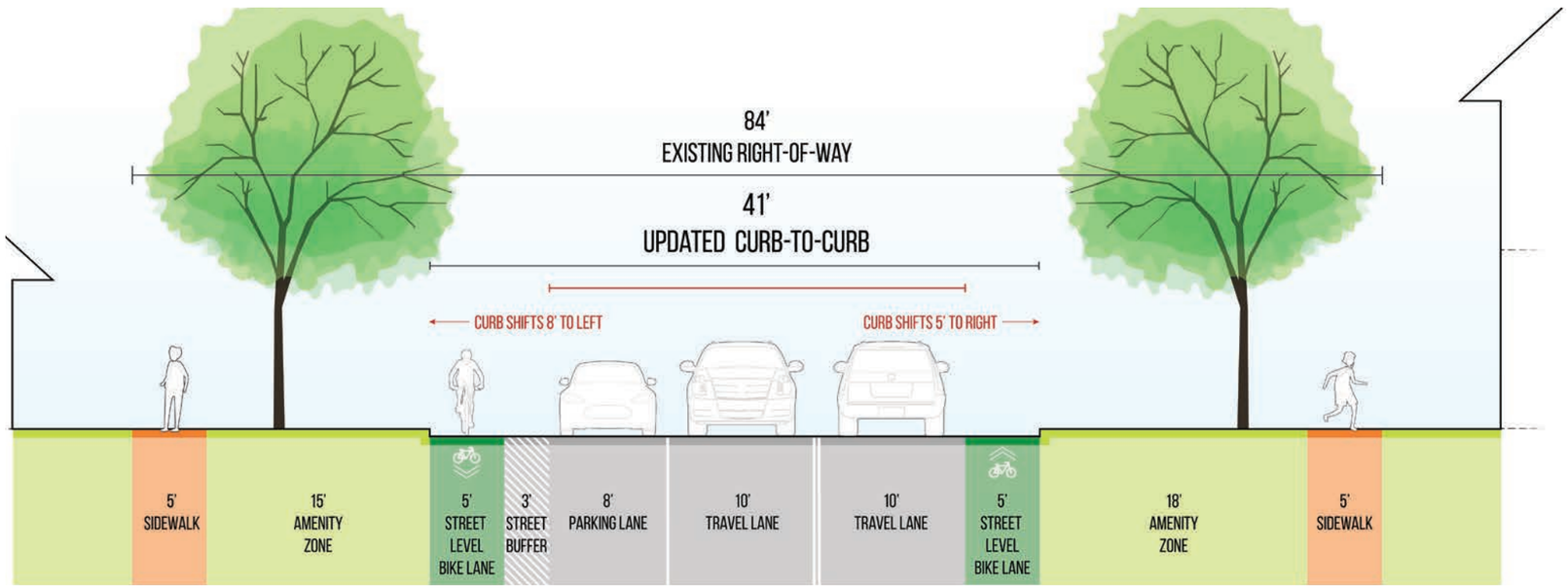
ALTERNATIVE 1

- Curbside Parking Lane Option
- On-street NB and SB bikes lanes with on-street parking along west curb
- Includes bumpouts built out at intersections
- Curb-to-curb extended from existing 28’ to updated 41’



ALTERNATIVE 2

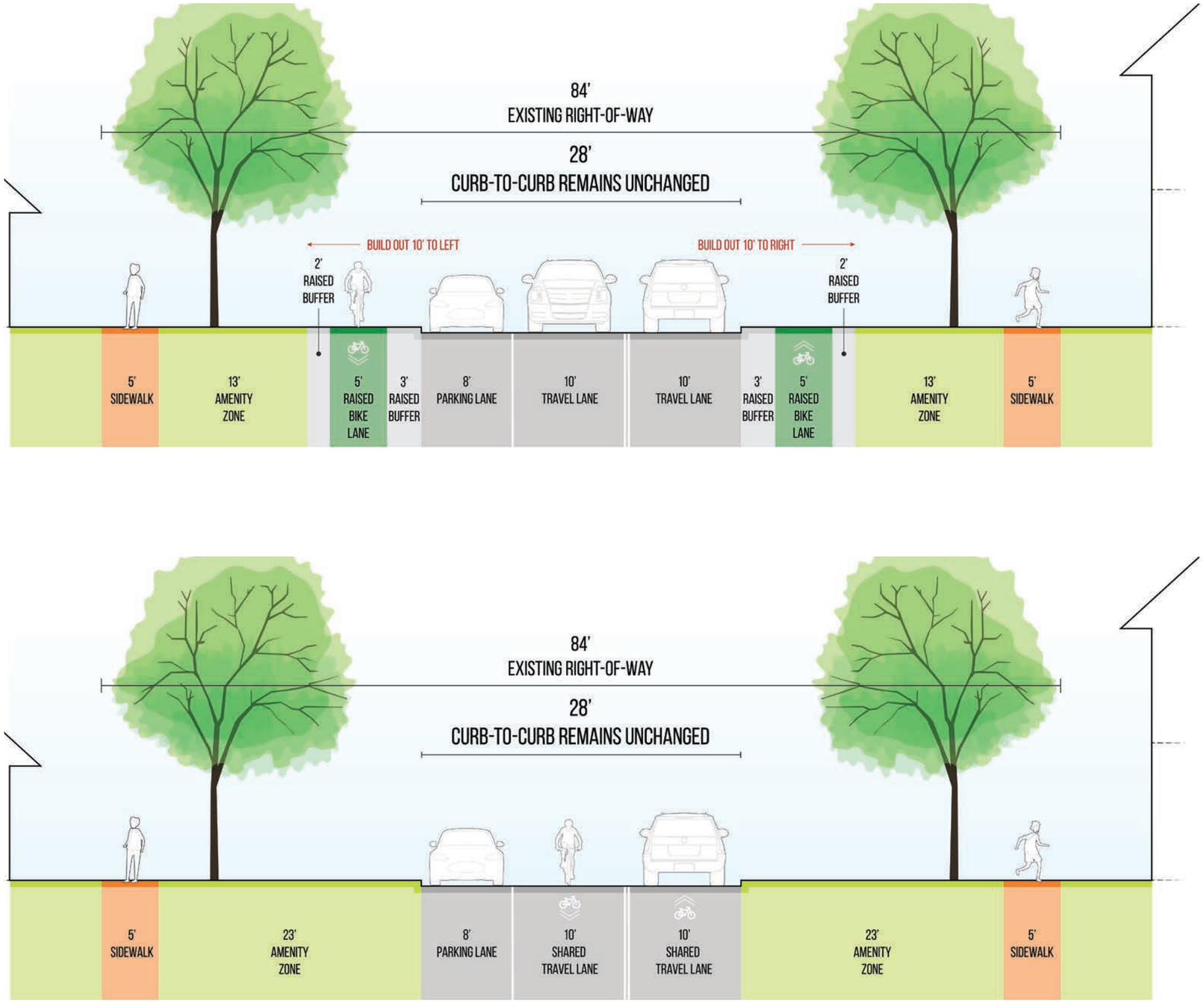
- Curbside Bike Lane Option
- On-street NB and SB bikes lanes with SB bike lane along west curb
- Includes bumpouts built out at intersections
- Curb-to-curb extended from existing 28’ to updated 41’



UPDATED S ETON SOUTH ALTERNATIVES

ALTERNATIVE 3

- Raised Bike Lane Option
- Raised NB and SB bike lanes
- Travel lanes and on-street parking lane remain unchanged
- Existing curb-to-curb remain unchanged
- Build out 10’ in each direction to fit raised bike lanes and buffers

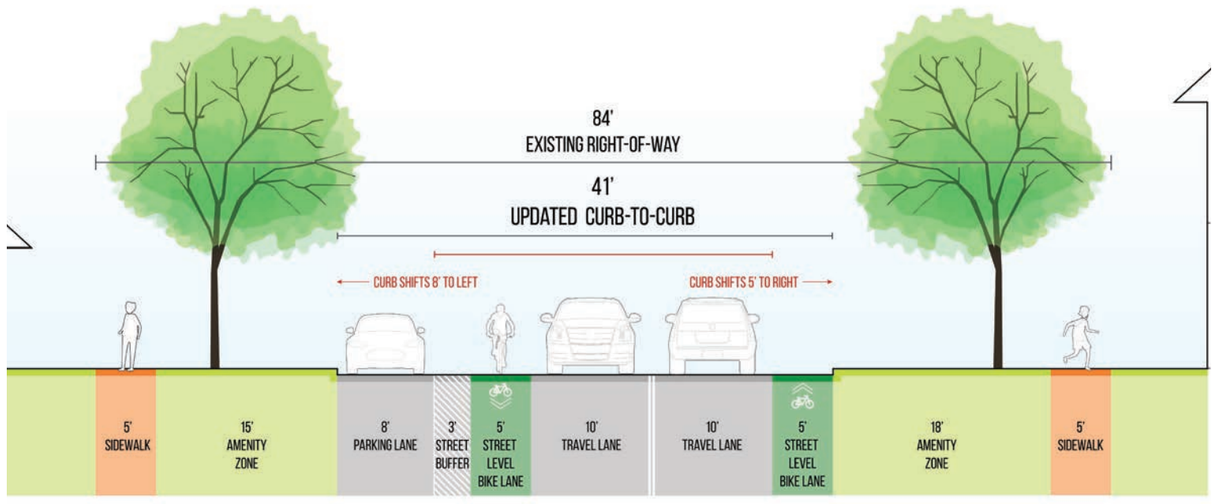


ALTERNATIVE 4

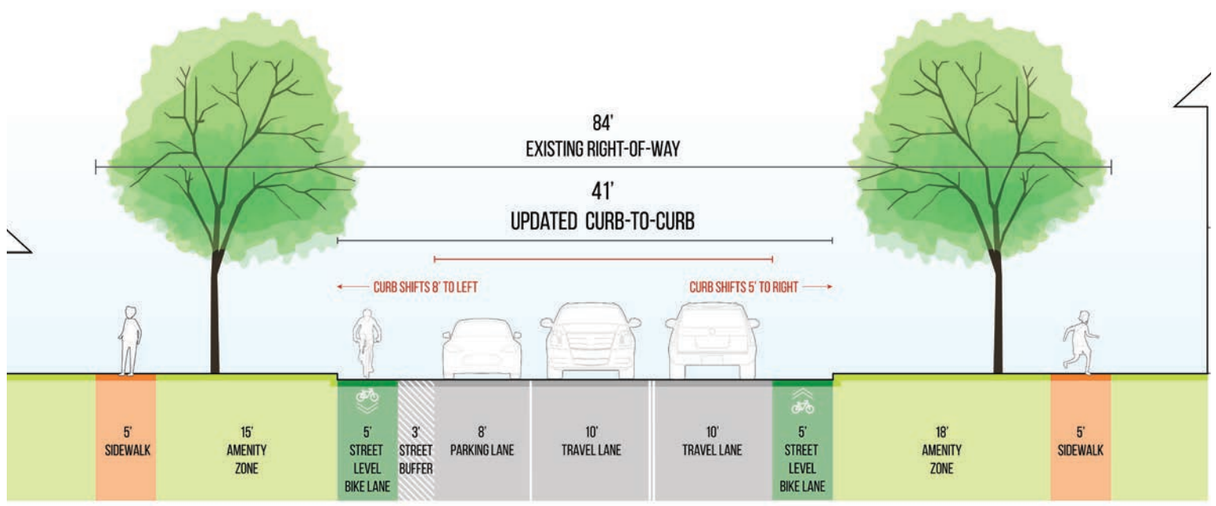
- Keep S Eton from Lincoln to 14 Mile as is, no change to infrastructure
- Add shared lane (sharrow) marking and signage along road
- Includes bumpouts built out at intersections
- Curb-to-curb remains unchanged

UPDATED S ETON SOUTH ALTERNATIVES

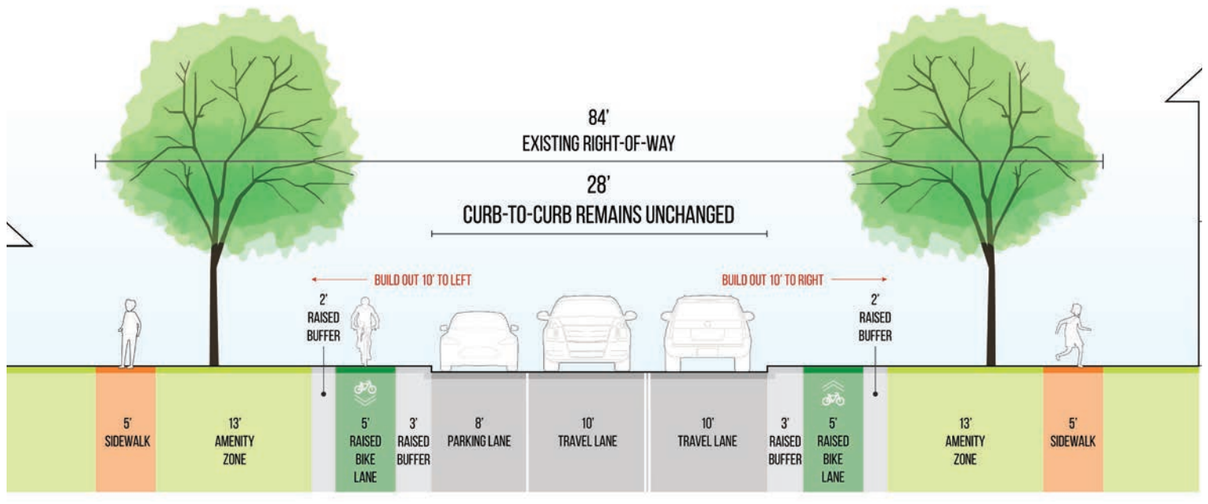
ALT 1 - CURBSIDE PARKING LANE OPTION



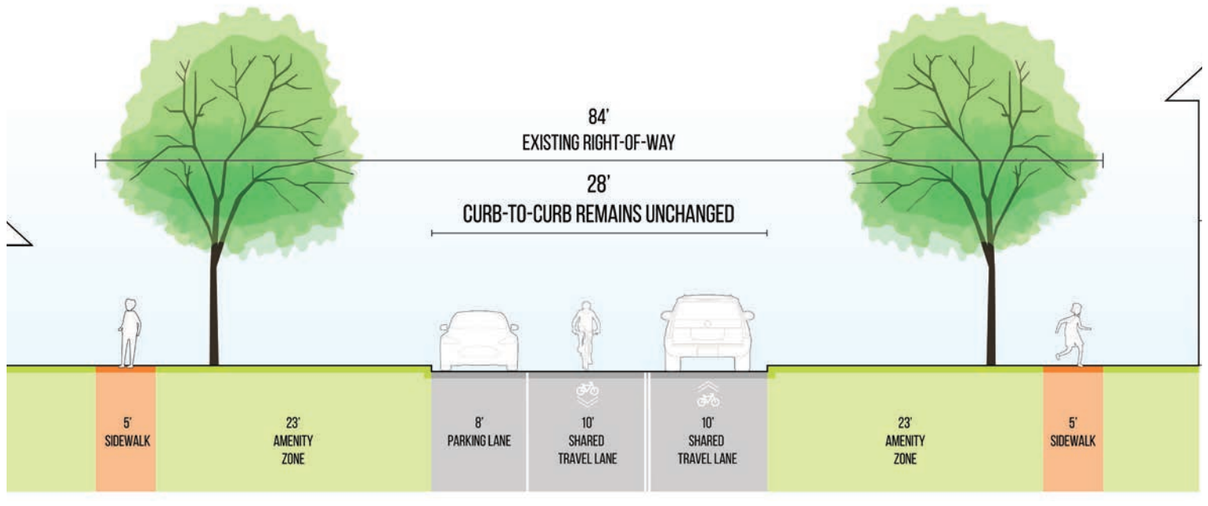
ALT 2 - CURBSIDE BIKE LANE OPTION



ALT 3 - RAISED BIKE LANES



ALT 4 - KEEP AS IS, ADD SHARROW MARKING/SIGNAGE



PROJECT SCHEDULE

2023 SCHEDULE

PUBLIC WORKSHOP #1

#1 - JANUARY

- Project introduction
- Present preliminary design alternatives
- Gather public input, identify ideas and concerns

MMTB BOARD REVIEW

#2 - WINTER/SPRING

- Multi-Modal Transportation Board (MMTB) to review alternatives
- Refine the alternatives per input and research

PUBLIC WORKSHOP #2

#3 - APRIL/MAY

- Present the refined alternatives
- Public Workshop #2
- Summary of Workshop Input
- Focus Groups or Individual Discussions
- Multi-Modal Transportation Board meeting May 4

CITY COMMISSION REVIEW

#4 - LATE SPRING/EARLY SUMMER

- Multi-Modal Transportation Board meeting June 1
- City Commission to review design plans
- Comments and possible approval
- Begin design of engineering plans

2024 SCHEDULE

FINAL ENGINEERING

#5 - LATE SPRING

- Meeting with individual property owners
- Final engineering plans

PUBLIC WORKSHOP #3

- Engineering plans are presented

PROJECT CONSTRUCTION 2024

#6 - SUMMER/FALL

- Construction begins
- On going communication with property owners

City of Birmingham
A Walkable Community

BIRMINGHAM CITY COMMISSION
REGULAR MEETING, JULY 11, 2011
RESOLUTION # 07-185-11

Present: Commissioners Dilgard, Hoff, McDaniel, Moore, Nickita, and Sherman
Absent: Mayor Rinschler

MOTION: Motion by Hoff, seconded by Dilgard:
To formally support the Complete Streets principles in the City of Birmingham:

WHEREAS, Complete Streets are defined as a design framework that enables safe and convenient access for all users, including pedestrians, bicyclists, transit riders, and drivers of all ages and abilities: and

WHEREAS, the Michigan Legislature adopted Public Acts 134 and 135 of 2010 to enact Complete Streets legislation that requires the Michigan Department of Transportation to consider all users in transportation related projects; and

WHEREAS, Complete Streets are achieved when transportation agencies routinely plan, design, construct, re-construct, operate, and maintain the transportation network to improve travel conditions for bicyclists, pedestrians, transit, and freight in a manner consistent with, and supportive of, the surrounding community; and

WHEREAS, development of multi-modal transportation infrastructure, including accommodations for pedestrian, bicycle, and transit riders, offers long-term cost savings by reducing costly infrastructure retrofits and opportunities to create safe and convenient non-motorized travel; and

WHEREAS, streets that support and invite multiple uses, including safe, active, and ample space for pedestrians, bicycles, and transit are more conducive to the public life and efficient movement of people than streets designed primarily to move automobiles; and

WHEREAS, increasing active transportation (e.g. walking, bicycling and using public transportation) offers the potential for improved public health, economic development, a cleaner environment, reduced transportation costs, enhanced community connections, social equity, and more livable communities; and

WHEREAS, existing City of Birmingham plans and policies already support principles that facilitate progress toward developing a network of Complete Streets consistent with the objectives of the Michigan Complete Streets legislation and with the practices promoted by the National Complete Streets Coalition; and

WHEREAS, Complete Streets principles have been and continue to be adopted nation-wide at state, county, MPO, and city levels in the interest of proactive planning and adherence to federal directives that guide transportation planning organizations to promote multi-modal transportation options and accessibility for all users; and

WHEREAS, the adoption of this Complete Streets Proclamation allows the City of Birmingham to remain competitive in the pursuit of future state transportation project funding.

NOW, THEREFORE, BE IT RESOLVED, that the City of Birmingham City Commission hereby declares its support of Complete Streets policies and further directs City staff to develop a set of proposed policies and procedures to implement Complete Streets practices to make the City more accommodating to all modes of travel, including walkers, bicyclists and transit riders, of all ages and abilities.

VOTE: Yeas, 6
Nays, None
Absent, 1 (Rinschler)

I, Laura M. Pierce, City Clerk of the City of Birmingham, do hereby certify that the above is a true and correct copy of a resolution adopted by the Birmingham City Commission at their regular meeting of July 11, 2011.

Laura M. Pierce
City Clerk

Commercial and industrial uses predominate the eastern frontage which also includes neighborhood commercial uses. There is a continuous sidewalk along the western side of Eton Road that accommodates pedestrian access throughout the residential neighborhood and provides a connection to neighborhood businesses on the west side of the road. The east side of Eton Street consists of a discontinuous sidewalk system that is non-existent in some areas and interrupted by private parking within the ROW in other areas. A more pedestrian-friendly environment consisting of a unified sidewalk and streetscape system would enhance pedestrian circulation and provide improved access to neighborhood businesses on the east side of Eton Street.

Bicycle Circulation

A designated bike route runs along the west side of the corridor. This route is part of a regional bike path system that connects bike traffic from the west on Lincoln to Eton north of Maple. The addition of bike traffic within the Eton Road Corridor creates the potential for unsafe conditions and additional traffic conflicts. Eton Road lies within a ROW that ranges from 50 feet between Maple Road and Villa Road to 80 feet between Villa Road and Lincoln Drive. The current pavement width is 43 feet which accommodates two lanes of traffic with parking on both sides of the street. This dimension is sufficient to accommodate traffic safely and efficiently in this area provided that proper channelization and separation of vehicle, pedestrian, and bicycle traffic is provided.

The industrial and service uses that predominate the area are located on small sites with limited parking facilities. In many cases, property owners have paved their entire property and portions of the ROW to provide additional parking, detracting from the appearance of the area. On street parking and shared parking are heavily relied upon within the area.

In order to enhance the development potential of the sub-area, improved access to the property within the sub-area must be provided. Map 8 illustrates how this can be accomplished by developing one or two possible road configurations. The Eton Road Sub-Area Plan (Map 9) further illustrates how these connections can be made to connect the uses within the sub-area.

One road could intersect with Eton Road at Villa, south of the two existing Erb Lumber office buildings, run east and then southeast to intersect the eastern end of Cole. Holland and Cole should be improved and extended to intersect the proposed road. The proposed road would be parallel to the CN Railroad tracks and provide access to businesses as well as a buffer between the tracks and the businesses.

A second road configuration could be one that intersects Eton Road at Hazel Road. This road would also provide east/west access within the sub-area. In addition, it would provide access to a second north/ south road that provides access through the north half of the sub-area from Hazel to Holland. This road would also provide significant opportunities for development within the district.

Each of these internal road configurations would provide improved access to the property within the sub-area and would facilitate future development. These alternative layouts will also provide improved access and visibility to the Amtrak station which is currently only accessible through a series of private access easements. New roads should be developed according to the standards of the City's Engineering Department in conjunction with future development proposals as they are submitted for City approval.

Direct access to Eton Road should be limited on the east side of the street and access drives serving new development should align with existing roads. Residential driveways directly accessing Eton Road should also be eliminated, if possible, to reduce the potential for vehicular conflict caused by vehicles backing out onto Eton Road.

As stated earlier, Eton Road is an important link in a regional urban bike route system. The current pavement width is more than adequate to accommodate a designated bike lane. Bicycle lanes provide dedicated space and increase motorist's awareness that bicyclists are welcome and encouraged on roadways, reducing the potential for conflicts.

3.3 ROAD CROSSING IMPROVEMENTS

DESCRIPTION

Road crossing improvements are needed in areas where there is demand to cross by pedestrians and/or bicyclists. These areas occur where a bike route crosses a collector or arterial road, a major bus stop or bus shelter is present, there is a long distance between crosswalks, or there is a high demand based on land use and population density.

There are many different types of countermeasures that can be used to improve the safety and visibility of pedestrians at crosswalks. Traffic speeds, traffic volume, number of lanes and location of the crossing in context to the surrounding land use will dictate what type of crossing improvement is appropriate for a specific location. In some instances the improvements are as simple as adding high visibility crosswalk markings and in others signalization may be needed.

For the most up-to-date guidelines please refer to all Chapters of the *MUTCD* and Chapter 3 & 4 of AASHTO's *Guide for the Planning, Design and Operation of Pedestrian Facilities*.

RECOMMENDATIONS

The exact solution for every crossing has not been determined; rather, the location and recommended countermeasure has been identified. Please note that these are initial recommendations and that each crossing needs to be studied further prior to implementation. Please refer to the Network Implementation Plan for specific recommendations on near-term crossing improvements.

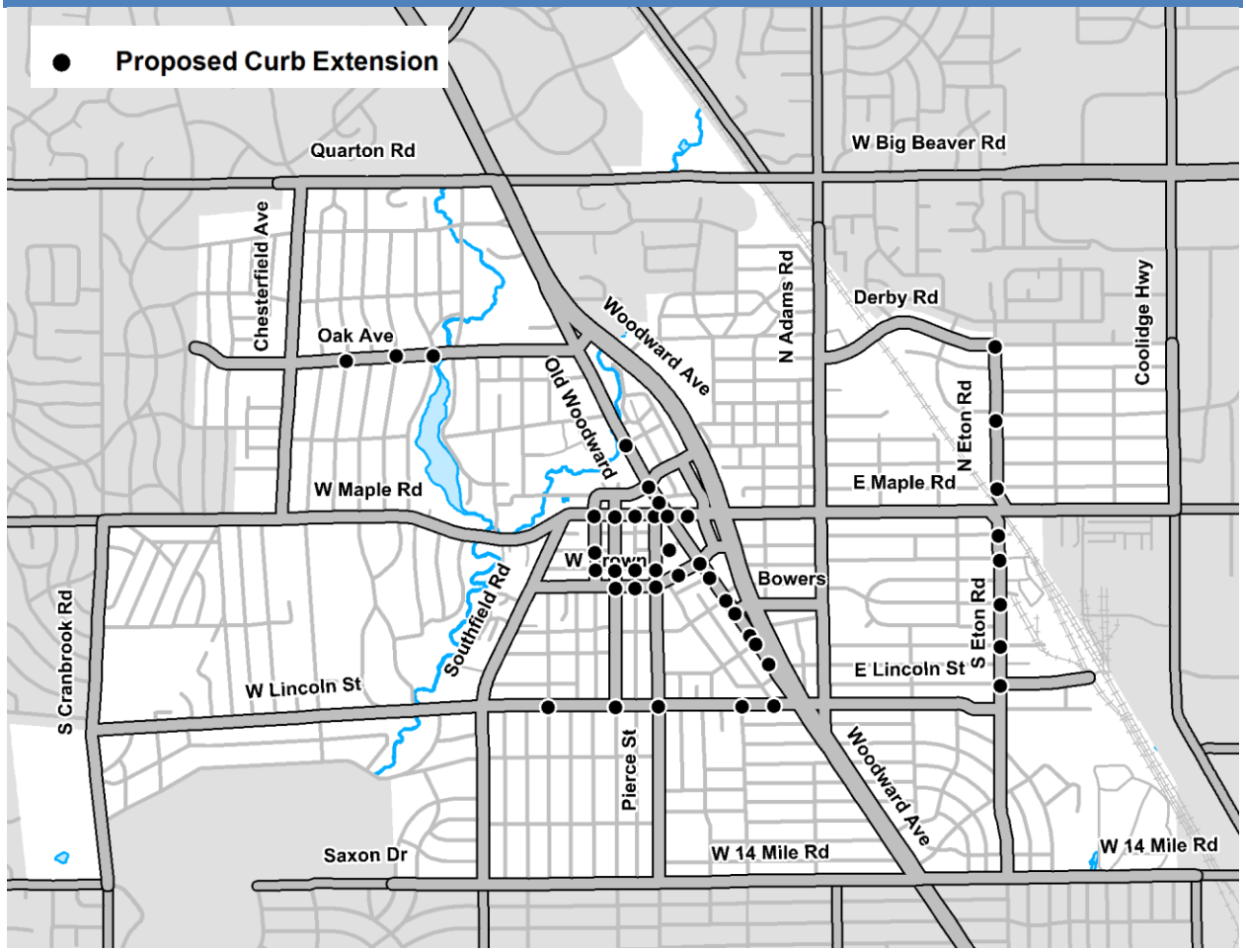
At signalized intersections it is recommended that leading pedestrian signals and signal countdowns be implemented.

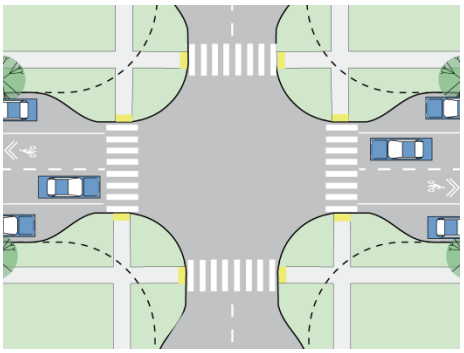
Please refer to Fig. 3.3A, 3.3B and 3.3C for maps of the proposed crossing improvements.

Web Survey Results:

- Around 61% of respondents feel that mid-block crosswalks are very important or somewhat important to making future walking and bicycling trips actually happen

FIGURE 3.3A CROSSING IMPROVEMENTS – CURB EXTENSIONS

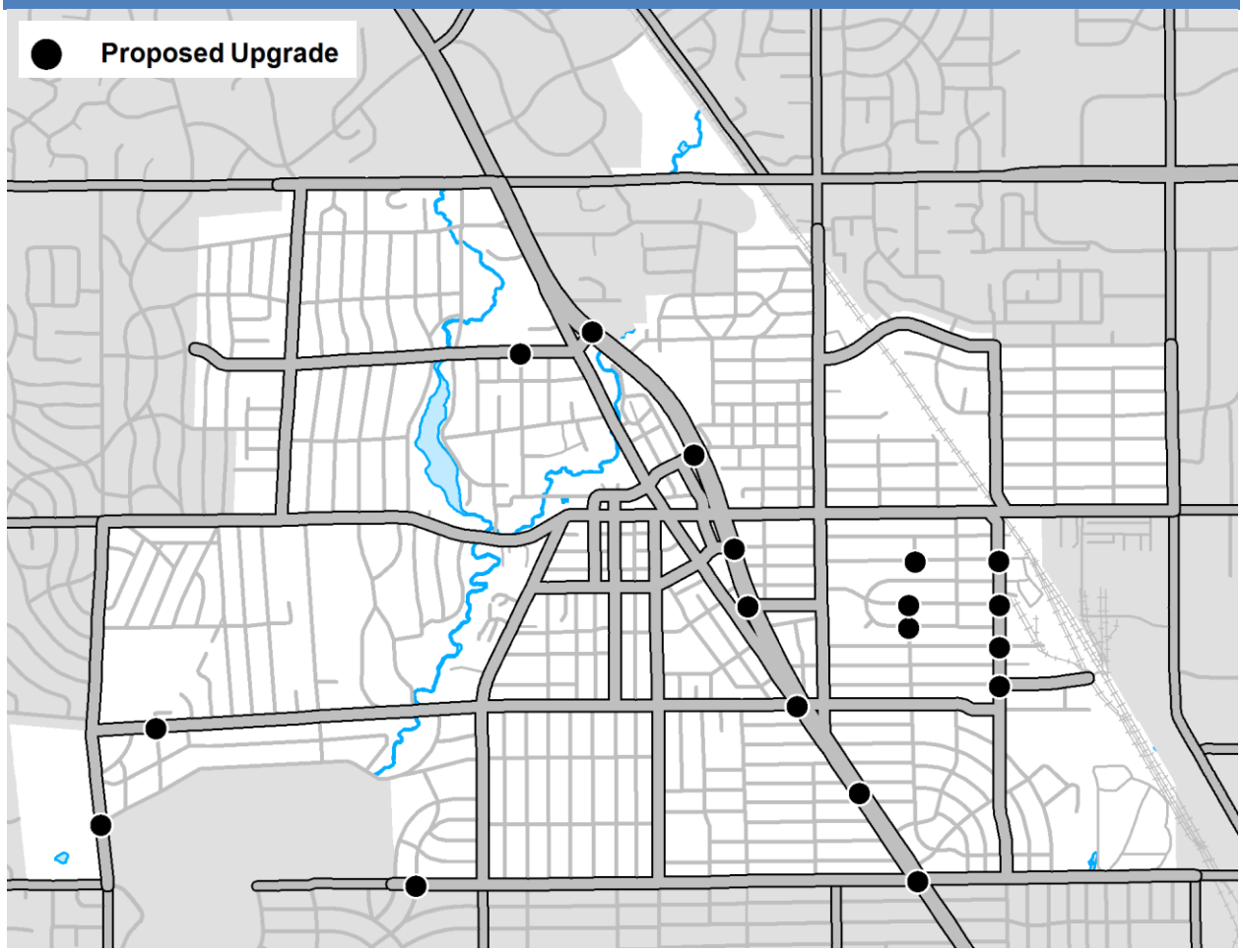




42 CURB EXTENSIONS ARE PROPOSED

- Curb Extensions reduce the effective street width by extending the sidewalk or curb into the parking lane
- Curb Extensions shorten the pedestrian's crossing distance and increase visibility between pedestrians and motorists
- Curb Extensions create small curb radii that control traffic speeds around corners
- Curb Extensions reduce the effective street width which encourages motorists to drive slower
- When curb extensions are used on a road with bike lanes, the bike lane continues past the curb extension
- Landscaping may be incorporated

FIGURE 3.3C PROPOSED CROSSING IMPROVEMENTS – UPGRADES



18 ROAD CROSSING UPGRADES ARE PROPOSED

Many of the proposed improvements include upgrades such as ramps, detectable warnings, pedestrian signals, and high visibility crosswalk markings.

Please refer to the Network Implementation Plan and Special Area Concept Plans for more details.

3.4 BIKE LANES

DESCRIPTION

Bike lanes are a designated space in the roadway for bicyclists to travel with the flow of traffic. Pavement striping, markings and signage are used to delineate the lane. A striped bicycle lane or designated paved shoulder within the roadway is usually the safest place for a cyclist to ride.

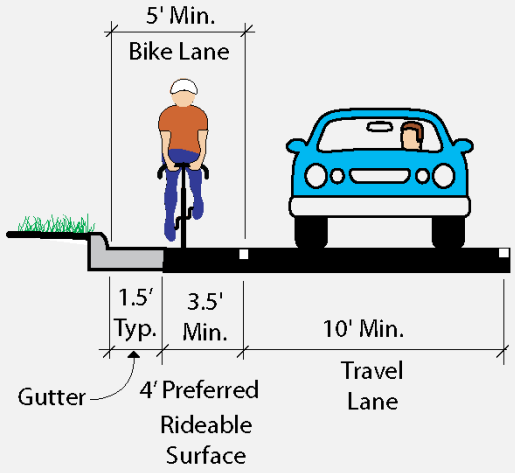
For the most up-to-date guidelines please refer to Chapter 9 of the *MUTCD*, Chapter 4 of AASHTO's *Guide for the Development of Bicycle Facilities*, and the Bike Lane section of NACTO's *Urban Bikeway Design Guide*.

RECOMMENDATIONS

There is potential to add bike lanes on a number of the primary roads in the near future as part of CIP projects and by simply re-striping the roadway. Please refer to the Network Implementation Plan for more details.

For some roadways, the cost to add bike lanes independent of a road reconstruction project would be significant. Thus, to maximize the impact of finite resources, long-term improvements are expected to be implemented when a road is completely reconstructed (not just resurfaced). Eventually, bike lanes should be added to all arterial and collector roadways and significant local roadways. Generally roads with ADTs below 3,500 vehicles per day do not require bike lanes.

Bike Lane Guidelines:



Please note that minimum widths are displayed; 7' Bike Lanes and 11' Travel Lanes are the recommended width whenever possible.

Please refer to Fig. 3.4A for a map of the proposed bike lanes.

3.5 BUFFERED BIKE LANES

DESCRIPTION

Buffered bikes lanes are conventional bike lanes paired with a designated space separating the bicycle lane from the motor vehicle lane. Similar to bike lanes, bicyclists travel with the flow of traffic. Pavement striping, markings and signage are used to delineate the lane.

When the buffer area between the bike lane and motor vehicle lane has a physical barrier, such as curbs, the facility is called a cycle track.

For the most up-to-date guidelines please refer to Chapter 9 of the *MUTCD*, Chapter 4 of AASHTO's *Guide for the Development of Bicycle Facilities*, and the Buffered Bike Lane section of NACTO's *Urban Bikeway Design Guide*.


Buffered Bike Lanes


Cycle Track

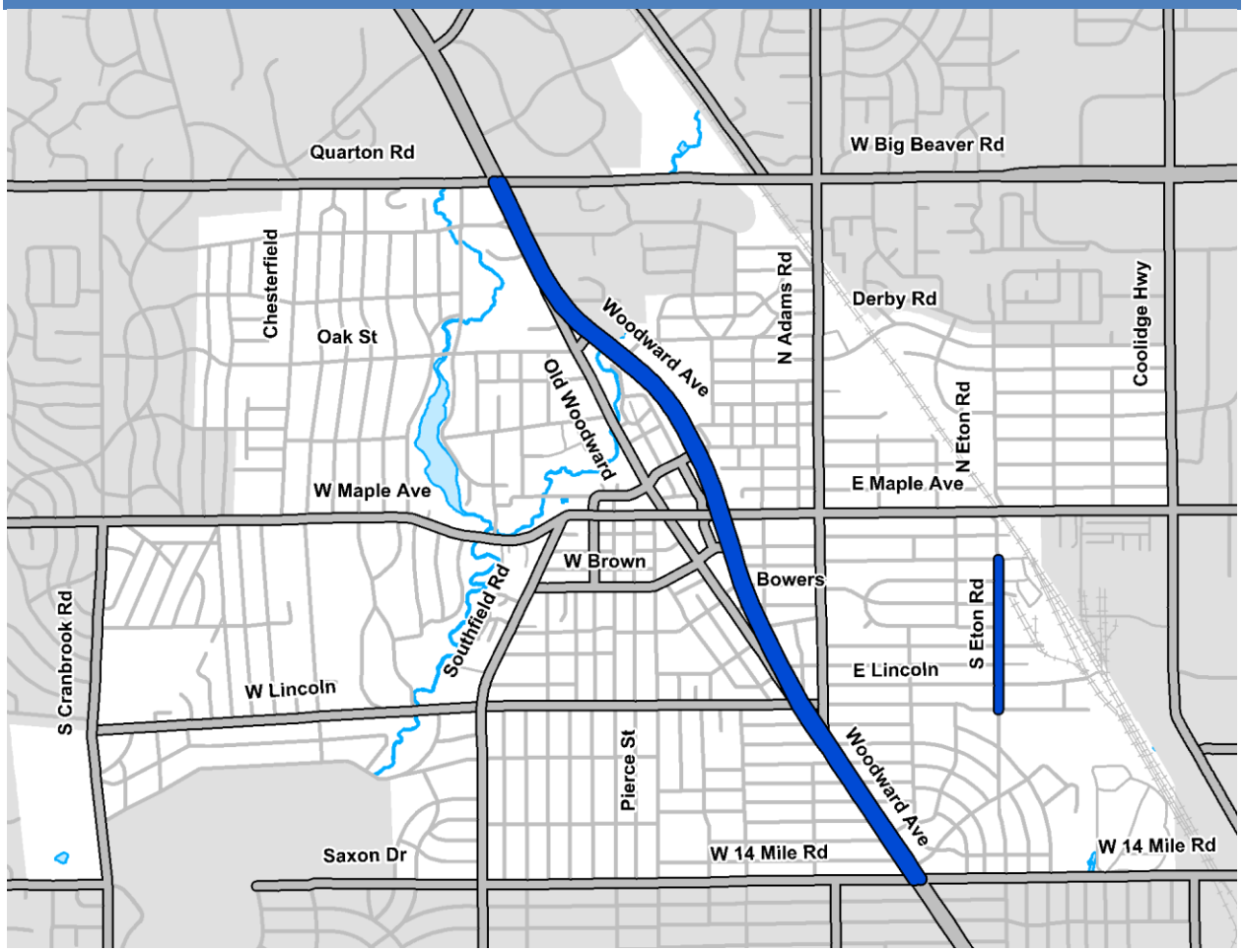
RECOMMENDATIONS

On S. Eton Road between W. Maple Road and W. Lincoln Street there is potential to add buffered bike lanes to the west side of the road by removing on-street parking from that side of the street. Due to the proximity of the Rail District, parking would remain on the east side of the street. See the Network Implementation Plan for more details.

There is potential to enhance the bicycle and pedestrian environment along Woodward Avenue. Bike lanes could be added to the service drive with a curbed buffer area between the bike lane and Woodward Avenue. Please refer to the Special Area Concept Plans for more details.

Please refer to Fig. 3.5A for a map of the proposed buffered bike lanes.

FIGURE 3.5A PROPOSED NEAR-TERM BIKE LANES



Buffered Bike Lanes

Proposed

APPROXIMATELY 2.8 MILES OF BUFFERED BIKE LANES ARE PROPOSED

Web Survey Results:

- Around 75% of respondents would be comfortable riding a bike on a cycle track

3.6 SHARED LANE MARKINGS

DESCRIPTION

Shared Lane Markings are used to indicate to bicyclists a recommended lane position and to indicate to motorists to expect bicycles. They are used on roads with speeds of 35 mph or less. Shared lane markings may be used to help position bicyclists a safe distance from parked cars (so that they do not run into opening car doors). They are also used in conjunction with bike lanes where the bike lane is discontinued for a stretch of roadway due to limited road width.

Colored Shared Lane Markings are Shared Lane Markings placed on top of a continuous green lane. They should be used in areas where a higher level of visibility is desired.

For the most up-to-date guidelines please refer to Chapter 9 of the *MUTCD*, Chapter 4 of AASHTO's *Guide for the Development of Bicycle Facilities*, and the Bikeway Signing & Marking section of NACTO's *Urban Bikeway Design Guide*.

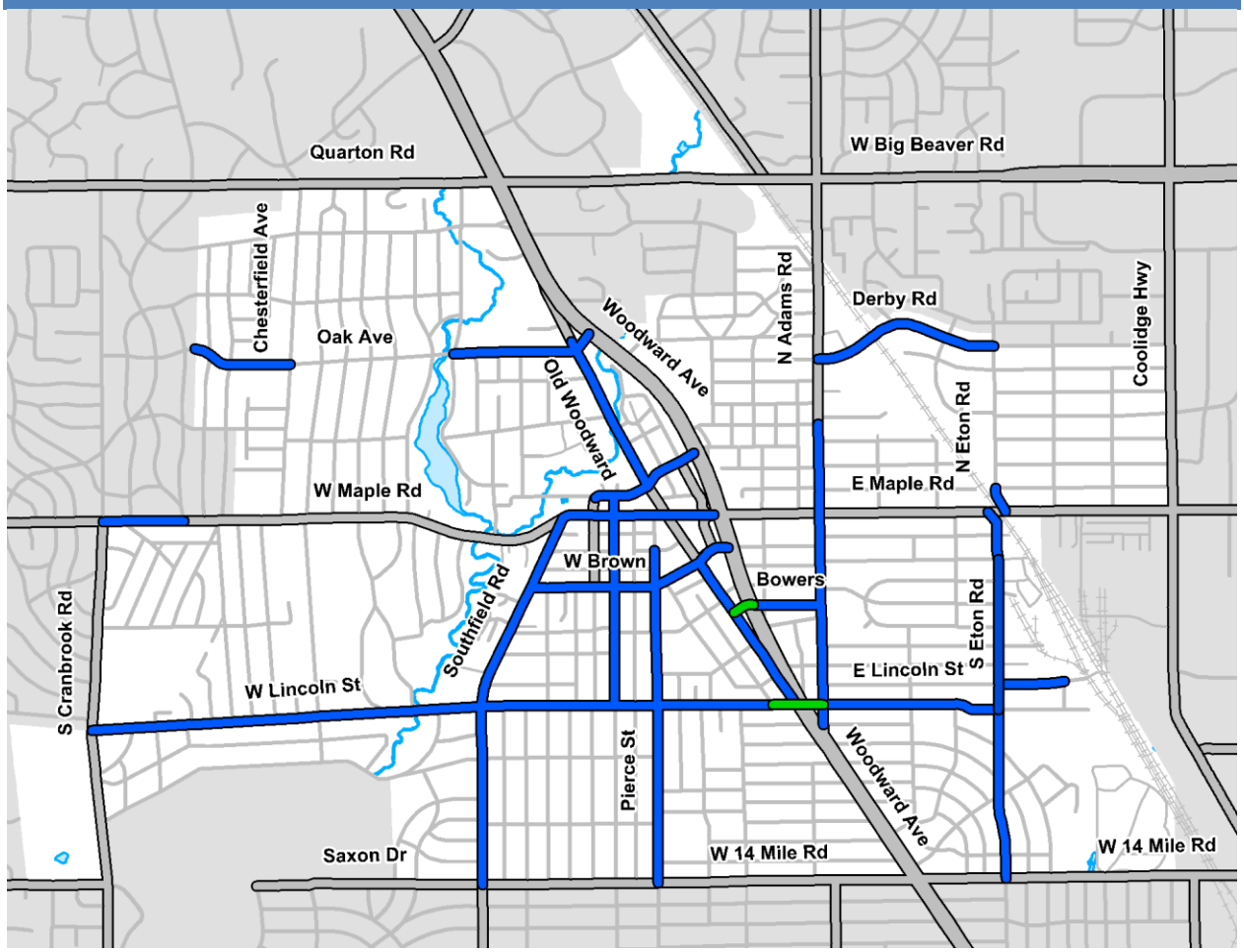
RECOMMENDATIONS

Due to the desire to keep on-street parking, Shared Lane Markings are proposed on most collector roads and some arterial roads. Please refer to the Network Implementation Plan for more details.

Colored Shared Lane Markings are proposed on segments of Bowers Street and E Lincoln Street where they cross Woodward Avenue. Please refer to the Network Implementation Plan and Special Area Concept Plans for more details.

Please refer to Fig. 3.6A for a map of the proposed shared lane markings.

FIGURE 3.6A PROPOSED SHARED LANE MARKINGS



Shared Lane Markings

- Proposed Shared Lane Markings
- Proposed Colored Shared Lane Markings

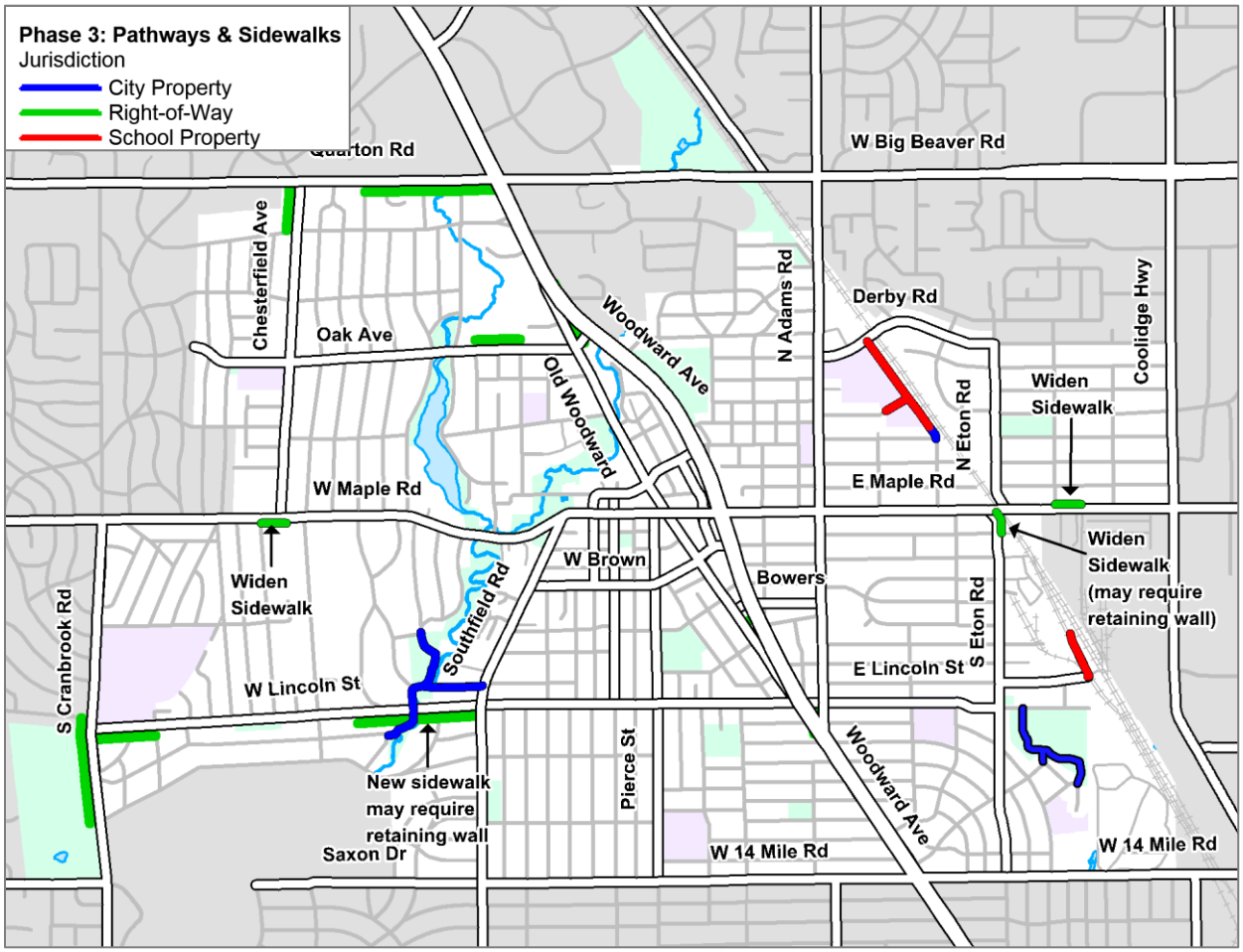
APPROXIMATELY 10.7 MILES OF NEW SHARED LANES MARKINGS ARE PROPOSED AND 0.2 MILES OF COLORED SHARED LANE MARKINGS ARE PROPOSED

PHASE 3: RECOMMENDED PATHWAYS & SIDEWALKS

Phase 1 and Phase 2 focus on addressing some of the more critical gaps in the sidewalk system. Phase 3 should focus on completing the remaining gaps in the system. Completing sidewalk gaps can be costly so it is important to utilize opportunities, especially when a road is reconstructed or a property is developed.

The remaining sidewalks and pathways are on City property, school property or in the road right-of-way.

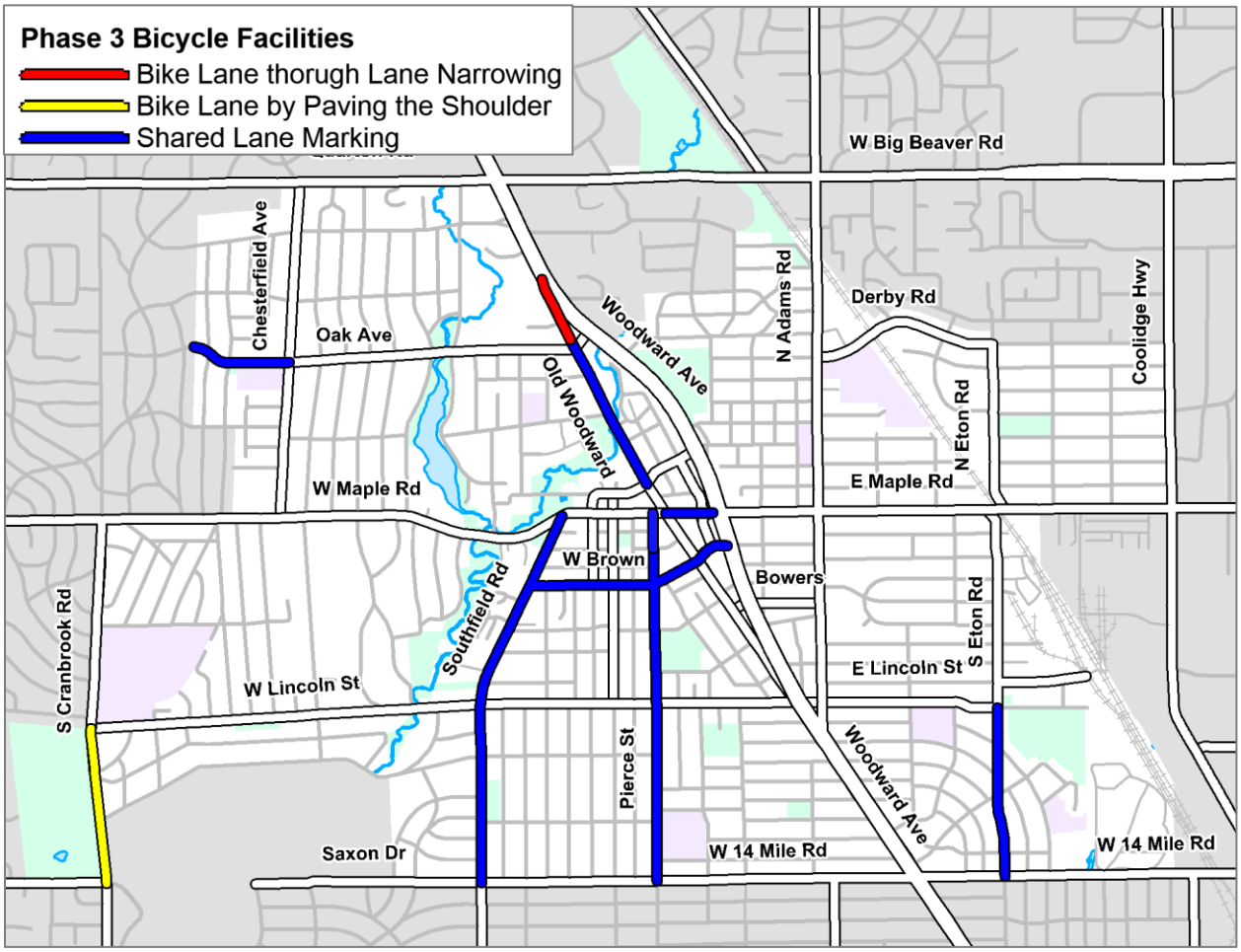
In the future, whenever a site is redeveloped, non-motorized connections should be provided either as a sidewalk along a roadway with bike lanes or a shared-use pathway.



PHASE 3: RECOMMENDED BICYCLE FACILITIES

With the exception of paving the shoulder on S Cranbrook Road, the remainder of the proposed bicycle facilities can be implemented quite easily within the existing roadway with pavement markings.

With time, as bicycle levels increase there may be a desire to add a designated bike lane in place of shared lane markings. For many of the roadways this would mean removing on-street parking or widening the roadway. Where the removal of on-street parking is not an option or not desired, the cost to add bike lanes to the roadway independent of a road reconstruction project would be significant. Thus to maximize the impact of finite resources bicycle lanes should be implemented when the road is completely reconstructed.



Recommendation 3: Bicycling on S. Eton

Accommodate

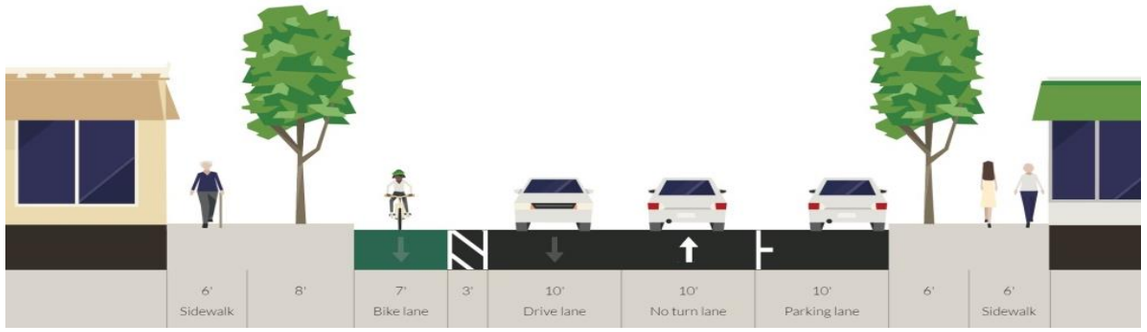
Issues: There are a significant number of bicyclists who traverse along S. Eton Road. The current road conditions in the Rail District are not favorable to those travelling by bike because no demarcation exists between the parking lanes and the driving lanes. Suggestions have been made to organize the street in order to make conditions safer for cyclists.

As shown in the picture above, a bicyclist rides through a narrow stretch of S. Eton where cars are parked on both sides. Bicyclists in the Corridor currently share lanes with vehicle traffic.

Recommendations: Add a bike lane or sharrows and buffers to S. Eton from Yosemite to 14 Mile. See illustrations to the right for design options.

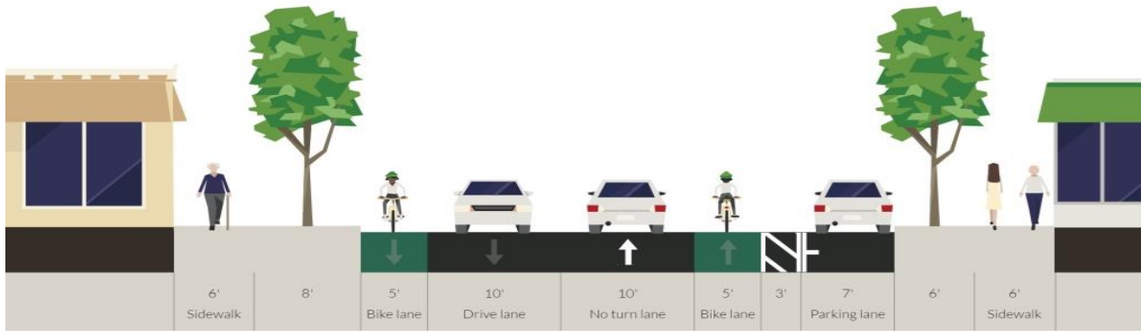
Bike lanes are designated areas on a road that run alongside the flow of vehicle traffic. While it is common to channel on-street bicyclists using a single line to divide the street lane, there are other popular types of lanes that offer more protection and take up less space on the road. One type is a buffered lane that provides additional separation between the road and designated lane. Another type is a shared lane or "sharrow", which can comfortably accommodate bikes on street without a designated lane.

Recommendations:



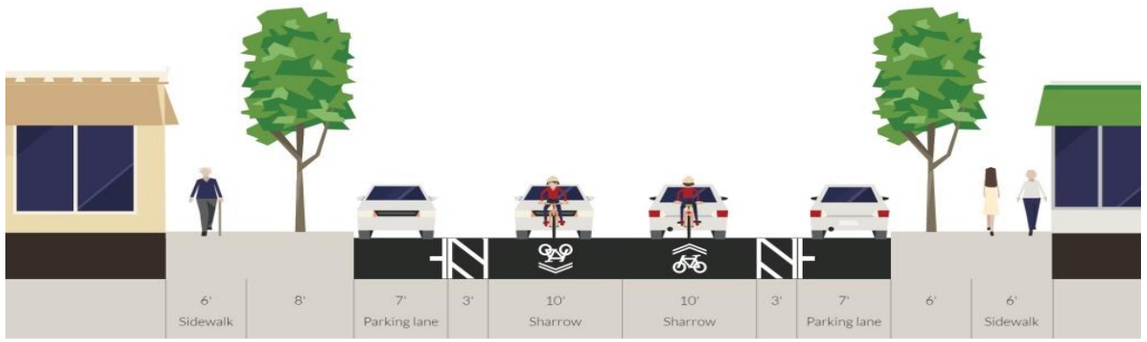
Design Option 1: Multi-Modal Transportation Plan

- Add 7' Southbound Bike Lane – 3' Buffer – 2x10' Driving Lanes – 10' Parking Space
- Remove on-street parking on west side of S. Eton



Design Option 2: Northbound & Southbound Bike Lanes

- Add 5' Southbound Bike Lane – 2x10' Driving Lanes – 5' Northbound Bike Lane, 3' Buffer – 7' Parking Space
- Remove on-street parking on west side of S. Eton



Design Option 3: Sharrows and Buffers

- Mark 7' Parking Space – 3' Buffer – 2x10' Driving Lane – 3' Buffer – 7' Parking Space

Recommendations

The following recommendations are offered by the Ad Hoc Rail District Committee.

Recommendation 1: Improve Pedestrian Crossings

Issues: Some crosswalks and intersections along S. Eton Road are dangerous due to the lack of visibility they create for pedestrians attempting to cross the street. Traffic is heavy and often exceeds the posted speed limit.

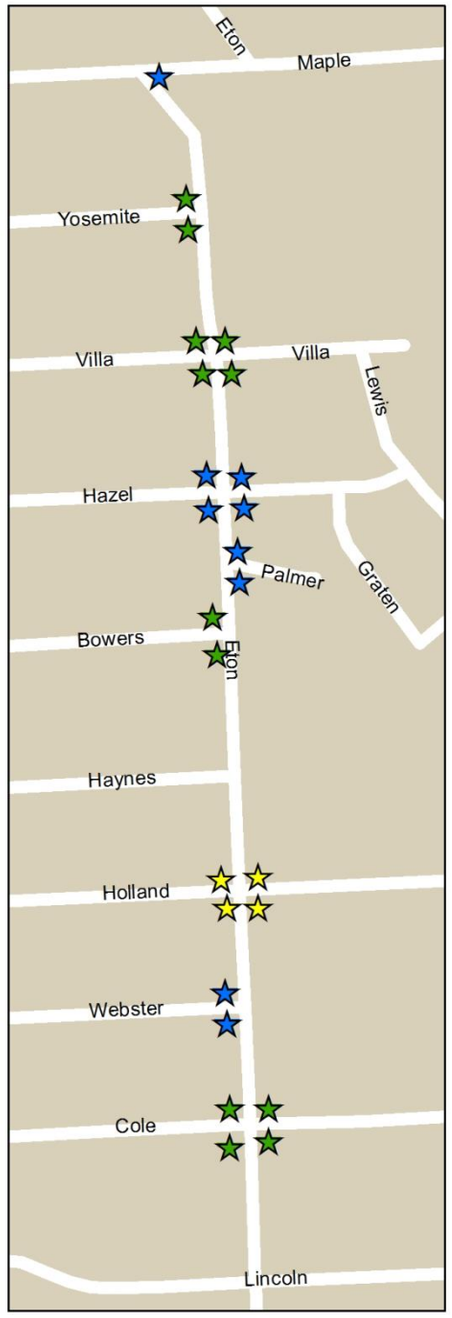
Recommendation: Construct bump-out curbs throughout the study area.

A bump-out curb is a traffic calming method in which a sidewalk is extended to reduce the crossing distance at intersection. In doing so, sight distance and sight lines for pedestrians are improved, vehicles are encouraged to slow down, and parked cars are prevented from obstructing crosswalk areas.

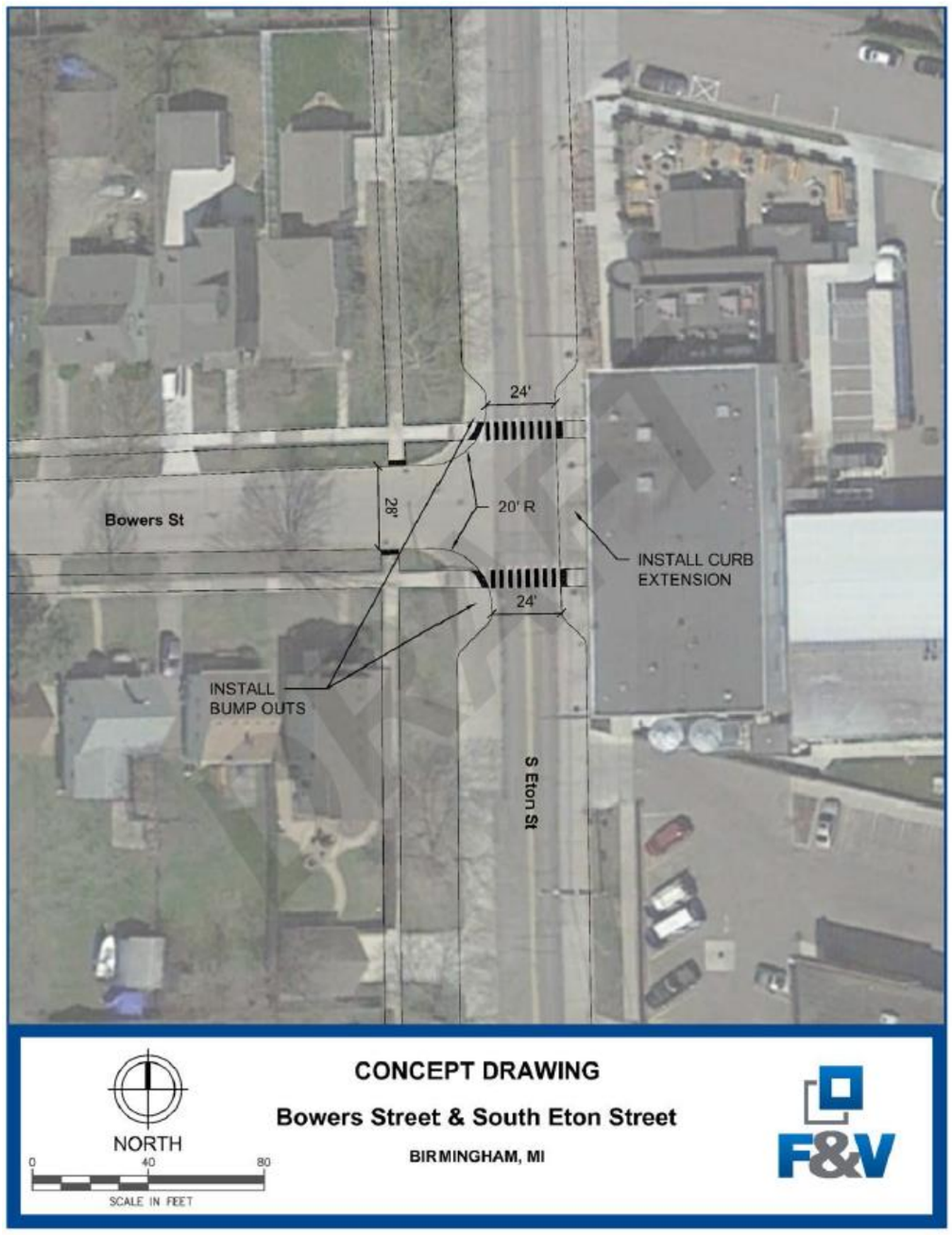
The map to the right illustrates the locations for each of the recommended bump-out curbs along S. Eton. Bump-out curbs recommended by the Committee, which are denoted by a blue star, are located along S. Eton at E. Maple, Palmer, and Webster. Green stars indicate bump-out curbs recommended explicitly by the MMTP and are located at Yosemite, Villa, and Cole. Lastly, bump-out curbs recommended by both the Committee and MMTP have been proposed for the intersection at Holland and S Eton and are denoted by a yellow star.

Please also note the sample engineering drawing of proposed improved pedestrian crossings at Bowers and S. Eton. As demonstrated, the installation of two bump-out curbs and a curb extension at this intersection could provide a safer, more visible pedestrian crossing point without obstructing right and left turn accessibility for vehicles. The Committee further recommends the use of brick pavers or other materials to create a plaza feel at this intersection. Benches, planters, and bicycle parking are also recommended.

Proposed Bump-out Locations



Sample Engineering Drawing of Bump-out Curbs



Parking Inventory and Study

A Parking inventory was completed in the study area for a better understanding of when and where parking spaces are being utilized. A map of total spaces was created for private lots and on street parking. The results are illustrated in Figure 1, and show an existing parking count of 2,480 spaces in the study area and surrounding neighborhood.

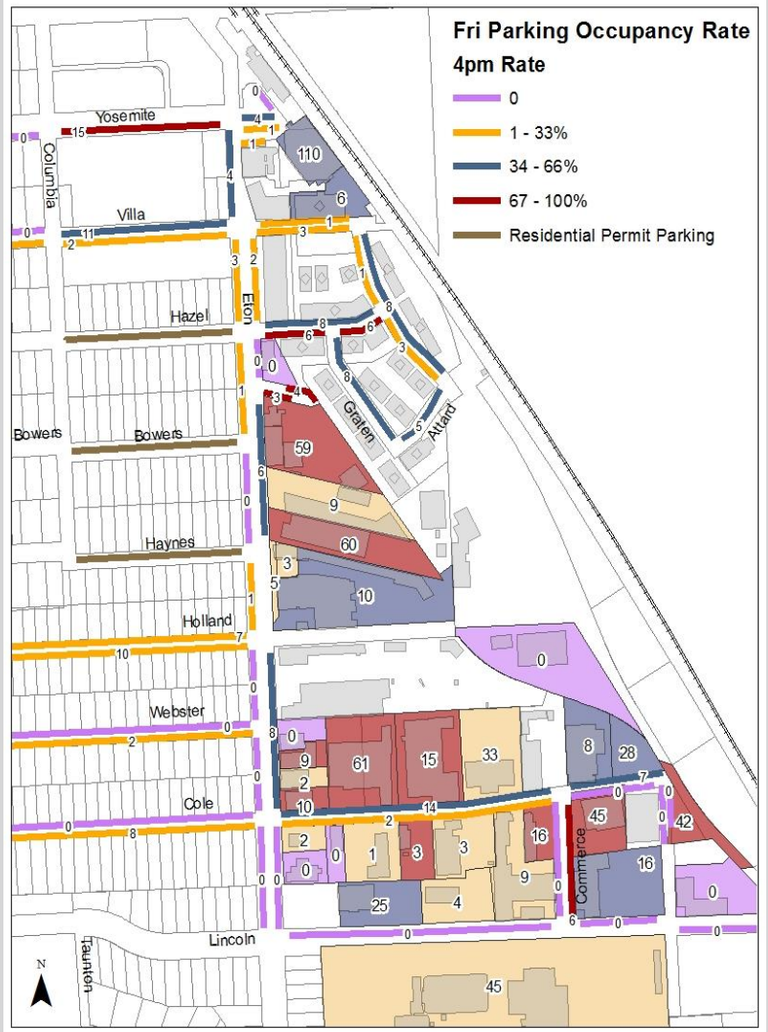
A parking study was also completed to determine parking utilization in the study area. Parking counts were conducted by city staff at 4, 5, and 6pm on Friday September 23rd and Wednesday September 30th, and the data was then analyzed.

The consulting firm Fleis and Vandenbrink was contracted to create a report for the count studies and provide summary tables showing available spaces, occupied spaces, and percent occupancy rate for the north and south zones of the study area. An analysis and conclusion based upon the findings was then made for off street and on street parking situations in each of the zones.

Count data was then entered into a map for each day and time of the study. The maps on the following pages indicate the total counts for each hour of on street and off street parking spaces, and color code the percent occupancy rate in classes for 0, 1-33%, 34-66%, and 67-100%. These maps are shown side by side to visually illustrate the intensities of parking in the district, and how the parking occupancy rates change from 4-6pm in the study area.

Figure 1

Friday Parking Count: 4:00 PM

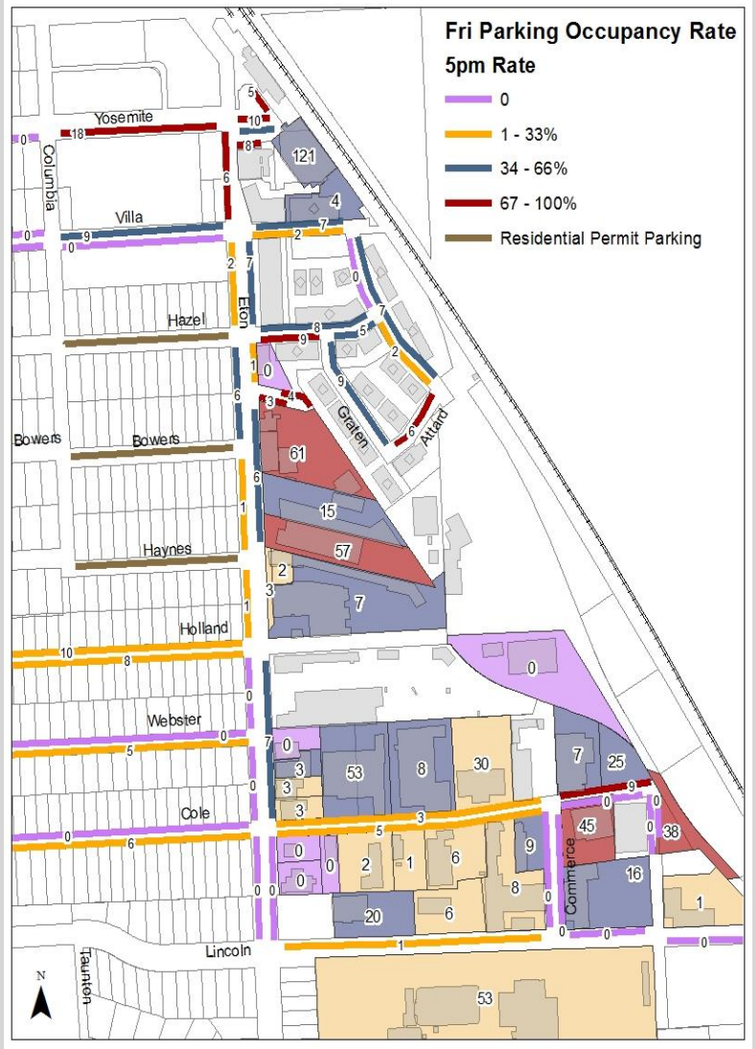


S. Eton Rd
- 9 out of 60 spaces on the west side are used
- 16 out of 63 spaces on the east side are used

Off Street Parking
- Parking lots off of Cole Street at or near capacity
- Griffin Claw already above 66% capacity

Residential Parking
- Yosemite and Villa experience overflow throughout the evening.
- Villa stays between 33-66% occupancy rate throughout the Friday study.

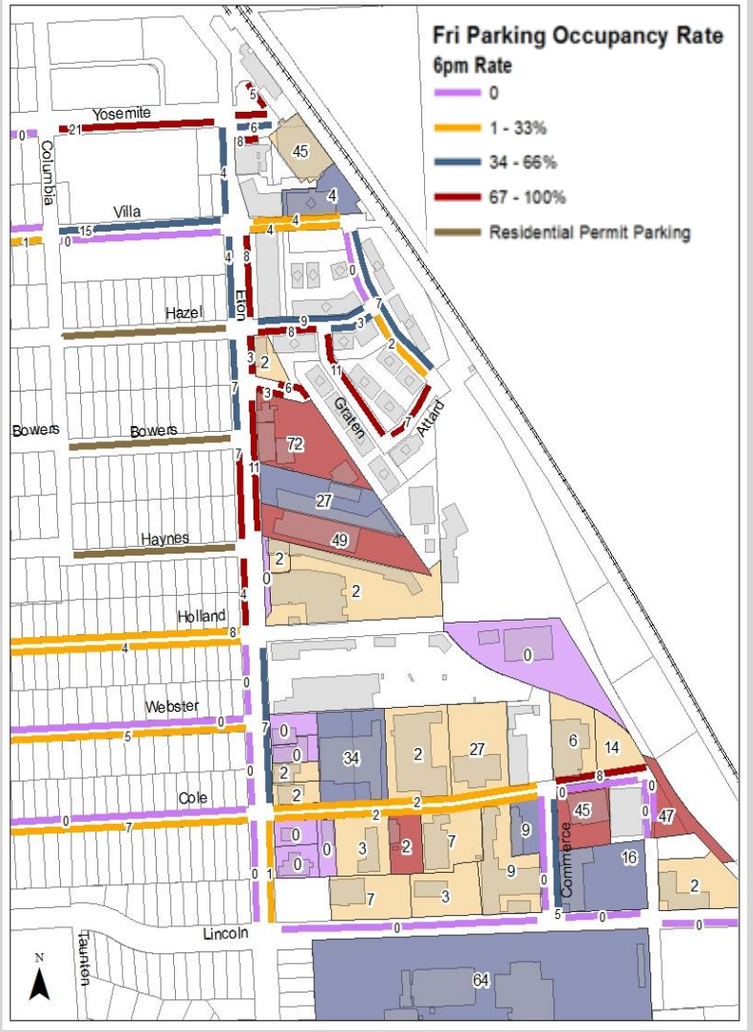
Friday Parking Count: 5:00 PM



S. Eton Rd
- 16 out of 60 spaces on the west side are used
- 21 out of 63 spaces on the east side are used

Off Street Parking
- The lots off of Cole Street begin to clear out
- Two of the parcels above 66% are auto repair shops with outdoor vehicle storage.

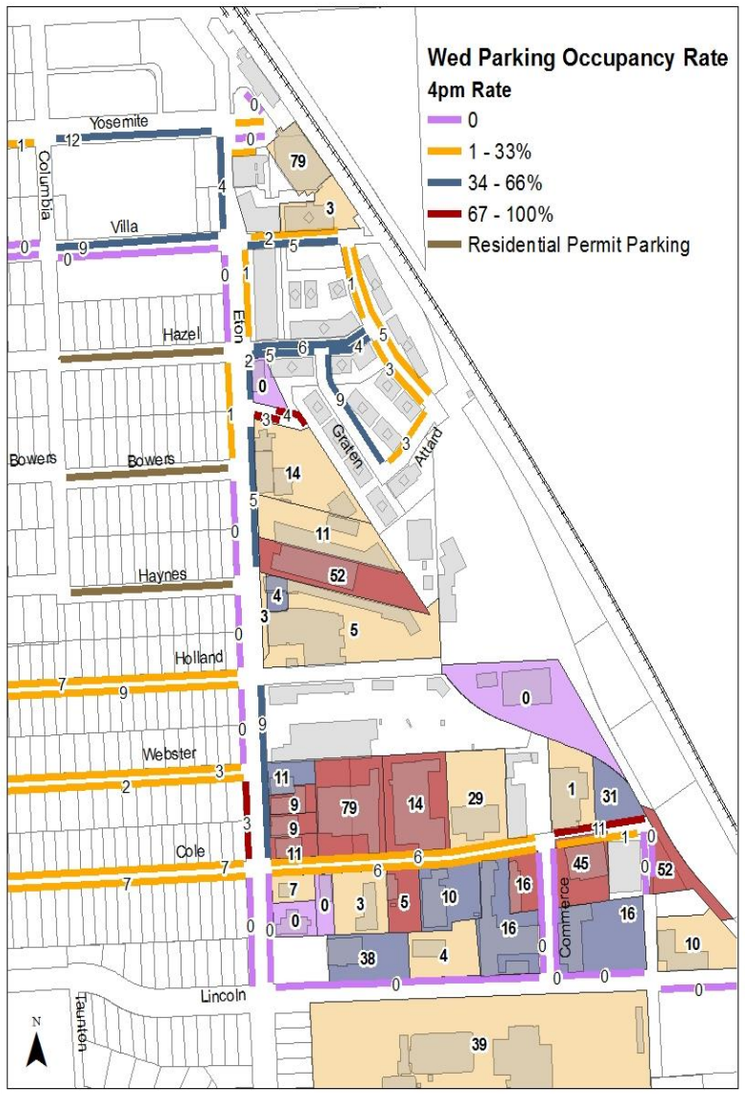
Friday Parking Count: 6:00 PM



S. Eton Rd
- 26 out of 60 spaces on the west side are used
- 30 out of 63 spaces on the east side are used
  *the highest occupancy throughout the study
- 0 spaces on west side, south of Holland are used the entire evening

Off Street Parking
- Griffin Claw parking lot reaches capacity.
- Only 2 of 11 spaces are used in Whistle Stop.
- 0 spaces are used outside of Bolyard Lumber.
- Robot Garage/Watch Hill lot never exceeds 66%.

Wed. Parking Count: 4:00 PM



S. Eton
- 7 out of 60 spaces on the west side are used
- 17 out of 63 spaces on the east side are used

Off Street Parking
- Cole Street's highest occupancy rate for off street lots occurs on weekday during regular business hours.

Wed. Parking Count: 5:00 PM

S. Eton
- 4 out of 60 spaces on the west side are used
- 13 out of 63 spaces on the east side are used
  *lowest occupancy in the study

Off Street Parking
- The majority of Cole Street parking lots clear out after 5 pm.

Wed. Parking Count: 6:00 PM

S. Eton
- 8 out of 60 spaces on the west side are used
- 9 out of 63 spaces on the east side are used
  *lowest occupancy in the study

Off Street Parking
- Griffin Claw's peak parking hours increase during the evening while the rest of the parcels show a decrease in use.
- Shared Parking agreements work best when adjacent or nearby parcels have different peak parking times.

Recommendation 4: Encourage Shared Parking

Issue: Many properties are dominated by excessively large parking lots that are not being efficiently used. Vast parking lots in the district are vacated after peak business hours and remain empty throughout the evening because of restricted access, while other lots overflow around restaurants in the evenings.

Empty parking lots can be found throughout the study area.

Shared parking is a land use strategy that efficiently uses parking capacity by allowing adjacent and/or compatible land uses to share spaces, instead of providing separate spaces for separate uses. Often, a shared parking agreement is put in place between two or more property owners and the jurisdiction to ensure parking spaces on a site are made available for other uses at different times throughout the day.

Recommendation: Encourage shared parking in the district by providing the zoning incentives for properties and/or businesses that record a shared parking agreement. Incentives could include parking reductions, setback reductions, height bonuses, landscape credits, or similar offers.

Amend the shared parking provisions to simplify the calculations to determine required parking based on industry standards and eliminate the need to hire a consultant to prepare shared parking studies. See table to the right for an example of a shared parking calculation from Victoria Transport Policy Institute.

Sample Shared Parking Occupancy Rates Table

This table defines the percent of the basic minimum needed during each time period for shared parking. (M-F = Monday to Friday)

Uses	M-F	M-F	M-F	Sat. & Sun.	Sat. & Sun.	Sat. & Sun.
	8am-5pm	6pm-12am	12am-6am	8am-5pm	6pm-12am	12am-6am
Residential	60%	100%	100%	80%	100%	100%
Office/ Warehouse /Industrial	100%	20%	5%	5%	5%	5%
Commercial	90%	80%	5%	100%	70%	5%
Hotel	70%	100%	100%	70%	100%	100%
Restaurant	70%	100%	10%	70%	100%	20%
Movie Theater	40%	80%	10%	80%	100%	10%
Entertainment	40%	100%	10%	80%	100%	50%
Conference/Convention	100%	100%	5%	100%	100%	5%
Institutional (non-church)	100%	20%	5%	10%	10%	5%
Institutional (church)	10%	5%	5%	100%	50%	5%

Courtesy of Victoria Transport Policy Institute

ENGAGE BIRMINGHAM

South Eton Bikeway Survey

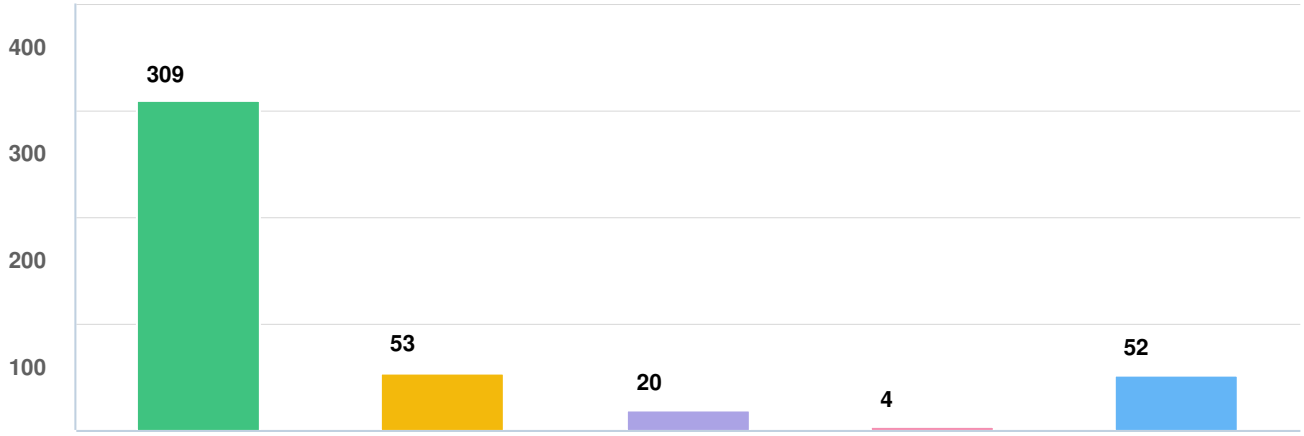
SURVEY RESPONSE REPORT
29 April 2021 - 26 April 2023

PROJECT NAME:
South Eton Bikeway

BANG THE TABLE engagementHQ

REGISTRATION QUESTIONS

Q1 What best describes you? (check all that apply)

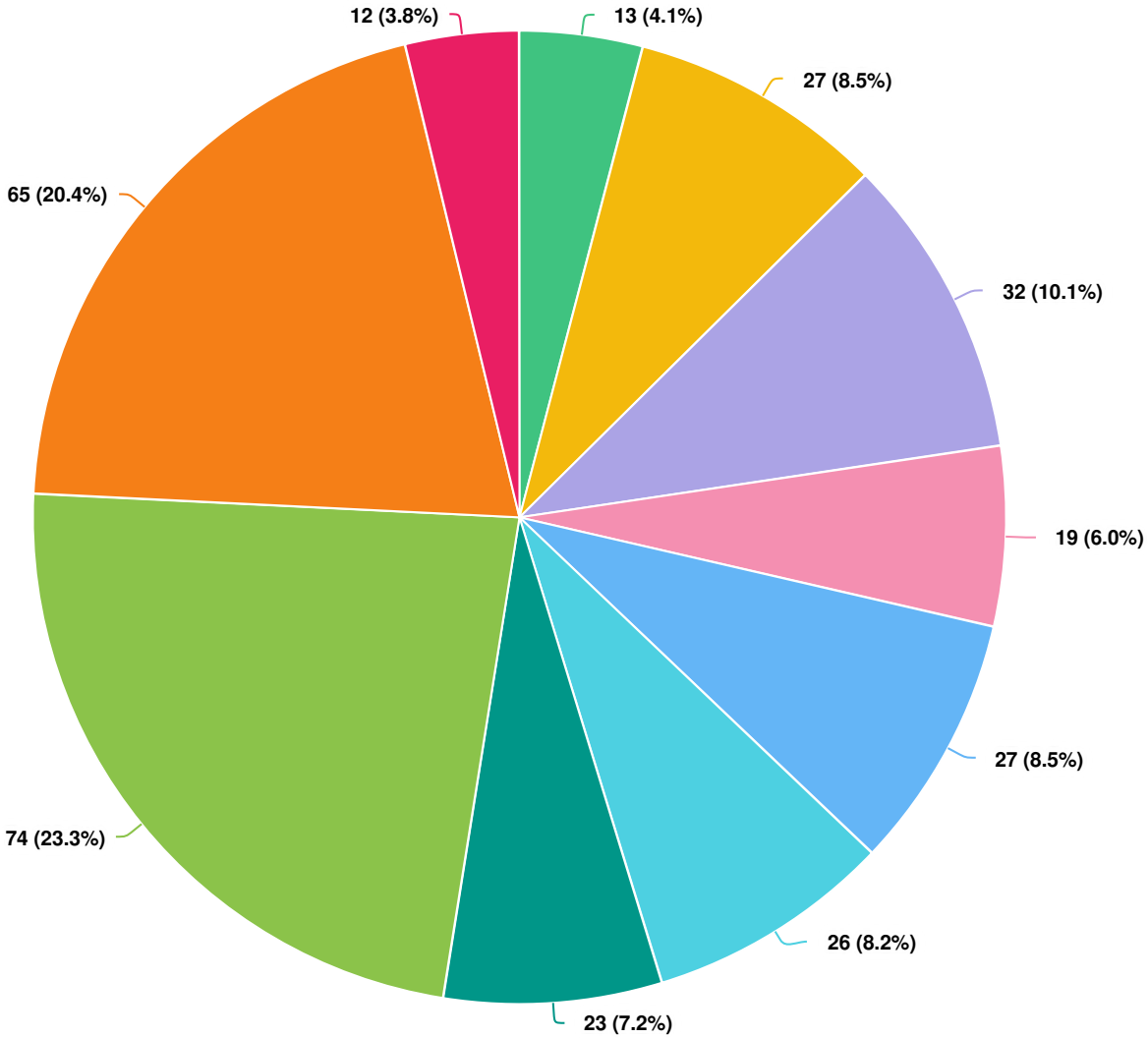


Question options

I live in Birmingham. I work in Birmingham. I own a business in Birmingham. I am a student in Birmingham. I am a frequent visitor to Birmingham.

Mandatory Question (342 response(s))
Question type: Checkbox Question

Q2 Which section of Birmingham do you live in?

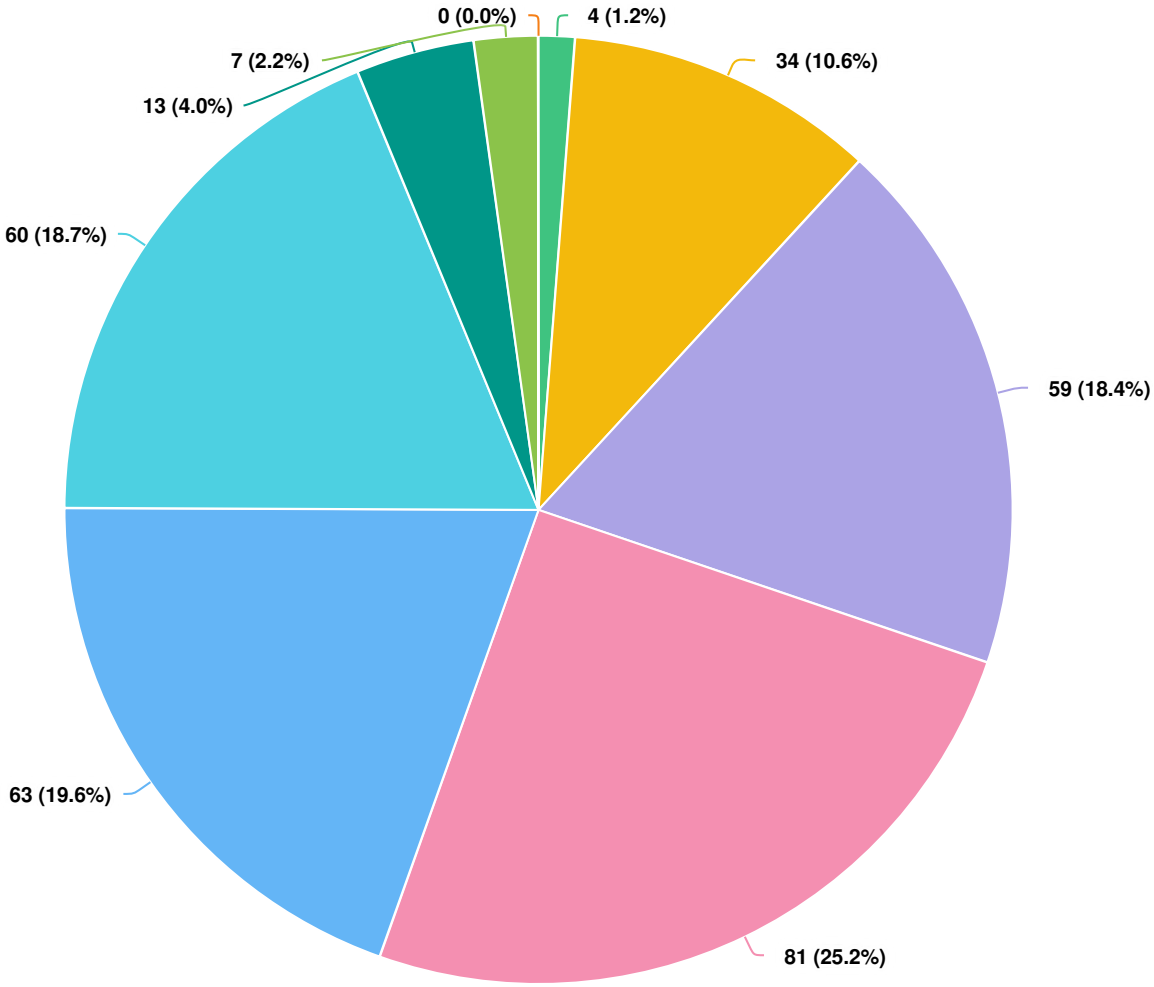


Question options

1 2 3 4 5 6 7 8 9 N/A

Optional question (318 response(s), 24 skipped)
Question type: Dropdown Question

Q3 In which decade were you born?



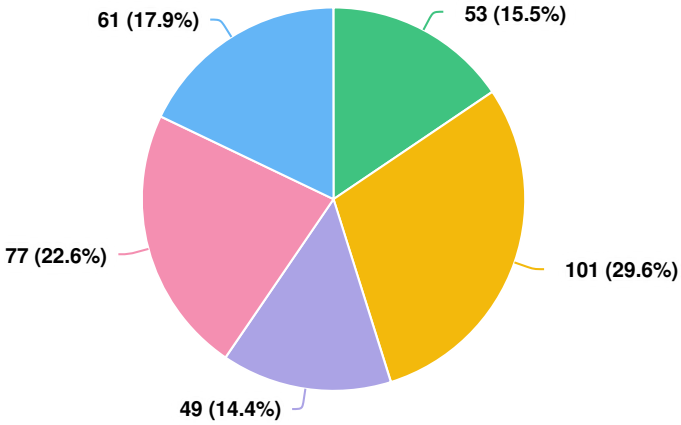
Question options

1931-1940 1941-1950 1951-1960 1961-1970 1971-1980 1981-1990 1991-2000
After 2000 Before 1931

Optional question (321 response(s), 21 skipped)
Question type: Dropdown Question

SURVEY QUESTIONS

Q1 How frequently do you bike?

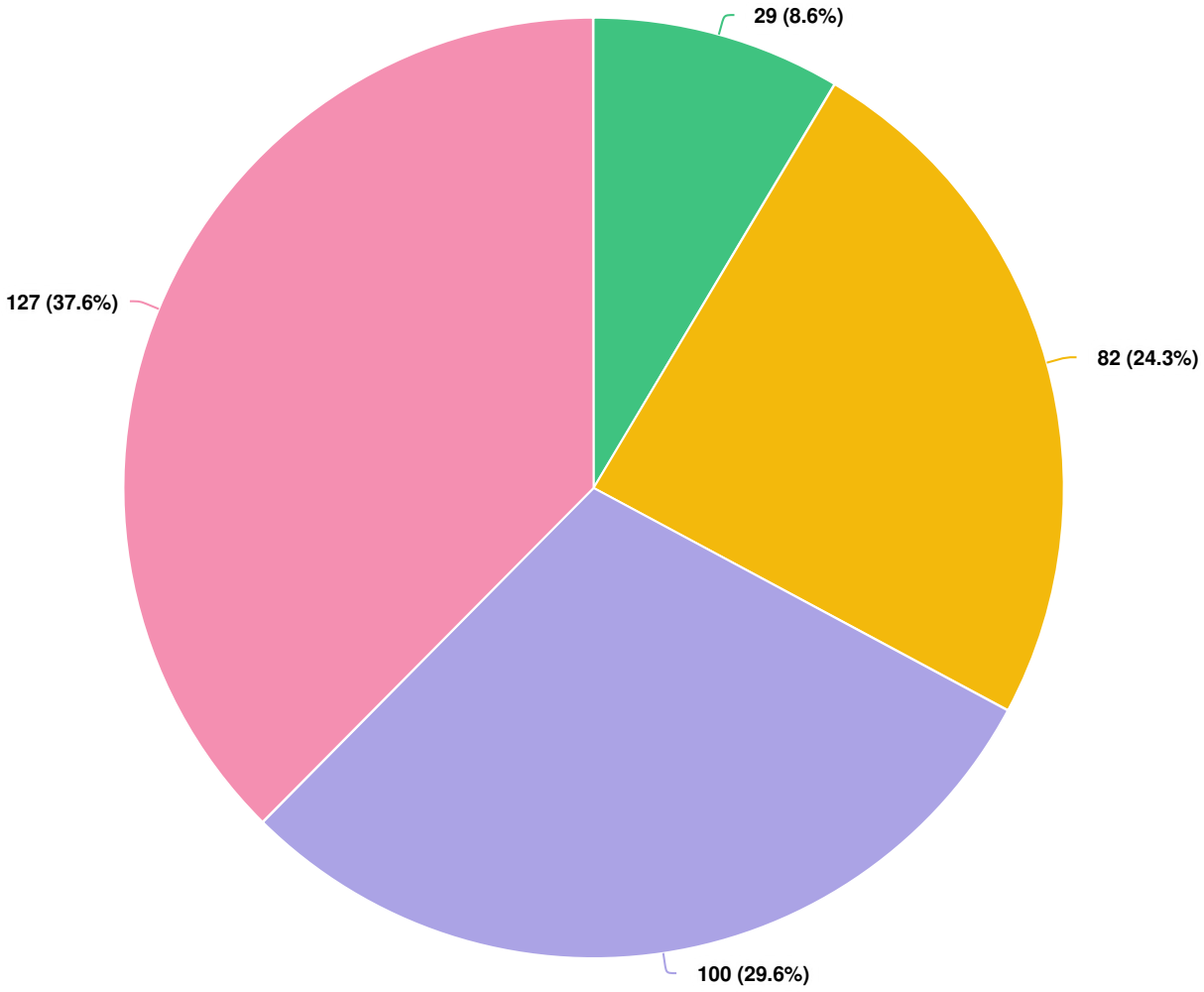


Question options

Daily Weekly Monthly A few times a year Never

Optional question (341 response(s), 1 skipped)
Question type: Radio Button Question

Q2 How often do you bike this route on South Eton as indicated in the map above?

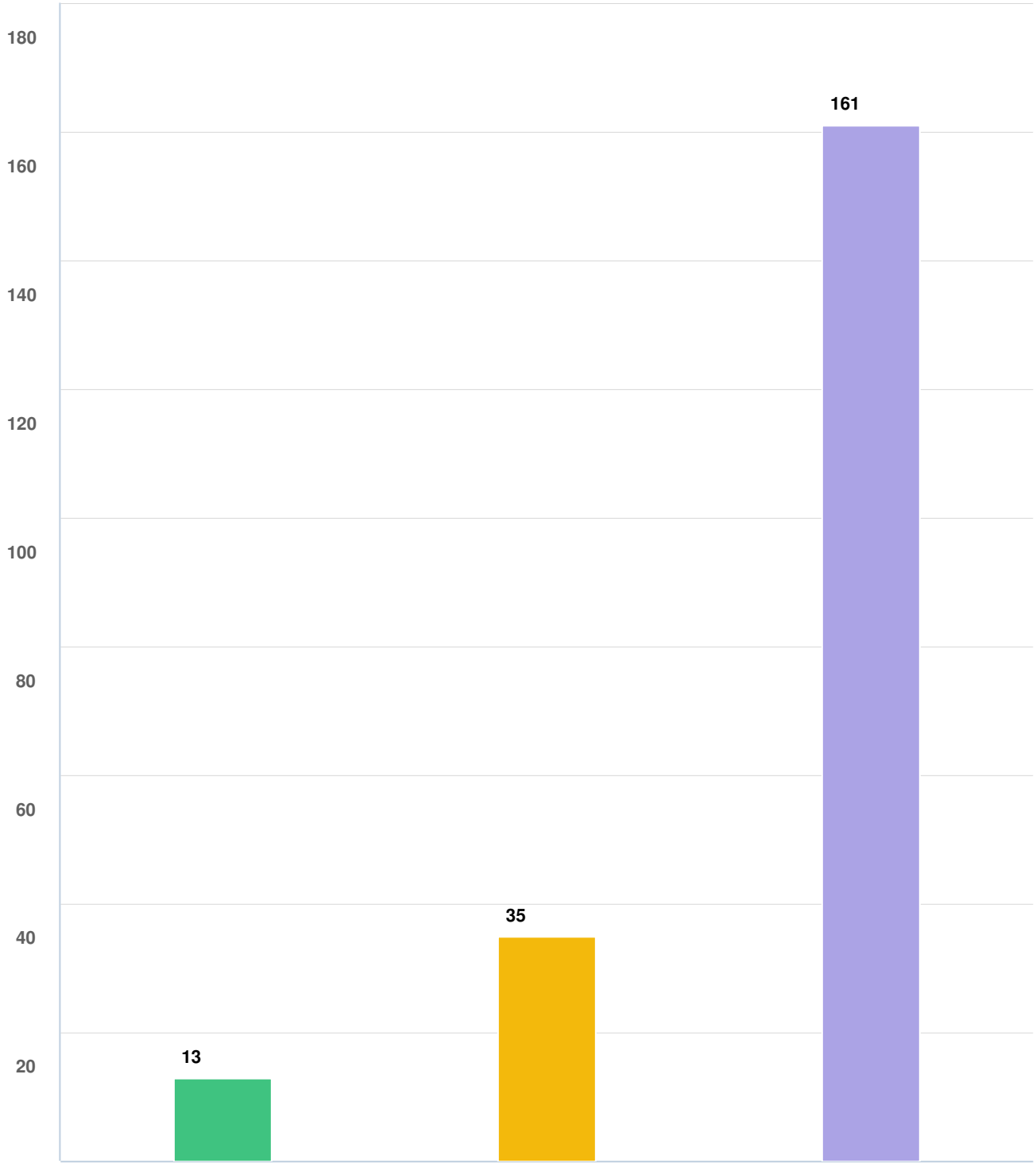


Question options

- Very frequently (daily or most days)
- Some of the time (once or twice a week)
- Rarely (once a month or less)
- Never

Optional question (338 response(s), 4 skipped)
Question type: Radio Button Question

Q3 Which direction(s) do you use the bike lane to ride?

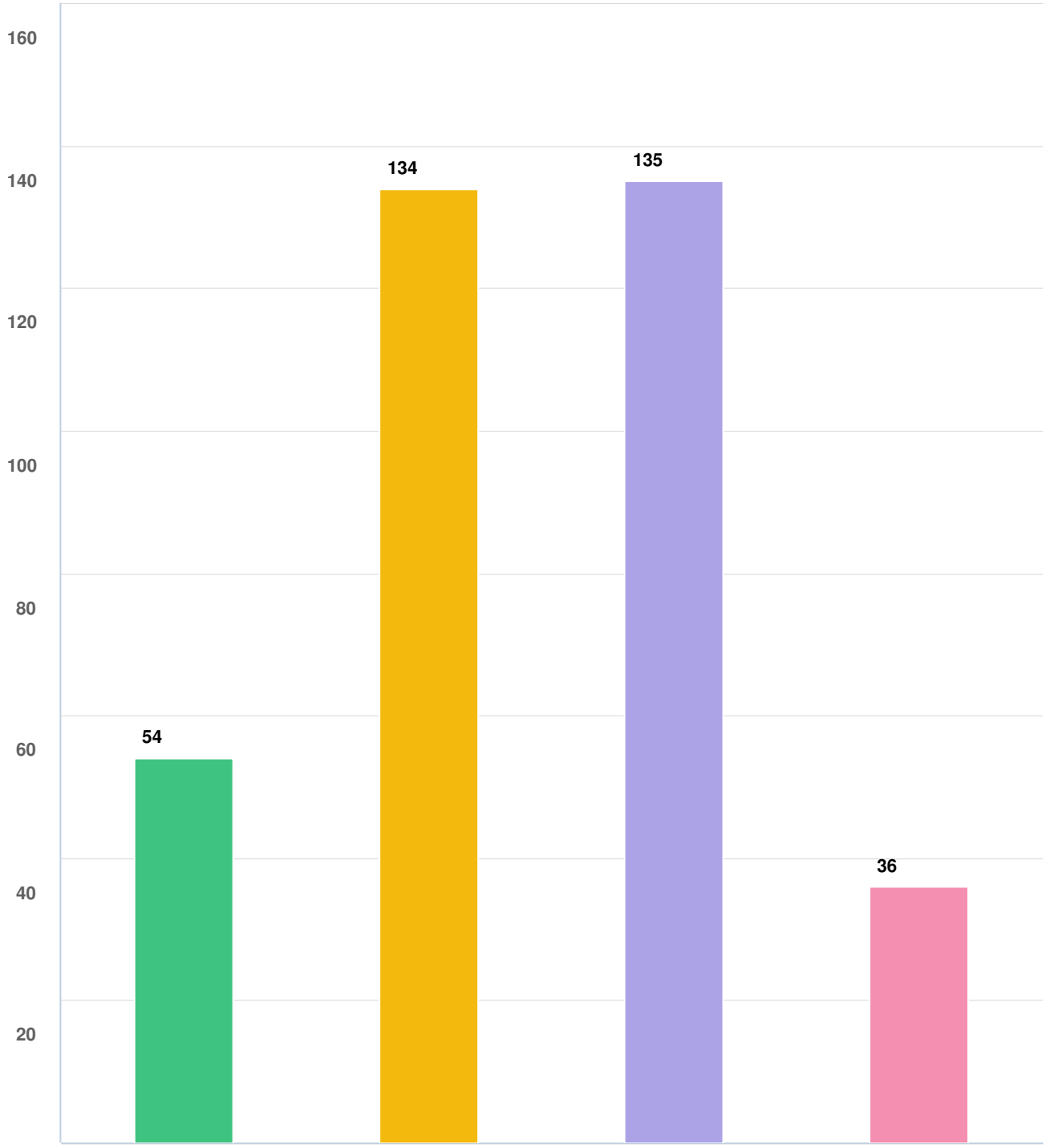


Question options

I use the bike lane to ride north. I use the bike lane to ride south. I use the bike lane to ride north and south.

Optional question (204 response(s), 138 skipped)
Question type: Checkbox Question

Q4 What are your top reasons for using this bike route? (Please select all that apply.)

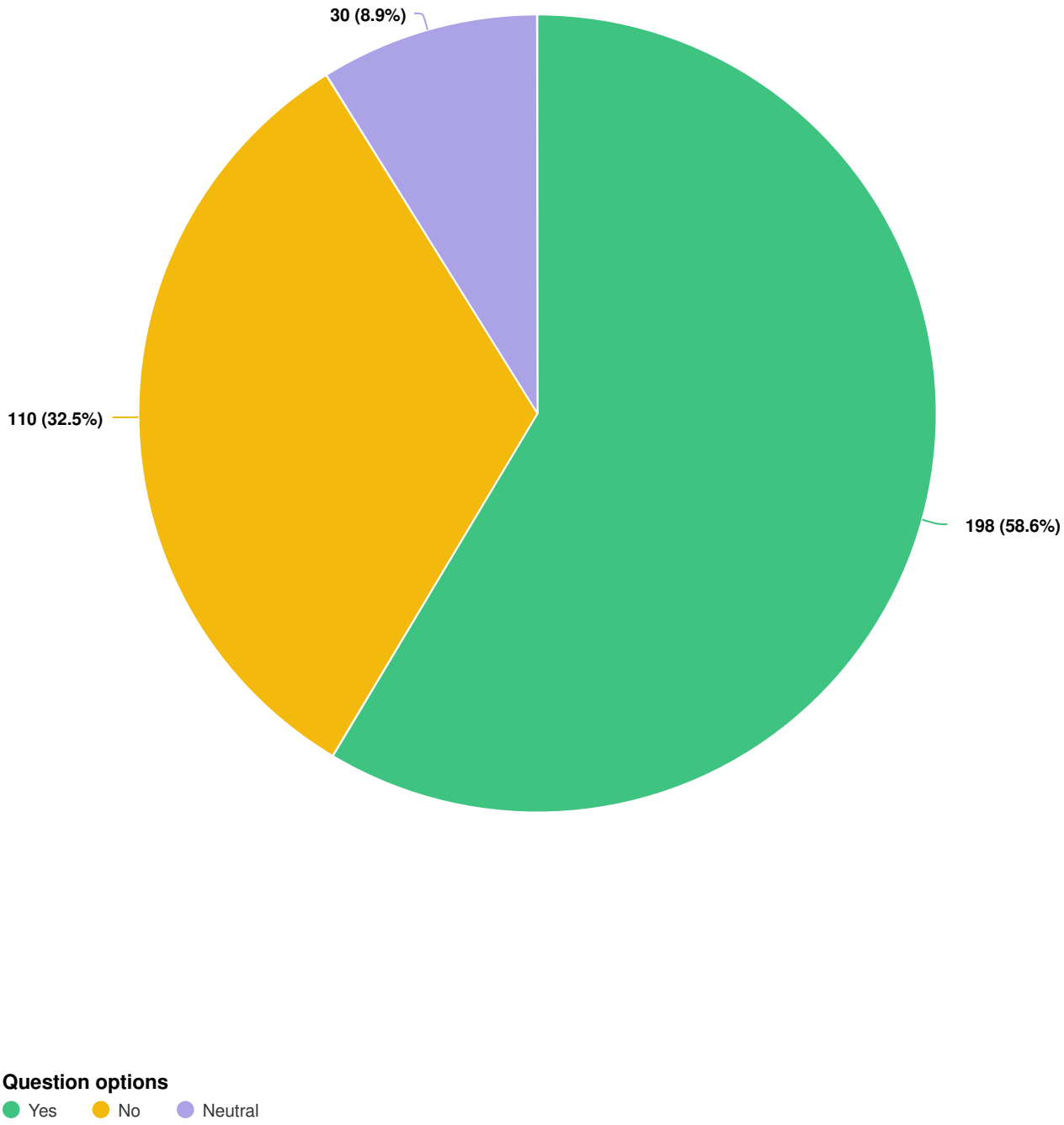


Question options

- This is the fastest route to travel to work/home/school/etc.
- I feel safer taking this route vs. others because of the bike lanes.
- N/A I do not use this route.
- Other (please specify)

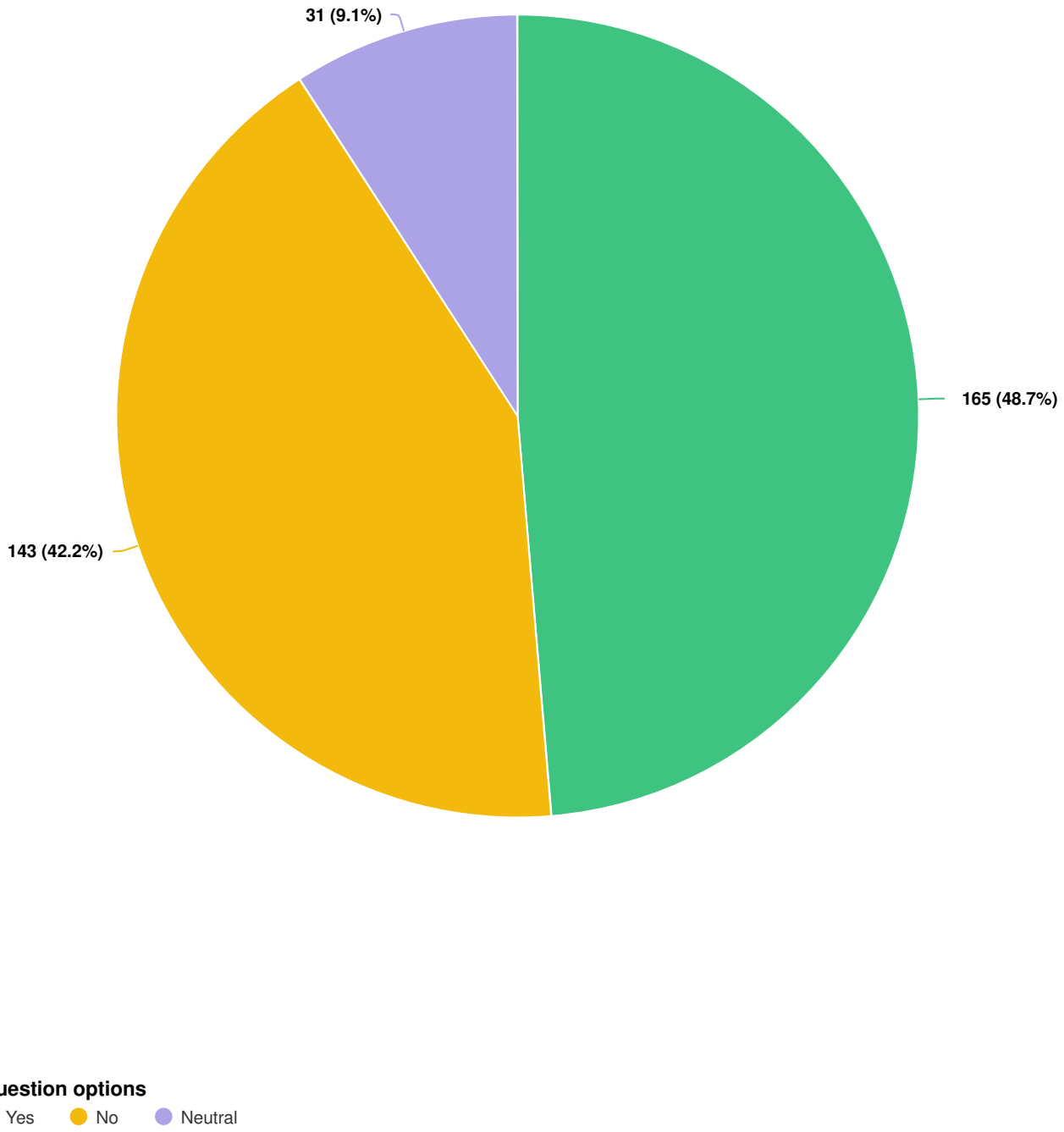
Optional question (337 response(s), 5 skipped)
Question type: Checkbox Question

Q5 Do you think that the protected bike lane is better than a painted bike lane or sharing the road with cars?



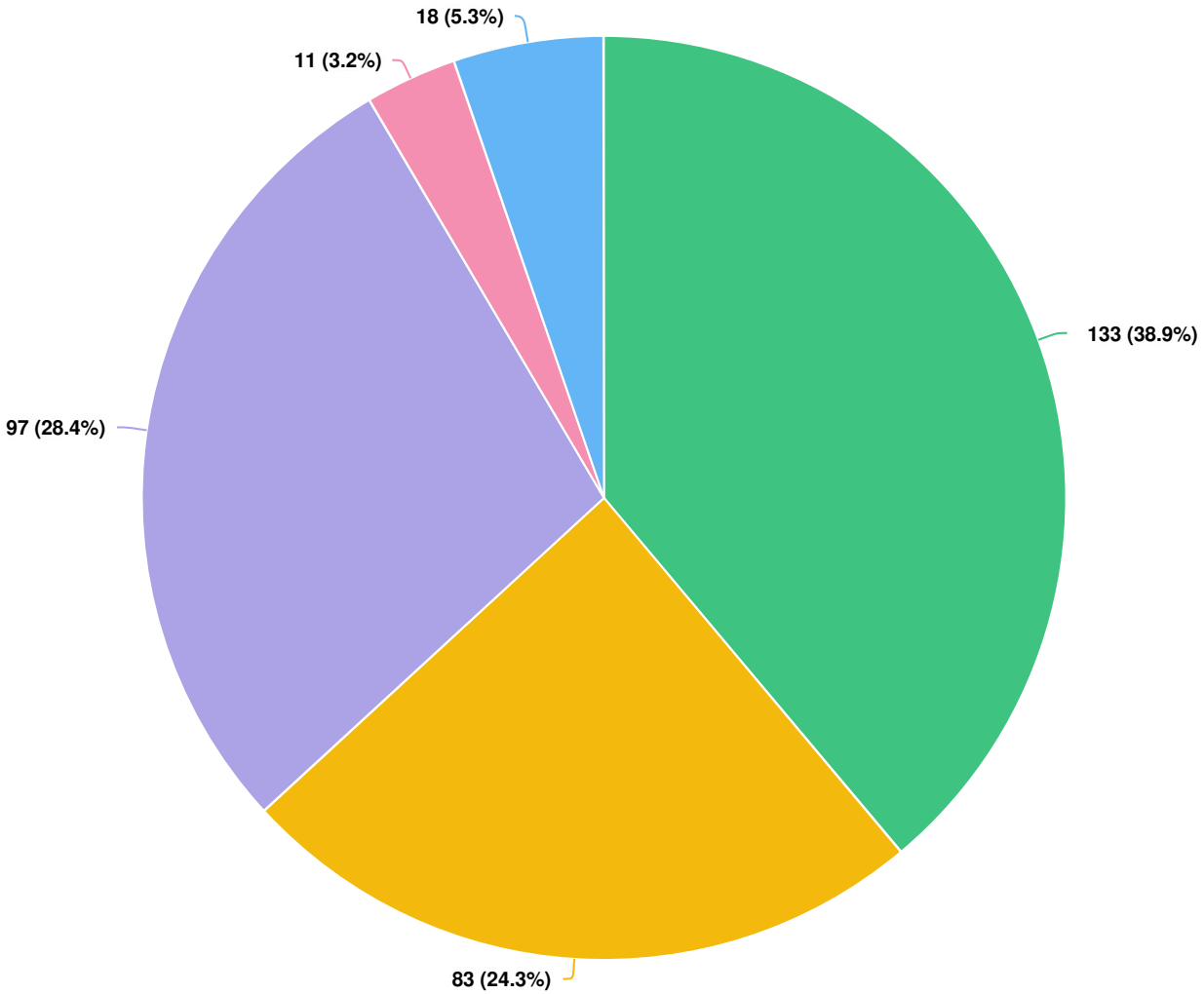
Optional question (338 response(s), 4 skipped)
Question type: Radio Button Question

Q6 Do you like the design of the protected portion of bikeway in comparison to other options such as painted bike lanes or bike sharrows?



Optional question (339 response(s), 3 skipped)
Question type: Radio Button Question

Q7 Do you think the City should keep the protected portion of the bike lanes designed as is, revise them, or remove them?

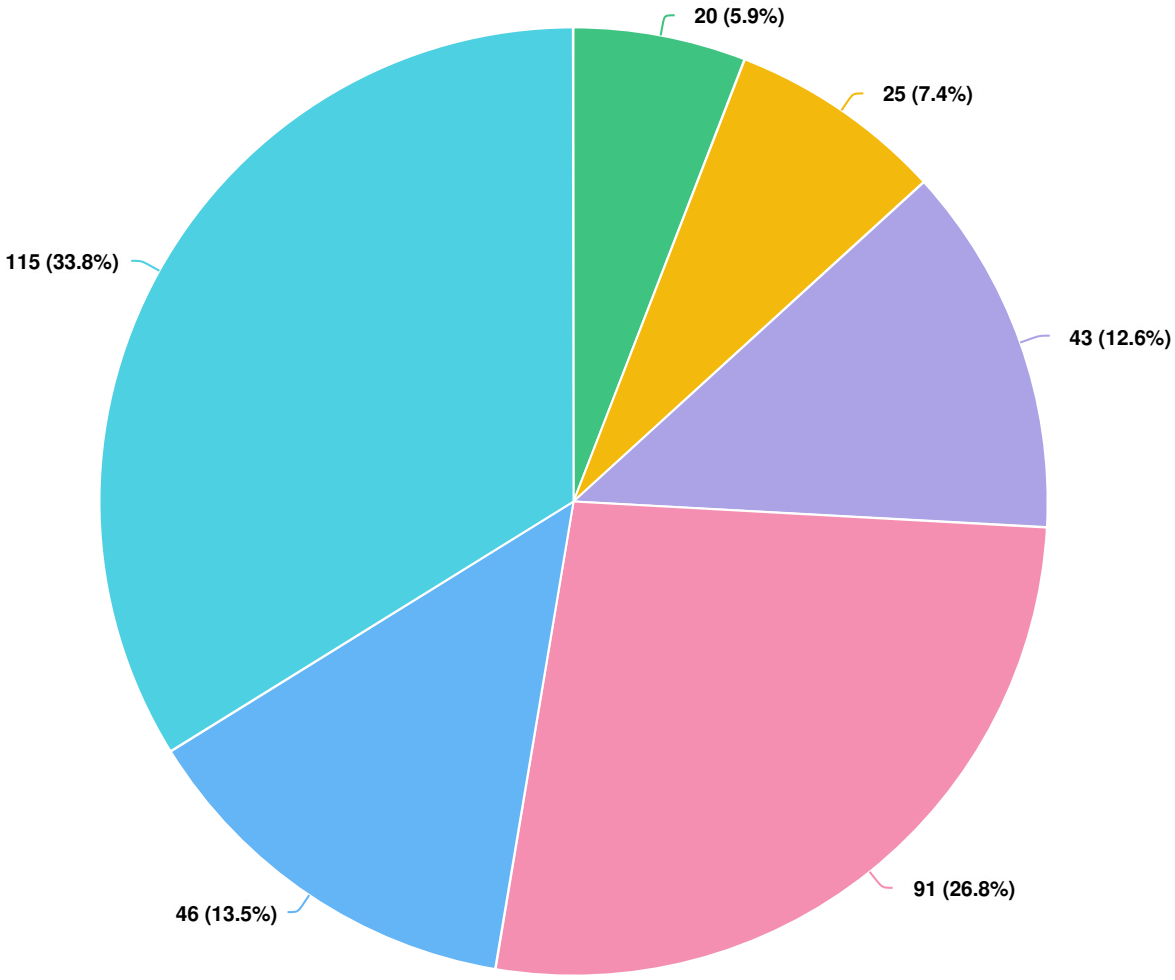


Question options

- The City should keep the protected bikeway as is.
- The City should revise the design of the protected bikeway.
- The City should remove the protected bikeway.
- No opinion.
- Other (please specify)

Optional question (342 response(s), 0 skipped)
Question type: Radio Button Question

Q8 **On a scale of 1-5, with 1 being the LEAST safe and 5 being the MOST safe, please rate how safe and comfortable you feel when you ride this route on South Eton.**

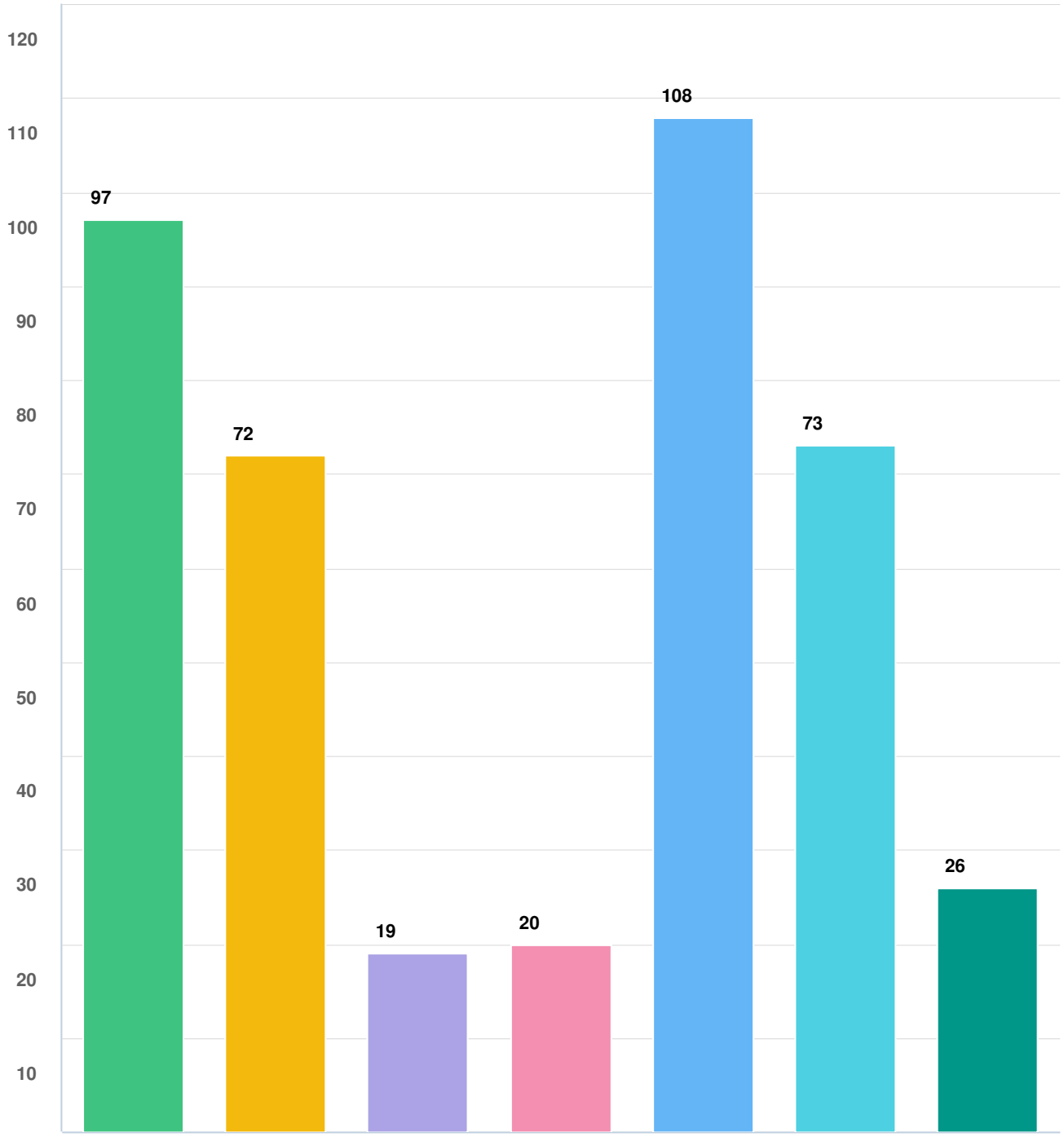


Question options

- 1) I feel very unsafe and uncomfortable riding this route.
- 2) I feel fairly unsafe and somewhat uncomfortable riding this route.
- 3) Neutral, I feel okay riding this route.
- 4) I feel pretty safe and comfortable riding this route.
- 5) I feel extremely safe and comfortable riding this route.
- N/A I do not bike this route.

Optional question (340 response(s), 2 skipped)
Question type: Radio Button Question

Q9 Are there any areas where you feel unsafe along the bike route on South Eton? (Select all that apply.)



Question options

- Between E. Maple and Yosemite (bike sharrow)
- Between Yosemite and Villa (unprotected bike lane)
- Between Villa and Bowers (protected bike lane)
- Between Bowers and Lincoln (protected bike lane)
- N/A I do not bike this route.
- N/A I feel safe biking this route.
- Other (please specify)

Optional question (323 response(s), 19 skipped)
Question type: Checkbox Question

FLEIS&VANDENBRINK
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MEMO

VIA EMAIL

From:	**Julie M. Kroll, P.E., PTOE** **Ben W. Schebler** **Fleis & VandenBrink**
Date:	**September 30, 2021**
Re:	**S. Eton Street Bike Lane Installation** **City of Birmingham, Michigan** **Before & After Study**

INTRODUCTION

This memorandum presents the methodologies, analyses, and results of the Before & After Study for the S. Eton Street bike lane installation between Yosemite Boulevard and Lincoln Street in the City of Birmingham, Michigan. The scope of this study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, information provided by City of Birmingham, accepted traffic engineering practice, and methodologies published by the Institute of Transportation Engineers (ITE).

DATA COLLECTION

The data used in this study was performed prior to May 2019 to evaluate the *Before* conditions without the bike lane installation and the *After* conditions data collection was performed after July 2019. The following data was collected during these analysis periods:

- Crash Data
- Traffic Volumes
- Speed Data

The results before and after analysis for each of these metrics are summarized herein.

Crash Analysis

The crash data used in the study was provided by the Birmingham Police Department. The data includes three (3) years of data before (May 2017 to May 2019) and after (July 2019 to July 2021) the bike lane installation. The crash analysis evaluated three (3) years for both conditions as summarized in **Table 1**. The results of the analysis showed an overall crash reduction of **44%**.

The crashes were evaluated to determine the bike lane impact on the pedestrian/bike crashes and those associated with the driveways (backing) and on-street parking. The results of the analysis show that the pedestrian crashes were eliminated with bike lane addition and the backing crashes were reduced. No crashes associated with parking or bicycles was reported for either the before or after condition. The crashes with injuries were reviewed, and the injuries were reduced by 67% after the bike lane installation as summarized in **Table 2.**

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Farmington Hills, MI 48334
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www.fveng.com

Table 1: Crash Analysis Summary Table

Crash Type	Before Condition *No Bike Lane*	After Condition *With Bike Lane*	Difference	% Difference
Misc One (1) Vehicle	0	0	0	0%
Animal	0	0	0	0%
Fixed Object	1	0	-1	-100%
Pedestrian	1	0	-1	-100%
Bicycle	0	0	0	0%
Head On	0	0	0	0%
Head On Left-Turn	0	1	1	100%
Angle	11	11	0	0%
Rear End	12	3	-9	-75%
Sideswipe-Same	10	5	-5	-50%
Sideswipe-Opposite	2	0	-2	-100%
Other Drive	0	0	0	0%
Overturn	0	0	0	0%
Dual Right Turn	0	0	0	0%
Backing	4	3	-1	-25%
Parking	0	0	0	0%
Total	**41**	**23**	**-18**	**-44%**

Table 2: Crash Injury Severity Table

Severity	Worst Injury in Crash (3 Years)			
	Before Condition *No Bike Lane*	After Condition *With Bike Lane*	Difference	% Difference
Fatality	0	0	0.00	0%
Suspected Major Injury (A)	0	0	0.00	0%
Suspected Minor Injury (B)	1	1	0.00	0%
Possible Injury (C)	5	1	-4.00	-80%
Total	**6**	**2**	**-4.00**	**-67%**

Traffic Volumes

Traffic volume data was collected for a period of four (4) hours from 2:00 PM to 6:00 PM during a typical weekday and from 2:00 PM to 6:00 PM on a typical Saturday for the analysis periods. The *Before* data collection was performed in June 2018 and the *After* data was performed in July 2021. Additionally, the Multi-Modal Transportation Board requested AM traffic counts to be performed, therefore volume data includes 7:00 AM to 11:00 AM in July 2021 only. The data collection included vehicle classifications and pedestrian and bike data at the following intersections with S. Eton Street:

- Maple Road
- Villa Road
- Bowers Street
- Lincoln Street
- Sheffield Road

The traffic volume data is summarized in **Table 3** and shows that overall, the entering traffic volumes within the network have *decreased*. This is typical of current traffic volumes which have decreased over pre-COVID conditions. The pedestrian volumes have remained consistent along the corridor, with negligible change. The bicycle volumes have increased significantly with the addition of the bike lane. The bike traffic has more than doubled during the afternoon, and is over 80% higher on Saturday. Although *Before* data is not available in the AM period, the current number of bicycle trips is higher in the morning than in the afternoon before data.

Table 3: Traffic Volume Summary-Total Entering Volumes

Intersection	Type	Weekday 7AM-11AM	Weekday 2PM-6PM				Saturday 2PM -6PM			
		After Condition *With Bike Lane*	Before Condition *No Bike Lane*	After Condition *With Bike Lane*	Difference	% Difference	Before Condition *No Bike Lane*	After Condition *With Bike Lane*	Difference	% Difference
Maple Rd & S. Eton	Vehicles	6,021	8,815	8,313	-502	-6%	6,624	6,658	34	1%
	Peds	20	30	28	-2	-7%	10	17	7	70%
	Bikes	12	14	18	4	29%	35	55	20	57%
	Total	*6,053*	*8,859*	*8,359*	*-500*		*6,669*	*6,730*	*61*	
Villa Rd & S. Eton	Vehicles	2,001	3,858	2,862	-996	-26%	2,409	2,048	-361	-15%
	Peds	55	74	54	-20	-27%	75	52	-23	-31%
	Bikes	*23*	*13*	*26*	13	100%	27	75	48	178%
	Total	*2,079*	*3,945*	*2,942*	*-1,003*		*2,511*	*2,175*	*-336*	
Bowers & S. Eton	Vehicles	1,933	3,800	2,709	-1,091	-29%	2,224	1,904	-320	-14%
	Peds	*39*	*126*	*73*	-53	-42%	110	108	-2	-2%
	Bikes	22	15	29	14	93%	36	88	52	144%
	Total	*1,994*	*3,941*	*2,811*	*-1,130*		*2,370*	*2,100*	*-270*	
Lincoln & S. Eton	Vehicles	*1,379*	4,473	4,267	-206	-5%	2,537	2,006	-531	-21%
	Peds	69	28	109	81	289%	29	57	28	97%
	Bikes	25	16	40	24	150%	39	80	41	105%
	Total	*1,473*	*4,517*	*4,416*	*-101*		*2,605*	*2,143*	*-462*	
Shefield & S. Eton	Vehicles	1,270	2,333	1,852	-481	-21%	1,320	1,206	-114	-9%
	Peds	41	24	23	-1	-4%	29	22	-7	-24%
	Bikes	15	4	16	12	300%	37	20	-17	-46%
	Total	*1,326*	*2,361*	*1,891*	*-470*		*1,386*	*1,248*	*-138*	
Network Total	Vehicles	12,604	23,279	20,003	-3,276	-14%	15,114	13,822	-1,292	-9%
	Peds	224	282	287	5	**2%**	253	256	3	**1%**
	Bikes	97	62	129	67	**108%**	174	318	144	**83%**
	Total	*12,925*	*23,623*	*20,419*	*-3,204*		*15,541*	*14,396*	*-1,145*	

Speed Data Summary

The speed data is summarized in **Table 4** was collected over a period of four (4) days by the Birmingham Police Department in September 2016 and then after the bike lane installation in July 2021. The results of the analysis show that the average change in speed is 1.5 mph and the 85th percentile speed change is 0.2 mph which is negligible. It should also be noted that the traffic volumes have decreased by an average of more than 10% however the average speeds have not increased proportionally to the decrease in traffic volumes.

Table 4: Speed Data Summary Table

Roadway Segment	Before Condition No Bike Lane		After Condition With Bike Lane		Difference	
	85th Percentile	Average Speed	85th Percentile	Average Speed	85th Percentile	Average Speed
Melton Rd to Humphrey Ave	30.0 mph	25.0 mph	31.9 mph	28.3 mph	1.9 mph	3.3 mph
Villa Rd to Hazel St	30.0 mph	25.0 mph	28.5 mph	24.6 mph	-1.5 mph	-0.4 mph
Average	30.0 mph	25.0 mph	30.2 mph	26.5 mph	**0.2 mph**	**1.5 mph**

CONCLUSIONS

The results of this analysis are summarized below and show that addition of the bike lane reduced crashes, increased the number of bicycles, and did not have a significant impact on the adjacent roadway speeds.

Crashes

- The results of the analysis showed an overall crash reduction of 44%.
- The pedestrian crashes were eliminated, and the backing crashes were reduced after the addition of the bike lane. No crashes associated with parking or bicycles were reported.
- The crashes with injuries were reduced by 67% after the addition of the bike lane.

Traffic Volumes

- Vehicle volumes have decreased since the bike lane was installed, however COVID has impacted the volume vehicle traffic on the adjacent roadways and may not be necessarily due to increases in pedestrian and bicycle traffic.
- The pedestrian volumes have remained consistent along the corridor, with negligible change.
- The bicycle volumes have more than doubled during the afternoon and are over 80% higher on Saturday with the addition of the bike lane.

Speed Data

- The corridor speeds have increased on average 1.5 mph and the 85th percentile speeds have increased by only 0.2 mph, which is negligible.
- It should also be noted that the traffic volumes have decreased by an average of more than 10%, however the average speeds have not increased proportional to the decrease in traffic volumes.

RECOMMENDATIONS

It is recommended that a bicycle facility is provided on S. Eton Street and the Multi-Modal Transportation Board consider the permanent design and operations of multi-modal infrastructure on this corridor. The results of this evaluation show that the pilot project successfully increased bicycle activity along the corridor and reduced crashes. Additional areas of focus for future infrastructure include: additional traffic calming measures to reduce speeds, and pedestrian facility enhancements to increase pedestrian activity and enhance safety.

END

BIRMINGHAM
A WALKABLE CITY

Brooks Cowan <bcowan@bhamgov.org>

Eton Street redesign/Multi Modal Board

2 messages

Claudia Unruh <claudia-u@hotmail.com> Wed, May 17, 2023 at 11:16 AM
To: "BCowan@bhamgov.org" <BCowan@bhamgov.org>
Cc: "mcoatta@bhamgov.org" <mcoatta@bhamgov.org>

Brooks and Melissa,
Please forward ASAP this e-mail to members of the Multi Modal Transportation Board. Thank you!

This is a follow up to my comments to you at the recent Multi Modal Transportation Board meeting. I urged you to recommend to the Commission “evidence based” street redesign to slow speeding on Eton Street to achieve your stated priority of Safety for pedestrians and bicyclists.
My reading indicates this is:
-Speed Humps
-Extended Curbing (Bike Lanes on Both sides of street)
-Median Refuge Islands
-Radar speed signs

-Light Emitting Diodes (LED’s) placed around the face of MPH and Stop Signs (intersection of Lincoln and Eton).

Thank you for all your efforts,
Claudia Unruh
Resident of Torry Neighborhood

Brooks Cowan <bcowan@bhamgov.org> Wed, May 17, 2023 at 11:31 AM
To: Joseph Zane <Joseph.Michael.Zane@gmail.com>, Anthony Long <ajlong1080@gmail.com>, Angie Sharma <angiesharma118@gmail.com>, Sophie Hanawalt <smh6@bps-schools.com>, Patrick Hillberg <patrick_hillberg@hotmail.com>, David Hocker <dhocker@globalfacilitiesinc.com>, Gordon Davies <Gordonhdavies@yahoo.com>, Vicki Policicchio <Vickipolicicchio@gmail.com>, Mark Doolittle <mark.j.doolittle@gmail.com>, Laura Eichenhorn <leichenhorn@bhamgov.org>, Thomas Peard <thomaspeard@yahoo.com>, Doug White <dwhite10@peoplepc.com>

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Brooks Cowan
Senior Planner
(248) 530-1846

BIRMINGHAM
A WALKABLE CITY

MEMORANDUM

Engineering Department

DATE: May 26, 2023

TO: Multi-Modal Transportation Board

FROM: Melissa Coatta, City Engineer

SUBJECT: 2024 Road Improvement Plan Review

INTRODUCTION:
MKSK is providing a conceptual look ahead to what items may need review by the Multi-Modal Transportation Board for 3 project areas planned for the 2024 construction season:

- Oakland Ave: N. Old Woodward to Woodward
- W. Maple Alley: Henrietta to Pierce
- Pierce Alley: Pierce to Merrill

BACKGROUND:
In previous years, the MMTB review project area where the Engineering Department will be starting on the planning and design for previously budgeted street projects. The following project areas are being reviewed for opportunities to make improvements as outlined in the City's Mutli-Model Transportation Plan (MMTP).

Oakland Ave: N. Old Woodward to Woodward
The MMTP recommends a proposed buffered bike lane on Oakland Ave from N. Old Woodward to Woodward and intersection improvements to Park St and Ferndale Ave. The Draft Master Plan recommends a bike connection and general at Park Street and Ferndale Ave intersections. Some options for non-motorized improvements are shared-lane markings and signage, intersection enhancements at Park St and Ferndale with updating pedestrian times, leading pedestrian intervals, add/extending flashing operations.

W. Maple Alley: Henrietta to Pierce
The City's Alleys and Passages Inventory Plan lists existing characteristics of this alley with asphalt surface, poor surfacing condition, no screening, and small wall-mounted lighting. This plan also shows a potential crosswalk connection at Pierce Street to Pierce Alley. The City's right of way of W. Maple Alley is 27' at Henrietta and towards the middle of the alley is reduced to 18' and continues to Pierce. Some of the recommendations are to develop a paving material concept and repave the alley, install screening, and improve lighting.

Pierce Alley: Pierce to Merrill

The MMTB reviewed and approved the concept design for Pierce Alley from Pierce to Merrill in 2019. This concept design was used to create design plans for bidding in the summer of 2019. Since the bids came higher than expected, this project was postponed for construction to fiscal year 2023/2024.

SUGGESTED MULTI-MODAL BOARD ACTION:

To review the project areas and provide general commentary for consideration during the planning and design phases of the projects.

2023-2024 STREET PROJECT INVENTORY

1.OAKLAND AVE - N OLD WOODWARD TO WOODWARD REPAVING

2. W MAPLE ALLEY (BEHIND BROOKLYN PIZZA)

BIRMINGHAM MMTB

JUNE 1, 2023

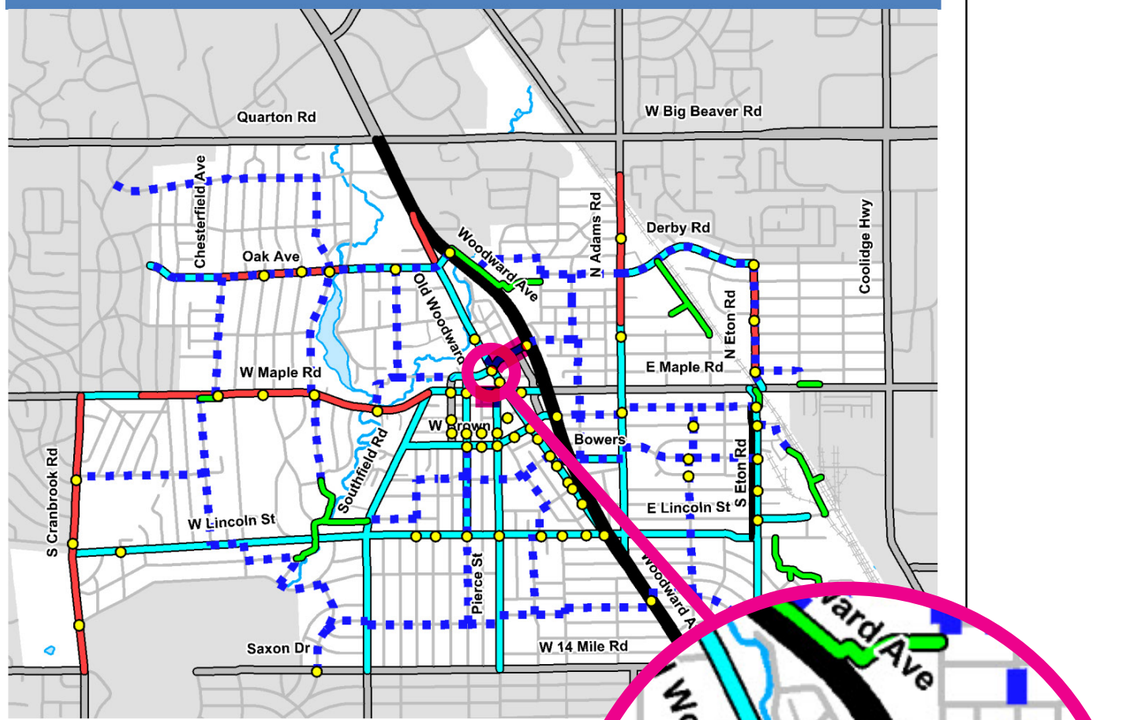
REVIEW OF EXISTING PLANS

Multi-Modal Transportation Plan, Draft Master Plan, Alley and Passages Inventory Plan

MULTI-MODAL TRANSPORTATION PLAN

November 25, 2013

FIGURE 3.1E OVERVIEW OF PROPOSED MULTI-MODAL NETWORK



DRAFT MASTER PLAN

Ch 1. Connect the City

Improve Regional Transit Connections

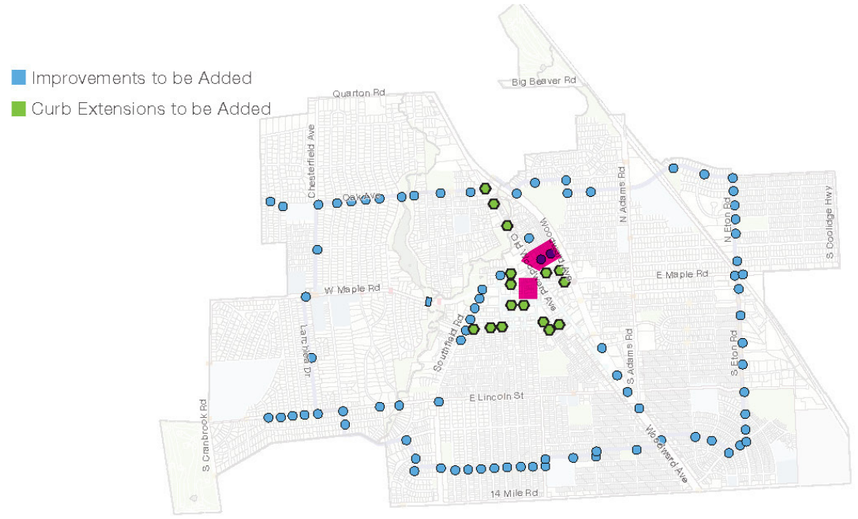


Figure 25. Pedestrian updates to the Multi-modal Plan.

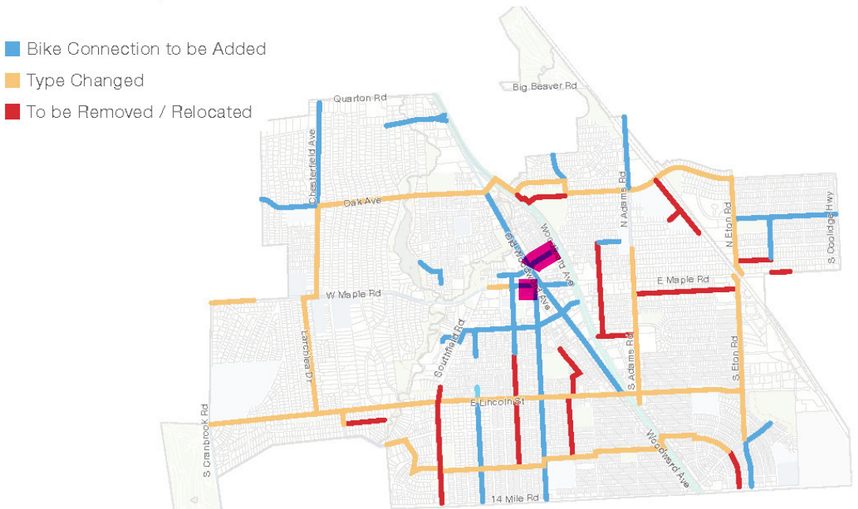


Figure 26. Bicycle facility updates to the Multi-modal Plan.

OAKLAND AVE

N Old Woodward Ave to Woodward Ave

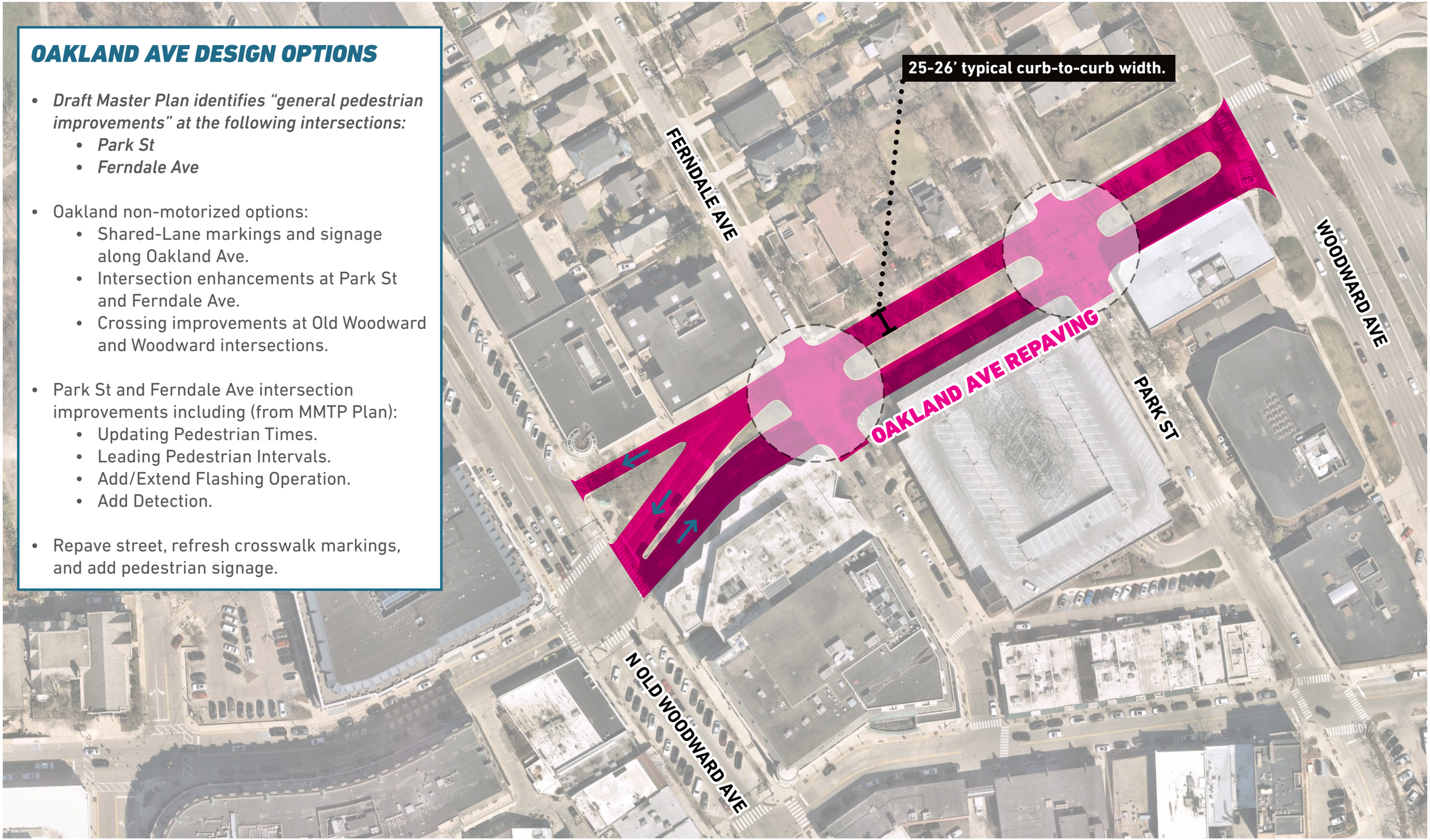
OAKLAND AVE DESIGN OPTIONS

- *Draft Master Plan identifies "general pedestrian improvements" at the following intersections:*
  - *Park St*
  - *Ferndale Ave*

- Oakland non-motorized options:
  - Shared-Lane markings and signage along Oakland Ave.
  - Intersection enhancements at Park St and Ferndale Ave.
  - Crossing improvements at Old Woodward and Woodward intersections.

- Park St and Ferndale Ave intersection improvements including (from MMTP Plan):
  - Updating Pedestrian Times.
  - Leading Pedestrian Intervals.
  - Add/Extend Flashing Operation.
  - Add Detection.

- Repave street, refresh crosswalk markings, and add pedestrian signage.



OAKLAND AVE

Existing Conditions

W MAPLE ALLEY

Between Henrietta St and Pierce St

W MAPLE ALLEY DESIGN OPTIONS

- *Draft Master Plan identifies "general pedestrian improvements" at the following intersections:*

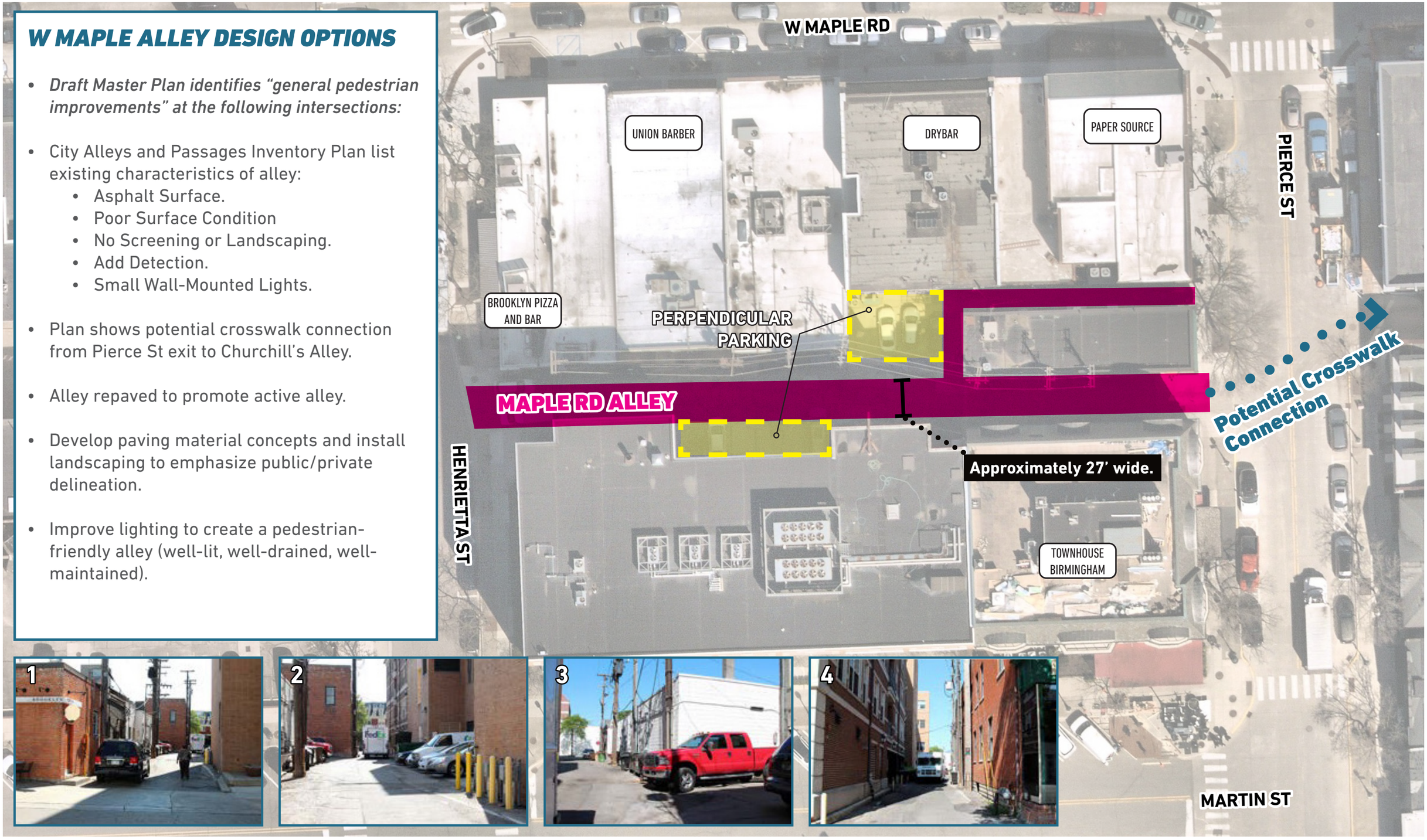
- City Alleys and Passages Inventory Plan list existing characteristics of alley:
  - Asphalt Surface.
  - Poor Surface Condition
  - No Screening or Landscaping.
  - Add Detection.
  - Small Wall-Mounted Lights.

- Plan shows potential crosswalk connection from Pierce St exit to Churchill's Alley.

- Alley repaved to promote active alley.

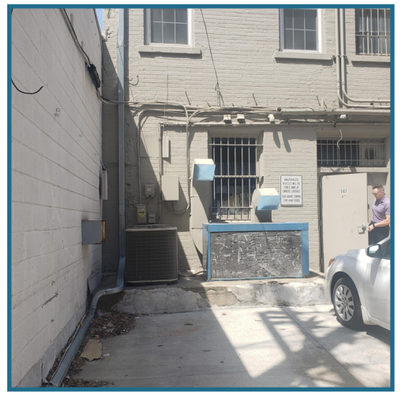
- Develop paving material concepts and install landscaping to emphasize public/private delineation.

- Improve lighting to create a pedestrian-friendly alley (well-lit, well-drained, well-maintained).



W MAPLE ALLEY
Existing Conditions















PIERCE ALLEY| CONCEPT REVIEW

MARCH 28, 2019

GOALS AND OBJECTIVES

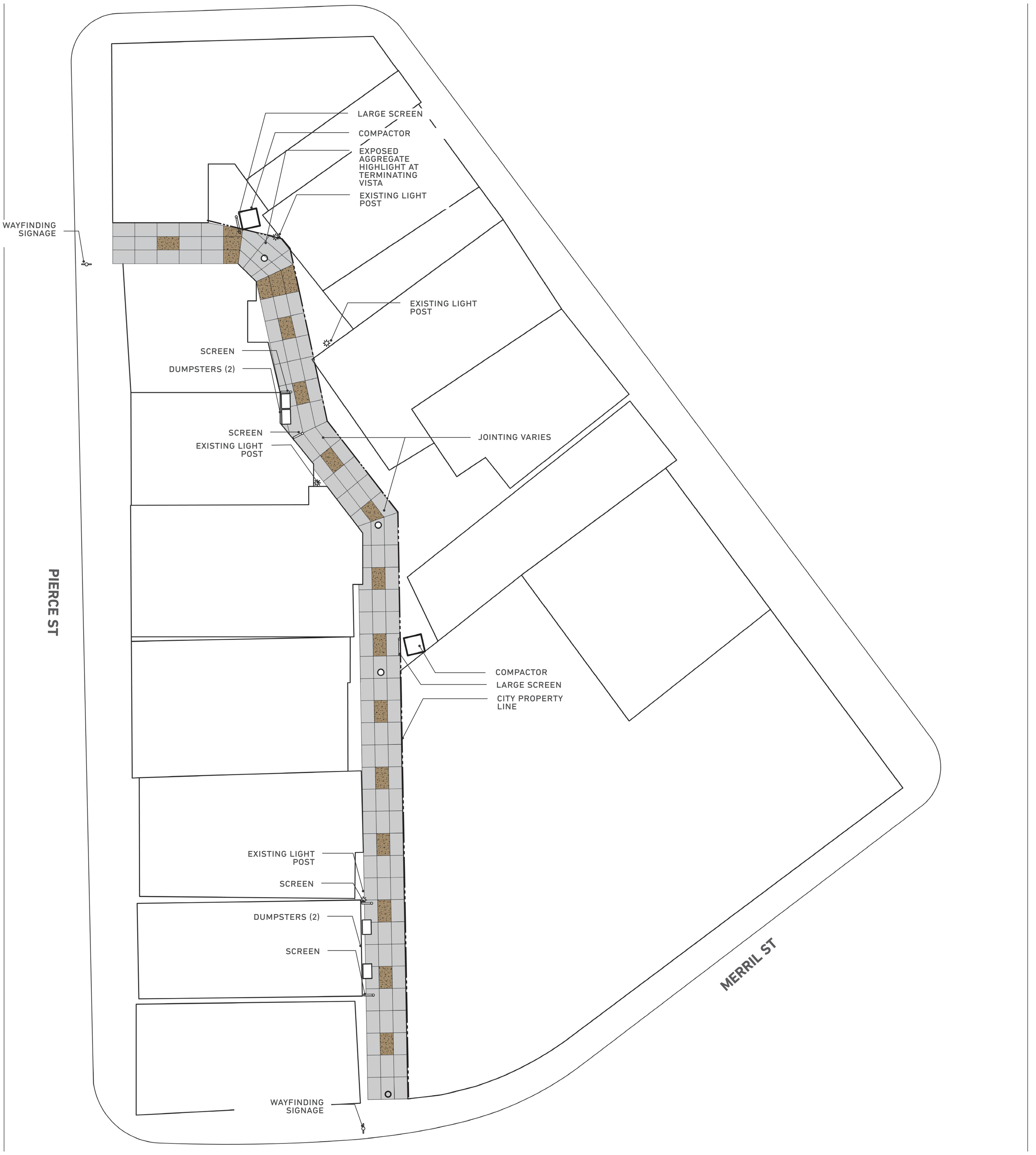
1. Create a pedestrian-friendly alley that is well-lit, well-drained, clutter-free, and visually appealling.
2. Integrate existing operational needs including waste disposal, parking/vehicular access, and emergency vehicles
3. Develop paving material concepts that emphasize public/private delineation, as well as celebrate the terminating vista at Churchhill's

Existing streetlights to be updated to match two lights by Churchill's

Existing light post and signage

Change in material is needed to emphasize public ROW and terminating vistas

Existing entrance from Merril Street



A PIERCE ALLEY

Scale: 1" = 20'-0"

0' 10' 20' 40'

MKSK

MEMORANDUM

Planning Division

DATE: April 28th, 2023

TO: Multi-Modal Transportation Board

FROM: Brooks Cowan, Senior Planner
Ryan Kearney, Police Lieutenant
Melissa Coatta, Engineering Department
With assistance from:
Brad Strader, MKSK
Julie Kroll, Fleis & Vandenbrink

SUBJECT: Communications

The next scheduled MMTB is July 6th, 2023, which is the Thursday following the July 4th holiday. Staff requests that the MMTB check their schedule in advance and confirm if they can attend a July 6th meeting, or potentially consider rescheduling or canceling the meeting.