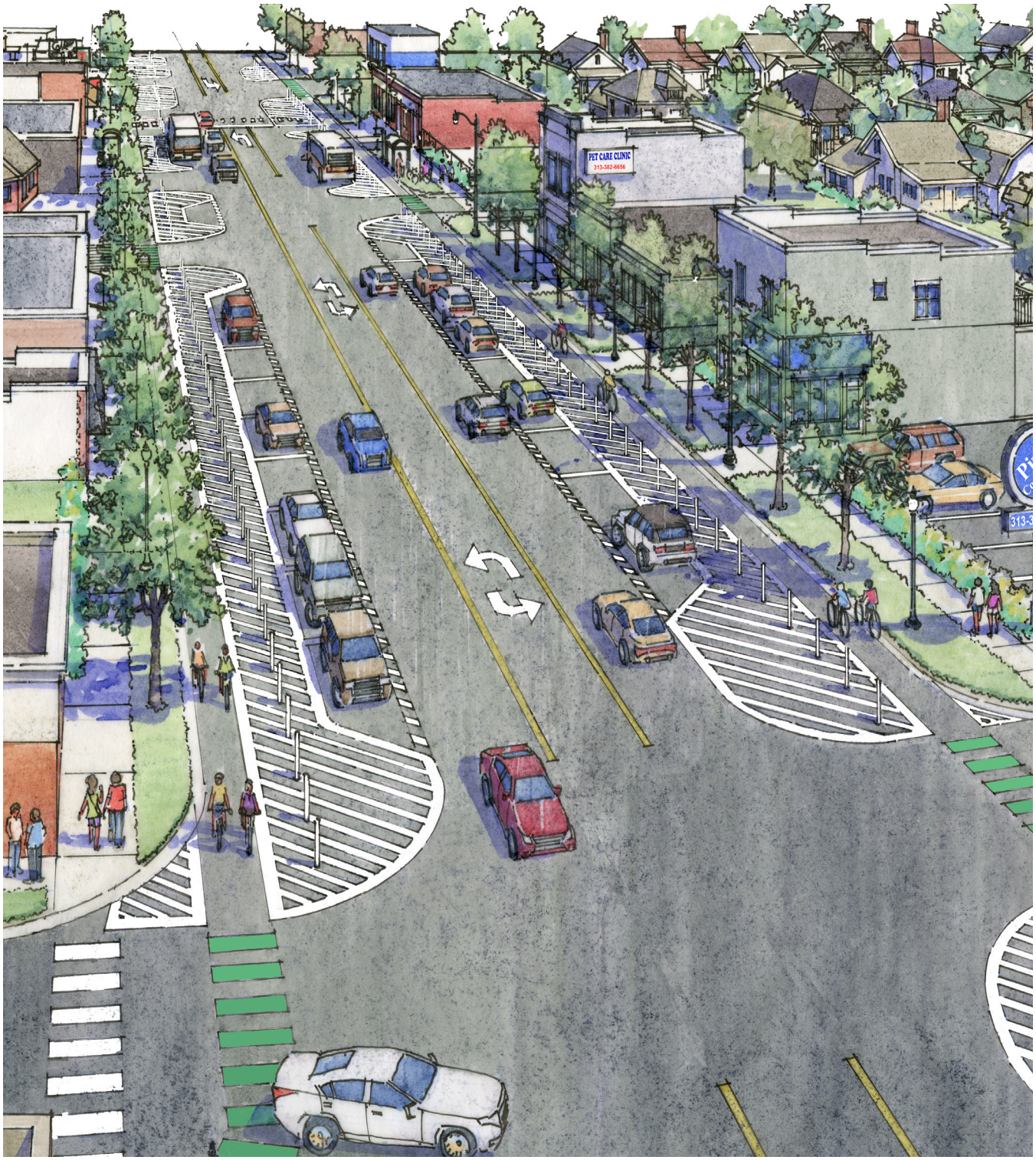
Southfield Road Corridor Study

CITIES OF LINCOLN PARK + ECORSE



FINAL DRAFT FOR ADOPTION

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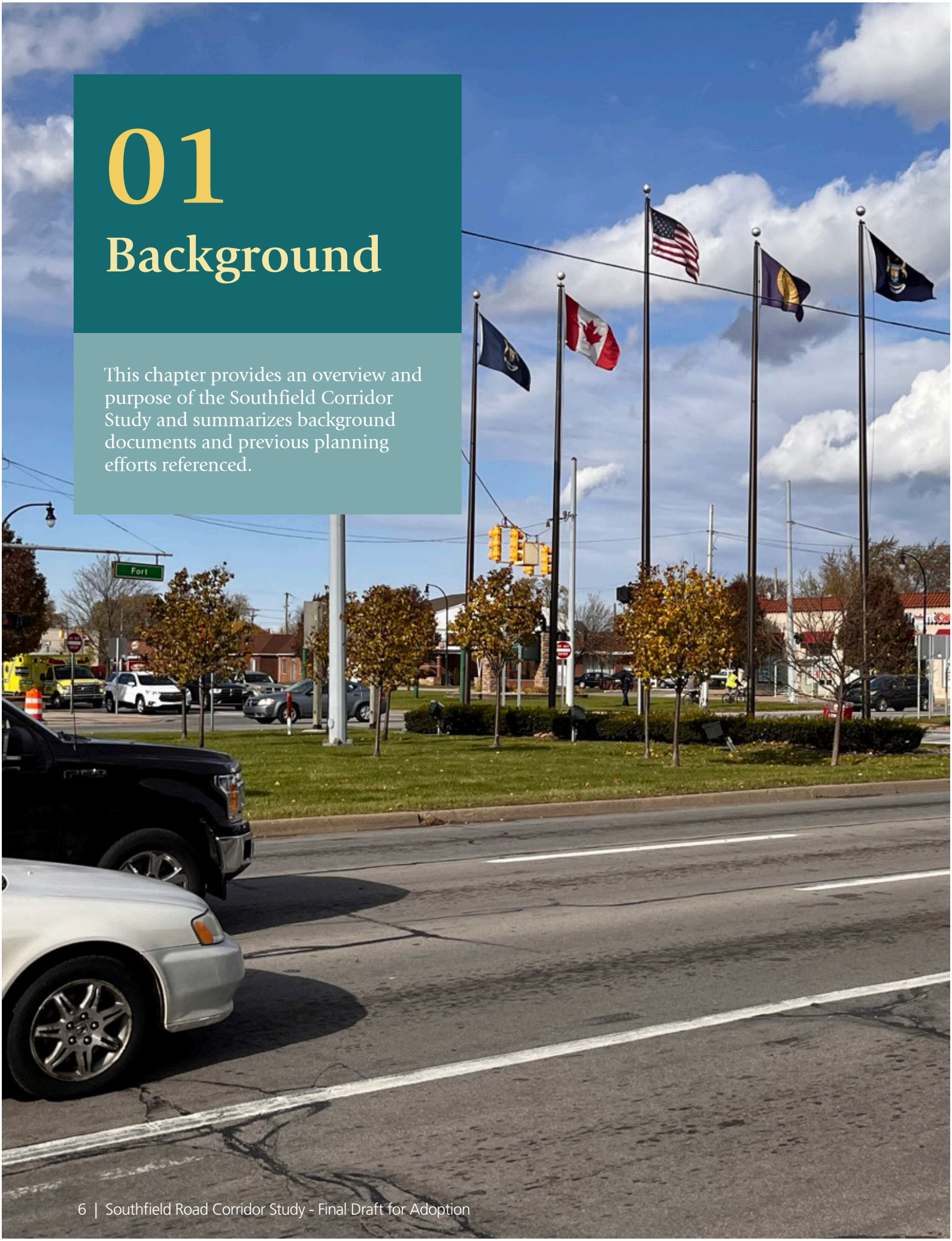
01
Background

This chapter provides an overview and purpose of the Southfield Corridor Study and summarizes background documents and previous planning efforts referenced.



BACKGROUND

Overview & Purpose

The Southfield Road Corridor Study spans from the western border of Lincoln Park to the Detroit River, traveling through the Cities of Lincoln Park and Ecorse. The purpose of the plan is to increase consistency of the built environment along the corridor, to improve its economic return, and to facilitate nonmotorized access to its business and recreation assets. Recommendations in the plan were developed based on results from extensive community engagement efforts, a traffic analysis of the entirety of the corridor, and best practices for improving high-speed, auto-centric corridors .

The study area of the Southfield Corridor is 2.85 miles long and encompasses five distinct environments, summarized below (also see Figure 1-1)

1. **Lincoln Park Gateway.** This section is the gateway from the neighboring City of Allen Park, which includes a large-scale redevelopment opportunity at Dix Highway. The site has long been zoned and used commercially, but recent inquiries have included warehousing/office; commercial self-storage and transportation (U-Haul), and a "last mile" logistics facility. This section terminates at the I-75 interchange, which is a potential asset to such redevelopment but poses challenges to nonmotorized use.

2. **Lincoln Park Core.** This section includes the City of Lincoln Park's core public buildings (City Hall, police department, library, District Court), and encompasses the intersection that is generally recognized as downtown Lincoln Park (Fort/Southfield). Increasing nonmotorized access and safety is the highest priority in this section. There is an existing parking lot in the median of Southfield Road which is under consideration for the development of an iconic project for the City, currently envisioned as a Farmers Market site that can also accommodate events.

3. **Lincoln Park General Corridor.** This section of Lincoln Park, between downtown and the border with Ecorse, was originally zoned and built as industrial property, and the dominance of the automotive industry at that time resulted in buildings designed to serve it. It is currently zoned for commercial use. It has development challenges, including shallow property depths, limited parking, out-of-code building and site alterations, and disinvestment. Lincoln Park's recent master plan considers an auto service overlay zone for this portion of the corridor, and the City is also considering whether it would be an appropriate area for non-customer-facing businesses such as small warehouse and production uses.

4. **Ecorse General Corridor.** The character of the corridor changes little as it continues across the border, with similar conditions and challenges on both sides. The 2015 Ecorse Master Plan designates the corridor for "commercial enhancement," and contains an objective to install a shared use path on Southfield Road; improving Southfield Road in general is cited as an identified citizen priority. The City has developed an Ecorse Creek Vision Plan for the Ecorse Creek area which includes a multi-use trail connecting Southfield to a planned public paddling launch at Pepper Park.

5. **Ecorse Waterfront.** This distinctive area of Ecorse encompasses the rail viaduct, the West Jefferson Corridor, and the waterfront. It is planned for directly in the 2018 West Jefferson Corridor Plan, and this plan reinforces and supplements those recommendations.

PREVIOUS PLANNING EFFORTS

Below is a summary of local and regional planning efforts conducted prior to this study, all of which were consulted and used as a base for this plan.

Lincoln Park

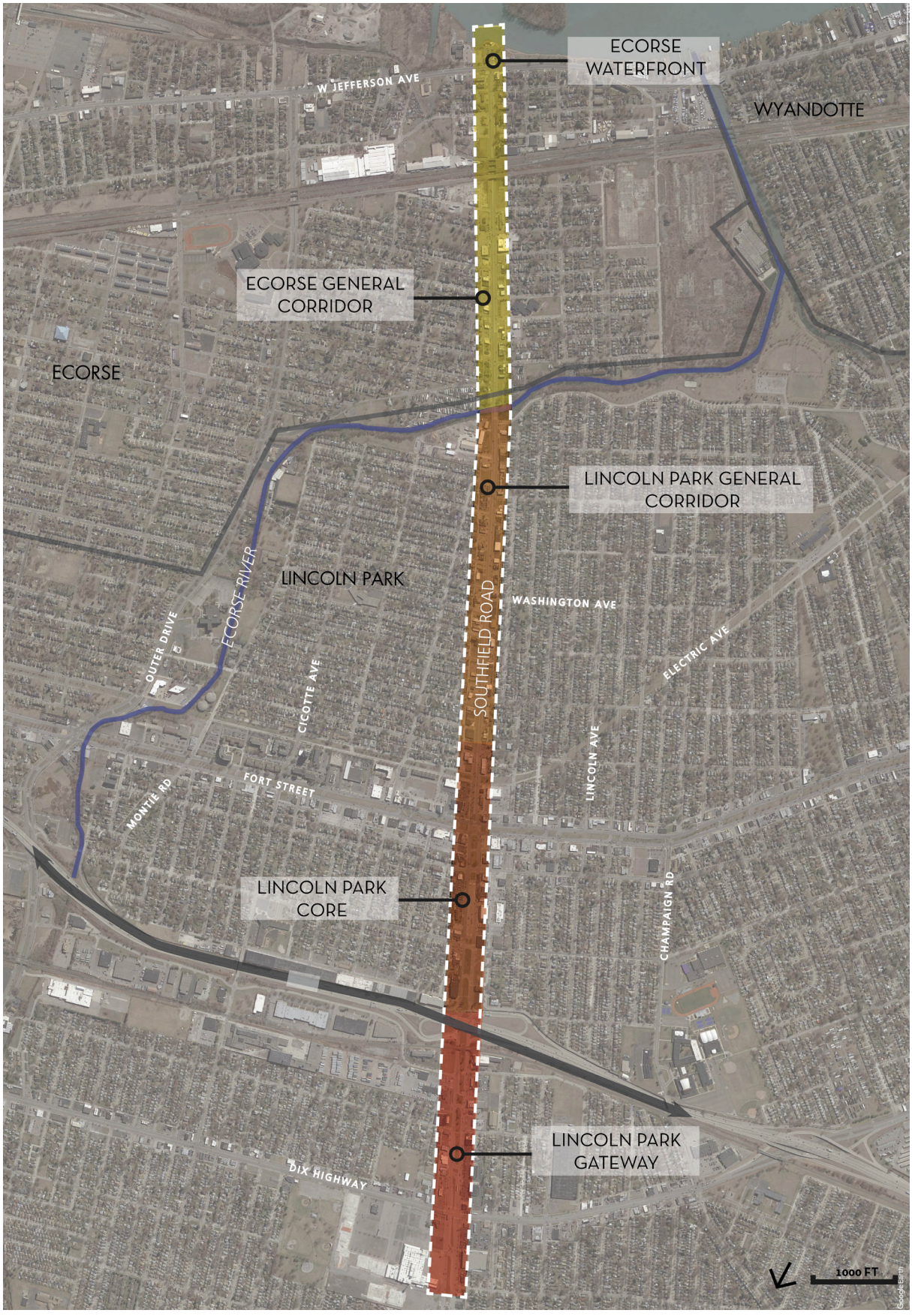
Lincoln Park Master Plan

» Southfield Road is a major commercial strip in Lincoln Park, and it hosts the City's municipal buildings and downtown.

» Two opportunity zones border Southfield Road: one is located on the north side of Southfield Road in the northeast quadrant of the City, and the other is on the south side of Southfield road, east of Fort Street.

» There are high concentrations of Hispanic residents that live near Southfield Road.

Figure 1-1. Five Distinct Segments of the Southfield Road Corridor



Source: Beckett & Raeder, Google Earth

» Pedestrian and nonmotorized access need to be improved along Southfield Road.

» Recommendations for design improvements include bump-outs and decorated crosswalks.

» The proposed automotive service overlay runs from the Electric corridor to Ecorse City boundary. This would be one of two main locations for auto-oriented businesses in Lincoln Park (the other area is along Dix Highway between I-75 and Gregory Avenue).

» The Master Action Plan included the following actions pertaining to the Southfield Road Corridor:

  - Expand tree canopy/ landscaping to empty medians
  - Maintain sidewalks so that they are safe and clean for all users
  - Create a cohesive and colorful wayfinding system that calls out local assets
  - Partner with ITC to create an Electric Avenue nonmotorized path that connects to downtown
  - Provide incubator space for self-employed or entrepreneurs to run small service-based businesses
  - Adjust the zoning ordinance to permit ultralight-impact manufacturing in commercial zones ("maker spaces")
  - Create an economic prospectus for priority parcels in the Opportunity Zones that includes relevant data and the community's vision for needed development
  - Inform local business owners and investors of the Opportunity Zone benefits
  - Ensure that zoning standards in opportunity zones are up-to-date
  - Create a vision and visuals for how the City would like to see the sites developed
  - Compile a list of reputable developers and send them information on sites that can be redeveloped, and follow up with any interested parties
  - Install bioswales along parking lots and roads to help slow the rate of water flow and the amount of pollution to the stormwater system

Green Infrastructure Vision, 2014

Southfield Road is recommended as a Green Street. Design and infrastructure improvement recommendations include:

» Redirecting runoff to constructed green infrastructure within available road right-of-way spaces.

» Implementing road diets to reduce impervious surfaces and using the available space for nonmotorized improvements, on-street parking, and constructed green infrastructure where traffic conditions warrant.

» Installing curb bump-outs with constructed green infrastructure features at intersections which also achieve traffic calming or speed reduction.

» Constructing linear streetscape enhancements that include constructed green infrastructure for both aesthetic and environmental benefits.

» Aligning community goals related to reuse of vacant property to strategically integrate these types of properties into the green infrastructure network.

» Using nonmotorized features to make connections within the overall green infrastructure network.

Ecorse

Ecorse Master Plan

» Land use and design recommendations pertaining to Southfield Road include:

  - Focus auto-oriented commercial development on this corridor.
  - Install a shared-use path.
  - Add curb extensions and high-visibility crosswalks.

Southfield Road commercial design guidelines include:

» Lot coverage & building mass: The City should consider reducing parking requirements for uses to reduce the amount of pavement on these lots, which would reduce surface runoff and help protect the water quality of the nearby rivers. Building mass should be appropriate to the proposed use with consideration toward the future use of the building.

» Building placement & setbacks: Commercial uses should have buildings set close to the road to be consistent with the historical building patterns of Ecorse. It is preferable for these uses to provide parking to the sides and rear, where appropriate.

» Character: The sidewalks, landscaping, and lighting requirements for the City should be emphasized in these areas. It is important that commercial uses are not developed with typical franchise architecture and details, but instead traditional facade materials, such as brick and stone, and architectural elements that reflect the City of Ecorse's long-standing commercial history.

West Jefferson Corridor Plan

The West Jefferson Corridor Plan was adopted in November 2019, and the West Jefferson Corridor intersects with Southfield Road in Ecorse. The plan includes corridor typologies (multimodal avenue and modern boulevard), detailed architectural design guidelines, and streetscape design guidelines. Highlights are summarized below.

» The Dingell Park node at the intersection of Southfield Road is a target for walkable infill

» Architectural design guidelines include recommended requirements for transparency, building materials, colors, roof form, door and window form, balcony and porch form, height, awning and canopy materials, lighting, and roof materials

» The streetscape design guidelines outline a "pedestrian zone" that includes four distinct areas:

- A furnishings area that accommodates amenities such as landscaping, planters, and sidewalk furniture;
- A walkway area where pedestrians can walk; and
- A frontage area adjacent to the building.

Both Communities

SEMCOG Bicycle and Pedestrian Mobility Plan for Southeast Michigan (2020)

» Southfield Road is not listed as a regional bicycle and pedestrian corridor, but West Jefferson Avenue in Ecorse is. Both cities are in moderate- or high-demand areas without bicycle infrastructure within half a mile.

» The highest-priority infrastructure improvement from the survey conducted in conjunction with this plan was protected bicycle lanes.

» Recommendations for improving moderate- or high-demand areas include:

» Developing networks of high comfort bikeways that connect residential areas to commercial areas and transit service, including:

- Shared-use paths, buffered or protected bike lanes along major arterial roadways;
- Conventional bike lanes on collector roadways;
- Neighborhood greenways that provide the first and last miles to biking and transit trips.

» Ensuring connectivity and maintenance of sidewalks, generally on both sides of the street and easy access to signalized crosswalks.

» Incorporating bicycle and pedestrian accommodations at transit stops, including shelters, bicycle parking, and nearby crosswalks.

» Developing education and encouragement campaigns for all roadway users, especially on the need to share the road, follow crosswalk-yielding laws, and promote nighttime visibility.

» The plan also includes resources for local implementation, infrastructure guidelines, and funding options.

Downriver Linked Greenways

Downriver Linked Greenways is a nonprofit organization focused on facilitating nonmotorized trail planning, development, and marketing for land and water trails. The organization was founded in 1998, and the current trail network extends over 100 miles. The Downriver Delta Trail, which extends from River Rouge to the Ecorse River in Ecorse, connects to Southfield Road at the W. Jefferson Ave intersection. The trail also has a separate section in Lincoln Park that connects Council Pointe Park and Lions Park.

Regional Transportation Authority of Southeast Michigan Master Plan

The Regional Transportation Authority (RTA) is the body responsible for coordinating transit in the Wayne, Oakland, Macomb, and Washtenaw County region. In 2021, the RTA adopted the Advance 2021 transit plan for southeast Michigan. The plan outlines the importance of regional transit planning, community engagement processes, and goals and strategies for achieving a regional transit vision.

While there is not specific language in the plan for the Southfield Corridor, the plan does define the transit market area and provides recommendations for the service area. The Southfield Corridor is in Transit Market 3 and is defined as an area that has moderate to high population and employment densities, a gridded street, and lower levels of vehicle ownership. Market 3 has high transit demand and the potential to support high-frequency fixed-route service. Goals outlined for Transit Market 3 include expanding transit to new places, enhancing existing services, developing innovative and adaptable solutions, building sustainable partnerships, and securing long-term dedicated transit revenue.

Next steps for Advance 2021 include determining finance mechanisms in 2022, developing a plan in 2023, and proposing a ballot initiative to voters in 2024. If the ballot initiative is approved the RTA will develop a project blueprint and start to achieve the Advance 2021 vision.

Existing eastbound Southfield Road railroad underpass northeast of I-75 in the Lincoln Park Gateway segment of the corridor.

02

Community Engagement

Community engagement was an essential part of developing recommendations for the Southfield Corridor. This chapter describes the stakeholders involved in engagement efforts and the results of the community engagement activities.

OVERVIEW

The community engagement portion of the corridor studies was quite extensive and involved a wide array of stakeholder groups. The community engagement efforts encompassed both the Southfield Road Corridor Study and the Fort Street Transportation Equity Study as both studies occurred simultaneously and are similar in nature. Therefore, many of the engagement results, unless otherwise specified, pertain to both corridors. Over the course of two months, there was a total of nine stakeholder meetings, including the following groups:

1. Transportation professionals,
2. Elected officials and city staff,
3. City boards and commissions,
4. Community organizations,
5. Regional organizations,
6. Programs to Educate All Cyclists (PEAC),
7. General public, and
8. Joint City Council and Planning Commission.

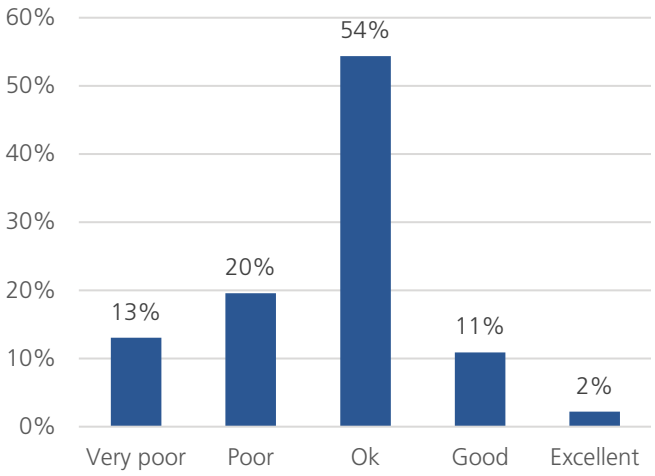
Each stakeholder session was roughly 1.5 hours long and occurred virtually via the online Zoom platform. For ease of compiling results, the sessions were consistent in their format and questions. Each session included a brief introduction to the studies (the Southfield Corridor Study and the Fort Street Transportation Equity Study) and their respective purposes, followed by a series of poll and discussion questions, and finalized with a Strengths, Weaknesses, Opportunities, and Threats (S.W.O.T.) analysis. All input was recorded. The session questions were also available in an online survey format for those stakeholders who could not attend one of the scheduled meetings. A summary of the compiled results of the interactive questions and the S.W.O.T. analyses is below.

INTERACTIVE QUESTIONS

Question 1: What is your experience on these corridors (Southfield + Fort) today?

Most participants (54%) indicated that their overall experience on the corridors today is "ok." One-third (33%) indicated that their experience is either "very poor" or "poor," leaving a noticeably smaller percentage (13%) to report their experience as either "good" or "excellent."

Figure 2-1: What is your experience on the corridor today? (Q1)



Question 2: What aspects of the experience are good? (open-ended discussion)

Common responses included the following:

- Decent traffic flow as a driver
- Decent road conditions
- Corner of Fort and Southfield has sense of place
- New street lighting
- Historic buildings

Question 3: What aspects of the experience are poor? (open-ended discussion)

Common responses included the following:

- High traffic speeds
- Lack of crosswalks
- Short timing for pedestrians using existing crosswalks
- Intersection of Fort and Southfield is problematic and dangerous (cars do not yield to pedestrians)
- Vacant buildings

» Unattractive (lack of upkeep, trash, etc.)

» No bicycle facilities

» Traffic backups in the right-of-way from drive-thru businesses on Southfield Road

» Oversaturation of auto-related land uses

Question 4: Specific to the Southfield Road corridor, does your experience change based on what section of the corridor you are on?

The Southfield Corridor was divided into five sections (shown in the graphic below): Lincoln Park Gateway, Lincoln Park Core, Lincoln Park General Corridor, Ecorse General Corridor, Ecorse Waterfront. 80% of participants believed that the experience changes based on the section of the corridor they are on. Common responses for the differences in each of the five sections are summarized in Table 2-1.

Question 5: What aspects of the corridors (Southfield + Fort) should be preserved? (open-ended discussion)

» Common responses included the following:

» Medians and parking in medians

» Existing business districts (downtowns)

» Historic buildings

» Fort and Southfield intersection landmarks (i.e. flag display)

» Museum and City Hall

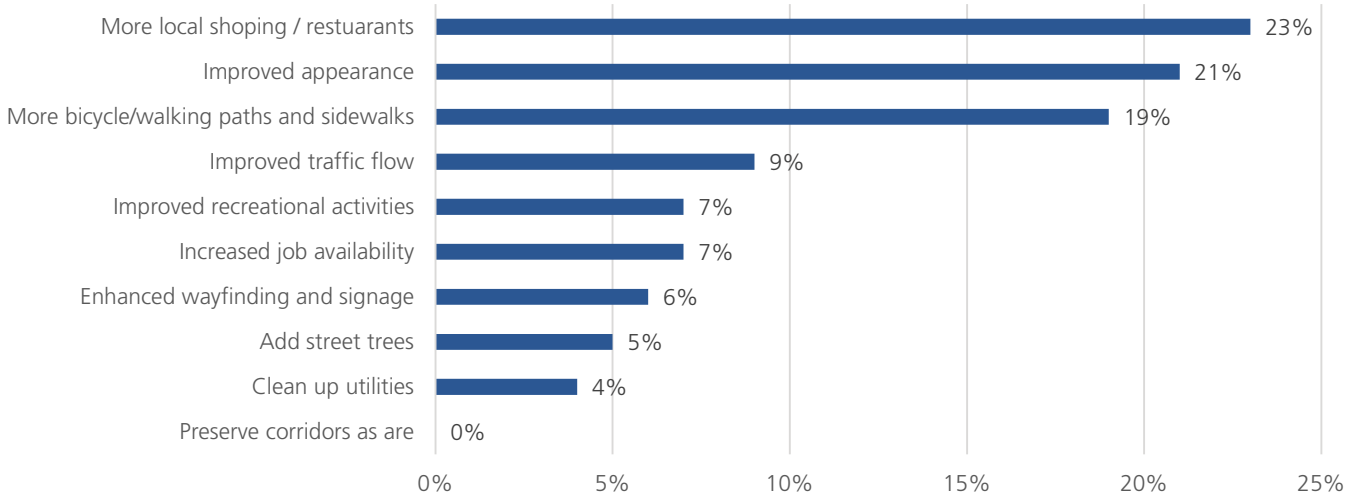
» Higher traffic volume capacity near I-75

Question 6: What are the top three changes you would like to see along the corridors (Southfield + Fort) in the next 10 years?

Table 2-1: How does your experience change based corridor section? (Q4)

Lincoln Park Gateway	Lincoln Park Core	Lincoln Park General Corridor	Ecorse General Corridor	Ecorse Waterfront
Geared toward drivers	Median	No median	No median	More local traffic
Cars rushing to get on I-75	Overflow of businesses in road	Same as Ecorse General	Same as LP General	Connection to Jefferson
Median	Most traffic congestion	More industrial	Few pedestrian amenities	Tourism opportunities
Higher traffic volumes	Cluster of restaurants / shopping	Auto-related uses	Traffic opens up	Connection to water
Near industrial uses	Streetscaping & lighting	Few pedestrian amenities	Less lively	Less lively
Not walkable	Median	Traffic opens up	High speeds	
		Less lively		

Figure 2-2: What are the top three changes you would like to see along the corridor in the next 10 years? (Q6)



Participants were asked to select their top three priorities from a pre-determined list of options for changes to the corridors. The top three options chosen were more local shopping/restaurants (23%), improved appearance (21%), and more bicycle/walking paths and sidewalks (19%). Please note that no one wanted to preserve the corridors as they are and that even job availability and traffic flow were less important than the overall appearance of the corridors.

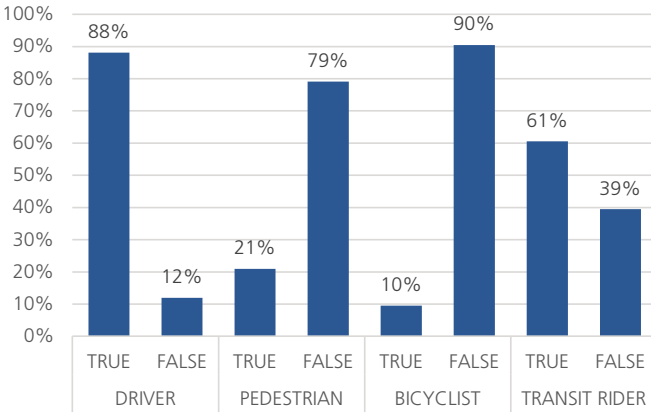
Question 7: For different modes of transportation along these corridors (Southfield + Fort), how would you respond to the following statement: "I feel comfortable as a..."

Most respondents (88%) feel comfortable as a driver along these corridors but not comfortable as either a pedestrian (79%) or bicyclist (90%). The comfort level as a transit rider was somewhat mixed with 61% indicating that they are comfortable and 39% saying there are uncomfortable (although most of the participants were not regular transit riders so their responses were guesses at their level of comfort on a bus).

Questions 8 & 9: What aspects of the corridors (Southfield + Fort) make you feel comfortable and uncomfortable? (open-ended discussion)

These open-ended discussion questions asked participants to reflect in greater detail on poll

Figure 2-3: I feel comfortable as a... (Q7)



Existing pedestrian facilities under railroad bridge in the Ecorse General section of the corridor.

Table 2-2: What aspects of the corridor affect your comfort level? (Q8 & 9)

Driver	Pedestrian
» No median closer to Ecorse » People turning right on red » Traffic backups » Traffic speed	» High traffic volumes and speeds » Wide road to cross » People turning at Fort & Southfield » Loitering/panhandling » No crosswalks » Sidewalk under I-75 » No median » Not ADA accessible » Lack of lighting
Bicyclist	**Transit Rider**
» Not safe on sidewalk or street » No bicycle lanes » A lot of driveways » High traffic speeds » Aggressive motorists » Poor surface conditions	» Having to cross multiple lanes of traffic to get to a bus stop, which is often impossible » Lack of bus stops » Bus stops are not appealing (no shelter)

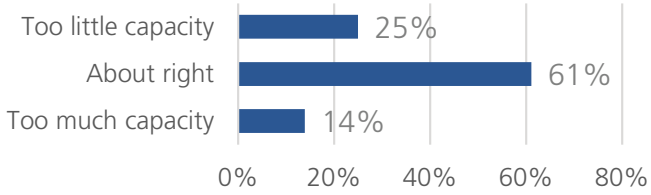
results from question 7, specifically pertaining to aspects that cause comfort and discomfort. Common responses for why participants feel comfortable as a driver included the wide road/lanes, the median in the middle, good road conditions, and lighting. Participants feel comfortable as a pedestrian due to the center median as a place of refuge. There were no comments for aspects contributing to comfort as a bicyclist or transit rider, due to relatively little experience among the participants with those modes of transit.

Table 2-2 summarizes common responses regarding discomfort for all four modes of transportation:

Question 10: As a user of the corridors (Southfield + Fort) today, what is your opinion on roadway capacity?

Most respondents (61%) indicated that the roadway capacity for the two corridors is "about right;" however, in nearly all the stakeholder sessions, participants elaborated that Southfield Road has too much capacity east of Fort Street and too little capacity west of Fort Street.

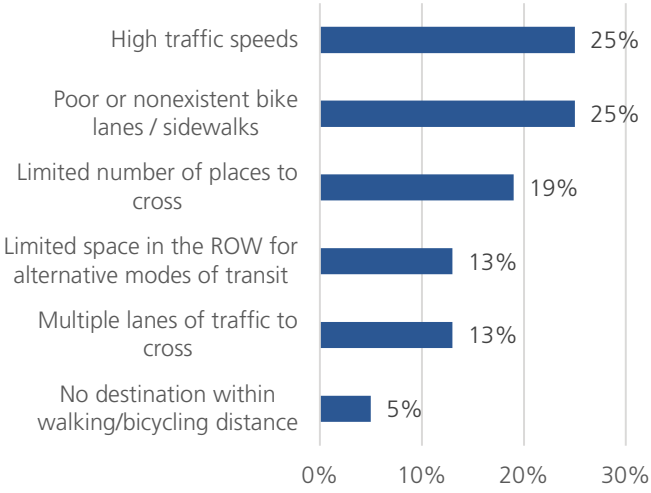
Figure 2-4: What is your opinion on roadway capacity? (Q10)



Question 11: What is the biggest obstacle standing in the way of enhancing pedestrian or bicycle mobility?

Participants were asked to select their top three obstacles standing in the way of enhancing pedestrian or bicycle mobility. The top three options chosen were high traffic speeds (25%), poor or nonexistent bike lanes/sidewalks (25%), and limited number of places to cross (19%).

Figure 2-5: What is the biggest obstacle standing in the way of enhancing pedestrian or bicycle mobility? (Q11)



Question 12: How can we improve our ROWs to equitably balance between all modes of transportation (pedestrian, bicycle, auto, bus, others)? (open-ended discussion)

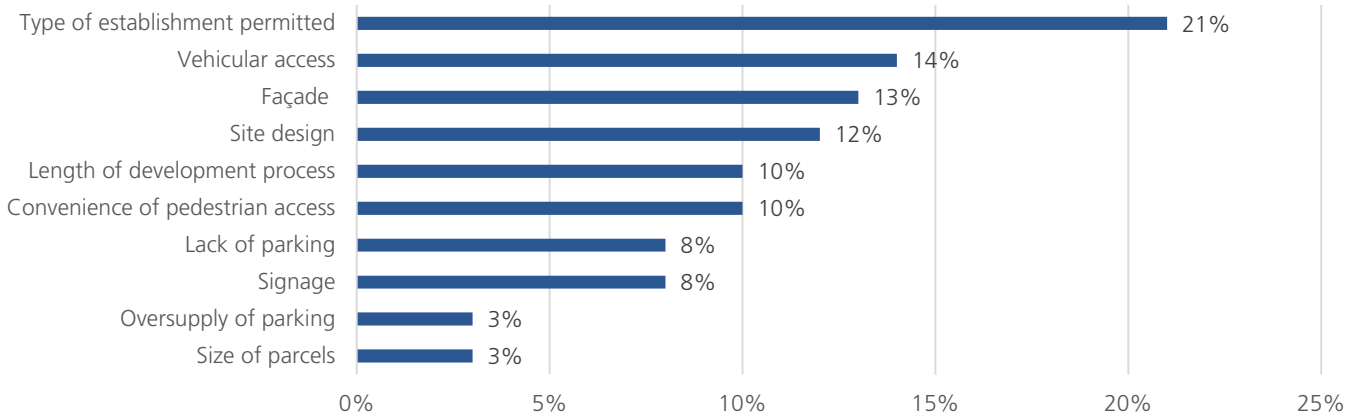
Common responses included the following:

» Make ROWs multi-modal

» Provide bicycle amenities (lanes, parking, etc.)

» Provide more lighting for both visibility and safety (lack of lighting makes people feel physically unsafe)

Figure 2-6: What factors, under the Cities' control, do you think contribute to a business' success if it is located on the corridor? (Q13)



- More signage
- Education for drivers on how to share the road with other users
- More frequent and clear crosswalks
- Slow traffic down

Question 13: What factors, under the Cities' control, do you think contribute to a business' success if it is located on one of these corridors (Southfield + Fort)?

Participants were asked to select their top three factors that could contribute to a business' success. The responses were somewhat varied, but the top three options chosen were type of establishment permitted (21%), vehicular access (14%), and façade (13%), all of which may be addressed through the Zoning Code.

Question 14: What actions could the Cities take to support businesses along the corridors (Southfield + Fort)?

This was an open-ended discussion question that went into more detail from question 13. Common responses included the following:

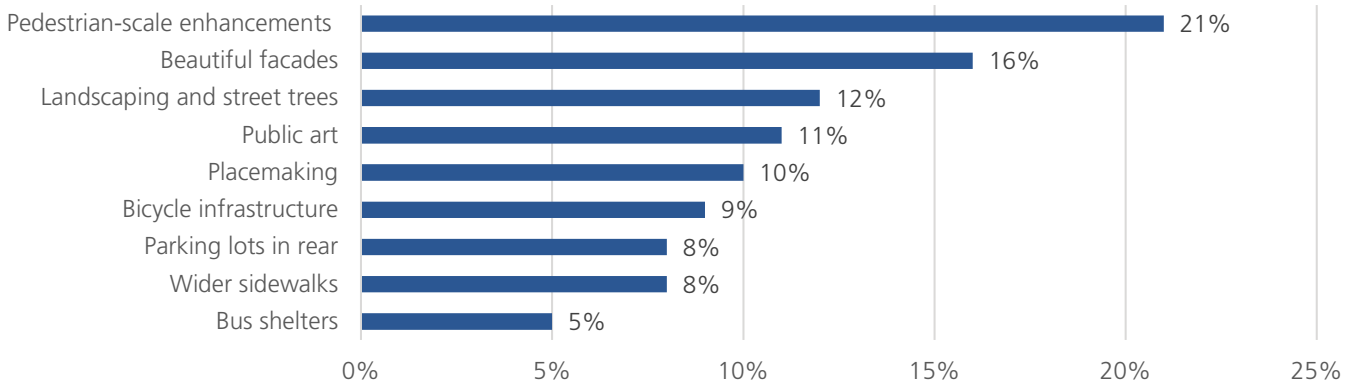
- Provide better pedestrian access
- People-friendly, customer-facing businesses
- Update zoning
- Make crossing roads easier
- Add signage, especially directing to rear parking on Fort Street
- Improve lighting
- Increase financial incentives
- Engage with businesses regularly

Question 15: Placemaking is one economic development strategy. Placemaking is the approach to planning and designing active and interesting community spaces. Examples include splash pads, outdoor fitness centers, and amphitheaters. What placemaking efforts would you like to see along the corridors (Southfield + Fort)?

Common responses included the following:

- Outdoor seating areas
- Public art
- Lending library
- Pop-up activities
- Ways to encourage people to spend time outdoors
- Dog park
- Open-air market

Figure 2-7: What type of improvements to the streetscape would make you want to frequent the corridor more often?? (Q16)



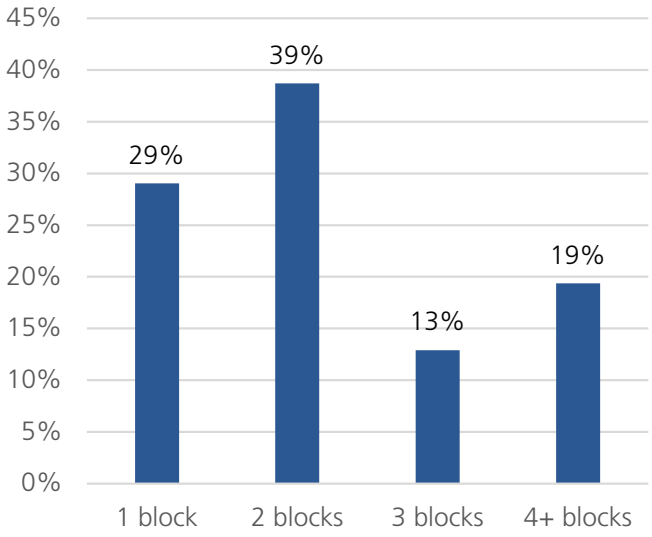
Question 16: What type of improvements to the streetscape would make you want to frequent these corridors (Southfield + Fort) more often?

Participants were asked to select their top three improvements to the streetscape. The top three responses chosen were pedestrian-scale enhancements (lighting, benches, trash/recycling bins) (21%), beautiful facades (16%), and landscaping / street trees (12%). These results indicate a preference for pedestrian-scale streetscape elements, rather than auto-related elements.

Question 17: How far would you be willing to walk from available parking to your destination?

The responses to this question were quite varied, but the most common response was two blocks at 39% of participants. This finding indicates an understanding that parking cannot be guaranteed directly in front of each establishment and that a culture of walking to destinations may be cultivated.

Figure 2-8: How far would you be willing to walk from available parking to your destination? (Q17)



S.W.O.T. ANALYSIS:

The compiled results of each S.W.O.T. analysis are summarized on the following page.

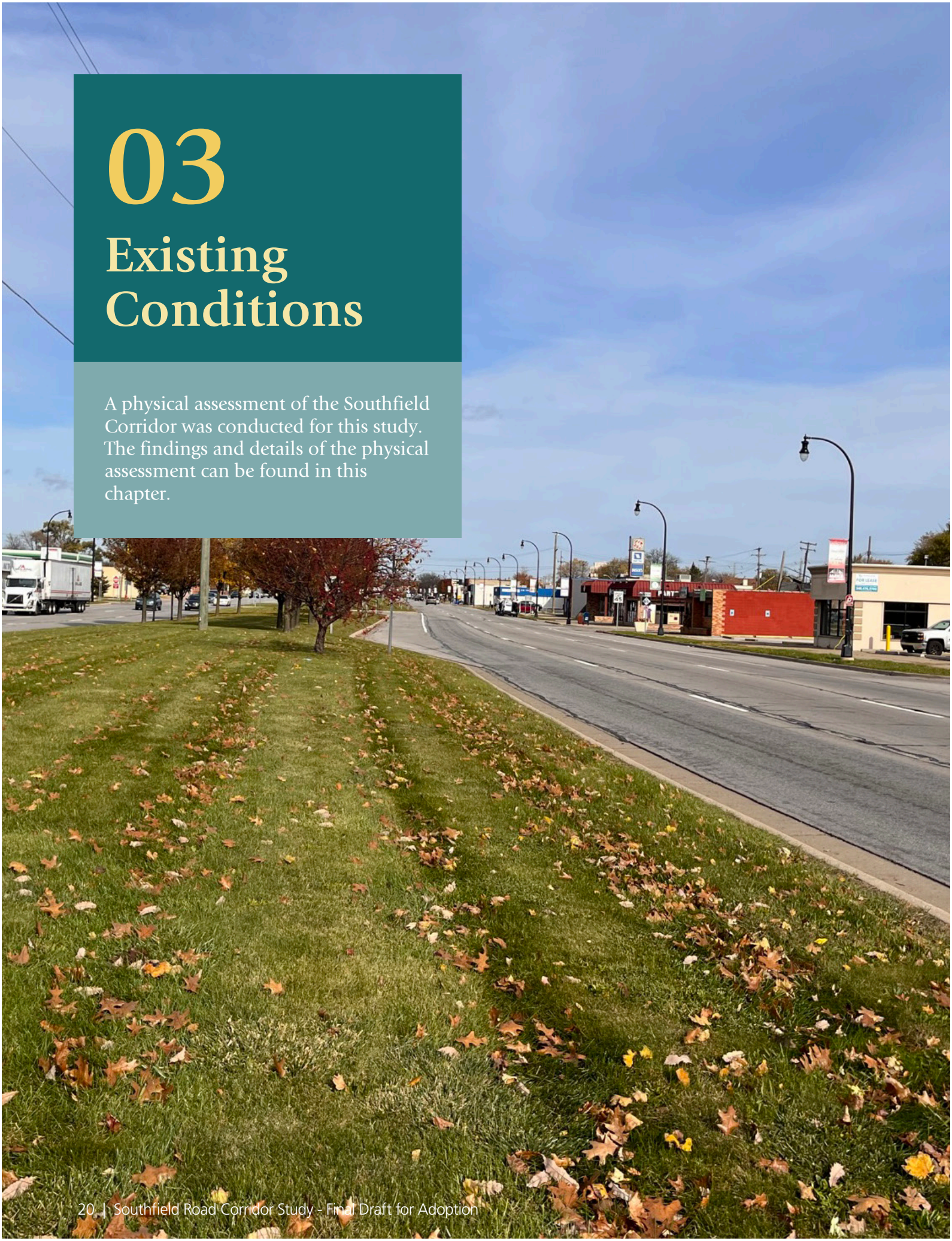
Table 2-3: S.W.O.T. Analysis

Strengths	Weaknesses
» Central location and proximity to major roads (I-94 and I-75) (4) » Multiple transit routes / bus access (4) » Detroit River / Refuge access (3) » Good road conditions for drivers (surface, lighting, lane width) (3) » Prime areas for businesses (3) » Good bones to work with (setbacks, buildings, human scale) (2) » Residential population (2) » City leadership in both cities (2) » Traffic capacity (1) » Lower property values and cost contribute to a lower cost for redevelopment (1) » Mix of big box stores and mom and pop stores (1) » Grassy median (1) » From PEAC office, there are amenities and destinations (bike racks, pizza place) (1) » Existing processes for redevelopment (1) » A lot of people who come through these corridors (1)	» Lack of pedestrian access and safety (7) » Neglected and deteriorating conditions of buildings and infrastructure (5) » Excessive automotive businesses (3) » Lack of bicycle access and safety (2) » Lack of trees/flowers/amenities (benches, signs) (2) » Loitering/panhandling with no enforcement (2) » Speed limit is too high (2) » No programs or aid for local businesses (i.e. Motor City Match) (2) » Lack of ADA-compliant infrastructure (2) » Lack of public engagement and involvement (2) » Lack of connectivity between areas – always have to drive around (1) » Missing adjacent and complementary uses (1) » Antiquated lots (1) » Loud/noisy corridor (1) » Traffic (1) » No bus shelters/crosswalks that connect bus stops (1) » Timed crossings are too short to cross the entire corridor (1)
Opportunities	**Threats**
» Placemaking in vacant lots (5) » Downtown beautification & business development (4) » Events (i.e. Downriver Cruise, food truck rally on river, Farmer's Market in median, DIA project) (4) » Link to bicycle facilities/businesses on Jefferson (3) » Pedestrian amenities (wayfinding, streetlights, sidewalk connections) (3) » Available real estate & vacant buildings (3) » Protected bike lanes and routes (2) » More frequent crosswalks and extended time to cross (use crosswalk from Fort & Miami as model) (2) » Smaller lots (combination or small businesses) (2) » Local funding opportunities (Façade grant, EDC small business loan program) (2) » Outside funding opportunities (Brownfield, Act 51 dollars to maintain sidewalks) (2) » Community & PEAC engagement (2) » Wide roads provide room for improvements (1) » Use of the multi-modal tool MDOT/SEMCOG (1) » Pursuing RRC certification (1) » Updated zoning for commercial uses (1) » Design interventions to slow down traffic (1)	» High traffic speeds & aggressive motorists (5) » Pedestrian and bicyclist safety (4) » Negative attitudes & perception of cities (3) » Lack of crossings/signals (2) » Number of jurisdictions that need to coordinate (County, MDOT, 2 cities, SEMCOG, SMART) (2) » This project is too large in scope to accomplish (2) » Property maintenance and litter (2) » Quality of roads / infrastructure (2) » Youth leaving the cities (1) » Increasing automotive businesses (1) » Rush hour congestion (1) » Incompatible mix of land uses » Parking taken away from the median (1) » Changing shopping patterns (1) » Flooding (1) » Crime – location dependent (1) » Budget constraints (1)

03

Existing Conditions

A physical assessment of the Southfield Corridor was conducted for this study. The findings and details of the physical assessment can be found in this chapter.



LAND USE

Commercial land uses dominate the Southfield Corridor. Of the 231 parcels with frontage on the corridor, 166 are commercial properties (72%). An additional 16 parcels are industrial (7%), 15 are public/quasi-public (6%), 12 are residential (5%), and 22 parcels are classified vacant (10%). The northern side of Southfield Road is more heavily commercialized than the southern side. All the residential parcels are east of Wilson Avenue. There is a cluster of industrial parcels on the southern side of Southfield from Wilson Ave to Elliot Ave and another grouping of industrial parcels along the railroad corridor in Ecorse, but these parcels are not visible from the street. A large industrial property at the intersection of Southfield and John A. Papalas drive has little frontage on Southfield Road, but it generates substantial truck traffic and other industrial activity.

ZONING

The majority of the corridor is zoned for commercial uses. Both the Lincoln Park Gateway and the Lincoln Park General sections of the corridor are

Table 3-1: Land Use Classifications along the Corridor

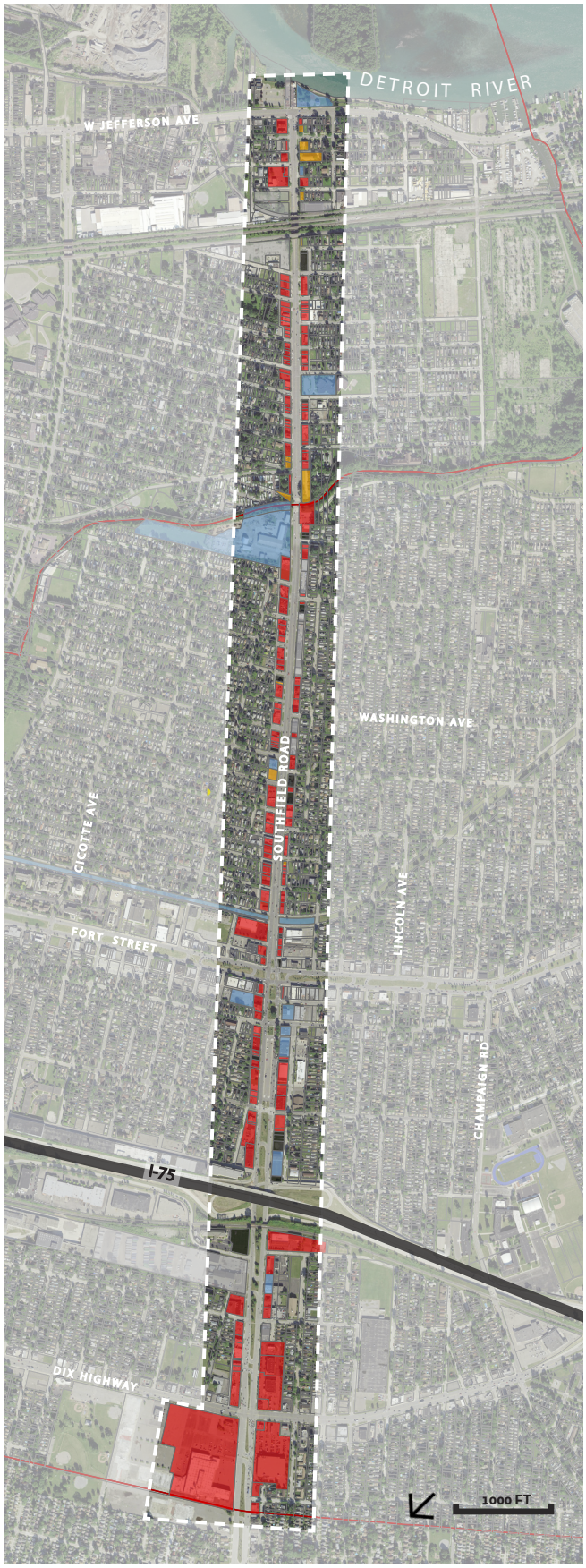
Land Use	Lincoln Park Gateway	Lincoln Park Core	Lincoln Park General	Ecorse General	Ecorse Waterfront
Commercial	20 (80.0%)	31 (67.4%)	52 (68.4%)	55 (84.6%)	7 (38.9%)
Industrial	2 (8.0%)	–	8 (10.5%)	1 (1.5%)	5 (27.8%)
Residential	–	–	3 (4.0%)	5 (7.7%)	4 (22.2%)
Public/Civic	1 (4.0%)	5 (10.9%)	6 (7.9%)	1 (1.5%)	2 (11.1%)
Vacant Lot	2 (8.0%)	10 (21.7%)	7 (9.2%)	3 (4.6%)	–

Table 3-2: Zoning Classifications along the Corridor

Zoning Classification		LP Gateway	LP Core	LP General	Ecorse General	Ecorse Waterfront
Commercial Zones	Central Business District (LP)	–	–	24 (51.1%)	–	–
	Municipal Business District (LP)	20 (80.0%)	23 (48.9%)	71 (97.3%)	–	–
	Regional Business District (LP)	1 (4.0%)	–		–	–
	Commercial (Ecorse)		–	–	59 (90.8%)	–
	Corridor Core (Ecorse)	–	–	–	–	–
Industrial Zones	General Industrial (LP)	3 (12.0%)	–	–	–	–
	Light Industrial (LP)	1 (4.0%)	–	–	–	–
	Light Industrial (Ecorse)	–	–	–	1 (1.5%)	5 (27.8%)
Residential Zones*	Manufactured Home (Ecorse)	–	–	–	3(4.6%)	–
	Single-Family Residential (Ecorse)	–	–	–	1 (1.5%)	–
Public Zones	Community Service (LP)	–	–	1 (1.4%)	–	–
	Public / Quasi - Public (Ecorse)	–	–	–	1 (1.5%)	2 (11.1%)

*There are currently no residential zoning districts along the Southfield Road corridor in the City of Lincoln Park.

Figure 3-1: Existing Land Use



Pavilion at Ecorse Waterfront.

Lincoln Park Historical Museum in LP Core.

Automotive businesses in LP General corridor.
Source: Google Earth

LEGEND

LINCOLN PARK

- REGIONAL BUSINESS
- MUNICIPAL BUSINESS
- CENTRAL BUSINESS
- GENERAL INDUSTRIAL
- LIGHT INDUSTRIAL
- COMMUNITY SERVICE
- MOBILE HOME PARK

ECORSE

- COMMERCIAL
- CORRIDOR CORE
- PUBLIC/QUASI PUBLIC
- MANUFACTURED HOME DISTRICT
- LIGHT INDUSTRIAL
- SINGLE FAMILY RESIDENTIAL

predominately zoned Municipal Business District (Lincoln Park zoning designation), 80% and 97% respectively. The Municipal Business District is intended to permit businesses and services found along major streets, regional thoroughfares, or near freeway access ramps. Because these uses generate high volumes of traffic, zoning regulations require substantial off-street parking, truck loading, and screening from adjacent and residential zones to mitigate land use conflicts. The Lincoln Park Core is split evenly between Municipal Business District and Central Business District. The intent of Lincoln Park's Central Business District is to promote development that is pedestrian oriented and accessible. Permitted uses include retail, commercial, office, civic, and residential. Zoning regulations for the downtown intend to encourage a lively social environment, an economically viable center, and innovative commercial and mixed-use developments. The Ecorse General section of the corridor is heavily comprised of Ecorse's Commercial zone. The intent of the commercial zone is to provide for intensive commercial development that caters more to motorists' needs than other commercial districts in Ecorse. Therefore, regulations for site layout and circulation are tailored to the automotive nature of the businesses. Most parcels in the Ecorse Waterfront section are zoned Corridor Core which is the designation for the City's downtown. Development in this district is required to adhere to historic downtown design principles, buildings are placed near the street, and mixed-use buildings are encouraged. Unlike the rest of the corridor, development in the Corridor Core is not auto-centric and instead emphasizes pedestrian and bicycle circulation.

Figure 3-2: Zoning

Table 3-3: Building Conditions along the Corridor

	Excellent	Good	Fair	Poor	Composite Building Condition
LP Gateway	8 (44%)	9 (50%)	1 (6%)	0	2.39
LP Core	10 (39%)	12 (46%)	4 (15%)	0	2.23
LP General	15 (27%)	26 (47%)	13 (24%)	1 (2%)	2.00
Ecorse General	8 (24%)	9 (27%)	12 (35%)	5 (15%)	1.59
Ecorse Waterfront	4 (36%)	7 (64%)	0	0	2.36
Total	45 (31%)	63 (44%)	30 (21%)	6 (4%)	2.02

Source: Google Street View

Table 3-4: Building Vacancy by Corridor Section

	LP Gateway	LP Core	LP General	Ecorse General	Ecorse Waterfront
Percent Vacant	7.4%	14.3%	22.4%	54.7%	30.0%
Composite Building Condition	2.39	2.23	2.00	1.59	2.36

Source: City of Lincoln Park, City of Ecorse

BUSINESS TYPES AND BUILDING CONDITIONS

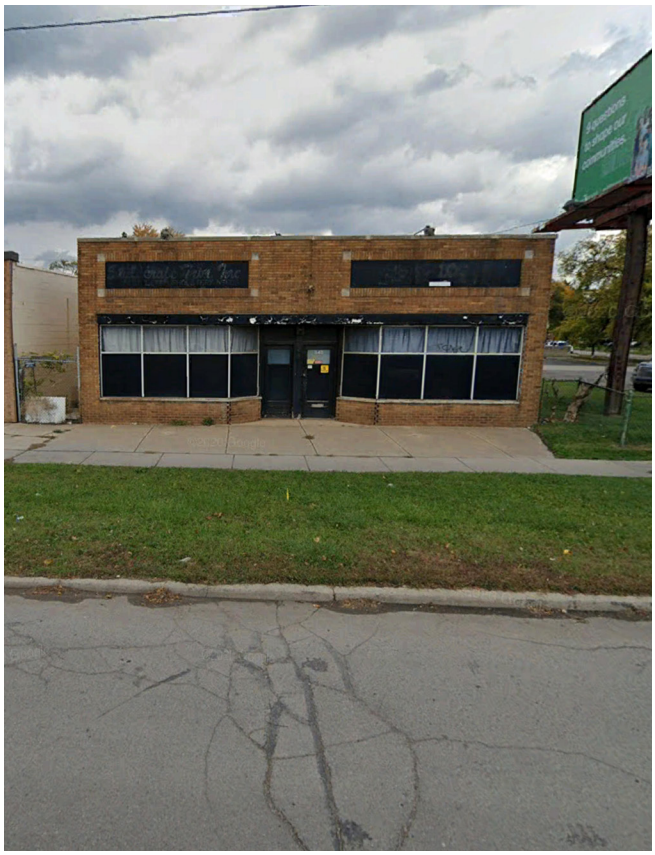
In addition to inventorying land use types, the project team also conducted an inventory of business types and building conditions on the corridor through a site visit and via Google Street View. Auto-oriented businesses are the most common type of business along the corridor, including auto service, sales, and detailing. These businesses account for 27% of all businesses, 29 in total. Other common business types include general retail, phone sales and resale shops (14%), restaurants (12%), and health and beauty care stores and services (9%). While not considered a business, there are 27 vacant lots and 26 parking lots along the corridor indicating there are almost as many parking lots as there are auto-oriented businesses. The land use analysis identified 22 vacant lots, but field analysis found that the number of vacant lots is slightly higher, potentially a result of out-of-date assessing classification.

The buildings on Southfield are in relatively good physical condition. Three-quarters (75%) of buildings along the corridor are in good or excellent condition and only 4% are in poor condition. Condition applies to the physical characteristics and not the aesthetic characteristics. Some buildings may be in good condition but are detrimental to the appearance of the corridor because of their poor design. Condition varies throughout the corridor. The two ends of the corridor, Lincoln Park Gateway and the Ecorse Waterfront have the highest composite building condition. Composite condition was calculated by assigning a score to each condition (Excellent – 3, Good – 2, Fair – 1, Poor – 0), multiplied by the number of buildings in each condition, and then dividing by the total number of buildings. The two general corridors had the lowest scores indicating that the center of the corridor has the poorest building conditions. There was no systematic connection between the type of business and building condition.

VACANCIES

While building conditions speak directly to the aesthetics along the corridor, vacancy status speaks to the vibrancy (or lack thereof) of the corridor. High vacancy rates contribute to a lacking street presence and activity, which can make areas less desirable for new businesses and less welcoming for residents and visitors. Limited activity may also negatively impact a person's perception of his/her personal safety. Without business owners, workers, and patrons maintaining a presence along a corridor, there is not a collective body to monitor the area's goings-on.

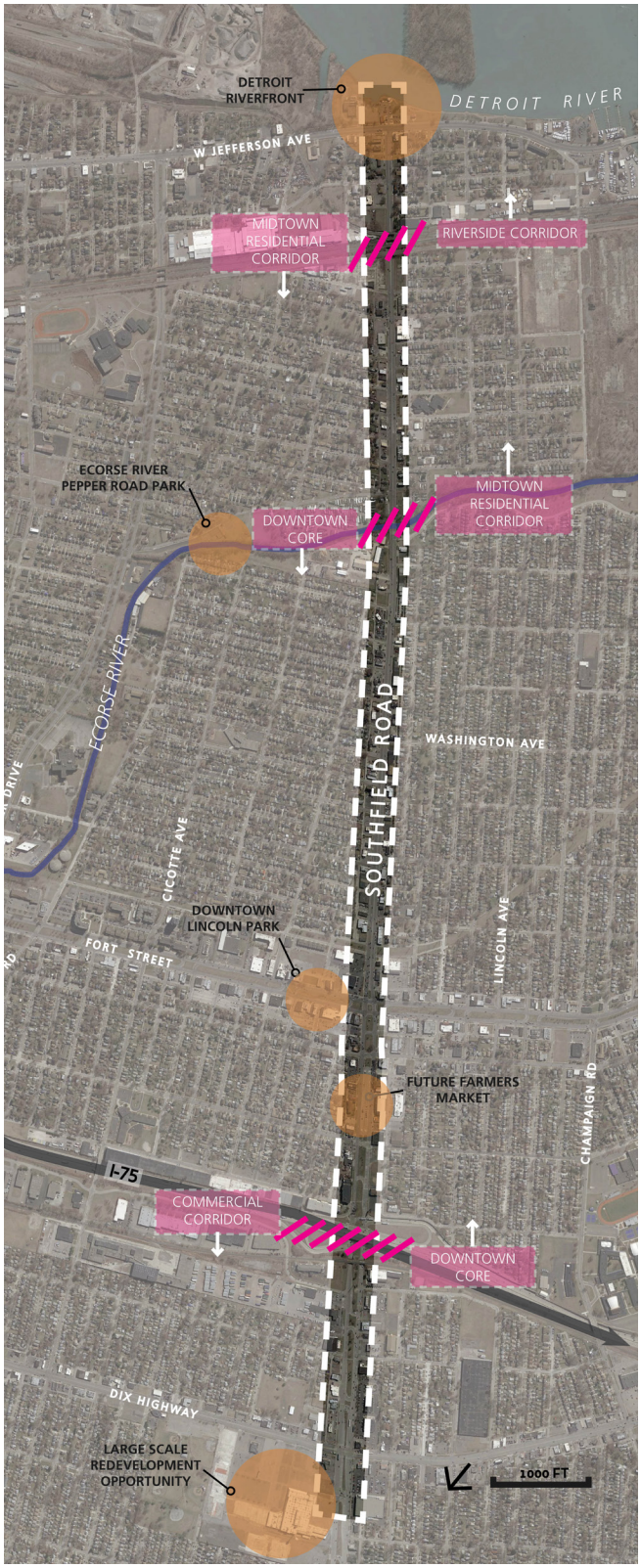
Vacancy status varies greatly along the corridor. The eastern section of the corridor has the highest vacancy rates but peaks between the Ecorse River and the railroad corridor in Ecorse. This section of the corridor also has the lowest composite building condition. The western section of the corridor, from Austin Avenue to the Allen Park-Lincoln Park border has low vacancy rates and high building conditions.



Vacant building in LP General section of the corridor.

Figure 3-3: Vacancies

Figure 3-4: Corridor Character Shifts



LEGEND

DISTINCT SHIFT IN CHARACTER

AREAS OF INTEREST

PHYSICAL ASSESSMENT OVERVIEW

Southfield Road Corridor's physical assessment is divided into distinct segments determined by character and existing municipal boundaries between Lincoln Park and Ecorse and physical barriers along the corridor like I-75, Fort Street, the Ecorse River, and a railroad line. The corridor segments consist of Lincoln Park Gateway, from Dix Highway to the I-75 overpass; Lincoln Park Core, from the I-75 overpass to Electric Avenue; Lincoln Park General Corridor, from Electric Avenue to the Ecorse River; Ecorse General Corridor, from the Ecorse River to the railroad overpass; and "Ecorse Waterfront, from the railroad overpass to West Jefferson Avenue and the Detroit Riverfront.

The corridor study area begins in Lincoln Park at Dix Highway (Toledo Road) and runs east 2.85 miles, terminating in Ecorse at Jefferson Avenue and John D. Dingell Park along the Detroit Riverfront. Southfield Road exists as an arterial road and major commercial strip in Lincoln Park which bisects Interstate 75, Fort Street, and then transitions to a less dense commercial district at the municipal boundary of Lincoln Park and Ecorse at the Ecorse River.

As a major arterial in Lincoln Park, Southfield Road has commercial along its entire length which transitions from dense, traffic heavy development near I-75 in Lincoln Park, to less dense development at the boundary of Ecorse to the Detroit River waterfront. There are minimal pedestrian amenities (benches, trash receptacles, bike hoops, etc.), and street trees or notable landscaping in the Lincoln Park Core, Lincoln Park General Corridor, and Ecorse General Corridor.

The SMART intercity bus and services three zones: Fort Street – Eureka Road (125), Southshore (140), and Downriver Park & Ride (830). Bus stops are accessible at consistent locations along Southfield Road. Bus shelters are only located at the intersection of Fort Street and Southfield Road, and all the remaining bus stops along the corridor are posted signs, many without transit-oriented amenities (concrete pads, benches, bike hoops, shelters, trash cans, pedestrian-scale lighting, etc.). ADA accessibility is limited or non-existent at bus stops without paving that extends to the curb requiring users to traverse drive approaches or intersections to access the bus. The lack of

amenities that support mobility-challenged transit users pose a safety hazard and prevent equitable access to transportation along Southfield Road.

On average, bus stops are located .15 miles apart, providing consistent accessibility to transit users. Outlying bus stops are .25 miles apart on the eastern end of Southfield Road where the railroad overpass bisects the corridor and .4 miles apart on the western end of the study area where Interstate 75 bisects the corridor.

Nearly the entire length of the Southfield Road Corridor has existing paved walkways in various states of condition. The railroad bridge underpass east of Interstate 75 lacks safe pedestrian access for both east- and west-bound users on-foot. The east-bound underpass presents the highest safety risk for pedestrians and cyclists, with no safe paved walk access, which forces users to cross six lanes of traffic to the sidewalk on the west-bound side of the corridor.

The corridor is well-lit with existing overhead lighting fixtures of varying styles. Existing lighting fixtures serve to provide lighting at the vehicular scale. Overhead electric traverses Southfield road at some key areas identified in the diagrams (SPECIFY DIAGRAM #). Major overhead electric lines cross the corridor just west of I-75, on Electric Avenue, and at the railroad overpass in Ecorse.

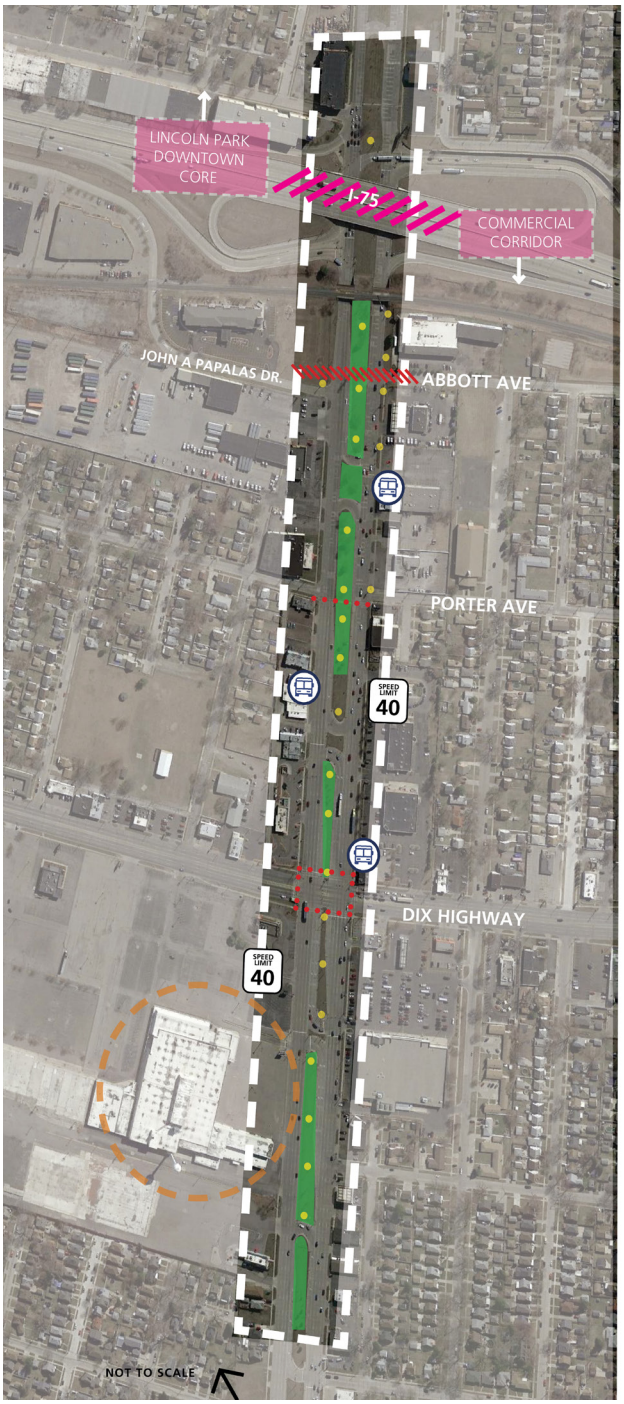
CORRIDOR CHARACTER

Lincoln Park Gateway

The eastern-most end of the Southfield Corridor study area is an eight-lane roadway consisting of four lanes of eastbound traffic and four lanes of west bound traffic, Michigan-left turn lanes, and a large, grass median. Drive lanes are 12' wide with turn lanes ranging from 12-15' wide, with a posted 40 mile per hour speed limit. The average sidewalk width along Lincoln Park Gateway is six feet. This section of the corridor transitions from a commercial corridor to Lincoln Park Downtown Core, just east of I-75.

The Lincoln Park Gateway includes a mix of commercial development and a notably large redevelopment opportunity at the former Sears Shopping Center (northwest intersection of Dix Highway and Southfield Road). Parking for commercial development is accommodated with

Figure 3-5: Lincoln Park Gateway

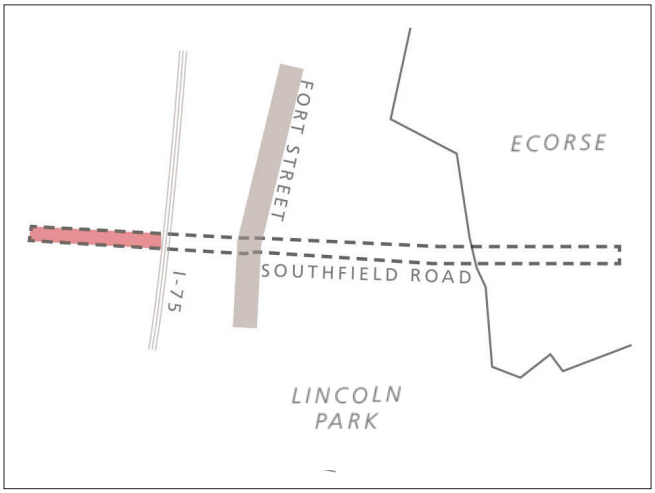


Trees in Lincoln Park Gateway

Lincoln Park Gateway electric and lighting.

Lincoln Park Gateway bus stops.

Figures 3-6: Lincoln Park Gateway Location Map



off-street parking and vehicular access with one to two drive approaches per development. There is no on-street parking in the Lincoln Park Gateway.

Vegetation

The grass median in the Lincoln Park Gateway ranges from 15' – 80' wide and has a variety of mature deciduous and evergreen trees. Other street trees and landscaping in this section of the corridor are on the eastbound side of Southfield Road outside of the from the Dollar Tree running east to the Starbucks and other commercial development.

Overhead Electric & Lighting

Existing lighting is not pedestrian scale. Lighting within the Right of Way is located in the center of the grass median. Overhead electric lines are located at Southfield Road's intersection with Dix Highway and Porter. A major utility line runs perpendicular to I-75 and the railroad lines and crosses Southfield Road at Abbott.

Bus Stops, Pedestrian Access, Existing Bicycle Access

There are three bus stops in the Lincoln Park Gateway. Two of the bus stops are located on Southfield Road eastbound and one of the stops is located on the westbound side of the road. The SMART Bus stops are all posted signs with no existing pedestrian amenities located near them.

Lincoln Park Core

Core is the location of the City's core public buildings (City Hall, police department, library, and District Court). This section of the corridors

is a six-lane roadway consisting of three lanes of eastbound traffic and three lanes of westbound traffic. Lincoln Park Core has Michigan-left turn lanes, and a grassy median on its eastern end. There is a center median parking lot with 118 public parking spaces where there exists an opportunity for a future farmers market or other public events. There is no on-street parking in this section of the corridor. Drive lanes are 12' with a posted speed limit of 35 miles per hour. The average sidewalk width along the Lincoln Park Core is six feet, with wider walks on the median adjacent to the parking lot.

Figure 3-7: Lincoln Park Core Location Map

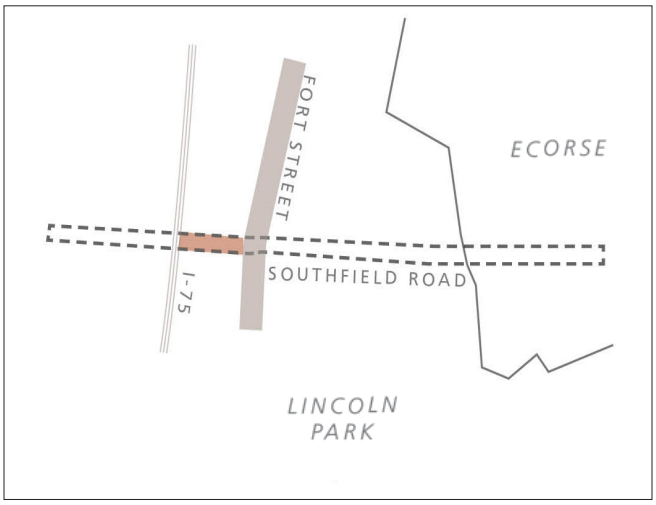
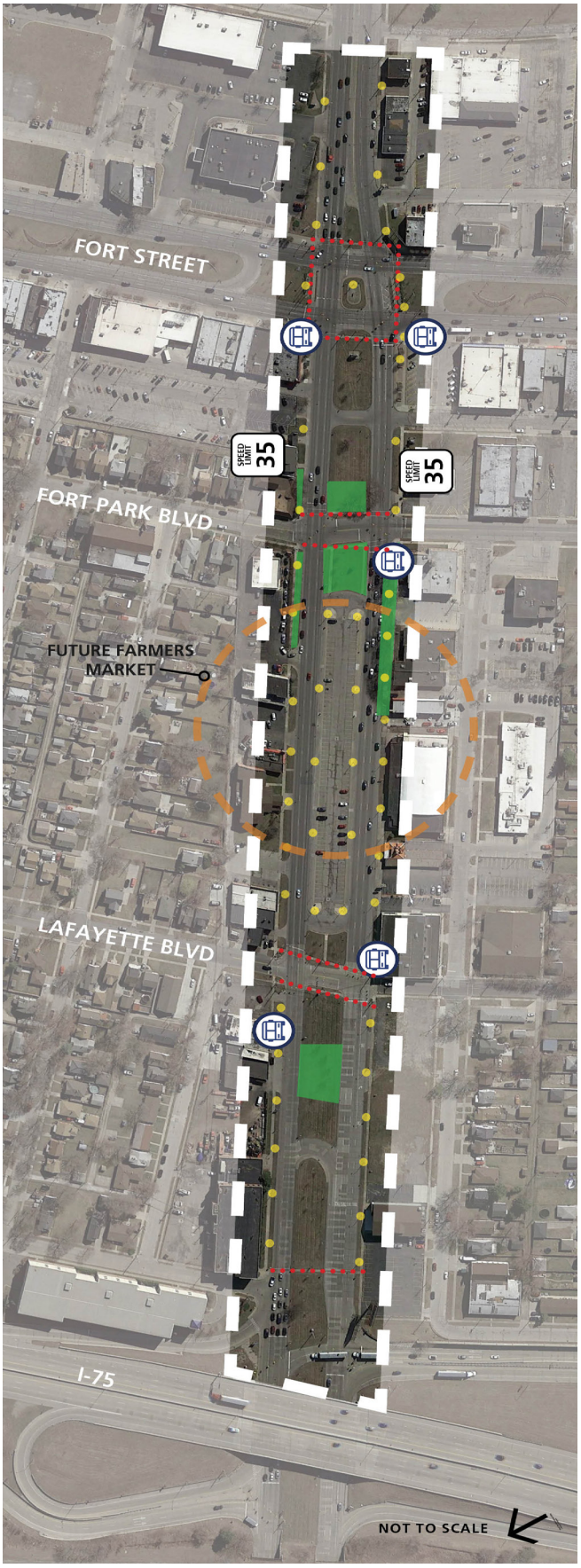
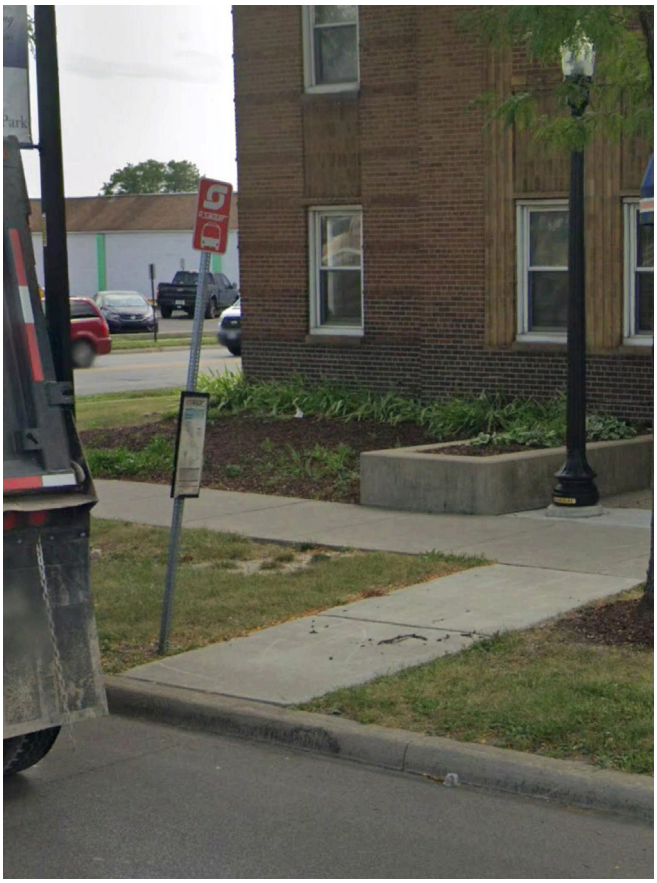


Figure 3-8: Character of Lincoln Park Core



LEGEND

- EXISTING SHIFT IN CHARACTER
- EXISTING AREAS OF INTEREST
- EXISTING MID-ESTABLISHED OVERSTORY VEGETATION
- EXISTING ESTABLISHED HERBACIOUS VEGETATION
- EXISTING CROSSWALK
- EXISTING BUS STOP
- EXISTING MAJOR OVERHEAD ELECTRIC
- EXISTING LIGHT POLE



Lincoln Park Gateway bus stops.

Vegetation

Existing vegetation in the Lincoln Park Core is mostly deciduous ornamental trees planted in the grassy median with a few evergreen trees dispersed throughout. Notably, there are eight mature Honey Locust street trees outside of City Hall that appear to be in great health and contribute to the character of the Lincoln Park Core.

Overhead Electric & Lighting

Pedestrian-scale lighting can be found in the Lincoln Park Core with acorn topped post-lights on the outer sidewalks and cobra lights with banners in the grass median between east and westbound drive lanes.

Bus Stops, Pedestrian Access, Existing Bicycle Access

The eastbound SMART bus stops in the Lincoln Park Core are paved to the curb with a posted sign, making them more accessible than the westbound stops of this section. The westbound bus stops are posted signs with no other pedestrian amenities. There are no existing overhead electric lines in this section of the corridor and there is no existing bike lane.

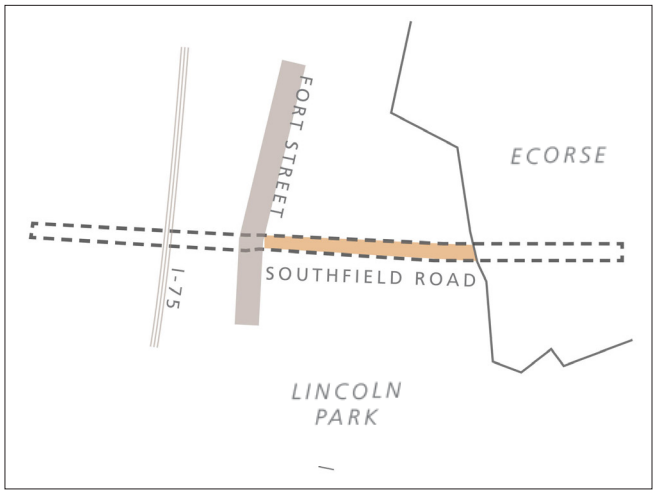
Trees in Lincoln Park Core.

Lincoln Park General Corridor

The Lincoln Park General Corridor is located between the Lincoln Park's Downtown Core and the border with Ecorse. This section of the corridor has two eastbound 12' drive lanes, a shared center turn lane, and two westbound 12' drive lanes. A 16' shoulder is located on the western end of the Lincoln Park General Corridor with intermittent on-street parking. This shoulder tapers to 12' and ends at Elliot Avenue. There is limited off-street parking in the Lincoln Park General Corridor and several locations where on-street parking is permitted.

Between the Lincoln Park Downtown Core and the Ecorse border was originally zoned as industrial property, and the dominance of the automotive industry at the time resulted in buildings designed to serve it. In its current state, there are still many

Figure 3-9: Lincoln Park General Corridor Location Map



LEGEND

- EXISTING SHIFT IN CHARACTER
- EXISTING AREAS OF INTEREST
- EXISTING MID-ESTABLISHED OVERSTORY VEGETATION
- EXISTING ESTABLISHED HERBACIOUS VEGETATION
- EXISTING CROSSWALK
- EXISTING BUS STOP
- EXISTING MAJOR OVERHEAD ELECTRIC
- EXISTING LIGHT POLE

Figure 3-10: Character of Lincoln Park General Corridor

Vehicles parked in ROW in LP General Corridor.

Landscaping planters in LP General Corridor.

LP General Corridor bus stop.

automotive businesses in this section of the corridor. The numerous automotive businesses exhibit use of the ROW in some cases.

The easternmost end of the Lincoln Park General Corridor is where Southfield Road's character starts to shift from a "Downtown Core" to a Midtown Corridor. The speed limit in this section is 35 miles per hour, consistent with the Lincoln Park Core.

Vegetation

Lincoln Park General Corridor does not have existing street trees within the Right of Way. The existing grass medians do not have any other type of landscaping. Where the Lincoln Park General Corridor transitions over the Ecorse River (and into the Ecorse General Corridor) there are abundant mature existing trees creating a distinctive character at this transition.

Overhead Electric & Lighting

Overhead vehicular-scale lighting exists consistently along the Lincoln Park General Corridor. These cobra lights are wire connected. There is no existing pedestrian-scale lighting in this area within the right-of-way . Overhead electric lines intersect with Southfield Road at Electric Avenue.

Bus Stops, Pedestrian Access, Existing Bicycle Access

SMART Bus Stops are posted signs in this section of the corridor with no pedestrian amenities associated with them. There are grass medians at each bus stop with no pavement to the edge of curb, restricting access for persons with mobility limitations.

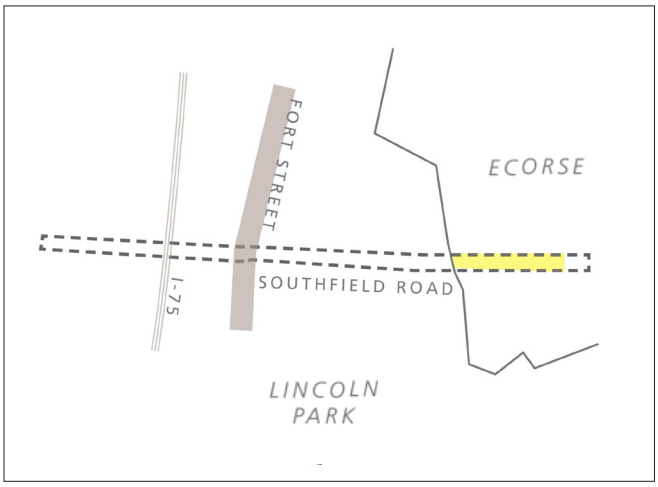
Sidewalks are six feet wide and separated from the roadway by a 10' grass median . There are no existing bike lanes.

Ecorse General Corridor

The character of Southfield Road begins to shift as you cross from Lincoln Park into Ecorse at the Ecorse River. The Ecorse General Corridor feels overall less dense than the Lincoln Park General Corridor given the spacing and setbacks of existing buildings and existing open space and parking lots.

At the time of this study, the easternmost section of the Southfield Road study area was undergoing milling and resurfacing of asphalt. This revitalization is a part of the shared use path. This path is on a small section of Southfield Road and connects to a planned public paddling launch at Pepper Park north of Southfield Road off Pepper Road.

Figure 3-11: Ecorse General Corridor Location Map



LEGEND

- EXISTING SHIFT IN CHARACTER
- EXISTING AREAS OF INTEREST
- EXISTING MID-ESTABLISHED OVERSTORY VEGETATION
- EXISTING ESTABLISHED HERBACIOUS VEGETATION
- EXISTING CROSSWALK
- EXISTING BUS STOP
- EXISTING MAJOR OVERHEAD ELECTRIC
- EXISTING LIGHT POLE

Figure 3-12: Ecorse General Corridor

Mature trees at Ecorse Creek.

Vegetation

The Ecorse General Corridor does not have existing street trees within the Right of Way. The existing grass medians do not have any other type of landscaping. As previously stated, there are mature existing trees at the transition of Lincoln Park General Corridor into Ecorse, serving as a gateway in this section of the Southfield Road corridor.

Overhead Electric & Lighting

Overhead electric lines span across Southfield Road in the Ecorse General Corridor at 9th Street, 7th Street, 5th Street, and Webster Street. A major electric line runs parallel to the existing railroad track that runs about Southfield Road.

Bus Stops, Pedestrian Access, Existing Bicycle Access

Two westbound Bus Stops have pavement to the curb and none of the eastbound Bus Stops have paving to the curb. Sidewalks are 4'-5' wide and narrow at the railroad overpass entering the Ecorse Waterfront section of the corridor. There are no existing bike lanes at the time of this report, but a milling and resurfacing project is in motion which will create a multi-use trail that connects to Pepper Park, as previously mentioned.

Ecorse General Corridor lighting

Ecorse Waterfront

At the time of this study, the eastern-most section of the Southfield Road study area was undergoing milling and resurfacing of asphalt to connect to the proposed multi-use trail previously mentioned.

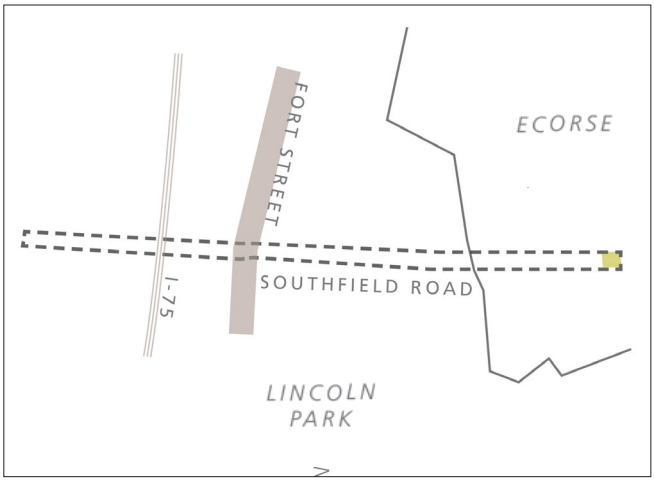
Vegetation

There are no existing street trees within the Right of Way on Southfield Road in the Ecorse Waterfront section of the corridor. Despite the lack of street trees, there are many mature existing trees on the properties abutting the corridor which create a more inviting feel for users.

Overhead Electric & Lighting

The Ecorse General Corridor has overhead electric cobra lighting and overhead electric lines running along the alley between High Street and Monroe Street. A major electric line runs over the railroad overpass.

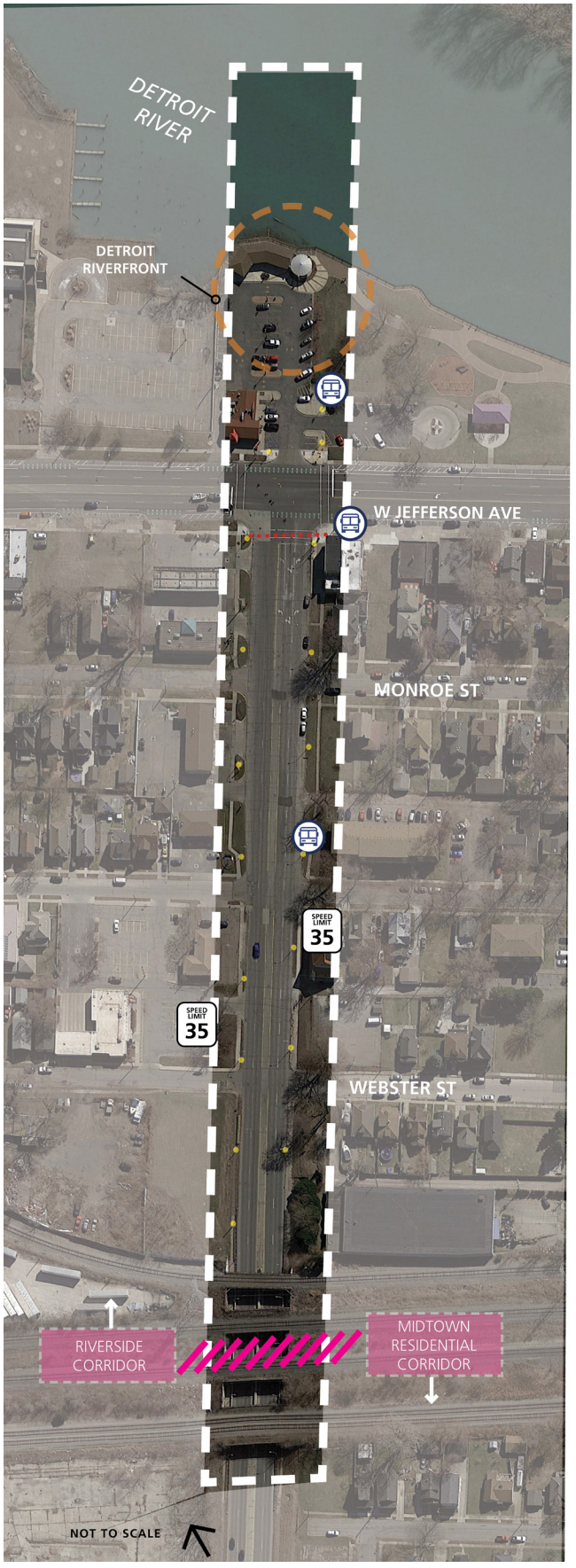
Figure 3-13: Ecorse Waterfront Location Map



LEGEND

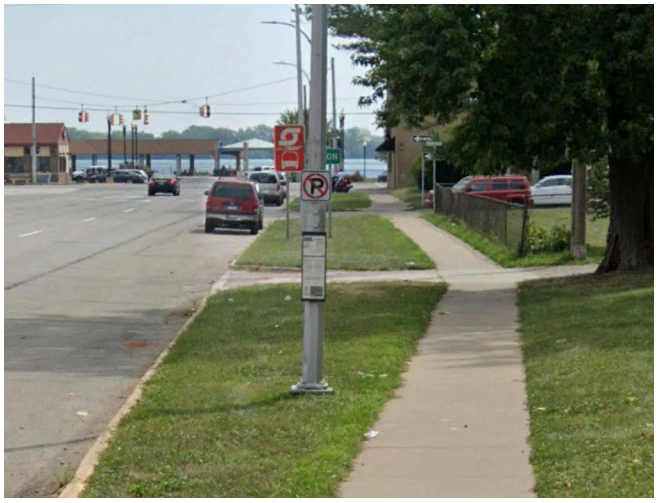
- EXISTING SHIFT IN CHARACTER
- EXISTING AREAS OF INTEREST
- EXISTING MID-ESTABLISHED OVERSTORY VEGETATION
- EXISTING ESTABLISHED HERBACIOUS VEGETATION
- EXISTING CROSSWALK
- EXISTING BUS STOP
- EXISTING MAJOR OVERHEAD ELECTRIC
- EXISTING LIGHT POLE

Figure 3-14: Ecorse Waterfront



Ecorse Waterfront Railroad Underpass

Ecorse Waterfront Lighting



Ecorse Waterfront Bus Stop.

Bus Stops, Pedestrian Access, Existing Bicycle Access

Sidewalks range from 5'-10' and narrow under the railroad overpass. In this section of the corridor you see more topographic change than in other areas of the corridor as the Southfield road transcends the railroad overpass. There is a signalized crosswalk at the intersection of West Jefferson and Southfield Road and no other crosswalks in this section. There is one bus eastbound bus stop that has pavement to the curb and the remaining bus stops are simply posted signs.

Bicycle Access

There are no existing bike lanes or routes along the corridor except along West Jefferson Road, where Southfield Road terminates. SEMCOG categorizes comfort level for bicycle users across the entire bicycle network of Southeast Michigan, which includes bikeways, roads, and trails. The categorizations span from Tier I: bikeways that are comfortable for most people to Tier IV: bikeways that are comfortable for few people. Southfield Road is designated as a Tier IV route. Despite the existing bike lane on West Jefferson Avenue, this route is also designated as a Tier IV route. River Drive is designated as a Tier III route, meaning it is comfortable for some bike users. All the side roads hugging the corridor are designated Tier I, the most comfortable for bicycle users.

SEMCOG maps identified planned bicycle and pedestrian infrastructure, indicating future plans for bikeways along Electric Avenue, River Drive, Pepper Road, and 6th Street.

Overhead lighting in median heading east in the Lincoln Park Gateway corridor near Dix Highway

Overhead lighting along in the Lincoln Park Core

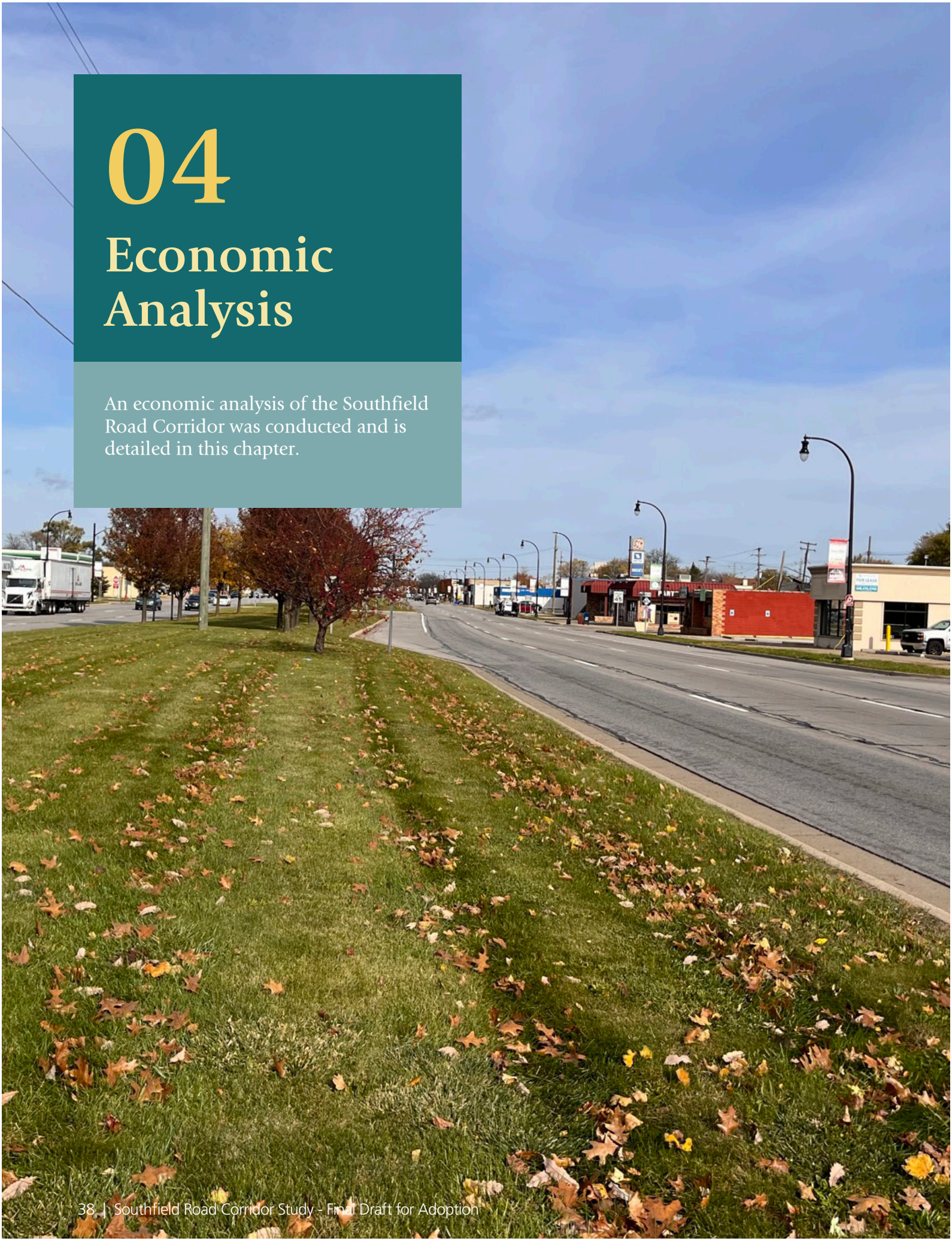
Cobra lighting in Lincoln Park General Corridor 585 Tobacco and Pro Autosales

Pedestrian-scale lighting at the Detroit Riverfront in Ecorse Waterfront portion of the corridor

04

Economic Analysis

An economic analysis of the Southfield Road Corridor was conducted and is detailed in this chapter.



ECONOMIC ANALYSIS

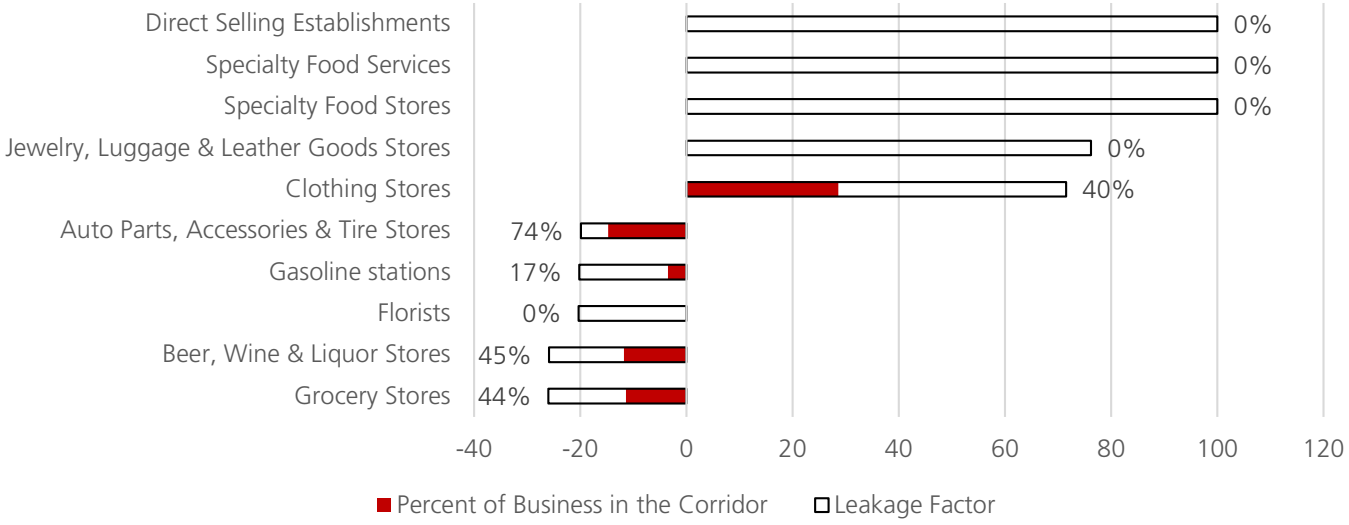
ESRI's Business Analyst is a proprietary software that presents privately generated market research data. In addition, it estimates Census and American Community Survey (ACS) data for geographic configurations other than Census-defined tracts, blocks, and places. The following economic analysis of the Southfield Corridor makes use of ESRI Business Analyst data to identify industry groups and sectors that are appropriate along the corridor or versus those that are oversupplied and at threat of decline. Business Analyst uses 2017 retail market data to generate an estimate of supply and demand for retail trade and food and drink businesses. Retail supply calculations are based on the number of businesses and the volume of goods and services those businesses supply. Demand is calculated by estimating the number of households and the average consumption of retail goods for all households in the Cities of Lincoln Park and Ecorse.

To accurately understand the retail market along the corridor, the analysis encompasses the combined population for the Cities of Lincoln Park and Ecorse and is then compared against Southfield's business inventory. The largest industry groupings, those with the greatest retail supply (annually), in the two cities are "food and beverage stores" ($119M), "gasoline stations" ($73M), and "food service & drinking places" ($51M). Industry groupings with the largest demand are "motor vehicle and parts dealers" ($87M), "food and beverage stores" ($74M), and "general merchandise stores" ($64M). Figure 4-1 shows the top five individual industries with the highest and lowest leakage factor. A high leakage factor indicates an undersaturation, where demand exceeds supply, and a low leakage factor indicates an oversaturation, where supply exceeds demand.

Leakage / Surplus Factor

The leakage/surplus factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents 'leakage' of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area.

Figure 4-1: Leakage Factors

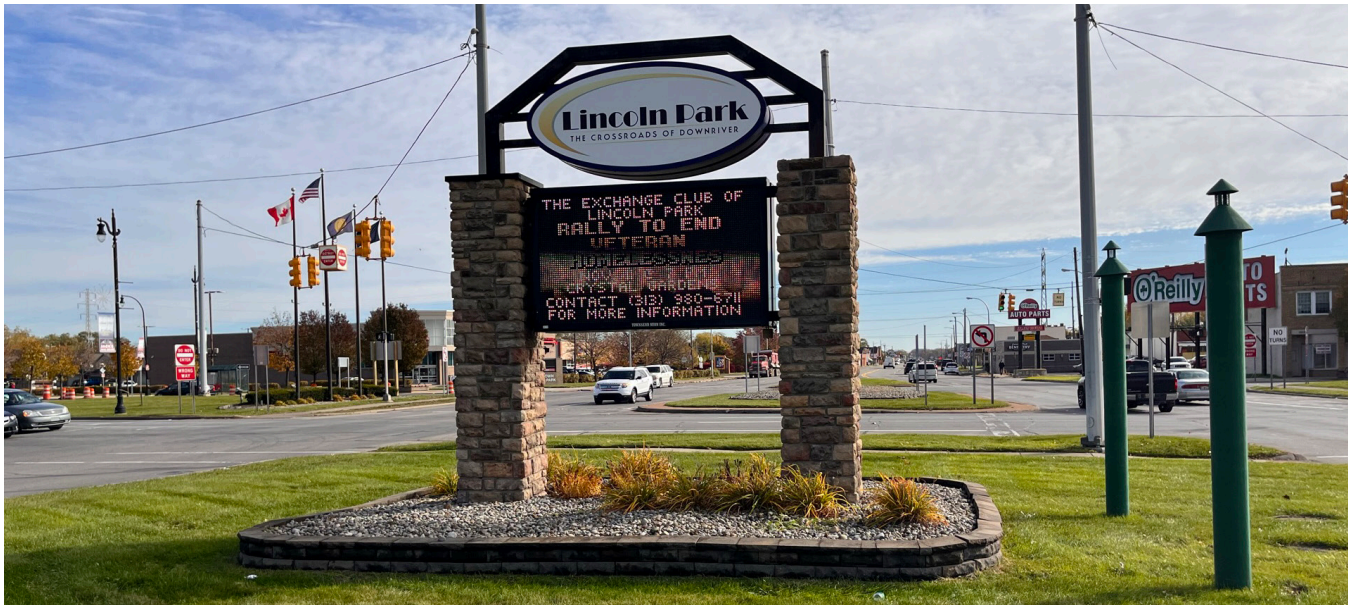


Source: ESRI Business Analyst

As shown in Figure 4-1, three industry sectors (direct selling establishments, specialty food services, and specialty food stores) have a leakage factor of 100, indicating there is demand for these goods and services and no supply in either Lincoln Park or Ecorse. Direct selling establishments are businesses that primarily engage in non-store retail, such as a heating and gas company. Additionally, "jewelry, luggage, and leather goods stores" and "clothing stores" have high leakage factors, but some businesses in Lincoln Park or Ecorse help to meet a portion of the demand. Roughly 40% of the clothing stores in Lincoln Park and Ecorse are located along the Southfield Corridor. Any of the businesses with high leakage factors would likely be successful on the Southfield Corridor due to the demand from residents and the current lack of businesses capable of meeting the demand.

Businesses that are not suitable along the corridor are those that have a low leakage factor. Gasoline stations have a low leakage factor but a relatively small presence on the corridor as 17% of all gasoline stations in Lincoln Park and Ecorse are along Southfield Road. Because of the low leakage factor expansion of gasoline stations in the corridor should be discouraged. "Auto parts, accessories, and tire stores" also have a low leakage factor and are heavily concentrated along Southfield, indicating that this sector is likely unsustainable on the corridor. "Auto parts, accessories, and tires stores" differ from "motor vehicle and parts dealers" in that the latter is primarily selling new or used cars and/or parts. Other industries that have low leakage factors and high concentrations along the corridor include "Grocery stores" and "beer, wine, and liquor stores" - 44% of the cities' grocery stores are on the corridor and 45% of liquor stores are on the corridor. Industries that have a low leakage factor and high concentration should actively be discouraged along the corridor, for now, because they are unlikely to be successful and will contribute to vacancy and turnover along the corridor.

Absent from the ESRI analysis is an understanding of the industrial/manufacturing industries along the corridor. Because industrial/manufacturing facilities are often not the endpoint for goods and services, therefore not contributing to the retail environment, they are left out of ESRI's analysis. However, some industrial and manufacturing facilities can contribute to a healthy and successful corridor, especially small-scale manufacturing businesses that may grow into retail establishments. Small-scale manufacturing businesses are well suited to occupy many vacant or underutilized buildings along the corridor. By reducing vacancies and providing jobs, small-scale manufacturing could aid in the revitalization of the corridor. Additionally, diversifying the corridor beyond retail makes the area more resilient to economic and social changes, which increases long-term stability.



Downtown Lincoln Park has economic development potential.

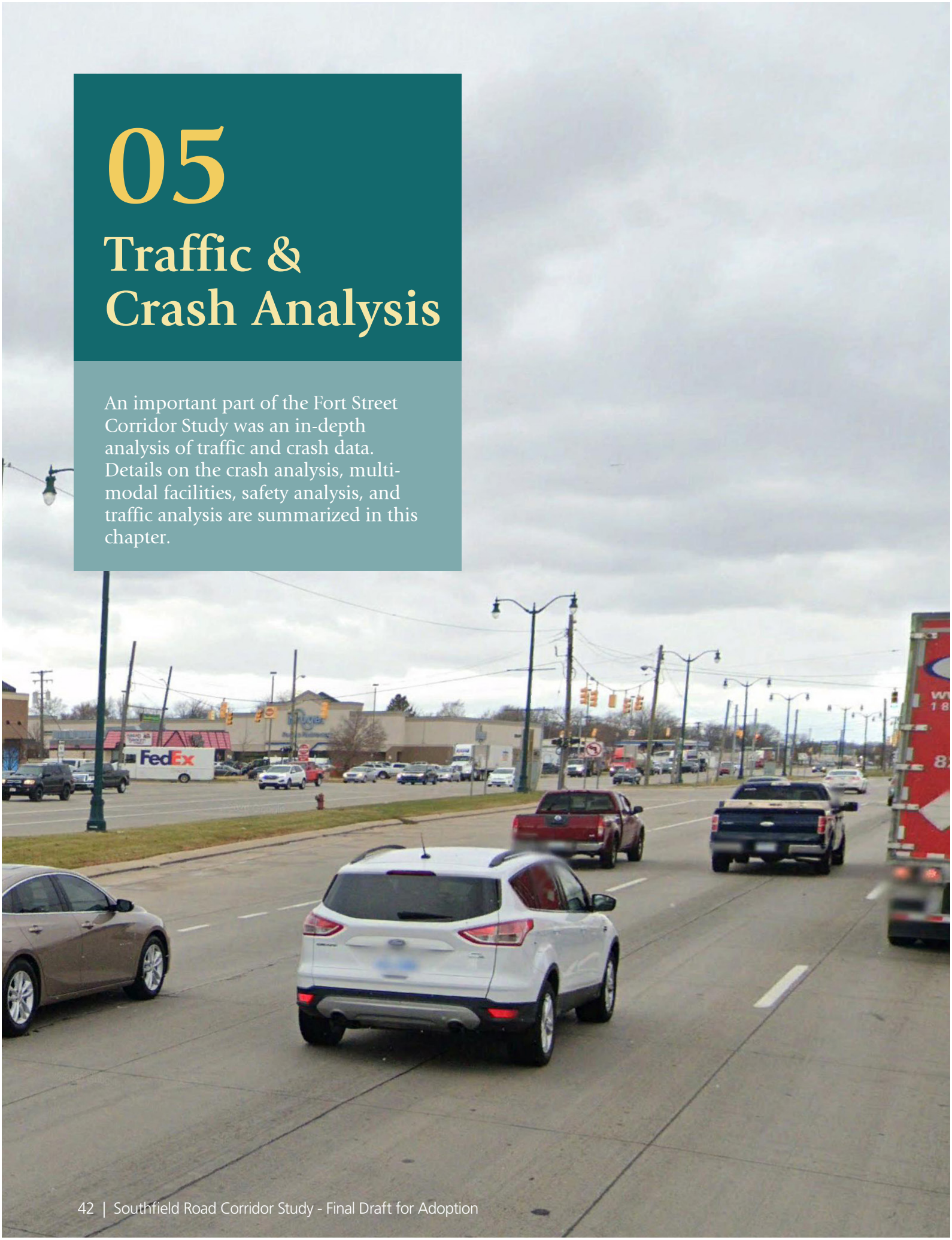
Vacant building in Lincoln Park General section of the corridor that is prime for redevelopment/reuse.

Vacant lot in Ecorse General section of the corridor.

05

Traffic & Crash Analysis

An important part of the Fort Street Corridor Study was an in-depth analysis of traffic and crash data. Details on the crash analysis, multi-modal facilities, safety analysis, and traffic analysis are summarized in this chapter.



CRASH ANALYSIS

Background

As part of the Southfield Corridor Study, crash analysis was evaluated for the corridor. The crash review period ranged from January 1, 2016 to December 31, 2020. 1,221 crashes were found over the five-year period for the entire length of the corridor. 75 of these crashes occurred at the Southfield Road and Fort Street intersection.

With the hope of making the Southfield Corridor more pedestrian and bicycle friendly, redevelopment is expected to occur in the upcoming years. The objective is to make the corridor safer and more user friendly for all modes of transportation. By implementing alternatives, it is the goal to prevent crashes between vehicles, pedestrians, and/or bicycles. One of the largest comments from the stakeholders' groups was that the Fort Street facility did not feel comfortable as a non-motorized user.

Analysis

The most frequently occurring crash along the Southfield Road corridor was rear-end type. Angle crashes were the second most frequent crash for the corridor followed by Sideswipe. See Table 4-1 for a summary of crash data by type.

A large number of rear end crashes can be attributed to congestion and higher traffic volumes along a corridor, as well as a result of poor signal timing.

Two fatalities occurred on the Southfield Road corridor, two in 2016. Both of the crashes were pedestrian and bicycle related fatalities.

A heat map depicting the number of crashes by location along the Southfield Road corridor as well as a map of the entire Lincoln Park Corridor Study area can be found Appendix A.

Table 4-1: Crash Data by Type

Type	# of Crashes	Type %
Rear End	651	53.3%
Angle	238	19.6%
Sideswipe	210	17.2%
Head On	75	6.1%
Other/Unknown	27	2.2%
Single Motor Vehicle	15	1.2%
Backing	5	0.4%
Grand Total	**1,221**	**100%**

Table 4-2: Crash Severity

Severity Level	# of Crashes	Severity %
Fatal Crash	2	0.2%
Injury Crash	241	19.7%
Property Damage Only Crash	978	80.1%
Grand Total	**1,221**	**100%**

PEDESTRIAN & BICYCLE ACCESS

Existing Pedestrian Facilities

The locations and distribution of existing pedestrian facilities can be found in Appendix A while the location and number of pedestrians can be found in Appendix B. After reviewing the videos used for the traffic and pedestrian counts, during the PM Peak Hours, a majority of the pedestrian's noted were children walking home from school. The PM Peak hour was earlier than expected, occurring at 3:00 – 4:00 PM, most likely due to the school dismissal. The number of children crossing suggests special considerations should be made to make these areas as safe as possible to support safe travel through the corridor.

MDOT/SEMCOG Multi-Modal Tool

The MDOT/SEMCOG Multi-Modal Tool was used to analyze the roadway's ability to facilitate various modes of transportation for the existing and proposed conditions. The tool creates a score based on various conditions that are pertinent to the travel mode being graded. The scores range from one to four, with one being the best grade and four being the worst. To meet the objective of providing proper design and infrastructure that will adequately support the specific travel mode, a minimum score of two is required for the land use context of the study area. The results are summarized in Table 4-3.

Table 4-3: SEMCOG Multi-Modal Tool Results Summary

Southfield Road (Electric to W Jefferson)					
Existing Conditions					
Mode	Priority	Tier	Score	Average Score	Objective Met?
Pedestrian	3	2	3	1.79	Not Met
Bike	5	3	4	3.40	Not Met
Transit	4	3	4	4.00	Not Met
Auto	1	1	1	1.00	Met
Freight	2	1	3	2.00	Not Met
Proposed Conditions					
Mode	Priority	Tier	Score	Average Score	Objective Met?
Pedestrian	3	2	3	1.36	Not Met
Bike	5	3	2	1.13	Met
Transit	4	3	2	2.00	Met
Auto	1	1	1	1.00	Met
Freight	2	1	3	2.00	Not Met

*It should be noted that the tool requires spacing between corridor crosswalks to be 400 feet or less to meet pedestrian objections. While this study recommends additional crossings, contextual and regulatory environment of Southfield Road corridor do not permit spacing of 400 feet or less. Due to the spacing not meeting the 400' requirement, the pedestrian objectives are not met.

SAFETY ANALYSIS

Countermeasures

From a Traffic and Safety perspective, various Michigan Department of Transportation (MDOT), Southeast Michigan Council of Governments (SEMCOG) and Federal Highway Administration (FHWA) resources were used to determine viable countermeasures to improve safety for all types of users. The analyses considered low cost easy to implement solutions and then moved to more complicated solutions that will require funding sources and a longer term implementation plan.

The initial traffic models looked at refining the existing traffic signals along the corridor. There are several identified countermeasures that could improve corridor operations without making any significant geometric changes. The corridor's signals, maintained by Wayne County, have not been updated for many years. DGL conducted analyses of the Yellow Change Intervals and Pedestrian Crossing Intervals. The Yellow Change Interval is the length of time that the yellow indication stays lit. This in turn with the Red Change Interval, allows a clearing of the intersection prior to green indications for the other street. The Safety benefits include 36-50% reduction in red light running, an 8-14% reduction in total crashes and a 12% reduction in injury crashes. A review of Pedestrian Crossing Intervals also revealed that some of the crossing times were not long enough, which could leave a pedestrian in a crosswalk unexpectedly. The countermeasure is especially helpful for children and older adults. Updates to these items alone increase vehicle and pedestrian safety.

Another countermeasure to consider is a Leading Pedestrian Interval (LPI). Leading Pedestrian Intervals gives pedestrians the opportunity to enter the crosswalks 3-7 seconds before any vehicles are given a green indication. Pedestrians can better establish their presence in the crosswalk before vehicles have a priority to turn right or left. This is especially important at Southfield Road and Fort Street where heavy right turn movements are seen as vehicles travel to and from I-75. Although pedestrian crashes are not significant, many students are seen throughout the corridor before and after school. The safety benefit of LPI is a 13% reduction in vehicle-pedestrian crashes.

Other signal related countermeasures include adding Backplates with Retroreflective Borders. This added measure of visibility offers a controlled-contrast background which makes them more conspicuous in day and night conditions. Due to the extra weight of the backplates, all signal

poles, arms and span wires should be reviewed for the ability to support the added wind load. 15% of all crashes are reduced with the addition of backplates.

Signage and Pavement Marking Upgrades should be considered as soon as funding can be obtained. Overhead signage can help direct all users to the correct lanes. Removal of conflicting or confusing signage is key. Repainting lane lines, arrows and blocked out areas will also help, especially in the large intersections that no longer permit left turns.

Additional pedestrian crossings in key locations and to connect to known paths were considered. These crossings should have enhanced crosswalks and additional traffic control to help pedestrians and bicycles cross. As implementation plans move forward, Rectangular Rapid Flashing Beacons (RRFB) or Pedestrian Hybrid Beacons (PHB) should be considered.

Southfield Road already employs the Michigan Left turn between Dix Highway and Fort Street . The Michigan Left which lines up with Reduced Left-Turn Conflict Intersections Safety Countermeasure. East of Electric Avenue, dedicated turn lanes are provided for Left Turns. If these were new to the corridor significant crash reductions could be seen.

The Cities of Lincoln Park and Ecorse want to offer better non-motorized options for travel along Southfield Road. A Road Diet was studied as a way to provide more opportunity for bike lanes, parking, and other complete streets amenities. Traffic models were developed to look at a road diet along Southfield Road. It was determined that the traffic volumes from Dix Highway to Fort Street were too high to offer lane reductions. It is possible to road diet east of Fort Street to West Jefferson Avenue. The five lane section can be reduced to three lanes which still offers a center turn lane for left turns. The Road Diet allows for a bike lane and possible on-street parking. The approach at West Jefferson can remain as it currently exists if turn lanes are needed. Transmodeler was used to determine the ability to implement a road diet.

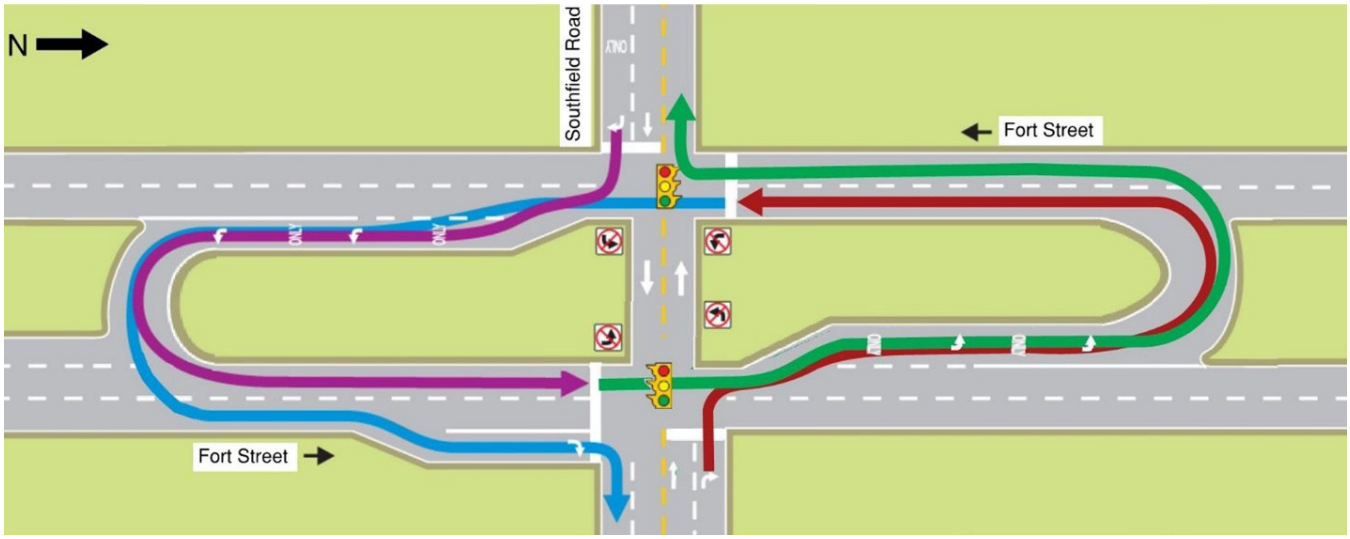
MDOT Safety countermeasure information can be found in Appendix C.

Speed Limits

Speed limits for all road users was also considered. Southfield Road was designed to move traffic to and from I-75 and provide access to the neighborhoods in the area. This led to a higher speed limit than pedestrians and bicyclists are comfortable with. Slower speeds could help increase the number of non-motorized users along the corridor. The method of determining speed on MDOT Truck Lines requires the Michigan State Police to conduct a Speed Study. As the corridor implementation plans move forward, consideration of speed should be reviewed. A speed study is not recommended at this time, it is possible that since the observed speed is suspected to be higher than the currently posted limit a speed study could result in increasing the legal speed. It is suggested that a speed study be conducted after traffic calming improvements are made to the corridor.

I-75 entrance ramp.

Figure 4-1: Southfield Road & Fort Street Intersection



Access Management

Corridor Access Management, i.e. combining or eliminating access points, would offer additional safety benefits. Specific crash hot spots locations can be identified for drive consolidation. The best way to accomplish Corridor Access Management is with a sidewalk or roadway project or roadway project is implemented, or with a land redevelopment project. It is important to consider this throughout the project development process.

Michigan Left Turns

The key intersection in the corridor is Southfield Road and Fort Street. Both streets have the wide median which make the intersection very large. No left turns are permitted within the intersection itself. There are several significant movements that use this intersection in non-traditional ways. Eastbound Southfield at Fort Street has a heavy right turn to Southbound. Much of the right turning traffic uses a Michigan left south of Southfield Road to then travel northbound. Traffic queues are significant during the PM Peak Hour.

To mitigate this, a second right turn lane was considered. Changing the right most thru lane to a thru-right lane and retaining the dedicated right turn lane offers better operations. Northbound Fort Street travels through the intersection to use a Michigan left to then travel southbound back to Southfield and then turn right only Southfield to I-75. The southbound right turn lane should be extended to accommodate peak hour queues.

An adjacent study along Fort Street has identified that a Road Diet can also be implemented north of Southfield Road. This will permit the reduction of one thru lane on the southbound Fort approach.

The Fort Street Michigan Left turns immediately north and south of Southfield Road are located in close proximity to the intersection. This necessitates multiple lane changes within a very short distance for motorists making the turnaround movements described above. Project stakeholders have identified this as cause for many near misses, both vehicular and pedestrian. MDOT has changed design guidance since the time of Fort Street construction and a concurrent study of Fort Street recommends removal of the Michigan Left turns directly adjacent to Southfield Road. This will shift turning movements to the next set of Michigan Lefts and increase distance available for drivers to safely make necessary lane changes.

TRAFFIC ANALYSIS

ADT

Average daily traffic is the bidirectional sum of the amount of traffic on a corridor over the course of specific time period. On the Southfield Road corridor, the amount of traffic ranged from 9,250 vehicles on the east end of the corridor to 66,840 vehicles to the west. The I-75 interchange is located at the west end of the corridor and contributes to the larger volume of traffic at that end. A figure of the calculated Average Daily Traffic for the Lincoln Park Corridor studies can be found in Appendix B.

Distribution

According to the collected traffic counts, the average distribution of traffic on the Southfield Road Corridor is 50%/50% in each direction. Due to the proximity of the I-75 interchange, the distribution can be directly correlated to the amount of traffic entering and exiting the interstate, which indicates that the same number of vehicles are arriving to the Southfield Road corridor and are leaving the area.

Count Information

The peak hours of the Southfield Road corridor varied slightly from intersection to intersection. For analysis purposes, an average was determined to keep a uniform output. The peak hours used were 7:15 AM to 8:15 AM for the AM Peak and 3:00 PM to 4:00 PM for the PM Peak. It was determined based on the date that the counts were collected, that school arrival and dismissal did have an impact on the peak hours of the corridor. All counts included the breakdown of pedestrians, bicycles, and heavy vehicles.

Figures depicting the peak hours, traffic volume data, pedestrian and bicycle volumes, as well as heavy vehicle percentages can be found in Appendix B.

Pedestrian Clearance Intervals

Along the Southfield Road Corridor, many of the intersections have insufficient time for pedestrians to make it all the way across the roadway. Pedestrian clearance intervals were calculated to determine how much time is needed to cross, and then compared to the existing timing.

The comparison revealed that all intersections with the exception of the Fort Street intersection have a sufficient timing for pedestrian to cross the entire width of the roadway.

The existing pedestrian timing may be retained. For the Fort Street intersection, it is suggested that only half the width of the roadway be included in the clearance intervals and pedestrian pushbuttons be provided in the median island in to cross the remainder of the roadway in the next cycle. With only half the width included in the calculations for this intersection, the existing timing is sufficient. The pedestrian timing provided for the Dix Highway and the Lafayette intersections provided uses the half-width method for getting pedestrians across Southfield Road. Additional time is needed at the Dix Highway intersection but the Lafayette timing is sufficient. See Appendix A for a comparison table and figure.

Table 4-4: LOS & Delay Information for Intersections

Intersection Level of Service and Delay (In Seconds)					
Signalized Intersection			Unsignalized Intersection		
A	<=	10s	A	<=	10s
B	>	10-20s	B	>	10-15s
C	>	20-35s	C	>	15-25s
D	>	35-55s	D	>	25-35s
E	>	55-80s	E	>	35-50s
F	>	80s	F	>	50s

Capacity Analysis

The level of service (LOS) is a way to classify the intersection on a scale of A to F, from a functional standpoint. Intersections and approaches are assigned an overall grade based on traffic volumes, capacity, and overall delay experienced by drivers.

Capacity Analysis was conducted for existing, the Fort Street Corridor Study Alternative, and a Combined Lincoln Park Corridor Studies Alternative. Transmodeler was used to determine the LOS for all intersections. LOS C is considered acceptable in all conditions, while LOS D is considered acceptable in congested urban areas, such as interchanges and commuter corridors.

The Southfield Road Alternative analysis consists of a road diet to the west of Fort Street. In both the Southfield Road Alternative, many intersections are expected to function at unacceptable levels of service. The combined alternative (road diet north of Southfield Road and west of Fort Street), improved LOS and delay on the corridor significantly with only Northbound Fort Park Blvd functioning and unacceptable LOS in the AM Peak.

Table 4-5: Capacity Analysis – Southfield Road West

Location/ Direction		Existing Conditions				Built Condition							
		AM Peak		PM Peak		Southfield AM Peak		Southfield PM Peak		Combined AM Peak		Combined PM Peak	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Dix Highway & Southfield Road													
Eastbound		B	13.3	C	30.8	B	10.5	B	18.1				
Westbound		A	7.2	A	9.4	A	7.4	C	20.3				
Northbound	T	C	20.8	C	24.8	C	24.4	C	26.4				
	TR	F	109.1	F	120.5	F	112.4	F	119.6				
	App.	E	67.9	E	64.5	E	71.8	E	65.2				
Southbound		C	26.4	C	30.6	C	27.7	C	30.0				
Overall		C	28.7	C	33.8	C	29.4	C	33.4				
I-75 SB U-Turn & Southfield Road													
Eastbound		A	1.1	D	44.8	A	2.8	B	11.4				
Southbound	L	D	36.0	E	62.4	E	55.1	F	87.4				
Overall		A	4.1	D	46.5	A	7.3	B	18.0				
I-75 SB Ramps & Southfield Road													
Westbound		A	8.1	A	6.7	A	8.1	A	6.7				
Southbound		B	14.3	B	18.7	B	13.6	B	19.5				
Overall		A	8.9	A	9.6	A	8.8	A	9.7				
I-75 NB Ramps & Southfield Road													
Eastbound		C	22.1	D	53.7	B	13.0	B	12.4				
Northbound	T	D	50.2	E	76.4	F	83.6	F	92.2				
	TR	D	37.5	E	64.2	E	55.3	E	70.9				
	App.	D	43.0	E	69.0	E	67.0	F	80.0				
Overall		C	30.5	E	58.5	C	34.8	D	35.3				
Lafayette Boulevard & Southfield Road													
Eastbound	LT	A	7.0	E	77.6	A	1.8	C	20.7				
	T	A	2.8	E	66.8	A	1.2	B	18.2				
	TR	A	4.4	D	40.3	A	4.1	B	12.9				
	App.	A	4.5	E	58.2	A	2.3	B	16.9				
Westbound		A	8.8	B	11.1	A	8.5	A	8.8				
Northbound		D	40.8	D	39.4	C	32.3	C	31.8				
Southbound		C	33.4	C	32.6	D	35.4	C	24.4				
Overall		B	10.3	D	36.7	A	8.7	B	13.7				
Fort Park Boulevard & Southfield Road													
Eastbound	LT	A	7.7	E	55.3	B	11.7	C	20.3	B	12.1	C	20.8
	T	A	7.8	F	107.4	B	11.6	B	19.6	A	8.2	B	16.5
	TR	A	9.3	F	151.4	A	9.2	B	13.0	A	6.9	A	9.2
	App.	A	8.5	F	107.0	B	11.1	B	18.1	A	8.8	B	15.5
Westbound		A	4.4	A	7.2	A	4.5	A	6.5	A	4.7	A	6.9
Northbound	TR.	F	96.2	F	84.4	F	90.7	D	41.4	F	102.9	D	35.5
Southbound		C	26.7	C	26.1	C	27.4	C	22.6	C	26.1	C	28.4
Overall		C	34.0	E	56.2	C	33.4	C	22.2	C	28.1	B	17.5

*L- Left, T-Thru, R-Right, TR-Thru/Right

Table 4-6: Capacity Analysis – Southfield Road East

Location/ Direction		Existing Conditions				Built Condition							
		AM Peak		PM Peak		Southfield AM Peak		Southfield PM Peak		Combined AM Peak		Combined PM Peak	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Fort Street & Southfield Road													
Eastbound	T	C	24.0	D	35.2	C	34.8	C	24.7	C	20.2	B	16.6
	TR	-	-	-	-	C	25.5	C	25.3	C	20.7	B	12.6
	R	B	13.9	D	44.2	A	9.5	B	12.9	A	5.9	A	5.5
	App.	B	19.2	D	38.9	C	22.2	C	20.9	B	15.2	B	11.8
Westbound		B	18.9	C	20.3	B	20.0	C	20.1	C	21.9	A	5.8
Northbound		B	16.9	B	16.2	B	18.5	B	15.9	C	23.0	C	25.3
Southbound		B	13.1	B	14.2	B	13.2	B	12.4	B	19.2	C	23.6
Overall		B	17.0	C	22.4	B	18.5	B	17.3	B	17.6	B	16.5
Ferris Avenue & Southfield Road													
Eastbound		B	12.6	C	28.2	C	21.3	C	26.3	B	14.9	B	17.7
Westbound	L	B	11.3	F	99.8	D	53.6	F	93.5	B	15.5	C	32.4
	T	A	2.1	A	4.3	-	-	-	-	A	8.5	B	16.5
	TR	A	3.1	A	4.9	C	21.2	D	47.7	A	7.8	B	14.2
	App.	A	2.7	A	6.6	C	21.5	D	48.6	A	8.2	B	15.7
Northbound		B	17.6	C	23.9	B	16.5	C	27.9	B	19.9	D	51.1
Southbound		B	14.3	B	11.2	B	16.6	C	21.1	B	12.0	D	39.4
Overall		A	8.5	B	18.1	C	20.9	D	36.4	B	11.9	B	19.7
Applewood Avenue & Southfield Road													
Eastbound		A	3.3	A	6.1	B	11.2	B	12.9	B	15.0	A	2.2
Westbound		A	9.6	A	9.9	C	20.2	B	13.8	B	11.7	A	4.2
Northbound		-	-	B	15.0	B	11.0	D	45.7	B	17.1	D	42.5
Overall		A	6.5	A	8.0	B	12.1	B	16.1	B	13.8	A	6.3
Pepper Road & Southfield Road													
Eastbound		A	3.9	A	4.2	A	7.8	C	32.4				
Westbound		A	6.8	C	20.2	A	6.8	A	9.2				
Southbound	LR	B	13.5	-	-	B	15.8	F	89.3				
Overall		A	5.4	B	10.1	A	8.1	C	25.8				
6th Street & Southfield Road													
Eastbound		B	18.8	A	4.0	C	21.7	C	21.3				
Westbound		B	15.7	B	16.2	B	16.8	B	10.6				
Northbound		A	9.5	B	15.0	A	9.6	B	15.9				
Overall		B	16.2	B	10.8	B	18.5	B	15.4				
Jefferson Avenue & Southfield Road													
Eastbound		C	28.2	C	29.1	C	30.6	C	29.0				
Westbound		C	26.3	C	24.0	D	36.3	C	24.3				
Northbound		C	25.9	D	38.7	C	28.1	C	30.4				
Southbound		B	16.9	B	16.4	B	13.5	B	19.0				
Overall		C	24.1	C	27.7	C	25.0	C	25.6				

*L- Left, T-Thru, R-Right, TR-Thru/Right

Queue Length Analysis

Both existing and proposed alternative queue lengths were reviewed for the Southfield Road Corridor. Figures depicting the queue lengths for the corridor can be found in Appendix X. Just like with the capacity analysis, long queues for the corridor could be reduced with adjustments to signal timing.

External Corridor Impacts

Impact of the Gordie Howe Bridge

A review of the Level 3 Traffic Analyses Technical Report (TAR) was conducted. The bridge is located north of Lincoln Park and while it expects to attract new traffic to the crossing into Canada, it will also relieve congestion on the existing Ambassador Bridge by providing a second crossing between the United State and Canada. Traffic volumes on I-75 and adjacent streets was expected to rise by 7-15% over the next 20 years. The completion of the Gordie Howe Bridge should not significantly impact Lincoln Park or Ecorse Streets.

Impact of I-75

When a crash or construction impacts I-75, Fort Street is noted as a detour route. This increases congestion at the Southfield and Fort intersection. Depending on the location of the incident or construction, various cross streets also receive more traffic. When this occurs, all routes become more congested with very poor operations. MDOT noted that modifications to Fort Street can be accomplished. This would require a traffic study review and further plan development.

Ecorse Waterfront section of the corridor.

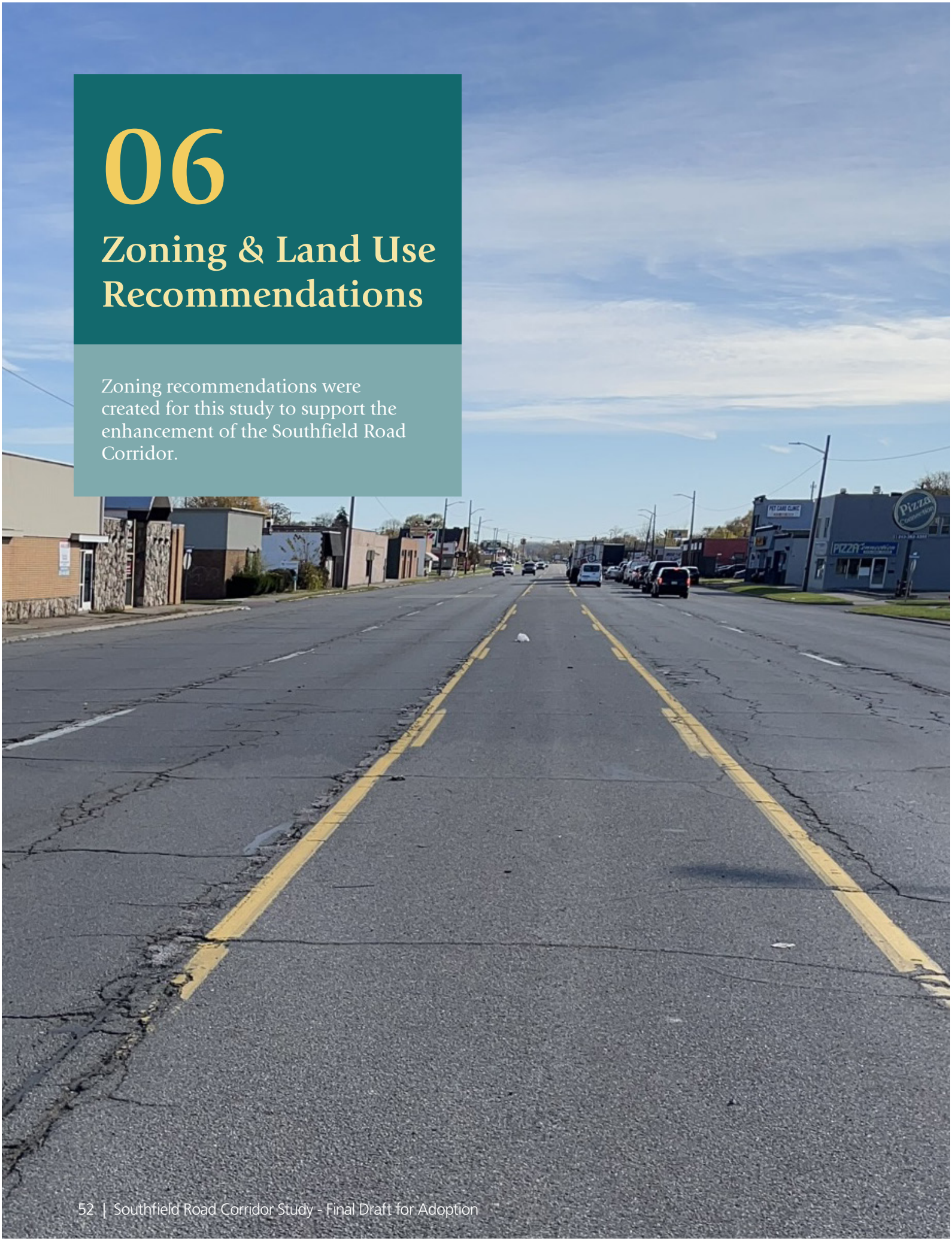
Table 4-7: Queue Length Analysis: Southfield Road Corridor (FEET)

	Existing Conditions		Built Condition			
Location	AM Peak	PM Peak	Southfield AM Peak	Southfield PM Peak	Combined AM Peak	Combined PM Peak
Dix Highway & Southfield Road						
Eastbound	374.0	618.9	177.9	596.4		
Westbound	249.1	267.3	284.9	542.2		
Northbound	459.1	480.0	444.1	445.3		
Southbound	125.1	188.3	163.0	187.5		
I-75 SB U-Turn & Southfield Road						
Eastbound	101.6	2,115.9	184.4	367.7		
Southbound	167.1	577.5	230.1	287.6		
I-75 SB Ramps & Southfield Road						
Westbound	479.1	653.9	222.5	626.7		
Southbound	90.9	191.4	107.0	256.3		
I-75 NB Ramps & Southfield Road						
Eastbound	692.2	2,369.2	330.1	369.5		
Northbound	388.9	864.2	414.4	834.6		
Lafayette Boulevard & Southfield Road						
Eastbound	96.7	1,610.1	77.2	335.9		
Westbound	264.5	278.8	179.5	300.1		
Northbound	221.1	103.5	162.7	99.2		
Southbound	128.0	134.8	74.0	110.5		
Fort Park Boulevard & Southfield Road						
Eastbound	361.5	1,656.8	222.6	475.8	75.9	224.2
Westbound	218.8	147.0	182.9	235.2	19.1	177.4
Northbound	207.4	200.1	214.7	195.4	197.9	107.8
Southbound	154.9	157.4	161.5	94.2	72.0	61.4
Fort Street & Southfield Road						
Eastbound	324.7	1,265.1	309.4	346.1	185.4	138.9
Westbound	269.5	214.7	284.3	289.7	201.8	49.7
Northbound	326.7	231.4	390.1	231.1	235.9	291.7
Southbound	191.9	264.2	183.1	165.7	163.1	304.5
Ferris Avenue & Southfield Road						
Eastbound	237.6	343.0	433.5	769.0	148.9	230.0
Westbound	82.5	127.6	419.4	1,153.4	99.9	261.1
Northbound	62.7	243.5	82.2	132.9	63.1	187.2
Southbound	108.5	80.1	59.9	113.2	35.4	111.9
Applewood Avenue & Southfield Road						
Eastbound	143.5	168.0	288.1	328.9	224.6	83.4
Westbound	471.0	613.3	310.3	737.3	159.7	65.5
Northbound	297.8	300.2	133.3	294.2	50.7	85.3
Pepper Road & Southfield Road						
Eastbound	103.5	106.4	331.4	350.8		
Westbound	164.4	196.5	188.9	290.5		
Southbound	260.0	265.8	92.6	255.8		
6th Street & Southfield Road						
Eastbound	131.5	59.7	251.6	445.3		
Westbound	124.7	182.8	161.7	386.7		
Northbound	111.3	52.5	57.7	165.1		
Jefferson Avenue & Southfield Road						
Eastbound	160.6	166.9	251.6	163.3		
Westbound	18.8	16.0	17.3	16.8		
Northbound	141.6	248.7	135.0	170.1		
Southbound	80.9	193.4	87.6	206.6		

06

Zoning & Land Use Recommendations

Zoning recommendations were created for this study to support the enhancement of the Southfield Road Corridor.



ZONING RECOMMENDATIONS

Over the length of the Southfield Road corridor, 13 zoning districts control development, seven of which are in Lincoln Park and six of which are in Ecorse. Six of the districts govern less than 5% of the corridor's parcels and so are not evaluated for zoning changes due to their limited impact on the corridor environment (Regional Business, Light Industrial, Mobile Home Park, and Community Service in Lincoln Park; Manufactured Home and Single-Family Residential in Ecorse).

The most prevalent zoning classification in the corridor is Lincoln Park's Municipal Business District (MBD), which covers most of Southfield Road, including portions of the Gateway and Core, as well as effectively all of the General Corridor. Its counterpart is Ecorse's Commercial District (C), stretching from the Lincoln Park border almost to the rail viaduct that signals the beginning of the Ecorse Waterfront area. Taken together, these districts control the uses and site design of 75% of the parcels in the study area, and so they are the focus of this section.

The MBD and C districts are bookended on either end of the corridor by "center" districts: Lincoln Park's Central Business District (CBD), and Ecorse's Corridor Core (CC). These districts are designed to support and create each community's unique identity and serve as destinations to travelers of the corridor. They are functionally unique and stand alone, so do not require adjustment to create an integrated and enjoyable experience of the corridor.

Uses

The permitted uses in each district were compared to determine whether there are significant differences that would prevent a cohesive use mix along the length of the corridor, or which would incentivize a site-seeking business to locate on one side or the other of the municipal boundary. Overall, Lincoln Park's MBD district and Ecorse's C district permit a similarly wide variety of commercial uses. A primary difference between the two ordinances is that Lincoln Park's is organized cumulatively, with each district permitting all uses allowed in less-intense districts of the same kind and then enumerating additional permitted uses. Ecorse's ordinance, on the other hand, presents a table that standardizes all uses permitted in the City and independently identifies those permitted

Vacant storefront in Ecorse General Corridor.

in each district. The table format reduces the proliferation of slightly different uses such as that which is found in Lincoln Park's ordinance. A second main difference is that the Lincoln Park ordinance spells out many types of distinct uses, which are collapsed into categories in Ecorse. For example, the MBD district in Lincoln Park also allows all of the uses permitted in its Neighborhood Business District. Between the two districts, 21 separate retail uses and 12 distinct personal service uses are listed, and all but one (secondhand stores) are principally permitted. Switching to simple categories that are principally permitted and presented in tabular format will help staff and developers alike clearly understand what is permitted and allow greater flexibility.

This analysis considers whether a use type is permitted, and also considers whether it is permitted by right or by special approval. In addition to the uses discussed independently below, there are a few differences in whether and how uses are permitted on either side of the municipal boundary. Solar and wind energy systems are permitted in Ecorse but not addressed in Lincoln Park. A few space-intensive uses are permitted in Lincoln Park but prohibited in Ecorse, including commercial greenhouses/garden centers and wholesale activities. Commercial recreational establishments, both indoor and outdoor, are permitted by right in Lincoln Park but require special approval in Ecorse. Where possible, it is recommended for each community to consider

whether it can reasonably accommodate uses permitted in the other community's corridor district and align where possible, especially the alternative-energy generation uses. Furthermore, each community might consider permitting commercial flex spaces to provide move-in-ready commercial sites, which would appeal to prospective new businesses.

Small-Scale Manufacturing

One key difference is that Ecorse permits small-scale alcohol production, including microbreweries, tasting rooms, and small distilleries and wineries, whereas Lincoln Park limits these uses categorically to the Industrial District. Ecorse also permits a retail category for "Products Produced On-Site." These uses contain elements of the small-scale manufacturing use types explored with Recast City as part of this project and can offer a starting point from which to expand that concept in both jurisdictions. It is strongly recommended that Lincoln Park aligns its permissions with Ecorse's, and that both communities develop a permitted use category that will accommodate small-scale manufacturing even if it does not have a retail or beverage component.

Recast City is a national consulting firm that works one-on-one with communities throughout the country to incorporate small-scale manufacturing into redevelopment projects. The City of Lincoln Park participated in a "Recast Spark" in March 2022 to determine if small-scale manufacturing would be an appropriate use to pursue for redevelopment of the Southfield Road corridor. Small-scale manufacturing businesses are small and local in nature and produce physical goods such as hot sauce, handbags, or hardware. Existing buildings along the Southfield Road corridor are ideal for this type of business as many of them were initially industrial in use but are now zoned commercially. Integrating small-scale manufacturing is a strategy that could bring energy and investment to the Southfield Road corridor; however, it requires significant time and effort on behalf of the cities to make it happen. The four main recommendations from Recast City for how to best begin integrating small-scale manufacturing into the Southfield Corridor included (see Appendix for full report):

1. Identify small-scale manufacturing and artisan businesses in the neighborhoods and the cities and understand their needs to grow locally, their potential for the corridor, and real estate or economic development models to support them.
2. Engage select property owners to understand their challenges, and how locally owned product businesses may become part of their strategy, and how different businesses can help to create a vibrant area.
3. Identify a diverse mix of business types and owners to become part of the new Southfield corridor to represent all populations of the cities, with an emphasis on those excluded from storefronts in the past alongside more recent residents and understand their needs and goals for being on Southfield corridor.
4. Develop a clear quick-hit strategy that builds off existing investments to support a thriving place that benefits local residents and creates a future area that attracts new entrepreneurs from the community to bring new energy to the Southfield corridor.

While the process to fully integrate and develop a robust small-scale manufacturing community is long-term and time-intensive, it is strongly recommended that both cities allow for small-scale manufacturing in the commercial districts in the interim. Therefore, when funding becomes available to possibly reengage Recast City for further assistance, the legal zoning foundation will already be in place.

Residential Uses

Ecorse permits residential uses above first-floor commercial by right, and permits senior residential facilities, including nursing/convalescent homes, by special approval. Lincoln Park prohibits all residential uses on its corridor with the exception of adult foster care family homes (which should be reviewed for consistency with the State's definition as a "private residence"). At a minimum, Lincoln Park's ordinance should be revised "to allow for mixed use that includes high density residential use" as cited in the Michigan Commercial Redevelopment Act (PA 255 of 1978), in order to allow properties in the corridor access to that program. Given that there are commercial vacancies along the length of the corridor, that there is an overall national housing shortage, and that there is a specific shortage of housing types

Existing automotive uses in Lincoln Park General Corridor with vehicles parked in the right-of-way.

other than single-unit detached, both communities should at least consider permitting mid- and high-density standalone housing in the corridor by right.

Automotive Uses

The Future Land Use Map of the 2019 Lincoln Park Master Plan identifies the area of the Southfield Corridor between the ITC easement east of downtown to the Ecorse city limits as an Automotive Service Overlay. This designation was based on the existing prevalence of those businesses and the historical development pattern of the area, which was industrially zoned when many of the buildings were built. The City may consider removing the Automotive Service Overlay in this portion of the City so as not to encourage new automotive uses in this area. Current zoning in Lincoln Park permits automotive repair and service establishments by special land use in the MBD, but a separate provision of the ordinance requires a 5,000-foot separation between the uses that effectively prohibits the establishment of new automotive businesses (1294.14). The separation was intended to help control the proliferation of these uses in the City, but over time has come to be seen as a too-broad tool. The Future Land Use Map overlay was intended to support the eventual replacement of this effective prohibition with a targeted permitted area. Ecorse permits minor auto repair by special land use with site standards, and does not permit major auto repair; both communities permit auto sales by special land use with site standards.

A visual survey using Google Maps street view imagery from September 2021 shows 17 automotive-focused businesses on the corridor, including gas stations and auto sales. Some are well-maintained and contribute to the corridor's activity, while others display signs of blight or feature unattractive expanses of chain-link fence and unscreened car storage. For both communities, this use is among the most prevalent existing business type, as well as one of the most common applications for new business, so prohibiting them in the corridor would likely eventually increase vacancy. However, the perceived tendency toward unsightliness of these businesses, along with noise and odor impacts, suggests that their presence may discourage other business types to locate near them—also potentially leading to increased vacancy. Use-specific screening and/or additional landscaping standards, which are not currently among the standards specific to automotive repair uses in either community, could be used to improve the visual effect of these uses.

Area Regulations

Though the built environment is similar along the length of the corridor, the two communities emphasize different dimensional regulations. Ecorse does not impose any lot width, area, or coverage standards, but does regulate the minimum ground floor height of buildings in order to increase their use flexibility over time. Lincoln Park, on the other hand, does not generally require a setback in

any direction, and caps its permitted height at 2 stories/25 feet rather than the 3 stories/40 feet allowed in Ecorse.

Changes to the area regulations should serve one of two purposes: to promote a cohesive appearance, and to remove any arbitrary incentive for a business or developer to locate on one side or the other of the municipal boundary. In pursuit of the first goal, both communities could adopt a 0' front setback, which reflects the way the preponderance of the parcels are already developed.

Changes aimed at the second goal may be more extensive. A simple first action would be to increase the allowable height in Lincoln Park to match that in Ecorse. Both communities may want to consider a taller maximum height for residential construction. Lincoln Park may also consider implementing a 12' first floor minimum height for new construction, though this will be a slow change that affects few properties in the near term. A more substantial consideration is the removal or reduction of minimum width, area, and lot coverage standards in Lincoln Park. Such an amendment would reflect the fact that lots and buildings are largely established in the district, and that the Planning Commission does not require strict adherence to these standards for development approval in cases where no changes to the lot size or building footprint are proposed—the vast majority of cases.

Site Development Standards

The following standards significantly impact the function and aesthetics of the corridor by influencing the characteristics on individual sites. Because they are general standards which apply to all development within the community, care should be taken when changing them to ensure that unintended consequences are minimized. Still, there may be instances where one community simply prefers the other community's approach to a specific regulation, and would like to implement it. This should be the first consideration when deciding how to align the standards along the corridor. The second consideration should be whether the standards in each case have similar impacts in terms of developer cost and site appearance and function. Where these outcomes are generally similar, specific regulation may not need adjustment. Finally, it may be advisable to create specific development standards applicable to the corridor through a new district or overlay zone which brings any remaining regulatory discrepancies into alignment.

Parking

Shallow lots and high building coverage are challenges to providing on-site parking along the corridor. Both cities' ordinances allow for relief from parking standards: Ecorse does not require minimum parking spaces at all, leaving the applicant fully responsible for providing a parking proposal, which will adequately serve its use, and Lincoln Park empowers the Planning Commission to grant a waiver to the same effect. Because Lincoln Park historically has granted these waivers upon request, it is advisable to just remove the waiver and delegate the responsibility for adequate parking to the applicant here too. On-street parking is available for the length of the corridor, and neither community reports problems with parking congestion. This would have an additional effect of removing one more obstacle to an administrative review, as discussed below.

Access Management

Active oversight of the frequency, spacing, design, and size of driveways in the corridor is crucial to reducing conflicts between motorized and nonmotorized traffic, especially bicycles. The City of Lincoln Park's ordinance includes an extensive Access Management section that applies to its major thoroughfares and covers all of these points in some detail. The City of Ecorse regulates access in a much more general way, but does include a specific section requiring internal vehicle circulation between adjacent lots through a cross-access agreement. The two communities should collaborate to develop uniform access management regulations that apply to the length of the corridor, using Lincoln Park's ordinance as a starting point .

Landscaping

Both communities require the same general landscaping categories: right-of-way, buffering, interior, and parking lot. These standards need not be identical, but they must align well enough to support the two aims identified under Area Regulations: providing a cohesive appearance and function, and removing incentives for development on one side or the other of the border between communities.

Ecorse requires slightly more intense right-of-way landscaping than Lincoln Park: 1 tree and 6 shrubs per 10 lineal feet, as opposed to 1 tree and 4 shrubs per 40 lineal feet. Standardizing these across the corridor is desirable but not crucial. More concerning are the instances where the lawn belt is paved, either with an abandoned curb-cut or a sidewalk extension to the curb—or much worse, with asphalt and then illegally used as parking. While these are not issues of the zoning ordinance per se, the review procedure should provide clear triggers for when these must be remediated as part of a development approval.

Both communities impose substantial buffering requirements between business and residential uses, including the construction of a wall or an opaque landscaping screen. These features are valued by the community, but do come at a significant cost borne by the developer. This is an item that could influence site selection, so it should be standardized as possible between the two communities.

Architectural Standards

Developments in both communities must meet architectural standards laid out in the zoning ordinance. Here, it is less important that the standards produce a cohesive visual result, as the buildings might express individual community character without sacrificing unity of function along the corridor. Instead, cost is a driving factor. For examples, both communities require quality materials like brick, stone, and wood siding, with limited but differing exceptions (Ecorse also allows cementitious siding/shingles and Portland Cement stucco, while Lincoln Park allows 25% of the façade to be constructed of a variety of materials including EIFS). Professionals from the architecture and building fields should be included as zoning changes are developed to ensure that no unintended incentive is embedded.

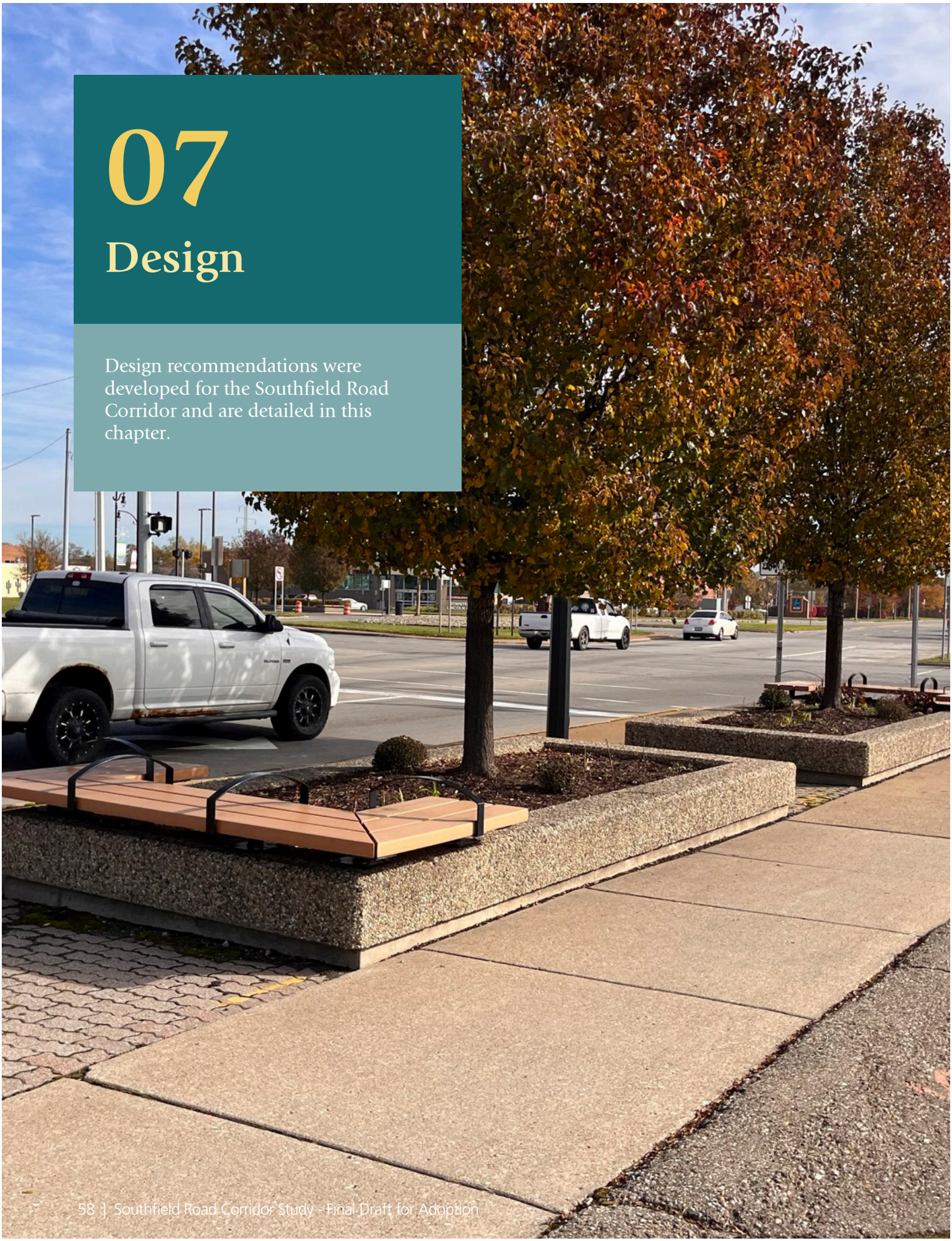
Review Procedures

Developers generally prefer administrative site plan review where possible, as it is usually the fastest. This process is available to by-right developments with limited new construction in both communities. However, its application is limited at times by the need for waivers from the Planning Commission.

Existing landscaped median in Lincoln Park Core.

For example, Lincoln Park's ordinance allows the Planning Commission to grant a 70% reduction in landscaping requirements in proposals for re-occupancy of existing buildings, which most applicants wish to take advantage of. This power will need to be delegated to the administrator (or revoked altogether) in order to substantially affect the number of site plans that are administratively approved.

As the communities' ordinances are aligned, a concurrent task should be the alignment of less-formal review practices. Properties from one end of the corridor to the other suffer from disinvestment, and neither the public nor the private sector in either community has the means to fully address it. As a result, although the ordinances may require substantial improvements to any given site, in reality it is often a choice between development that does not meet the standards or no development at all. Over time, planning commissions and their staff can and do establish patterns of approval that at least apply the standards consistently, even if they do not require them to be fully met. These patterns become known to the development community and become yet another factor that can incentivize development in one city over another. A frank discussion should be held among the Planning Commissioners, planners, and building officials of the two communities about how standards are prioritized and how deficiencies are handled.



07
Design

Design recommendations were developed for the Southfield Road Corridor and are detailed in this chapter.

DESIGN

Southfield Road stretches the length of Lincoln Park and into Ecorse and acts as the community's Central Business District. It is a main arterial route for access to commercial developments along Route 39. The corridor traverses Ecorse Creek at the municipal boundary of Lincoln Park and Ecorse and terminates at the Detroit River. The intensity of land uses surrounding the corridor have changed over the years, and capacity of the 5-lane roadway configuration east of Fort Street exceeds current traffic volume demands. This excess capacity presents an opportunity to rebalance transportation uses in the corridor (east of Fort Street) to better serve the local business community and Lincoln Park residents. There are isolated areas along Southfield Road with street trees and the existing abundance of pavement areas detract from the aesthetic feel of the roadway.

Suggested improvements seek to better reflect the character of Lincoln Park and Ecorse and facilitate a safer and more welcoming streetscape environment that supports local residents and corridor businesses. To this end, key design objectives of the suggested improvements include:

1. Improve access, safety, and comfort for non-motorized users (including transit riders)
2. Reduce the physical and perceived scale of vehicular uses
3. Reduce perceived speed appropriateness and increase driver awareness of non-motorized users
4. Increase non-motorized permeability along the corridor with frequently spaced, improved crosswalks
5. Physically separate motorized and non-motorized users
6. Facilitate connections to local and regional non-motorized trails
7. Provide safe and convenient on-street parking
8. Enhance non-motorized users' experience with improved character and amenities
9. Provide canopy street trees and land-use buffer plantings to improve non-motorized user comfort and environmental sustainability

Based on existing corridor conditions and surrounding physical context, structural design recommendations such as vehicular roadway configuration vary along the length of the corridor. However, they can be generally described as three distinct design variations or "typologies" that are applied to different segments of the corridor.

Other suggested improvements such as pedestrian amenities, transit amenities, and street trees are applicable to the full length of the corridor.

The following are more detailed descriptions of the three structural typologies and holistic corridor design recommendations.

TYPOLOGIES

This report details three typologies for design recommendations and improvements along the Southfield Road corridor. The typologies are largely defined by differences in the proposed vehicular traffic lane configuration. Traffic analysis of the proposed condition yielded a decrease in full corridor vehicular travel time during morning peak hour, and about one-minute increased travel time during the evening peak hour. Non-motorized travel safety and comfort is greatly improved.

Table 7-1: Typologies Summary

	Existing	Proposed
Typology 1		
# of Crosswalks	0	7
# of Street Trees	42	206
Sidewalk Length	4,839 LF	6,800 LF
Typology 2		
# of Crosswalks	1	2
# of Street Trees	0	47
Sidewalk Length	1900	1900
Typology 3		
# of Crosswalks	3	3
# of Street Trees	49	64
Sidewalk Length	1,600 LF	975 LF

LF = Linear Feet

Figure 7-1: Typology 1 - Southfield Road between Electric Avenue & Ferris Avenue

Not to Scale

Typology 1

Typology 1 occurs east of Fort Street and features a 5-to-3 lane "road diet" with the addition of protected bike lanes and on-street parking. More specifically, Typology 1 extends from Electric Avenue to Le Jeune (Lincoln Park), 7th Street to 3rd Street (Ecorse), and High Street to West Jefferson Street (Ecorse). Proposed improvements within Typology 1 include:

» Reduction of 5 vehicular travel lanes to 3 vehicular travel lanes
  - 1 eastbound
  - 1 westbound
  - 1 center turn lane

» Protected bike lanes adjacent to existing curb lines (eastbound and westbound) with greenway striping at roadway and driveway intersections

» On-street parking with striped entry/exit buffer zone

» Dedicated pull-off transit stop bays with striped entry/exit buffer zone

» Formalized pedestrian crosswalks at signalized intersections and signalized midblock crossings with Rectangular Rapid Flashing Beacons (RRFB)

» Roadway and pedestrian-scale lighting

» Pedestrian and transit stop amenities

» Street tree and landscape buffer enhancements

Figure 7-2: Typology 1 Key Map

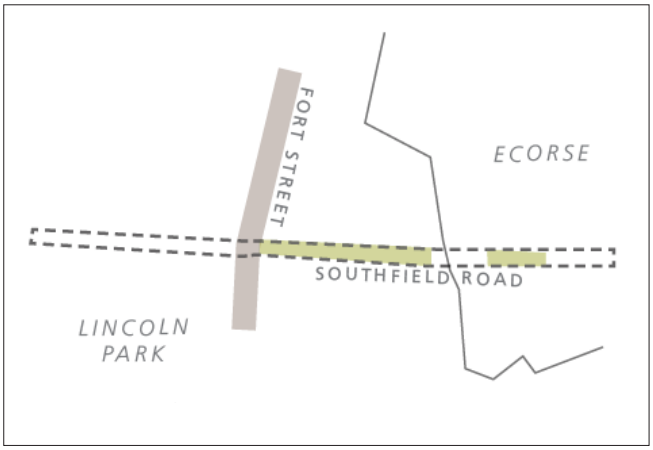
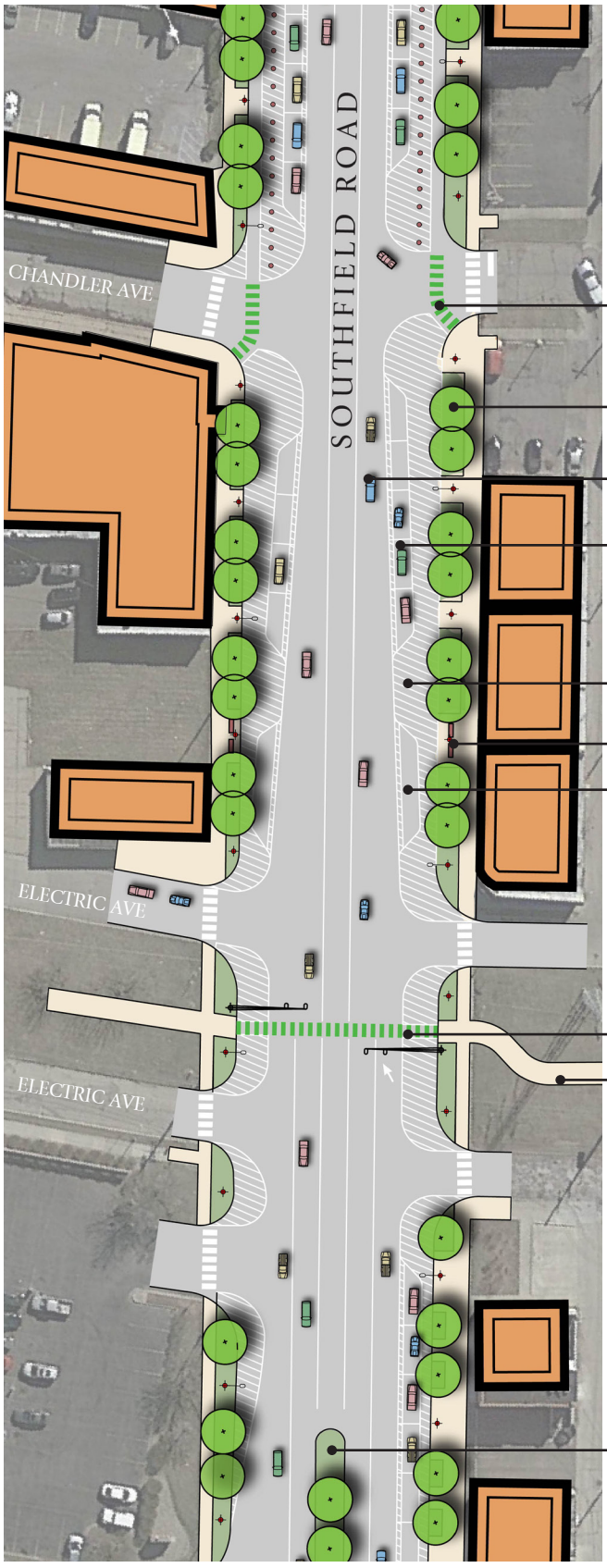


Figure 7-3: Typology 1 Detail A - Southfield Rd. Between Electric Ave. & Chandler Ave.



Start of Protected Bike Lane

Street Trees

5-3 Lane Road Diet

Parallel Parking

Protective Buffer Islands

Pedestrian Amenities at Bus Stops

Bus Pull-off

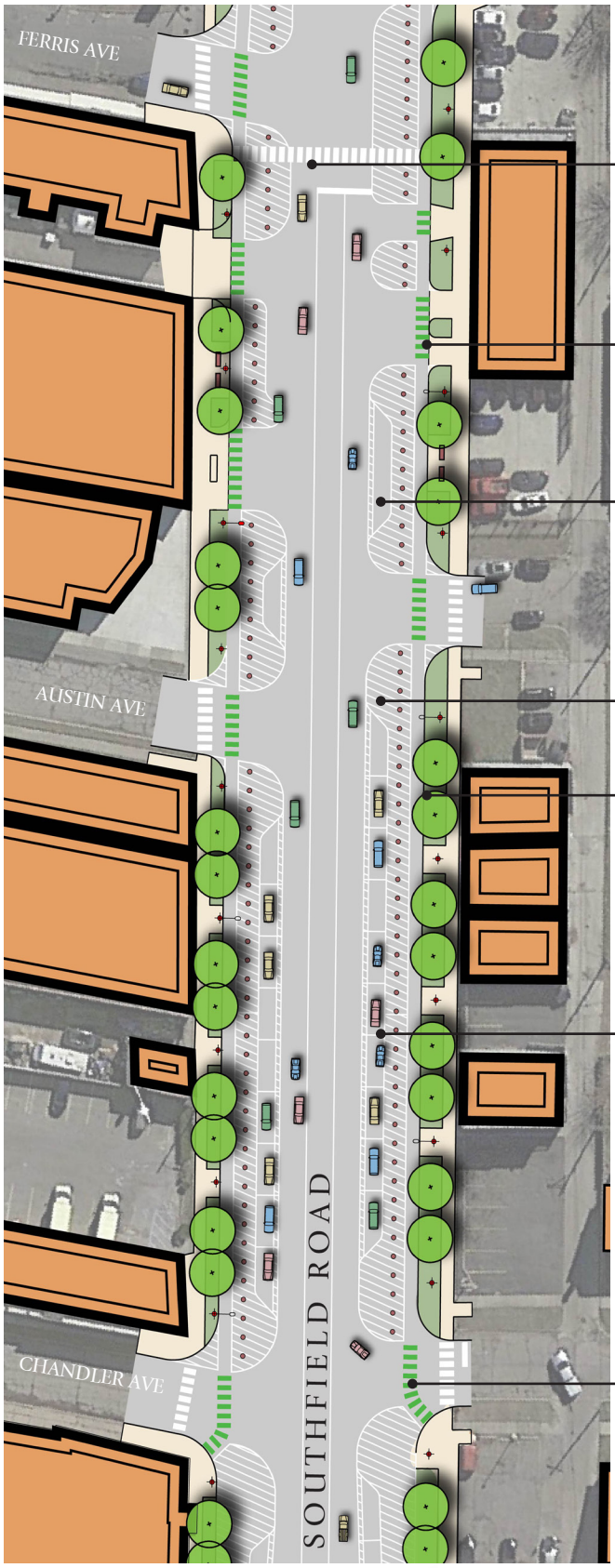
Mid-Block Pedestrian Crossing

Non-motorized Trail Connection

Extended Median

Not to Scale

Figure 7-4: Typology 1 Detail B - Southfield Rd. Between Chandler Ave. & Ferris Ave.



Pedestrian Crossing

Painted Bike Lane at Driveways

Bus Pull-off

Protective Buffer Islands

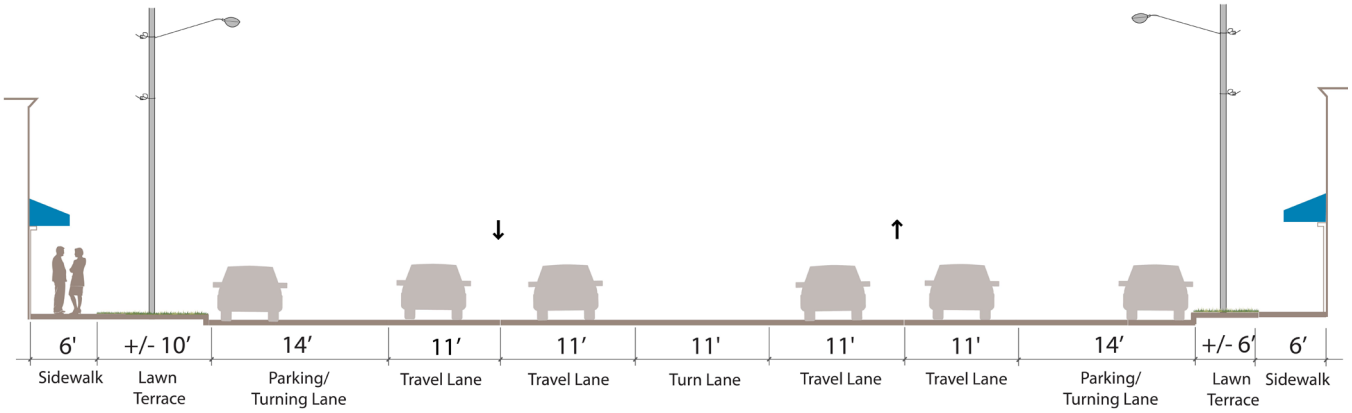
Street Trees

Parallel Parking

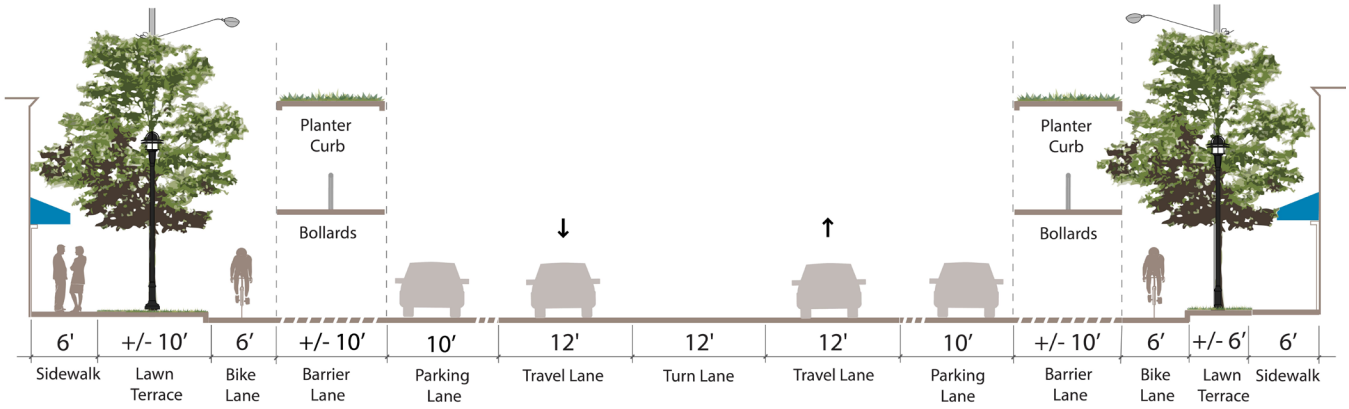
Start of Protected Bike Lane

Not to Scale

Figure 7-5: Typology 1 Before & After Cross-Sections

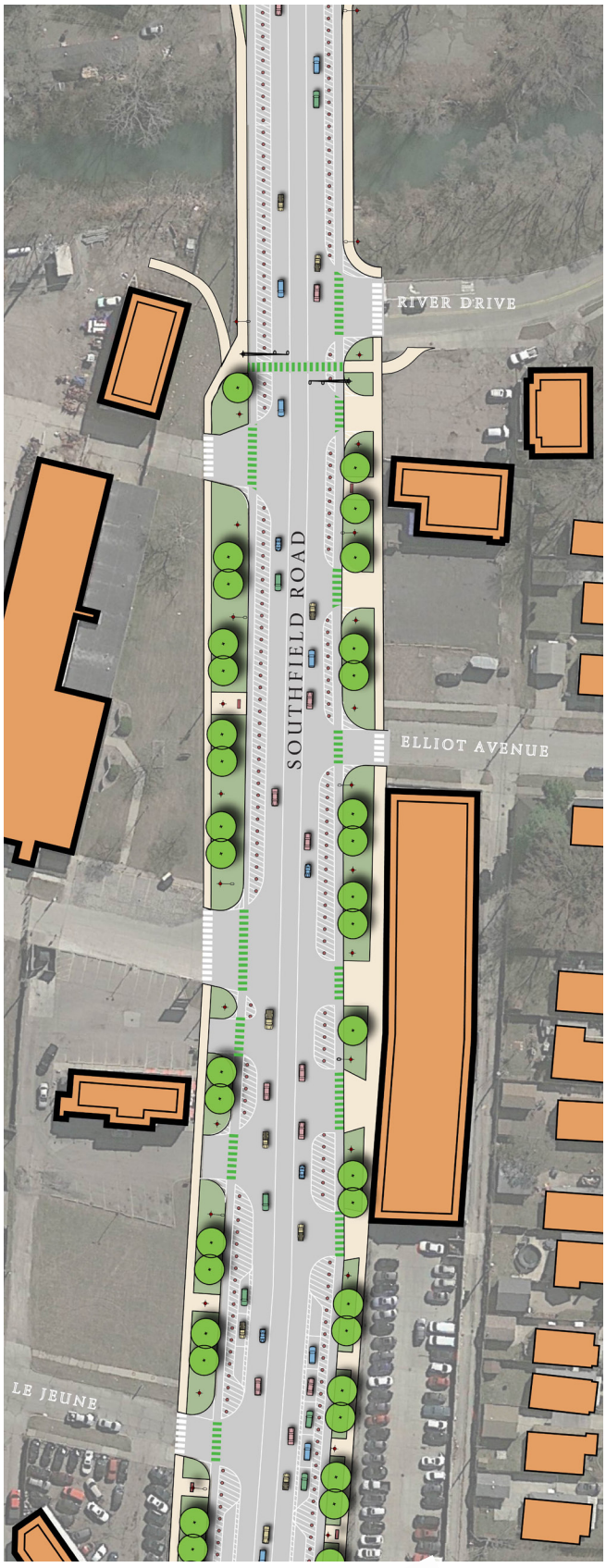


Typology 1 Existing Cross Section



Typology 1 Proposed Cross Section

Figure 7-6: Typology 2 - Southfield Road Between Le Jeune & River Drive



Not to Scale

Typology 2

Typology 2 is a variation of Typology 1 that accommodates narrowed available roadway widths at the Ecorse Creek bridge and railroad overpasses in Ecorse. The typology occurs at Ecorse Creek from River Drive to 9th Street, and at the railroad overpasses from 2nd Street to Webster Street. Proposed improvements within Typology 2 are the same as those within Typology 1 except for the exclusion of on-street parking:

» Reduction of 5 vehicular travel lanes to 3 vehicular travel lanes
  - 1 eastbound
  - 1 westbound
  - 1 center turn lane

» Protected bike lanes adjacent to existing curb lines (eastbound and westbound) with greenway striping at roadway and driveway intersections

» Formalized pedestrian crosswalks at signalized intersections and signalized midblock crossings with Rectangular Rapid Flashing Beacons (RRFB)

» Roadway and pedestrian-scale lighting

» Pedestrian and transit stop amenities

» Street tree and landscape buffer enhancements

Figure 7-7: Typology 2 Key Map

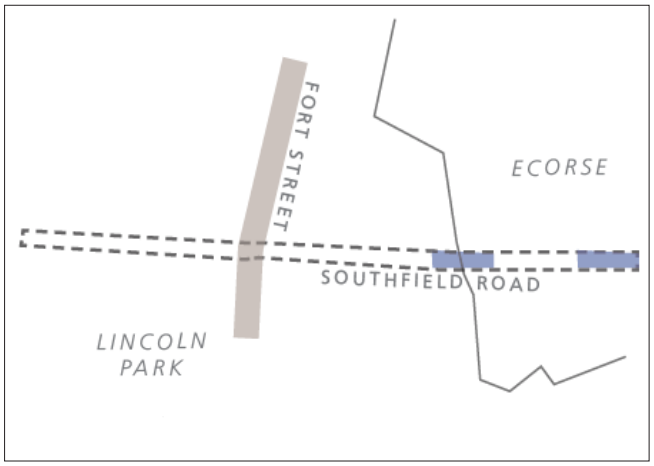


Figure 7-8: Typology 2 Detail - Southfield Road Between Private Drive & River Drive

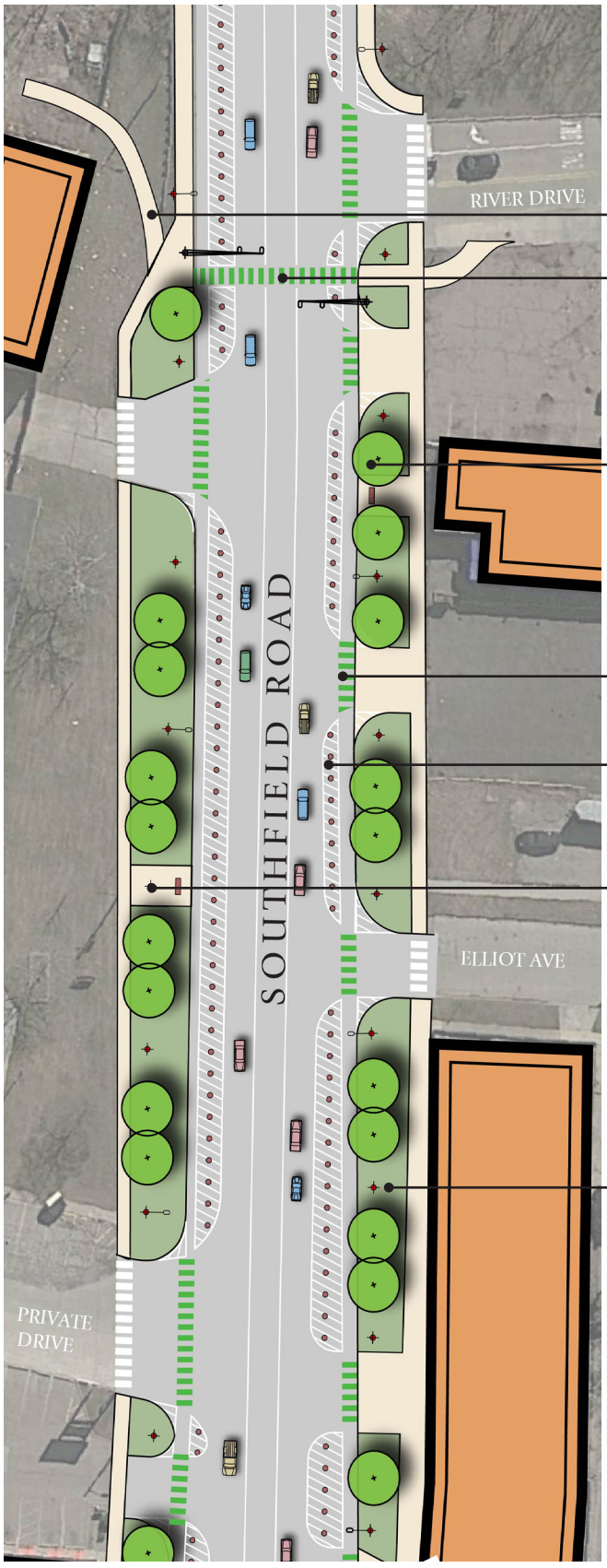
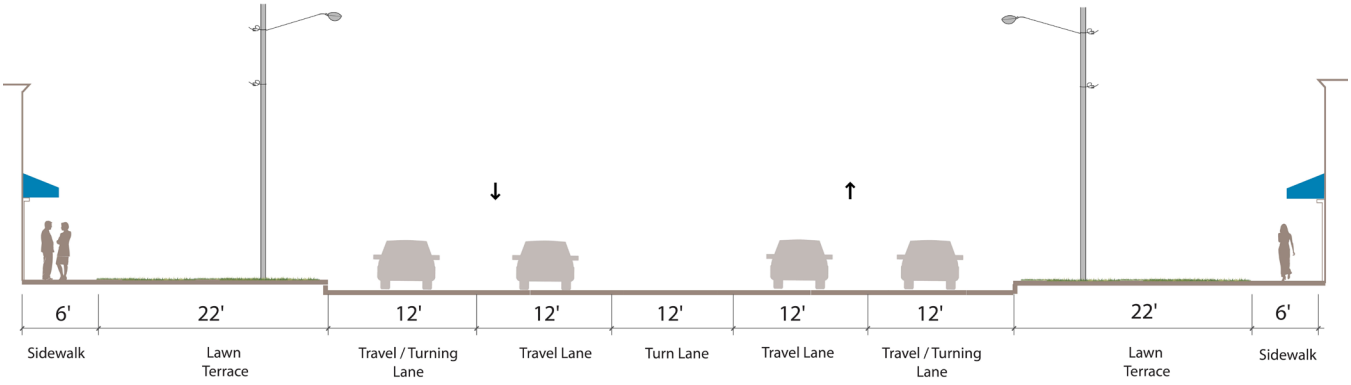
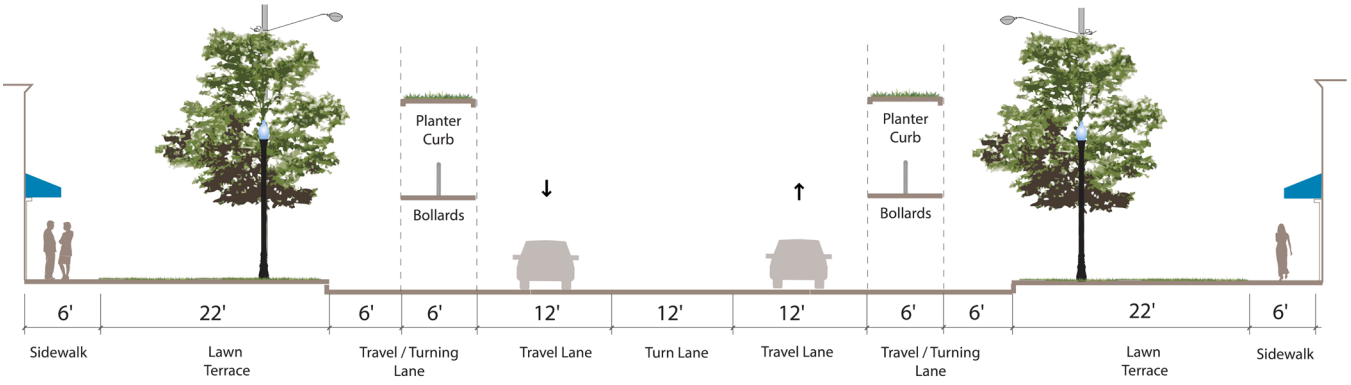


Figure 7-9: Typology 2 Before & After Cross Sections



Typology 2 Existing Cross Section



Typology 2 Proposed Cross Section

Figure 7-10: Southfield Road Corridor Rendering at Chandler Avenue Looking East

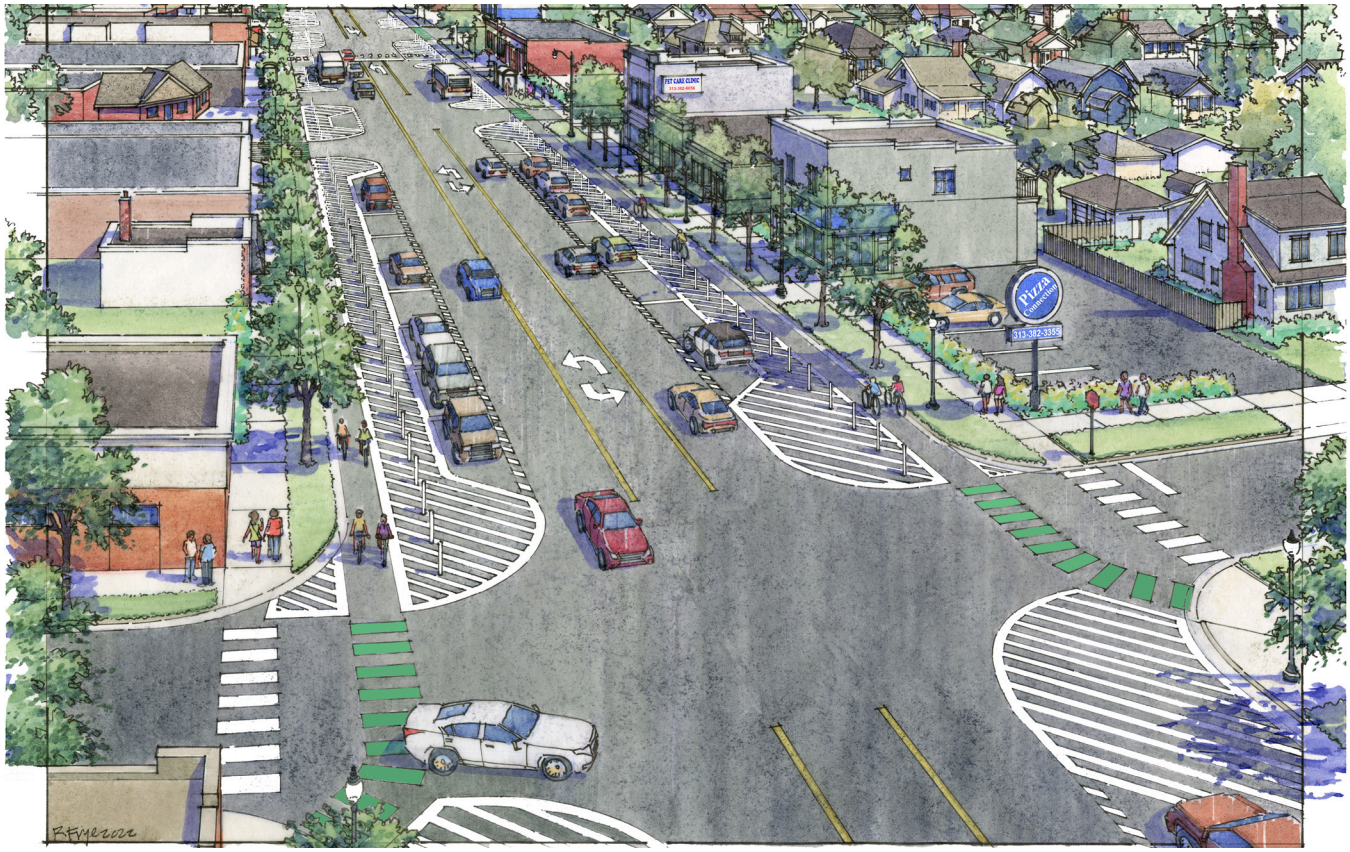
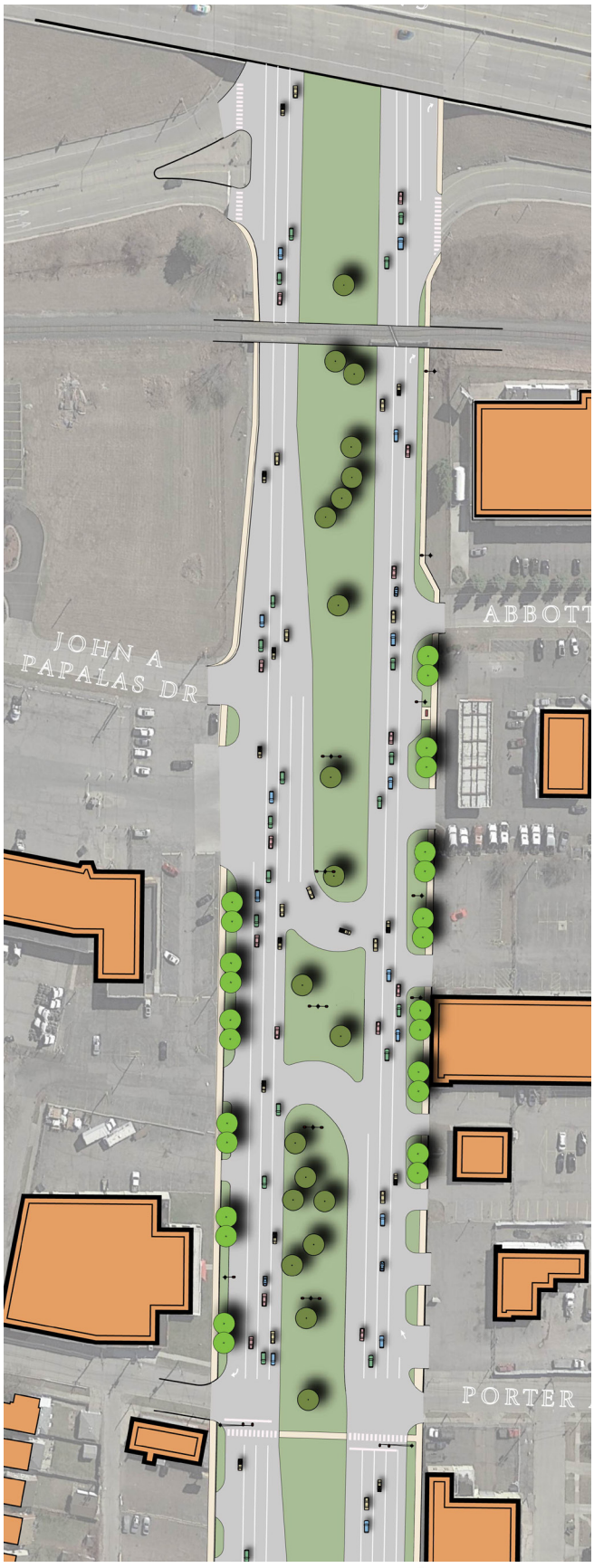


Figure 7-11: Southfield Road Corridor Rendering at Applewood Avenue Looking East

Figure 7-12: Typology 3 West of I-75



Not to Scale

Typology 3

Typology 3 occurs west of Fort Street and spans from Dix Highway to Fort Street, where Southfield Road is a divided roadway with a center median and is a decidedly vehicular highway in scale. Significant roadway modifications beyond those described below are not currently advisable due to existing traffic volumes and MDOT jurisdictional requirements for this section of the corridor. However, an existing railroad overpass and I-75 entrance/exit ramps are significant challenges to safe non-motorized travel and are a key focus for study recommendations. Proposed Typology 3 improvements include:

» Widen and enhance sidewalks to serve as non-motorized paths

» Reduce eastbound Southfield right turn lane length for I-75N on-ramp (beneath railroad overpass) and relocate curbline to accommodate pedestrian sidewalk and pedestrian protection barrier

» Eliminate eastbound Southfield right turn lane at Lafayette Blvd and relocate curbline to reduce roadway width. Reduced roadway width could facilitate additional median space to accommodate Farmers Market improvements, or additional south streetscape space to support future infill redevelopment. Further investigation is needed to determine community priorities for potential options

» Formalized pedestrian crosswalks at signalized intersections and signalized midblock crossings with Rectangular Rapid Flashing Beacons (RRFB)

» Pedestrian and transit stop amenities

» Street tree and landscape buffer enhancements

Figure 7-13: Typology 2 Key Map

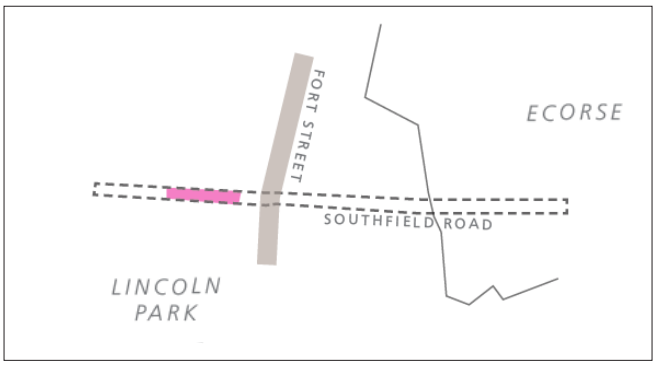
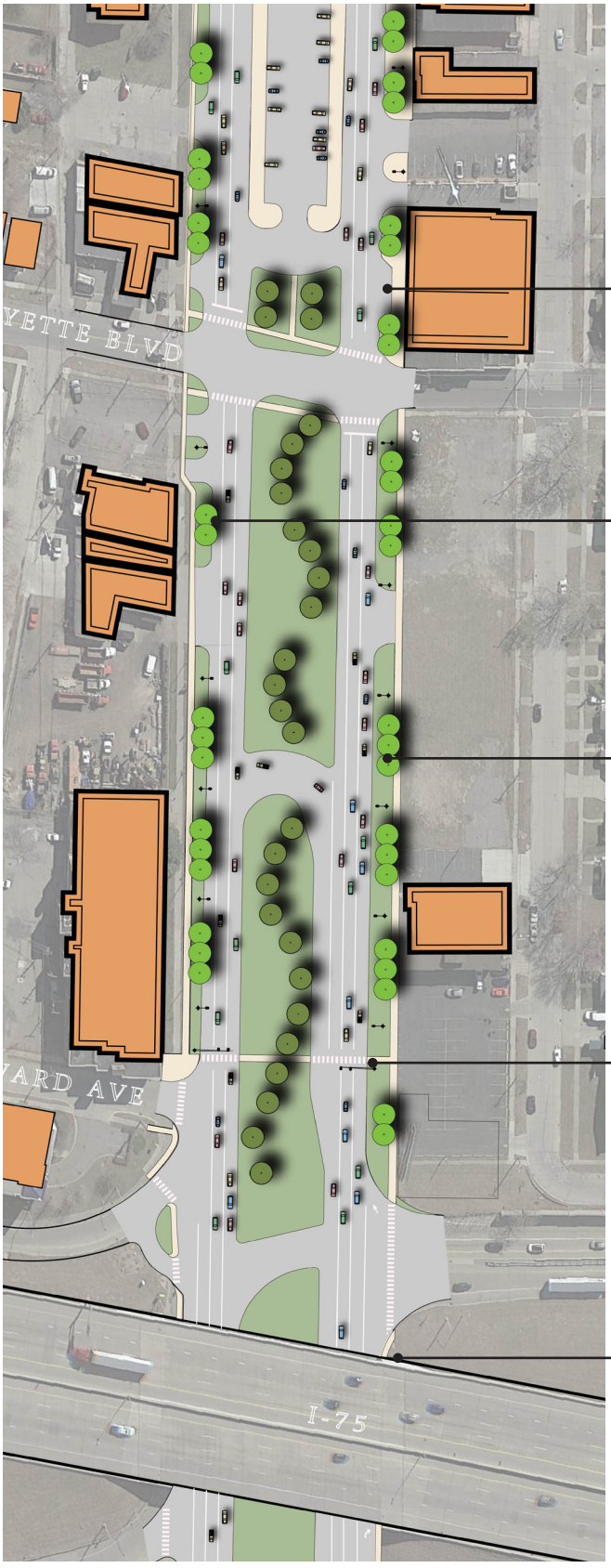


Figure 7-14: Typology 3 West of I-75 Detail

Figure 7-15: Typology 3 East of I-75



Bus Pull-0ff

Street Trees

Street Trees

Pedestrian Crossing

Pedestrian Crossing under I-75

Not to Scale

Figure 7-16: Typology 3 East of I-75 Detail

Protected Bike Lanes

Where proposed in Typologies 1 & 2, protected bike lanes are located as the outside lanes of the roadway, adjacent to the existing curbline. Greenway pavement markings are proposed at intersecting roadways and driveways to serve as visual awareness for both bicyclists and drivers. The study explored 3 options for bike lane configuration and methods of protection:

» 6' width bike lane with pavement striping to serve as buffer from vehicles (lowest cost, lowest impact)

» 6' width bike lane with pavement striping and vertical pylons, minimum 8' clear width between curb and pylons for snow removal

» 8' width bike lane with raised curb islands/ planters (highest cost, highest impact)

Preference by the study steering committee is to balance impact and project budget through the use of a 6' bike lane with pavement striping and vertical pylons. However, this decision should be revisited during a future project implementation phase based upon current priorities and budget at that time. It should be noted that use of raised curb islands/planters could also provide stormwater management functions and facilitate the installation of EV charging stations for on-street parking. Refer to additional considerations described in the On-Street Parking section of this report.

Parallel Parking, barrier lane with pylons, and bike lane

Green painted intersections to enhance visibility of cyclists

Planter curb barrier land separating driving/parking lane from cyclists

On-Street Parking

On-street parallel parking is proposed as a component of Typology 1. In addition to supporting the needs of corridor businesses, the on-street parking serves as a physical and spatial barrier between the protected bike lanes and moving traffic lanes. A 2' width striped buffer zone is provided between the parallel parking spaces and moving traffic lanes to increase vehicle entry/exit space and visual awareness of passing drivers.

Based on the current preference for bike lane protection (pavement striping and vertical pylons), parking regulatory signage will be located curbside, along with metering or pay stations if desired in the future. If bike lane protection preferences were to migrate toward raised curb islands/planters, all regulatory signage, meters, pay stations, etc. could be located in the raised islands. The raised islands would also support adequate protections for the installation of EV charging stations adjacent to on-street parking.

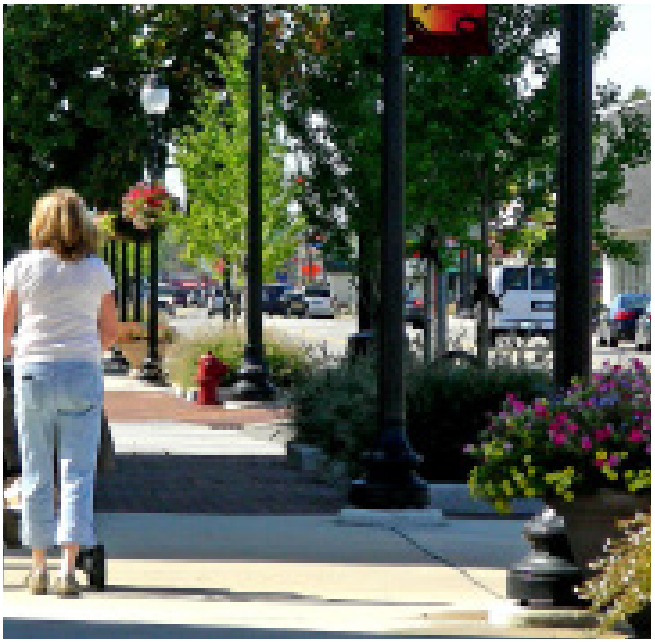
Example of on-street parking with protection islands

Sidewalks & Crosswalks

Existing sidewalks within the corridor range in condition from like new to very poor. The very poor sections exhibiting cracking, settlement, heaving, or other degradations that create tripping hazards. All sidewalks should be subject to a detailed condition review and be replaced as needed. Pedestrian curb ramps should be reviewed and brought up to current accessibility standards.

Within Typologies 1 and 2 between Fort and Jefferson, numerous locations exist where sidewalks have been modified, pavement has been added within the Southfield Road public right-of-way, or where vehicles are regularly parked illegally on the sidewalk. Code enforcement should be increased to prevent these practices, increase non-motorized safety, and restore functionality of the sidewalk system.

Within Typology 3 between Fort and Dix, sidewalks are proposed to be widened and enhanced to serve



Example of sidewalk improvements in Grandville, MI

as non-motorized pathways. A minimum width of 8-feet is recommended and 10-feet is preferred and may be required based on funding source. Curb ramps at intersections and driveways will need to be modified accordingly, and appropriate signage added. Greenway pavement markings are proposed at intersecting roadways and driveways to serve as visual awareness for both bicyclists and drivers.

Also within Typology 3, completion of sidewalk connectivity is proposed on eastbound Southfield beneath the railroad overpass (between Abbott and I-75). Traffic analysis indicates that right turn lane length for the I-75N on-ramp can be reduced to allow relocation of the curbline and addition of a pedestrian sidewalk. Beneath the railroad overpass, it is recommended that the new sidewalk be physically separated from the vehicular roadway by a pedestrian protection barrier positioned behind the new curb. The barrier could be a wall, crash-rated fence, or combination thereof, and be ornamental in character.

In all Typologies for the full length of the corridor, formalized pedestrian crosswalks are proposed at signalized intersections and signalized midblock crossings. The proposed condition includes a total of 11 signalized intersection crosswalks and 6 signalized midblock crossings. On average, formalized crosswalks occur at approximately 3 block intervals along the corridor. Crosswalks would include pavement markings, pedestrian curb ramps and appropriate signage. Pedestrian phase signal timing should be programmed to allow adequate crossing time for the specific roadway with and condition at each crosswalk. At mid-block crossings, push-button activated Rectangular Rapid Flashing Beacons (RRFB) are recommended on overhead mast arms to increase driver awareness of pedestrian presence. Lincoln Park and Ecorse may want to consider enacting "yield for pedestrians" laws and related signage to codify the communities' transportation equity priorities.

Recangular Rapid Flashing Beacon and pedestrian crosswalks support the safety of pedestrians at crossings

Non-Motorized Network Connections

To achieve an effective non-motorized transportation system that provides residential access to and from essential goods and services, it is critical that non-motorized improvements within the Southfield Road corridor connect to regional non-motorized pathway networks and destinations. One regional pathway exists on Jefferson Avenue (Ecorse) in the form of on-street painted bike lanes which are proposed to have direct connectivity to the proposed Southfield Road protected bike lanes. Additionally, SEMCOG's planned bikeway network indicates a future regional pathway utilizing the Electric Avenue corridor (Lincoln Park), and local plans are for a recreational pathway following Ecorse Creek at River Drive (Lincoln Park). These future pathway connections would also have direct connectivity to Southfield Road bike lanes and sidewalks, and would cross Southfield Road at the Electric Avenue and River Drive signalized mid-block crossings.

Pedestrian and Non-Motorized Amenities

Pedestrian and non-motorized amenities are proposed at strategic locations along the corridor based upon non-motorized transportation needs and land-use influences. Improvements include benches, litter receptacles, bike hoops, historical/interpretive signage, wayfinding, and other such accoutrements. Benches should be placed at regularly spaced intervals (approximately every block) throughout the corridor to provide frequent resting places for mobility-challenged individuals. Additional benches and bike hoops should be located based on land use and resulting demand. Opportunities for historical/interpretive signage exist within the Lincoln Park and Ecorse downtowns, at Ecorse Creek, at the Southfield and Ecorse railroad overpasses, and at other significant points along the corridor.

Opportunities for public art should also be considered, particularly mural or light display installations beneath several overpasses existing above Southfield Road. Light and vibrancy could improve pedestrian comfort and perceived safety at the I-75 overpass, railroad overpasses immediately west of I-75, and railroad overpasses between 2nd Street and Webster Street in Ecorse.

Proposed non-motorized routes surrounding Southfield Rd

Protected pedestrian walkway at bridge underpass

Example of transit stop amenities

Example of pedestrian-scale lighting

Transit Stop Amenities

Improvements are proposed at transit stops to better support transportation equity and the comfort and safety of users. At a minimum, all bus stops should provide accessible paved surfaces, benches, and curb ramps for pedestrian access to/from a stopped bus. At bus stops with significant ridership or those located near key destinations, improvements should be enhanced to also include shelters, litter receptacles, transit maps/schedules, community information, and other user amenities.

Lighting

For the portion of Southfield Road east of Fort Street, new roadway and pedestrian lighting is proposed to better light both the roadway and pedestrian environments, while providing a design vocabulary consistent with lighting present on Fort Street and Jefferson Avenue. Decorative roadway lighting will enhance visual character, and pedestrian-scale lighting will provide comfort to sidewalk users. New lighting should match existing decorative pole/fixture types on Fort Street and Jefferson, and be fed by underground power infrastructure to eliminate existing overhead lines and better support effective street tree canopies.

As mentioned in the Pedestrian and Non-motorized Amenities section of this report, functional and/or sculptural lighting should be considered beneath the I-75 and railroad overpasses to improve pedestrian comfort and perceived safety.

Existing bus shelter at Fort Street & Southfield Road

Street Trees & Landscape

Street trees are proposed throughout the corridor to improve user comfort, visual character, and environmental sustainability. In select areas, there exists opportunity to transition to at-grade planters to inhibit retail/restaurant sidewalk use. Healthy and vibrant urban street trees have proven positive impacts on commercial/retail environments, user enjoyment, community health, and environmental quality. As mentioned in the Sidewalks & Crosswalks section of this report, numerous locations exist along the corridor where non-conforming pavements have been added within the Southfield Road lawn extension zone, or where vehicles are regularly parked illegally in the lawn extension. Code enforcement should be increased to prevent these practices and preserve/restore the lawn extension zones, including addition of street tree plantings.

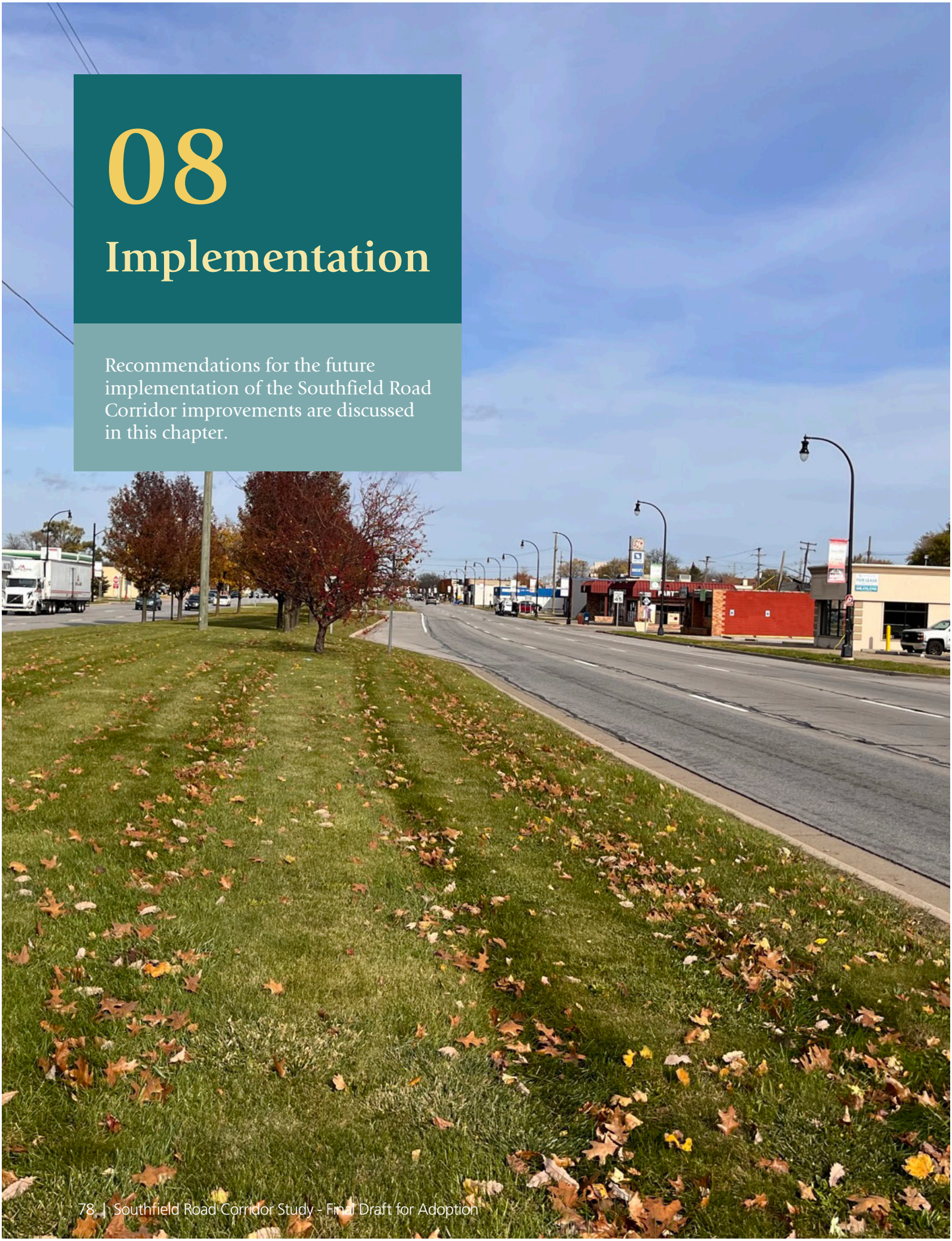
Increased ordinance compliance is also recommended for screening and buffering of some private development land uses, particularly vehicular use areas (parking/drives) and material storage yards. In many instances along the corridor, these uses directly abut the public right-of-way and sidewalks without physical separation or screening. Pedestrian comfort and aesthetic quality of the corridor could be greatly increased by screening/buffering of these land uses per ordinance standards. Opportunities should be sought to bring non-conforming existing conditions into compliance, and screening/buffering should be made a high priority in site plan reviews for new development or redevelopment.

Landscape & street trees on Fort Street south of Southfield Road

08

Implementation

Recommendations for the future implementation of the Southfield Road Corridor improvements are discussed in this chapter.



Implementing the design and land use recommendations identified in this report will create a more unified, safe, and aesthetically appealing corridor while supporting the economic viability of businesses along Southfield Road. This implementation strategy is divided into Economic Development, Traffic & Transportation, and Pedestrian Amenities & Beautification.

The scale of the proposed enhancements warrants a strategic, phased approach that can be adjusted to the needs and budgetary limits of the city of Lincoln Park and Ecorse. Funding for the Southfield Road Corridor enhancements will come from a variety of sources, including local capital improvement funds, general fund allocations, tax increment financing through the DDA, and state and federal funding programs.

DESIGN IMPLEMENTATION

Below is a description of the Implementation Focus Areas created for the Southfield Road Corridor as well as an explanation of a projected timeline for the implementation of proposed improvements. Table 8-1 identifies phasing possibilities for the implementation of the improvements. The table breaks down a conceptual budget for the options presented for the protected barrier islands, beginning with the lowest cost, including striping, striping and pylons, and raised-curb planter islands.

The implementation projects are listed in this table as holistic projects for the full length of the described corridors, however, opportunities for phased implementation exist based upon future community priorities and funding opportunities.

Implementation Focus Areas

» **Traffic & Transportation (T)** – Implementation areas focused on the physical improvements within the roadway.

» **Pedestrian Amenities & Beautification (P)** – Implementation areas that improve the pedestrian zone and beautify the streetscape

Implementation Timeline

» **Immediate (1-2 years)** – Projects that usually require the effectuation of a zoning amendment, specific study, or new local legislation

» **Short-Term (3-4 Years)** – Projects that require local capital improvement funding, and the procurement of private or state and federal funding

» **Long-Term (Greater than 7 Years)** – Projects that require a higher degree of coordination and the procurement of several funding sources

Existing seating area and median along Southfield Road.

Table 8-1: Design Implementation Action Plan

T1 & P1 Southfield – Dix to Fort (approx. 0.9 miles)			
Proposed Work	**Estimated Cost**	**Responsible Parties**	**Timeline**
» Remove eastbound lane and add sidewalk beneath railroad bridge with ornamental separation barrier. » Remove eastbound right-turn lane at Lafayette. » Add mid-block crossing with RRFB signal at downtown median parking lot. » Improve existing mid-block crossing at Howard with new RRFB signal. » Add bus stop amenities (concrete pads, benches, trash receptacles, shelters, etc.) » Add street trees in lawn extensions and medians	$1.9 million project ($1.5 million construction cost)	City of Lincoln Park, DDA, EDC, MDOT, Wayne County	Short-Term
T2 Southfield – Fort to Jefferson (approx. 1.75 miles)			
Proposed Work	**Estimated Cost**	**Responsible Parties**	**Timeline**
» 5-to-3 lane road diet. » Add protected bike lanes and parking lanes. » Add 7 mid-block crossings with RRFB signals.	**Road Diet – Striping Only** $1.6 million project ($1.25 million construction cost) **Road Diet – Striping & Pylons** $2.4 million project ($1.9 million construction cost) **Road Diet – Raised/Curbed Islands** $5.6 million project ($4.5 million construction cost)	City of Lincoln Park, DDA, EDC, MDOT, Wayne County	Short-Term
P2 Southfield – Fort to Jefferson (approx. 1.75 miles)			
Proposed Work	**Estimated Cost**	**Responsible Parties**	**Timeline**
» Add new street and pedestrian lighting (bury overhead lighting power feeds) » Replace approximately 50% of concrete sidewalks based on condition/need. » Add bus stop amenities (concrete pads, benches, trash receptacles, shelters, etc.) » Add pedestrian amenities (benches, trash receptacles, etc.) » Add street trees in lawn extensions and medians	$9.4 million project ($7.5 million construction cost) (lighting is approximate)	City of Lincoln Park, City of Ecorse, DDA, EDC, MDOT, Wayne County	Long-Term

ZONING AND LAND USE RECOMMENDATIONS

Zoning and Land Use Recommendations are detailed in Chapter 6 of this report and are applicable to the entirety of the Southfield Road Corridor. Below is an action table summarizing those recommendations, accompanied by responsible parties and implementation timelines.

Table 8-2: Land Use & Zoning Recommendations

Action Item	Responsible Party	Timeline
Use Recommendations		
Amend LP Ordinance to simple use categories and present in a tabular format.	LP Staff, LP Planning Commission	Immediate
Align commercial uses permitted between LP + Ecorse.	Planning Commissions	Immediate
Align area regulations between LP + Ecorse.	Planning Commissions	Short
Allow for "small-scale alcohol production" and "products produced onsite" in LP to align with permissions in Ecorse.	LP Staff, LP Planning Commission	Immediate
Allow for small-scale manufacturing in both communities.	Planning Commissions	Short
Engage with Recast City to fully integrate and develop a robust small-scale manufacturing community.	Planning Commissions, City Administration	Long
Allow for mixed use that included high-density residential along the corridor in LP.	LP Staff, LP Planning Commission	Immediate
Consider permitting mid- and high-density standalone housing on the corridor by right.	Planning Commissions	Immediate
Add use-specific screening and/or additional landscaping standards for automotive repair/sales uses to improve the visual effect of these uses.	Planning Commissions	Immediate
Consider removing the "auto service overlay" future land use designation along the corridor in LP.	LP Staff, LP Planning Commission	Immediate
Site Development Standards		
Align site development standards between the two communities.	Planning Commissions	Short
Consider specific development standards (architectural, landscaping, etc.) applicable to the corridor through a new district or overlay.	Planning Commissions	Short
Change to parking maximums instead of minimums in LP.	LP Staff, LP Planning Commission	Immediate
Use the access management standards in LP's zoning ordinance as a starting point to develop uniform access management regulations that apply to the length of the corridor.	Planning Commissions	Short
Standardize right-of-way landscaping and screening requirements between the two communities.	Planning Commissions	Short
Implement triggers in the development review process that would require improperly paved lawn belts to be replaced with landscaping.	Planning Commissions	Immediate
Allow for administrative review where appropriate, which would include waiver stipulations for landscaping and parking in the LP Zoning Ordinance.	Planning Commissions	Immediate
Determine what development standards are priorities and how deficiencies are handled to best incentivize quality redevelopment.	Planning Commissions	Short
Strengthen and prioritize code enforcement.	Code Enforcements, Planning Commissions	Immediate

FUNDING

Implementation projects of the scale and magnitude of the Southfield Corridor often require multiple project partners and funding sources. Often, funding programs are focused on priorities and goals that may only fund portions or specific elements within the overall Southfield Corridor projects. All funding sources and programs should be reviewed for complimentary requirements and opportunities to leverage local match dollars for multiple funding sources. Below is a select list of potential funding programs that may be applicable to the Southfield Corridor projects:

- American Rescue Plan Act Funding (various sources)
- DTE Foundation Grants (Community Transformation, Economic Progress, Environment)
- FHWA & MDOT Congestion Mitigation and Air Quality Improvement Program
- MDNR Natural Resources Trust Fund Grant
- MDNR Recreation Passport Grant
- MDNR Urban and Community Forestry Grants
- MDOT & SEMCOG Transportation Alternatives Program
- MEDC Michigan Main Street Community Program
- MEDC Public Spaces Community Places Program
- Michigan Community Development Block Grant Programs
- Michigan State Infrastructure Bank Loan Program
- Michigan State Revolving Fund
- Michigan Transportation Economic Development Fund
- NPS & MDNR Land and Water Conservation Fund Grant
- Public/Private Partnership Opportunities
- Safe Routes to School Program
- TMA Surface Transportation Block Grant Program
- USDOT Reconnecting Communities Pilot Program
- Wayne County Partnership (collaboration with Wayne County for multiple grant opportunities)
- Wayne County Community Foundation
- Wayne County New Economy Initiative
- Reconnecting Communities Pilot Program
- Lincoln Park DDA Community Development Block Program

Appendix

LINCOLN PARK CORRIDOR PLAN

MODEL: Lincoln Park Crash Heat Map PAPERSIZE: 34x22 (in.) DATE: 7/27/2022 TIME: 5:59:14 AM USER: CMS
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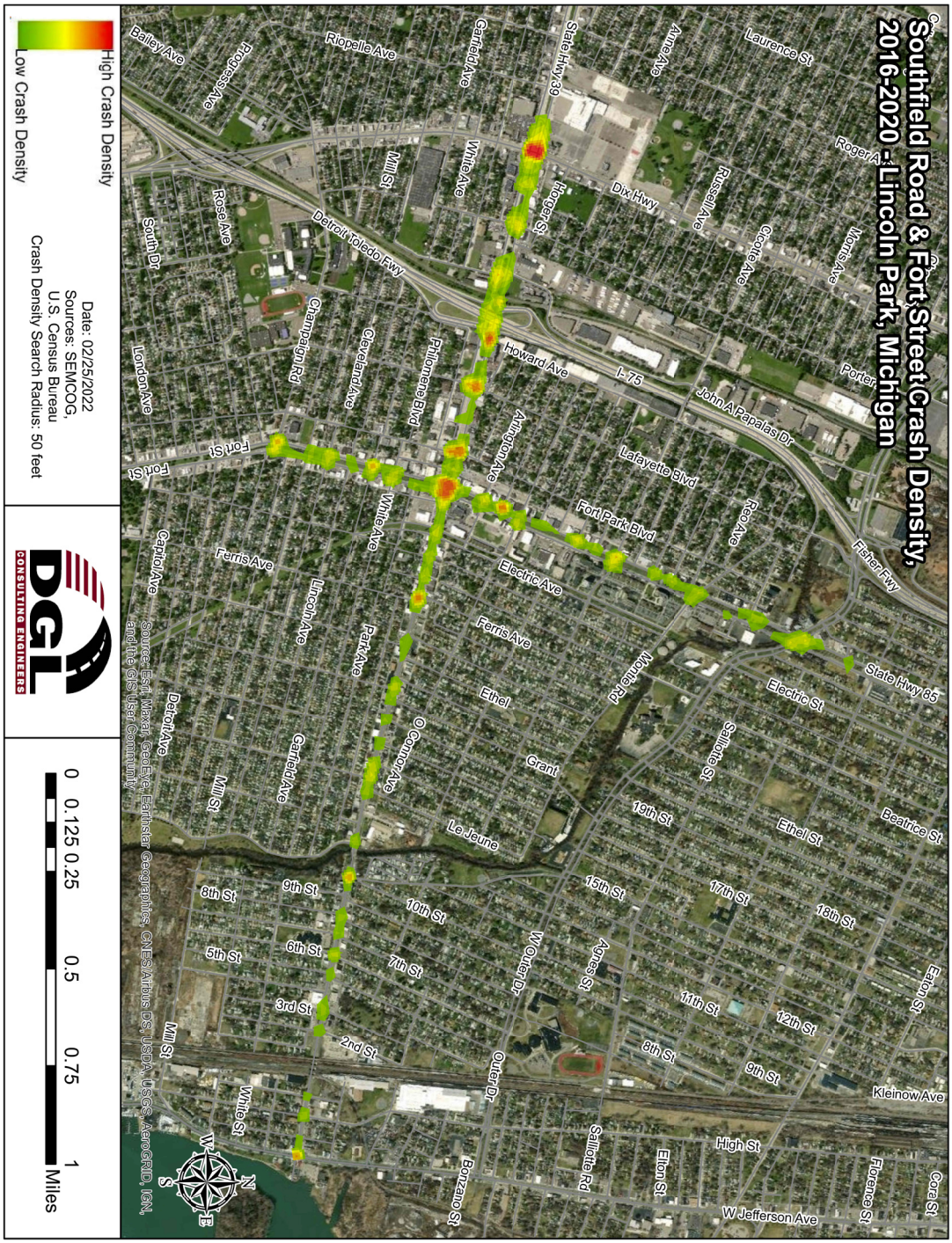

LINCOLN PARK CORRIDOR STUDIES
CRASH HEAT MAP

DESIGNER CMS | REVIEWER CML 2-11-22 | PROJECT ID 21158 | SHEET 1 TOTAL 12 | SUBSET 0 TOTAL 0

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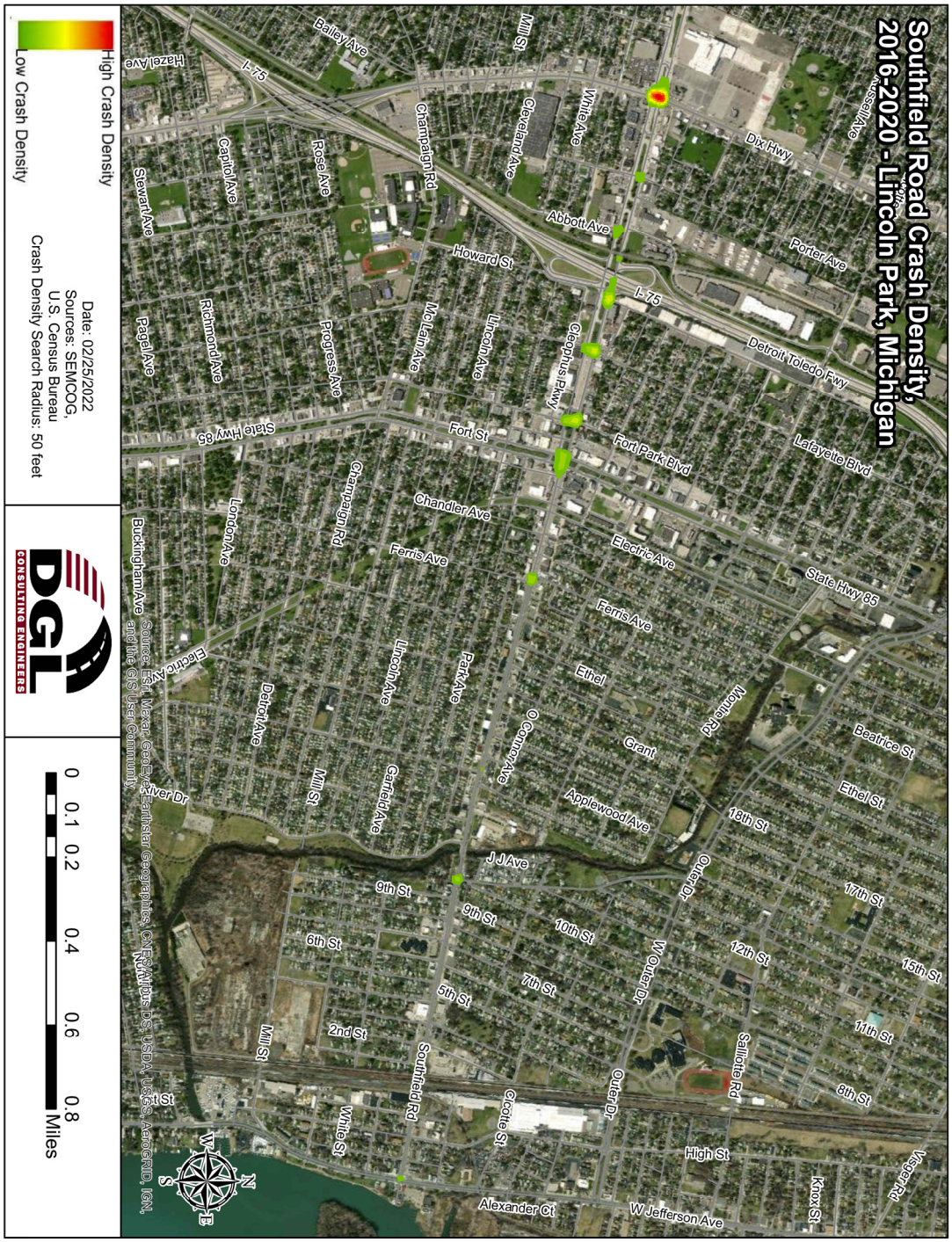

SOUTHFIELD ROAD CORRIDOR STUDY
CRASH HEAT MAP

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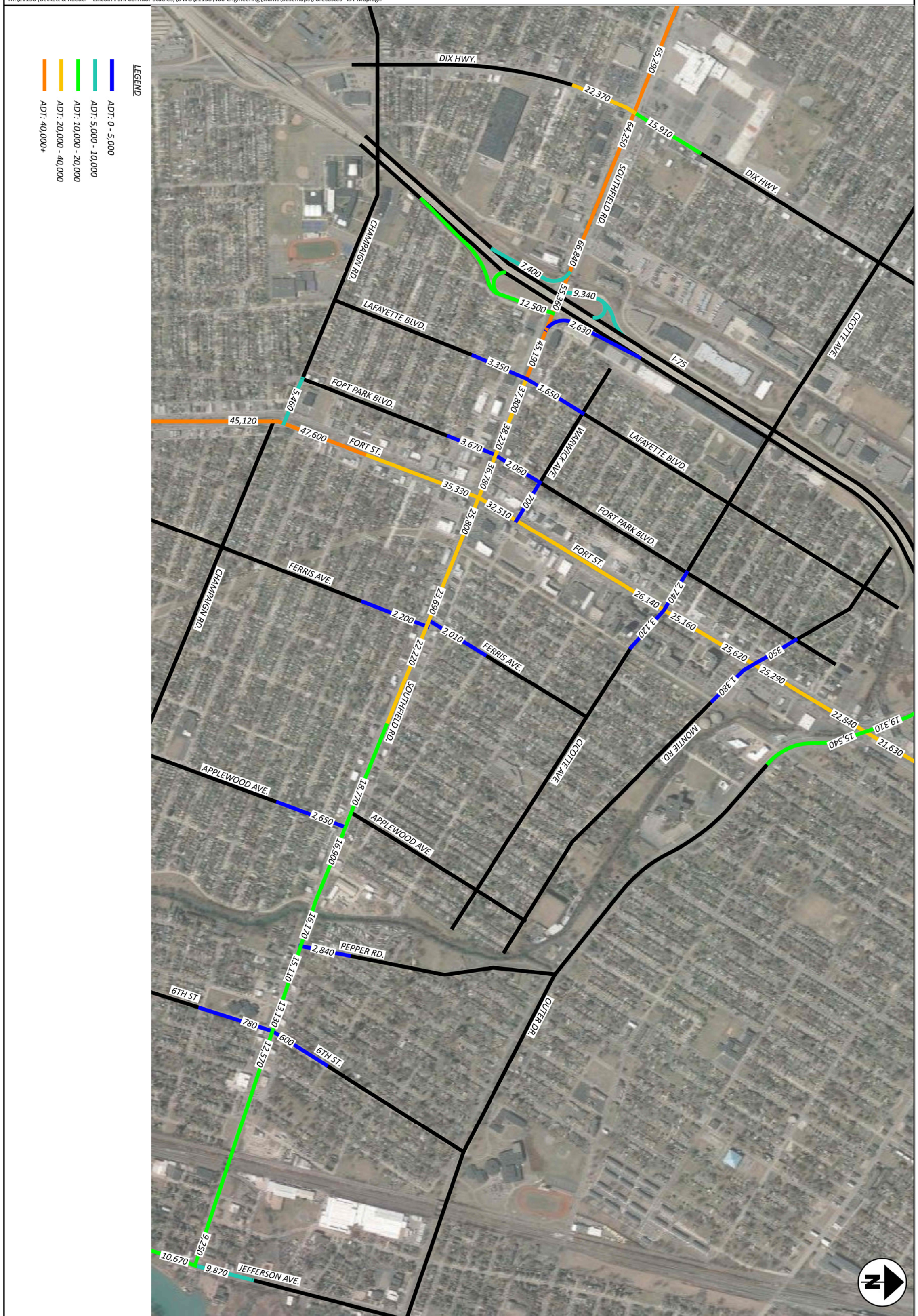

DESIGNER CMS | REVIEWER CML | 2-11-22 | PROJECT ID 21158 | SUBSET 0 TOTAL 0 | SHEET 3 TOTAL 12

DESIGN AGENCY: DGL CONSULTING ENGINEERS

LINCOLN PARK CORRIDOR STUDIES
FORECASTED ADT

LINCOLN PARK CORRIDOR PLAN

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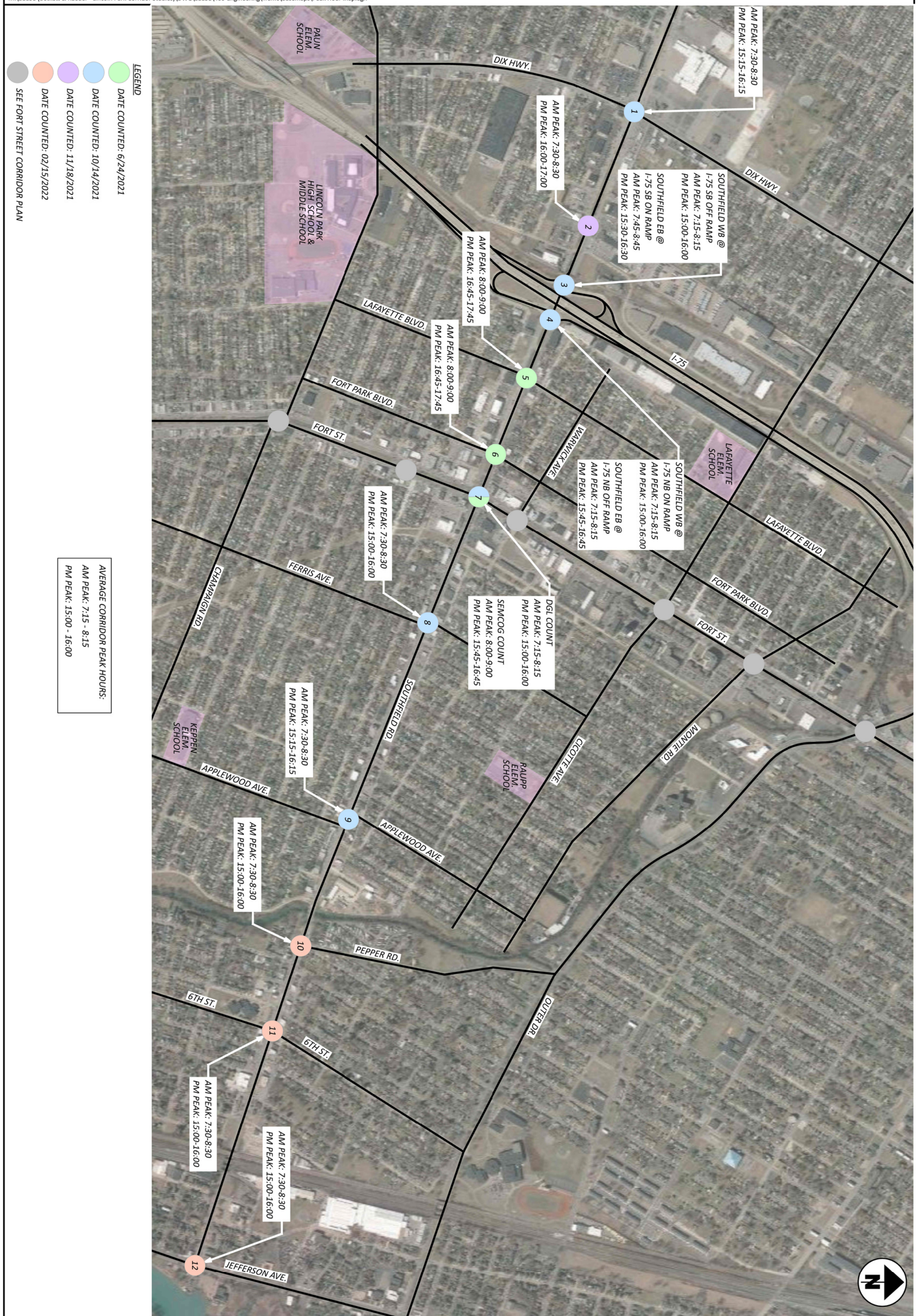

LINCOLN PARK CORRIDOR STUDIES
PEAK HOURS

DESIGN AGENCY: DGL CONSULTING ENGINEERS

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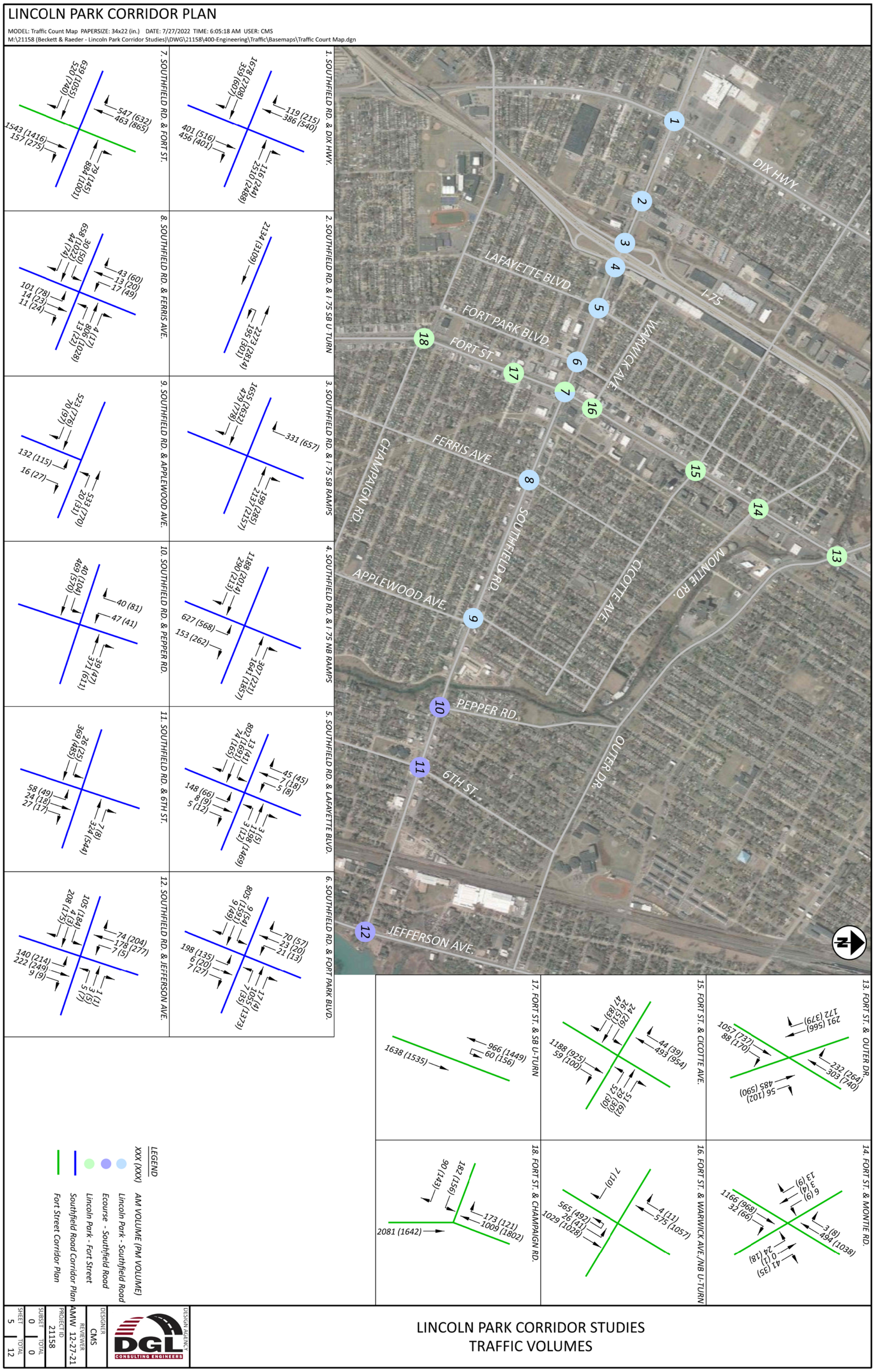

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1. SOUTHFIELD RD. & DIX HWY.
2. SOUTHFIELD RD. & I 75 SB U TURN
3. SOUTHFIELD RD. & I 75 SB RAMPS
4. SOUTHFIELD RD. & I 75 NB RAMPS
5. SOUTHFIELD RD. & LAFAYETTE BLVD.
6. SOUTHFIELD RD. & FORT PARK BLVD.
7. SOUTHFIELD RD. & FORT ST.
8. SOUTHFIELD RD. & FERRIS AVE.
9. SOUTHFIELD RD. & APPLEWOOD AVE.
10. SOUTHFIELD RD. & PEPPER RD.
11. SOUTHFIELD RD. & 6TH ST.
12. SOUTHFIELD RD. & JEFFERSON AVE.
13. FORT ST. & OUTER DR.
14. FORT ST. & MONTIE RD.
15. FORT ST. & CICOTTE AVE.
16. FORT ST. & WARWICK AVE./NB U-TURN
17. FORT ST. & SB U-TURN
18. FORT ST. & CHAMPAIGN RD.
DIX HWY.
LAFAYETTE BLVD.
I-75
FORT PARK BLVD.
FORT ST.
WARWICK AVE.
FERRIS AVE.
CHAMPAIGN RD.
SOUTHFIELD RD.
CICOTTE AVE.
MONTIE RD.
APPLEWOOD AVE.
PEPPER RD.
OUTER DR.
6TH ST.
JEFFERSON AVE.
LEGEND
XXX (XXX) AM VOLUME (PM VOLUME)
Lincoln Park - Southfield Road
Ecourse - Southfield Road
Lincoln Park - Fort Street
Southfield Road Corridor Plan
Fort Street Corridor Plan
DGL CONSULTING ENGINEERS
LINCOLN PARK CORRIDOR STUDIES
TRAFFIC VOLUMES
DESIGNER CMS
REVIEWER AMW 12-27-21
PROJECT ID 21158
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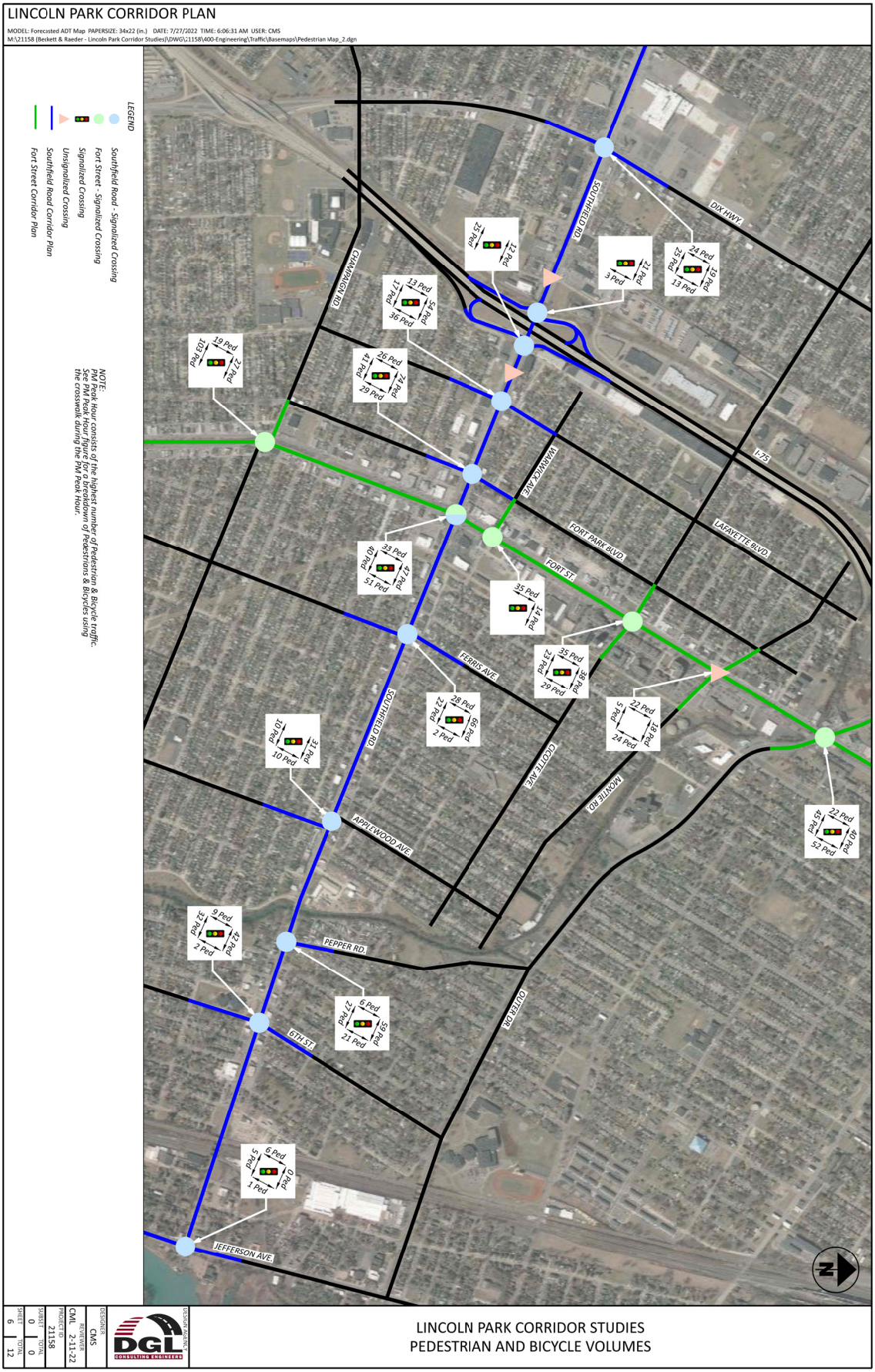
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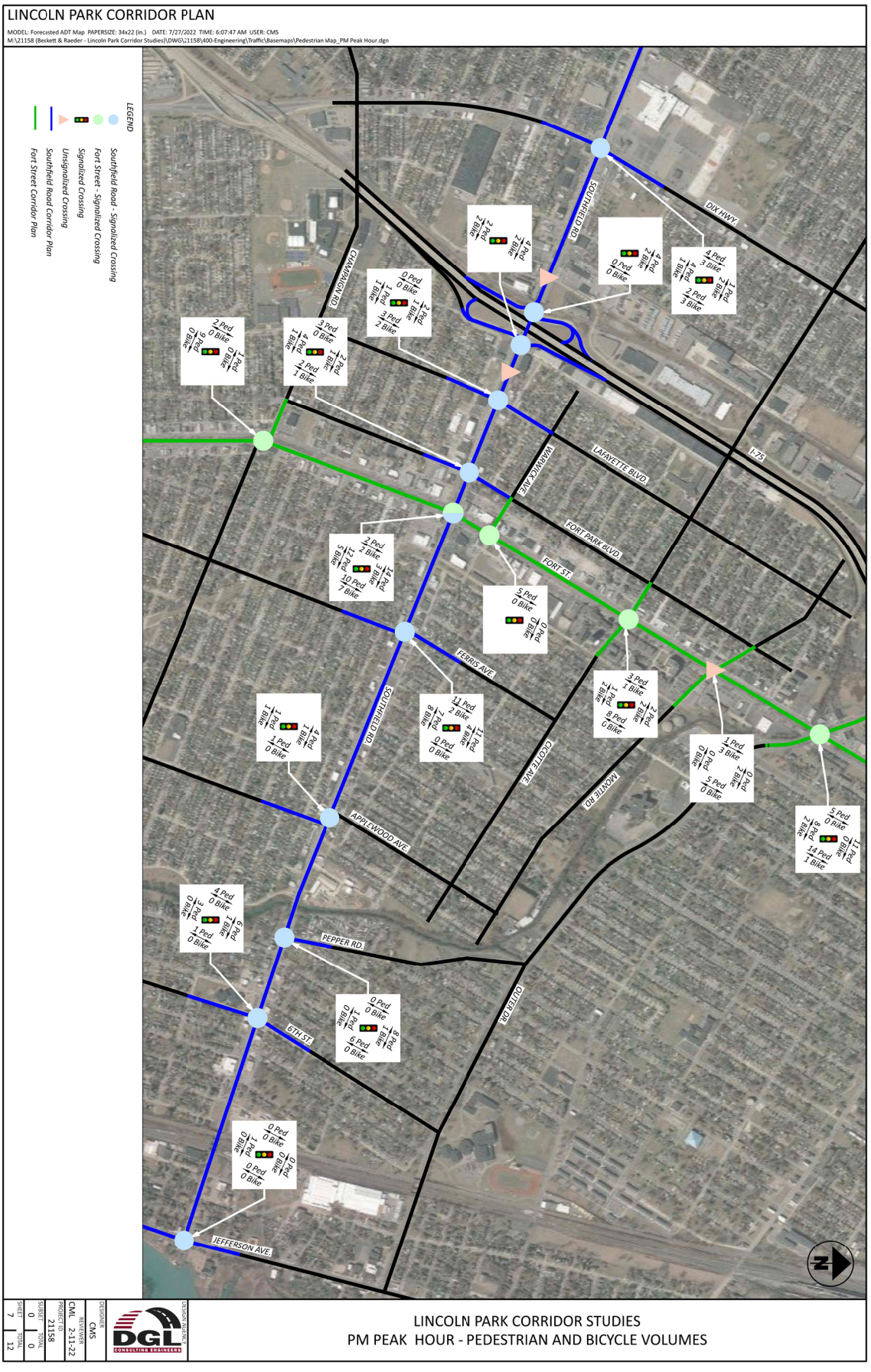
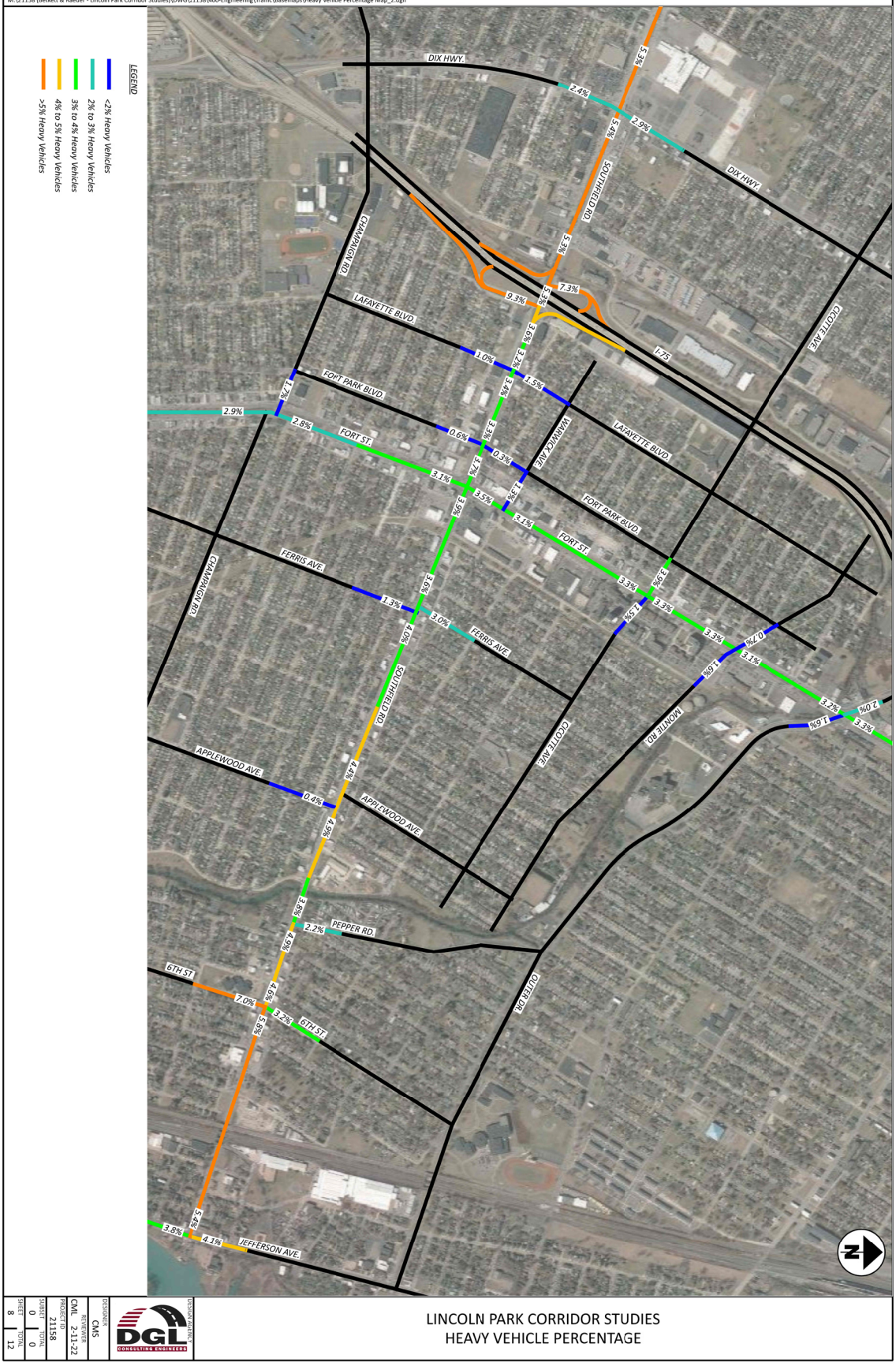
LEGEND
Southfield Road - Signalized Crossing
Fort Street - Signalized Crossing
Signalized Crossing
Unsignalized Crossing
Southfield Road Corridor Plan
Fort Street Corridor Plan
NOTE:
PM Peak Hour consists of the highest number of Pedestrian & Bicycle traffic.
See PM Peak Hour figure for a breakdown of Pedestrians & Bicycles using
the crosswalk during the PM Peak Hour.
SOUTHFIELD RD.
DIX HWY.
CHAMPAION RD.
WARWICK AVE.
I-75
FORT PARK BLVD.
LAFAYETTE BLVD.
FORT ST.
FERRIS AVE.
SOUTHFIELD RD.
OCOTTE AVE.
MONROE RD.
APPLEWOOD AVE.
PEPPER RD.
6TH ST.
OUTER DR.
JEFFERSON AVE.
SHEET 6 TOTAL 12
SUBSET 0 TOTAL 0
PROJECT ID 21158
CML 2-11-22
REVIEWER
DESIGNER CMS
DGL CONSULTING ENGINEERS
DESIGN FIRM
LINCOLN PARK CORRIDOR STUDIES
PEDESTRIAN AND BICYCLE VOLUMES


LINCOLN PARK CORRIDOR PLAN
MODEL: Forecasted ADT Map PAPERSIZE: 34x22 (in.) DATE: 7/27/2022 TIME: 6:07:47 AM USER: CMS
M:\21158 (Beckett & Raeder - Lincoln Park Corridor Studies)\DWG\21158\400-Engineering\Traffic\Basemaps\Pedestrian Map_PM Peak Hour.dgn
LEGEND
Southfield Road - Signalized Crossing
Fort Street - Signalized Crossing
Signalized Crossing
Unsignalized Crossing
Southfield Road Corridor Plan
Fort Street Corridor Plan
SOUTHFIELD RD
DIX HWY.
CHAMPAGNON RD.
WARWICK AVE.
LAFAYETTE BLVD.
I-75
FORT PARK BLVD.
FORT ST.
FERRIS AVE.
SOUTHFIELD RD
APPLEWOOD AVE.
OCOTTE AVE
MONROE RD
PEPPER RD.
6TH ST.
OUTER DR
JEFFERSON AVE.
LINCOLN PARK CORRIDOR STUDIES
PM PEAK HOUR - PEDESTRIAN AND BICYCLE VOLUMES
SHEET 7 TOTAL 12
SUBSET 0 TOTAL 0
PROJECT ID 21158
REVIEWER CML 2-11-22
DESIGNER CMS
DGL CONSULTING ENGINEERS


LINCOLN PARK CORRIDOR PLAN
MODEL: Forecasted ADT Map PAPERSIZE: 34x22 (in.) DATE: 7/27/2022 TIME: 6:09:01 AM USER: CMS
M:\21158 (Beckett & Raeder - Lincoln Park Corridor Studies)\DWG\21158\400-Engineering\Traffic\Basemaps\Heavy Vehicle Percentage Map_2.dgn
LEGEND
<2% Heavy Vehicles
2% to 3% Heavy Vehicles
3% to 4% Heavy Vehicles
4% to 5% Heavy Vehicles
>5% Heavy Vehicles
DIX HWY.
SOUTHFIELD RD.
CHAMPAGNE RD.
LAFAYETTE BLVD.
FORT PARK BLVD.
FORT ST.
FERRIS AVE.
APPLEWOOD AVE.
PEPPER RD.
6TH ST.
JEFFERSON AVE.
I-75
COOLIDGE HWY.
OUTER DR.
MONROE RD.
MARMOR AVE.
SHEET 8 TOTAL 12
SHEET 0 TOTAL 0
PROJECT ID 21158
REVIEWER CML 2-11-22
DESIGNER CMS
DGL CONSULTING ENGINEERS
LINCOLN PARK CORRIDOR STUDIES
HEAVY VEHICLE PERCENTAGE

LINCOLN PARK CORRIDOR PLAN

MODEL: Lincoln Park Crash Heat Map PAPERSIZE: 34x22 (in.) DATE: 7/27/2022 TIME: 5:56:28 AM USER: CMS
M:\21158 (Beckett & Raeder - Lincoln Park Corridor Studies)\DWG\21158\400-Engineering\Traffic\Basemaps\Southfield Ped Timing.dgn

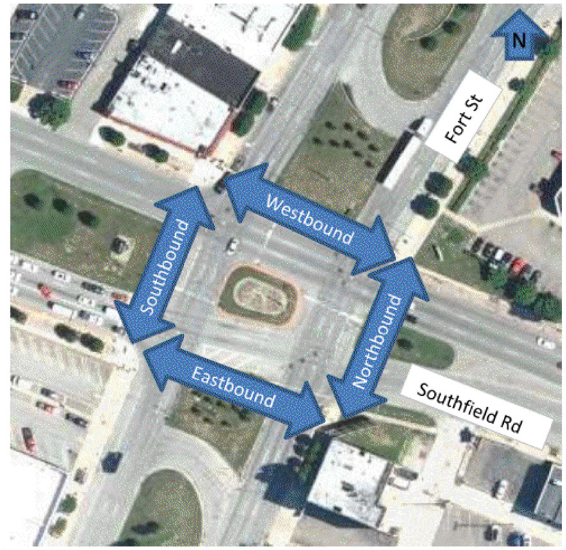
Southfield Road Timing

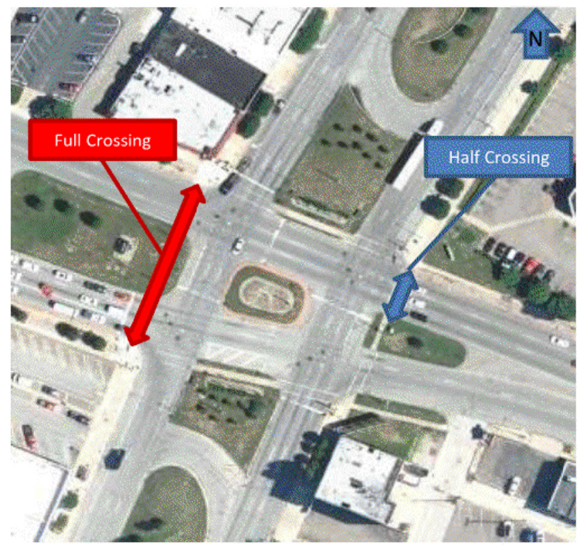
Current Ped Timing vs Calculated Ped Timing

Full Crossing	Northbound	Southbound	Eastbound	Westbound
Southfield & Dix				
Current Timing	-	-	-	-
Calculated Timing	-	-	-	-
Difference	0.0	0.0	0.0	0.0
Southfield & Lafayette				
Current Timing	-	-	-	-
Calculated Timing	-	-	-	-
Difference	0.0	0.0	0.0	0.0
Southfield & Fort Park				
Current Timing	54.2	54.2	24.5	24.5
Calculated Timing	58.0	58.0	19.0	21.0
Difference	3.8	3.8	-5.5	-3.5
Southfield & Fort				
Current Timing	37.3	37.3	36.6	36.6
Calculated Timing	43.0	54.0	62.0	61.0
Difference	5.7	16.7	25.4	24.4
Southfield & Ferris				
Current Timing	-	32.2	41.2	41.2
Calculated Timing	-	33.0	23.0	19.0
Difference	0.0	0.8	-18.2	-22.2
Southfield & Applewood				
Current Timing	30.1	-	44.7	-
Calculated Timing	30.0	-	14.0	-
Difference	-0.1	0.0	-30.7	0.0
Southfield & Pepper				
Current Timing	29.2	-	-	41.3
Calculated Timing	32.0	-	-	14.0
Difference	2.8	0.0	0.0	-27.3
Southfield & Sixth				
Current Timing	-	32.0	42.6	42.6
Calculated Timing	-	33.0	13.0	14.0
Difference	0.0	1.0	-29.6	-28.6
Southfield & Jefferson				
Current Timing	35.3	35.3	35.5	35.5
Calculated Timing	14.0	29.0	30.0	30.0
Difference	-21.3	-6.3	-5.5	-5.5

Half Crossing	Northbound	Southbound	Eastbound	Westbound
Southfield & Dix				
Current Timing	30.0	30.0	30.0	30.0
Calculated Timing	31.0	32.0	36.0	34.0
Difference	1.0	2.0	6.0	4.0
Southfield & Lafayette				
Current Timing	24.0	24.0	64.0	64.0
Calculated Timing	24.0	23.0	15.0	15.0
Difference	0.0	-1.0	-49.0	-49.0
Southfield & Fort Park				
Current Timing	54.2	54.2	24.5	24.5
Calculated Timing	19.0	19.0	19.0	21.0
Difference	-35.2	-35.2	-5.5	-3.5
Southfield & Fort				
Current Timing	37.3	37.3	36.6	36.6
Calculated Timing	18.0	18.0	20.0	20.0
Difference	-19.3	-19.3	-16.6	-16.6

Fits within Existing Timing (green)
Equal to Existing Timing (yellow)
More Time Needed (red)

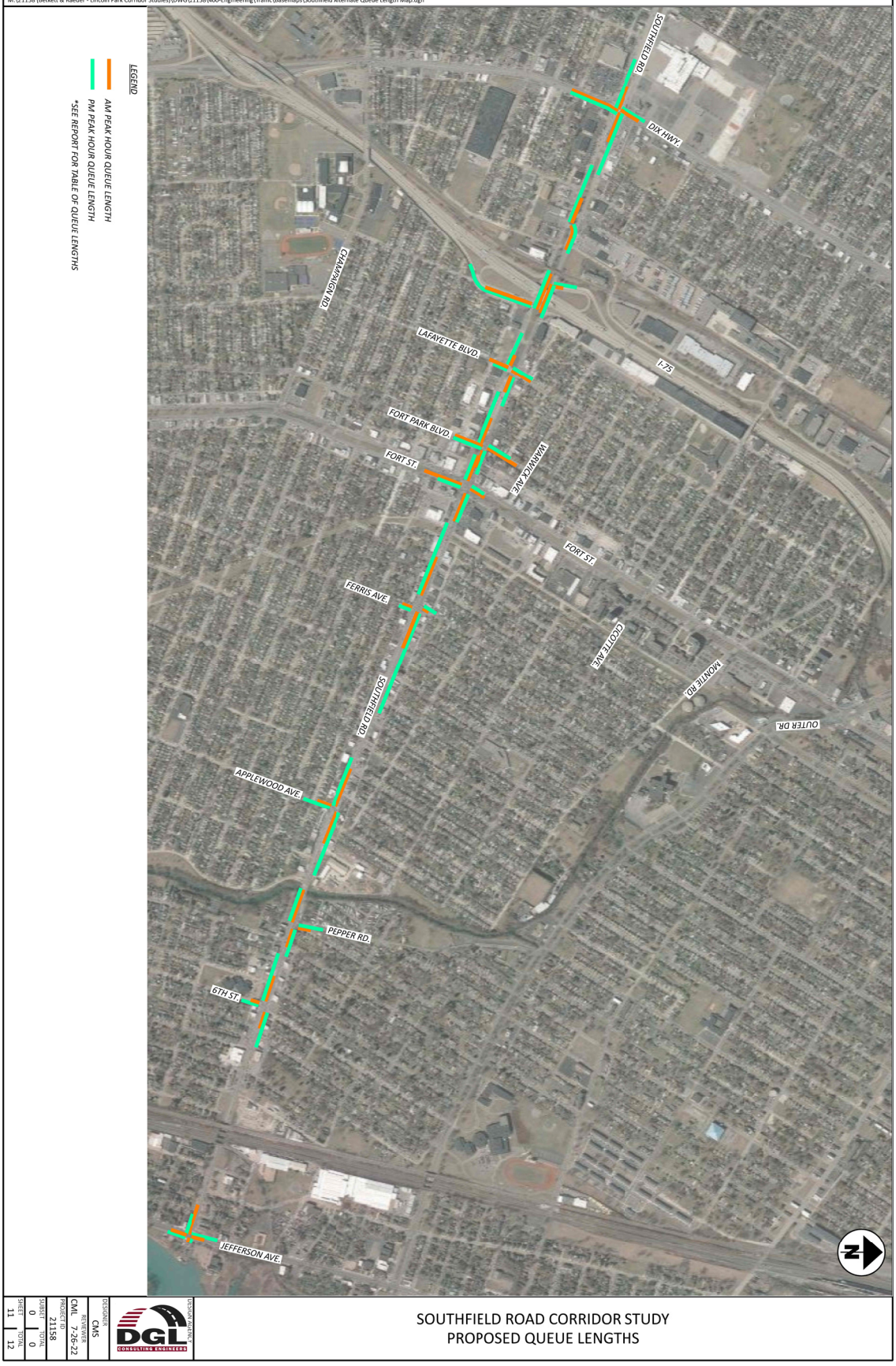


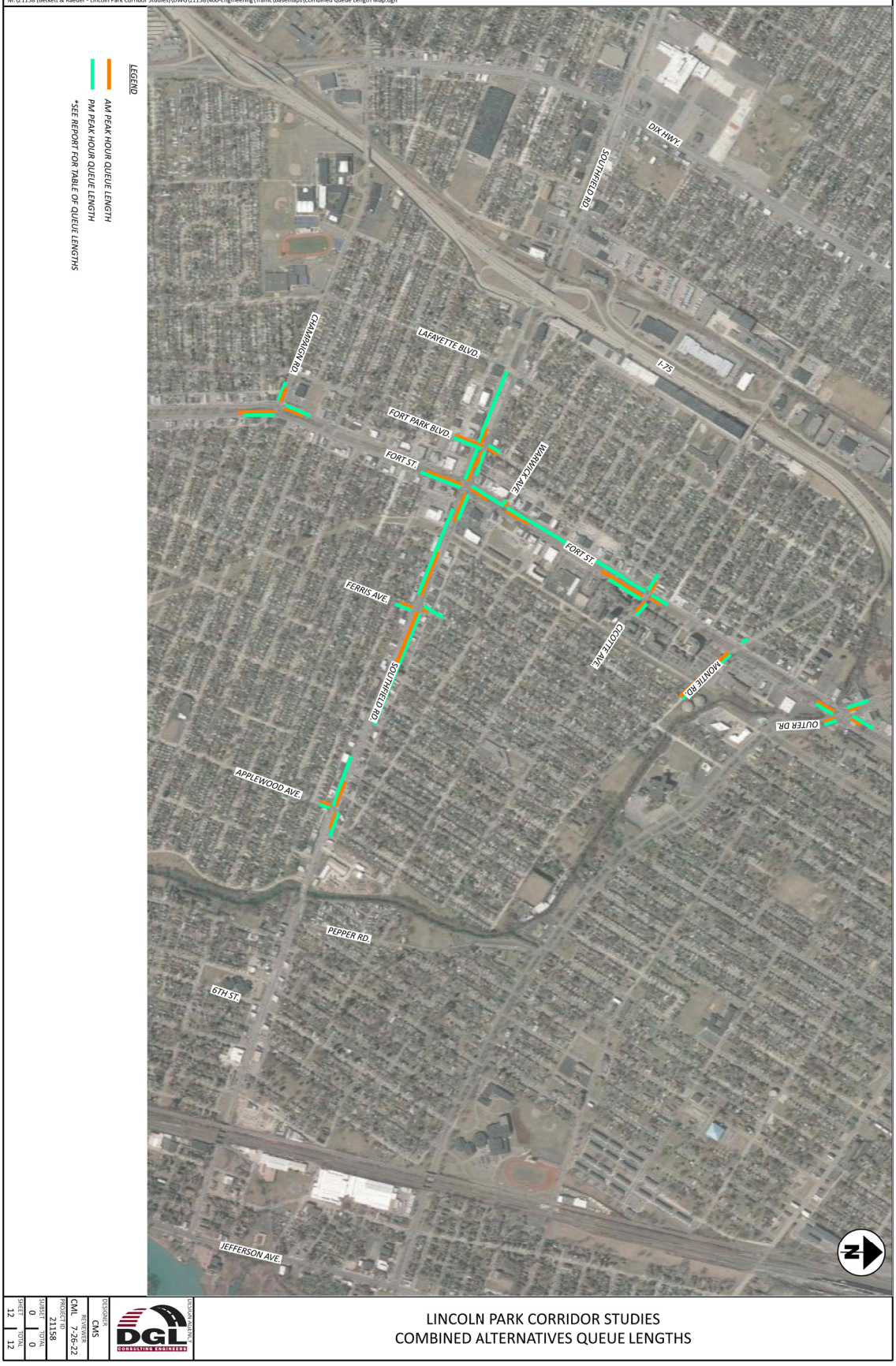


SOUTHFIELD ROAD CORRIDOR STUDY
PEDESTRIAN TIMING COMPARISON

DESIGN AGENCY: DGL CONSULTING ENGINEERS
DESIGNER: CMS
REVIEWER: CML 2-11-22
PROJECT ID: 21158
SUBSET 0 TOTAL 0
SHEET 9 TOTAL 12


LINCOLN PARK CORRIDOR PLAN
MODEL: Forecasted ADT Map PAPERSIZE: 34x22 (in.) DATE: 7/27/2022 TIME: 8:31:15 AM USER: CMS
M:\21158 (Beckett & Raeder - Lincoln Park Corridor Studies)\DWG\21158\400-Engineering\Traffic\Basemaps\Existing Queue Length Map.dgn
LEGEND
AM PEAK HOUR QUEUE LENGTH
PM PEAK HOUR QUEUE LENGTH
*SEE REPORT FOR TABLE OF QUEUE LENGTHS
DIX HWY.
SOUTHFIELD RD.
CHAPMAN RD.
LAFAYETTE BLVD.
I-75
FORT PARK BLVD.
FORT ST.
WARWICK AVE.
FORT ST.
FERRIS AVE.
SOUTHFIELD RD.
CCOTTE AVE.
MONTIE RD.
OUTER DR.
APPLEWOOD AVE.
PEPPER RD.
6TH ST.
JEFFERSON AVE.
N
SHEET 10 TOTAL 12
SHEET 0 TOTAL 0
PROJECT ID 21158
REVIEWER CML 7-26-22
DESIGNER CMS
DGL CONSULTING ENGINEERS
LINCOLN PARK CORRIDOR STUDIES
EXISTING CONDITIONS QUEUE LENGTHS


LINCOLN PARK CORRIDOR PLAN
MODEL: Forecasted ADT Map PAPERSIZE: 34x22 (in.) DATE: 7/27/2022 TIME: 9:04:58 AM USER: CMS
M:\21158 (Beckett & Raeder - Lincoln Park Corridor Studies)\DWG\21158\400-Engineering\Traffic\Basemaps\Southfield Alternate Queue Length Map.dgn
LEGEND
AM PEAK HOUR QUEUE LENGTH
PM PEAK HOUR QUEUE LENGTH
*SEE REPORT FOR TABLE OF QUEUE LENGTHS
SOUTHFIELD RD.
DIX HWY.
CHAPMAN RD.
LAFAYETTE BLVD.
I-75
FORT PARK BLVD.
FORT ST.
WARWICK AVE.
FORT ST.
FERRIS AVE.
SCOTT AVE.
MONTIE RD.
OUTER DR.
SOUTHFIELD RD.
APPLEWOOD AVE.
PEPPER RD.
6TH ST.
JEFFERSON AVE.
N
SHEET 11 TOTAL 12
SUBSET 0 TOTAL 0
PROJECT ID 21158
CML 7-26-22
REVIEWER
DESIGNER CMS
DGL CONSULTING ENGINEERS
DESIGN FIRM
SOUTHFIELD ROAD CORRIDOR STUDY
PROPOSED QUEUE LENGTHS


LINCOLN PARK CORRIDOR PLAN
MODEL: Forecasted ADT Map PAPERSIZE: 34x22 (in.) DATE: 7/27/2022 TIME: 9:30:42 AM USER: CMS
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LEGEND
AM PEAK HOUR QUEUE LENGTH
PM PEAK HOUR QUEUE LENGTH
*SEE REPORT FOR TABLE OF QUEUE LENGTHS
DIX HWY.
SOUTHFIELD RD.
CHAMPAGNE RD.
LAFAYETTE BLVD.
I-75
FORT PARK BLVD.
FORT ST.
WABASH AVE.
FORT ST.
FERRIS AVE.
SOUTHFIELD RD.
SCOTT AVE.
MONTIE RD.
OUTER DR.
APPLEWOOD AVE.
PEPPER RD.
6TH ST.
JEFFERSON AVE.
N
SHEET 12
TOTAL 12
SHEET 0
TOTAL 0
PROJECT ID 21158
REVIEWER CML 7-26-22
DESIGNER CMS
DESIGN PHASE
DGL CONSULTING ENGINEERS
LINCOLN PARK CORRIDOR STUDIES
COMBINED ALTERNATIVES QUEUE LENGTHS

Lincoln Park Southfield Rd Corridor Plan
Southfield Road and Dix Highway

Leg	Southfield Rd.						Southfield Rd.						Dix Hwy.						Dix Hwy.						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Left	Thru	Right	U-Turn	Total	Peds	Int Total
2021-10-14 07:00:00	0	311	60	0	**371**	2	0	561	20	0	**581**	0	0	44	110	0	**154**	0	0	70	31	0	**101**	0	**1207**
2021-10-14 07:15:00	0	422	81	0	**503**	0	0	616	23	0	**639**	0	0	67	115	0	**182**	0	0	90	36	0	**126**	0	**1450**
2021-10-14 07:30:00	0	457	90	0	**547**	0	0	661	35	0	**696**	2	0	107	120	0	**227**	0	0	115	36	0	**151**	0	**1621**
2021-10-14 07:45:00	0	437	102	0	**539**	1	0	610	23	0	**633**	0	0	98	106	0	**204**	0	0	85	33	0	**118**	0	**1494**
2021-10-14 08:00:00	0	359	79	0	**438**	0	0	656	19	0	**675**	0	0	94	116	0	**210**	1	0	93	27	0	**120**	0	**1443**
2021-10-14 08:15:00	0	425	88	0	**513**	1	0	583	39	0	**622**	0	0	102	114	0	**216**	0	0	93	23	0	**116**	1	**1467**
AM Peak Hour Totals	**0**	**1678**	**359**	**0**	**2037**	**2**	**0**	**2510**	**116**	**0**	**2626**	**2**	**0**	**401**	**456**	**0**	**857**	**1**	**0**	**386**	**119**	**0**	**505**	**1**	**6025**
AM PHF		**0.92**	**0.88**		**0.93**	**0.50**		**0.95**	**0.74**		**0.94**	**0.25**		**0.94**	**0.95**		**0.94**	**0.25**		**0.84**	**0.83**		**0.84**	**0.25**	**0.93**
2021-10-14 08:30:00	0	405	94	0	**499**	1	3	544	31	0	**578**	0	0	86	102	0	**188**	0	0	69	36	0	**105**	0	**1370**
2021-10-14 08:45:00	0	398	84	0	**482**	0	0	548	32	0	**580**	0	0	74	98	0	**172**	0	0	65	32	0	**97**	0	**1331**
2021-10-14 11:00:00	0	398	84	0	**482**	0	0	399	41	0	**440**	0	0	71	61	0	**132**	0	0	102	40	0	**142**	0	**1196**
2021-10-14 11:15:00	0	382	76	0	**458**	1	0	491	55	0	**546**	0	0	76	94	0	**170**	0	0	81	32	0	**113**	0	**1287**
2021-10-14 11:30:00	0	387	91	0	**478**	0	0	478	38	0	**516**	0	0	69	103	0	**172**	0	0	104	40	0	**144**	0	**1310**
2021-10-14 11:45:00	0	431	99	0	**530**	0	0	437	58	0	**495**	0	0	91	104	0	**195**	0	0	115	35	0	**150**	0	**1370**
2021-10-14 12:00:00	0	416	97	0	**513**	0	0	461	38	0	**499**	0	0	93	82	0	**175**	1	0	78	47	0	**125**	0	**1312**
2021-10-14 12:15:00	0	440	116	0	**556**	2	0	494	39	0	**533**	1	0	82	87	0	**169**	1	0	68	29	0	**97**	2	**1355**
2021-10-14 12:30:00	0	453	114	0	**567**	1	0	457	46	0	**503**	0	0	97	94	0	**191**	0	0	81	36	0	**117**	1	**1378**
2021-10-14 12:45:00	0	426	95	0	**521**	1	0	463	30	0	**493**	0	0	83	84	0	**167**	2	0	85	38	0	**123**	1	**1304**
Mid-Day Peak Hour Totals	**0**	**1735**	**422**	**0**	**2157**	**4**	**0**	**1875**	**153**	**0**	**2028**	**1**	**0**	**355**	**347**	**0**	**702**	**4**	**0**	**312**	**150**	**0**	**462**	**4**	**5349**
Mid-Day PHF		**0.96**	**0.91**		**0.95**			**0.95**	**0.83**		**0.95**			**0.91**	**0.92**		**0.92**			**0.92**	**0.80**		**0.92**		**0.97**
2021-10-14 14:00:00	0	543	122	0	**665**	1	0	508	55	0	**563**	2	0	69	76	0	**145**	1	0	104	44	0	**148**	0	**1521**
2021-10-14 14:15:00	0	588	124	0	**712**	2	0	556	59	0	**615**	0	0	80	88	0	**168**	1	0	142	43	0	**185**	1	**1680**
2021-10-14 14:30:00	0	586	150	0	**736**	1	0	564	52	0	**616**	1	0	112	86	0	**198**	2	0	174	58	0	**232**	1	**1782**
2021-10-14 14:45:00	0	610	140	0	**750**	1	0	592	41	0	**633**	1	0	133	95	0	**228**	2	0	151	50	0	**201**	0	**1812**
2021-10-14 15:00:00	0	617	126	0	**743**	2	0	590	60	0	**650**	5	0	136	111	0	**247**	3	0	147	54	0	**201**	1	**1841**
2021-10-14 15:15:00	0	644	163	0	**807**	2	0	657	53	0	**710**	0	0	135	104	0	**239**	0	0	123	58	0	**181**	0	**1937**
2021-10-14 15:30:00	0	725	140	0	**865**	2	0	635	68	0	**703**	0	0	140	104	0	**244**	0	0	124	44	0	**168**	2	**1980**
2021-10-14 15:45:00	0	722	178	0	**900**	1	0	606	63	0	**669**	0	0	105	82	0	**187**	2	0	146	59	0	**205**	0	**1961**
PM Peak Hour Totals	**0**	**2708**	**607**	**0**	**3315**	**7**	**0**	**2488**	**244**	**0**	**2732**	**5**	**0**	**516**	**401**	**0**	**917**	**5**	**0**	**540**	**215**	**0**	**755**	**3**	**7719**
PM PHF		**0.93**	**0.85**		**0.92**			**0.95**	**0.90**		**0.96**			**0.92**	**0.90**		**0.93**			**0.92**	**0.91**		**0.92**		**0.97**
2021-10-14 16:00:00	0	664	145	0	**809**	0	0	592	66	0	**658**	1	1	92	93	0	**186**	0	0	157	49	0	**206**	3	**1859**
2021-10-14 16:15:00	0	637	160	0	**797**	0	0	586	65	0	**651**	0	0	99	75	0	**174**	0	0	169	49	0	**218**	0	**1840**
2021-10-14 16:30:00	0	644	142	0	**786**	0	0	582	64	0	**646**	0	0	117	80	0	**197**	1	0	143	55	0	**198**	1	**1827**
2021-10-14 16:45:00	0	560	157	0	**717**	0	0	634	51	0	**685**	0	0	109	87	0	**196**	2	0	163	49	0	**212**	0	**1810**
2021-10-14 17:00:00	0	588	143	0	**731**	1	0	633	74	0	**707**	0	0	107	96	0	**203**	1	0	152	58	0	**210**	2	**1851**
2021-10-14 17:15:00	0	576	172	0	**748**	0	0	669	67	0	**736**	0	0	133	91	0	**224**	0	0	151	51	0	**202**	0	**1910**
2021-10-14 17:30:00	0	578	158	0	**736**	1	0	654	61	0	**715**	0	0	97	84	0	**181**	3	0	143	56	0	**199**	2	**1831**
2021-10-14 17:45:00	0	608	156	0	**764**	0	0	613	71	0	**684**	0	0	108	96	0	**204**	2	0	124	40	0	**164**	1	**1816**
Grand Total	**0**	**16437**	**3826**	**0**	**20263**	**24**	**3**	**18130**	**1537**	**0**	**19670**	**13**	**1**	**3106**	**3038**	**0**	**6145**	**25**	**0**	**3707**	**1368**	**0**	**5075**	**19**	**51153**
% Approach	**0.0%**	**81.1%**	**18.9%**	**0.0%**			**0.0%**	**92.2%**	**7.8%**	**0.0%**			**0.0%**	**50.5%**	**49.4%**	**0.0%**			**0.0%**	**73.0%**	**27.0%**	**0.0%**			
% Total	**0.0%**	**32.1%**	**7.5%**	**0.0%**	**39.6%**		**0.0%**	**35.4%**	**3.0%**	**0.0%**	**38.5%**		**0.0%**	**6.1%**	**5.9%**	**0.0%**	**12.0%**		**0.0%**	**7.2%**	**2.7%**	**0.0%**	**9.9%**		
Lights	**0**	**15481**	**3713**	**0**	**19194**		**1**	**17128**	**1471**	**0**	**18600**		**1**	**3032**	**2963**	**0**	**5996**		**0**	**3646**	**1283**	**0**	**4929**		**48719**
% Lights	**0.0%**	**94.2%**	**97.0%**	**0.0%**	**94.7%**		**33.3%**	**94.5%**	**95.7%**	**0.0%**	**94.6%**		**100.0%**	**97.6%**	**97.5%**	**0.0%**	**97.6%**		**0.0%**	**98.4%**	**93.8%**	**0.0%**	**97.1%**		**95.2%**
Heavy	**0**	**956**	**113**	**0**	**1069**		**2**	**1002**	**66**	**0**	**1070**		**0**	**74**	**75**	**0**	**149**		**0**	**61**	**85**	**0**	**146**		**2434**
% Heavy	**0.0%**	**5.8%**	**3.0%**	**0.0%**	**5.3%**		**66.7%**	**5.5%**	**4.3%**	**0.0%**	**5.4%**		**0.0%**	**2.4%**	**2.5%**	**0.0%**	**2.4%**		**0.0%**	**1.6%**	**6.2%**	**0.0%**	**2.9%**		**4.8%**
Pedestrians						**24**						**13**						**25**						**19**	
% Pedestrians						**100.0%**						**100.0%**						**100.0%**						**100.0%**	

Leg	Southfield Road U-Turn for SB I-75		
Direction	Eastbound		
Start Time	Direction	**Total**	**Int Total**
2021-11-18 07:00:00	40	**40**	**40**
2021-11-18 07:15:00	44	**44**	**44**
2021-11-18 07:30:00	50	**50**	**50**
2021-11-18 07:45:00	47	**47**	**47**
2021-11-18 08:00:00	50	**50**	**50**
2021-11-18 08:15:00	48	**48**	**48**
AM Peak Hour Totals	**195**	**195**	**195**
AM PHF	**0.98**	**0.98**	**0.98**
2021-11-18 08:30:00	46	**46**	**46**
2021-11-18 08:45:00	39	**39**	**39**
2021-11-18 11:00:00	42	**42**	**42**
2021-11-18 11:15:00	53	**53**	**53**
2021-11-18 11:30:00	31	**31**	**31**
2021-11-18 11:45:00	40	**40**	**40**
2021-11-18 12:00:00	49	**49**	**49**
2021-11-18 12:15:00	63	**63**	**63**
2021-11-18 12:30:00	36	**36**	**36**
2021-11-18 12:45:00	37	**37**	**37**
Mid-Day Peak Hour Totals	**185**	**185**	**185**
Mid-Day PHF	**0.73**	**0.73**	**0.73**
2021-11-18 14:00:00	61	**61**	**61**
2021-11-18 14:15:00	71	**71**	**71**
2021-11-18 14:30:00	66	**66**	**66**
2021-11-18 14:45:00	68	**68**	**68**
2021-11-18 15:00:00	62	**62**	**62**
2021-11-18 15:15:00	78	**78**	**78**
2021-11-18 15:30:00	74	**74**	**74**
2021-11-18 15:45:00	87	**87**	**87**
PM Peak Hour Totals	**301**	**301**	**301**
PM PHF	**0.86**	**0.86**	**0.86**
2021-11-18 16:00:00	106	**106**	**106**
2021-11-18 16:15:00	89	**89**	**89**
2021-11-18 16:30:00	84	**84**	**84**
2021-11-18 16:45:00	92	**92**	**92**
2021-11-18 17:00:00	99	**99**	**99**
2021-11-18 17:15:00	92	**92**	**92**
2021-11-18 17:30:00	86	**86**	**86**
2021-11-18 17:45:00	78	**78**	**78**
Grand Total	**2008**	**2008**	**2008**
% Approach	**100.0%**		
% Total	**100.0%**	**100.0%**	
Lights	**1931**	**1931**	**1931**
% Lights	**96.2%**	**96.2%**	**96.2%**
Heavy	**77**	**77**	**77**
% Heavy	**3.8%**	**3.8%**	**3.8%**

Lincoln Park Southfield Rd Corridor Plan
Southfield Road and I-75 SB Ramps

3/7/2022

Leg	Southfield Rd.			Southfield Rd.				I-75 SB Ramps				
Direction	Eastbound			Westbound				Southbound				
Start Time	Right	Total	Peds	Thru	Right	Total	Peds	Right	U-Turn	Total	Peds	**Int Total**
2021-10-14 07:00:00	74	0	0	478	20	498	0	49	0	49	0	**621**
2021-10-14 07:15:00	124	0	0	549	53	602	0	72	0	72	0	**798**
2021-10-14 07:30:00	111	0	0	573	55	628	0	81	0	81	2	**820**
2021-10-14 07:45:00	138	0	0	518	50	568	0	78	0	78	0	**784**
2021-10-14 08:00:00	96	0	0	542	53	595	0	91	0	91	0	**782**
2021-10-14 08:15:00	134	0	0	504	41	545	0	81	0	81	0	**760**
AM Peak Hour Total	**479**	**0**	**0**	**2137**	**199**	**2336**	**0**	**331**	**0**	**331**	**2**	**3146**
AM PHF	**0.87**			**0.93**	**0.90**	**0.93**		**0.91**		**0.91**	**0.25**	**0.96**
2021-10-14 08:30:00	128	0	0	483	28	511	0	84	0	84	0	**723**
2021-10-14 08:45:00	125	0	0	472	34	506	0	82	0	82	0	**713**
2021-10-14 11:00:00	111	0	0	321	31	352	0	76	0	76	1	**539**
2021-10-14 11:15:00	122	0	0	391	32	423	0	68	0	68	1	**613**
2021-10-14 11:30:00	121	0	0	361	40	401	0	75	0	75	1	**597**
2021-10-14 11:45:00	128	0	0	376	48	424	0	64	0	64	2	**616**
2021-10-14 12:00:00	125	0	0	343	51	394	0	112	0	112	0	**631**
2021-10-14 12:15:00	113	0	0	408	40	448	0	106	0	106	0	**667**
2021-10-14 12:30:00	131	0	0	374	36	410	0	96	0	96	1	**637**
2021-10-14 12:45:00	117	0	0	366	50	416	0	93	0	93	0	**626**
Mid-Day Peak Hour Total	**486**	**0**	**0**	**1491**	**177**	**1668**	**0**	**407**	**0**	**407**	**1**	**2561**
Mid-Day PHF	**0.93**			**0.91**	**0.87**	**0.93**		**0.91**		**0.91**		**0.96**
2021-10-14 14:00:00	138	0	0	417	38	455	0	119	0	119	0	**712**
2021-10-14 14:15:00	138	0	0	483	50	533	0	130	0	130	1	**801**
2021-10-14 14:30:00	150	0	0	473	63	536	0	164	0	164	1	**850**
2021-10-14 14:45:00	167	0	0	503	50	553	0	150	0	150	1	**870**
2021-10-14 15:00:00	182	0	0	545	64	609	0	138	0	138	3	**929**
2021-10-14 15:15:00	187	0	0	574	82	656	0	151	0	151	0	**994**
2021-10-14 15:30:00	218	0	0	541	72	613	0	177	0	177	2	**1008**
2021-10-14 15:45:00	191	0	0	497	67	564	0	191	0	191	1	**946**
PM Peak Hour Total	**778**	**0**	**0**	**2157**	**285**	**2442**	**0**	**657**	**0**	**657**	**6**	**3877**
PM PHF	**0.89**			**0.94**	**0.87**	**0.93**		**0.86**		**0.86**		**0.96**
2021-10-14 16:00:00	191	0	0	467	58	525	0	205	0	205	1	**921**
2021-10-14 16:15:00	196	0	0	496	61	557	0	217	0	217	0	**970**
2021-10-14 16:30:00	149	0	0	498	62	560	0	198	0	198	0	**907**
2021-10-14 16:45:00	127	0	0	506	50	556	0	199	0	199	0	**882**
2021-10-14 17:00:00	138	0	0	507	57	564	1	198	0	198	0	**900**
2021-10-14 17:15:00	128	0	0	525	59	584	0	200	0	200	2	**912**
2021-10-14 17:30:00	153	0	0	553	56	609	2	177	0	177	0	**939**
2021-10-14 17:45:00	136	0	0	499	49	548	0	160	0	160	1	**844**
Grand Total	**4487**	**0**	**0**	**15143**	**1600**	**16743**	**3**	**4082**	**0**	**4082**	**21**	**25312**
% Approach	**100.0%**			**90.4%**	**9.6%**			**100.0%**	**0.0%**			
% Total	**17.7%**			**59.9%**	**6.3%**			**16.1%**	**0.0%**			
Lights	**4044**	**0**		**14336**	**1516**	**15852**		**3782**	**0**	**3782**		**23678**
% Lights	**90.1%**			**94.7%**	**94.8%**	**94.7%**		**92.7%**	**0.0%**	**92.7%**		**93.5%**
Heavy	**443**	**0**		**807**	**84**	**891**		**300**		**300**		**1634**
% Heavy	**9.9%**	**0.0%**		**5.3%**	**5.2%**	**5.3%**		**7.3%**	**0.0%**	**7.3%**		**6.5%**
Pedestrians			**0**				**3**				**21**	
% Pedestrians			**0.0%**				**100.0%**				**100.0%**	

Leg	Southfield Rd.					Southfield Rd.				I-75 NB Ramps					I-75 NB On Ramp		
Direction	Eastbound					Westbound				Northbound					Southbound		
Start Time	Left	Thru	Right	**Total**	Peds	Thru	Right	**Total**	Peds	Left	Right	U-Turn	**Total**	Peds	**Total**	Peds	**Int Total**
2021-10-14 07:00:00	0	226	64	**290**	0	305	63	**368**	0	147	21	0	**168**	0	**0**	0	**826**
2021-10-14 07:15:00	0	298	70	**368**	0	417	72	**489**	0	161	27	0	**188**	0	**0**	0	**1045**
2021-10-14 07:30:00	0	320	87	**407**	0	450	84	**534**	0	157	36	0	**193**	0	**0**	0	**1134**
2021-10-14 07:45:00	0	310	86	**396**	0	373	74	**447**	0	153	57	0	**210**	0	**0**	0	**1053**
2021-10-14 08:00:00	0	287	49	**336**	0	409	76	**485**	0	178	29	0	**207**	0	**0**	0	**1028**
2021-10-14 08:15:00	0	271	68	**339**	0	409	73	**482**	0	139	31	1	**171**	0	**0**	0	**992**
AM Peak Hour Totals	**0**	**1188**	**290**	**1478**	**0**	**1641**	**307**	**1948**	**0**	**627**	**153**	**1**	**781**	**0**	**0**	**0**	**4207**
AM PHF		**0.93**	**0.83**	**0.91**		**0.91**	**0.91**	**0.91**		**0.88**	**0.67**	**0.25**	**0.93**				**0.93**
2021-10-14 08:30:00	1	296	63	**360**	0	345	56	**401**	0	160	53	0	**213**	0	**0**	0	**974**
2021-10-14 08:45:00	0	258	46	**304**	0	338	48	**386**	0	157	31	0	**188**	0	**0**	0	**878**
2021-10-14 11:00:00	0	277	39	**316**	0	264	25	**289**	0	80	34	0	**114**	0	**0**	0	**719**
2021-10-14 11:15:00	0	271	36	**307**	0	276	29	**305**	0	116	31	0	**147**	1	**0**	1	**759**
2021-10-14 11:30:00	0	314	45	**359**	0	312	42	**354**	0	77	30	0	**107**	2	**0**	0	**820**
2021-10-14 11:45:00	0	301	44	**345**	0	329	34	**363**	0	83	39	0	**122**	1	**0**	0	**830**
2021-10-14 12:00:00	0	297	40	**337**	0	277	39	**316**	0	107	47	0	**154**	4	**0**	0	**807**
2021-10-14 12:15:00	1	307	48	**356**	0	313	41	**354**	0	129	53	0	**182**	0	**0**	0	**892**
2021-10-14 12:30:00	1	335	45	**381**	0	306	32	**338**	0	96	36	0	**132**	1	**0**	0	**851**
2021-10-14 12:45:00	0	339	40	**379**	0	305	33	**338**	0	116	35	0	**151**	1	**0**	0	**868**
Mid-Day Peak Hour Totals	**2**	**1278**	**173**	**1453**	**0**	**1201**	**145**	**1346**	**0**	**448**	**171**	**0**	**619**	**6**	**0**	**0**	**3424**
Mid-Day PHF	**0.50**	**0.94**	**0.90**	**0.95**		**0.96**	**0.88**	**0.95**		**0.87**	**0.81**		**0.85**				**0.96**
2021-10-14 14:00:00	2	397	47	**446**	0	313	35	**348**	0	136	48	0	**184**	1	**0**	0	**978**
2021-10-14 14:15:00	1	442	37	**480**	0	396	34	**430**	0	120	44	0	**164**	1	**0**	0	**1074**
2021-10-14 14:30:00	0	476	46	**522**	0	360	52	**412**	0	148	63	0	**211**	0	**0**	0	**1145**
2021-10-14 14:45:00	0	500	50	**550**	0	386	41	**427**	0	161	69	0	**230**	0	**0**	0	**1207**
2021-10-14 15:00:00	1	490	44	**535**	0	476	45	**521**	0	154	62	0	**216**	2	**0**	3	**1272**
2021-10-14 15:15:00	1	462	57	**520**	0	505	47	**552**	0	139	71	0	**210**	1	**0**	0	**1282**
2021-10-14 15:30:00	2	508	50	**560**	0	464	58	**522**	0	138	66	0	**204**	0	**0**	2	**1286**
2021-10-14 15:45:00	1	554	62	**617**	0	412	71	**483**	0	137	63	0	**200**	1	**0**	1	**1300**
PM Peak Hour Totals	**5**	**2014**	**213**	**2232**	**0**	**1857**	**221**	**2078**	**0**	**568**	**262**	**0**	**830**	**4**	**0**	**6**	**5150**
PM PHF	**0.63**	**0.91**	**0.86**	**0.90**		**0.92**	**0.78**	**0.94**		**0.92**	**0.92**		**0.96**				**0.99**
2021-10-14 16:00:00	2	507	62	**571**	0	391	40	**431**	0	118	70	0	**188**	1	**0**	0	**1190**
2021-10-14 16:15:00	4	504	54	**562**	0	384	37	**421**	0	151	50	0	**201**	0	**0**	0	**1184**
2021-10-14 16:30:00	2	537	56	**595**	0	408	41	**449**	0	122	50	0	**172**	0	**0**	0	**1216**
2021-10-14 16:45:00	1	493	48	**542**	0	371	52	**423**	0	162	68	0	**230**	2	**0**	0	**1195**
2021-10-14 17:00:00	4	521	52	**577**	1	400	53	**453**	0	152	45	0	**197**	3	**0**	1	**1227**
2021-10-14 17:15:00	2	490	43	**535**	0	409	51	**460**	0	159	60	0	**219**	1	**0**	3	**1214**
2021-10-14 17:30:00	2	492	43	**537**	0	424	45	**469**	0	159	58	0	**217**	0	**0**	0	**1223**
2021-10-14 17:45:00	1	492	68	**561**	0	388	45	**433**	0	154	39	0	**193**	2	**0**	1	**1187**
Grand Total	**29**	**12572**	**1689**	**14290**	**1**	**11915**	**1568**	**13483**	**0**	**4366**	**1516**	**1**	**5883**	**25**	**0**	**12**	**33656**
% Approach	**0.2%**	**88.0%**	**11.8%**			**88.4%**	**11.6%**			**74.2%**	**25.8%**	**0.0%**					
% Total	**0.1%**	**37.4%**	**5.0%**			**35.5%**	**4.7%**			**13.0%**	**4.5%**	**0.0%**					
Lights	**26**	**12159**	**1480**	**13665**		**11500**	**1503**	**13003**		**3896**	**1441**	**0**	**5337**				**32005**
% Lights	**89.7%**	**96.7%**	**87.6%**	**95.6%**		**96.5%**	**95.9%**	**96.4%**		**89.2%**	**95.1%**	**0.0%**	**90.7%**				**95.1%**
Heavy	**3**	**413**	**209**	**625**		**415**	**65**	**480**		**470**	**75**	**1**	**546**		**0**		**1651**
% Heavy	**10.3%**	**3.3%**	**12.4%**	**4.4%**		**3.5%**	**4.1%**	**3.6%**		**10.8%**	**4.9%**	**100.0%**	**9.3%**		**0.0%**		**4.9%**
Pedestrians					**1**				**0**					**25**		**12**	
% Pedestrians					**100.0%**				**0.0%**					**100.0%**		**100.0%**	

Lincoln Park Southfield Rd Corridor Plan
Southfield Road and Lafayette Boulevard

3/7/2022

Leg	M-39 (Southfield Road)						M-39 (Southfield Road)						Lafayette Blvd.						Lafayette Blvd.						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	**Int Total**
2021-06-24 06:00:00	4	106	6	0	**116**	0	0	257	0	0	**257**	0	28	0	1	0	**29**	0	1	1	14	0	**16**	0	**418**
2021-06-24 06:15:00	4	169	8	2	**183**	0	0	293	0	0	**293**	0	44	0	0	0	**44**	0	0	0	16	0	**16**	0	**536**
2021-06-24 06:30:00	3	181	8	1	**193**	0	1	327	2	0	**330**	0	48	0	1	0	**49**	0	2	1	11	0	**14**	0	**586**
2021-06-24 06:45:00	4	186	6	0	**196**	0	1	260	1	0	**262**	2	33	2	1	0	**36**	0	3	1	19	0	**23**	0	**517**
2021-06-24 07:00:00	2	142	6	0	**150**	0	0	255	1	1	**257**	0	39	0	2	0	**41**	0	2	1	12	0	**15**	1	**463**
2021-06-24 07:15:00	4	168	10	0	**182**	0	0	298	2	0	**300**	0	30	1	2	0	**33**	0	3	5	12	0	**20**	0	**535**
2021-06-24 07:30:00	3	175	17	0	**195**	0	1	309	1	0	**311**	0	52	1	1	0	**54**	0	2	2	16	0	**20**	0	**580**
2021-06-24 07:45:00	7	206	22	0	**235**	0	2	290	0	0	**292**	0	37	1	2	0	**40**	0	0	2	9	0	**11**	0	**578**
2021-06-24 08:00:00	0	210	19	0	**229**	1	0	321	0	0	**321**	1	29	2	2	0	**33**	0	1	1	13	0	**15**	1	**598**
2021-06-24 08:15:00	3	211	16	0	**230**	0	0	278	2	0	**280**	0	30	4	0	0	**34**	0	2	2	7	0	**11**	0	**555**
AM Peak Hour Totals	**13**	**802**	**74**	**0**	**889**	**1**	**3**	**1198**	**3**	**0**	**1204**	**1**	**148**	**8**	**5**	**0**	**161**	**0**	**5**	**7**	**45**	**0**	**57**	**1**	**2311**
AM PHF	**0.46**	**0.95**	**0.84**		**0.95**	**0.25**	**0.38**	**0.93**	**0.38**		**0.94**	**0.25**	**0.71**	**0.50**	**0.63**		**0.75**		**0.63**	**0.88**	**0.70**		**0.71**	**0.25**	**0.97**
2021-06-24 08:30:00	3	211	16	1	**231**	0	2	334	3	0	**339**	1	35	1	5	0	**41**	0	1	2	13	0	**16**	0	**627**
2021-06-24 08:45:00	4	252	21	1	**278**	0	3	321	2	0	**326**	1	20	4	2	0	**26**	0	0	9	10	0	**19**	0	**649**
2021-06-24 09:00:00	4	226	10	0	**240**	0	0	247	2	0	**249**	0	17	7	2	0	**26**	0	2	3	10	0	**15**	0	**530**
2021-06-24 09:15:00	6	222	15	0	**243**	0	0	257	3	0	**260**	1	14	2	1	0	**17**	0	0	2	6	0	**8**	2	**528**
2021-06-24 09:30:00	4	224	12	0	**240**	1	0	282	3	0	**285**	0	19	0	2	0	**21**	0	3	6	7	0	**16**	1	**562**
2021-06-24 09:45:00	3	260	12	0	**275**	0	0	253	3	0	**256**	0	24	2	1	0	**27**	0	3	3	4	0	**10**	2	**568**
2021-06-24 10:00:00	0	217	12	0	**229**	0	0	259	3	0	**262**	1	20	1	3	0	**24**	0	1	0	12	0	**13**	1	**528**
2021-06-24 10:15:00	4	229	15	1	**249**	0	2	287	2	0	**291**	0	16	4	1	0	**21**	0	1	0	4	0	**5**	0	**566**
2021-06-24 10:30:00	3	246	11	2	**262**	0	1	268	1	0	**270**	0	7	5	3	0	**15**	2	4	3	6	0	**13**	2	**560**
2021-06-24 10:45:00	6	280	17	0	**303**	0	3	269	4	0	**276**	0	12	2	0	0	**14**	0	1	2	11	0	**14**	0	**607**
2021-06-24 11:00:00	8	248	19	1	**276**	0	3	268	0	0	**271**	0	11	0	0	0	**11**	1	0	4	9	0	**13**	1	**571**
2021-06-24 11:15:00	7	269	14	0	**290**	1	1	284	2	1	**288**	0	16	2	10	0	**28**	2	2	2	11	0	**15**	1	**621**
2021-06-24 11:30:00	6	250	13	1	**270**	0	4	281	2	0	**287**	1	19	0	1	0	**20**	0	3	3	13	0	**19**	0	**596**
2021-06-24 11:45:00	5	292	17	0	**314**	1	3	286	2	0	**291**	0	16	2	5	0	**23**	0	2	3	7	0	**12**	4	**640**
2021-06-24 12:00:00	6	296	22	0	**324**	0	1	281	3	0	**285**	0	16	13	2	0	**31**	0	5	3	9	0	**17**	2	**657**
2021-06-24 12:15:00	7	290	16	1	**314**	0	3	308	1	0	**312**	4	19	5	2	0	**26**	0	2	2	5	0	**9**	0	**661**
2021-06-24 12:30:00	7	283	23	0	**313**	0	1	324	5	0	**330**	1	17	4	0	0	**21**	0	2	3	7	0	**12**	1	**676**
2021-06-24 12:45:00	4	320	15	0	**339**	0	0	316	4	0	**320**	0	16	3	4	0	**23**	0	1	3	10	0	**14**	1	**696**
Mid-Day Peak Hour Totals	**24**	**1189**	**76**	**1**	**1290**	**0**	**5**	**1229**	**13**	**0**	**1247**	**5**	**68**	**25**	**8**	**0**	**101**	**0**	**10**	**11**	**31**	**0**	**52**	**4**	**2690**
Mid-Day PHF	**0.86**	**0.93**	**0.83**	**0.25**	**0.95**		**0.42**	**0.95**	**0.65**		**0.94**		**0.89**	**0.48**	**0.50**		**0.81**		**0.50**	**0.92**	**0.78**		**0.76**		**0.97**
2021-06-24 13:00:00	8	313	33	2	**356**	0	0	298	5	0	**303**	0	22	4	2	0	**28**	1	2	7	6	0	**15**	1	**702**
2021-06-24 13:15:00	5	299	25	0	**329**	0	4	312	0	1	**317**	2	20	1	4	0	**25**	0	2	5	8	0	**15**	2	**686**
2021-06-24 13:30:00	12	318	19	0	**349**	0	3	329	3	1	**336**	1	17	2	5	0	**24**	2	4	2	10	0	**16**	0	**725**
2021-06-24 13:45:00	8	350	25	0	**383**	1	2	327	3	0	**332**	0	16	0	1	0	**17**	1	1	3	13	0	**17**	4	**749**
2021-06-24 14:00:00	8	327	25	2	**362**	0	0	361	6	0	**367**	1	21	4	2	0	**27**	0	3	5	13	0	**21**	0	**777**
2021-06-24 14:15:00	6	414	34	0	**454**	1	3	352	6	0	**361**	0	21	6	0	0	**27**	1	2	3	10	0	**15**	0	**857**
2021-06-24 14:30:00	5	400	32	0	**437**	0	2	326	1	0	**329**	0	18	4	3	0	**25**	0	1	6	10	0	**17**	0	**808**
2021-06-24 14:45:00	0	394	46	0	**440**	0	4	339	2	0	**345**	1	22	3	4	0	**29**	1	2	2	8	0	**12**	0	**826**
2021-06-24 15:00:00	7	395	34	0	**436**	0	4	358	1	0	**363**	2	21	4	1	0	**26**	0	1	3	10	0	**14**	0	**839**
2021-06-24 15:15:00	12	410	40	0	**462**	0	4	379	2	1	**386**	2	14	1	4	0	**19**	0	2	7	7	0	**16**	2	**883**
2021-06-24 15:30:00	14	446	45	0	**505**	0	0	358	2	0	**360**	1	13	2	2	0	**17**	2	3	3	14	0	**20**	0	**902**
2021-06-24 15:45:00	8	440	46	0	**494**	0	4	374	0	0	**378**	0	18	2	5	0	**25**	0	2	5	14	0	**21**	1	**918**
PM Peak Hour Totals	**41**	**1691**	**165**	**0**	**1897**	**0**	**12**	**1469**	**5**	**1**	**1487**	**5**	**66**	**9**	**12**	**0**	**87**	**2**	**8**	**18**	**45**	**0**	**71**	**3**	**3542**
PM PHF	**0.73**	**0.95**	**0.90**		**0.94**		**0.75**	**0.97**	**0.63**	**0.25**	**0.96**		**0.79**	**0.56**	**0.60**		**0.84**		**0.67**	**0.64**	**0.80**		**0.85**		**0.96**
2021-06-24 16:00:00	17	446	66	1	**530**	0	2	409	1	1	**413**	0	20	3	3	0	**26**	0	3	8	11	0	**22**	2	**991**
2021-06-24 16:15:00	12	451	54	0	**517**	0	4	331	3	0	**338**	1	21	4	1	0	**26**	1	2	8	8	0	**18**	1	**899**
2021-06-24 16:30:00	10	463	53	0	**526**	0	6	366	3	0	**375**	0	25	2	0	0	**27**	0	3	4	5	0	**12**	3	**940**
2021-06-24 16:45:00	13	480	49	1	**543**	0	2	325	0	0	**327**	0	15	2	1	0	**18**	0	3	6	10	0	**19**	3	**907**
2021-06-24 17:00:00	9	480	60	2	**551**	0	4	355	2	1	**362**	0	16	4	2	0	**22**	0	1	7	11	0	**19**	1	**954**
2021-06-24 17:15:00	13	540	58	1	**612**	1	0	413	4	0	**417**	0	21	1	5	0	**27**	0	3	5	19	0	**27**	0	**1083**
2021-06-24 17:30:00	13	502	50	3	**568**	0	2	358	2	0	**362**	3	29	3	1	0	**33**	0	5	4	10	0	**19**	0	**982**

2021-06-24 17:45:00	10	425	35	4	**474**	0	3	329	4	0	**336**	1	14	5	2	0	**21**	0	3	1	12	0	**16**	1	**847**
2021-06-24 18:00:00	14	426	37	0	**477**	0	2	328	1	0	**331**	0	15	5	6	0	**26**	0	2	5	13	0	**20**	0	**854**
2021-06-24 18:15:00	13	426	41	0	**480**	0	4	338	6	0	**348**	2	20	2	5	0	**27**	0	2	6	9	0	**17**	3	**872**
2021-06-24 18:30:00	14	393	37	0	**444**	0	2	330	1	0	**333**	0	18	4	2	0	**24**	0	5	6	10	0	**21**	1	**822**
2021-06-24 18:45:00	6	411	23	1	**441**	0	1	260	5	0	**266**	0	22	4	2	0	**28**	0	4	1	8	0	**13**	0	**748**
2021-06-24 19:00:00	12	386	18	0	**416**	0	4	261	3	0	**268**	0	17	6	4	0	**27**	0	2	4	9	0	**15**	0	**726**
2021-06-24 19:15:00	10	362	28	4	**404**	0	2	282	2	2	**288**	2	13	3	5	0	**21**	0	7	2	9	0	**18**	0	**731**
2021-06-24 19:30:00	9	335	23	1	**368**	2	3	294	3	0	**300**	4	16	3	3	0	**22**	0	1	5	14	0	**20**	0	**710**
2021-06-24 19:45:00	12	325	32	0	**369**	1	2	291	8	0	**301**	0	18	4	5	0	**27**	0	1	1	8	0	**10**	3	**707**
2021-06-24 20:00:00	0	275	13	0	**288**	0	0	271	2	0	**273**	0	10	5	5	0	**20**	0	3	2	7	0	**12**	2	**593**
2021-06-24 20:15:00	0	294	17	0	**311**	1	1	246	2	0	**249**	0	9	1	2	0	**12**	0	2	6	9	0	**17**	2	**589**
2021-06-24 20:30:00	0	277	9	0	**286**	0	2	240	4	0	**246**	0	17	2	1	0	**20**	0	4	6	13	0	**23**	0	**575**
2021-06-24 20:45:00	0	263	27	0	**290**	0	3	205	4	0	**212**	0	15	0	3	0	**18**	0	1	7	6	0	**14**	1	**534**
2021-06-24 21:00:00	7	204	17	1	**229**	0	0	254	3	0	**257**	0	10	3	2	0	**15**	1	2	3	11	0	**16**	1	**517**
2021-06-24 21:15:00	5	202	20	0	**227**	0	0	263	1	0	**264**	0	7	2	1	0	**10**	2	1	5	13	0	**19**	0	**520**
2021-06-24 21:30:00	7	219	26	0	**252**	0	3	238	2	1	**244**	0	2	4	4	0	**10**	0	2	2	7	0	**11**	0	**517**
2021-06-24 21:45:00	8	229	12	2	**251**	2	1	192	0	0	**193**	0	9	1	2	0	**12**	0	1	2	3	0	**6**	0	**462**
Grand Total	**428**	**19689**	**1607**	**36**	**21760**	**13**	**115**	**19305**	**151**	**10**	**19581**	**36**	**1286**	**174**	**156**	**0**	**1616**	**17**	**137**	**226**	**641**	**0**	**1004**	**54**	**43961**
% Approach	**2.0%**	**90.5%**	**7.4%**	**0.2%**			**0.6%**	**98.6%**	**0.8%**	**0.1%**			**79.6%**	**10.8%**	**9.7%**	**0.0%**			**13.6%**	**22.5%**	**63.8%**	**0.0%**			
% Total	**1.0%**	**44.8%**	**3.7%**	**0.1%**	**49.5%**		**0.3%**	**43.9%**	**0.3%**	**0.0%**	**44.5%**		**2.9%**	**0.4%**	**0.4%**	**0.0%**	**3.7%**		**0.3%**	**0.5%**	**1.5%**	**0.0%**	**2.3%**		
Light	**422**	**19030**	**1587**	**35**	**21074**		**111**	**18647**	**146**	**9**	**18193**		**1274**	**172**	**151**	**0**	**1597**		**135**	**222**	**631**	**0**	**988**		**42572**
% Light	**98.6%**	**96.7%**	**98.8%**	**97.2%**	**96.8%**		**96.5%**	**96.6%**	**96.7%**	**90.0%**	**96.6%**		**99.1%**	**98.9%**	**96.8%**	**0.0%**	**98.8%**		**98.5%**	**98.3%**	**98.4%**	**0.0%**	**98.4%**		**96.8%**
Heavy	**6**	**659**	**20**	**1**	**686**		**1**	**658**	**3**	**1**	**663**		**12**	**2**	**2**	**0**	**16**		**2**	**3**	**10**	**0**	**15**		**1380**
% Heavy	**1.4%**	**3.3%**	**1.2%**	**2.8%**	**3.2%**		**0.9%**	**3.4%**	**2.0%**	**10.0%**	**3.4%**		**0.9%**	**1.1%**	**1.3%**	**0.0%**	**1.0%**		**1.5%**	**1.3%**	**1.6%**	**0.0%**	**1.5%**		**3.2%**
Bicycles on Road	**0**	**0**	**0**	**0**	**0**		**3**	**0**	**2**	**0**	**5**		**0**	**0**	**3**	**0**	**3**		**0**	**1**	**0**	**0**	**1**		**9**
% Bicycles on Road	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**		**2.6%**	**0.0%**	**1.3%**	**0.0%**	**0.0%**		**0.0%**	**0.0%**	**1.9%**	**0.0%**	**0.2%**		**0.0%**	**0.4%**	**0.0%**	**0.0%**	**0.1%**		**0.0%**
Pedestrians						**6**						**20**						**11**						**29**	
% Pedestrians						**46.2%**						**55.6%**						**64.7%**						**53.7%**	
Bicycles on Crosswalk						**7**						**16**						**6**						**25**	
% Bicycles on Crosswalk						**53.8%**						**44.4%**						**35.3%**						**46.3%**	

Lincoln Park Southfield Rd Corridor Plan
Southfield Road and Fort Park Boulevard

3/7/2022

Leg	M-39 (Southfield Road)						M-39 (Southfield Road)						Fort Park Blvd.						Fort Park Blvd.						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	**Int Total**
2021-06-24 06:00:00	1	105	2	0	**108**	0	0	194	2	0	**196**	0	48	0	2	0	**50**	0	4	2	12	0	**18**	0	**372**
2021-06-24 06:15:00	3	163	2	0	**168**	0	0	261	2	0	**263**	0	48	1	2	0	**51**	0	5	0	10	0	**15**	0	**497**
2021-06-24 06:30:00	3	177	0	1	**181**	0	0	280	1	0	**281**	0	37	2	0	0	**39**	0	2	2	28	0	**32**	1	**533**
2021-06-24 06:45:00	3	185	3	0	**191**	0	2	216	2	0	**220**	0	36	1	0	0	**37**	0	4	3	14	0	**21**	1	**469**
2021-06-24 07:00:00	2	136	2	1	**141**	0	1	213	2	0	**216**	2	50	3	0	0	**53**	1	4	2	15	0	**21**	0	**431**
2021-06-24 07:15:00	0	169	2	0	**171**	2	0	270	1	0	**271**	0	54	2	2	0	**58**	1	5	1	16	0	**22**	0	**522**
2021-06-24 07:30:00	0	179	2	0	**181**	0	0	283	0	0	**283**	1	56	1	1	0	**58**	0	6	7	14	0	**27**	1	**549**
2021-06-24 07:45:00	0	217	3	1	**221**	1	3	280	3	0	**286**	1	45	2	2	0	**49**	0	2	5	15	0	**22**	3	**578**
2021-06-24 08:00:00	5	203	1	2	**211**	0	2	249	8	0	**259**	0	51	3	3	0	**57**	0	7	5	23	0	**35**	0	**562**
2021-06-24 08:15:00	4	206	3	4	**217**	1	2	243	6	1	**252**	0	46	0	1	0	**47**	0	6	6	18	0	**30**	0	**546**
AM Peak Hour Totals	**9**	**805**	**9**	**7**	**830**	**2**	**7**	**1055**	**17**	**1**	**1080**	**2**	**198**	**6**	**7**	**0**	**211**	**0**	**21**	**23**	**70**	**0**	**114**	**4**	**2235**
AM PHF	**0.45**	**0.93**	**0.75**	**0.44**	**0.94**	**0.50**	**0.58**	**0.93**	**0.53**	**0.25**	**0.94**	**0.50**	**0.88**	**0.50**	**0.58**		**0.91**		**0.75**	**0.82**	**0.76**		**0.81**	**0.33**	**0.97**
2021-06-24 08:30:00	11	201	5	3	**220**	0	2	278	5	1	**286**	0	40	1	4	0	**45**	0	5	2	19	0	**26**	0	**577**
2021-06-24 08:45:00	3	242	5	0	**250**	0	8	273	1	0	**282**	0	44	3	4	0	**51**	0	8	4	22	0	**34**	1	**617**
2021-06-24 09:00:00	1	209	7	0	**217**	0	3	217	1	0	**221**	0	32	2	4	0	**38**	0	5	3	9	0	**17**	0	**493**
2021-06-24 09:15:00	6	214	4	0	**224**	1	2	229	0	0	**231**	0	42	2	5	0	**49**	0	7	3	15	0	**25**	4	**529**
2021-06-24 09:30:00	4	210	6	2	**222**	0	3	241	2	0	**246**	0	35	3	1	0	**39**	0	3	5	16	0	**24**	0	**531**
2021-06-24 09:45:00	5	250	6	0	**261**	0	7	217	3	0	**227**	0	40	4	1	0	**45**	0	6	8	17	0	**31**	3	**564**
2021-06-24 10:00:00	4	209	7	0	**220**	0	2	229	2	0	**233**	0	40	6	5	0	**51**	2	8	5	15	0	**28**	3	**532**
2021-06-24 10:15:00	4	217	4	0	**225**	0	5	247	1	3	**256**	0	35	3	2	0	**40**	0	5	5	17	0	**27**	0	**548**
2021-06-24 10:30:00	0	241	5	0	**246**	0	2	232	0	3	**237**	0	29	3	2	0	**34**	0	4	8	12	0	**24**	4	**541**
2021-06-24 10:45:00	3	251	8	0	**262**	0	6	244	3	0	**253**	0	38	4	7	0	**49**	2	9	2	10	0	**21**	3	**585**
2021-06-24 11:00:00	5	234	10	2	**251**	1	1	252	3	0	**256**	0	26	5	9	0	**40**	0	6	3	8	0	**17**	5	**564**
2021-06-24 11:15:00	9	263	9	1	**282**	1	3	266	1	0	**270**	0	26	2	7	0	**35**	0	2	5	10	0	**17**	2	**604**
2021-06-24 11:30:00	4	254	12	2	**272**	0	5	265	2	0	**272**	1	26	2	6	0	**34**	1	4	4	9	0	**17**	2	**595**
2021-06-24 11:45:00	8	293	4	1	**306**	2	10	259	4	0	**273**	0	32	6	5	0	**43**	0	6	3	12	0	**21**	5	**643**
2021-06-24 12:00:00	9	293	7	1	**310**	0	3	251	0	0	**254**	0	37	1	6	0	**44**	1	4	5	14	0	**23**	1	**631**
2021-06-24 12:15:00	8	282	9	2	**301**	4	4	268	2	0	**274**	0	37	6	10	0	**53**	2	6	5	12	0	**23**	1	**651**
2021-06-24 12:30:00	5	270	10	0	**285**	1	6	292	2	1	**301**	0	38	4	4	0	**46**	0	3	8	8	0	**19**	2	**651**
2021-06-24 12:45:00	9	301	8	0	**318**	0	13	276	0	0	**289**	0	29	6	6	0	**41**	1	6	4	13	0	**23**	1	**671**
Mid-Day Peak Hour Totals	**31**	**1146**	**34**	**3**	**1214**	**5**	**26**	**1087**	**4**	**1**	**1118**	**0**	**141**	**17**	**26**	**0**	**184**	**4**	**19**	**22**	**47**	**0**	**88**	**5**	**2604**
Mid-Day PHF	**0.86**	**0.95**	**0.85**	**0.38**	**0.95**		**0.50**	**0.93**	**0.50**	**0.25**	**0.93**		**0.93**	**0.71**	**0.65**		**0.87**		**0.79**	**0.69**	**0.84**		**0.96**		**0.97**
2021-06-24 13:00:00	6	295	10	0	**311**	1	8	280	1	1	**290**	1	24	2	6	0	**32**	1	4	8	8	0	**20**	2	**653**
2021-06-24 13:15:00	4	298	15	0	**317**	0	4	278	2	0	**284**	1	33	3	7	0	**43**	0	6	8	14	0	**28**	1	**672**
2021-06-24 13:30:00	10	304	11	0	**325**	0	6	307	2	0	**315**	0	35	4	13	0	**52**	0	3	4	10	0	**17**	0	**709**
2021-06-24 13:45:00	7	325	13	0	**345**	0	6	286	0	1	**293**	1	34	7	9	0	**50**	1	5	8	13	0	**26**	6	**714**
2021-06-24 14:00:00	4	313	7	1	**325**	0	3	319	1	0	**323**	0	39	5	7	0	**51**	1	2	4	12	0	**18**	0	**717**
2021-06-24 14:15:00	14	388	16	0	**418**	0	8	319	4	0	**331**	0	31	2	5	0	**38**	2	2	3	17	0	**22**	0	**809**
2021-06-24 14:30:00	8	362	20	0	**390**	1	16	304	0	1	**321**	0	32	6	9	0	**47**	1	5	9	10	0	**24**	1	**782**
2021-06-24 14:45:00	15	376	20	0	**411**	1	8	320	5	0	**333**	0	37	5	9	0	**51**	1	4	7	7	0	**18**	1	**813**
2021-06-24 15:00:00	14	366	9	1	**390**	0	9	342	2	0	**353**	0	40	5	7	0	**52**	1	2	9	12	0	**23**	0	**818**
2021-06-24 15:15:00	14	376	12	1	**403**	0	8	349	1	0	**358**	0	30	3	11	0	**44**	1	4	3	15	0	**22**	1	**827**
2021-06-24 15:30:00	16	416	14	1	**447**	3	10	344	0	0	**354**	2	35	5	5	0	**45**	1	3	5	17	0	**25**	0	**871**
2021-06-24 15:45:00	10	433	14	0	**457**	0	8	338	1	0	**347**	1	30	7	4	0	**41**	2	4	3	13	0	**20**	2	**865**
PM Peak Hour Totals	**54**	**1591**	**49**	**3**	**1697**	**3**	**35**	**1373**	**4**	**0**	**1412**	**3**	**135**	**20**	**27**	**0**	**182**	**5**	**13**	**20**	**57**	**0**	**90**	**3**	**3381**
PM PHF	**0.84**	**0.92**	**0.88**	**0.75**	**0.93**		**0.88**	**0.98**	**0.50**		**0.99**		**0.84**	**0.71**	**0.61**		**0.88**		**0.81**	**0.56**	**0.84**		**0.90**		**0.97**
2021-06-24 16:00:00	4	426	12	0	**442**	0	8	377	2	2	**389**	0	41	9	7	0	**57**	0	3	5	14	0	**22**	1	**910**
2021-06-24 16:15:00	2	428	20	0	**450**	0	10	320	1	0	**331**	5	29	5	8	0	**42**	3	5	2	8	0	**15**	1	**838**
2021-06-24 16:30:00	3	443	15	0	**461**	0	6	345	1	2	**354**	0	43	4	3	0	**50**	0	6	7	10	0	**23**	0	**888**
2021-06-24 16:45:00	9	444	15	0	**468**	0	9	293	1	1	**304**	2	37	5	10	0	**52**	0	7	2	14	0	**23**	1	**847**
2021-06-24 17:00:00	8	460	12	0	**480**	1	5	313	5	2	**325**	2	36	5	6	0	**47**	2	5	8	11	0	**24**	2	**876**
2021-06-24 17:15:00	17	507	12	1	**537**	0	11	357	2	2	**372**	0	46	4	9	0	**59**	1	2	5	17	0	**24**	0	**992**
2021-06-24 17:30:00	21	474	18	2	**515**	0	10	339	3	0	**352**	0	33	8	9	0	**50**	1	4	7	11	0	**22**	2	**939**

2021-06-24 17:45:00	6	411	16	1	**434**	0	10	295	2	0	**307**	2	29	5	9	0	**43**	1	7	4	13	0	**24**	1	**808**
2021-06-24 18:00:00	17	373	21	1	**412**	0	6	290	0	2	**298**	0	43	4	4	0	**51**	0	5	8	13	0	**26**	0	**787**
2021-06-24 18:15:00	10	405	9	1	**425**	0	6	316	2	0	**324**	0	31	6	8	0	**45**	0	6	3	13	0	**22**	1	**816**
2021-06-24 18:30:00	10	358	4	0	**372**	0	4	282	1	1	**288**	1	40	1	3	0	**44**	0	7	7	12	0	**26**	1	**730**
2021-06-24 18:45:00	18	382	6	0	**406**	0	8	214	0	0	**222**	1	29	8	4	0	**41**	0	7	5	11	0	**23**	0	**692**
2021-06-24 19:00:00	8	377	14	2	**401**	0	7	263	2	0	**272**	0	15	8	6	0	**29**	0	13	5	8	0	**26**	0	**728**
2021-06-24 19:15:00	6	361	7	0	**374**	1	3	243	0	1	**247**	0	30	4	6	0	**40**	1	6	7	13	0	**26**	0	**687**
2021-06-24 19:30:00	6	318	10	0	**334**	0	4	271	5	3	**283**	0	26	6	7	0	**39**	0	7	3	4	0	**14**	0	**670**
2021-06-24 19:45:00	7	309	8	1	**325**	0	6	262	3	0	**271**	1	21	4	6	0	**31**	0	2	2	13	0	**17**	0	**644**
2021-06-24 20:00:00	6	262	8	0	**276**	0	2	247	1	0	**250**	0	26	6	6	0	**38**	0	3	5	8	0	**16**	4	**580**
2021-06-24 20:15:00	11	280	6	2	**299**	1	3	218	1	0	**222**	0	18	3	2	0	**23**	4	8	6	10	0	**24**	1	**568**
2021-06-24 20:30:00	5	254	7	1	**267**	0	3	210	2	0	**215**	1	22	1	2	0	**25**	1	5	1	10	0	**16**	1	**523**
2021-06-24 20:45:00	7	262	3	1	**273**	1	4	191	2	1	**198**	0	15	4	4	0	**23**	0	2	4	10	0	**16**	1	**510**
2021-06-24 21:00:00	3	201	6	0	**210**	1	4	231	2	2	**239**	0	14	6	0	0	**20**	3	3	2	8	0	**13**	0	**482**
2021-06-24 21:15:00	3	187	7	2	**199**	0	1	239	1	0	**241**	2	28	3	2	0	**33**	1	5	1	6	0	**12**	0	**485**
2021-06-24 21:30:00	1	212	2	1	**216**	1	3	226	0	0	**229**	0	17	1	2	0	**20**	0	7	0	5	0	**12**	0	**477**
2021-06-24 21:45:00	3	211	3	1	**218**	0	3	182	4	0	**189**	1	12	2	4	0	**18**	0	8	1	3	0	**12**	0	**437**
Grand Total	**432**	**18771**	**548**	**44**	**19795**	**26**	**325**	**17335**	**121**	**31**	**17812**	**29**	**2178**	**244**	**320**	**0**	**2742**	**41**	**319**	**286**	**796**	**0**	**1401**	**74**	**41750**
% Approach	**2.2%**	**94.8%**	**2.8%**	**0.2%**			**1.8%**	**97.3%**	**0.7%**	**0.2%**			**79.4%**	**8.9%**	**11.7%**	**0.0%**			**22.8%**	**20.4%**	**56.8%**	**0.0%**			
% Total	**1.0%**	**45.0%**	**1.3%**	**0.1%**	**47.4%**		**0.8%**	**41.5%**	**0.3%**	**0.1%**	**42.7%**		**5.2%**	**0.6%**	**0.8%**	**0.0%**	**6.6%**		**0.8%**	**0.7%**	**1.9%**	**0.0%**	**3.4%**		
Light	**430**	**18126**	**543**	**40**	**19139**		**323**	**16683**	**118**	**30**	**17154**		**2162**	**242**	**320**	**0**	**2724**		**317**	**285**	**793**	**0**	**1395**		**40412**
% Light	**99.5%**	**96.6%**	**99.1%**	**90.9%**	**96.7%**		**99.4%**	**96.2%**	**97.5%**	**96.8%**	**96.3%**		**99.3%**	**99.2%**	**100.0%**	**0.0%**	**99.4%**		**99.4%**	**99.7%**	**99.6%**	**0.0%**	**99.6%**		**96.8%**
Heavy	**2**	**644**	**5**	**4**	**655**		**2**	**652**	**1**	**1**	**656**		**16**	**1**	**0**	**0**	**17**		**1**	**0**	**3**	**0**	**4**		**1332**
% Heavy	**0.5%**	**3.4%**	**0.9%**	**9.1%**	**3.3%**		**0.6%**	**3.8%**	**0.8%**	**3.2%**	**3.7%**		**0.7%**	**0.4%**	**0.0%**	**0.0%**	**0.6%**		**0.3%**	**0.0%**	**0.4%**	**0.0%**	**0.3%**		**3.2%**
Bicycles on Road	**0**	**1**	**0**	**0**	**1**		**0**	**0**	**2**	**0**	**2**		**0**	**1**	**0**	**0**	**1**		**1**	**1**	**0**	**0**	**2**		**6**
% Bicycles on Road	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**		**0.0%**	**0.0%**	**1.7%**	**0.0%**	**0.0%**		**0.0%**	**0.4%**	**0.0%**	**0.0%**	**0.0%**		**0.3%**	**0.3%**	**0.0%**	**0.0%**	**0.1%**		**0.0%**
Pedestrians						**24**						**15**						**33**						**53**	
% Pedestrians						**92.3%**						**51.7%**						**80.5%**						**71.6%**	
Bicycles on Crosswalk						**2**						**14**						**8**						**21**	
% Bicycles on Crosswalk						**7.7%**						**48.3%**						**19.5%**						**28.4%**	

Lincoln Park Southfield Rd Corridor Plan
Southfield Road and Fort Street

3/7/2022

Leg	Southfield Rd.				Southfield Rd.				Fort St.				Fort St.				
Direction	Eastbound				Westbound				Northbound				Southbound				
Start Time	Thru	Right	**Total**	Peds	Thru	Right	**Total**	Peds	Thru	Right	**Total**	Peds	Thru	Right	**Total**	Peds	**Int Total**
2021-10-14 07:00:00	105	92	**197**	2	172	16	**188**	3	317	23	**340**	3	83	112	**195**	1	**920**
2021-10-14 07:15:00	133	138	**271**	1	261	15	**276**	4	351	32	**383**	2	146	119	**265**	0	**1195**
2021-10-14 07:30:00	155	145	**300**	1	239	26	**265**	0	430	47	**477**	1	144	138	**282**	1	**1324**
2021-10-14 07:45:00	177	125	**302**	0	212	17	**229**	1	400	41	**441**	0	116	135	**251**	0	**1223**
2021-10-14 08:00:00	159	118	**277**	1	218	12	**230**	0	369	28	**397**	0	94	139	**233**	1	**1137**
2021-10-14 08:15:00	148	132	**280**	0	215	24	**239**	0	344	41	**385**	0	109	135	**244**	0	**1148**
AM Peak Hour Totals	**639**	**520**	**1159**	**2**	**884**	**79**	**963**	**1**	**1543**	**157**	**1700**	**1**	**463**	**547**	**1010**	**2**	**4832**
AM PHF	**0.90**	**0.90**	**0.96**	**0.50**	**0.92**	**0.76**	**0.91**	**0.25**	**0.90**	**0.84**	**0.89**	**0.25**	**0.80**	**0.98**	**0.90**	**0.50**	**0.91**
2021-10-14 08:30:00	144	138	**282**	0	162	16	**178**	2	290	31	**321**	0	106	135	**241**	1	**1022**
2021-10-14 08:45:00	135	122	**257**	1	173	26	**199**	0	246	29	**275**	0	88	114	**202**	0	**933**
2021-10-14 11:00:00	156	132	**288**	2	157	27	**184**	2	202	37	**239**	1	109	90	**199**	2	**910**
2021-10-14 11:15:00	135	118	**253**	4	141	24	**165**	0	230	40	**270**	2	140	113	**253**	0	**941**
2021-10-14 11:30:00	155	140	**295**	1	180	17	**197**	0	212	51	**263**	2	127	103	**230**	1	**985**
2021-10-14 11:45:00	150	140	**290**	0	162	34	**196**	2	233	62	**295**	0	152	117	**269**	2	**1050**
2021-10-14 12:00:00	173	130	**303**	2	166	34	**200**	4	216	41	**257**	0	156	98	**254**	1	**1014**
2021-10-14 12:15:00	174	141	**315**	2	175	29	**204**	0	234	50	**284**	1	146	116	**262**	1	**1065**
2021-10-14 12:30:00	153	152	**305**	0	149	32	**181**	1	232	43	**275**	0	146	113	**259**	1	**1020**
2021-10-14 12:45:00	166	155	**321**	0	156	30	**186**	0	227	39	**266**	2	146	113	**259**	0	**1032**
Mid-Day Peak Hour Totals	**666**	**578**	**1244**	**4**	**646**	**125**	**771**	**5**	**909**	**173**	**1082**	**3**	**594**	**440**	**1034**	**3**	**4131**
Mid-Day PHF	**0.96**	**0.93**	**0.97**	**0.50**	**0.92**	**0.92**	**0.94**	**0.31**	**0.97**	**0.87**	**0.95**	**0.38**	**0.95**	**0.95**	**0.99**	**0.75**	**0.97**
2021-10-14 14:00:00	194	166	**360**	2	211	34	**245**	0	194	44	**238**	0	173	84	**257**	3	**1100**
2021-10-14 14:15:00	205	172	**377**	0	249	39	**288**	2	253	47	**300**	2	193	126	**319**	0	**1284**
2021-10-14 14:30:00	255	197	**452**	0	247	31	**278**	0	261	74	**335**	1	220	130	**350**	0	**1415**
2021-10-14 14:45:00	281	182	**463**	6	214	34	**248**	3	277	74	**351**	3	198	124	**322**	4	**1384**
2021-10-14 15:00:00	273	184	**457**	0	253	41	**294**	8	360	83	**443**	11	229	153	**382**	4	**1576**
2021-10-14 15:15:00	249	188	**437**	2	250	34	**284**	4	369	67	**436**	4	211	159	**370**	3	**1527**
2021-10-14 15:30:00	251	181	**432**	1	264	34	**298**	2	357	66	**423**	1	228	173	**401**	4	**1554**
2021-10-14 15:45:00	282	187	**469**	1	234	36	**270**	3	330	59	**389**	1	197	147	**344**	6	**1472**
PM Peak Hour Totals	**1055**	**740**	**1795**	**4**	**1001**	**145**	**1146**	**17**	**1416**	**275**	**1691**	**17**	**865**	**632**	**1497**	**17**	**6129**
PM PHF	**0.94**	**0.98**	**0.96**	**0.50**	**0.95**	**0.88**	**0.96**	**0.53**	**0.96**	**0.83**	**0.95**	**0.39**	**0.94**	**0.91**	**0.93**	**0.71**	**0.97**
2021-10-14 16:00:00	300	192	**492**	1	238	37	**275**	2	318	56	**374**	1	239	137	**376**	1	**1517**
2021-10-14 16:15:00	249	193	**442**	0	228	30	**258**	0	334	72	**406**	0	227	146	**373**	3	**1479**
2021-10-14 16:30:00	263	206	**469**	0	219	34	**253**	3	298	60	**358**	1	207	141	**348**	1	**1428**
2021-10-14 16:45:00	290	197	**487**	1	220	21	**241**	0	331	67	**398**	0	193	126	**319**	0	**1445**
2021-10-14 17:00:00	271	188	**459**	1	226	45	**271**	1	304	61	**365**	1	238	144	**382**	0	**1477**
2021-10-14 17:15:00	238	204	**442**	0	229	27	**256**	2	292	60	**352**	0	236	136	**372**	3	**1422**
2021-10-14 17:30:00	236	179	**415**	0	217	33	**250**	2	300	57	**357**	0	248	166	**414**	3	**1436**
2021-10-14 17:45:00	257	197	**454**	1	247	27	**274**	0	247	53	**300**	0	206	134	**340**	0	**1368**
Grand Total	**6512**	**5131**	**11643**	**33**	**6684**	**916**	**7600**	**51**	**9358**	**1635**	**10993**	**40**	**5451**	**4116**	**9567**	**47**	**39803**
% Approach	**55.9%**	**44.1%**			**87.9%**	**12.1%**			**85.1%**	**14.9%**			**57.0%**	**43.0%**			
% Total	**16.4%**	**12.9%**	**29.3%**		**16.8%**	**2.3%**	**19.1%**		**23.5%**	**4.1%**	**27.6%**		**13.7%**	**10.3%**	**24.0%**		
Lights	**6280**	**4972**	**11252**		**6406**	**897**	**7303**		**9044**	**1606**	**10650**		**5259**	**3971**	**9230**		**38435**
% Lights	**96.4%**	**96.9%**	**96.6%**		**95.8%**	**97.9%**	**96.1%**		**96.6%**	**98.2%**	**96.9%**		**96.5%**	**96.5%**	**96.5%**		**96.6%**
Heavy	**232**	**159**	**391**		**278**	**19**	**297**		**314**	**29**	**343**		**192**	**145**	**337**		**1368**
% Heavy	**3.6%**	**3.1%**	**3.4%**		**4.2%**	**2.1%**	**3.9%**		**3.4%**	**1.8%**	**3.1%**		**3.5%**	**3.5%**	**3.5%**		**3.4%**
Pedestrians				**33**				**51**				**40**				**47**	
% Pedestrians				**100.0%**				**100.0%**				**100.0%**				**100.0%**	

Leg	Southfield Rd.						Southfield Rd.						Ferris Ave.						Ferris Ave.						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	**Int Total**
2021-10-14 07:00:00	8	115	0	0	**123**	0	0	164	1	0	**165**	0	16	2	2	0	**20**	1	4	1	19	0	**24**	2	**332**
2021-10-14 07:15:00	2	131	3	0	**136**	0	1	251	4	0	**256**	0	25	2	0	0	**27**	0	5	1	12	0	**18**	0	**437**
2021-10-14 07:30:00	5	158	7	0	**170**	0	3	215	1	0	**219**	0	25	4	0	0	**29**	1	3	4	8	0	**15**	0	**433**
2021-10-14 07:45:00	12	189	19	0	**220**	0	3	192	0	0	**195**	0	27	0	4	0	**31**	0	6	4	13	0	**23**	0	**469**
2021-10-14 08:00:00	8	150	9	0	**167**	1	2	192	1	0	**195**	0	23	5	3	0	**31**	0	4	1	10	0	**15**	2	**408**
2021-10-14 08:15:00	5	161	9	0	**175**	1	5	207	2	0	**214**	0	26	5	4	0	**35**	0	4	4	12	0	**20**	1	**444**
AM Peak Hour Totals	**30**	**658**	**44**	**0**	**732**	**2**	**13**	**806**	**4**	**0**	**823**	**0**	**101**	**14**	**11**	**0**	**126**	**1**	**17**	**13**	**43**	**0**	**73**	**3**	**1754**
AM PHF	**0.63**	**0.87**	**0.58**		**0.83**	**0.50**	**0.65**	**0.94**	**0.50**		**0.94**		**0.94**	**0.70**	**0.69**		**0.90**	**0.25**	**0.71**	**0.81**	**0.83**		**0.79**	**0.38**	**0.93**
2021-10-14 08:30:00	6	134	7	0	**147**	0	4	139	0	0	**143**	0	21	3	1	0	**25**	0	5	2	8	0	**15**	3	**330**
2021-10-14 08:45:00	8	137	2	0	**147**	0	0	182	1	0	**183**	0	19	1	1	0	**21**	0	7	1	10	0	**18**	2	**369**
2021-10-14 11:00:00	7	144	3	0	**154**	1	2	162	5	0	**169**	0	7	2	2	0	**11**	0	4	3	14	0	**21**	4	**355**
2021-10-14 11:15:00	8	131	14	0	**153**	0	2	141	7	0	**150**	0	10	1	2	0	**13**	0	7	4	12	0	**23**	0	**339**
2021-10-14 11:30:00	6	141	9	0	**156**	0	6	148	3	0	**157**	1	14	0	1	0	**15**	1	3	1	9	0	**13**	1	**341**
2021-10-14 11:45:00	4	144	12	0	**160**	0	3	166	5	0	**174**	0	9	2	3	0	**14**	0	5	2	10	0	**17**	4	**365**
2021-10-14 12:00:00	4	169	12	0	**185**	0	2	191	1	0	**194**	0	16	1	1	0	**18**	1	9	5	7	0	**21**	0	**418**
2021-10-14 12:15:00	9	181	4	0	**194**	0	2	177	6	0	**185**	0	16	0	2	0	**18**	0	11	6	10	0	**27**	0	**424**
2021-10-14 12:30:00	4	148	9	0	**161**	0	2	159	4	1	**166**	0	14	1	4	0	**19**	0	9	3	5	0	**17**	5	**363**
2021-10-14 12:45:00	9	168	8	0	**185**	0	1	179	4	0	**184**	1	11	5	2	0	**18**	1	6	3	10	0	**19**	1	**406**
Mid-Day Peak Hour Totals	**26**	**666**	**33**	**0**	**725**	**0**	**7**	**706**	**15**	**1**	**729**	**1**	**57**	**7**	**9**	**0**	**73**	**2**	**35**	**17**	**32**	**0**	**84**	**6**	**1611**
Mid-Day PHF	**0.72**	**0.92**	**0.69**		**0.93**		**0.88**	**0.92**	**0.63**	**0.25**	**0.94**		**0.89**	**0.35**	**0.56**		**0.96**		**0.80**	**0.71**	**0.80**		**0.78**		**0.95**
2021-10-14 14:00:00	9	164	6	0	**179**	2	5	199	1	0	**205**	0	10	1	4	0	**15**	0	10	7	10	0	**27**	0	**426**
2021-10-14 14:15:00	6	197	8	0	**211**	0	0	218	5	0	**223**	0	24	1	3	0	**28**	0	8	4	14	0	**26**	1	**488**
2021-10-14 14:30:00	5	229	21	0	**255**	1	5	214	5	0	**224**	0	20	1	3	0	**24**	1	12	7	11	0	**30**	4	**533**
2021-10-14 14:45:00	13	283	17	0	**313**	0	3	223	2	0	**228**	0	14	8	6	0	**28**	0	7	8	11	0	**26**	3	**595**
2021-10-14 15:00:00	14	271	21	0	**306**	8	4	261	2	0	**267**	0	23	9	6	0	**38**	7	12	5	21	0	**38**	2	**649**
2021-10-14 15:15:00	13	247	21	0	**281**	3	7	250	7	0	**264**	0	22	3	9	0	**34**	6	15	4	13	0	**32**	6	**611**
2021-10-14 15:30:00	12	235	12	0	**259**	2	8	257	3	0	**268**	0	20	6	4	0	**30**	1	10	6	17	0	**33**	4	**590**
2021-10-14 15:45:00	11	269	20	0	**300**	0	3	260	5	0	**268**	0	13	5	5	0	**23**	1	12	5	9	0	**26**	3	**617**
PM Peak Hour Totals	**50**	**1022**	**74**	**0**	**1146**	**13**	**22**	**1028**	**17**	**0**	**1067**	**0**	**78**	**23**	**24**	**0**	**125**	**15**	**49**	**20**	**60**	**0**	**129**	**15**	**2467**
PM PHF	**0.89**	**0.94**	**0.88**		**0.94**		**0.69**	**0.98**	**0.61**		**1.00**		**0.85**	**0.64**	**0.67**		**0.82**		**0.82**	**0.83**	**0.71**		**0.85**		**0.95**
2021-10-14 16:00:00	6	281	18	0	**305**	0	6	250	8	0	**264**	0	13	1	7	0	**21**	0	13	9	17	0	**39**	4	**629**
2021-10-14 16:15:00	13	252	17	0	**282**	0	2	217	7	0	**226**	0	16	3	6	0	**25**	0	19	5	12	0	**36**	1	**569**
2021-10-14 16:30:00	14	252	18	0	**284**	2	5	222	7	0	**234**	0	19	3	4	0	**26**	0	13	11	16	0	**40**	1	**584**
2021-10-14 16:45:00	15	283	15	0	**313**	0	6	225	5	0	**236**	0	8	2	3	0	**13**	0	17	9	6	0	**32**	1	**594**
2021-10-14 17:00:00	8	246	13	0	**267**	0	8	241	6	0	**255**	0	16	2	10	0	**28**	0	18	5	8	0	**31**	2	**581**
2021-10-14 17:15:00	6	232	22	0	**260**	4	3	229	4	0	**236**	0	18	2	4	0	**24**	0	11	9	12	0	**32**	3	**552**
2021-10-14 17:30:00	10	225	15	0	**250**	3	4	234	3	0	**241**	0	17	7	0	0	**24**	0	8	7	4	0	**19**	6	**534**
2021-10-14 17:45:00	15	257	15	0	**287**	0	2	247	6	0	**255**	0	19	7	7	0	**33**	1	12	2	12	0	**26**	0	**601**
Grand Total	**275**	**6324**	**386**	**0**	**6985**	**28**	**109**	**6612**	**121**	**1**	**6843**	**2**	**551**	**95**	**113**	**0**	**759**	**22**	**289**	**148**	**362**	**0**	**799**	**66**	**15386**
% Approach	**3.9%**	**90.5%**	**5.5%**	**0.0%**			**1.6%**	**96.6%**	**1.8%**	**0.0%**			**72.6%**	**12.5%**	**14.9%**	**0.0%**			**36.2%**	**18.5%**	**45.3%**	**0.0%**			
% Total	**1.8%**	**41.1%**	**2.5%**	**0.0%**	**45.4%**		**0.7%**	**43.0%**	**0.8%**	**0.0%**	**44.5%**		**3.6%**	**0.6%**	**0.7%**	**0.0%**	**4.9%**		**1.9%**	**1.0%**	**2.4%**	**0.0%**	**5.2%**		
Lights	**270**	**6079**	**382**	**0**	**6731**		**105**	**6344**	**117**	**1**	**6567**		**547**	**93**	**109**	**0**	**749**		**285**	**147**	**343**	**0**	**775**		**14822**
% Lights	**98.2%**	**96.1%**	**99.0%**	**0.0%**	**96.4%**		**96.3%**	**95.9%**	**96.7%**	**100.0%**	**96.0%**		**99.3%**	**97.9%**	**96.5%**	**0.0%**	**98.7%**		**98.6%**	**99.3%**	**94.8%**	**0.0%**	**97.0%**		**96.3%**
Heavy	**5**	**245**	**4**	**0**	**254**		**4**	**268**	**4**	**0**	**276**		**4**	**2**	**4**	**0**	**10**		**4**	**1**	**19**	**0**	**24**		**564**
% Heavy	**1.8%**	**3.9%**	**1.0%**	**0.0%**	**3.6%**		**3.7%**	**4.1%**	**3.3%**	**0.0%**	**4.0%**		**0.7%**	**2.1%**	**3.5%**	**0.0%**	**1.3%**		**1.4%**	**0.7%**	**5.2%**	**0.0%**	**3.0%**		**3.7%**
Pedestrians						**28**						**2**						**22**						**66**	
% Pedestrians						**100.0%**						**100.0%**						**100.0%**						**100.0%**	

Lincoln Park Southfield Rd Corridor Plan
Southfield Road and Applewood Avenue

3/7/2022

Leg	Southfield Rd.						Southfield Rd.						Applewood Ave.						North						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	**Int Total**
2021-10-14 07:00:00	0	108	10	0	**118**	0	2	100	0	0	**102**	0	33	0	0	0	**33**	0	0	0	0	0	**0**	0	**253**
2021-10-14 07:15:00	0	113	7	0	**120**	0	1	163	0	0	**164**	1	28	0	4	0	**32**	1	0	0	0	0	**0**	1	**316**
2021-10-14 07:30:00	0	129	21	0	**150**	0	5	135	0	0	**140**	0	42	0	1	0	**43**	0	0	0	0	0	**0**	0	**333**
2021-10-14 07:45:00	0	135	23	0	**158**	0	4	142	0	0	**146**	0	17	0	3	0	**20**	0	0	0	0	0	**0**	0	**324**
2021-10-14 08:00:00	0	115	11	0	**126**	0	5	126	0	0	**131**	0	45	0	4	0	**49**	0	0	0	0	0	**0**	0	**306**
2021-10-14 08:15:00	0	144	15	0	**159**	0	6	130	0	0	**136**	0	28	0	8	0	**36**	0	0	0	0	0	**0**	0	**331**
AM Peak Hour Totals	**0**	**523**	**70**	**0**	**593**	**0**	**20**	**533**	**0**	**0**	**553**	**0**	**132**	**0**	**16**	**0**	**148**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1294**
AM PHF		**0.91**	**0.76**		**0.93**		**0.83**	**0.94**			**0.95**		**0.73**		**0.50**		**0.76**								**0.97**
2021-10-14 08:30:00	0	103	15	0	**118**	0	1	103	0	0	**104**	0	15	0	3	0	**18**	0	0	0	0	0	**0**	0	**240**
2021-10-14 08:45:00	0	100	6	1	**107**	0	2	125	0	0	**127**	0	25	0	1	0	**26**	0	0	0	0	0	**0**	0	**260**
2021-10-14 11:00:00	0	121	12	0	**133**	0	2	137	1	0	**140**	1	16	0	1	0	**17**	0	0	0	0	0	**0**	3	**290**
2021-10-14 11:15:00	0	129	10	0	**139**	0	1	133	0	1	**135**	1	18	0	2	0	**20**	0	0	0	0	0	**0**	1	**294**
2021-10-14 11:30:00	2	127	8	0	**137**	0	3	145	0	0	**148**	0	19	0	0	0	**19**	0	0	0	0	0	**0**	1	**304**
2021-10-14 11:45:00	0	130	15	0	**145**	0	1	128	1	0	**130**	0	21	0	5	0	**26**	0	0	0	0	0	**0**	0	**301**
2021-10-14 12:00:00	0	130	17	0	**147**	0	3	143	0	0	**146**	0	21	0	3	0	**24**	0	0	0	0	0	**0**	1	**317**
2021-10-14 12:15:00	1	154	11	0	**166**	0	1	150	0	0	**151**	0	19	0	6	0	**25**	2	0	0	0	0	**0**	0	**342**
2021-10-14 12:30:00	1	129	14	0	**144**	0	4	132	0	0	**136**	0	20	0	3	0	**23**	0	0	0	0	0	**0**	0	**303**
2021-10-14 12:45:00	0	127	14	0	**141**	0	2	126	0	0	**128**	0	11	0	0	0	**11**	1	0	0	1	0	**1**	0	**281**
Mid-Day Peak Hour Totals	**2**	**540**	**56**	**0**	**598**	**0**	**10**	**551**	**0**	**0**	**561**	**0**	**71**	**0**	**12**	**0**	**83**	**3**	**0**	**0**	**1**	**0**	**1**	**1**	**1243**
Mid-Day PHF	**0.50**	**0.88**	**0.82**		**0.90**		**0.63**	**0.92**			**0.93**		**0.85**		**0.50**		**0.83**				**0.25**		**0.25**		**0.91**
2021-10-14 14:00:00	0	132	17	0	**149**	0	4	177	0	0	**181**	0	19	0	2	0	**21**	0	0	0	2	0	**2**	3	**353**
2021-10-14 14:15:00	2	146	28	0	**176**	0	6	190	0	0	**196**	1	22	0	5	0	**27**	0	0	0	0	0	**0**	3	**399**
2021-10-14 14:30:00	1	182	26	0	**209**	0	5	184	0	0	**189**	0	28	0	2	0	**30**	0	0	0	0	0	**0**	2	**428**
2021-10-14 14:45:00	0	184	28	0	**212**	0	9	173	0	0	**182**	0	27	0	9	0	**36**	1	0	0	0	0	**0**	3	**430**
2021-10-14 15:00:00	0	183	23	1	**207**	0	7	152	0	0	**159**	1	39	0	13	0	**52**	0	0	0	0	0	**0**	2	**418**
2021-10-14 15:15:00	0	200	27	0	**227**	0	10	216	0	0	**226**	0	21	0	4	0	**25**	0	0	0	0	0	**0**	1	**478**
2021-10-14 15:30:00	0	190	19	0	**209**	0	7	219	0	0	**226**	0	23	0	5	0	**28**	0	0	0	0	0	**0**	1	**463**
2021-10-14 15:45:00	0	203	28	0	**231**	0	7	183	0	0	**190**	0	32	0	5	0	**37**	2	0	0	0	0	**0**	1	**458**
PM Peak Hour Totals	**0**	**776**	**97**	**1**	**874**	**0**	**31**	**770**	**0**	**0**	**801**	**1**	**115**	**0**	**27**	**0**	**142**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**1817**
PM PHF		**0.96**	**0.87**	**0.25**	**0.95**		**0.78**	**0.88**			**0.89**		**0.74**		**0.52**		**0.68**								**0.95**
2021-10-14 16:00:00	0	203	38	1	**242**	0	4	204	0	0	**208**	0	21	0	5	0	**26**	0	0	0	0	0	**0**	1	**476**
2021-10-14 16:15:00	0	177	33	0	**210**	0	5	178	0	0	**183**	0	23	0	4	0	**27**	0	0	0	0	0	**0**	0	**420**
2021-10-14 16:30:00	1	193	26	0	**220**	0	6	176	0	0	**182**	1	22	0	4	0	**26**	1	0	0	0	0	**0**	3	**428**
2021-10-14 16:45:00	1	210	36	0	**247**	0	3	176	0	0	**179**	0	24	0	4	0	**28**	1	0	0	0	0	**0**	1	**454**
2021-10-14 17:00:00	1	193	30	0	**224**	0	6	183	0	0	**189**	1	31	0	2	0	**33**	0	0	0	0	0	**0**	0	**446**
2021-10-14 17:15:00	0	192	34	0	**226**	0	6	199	0	0	**205**	1	19	0	3	0	**22**	1	0	0	0	0	**0**	3	**453**
2021-10-14 17:30:00	0	171	20	0	**191**	0	4	186	0	0	**190**	1	26	0	4	0	**30**	0	0	0	0	0	**0**	0	**411**
2021-10-14 17:45:00	2	213	22	0	**237**	0	5	174	0	0	**179**	1	30	0	4	0	**34**	0	0	0	1	0	**1**	0	**451**
Grand Total	**12**	**4966**	**644**	**3**	**5625**	**0**	**137**	**5088**	**2**	**1**	**5228**	**10**	**785**	**0**	**119**	**0**	**904**	**10**	**0**	**0**	**4**	**0**	**4**	**31**	**11761**
% Approach	**0.2%**	**88.3%**	**11.4%**	**0.1%**			**2.6%**	**97.3%**	**0.0%**	**0.0%**			**86.8%**	**0.0%**	**13.2%**	**0.0%**			**0.0%**	**0.0%**	**100.0%**	**0.0%**			
% Total	**0.1%**	**42.2%**	**5.5%**	**0.0%**	**47.8%**		**1.2%**	**43.3%**	**0.0%**	**0.0%**	**44.5%**		**6.7%**	**0.0%**	**1.0%**	**0.0%**	**7.7%**		**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**		
Lights	**12**	**4721**	**639**	**3**	**5375**		**137**	**4834**	**2**	**1**	**4974**		**782**	**0**	**118**	**0**	**900**		**0**	**0**	**4**	**0**	**4**		**11253**
% Lights	**100.0%**	**95.1%**	**99.2%**	**100.0%**	**95.6%**		**100.0%**	**95.0%**	**100.0%**	**100.0%**	**95.1%**		**99.6%**	**0.0%**	**99.2%**	**0.0%**	**99.6%**		**0.0%**	**0.0%**	**100.0%**	**0.0%**	**100.0%**		**95.7%**
Heavy	**0**	**245**	**5**	**0**	**250**		**0**	**254**	**0**	**0**	**254**		**3**	**0**	**1**	**0**	**4**		**0**	**0**	**0**	**0**	**0**		**508**
% Heavy	**0.0%**	**4.9%**	**0.8%**	**0.0%**	**4.4%**		**0.0%**	**5.0%**	**0.0%**	**0.0%**	**4.9%**		**0.4%**	**0.0%**	**0.8%**	**0.0%**	**0.4%**		**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**		**4.3%**
Pedestrians						**0**						**10**						**10**						**31**	
% Pedestrians						**0.0%**						**100.0%**						**100.0%**						**100.0%**	

Lincoln Park Southfield Rd Corridor Plan
Southfield Road and Pepper Road

Leg	Southfield Rd						Southfield Rd						Potters Trailer Park Dr						Pepper Rd						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	**Int Total**
2022-02-15 07:00:00	4	71	0	0	**75**	0	0	76	1	0	**77**	0	0	0	0	0	**0**	0	2	0	10	0	**12**	0	**164**
2022-02-15 07:15:00	3	82	0	0	**85**	0	0	114	3	0	**117**	0	0	0	0	0	**0**	0	4	0	15	0	**19**	1	**221**
2022-02-15 07:30:00	9	88	0	0	**97**	0	0	104	4	0	**108**	0	0	0	0	0	**0**	0	4	0	6	0	**10**	0	**215**
2022-02-15 07:45:00	9	119	0	0	**128**	0	0	84	3	0	**87**	0	0	0	0	0	**0**	0	10	0	14	0	**24**	1	**239**
2022-02-15 08:00:00	11	119	0	0	**130**	0	0	99	11	0	**110**	1	2	0	0	0	**2**	0	11	0	10	0	**21**	1	**263**
2022-02-15 08:15:00	11	143	0	0	**154**	0	0	84	21	0	**105**	1	0	0	0	0	**0**	1	22	0	10	0	**32**	1	**291**
AM Peak Hour Totals	**40**	**469**	**0**	**0**	**509**	**0**	**0**	**371**	**39**	**0**	**410**	**2**	**2**	**0**	**0**	**0**	**2**	**1**	**47**	**0**	**40**	**0**	**87**	**3**	**1008**
AM PHF	**0.91**	**0.82**			**0.83**			**0.89**	**0.46**		**0.93**		**0.25**				**0.25**		**0.53**		**0.71**		**0.68**		**0.87**
2022-02-15 08:30:00	13	80	0	0	**93**	0	0	87	7	0	**94**	0	0	0	1	0	**1**	0	16	0	10	0	**26**	0	**214**
2022-02-15 08:45:00	8	84	0	0	**92**	0	0	75	10	0	**85**	0	0	0	0	0	**0**	0	6	0	14	0	**20**	0	**197**
2022-02-15 11:00:00	11	84	0	0	**95**	2	0	86	9	0	**95**	0	0	0	0	0	**0**	0	6	0	16	0	**22**	1	**212**
2022-02-15 11:15:00	15	94	0	0	**109**	0	0	97	6	0	**103**	0	0	1	0	0	**1**	1	5	0	15	0	**20**	1	**233**
2022-02-15 11:30:00	6	98	0	0	**104**	0	0	131	6	0	**137**	0	0	0	0	0	**0**	0	4	0	8	0	**12**	1	**253**
2022-02-15 11:45:00	11	101	0	0	**112**	0	0	103	3	0	**106**	0	0	0	0	0	**0**	0	2	0	13	0	**15**	1	**233**
2022-02-15 12:00:00	11	109	0	0	**120**	0	0	98	4	0	**102**	4	0	0	0	0	**0**	0	2	0	15	0	**17**	6	**239**
2022-02-15 12:15:00	15	114	1	0	**130**	0	0	98	1	0	**99**	2	1	0	0	0	**1**	3	9	0	14	0	**23**	3	**253**
2022-02-15 12:30:00	20	127	0	0	**147**	0	0	139	6	0	**145**	0	1	0	0	0	**1**	1	4	0	26	0	**30**	6	**323**
2022-02-15 12:45:00	14	114	1	0	**129**	2	0	104	7	0	**111**	0	0	0	0	0	**0**	0	3	0	22	0	**25**	1	**265**
Mid-Day Peak Hour Totals	**60**	**464**	**2**	**0**	**526**	**2**	**0**	**439**	**18**	**0**	**457**	**6**	**2**	**0**	**0**	**0**	**2**	**4**	**18**	**0**	**77**	**0**	**95**	**16**	**1080**
Mid-Day PHF	**0.75**	**0.91**	**0.50**		**0.89**			**0.79**	**0.64**		**0.79**		**0.50**				**0.50**		**0.50**		**0.74**		**0.79**		**0.84**
2022-02-15 14:00:00	23	134	0	0	**157**	0	0	153	9	0	**162**	0	0	0	0	0	**0**	6	14	0	17	0	**31**	0	**350**
2022-02-15 14:15:00	24	149	0	0	**173**	0	0	121	8	0	**129**	2	0	0	0	0	**0**	3	14	0	13	0	**27**	6	**329**
2022-02-15 14:30:00	19	134	0	0	**153**	0	0	156	6	0	**162**	0	2	0	0	0	**2**	1	11	0	16	0	**27**	0	**344**
2022-02-15 14:45:00	28	116	0	0	**144**	0	0	121	10	0	**131**	1	0	0	0	0	**0**	2	9	0	28	0	**37**	2	**312**
2022-02-15 15:00:00	27	135	0	0	**162**	0	0	142	14	0	**156**	1	0	0	0	0	**0**	3	17	0	28	0	**45**	1	**363**
2022-02-15 15:15:00	33	135	0	0	**168**	0	0	151	21	0	**172**	0	0	0	0	0	**0**	0	12	0	14	0	**26**	2	**366**
2022-02-15 15:30:00	22	146	0	0	**168**	0	0	152	9	0	**161**	1	0	0	0	0	**0**	1	11	0	22	0	**33**	0	**362**
2022-02-15 15:45:00	26	152	0	0	**178**	0	0	145	8	0	**153**	1	0	0	0	0	**0**	0	6	0	28	0	**34**	2	**365**
2022-02-15 16:00:00	23	137	0	0	**160**	0	0	163	9	0	**172**	4	0	0	0	0	**0**	0	12	0	17	0	**29**	5	**361**
PM Peak Hour Totals	**104**	**570**	**0**	**0**	**674**	**0**	**0**	**611**	**47**	**0**	**658**	**6**	**0**	**0**	**0**	**0**	**0**	**1**	**41**	**0**	**81**	**0**	**122**	**9**	**1454**
PM PHF	**0.79**	**0.94**			**0.95**			**0.94**	**0.56**		**0.96**						**0**		**0.85**		**0.72**		**0.90**		**0.99**
2022-02-15 16:15:00	19	131	0	0	**150**	0	0	120	6	0	**126**	0	0	0	0	0	**0**	0	8	0	13	0	**21**	5	**297**
2022-02-15 16:30:00	21	142	0	0	**163**	0	0	134	11	0	**145**	1	0	0	0	0	**0**	0	5	0	28	0	**33**	4	**341**
2022-02-15 16:45:00	32	150	0	0	**182**	0	0	143	12	0	**155**	0	0	0	1	0	**1**	0	5	0	26	0	**31**	1	**369**
2022-02-15 17:00:00	18	133	0	0	**151**	0	0	148	7	0	**155**	0	0	0	0	0	**0**	0	4	1	21	0	**26**	1	**332**
2022-02-15 17:15:00	31	154	0	0	**185**	2	0	151	8	0	**159**	2	1	0	0	0	**1**	3	9	0	23	0	**32**	3	**377**
2022-02-15 17:30:00	25	131	0	0	**156**	0	1	125	9	0	**135**	0	1	0	0	0	**1**	1	3	0	20	0	**23**	1	**315**
2022-02-15 17:45:00	24	132	0	0	**156**	0	0	125	9	0	**134**	0	0	0	0	0	**0**	1	8	0	27	0	**35**	2	**325**
Grand Total	566	3838	2	0	**4406**	6	1	3829	258	0	**4088**	21	8	1	2	0	**11**	27	258	1	559	0	**818**	59	**9323**
% Approach	12.8%	87.1%	0.0%	0.0%			0.0%	93.7%	6.3%	0.0%			72.7%	9.1%	18.2%	0.0%			31.5%	0.1%	68.3%	0.0%			
% Total	6.1%	41.2%	0.0%	0.0%	**47.3%**		0.0%	41.1%	2.8%	0.0%	**43.8%**		0.1%	0.0%	0.0%	0.0%	**0.1%**		2.8%	0.0%	6.0%	0.0%	**8.8%**		
Lights	561	3675	2	0	**4238**		1	3645	242	0	**3888**		8	0	1	0	**9**		245	1	554	0	**800**		**8935**
% Lights	99.1%	95.8%	100.0%	0.0%	**96.2%**		100.0%	95.2%	93.8%	0.0%	**95.1%**		100.0%	0.0%	50.0%	0.0%	**81.8%**		95.0%	100.0%	99.1%	0.0%	**97.8%**		**95.8%**
Heavy	5	163	0	0	168		0	184	16	0	200		0	1	1	0	2		13	0	5	0	18		388
% Heavy	0.9%	4.2%	0.0%	0.0%	3.8%		0.0%	4.8%	6.2%	0.0%	4.9%		0.0%	100.0%	50.0%	0.0%	18.2%		5.0%	0.0%	0.9%	0.0%	2.2%		4.2%
Pedestrians						5						20						26						53	
% Pedestrians						83.3%						95.0%						96.3%						89.8%	
Bicycles on Crosswalk						1						1						1						6	
% Bicycles on Crosswalk						16.7%						5.0%						3.7%						10.2%	

Lincoln Park Southfield Rd Corridor Plan
Southfield Road and 6th Street

3/7/2022

Leg	Southfield Rd						Southfield Rd						6th St						6th St						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	**Int Total**
2022-02-15 07:00:00	2	61	0	0	**63**	0	0	70	3	0	**73**	0	1	0	2	0	**3**	0	0	0	0	0	**0**	0	**139**
2022-02-15 07:15:00	2	79	0	0	**81**	0	0	86	0	0	**86**	0	5	1	1	0	**7**	0	0	0	0	0	**0**	1	**174**
2022-02-15 07:30:00	4	84	0	0	**88**	0	0	82	2	0	**84**	0	13	4	2	0	**19**	0	0	0	0	0	**0**	0	**191**
2022-02-15 07:45:00	8	98	0	0	**106**	0	0	75	1	0	**76**	0	9	0	0	0	**9**	0	0	0	0	0	**0**	1	**191**
2022-02-15 08:00:00	5	80	0	0	**85**	1	0	90	1	0	**91**	1	13	6	15	0	**34**	0	0	0	0	0	**0**	1	**210**
2022-02-15 08:15:00	9	107	0	0	**116**	0	0	77	3	0	**80**	0	23	14	10	0	**47**	1	0	0	0	0	**0**	0	**243**
AM Peak Hour Totals	**26**	**369**	**0**	**0**	**395**	**1**	**0**	**324**	**7**	**0**	**331**	**1**	**58**	**24**	**27**	**0**	**109**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**835**
AM PHF	**0.72**	**0.86**			**0.85**	**0.25**		**0.90**	**0.58**		**0.91**	**0.25**	**0.63**	**0.43**	**0.45**		**0.58**	**0.25**						**0.50**	**0.86**
2022-02-15 08:30:00	3	85	0	0	**88**	0	0	74	1	0	**75**	0	13	7	7	0	**27**	0	0	0	0	0	**0**	0	**190**
2022-02-15 08:45:00	3	83	0	0	**86**	0	0	68	3	1	**72**	0	10	3	5	0	**18**	0	0	0	0	0	**0**	0	**176**
2022-02-15 11:00:00	6	68	0	0	**74**	0	0	76	2	0	**78**	0	5	4	3	0	**12**	0	0	0	0	0	**0**	0	**164**
2022-02-15 11:15:00	5	84	0	0	**89**	0	0	95	0	0	**95**	0	8	0	2	0	**10**	1	0	0	0	0	**0**	1	**194**
2022-02-15 11:30:00	3	96	0	0	**99**	0	0	113	1	0	**114**	0	12	0	3	0	**15**	0	0	0	0	0	**0**	2	**228**
2022-02-15 11:45:00	2	99	0	0	**101**	0	0	76	1	0	**77**	0	9	1	2	0	**12**	1	0	0	0	0	**0**	1	**190**
2022-02-15 12:00:00	2	80	0	0	**82**	0	0	90	2	0	**92**	0	3	2	1	0	**6**	0	0	0	0	0	**0**	2	**180**
2022-02-15 12:15:00	3	102	0	0	**105**	0	0	80	1	0	**81**	0	3	1	1	0	**5**	1	0	0	0	0	**0**	0	**191**
2022-02-15 12:30:00	6	117	0	0	**123**	0	0	130	0	0	**130**	0	5	2	1	0	**8**	1	0	0	0	0	**0**	1	**261**
2022-02-15 12:45:00	4	93	0	0	**97**	0	0	87	0	0	**87**	0	5	1	2	0	**8**	0	0	0	0	0	**0**	2	**192**
Mid-Day Peak Hour Totals	**15**	**392**	**0**	**0**	**407**	**0**	**0**	**387**	**3**	**0**	**390**	**0**	**16**	**6**	**5**	**0**	**27**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**824**
Mid-Day PHF	**0.63**	**0.84**			**0.83**			**0.74**	**0.38**		**0.75**		**0.80**	**0.75**	**0.63**		**0.84**								**0.79**
2022-02-15 14:00:00	12	102	0	0	**114**	0	0	131	2	0	**133**	0	9	2	1	0	**12**	1	0	0	0	0	**0**	2	**259**
2022-02-15 14:15:00	11	131	0	1	**143**	0	0	112	3	0	**115**	0	10	0	5	0	**15**	1	0	0	0	0	**0**	1	**273**
2022-02-15 14:30:00	14	125	0	0	**139**	0	0	134	2	0	**136**	0	7	0	1	0	**8**	2	0	0	0	0	**0**	3	**283**
2022-02-15 14:45:00	8	108	0	0	**116**	1	0	113	3	0	**116**	0	11	1	2	0	**14**	1	0	0	0	0	**0**	2	**246**
2022-02-15 15:00:00	9	102	0	0	**111**	2	0	130	3	0	**133**	0	13	5	3	0	**21**	5	0	0	0	0	**0**	1	**265**
2022-02-15 15:15:00	10	110	0	0	**120**	3	0	127	4	0	**131**	0	22	9	7	0	**38**	0	0	0	0	0	**0**	1	**289**
2022-02-15 15:30:00	4	121	0	0	**125**	0	0	152	2	0	**154**	1	10	7	3	0	**20**	1	0	0	0	0	**0**	2	**299**
2022-02-15 15:45:00	7	137	0	0	**144**	1	0	136	1	0	**137**	0	9	2	5	0	**16**	1	0	0	0	0	**0**	2	**297**
2022-02-15 16:00:00	4	117	0	0	**121**	0	0	129	1	0	**130**	0	8	0	2	0	**10**	1	0	0	0	0	**0**	2	**261**
PM Peak Hour Totals	**25**	**485**	**0**	**0**	**510**	**4**	**0**	**544**	**8**	**0**	**552**	**1**	**49**	**18**	**17**	**0**	**84**	**3**	**0**	**0**	**0**	**0**	**0**	**7**	**1146**
PM PHF	**0.63**	**0.89**			**0.89**			**0.89**	**0.50**		**0.90**		**0.56**	**0.50**	**0.61**		**0.55**								**0.96**
2022-02-15 16:15:00	5	106	0	0	**111**	0	0	119	2	0	**121**	0	7	1	4	0	**12**	4	0	0	0	0	**0**	5	**244**
2022-02-15 16:30:00	6	128	0	1	**135**	0	0	130	0	0	**130**	0	3	0	3	0	**6**	2	0	0	0	0	**0**	1	**271**
2022-02-15 16:45:00	8	127	0	0	**135**	0	0	130	1	0	**131**	0	12	1	4	0	**17**	0	0	0	0	0	**0**	0	**283**
2022-02-15 17:00:00	6	99	0	0	**105**	0	0	117	3	0	**120**	0	10	4	4	0	**18**	2	0	0	0	0	**0**	6	**243**
2022-02-15 17:15:00	10	138	0	0	**148**	0	0	138	2	0	**140**	0	15	1	1	0	**17**	2	0	0	0	0	**0**	1	**305**
2022-02-15 17:30:00	7	117	0	0	**124**	1	0	114	3	0	**117**	0	8	3	3	0	**14**	3	0	0	0	0	**0**	0	**255**
2022-02-15 17:45:00	8	115	0	0	**123**	0	0	122	4	0	**126**	0	6	0	1	0	**7**	1	0	0	0	0	**0**	1	**256**
Grand Total	**196**	**3299**	**0**	**2**	**3497**	**9**	**0**	**3403**	**57**	**1**	**3461**	**2**	**297**	**82**	**106**	**0**	**485**	**32**	**0**	**0**	**0**	**0**	**0**	**42**	**7443**
% Approach	**5.6%**	**94.3%**	**0.0%**	**0.1%**			**0.0%**	**98.3%**	**1.6%**	**0.0%**			**61.2%**	**16.9%**	**21.9%**	**0.0%**			**0.0%**	**0.0%**	**0.0%**	**0.0%**			
% Total	**2.6%**	**44.3%**	**0.0%**	**0.0%**	**47.0%**		**0.0%**	**45.7%**	**0.8%**	**0.0%**	**46.5%**		**4.0%**	**1.1%**	**1.4%**	**0.0%**	**6.5%**		**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**		
Lights	**195**	**3139**	**0**	**2**	**3336**		**0**	**3204**	**54**	**1**	**3259**		**275**	**79**	**97**	**0**	**451**		**0**	**0**	**0**	**0**	**0**		**7046**
% Lights	**99.5%**	**95.2%**	**0.0%**	**100.0%**	**95.4%**		**0.0%**	**94.2%**	**94.7%**	**100.0%**	**94.2%**		**92.6%**	**96.3%**	**91.5%**	**0.0%**	**93.0%**		**0.0%**	**0.0%**	**0.0%**	**0.0%**			**94.7%**
Heavy	**1**	**160**	**0**	**0**	**161**		**0**	**199**	**3**	**0**	**202**		**22**	**3**	**9**	**0**	**34**		**0**	**0**	**0**	**0**	**0**		**397**
% Heavy	**0.5%**	**4.8%**	**0.0%**	**0.0%**	**4.6%**		**0.0%**	**5.8%**	**5.3%**	**0.0%**	**5.8%**		**7.4%**	**3.7%**	**8.5%**	**0.0%**	**7.0%**		**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**		**5.3%**
Pedestrians						**9**						**2**						**32**						**36**	
% Pedestrians						**100.0%**						**100.0%**						**100.0%**						**85.7%**	
Bicycles on Crosswalk						**0**						**0**						**0**						**6**	
% Bicycles on Crosswalk						**0.0%**						**0.0%**						**0.0%**						**14.3%**	

Leg	Southfield Rd						Grand Port Grill/Park Dr.						Jefferson Ave						Jefferson Ave						
Direction	Eastbound						Westbound						Northbound						Southbound						
Start Time	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	Left	Thru	Right	U-Turn	**Total**	Peds	**Int Total**
2022-02-15 07:00:00	15	0	34	0	**49**	0	0	0	0	0	**0**	0	33	45	0	0	**78**	1	1	30	27	0	**58**	0	**185**
2022-02-15 07:15:00	28	0	45	0	**73**	0	0	0	0	0	**0**	0	38	39	0	0	**77**	0	0	41	15	0	**56**	0	**206**
2022-02-15 07:30:00	15	2	52	0	**69**	0	2	2	0	0	**4**	0	41	55	2	0	**98**	0	1	52	22	0	**75**	0	**246**
2022-02-15 07:45:00	22	0	63	0	**85**	0	0	0	0	0	**0**	0	36	65	2	0	**103**	0	1	59	17	0	**77**	0	**265**
2022-02-15 08:00:00	29	1	40	0	**70**	0	3	0	0	0	**3**	0	35	59	4	0	**98**	0	3	33	22	0	**58**	0	**229**
2022-02-15 08:15:00	39	1	53	0	**93**	0	0	1	1	0	**2**	0	28	43	1	0	**72**	0	2	34	13	0	**49**	0	**216**
AM Peak Hour Totals	**105**	**4**	**208**	**0**	**317**	**0**	**5**	**3**	**1**	**0**	**9**	**0**	**140**	**222**	**9**	**0**	**371**	**0**	**7**	**178**	**74**	**0**	**259**	**0**	**956**
AM PHF	**0.67**	**0.50**	**0.83**		**0.85**		**0.42**	**0.38**	**0.25**		**0.56**		**0.85**	**0.85**	**0.56**		**0.90**		**0.58**	**0.75**	**0.84**		**0.84**		**0.90**
2022-02-15 08:30:00	13	2	45	0	**60**	1	0	2	0	0	**2**	0	22	37	0	0	**59**	1	0	28	17	0	**45**	0	**166**
2022-02-15 08:45:00	20	0	48	0	**68**	0	0	2	0	0	**2**	0	25	41	3	0	**69**	0	0	30	25	0	**55**	0	**194**
2022-02-15 11:00:00	25	1	31	0	**57**	0	2	1	0	0	**3**	0	21	31	1	0	**53**	0	2	40	24	0	**66**	0	**179**
2022-02-15 11:15:00	22	0	35	0	**57**	0	2	3	1	0	**6**	0	33	27	0	0	**60**	0	1	28	29	0	**58**	0	**181**
2022-02-15 11:30:00	28	1	41	0	**70**	0	0	2	0	0	**2**	0	29	30	1	0	**60**	0	0	40	35	0	**75**	0	**207**
2022-02-15 11:45:00	40	3	31	0	**74**	1	2	1	1	0	**4**	0	31	38	1	0	**70**	0	1	37	27	0	**65**	0	**213**
2022-02-15 12:00:00	32	3	33	0	**68**	0	3	0	0	0	**3**	0	31	39	4	0	**74**	0	1	43	33	0	**77**	0	**222**
2022-02-15 12:15:00	41	3	37	0	**81**	0	0	3	1	0	**4**	0	35	37	0	1	**73**	0	1	48	34	0	**83**	0	**241**
2022-02-15 12:30:00	40	1	41	0	**82**	1	1	0	2	0	**3**	0	32	40	1	0	**73**	0	3	42	53	0	**98**	0	**256**
2022-02-15 12:45:00	48	1	24	0	**73**	0	1	1	1	0	**3**	0	23	41	3	0	**67**	0	1	35	40	0	**76**	0	**219**
Mid-Day Peak Hour Totals	**161**	**8**	**135**	**0**	**304**	**1**	**5**	**4**	**4**	**0**	**13**	**0**	**121**	**157**	**8**	**1**	**287**	**0**	**6**	**168**	**160**	**0**	**334**	**0**	**938**
Mid-Day PHF	**0.84**	**0.67**	**0.82**		**0.93**		**0.42**	**0.33**	**0.50**		**0.81**		**0.86**	**0.96**	**0.50**		**0.97**		**0.50**	**0.88**	**0.75**		**0.85**		**0.92**
2022-02-15 14:00:00	44	1	36	0	**81**	0	3	1	2	0	**6**	0	44	39	1	0	**84**	1	1	54	44	0	**99**	0	**270**
2022-02-15 14:15:00	35	2	46	0	**83**	0	1	2	1	0	**4**	0	38	32	0	0	**70**	0	1	61	43	0	**105**	0	**262**
2022-02-15 14:30:00	46	2	44	1	**93**	0	0	3	1	0	**4**	0	48	32	1	0	**81**	0	0	88	49	0	**137**	0	**315**
2022-02-15 14:45:00	47	1	44	0	**92**	0	1	2	0	0	**3**	0	37	38	2	0	**77**	0	0	62	34	0	**96**	0	**268**
2022-02-15 15:00:00	45	1	40	0	**86**	0	1	1	1	0	**3**	0	61	78	1	0	**140**	0	1	84	58	0	**143**	0	**372**
2022-02-15 15:15:00	41	2	40	0	**83**	0	0	0	0	0	**0**	0	58	65	4	0	**127**	1	1	66	47	0	**114**	0	**324**
2022-02-15 15:30:00	39	0	49	0	**88**	0	3	1	0	0	**4**	0	53	57	1	0	**111**	0	2	66	50	0	**118**	0	**321**
2022-02-15 15:45:00	59	0	46	0	**105**	0	3	3	0	0	**6**	0	42	49	3	0	**94**	0	1	61	49	0	**111**	0	**316**
PM Peak Hour Totals	**184**	**3**	**175**	**0**	**362**	**0**	**7**	**5**	**1**	**0**	**13**	**0**	**214**	**249**	**9**	**0**	**472**	**1**	**5**	**277**	**204**	**0**	**486**	**0**	**1333**
PM PHF	**0.78**	**0.38**	**0.89**		**0.86**		**0.58**	**0.42**	**0.25**		**0.54**		**0.88**	**0.80**	**0.56**		**0.84**		**0.63**	**0.82**	**0.88**		**0.85**		**0.90**
2022-02-15 16:00:00	53	3	44	0	**100**	1	0	4	1	0	**5**	0	56	39	1	0	**96**	0	1	79	48	0	**128**	0	**329**
2022-02-15 16:15:00	34	2	43	0	**79**	0	0	3	0	0	**3**	1	46	53	1	0	**100**	0	2	59	36	0	**97**	0	**279**
2022-02-15 16:30:00	52	1	48	0	**101**	0	2	2	0	0	**4**	0	46	46	2	0	**94**	0	0	73	44	0	**117**	0	**316**
2022-02-15 16:45:00	44	2	51	0	**97**	1	1	2	2	0	**5**	0	55	41	1	0	**97**	1	1	57	47	0	**105**	0	**304**
2022-02-15 17:00:00	31	2	39	0	**72**	1	2	3	0	0	**5**	0	44	50	2	0	**96**	0	3	51	30	0	**84**	0	**257**
2022-02-15 17:15:00	46	1	48	0	**95**	0	2	2	1	0	**5**	0	51	37	0	0	**88**	0	0	58	41	0	**99**	0	**287**
2022-02-15 17:30:00	41	1	41	0	**83**	0	0	0	2	0	**2**	0	45	52	0	0	**97**	0	0	60	38	0	**98**	0	**280**
2022-02-15 17:45:00	48	2	43	0	**93**	0	0	0	3	0	**3**	0	41	38	1	0	**80**	0	0	57	35	0	**92**	0	**268**
Grand Total	**1162**	**42**	**1355**	**1**	**2560**	**6**	**35**	**47**	**21**	**0**	**103**	**1**	**1258**	**1413**	**44**	**1**	**2716**	**5**	**32**	**1656**	**1126**	**0**	**2814**	**0**	**8193**
% Approach	**45.4%**	**1.6%**	**52.9%**	**0.0%**			**34.0%**	**45.6%**	**20.4%**	**0.0%**			**46.3%**	**52.0%**	**1.6%**	**0.0%**			**1.1%**	**58.8%**	**40.0%**	**0.0%**			
% Total	**14.2%**	**0.5%**	**16.5%**	**0.0%**	**31.2%**		**0.4%**	**0.6%**	**0.3%**	**0.0%**	**1.3%**		**15.4%**	**17.2%**	**0.5%**	**0.0%**	**33.2%**		**0.4%**	**20.2%**	**13.7%**	**0.0%**	**34.3%**		
Lights	**1076**	**42**	**1302**	**1**	**2421**		**35**	**46**	**21**	**0**	**102**		**1190**	**1378**	**44**	**1**	**2613**		**32**	**1626**	**1039**	**0**	**2697**		**7833**
% Lights	**92.6%**	**100.0%**	**96.1%**	**100.0%**	**94.6%**		**100.0%**	**97.9%**	**100.0%**	**0.0%**	**99.0%**		**94.6%**	**97.5%**	**100.0%**	**100.0%**	**96.2%**		**100.0%**	**98.2%**	**92.3%**	**0.0%**	**95.8%**		**95.6%**
Heavy	**86**	**0**	**53**	**0**	**139**		**0**	**1**	**0**	**0**	**1**		**68**	**35**	**0**	**0**	**103**		**0**	**29**	**87**	**0**	**116**		**359**
% Heavy	**7.4%**	**0.0%**	**3.9%**	**0.0%**	**5.4%**		**0.0%**	**2.1%**	**0.0%**	**0.0%**	**1.0%**		**5.4%**	**2.5%**	**0.0%**	**0.0%**	**3.8%**		**0.0%**	**1.8%**	**7.7%**	**0.0%**	**4.1%**		**4.4%**
Pedestrians						**6**						**1**						**5**						**0**	
% Pedestrians						**100.0%**						**100.0%**						**100.0%**						**0.0%**	
Bicycles on Crosswalk						**0**						**0**						**0**						**0**	
% Bicycles on Crosswalk						**0.0%**						**0.0%**						**0.0%**						**0.0%**	

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SPEED MANAGEMENT

Speed Safety Cameras

Variable Speed Limits

Appropriate Speed Limits for All Road Users

ROADWAY DEPARTURE

Wider Edge Lines

Enhanced Delineation for Horizontal Curves

Longitudinal Rumble Strips and Stripes on Two-Lane Roads

SafetyEdge℠

Roadside Design Improvements at Curves

Median Barriers

INTERSECTIONS

Backplates with Retroreflective Borders

Corridor Access Management

Dedicated Left- and Right-Turn Lanes at Intersections

Reduced Left-Turn Conflict Intersections

Roundabouts

Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections

Yellow Change Intervals

PEDESTRIANS/BICYCLES

Crosswalk Visibility Enhancements

Bicycle Lanes

Rectangular Rapid Flashing Beacons (RRFB)

Leading Pedestrian Interval

Medians and Pedestrian Refuge Islands in Urban and Suburban Areas

Pedestrian Hybrid Beacons

Road Diets (Roadway Reconfiguration)

Walkways

CROSSCUTTING

Pavement Friction Management

Lighting

Local Road Safety Plans

Road Safety Audit

U.S. Department of Transportation
Federal Highway Administration

Appropriate Speed Limits for All Road Users

See MCL 257.627 and 257.628 for setting speed limits in Michigan

There is broad consensus among global roadway safety experts that speed control is one of the most important methods for reducing fatalities and serious injuries. Speed is an especially important factor on non-limited access roadways where vehicles and vulnerable road users mix.

A driver may not see or be aware of the conditions within a corridor, and may drive at a speed that feels reasonable for themselves but may not be for all users of the system, especially vulnerable road users, including children and seniors. A driver traveling at 30 miles per hour who hits a pedestrian has a 45 percent chance of killing or seriously injuring them.[1] At 20 miles per hour, that percentage drops to 5 percent.[1] A number of cities across the United States, including New York, Washington, Seattle and Minneapolis, have reduced their local speed limits in recent years in an effort to reduce fatalities and serious injuries, with most having to secure State legislative authorization to do so.

States and local jurisdictions should set appropriate speed limits to reduce the significant risks drivers impose on others—especially vulnerable road users—and on themselves. Addressing speed is fundamental to the Safe System Approach to making streets safer, and a growing body of research shows that speed limit changes alone can lead to measurable declines in speeds and crashes.[2]

Applications

Posted speed limits are often the same as the legislative statutory speed limit. Agencies with designated authorities to set speed limits, which include States, and sometimes local jurisdictions, can establish non-statutory speed limits or designate reduced speed zones, and a growing number are doing so. While non-statutory speed limits must be based on an engineering study, conducted in accordance with the *Manual on Uniform Traffic Control Devices* (MUTCD) involving multiple factors and engineering judgment, FHWA is also encouraging agencies to use the following:[3]

- Expert Systems tools.
  - USLIMITS2.
  - NCHRP 966: Posted Speed Limit Setting Procedure and Tool.
- Safe System approach.

Based on international experience and implementation in the United States, the use of 20 mph speed zones or speed limits in urban core areas where vulnerable users share the road environment with motorists may result in further safety benefits.[4]

Considerations

When setting a speed limit, agencies should consider a range of factors such as pedestrian and bicyclist activity, crash history, land use context, intersection spacing, driveway density, roadway geometry, roadside conditions, roadway functional classification, traffic volume, and observed speeds.

To achieve desired speeds, agencies often implement other speed management strategies concurrently with setting speed limits, such as self-enforcing roadways, traffic calming, and speed safety cameras. Additional information is in the following FHWA resources:

- FHWA Speed Management website.
- Self-Enforcing Roadways: A Guidance Report.
- Noteworthy Speed Management Practices.
- Jurisdiction Speed Management Action Plan Development Package.
- Traffic Calming ePrimer.

Safety Benefits:

Traffic fatalities in the City of Seattle decreased 26 percent after the city implemented comprehensive, city-wide speed management strategies and countermeasures inspired by Vision Zero. This included setting speed limits on all non-arterial streets at 20 mph and 200 miles of arterial streets at 25 mph.[5]

One study found that on rural roads, when considering other relevant factors in the engineering study along with the speed distribution, setting a speed limit no more than 5 mph below the 85th-percentile speed may result in fewer total and fatal plus injury crashes, and lead to drivers complying closely with the posted speed limit.[6]

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/speedmgt/ref_mats/.

FHWA-SA-21-034

1 Reducing the speed limit to 20 mph in urban areas: Child deaths and injuries would be decreased.
2 Lowering the speed limit from 30 to 25 mph in Boston: effects on vehicle speeds.
3 FHWA's Methods and Practices for Setting Speed Limits: An Informational Report, (2012).
4 Recommendations of the Academic Expert Group for the 3rd Global Ministerial Conference on Road Safety.
5 https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa20047/sec8.cfm#foot813
6 Safety and Operational Impacts of Setting Speed Limits below Engineering Recommendations.

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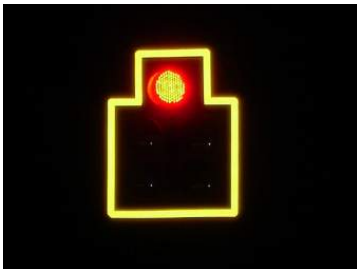
Backplates with Retroreflective Borders

Backplates added to a traffic signal head improve the visibility of the illuminated face of the signal by introducing a controlled-contrast background. The improved visibility of a signal head with a backplate is made even more conspicuous by framing it with a 1- to 3-inch yellow retroreflective border. Signal heads that have backplates equipped with retroreflective borders are more visible and conspicuous in both daytime and nighttime conditions.

Safety Benefits:

15%
reduction in total crashes.[1]

This treatment is recognized as a human factors enhancement of traffic signal visibility, conspicuity, and orientation for both older and color vision deficient drivers. This countermeasure is also advantageous during periods of power outages when the signals would otherwise be dark, providing a visible cue for motorists to stop at the intersection ahead.



Retroreflective borders are highly visible during the night. Source: South Carolina DOT

Considerations

Transportation agencies should consider backplates with retroreflective borders as part of their efforts to systematically improve safety performance at signalized intersections. Adding a retroreflective border to an existing signal backplate is a very low-cost safety treatment. This can be done by either adding retroreflective tape to an existing backplate or purchasing a new backplate with a retroreflective border already incorporated. The most efficient means of implementing this proven safety countermeasure is to adopt it as a standard treatment for signalized intersections across a jurisdiction or State.

Implementation challenges include minimizing installation time, accessing existing signal heads, and structural limitations due to added wind load in instances where an entire backplate is added. Agencies should consider the design of the existing signal support structure to determine if the design is sufficient to support the added wind load.

Signal backplate framed with a retroreflective border. Source: FHWA

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://rosap.ntl.bts.gov/view/dot/42807.

FHWA-SA-21-039

1 Sayed, T., Leur, P., and Pump, J., "Safety Impact of Increased Traffic Signal Backboards Conspicuity." 2005 TRB 84th Annual Meeting: Compendium of Papers CD-ROM, Vol. TRB#05-16, Washington, D.C., (2005).

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Safety Benefits:

Reducing driveway density

5-23%
reduction in total crashes along 2-lane rural roads.[3]

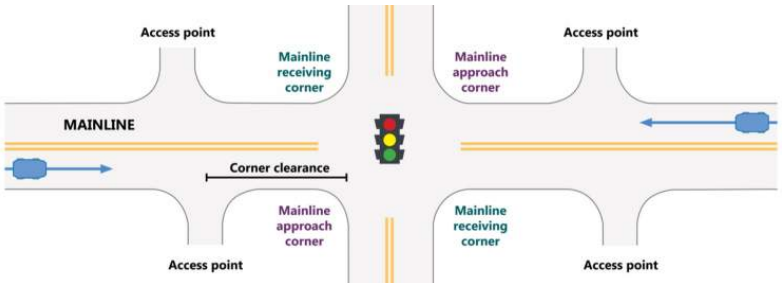
25-31%
reduction in fatal and injury crashes along urban/ suburban arterials.[4]

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/intersection/cam/index.cfm.

FHWA-SA-21-040

Corridor Access Management

Access management refers to the design, application, and control of entry and exit points along a roadway. This includes intersections with other roads and driveways that serve adjacent properties. Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestion.



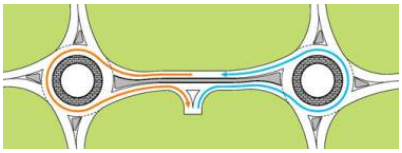
Schematic of an intersection and adjacent access points. Source: FHWA

Every intersection, from a signalized intersection to an unpaved driveway, has the potential for conflicts between vehicles, pedestrians, and bicyclists. The number and types of conflict points—locations where the travel paths of two users intersect—influence the safety performance of the intersection or driveway. FHWA developed corridor-level crash prediction models to estimate and analyze the safety effects of selected access management techniques for different area types, land uses, roadway variables, and traffic volumes.[1]

The following access management strategies can be used individually or in combination with one another:

- Reduce density through driveway closure, consolidation, or relocation.
- Manage spacing of intersection and access points.
- Limit allowable movements at driveways (such as right-in/ right-out only).
- Place driveways on an intersection approach corner rather than a receiving corner, which is expected to have fewer total crashes.[2]
- Implement raised medians that preclude across-roadway movements.
- Utilize designs such as roundabouts or reduced left-turn conflicts (such as restricted crossing U-turn, median U-turns, etc.).
- Provide turn lanes (i.e., left-only, right-only, or interior two-way left).
- Use lower speed one-way or two-way off-arterial circulation roads.

Successful corridor access management involves balancing overall safety and mobility for all users along with the needs of adjacent land uses.



Tandem roundabouts with a continuous raised median eliminates left-turn and across-roadway conflicts. Source: FHWA

1 Gross et al. Safety Evaluation of Access Management Policies and Techniques. FHWA-HRT-14-057, (2018).
2 Le et al. Safety Evaluation of Corner Clearance at Signalized Intersections. FHWA-HRT-17-084, (2018).
3 Harwood et al. Prediction of the Expected Safety Performance of Rural Two-Lane Highways. FHWA-RD-99-207, (2000).
4 Elvik, R. and Vaa, T., Handbook of Road Safety Measures. Oxford, United Kingdom, Elsevier, (2004).

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Reduced Left-Turn Conflict Intersections

Reduced left-turn conflict intersections are geometric designs that alter how left-turn movements occur. These intersections simplify decision-making for drivers and minimize the potential for higher severity crash types, such as head-on and angle. Two highly effective designs that rely on U-turns to complete certain left-turn movements are known as the Restricted Crossing U-turn (RCUT) and the Median U-turn (MUT).

Safety Benefits:

RCUT

Two-Way Stop-Controlled to RCUT:

54%
reduction in fatal and injury crashes.[2]

Signalized Intersection to Signalized RCUT:

22%
reduction in fatal and injury crashes.[3]

Unsignalized Intersection to Unsignalized RCUT:

63%
reduction in fatal and injury crashes. [4]

MUT

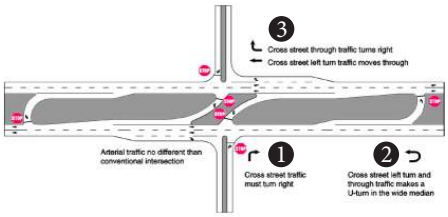
30%
reduction in intersection-related injury crash rate.[5]

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/intersection/rltci/index.cfm.

FHWA-SA-21-030

Restricted Crossing U-turn

The RCUT intersection, also known as a J-Turn, Superstreet, or Reduced Conflict Intersection, modifies the direct left-turn and through movements from cross-street approaches. Minor road traffic makes a right turn followed by a U-turn at a designated location—either signalized or unsignalized—to continue in the desired direction. The RCUT is suitable for and adaptable to a wide variety of circumstances, ranging from isolated rural, high-speed locations to urban and suburban high-volume, multimodal corridors. It is a competitive and less costly alternative to constructing an interchange. RCUTs work well when consistently used along a corridor, but also can be used effectively at individual intersections. Studies have shown that installing an RCUT can result in a 30-percent increase in throughput and a 40-percent reduction in network intersection travel time.[1]

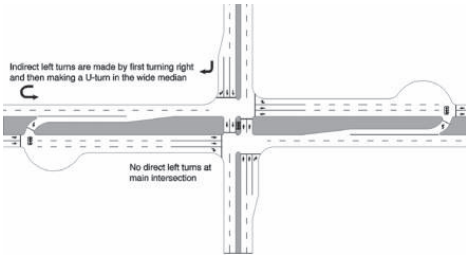


Example of a unsignalized RCUT intersection.
Source: FHWA

Median U-turn

The MUT intersection modifies direct left turns from the major approaches. Vehicles proceed through the main intersection, make a U-turn a short distance downstream, followed by a right turn at the main intersection. The U-turns can also be used for modifying the cross-street left turns, similar to the RCUT.

The MUT is an excellent choice for intersections with heavy through traffic and moderate left-turn volumes. Studies have shown a 20- to 50-percent improvement in intersection throughput for various lane configurations as a result of implementing the MUT design. When implemented at multiple intersections along a corridor, the efficient two-phase signal operation of the MUT can reduce delay, improve travel times, and create more crossing opportunities for pedestrians and bicyclists.



Example of a MUT intersection.
Source: FHWA

Michigan Left

30 - 60% reduction in total, 60 - 90% reduction in rear-end and head-on left-turn, and 60% reduction in angle crashes

1 Hugher and Jagannathan. Restricted Crossing U-Turn Intersection. FHWA-HRT-09-059, (2009).
2 Edara et al. Evaluation of J-turn Intersection Design Performance in Missouri. MoDOT, (2013).
3 Hummer and Rao. Safety Evaluation of a Signalized Restricted Crossing U-Turn. FHWA-HRT-17-082, (2017).
4 Hummer et al. Superstreet Benefits and Capacities. FHWA/NC/2009-06, NC State University, (2010).
5 Synthesis of the Median U-Turn Treatment, Safety, and Operational Benefits, FHWA-HRT-07-033, (2007).

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Safety Benefits:

36-50%
reduction in red light running.[2]

8-14%
reduction in total crashes.[2]

12%
reduction in injury crashes.[2]

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/intersection/signal/fhwasa13027.pdf.

FHWA-SA-21-043

Yellow Change Intervals

At a signalized intersection, the yellow change interval is the length of time that the yellow signal indication is displayed following a green signal indication. The yellow signal confirms to motorists that the green has ended and that a red will soon follow.

Since red-light running is a leading cause of severe crashes at signalized intersections, it is imperative that the yellow change interval be appropriately timed. Too brief an interval may result in drivers being unable to stop safely and cause unintentional red-light running. Too long of an interval may result in drivers treating the yellow as an extension of the green phase and invite intentional red-light running. Factors such as the speed of approaching and turning vehicles, driver perception-reaction time, vehicle deceleration, and intersection geometry should all be considered in the timing calculation.

Transportation agencies can improve signalized intersection safety and reduce red-light running by reviewing and updating their traffic signal timing policies and procedures concerning the yellow change interval. Agencies should institute regular evaluation and adjustment protocols for existing traffic signal timing. Refer to the *Manual on Uniform Traffic Control Devices* for basic requirements and further recommendations about yellow change interval timing. As part of strategic signal system modernization and updates, incorporating automated traffic signal performance measures (ATSPMs) is a proven approach to improve on traditional retiming processes. ATSPMs provide continuous performance monitoring capability and the ability to modify timing based on actual performance, without requiring expensive modeling or data collection.[1]

Appropriately timed yellow change intervals can reduce red-light running and improve overall intersection safety. Source: FHWA

1 Federal Highway Administration. "Automated Traffic Signal Performance," (2020).
2 NCHRP Report 731: Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections, (2011).

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Crosswalk Visibility Enhancements

Poor lighting conditions, obstructions such as parked cars, and horizontal or vertical roadway curvature can reduce visibility at crosswalks, contributing to safety issues. For multilane roadway crossings where vehicle volumes are in excess of 10,000 Average Annual Daily Traffic (AADT), a marked crosswalk alone is typically not sufficient. Under such conditions, more substantial crossing improvements could prevent an increase in pedestrian crash potential.

Three main crosswalk visibility enhancements help make crosswalks and the pedestrians, bicyclists, wheelchair and other mobility device users, and transit users using them more visible to drivers. These include high-visibility crosswalks, lighting, and signing and pavement markings. These enhancements can also assist users in deciding where to cross. Agencies can implement these features as standalone or combination enhancements to indicate the preferred location for users to cross.

Safety Benefits:

High-visibility crosswalks can reduce pedestrian injury crashes up to:
40%[1]

Intersection lighting can reduce pedestrian crashes up to:
42%[2]

Advance yield or stop markings and signs can reduce pedestrian crashes up to:
25%[3]

High-visibility crosswalks

High-visibility crosswalks use patterns (i.e., bar pairs, continental, ladder) that are visible to both the driver and pedestrian from farther away compared to traditional transverse line crosswalks. They should be considered at all midblock pedestrian crossings and uncontrolled intersections. Agencies should use materials such as inlay or thermoplastic tape, instead of paint or brick, for highly reflective crosswalk markings.

Improved Lighting

The goal of crosswalk lighting should be to illuminate with positive contrast to make it easier for a driver to visually identify the pedestrian. This involves carefully placing the luminaires in forward locations to avoid a silhouette effect of the pedestrian.

Enhanced Signing and Pavement Markings

On multilane roadways, agencies can use "YIELD Here to Pedestrians" or "STOP Here for Pedestrians" signs 20 to 50 feet in advance of a marked crosswalk to indicate where a driver should stop or yield to pedestrians, depending on State law. To supplement the signing, agencies can also install a STOP or YIELD bar (commonly referred to as "shark's teeth") pavement markings.

In-street signing, such as "STOP Here for Pedestrians" or "YIELD Here to Pedestrians" may be appropriate on roads with two- or three-lane roads where speed limits are 30 miles per hour or less.

Source: FHWA

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/ped_bike/step/docs/techSheet_VizEnhancemt2018.pdf.

FHWA-SA-21-049

1 Chen, L., C. Chen, and R. Ewing. The Relative Effectiveness of Pedestrian Safety Countermeasures at Urban Intersections - Lessons from a New York City Experience. (2012).
2 Elvik, R. and Vaa, T. Handbook of Road Safety Measures. Oxford, United Kingdom, Elsevier, (2004).
3 Zeeger et al. Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments, FHWA, (2017).

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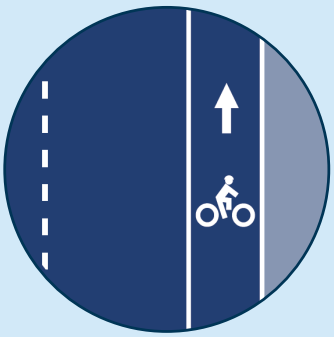

Safety Benefits:

Bicycle Lane Additions can reduce crashes up to:

57%
for total crashes on urban 4-lane undivided collectors and local roads.[6]

30%
for total crashes on urban 2-lane undivided collectors and local roads.[6]

Separated bicycle lane in Washington, DC. Source: Alex Baca, Washington Area Bicyclist Association

Separated bicycle lanes may provide further safety benefits. FHWA is anticipating completion of research in Fall 2022.

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf.

FHWA-SA-21-051

Bicycle Lanes

Most fatal and serious injury bicyclist crashes occur at non-intersection locations. Nearly one-third of these crashes involve overtaking motorists[1]; the speed and size differential between vehicles and bicycles can lead to severe injury. To make bicycling safer and more comfortable for most types of bicyclists, State and local agencies should consider installing bicycle lanes. These dedicated facilities for the use of bicyclists along the roadway can take several forms. Providing bicycle facilities can mitigate or prevent interactions, conflicts, and crashes between bicyclists and motor vehicles, and create a network of safer roadways for bicycling. Bicycle Lanes align with the Safe System Approach principle of recognizing human vulnerability—where separating users in space can enhance safety for all road users.

Applications

FHWA's *Bikeway Selection Guide* and *Incorporating On-Road Bicycle Networks into Resurfacing Projects* assist agencies in determining which facilities provide the most benefit in various contexts. Bicycle lanes can be included on new roadways or created on existing roads by reallocating space in the right-of-way.

In addition to the paint stripe used for a typical bicycle lane, a lateral offset with painted buffer can help to further separate bicyclists from vehicle traffic. State and local agencies may also consider physical separation of the bicycle lane from motorized traffic lanes through the use of vertical elements like posts, curbs, or vegetation.[2] Based on international experience and implementation in the United States, there is potential for further safety benefits associated with separated bicycle lanes. FHWA is conducting research on separated bicycle lanes, which includes the development of crash modification factors, to be completed in 2022 to address significant interest on this topic.

Considerations

- City and State policies may require minimum bicycle lane widths, although these can differ by agency and functional classification of the road.
- Bicycle lane design should vary according to roadway characteristics (e.g., motor vehicle volumes and speed) in order to maximize the facility's suitability for riders of all ages and abilities and should consider the travel needs of low-income populations likely to use bicycles. The *Bikeway Selection Guide* is a useful resource.
- While some in the public may oppose travel lane narrowing if they believe it will slow traffic or increase congestion, studies have found that roadways did not experience an increase in injuries or congestion when travel lane widths were decreased to add a bicycle lane.[3]
- Studies and experience in US cities show that bicycle lanes increase ridership and may help jurisdictions better manage roadway capacity without increased risk.
- In rural areas, rumble strips can negatively impact bicyclists' ability to ride if not properly installed. Agencies should consider the dimensions, placement, and offset of rumble strips when adding a bicycle lane.[4]
- Strategies, practices, and processes can be used by agencies to enhance their ability to address equity in bicycle planning and design.[5]

1 Thomas et al. Bicyclist Crash Types on National, State, and Local Levels: A New Look. Transportation Research Record 673(6), 664-676, (2019).
2 Separated Bike Lane Planning and Design Guide. FHWA-HEP-15-025, (2015).
3 Park and Abdel-Aty. "Evaluation of safety effectiveness of multiple cross sectional features on urban arterials". Accident Analysis and Prevention, Vol. 92, pp. 245-255, (2016).
4 FHWA Tech Advisory Shoulder and Edge Line Rumble Strips, (2011).
5 Sandt et al. Pursuing Equity in Pedestrian and Bicycle Planning. FHWA, (2016).
6 Avelar et al. Development of Crash Modification Factors for Bicycle Lane Additions While Reducing Lane and Shoulder Widths. FHWA, (2021).

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Rectangular Rapid Flashing Beacons (RRFB)

A marked crosswalk or pedestrian warning sign can improve safety for pedestrians crossing the road, but at times may not be sufficient for drivers to visibly locate crossing locations and yield to pedestrians. To enhance pedestrian conspicuity and increase driver awareness at uncontrolled, marked crosswalks, transportation agencies can install a pedestrian actuated Rectangular Rapid Flashing Beacon (RRFB) to accompany a pedestrian warning sign. RRFBs consist of two, rectangular- shaped yellow indications, each with a light-emitting diode (LED)-array-based light source.[1] RRFBs flash with an alternating high frequency when activated to enhance conspicuity of pedestrians at the crossing to drivers.

For more information on using RRFBs, see the Interim Approval in the *Manual on Uniform Traffic Control Devices (MUTCD)*.[1]

Safety Benefits:

RRFBs can reduce crashes up to:

47%

for pedestrian crashes.[4]

RRFBs can increase motorist yielding rates up to:

98%

(varies by speed limit, number of lanes, crossing distance, and time of day).[3]

RRFBs used at a trail crossing.
Source: LJB

Applications

The RRFB is applicable to many types of pedestrian crossings but is particularly effective at multilane crossings with speed limits less than 40 miles per hour.[2] Research suggests RRFBs can result in motorist yielding rates as high at 98 percent at marked crosswalks, but varies depending on the location, posted speed limit, pedestrian crossing distance, one- versus two-way road, and the number of travel lanes.[3] RRFBs can also accompany school or trail crossing warning signs.

RRFBs are placed on both sides of a crosswalk below the pedestrian crossing sign and above the diagonal downward arrow plaque pointing at the crossing.[1] The flashing pattern can be activated with pushbuttons or passive (e.g., video or infrared) pedestrian detection, and should be unlit when not activated.

Considerations

Agencies should:[2]

- Install RRFBs in the median rather than the far-side of the roadway if there is a pedestrian refuge or other type of median.
- Use solar-power panels to eliminate the need for a power source.
- Reserve the use of RRFBs for locations with significant pedestrian safety issues, as over-use of RRFB treatments may diminish their effectiveness.

Agencies shall not:[2]

- Use RRFBs without the presence of a pedestrian, school or trail crossing warning sign.
- Use RRFBs for crosswalks across approaches controlled by YIELD signs, STOP signs, traffic control signals, or pedestrian hybrid beacons, except for the approach or egress from a roundabout.

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/ped_bike/step/docs/techSheet_RRFB_2018.pdf.

FHWA-SA-21-053

1 *MUTCD* Interim Approval 21 - RRFBs at Crosswalks.
2 "Rectangular Rapid Flash Beacon" in PEDSAFE: Pedestrian Safety Guide and Countermeasure Selection System. FHWA, (2013).
3 Fitzpatrick et al. "Will You Stop for Me? Roadway Design and Traffic Control Device Influences on Drivers Yielding to Pedestrians in a Crosswalk with a Rectangular Rapid-Flashing Beacon." Report No. TTI-CTS-0010. Texas A&M Transportation Institute, (2016).
4 NCHRP Research Report 841 Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments, (2017).

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Safety Benefits:

13%
reduction in pedestrian-vehicle crashes at intersections.[1]

Leading Pedestrian Interval

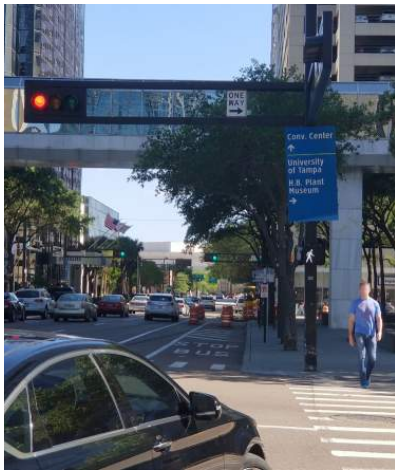
A leading pedestrian interval (LPI) gives pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before vehicles are given a green indication. Pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn right or left.

LPIs provide the following benefits:

- Increased visibility of crossing pedestrians.
- Reduced conflicts between pedestrians and vehicles.
- Increased likelihood of motorists yielding to pedestrians.
- Enhanced safety for pedestrians who may be slower to start into the intersection.

FHWA's Handbook for *Designing Roadways for the Aging Population* recommends the use of the LPI at intersections with high turning vehicle volumes. Transportation agencies should refer to the *Manual on Uniform Traffic Control Devices* for guidance on LPI timing and ensure that pedestrian signals are accessible for all users. Costs for implementing LPIs are very low when only signal timing alteration is required.

An LPI allows a pedestrian to establish a presence in the crosswalk before vehicles are given a green indication. Source: FHWA



LPIs reduce potential conflicts between pedestrians and turning vehicles. Source: FHWA

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/ped_bike/step/resources/docs/fhwasa19040.pdf.

FHWA-SA-21-032

1 Goughnour, E., D. Carter, C. Lyon, B. Persaud, B. Lan, P. Chun, I. Hamilton, and K. Signor. "Safety Evaluation of Protected Left-Turn Phasing and Leading Pedestrian Intervals on Pedestrian Safety." Report No. FHWA-HRT-18-044. Federal Highway Administration. (October 2018)

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Medians and Pedestrian Refuge Islands in Urban and Suburban Areas

A **median** is the area between opposing lanes of traffic, excluding turn lanes. Medians in urban and suburban areas can be defined by pavement markings, raised medians, or islands to separate motorized and non-motorized road users.

A **pedestrian refuge island** (or crossing area) is a median with a refuge area that is intended to help protect pedestrians who are crossing a road.

Safety Benefits:

Median with Marked Crosswalk

46%

reduction in pedestrian crashes.[2]

Pedestrian Refuge Island

56%

reduction in pedestrian crashes.[2]

Pedestrian crashes account for approximately 17 percent of all traffic fatalities annually, and 74 percent of these occur at non-intersection locations.[1] For pedestrians to safely cross a roadway, they must estimate vehicle speeds, determine acceptable gaps in traffic based on their walking speed, and predict vehicle paths. Installing a median or pedestrian refuge island can help improve safety by allowing pedestrians to cross one direction of traffic at a time.

Transportation agencies should consider medians or pedestrian refuge islands in curbed sections of urban and suburban multilane roadways, particularly in areas with a significant mix of pedestrian and vehicle traffic, traffic volumes over 9,000 vehicles per day, and travel speeds 35 mph or greater. Medians/refuge islands should be at least 4-ft wide, but preferably 8 ft for pedestrian comfort. Some example locations that may benefit from medians or pedestrian refuge islands include:

- Mid-block crossings.
- Approaches to multilane intersections.
- Areas near transit stops or other pedestrian-focused sites.

Example of a road with a median and pedestrian refuge islands. Source: City of Charlotte, NC

Median and pedestrian refuge island near a roundabout. Source: www.pedbikeimages.org / Dan Burden

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/ped_bike/step/docs/techSheet_PedRefugeIsland2018.pdf.

FHWA-SA-21-044

1 National Center for Statistics and Analysis. (2020, March). Pedestrians: 2018 data (Traffic Safety Facts. Report No. DOT HS 812 850). National Highway Traffic Safety Administration
2 Desktop Reference for Crash Reduction Factors, FHWA-SA-08-011, September 2008, Table 11.

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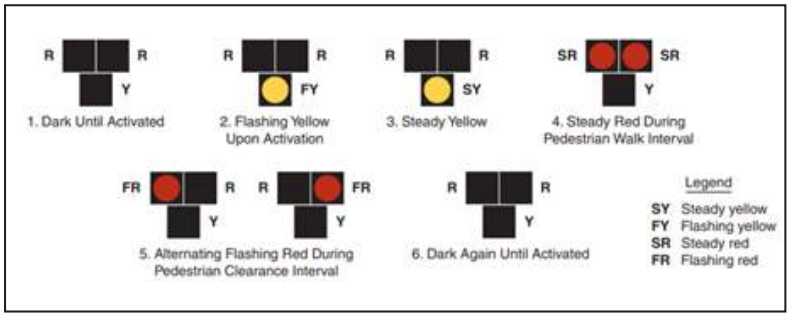
Pedestrian Hybrid Beacons

The pedestrian hybrid beacon (PHB) is a traffic control device designed to help pedestrians safely cross higher-speed roadways at midblock crossings and uncontrolled intersections. The beacon head consists of two red lenses above a single yellow lens. The lenses remain "dark" until a pedestrian desiring to cross the street pushes the call button to activate the beacon, which then initiates a yellow to red lighting sequence consisting of flashing and steady lights that directs motorists to slow and come to a stop, and provides the right-of-way to the pedestrian to safely cross the roadway before going dark again.



Sequence for a PHB. Source: MUTCD 2009 Edition, p. 511, FHWA

Nearly 74 percent of pedestrian fatalities occur at non-intersection locations, and vehicle speeds are often a major contributing factor.[1] As a safety strategy to address this pedestrian crash risk, the PHB is an intermediate option between a flashing beacon and a full pedestrian signal because it assigns right of way and provides positive stop control. It also allows motorists to proceed once the pedestrian has cleared their side of the travel lane(s), reducing vehicle delay.

Transportation agencies should refer to the *Manual on Uniform Traffic Control Devices* (MUTCD) for information on the application of PHBs.

In general, PHBs are used where it is difficult for pedestrians to cross a roadway, such as when gaps in traffic are not sufficient or speed limits exceed 35 miles per hour. They are very effective at locations where three or more lanes will be crossed or traffic volumes are above 9,000 annual average daily traffic. Installation of a PHB must also include a marked crosswalk and pedestrian countdown signal. If PHBs are not already familiar to a community, agencies should conduct appropriate education and outreach as part of implementation.

Safety Benefits:

55%
reduction in pedestrian crashes.[2]

29%
reduction in total crashes.[3]

15%
reduction in fatal and serious injury crashes.[3]

Example of PHBs mounted on a mast arm. Source: FHWA

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/ped_bike/step/resources/docs/fhwasa18064.pdf.

FHWA-SA-21-045

1 National Center for Statistics and Analysis. (2020, March). Pedestrians: 2018 data (Traffic Safety Facts. Report No. DOT HS 812 850). National Highway Traffic Safety Administration
2 Zegeer et al. NCHRP Report 841: Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. TRB, (2017).
3 Fitzpatrick, K. and Park, E.S. Safety Effectiveness of the HAWK Pedestrian Crossing Treatment, FHWA-HRT-10-042, (2010).

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Safety Benefits:

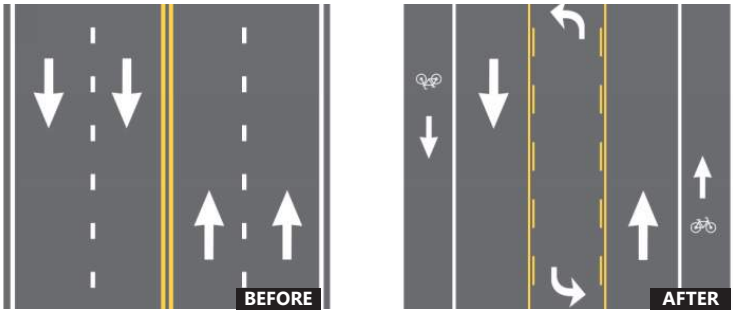
4-Lane to 3-Lane Road Diet Conversions

40%

reduction in total crashes.[MDOT]

Road Diets (Roadway Reconfiguration)

A Road Diet, or roadway reconfiguration, can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life. A Road Diet typically involves converting an existing four-lane undivided roadway to a three-lane roadway consisting of two through lanes and a center two-way left-turn lane (TWLTL).



Before and after example of a Road Diet. Source: FHWA

Benefits of Road Diet installations may include:

- Reduction of rear-end and left-turn crashes due to the dedicated left-turn lane.
- Reduced right-angle crashes as side street motorists cross three versus four travel lanes.
- Fewer lanes for pedestrians to cross.
- Opportunity to install pedestrian refuge islands, bicycle lanes, on-street parking, or transit stops.
- Traffic calming and more consistent speeds.
- A more community-focused, Complete Streets environment that better accommodates the needs of all road users.

A Road Diet can be a low-cost safety solution when planned in conjunction with a simple pavement overlay, and the reconfiguration can be accomplished at no additional cost. Typically, a Road Diet is implemented on a roadway with a current and future average daily traffic of 25,000 or less.

Road Diet project in Honolulu, Hawaii. Source: Leidos

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/road_diets/.

FHWA-SA-21-046

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Walkways

A walkway is any type of defined space or pathway for use by a person traveling by foot or using a wheelchair. These may be pedestrian walkways, shared use paths, sidewalks, or roadway shoulders.

With more than 6,200 pedestrian fatalities and 75,000 pedestrian injuries occurring in roadway crashes annually,[1] it is important for transportation agencies to improve conditions and safety for pedestrians and to integrate walkways more fully into the transportation system. Research shows people living in low-income communities are less likely to encounter walkways and other pedestrian-friendly features.[2]

Well-designed pedestrian walkways, shared use paths, and sidewalks improve the safety and mobility of pedestrians. Pedestrians should have direct and connected network of walking routes to desired destinations without gaps or abrupt changes. In some rural or suburban areas, where these types of walkways are not feasible, roadway shoulders provide an area for pedestrians to walk next to the roadway, although these are not preferable.

Transportation agencies should work towards incorporating pedestrian facilities into all roadway projects unless exceptional circumstances exist. It is important to provide and maintain accessible walkways along both sides of the road in urban areas, particularly near school zones and transit locations, and where there is a large amount of pedestrian activity. Walkable shoulders should also be considered along both sides of rural highways when routinely used by pedestrians.

Example of a sidewalk in a residential area. Source: pedbikeimages.org / Burden

Paved shoulder used as a walkway. Source: pedbikeimages.org / Burden

Safety Benefits:

Sidewalks

65-89%

reduction in crashes involving pedestrians walking along roadways.[3]

Paved Shoulders

71%

reduction in crashes involving pedestrians walking along roadways.[3]

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and http://www.pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=1.

FHWA-SA-21-047

1 National Center for Statistics and Analysis. (2020, March). Pedestrians: 2018 data (Traffic Safety Facts. Report No. DOT HS 812 850). National Highway Traffic Safety Administration.
2 Gibbs, et all. Income Disparities in Street Features that Encourage Walking. Bridging the Gap, (2012, March).
3 Gan et al. Update of Florida Crash Reduction Factors and Countermeasures to Improve the Development of District Safety Improvement Projects. Florida DOT, (2005).

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Lighting

The number of fatal crashes occurring in daylight is about the same as those that occur in darkness. However, the nighttime fatality rate is three times the daytime rate because only 25 percent of vehicle miles traveled (VMT) occur at night. At nighttime, vehicles traveling at higher speeds may not have the ability to stop once a hazard or change in the road ahead becomes visible by the headlights. Therefore, lighting can be applied continuously along segments and at spot locations such as intersections and pedestrian crossings in order to reduce the chances of a crash.

Adequate lighting (i.e., at or above minimum acceptable standards) is based on research recommending horizontal and vertical illuminance levels to provide safety benefits to all users of the roadway environment. Adequate lighting can also provide benefits in terms of personal security for pedestrians, wheelchair and other mobility device users, bicyclists, and transit users as they travel along and across roadways.

Safety Benefits:

Lighting can reduce crashes up to:

42%
for nighttime injury pedestrian crashes at intersections.[1]

33-38%
for nighttime crashes at rural and urban intersections.[1]

28%
for nighttime injury crashes on rural and urban highways.[1]

Source: WSDOT

For more information on this and other FHWA Proven Safety Countermeasures, please visit https://safety.fhwa.dot.gov/provencountermeasures/ and https://safety.fhwa.dot.gov/roadway_dept/night_visib/roadwayresources.cfm.

FHWA-SA-21-050

Applications

Roadway Segments

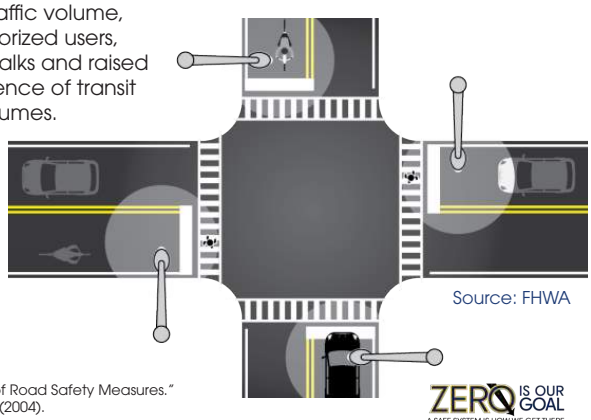
Research indicates that continuous lighting on both rural and urban highways (including freeways) has an established safety benefit for motorized vehicles.[1] Agencies can provide adequate visibility of the roadway and its users through the uniform application of lighting that provides full coverage along the roadway and the strategic placement of lighting where it is needed the most.

Intersections and Pedestrian Crossings

Increased visibility at intersections at nighttime is important since various modes of travel cross paths at these locations. Agencies should consider providing lighting to intersections based on factors such as a history of crashes at nighttime, traffic volume, the volume of non-motorized users, the presence of crosswalks and raised medians, and the presence of transit stops and boarding volumes.

Considerations

Most new lighting installations are made with breakaway features, shielded, or placed far enough from the roadway to reduce the probability and/or severity of fixed-object crashes. Modern lighting technology gives precise control with minimal excessive light affecting the nighttime sky or spilling over to adjacent properties. Agencies can equitably engage with underserved communities to determine where and how new and improved lighting can most benefit the community by considering their priorities, including eliminating crash disparities, connecting to essential neighborhood services, improving active transportation routes, and promoting personal safety.



Source: FHWA

1 Elvik, R. and Vaa, T., "Handbook of Road Safety Measures." Oxford, United Kingdom, Elsevier, (2004).

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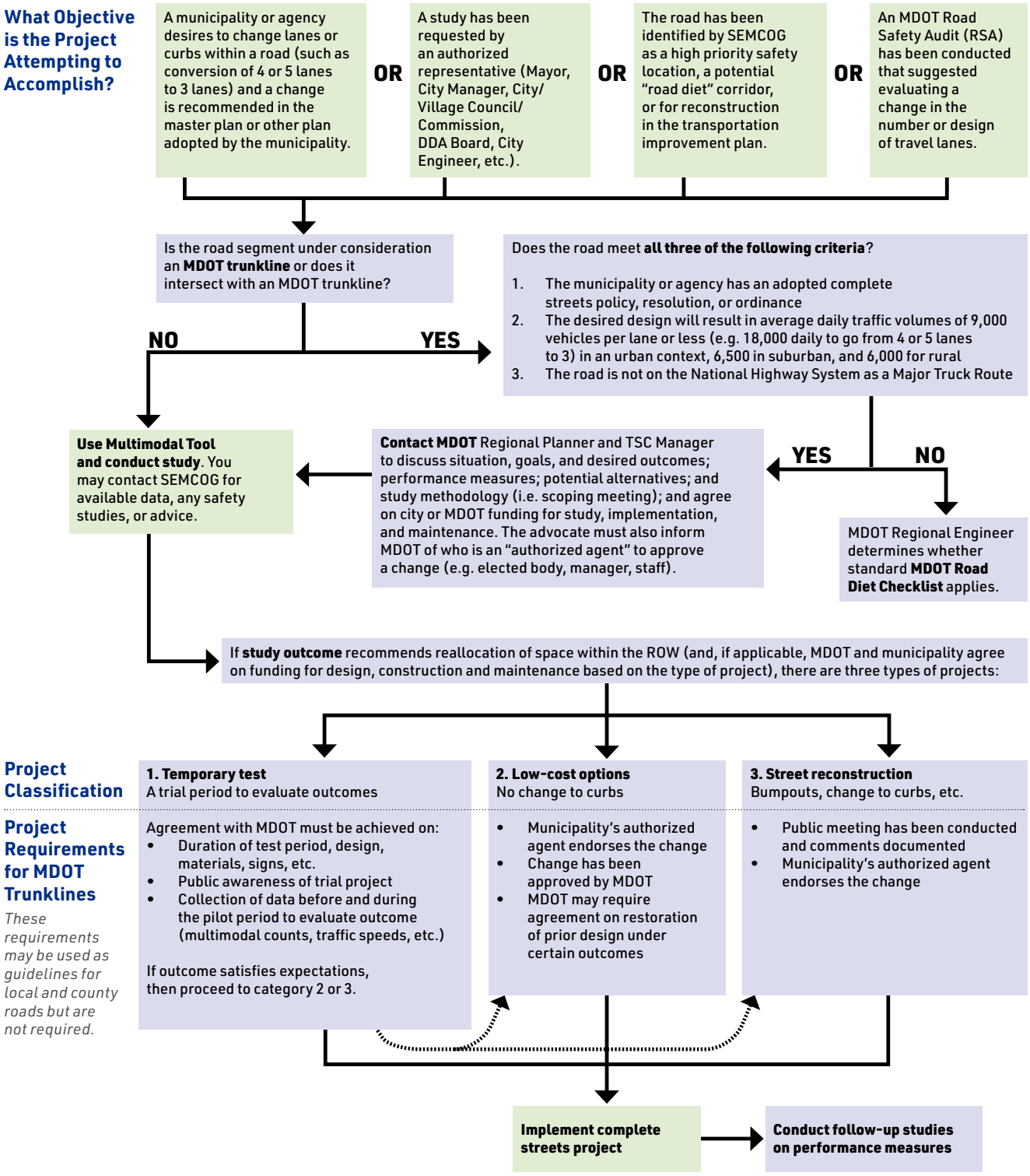
SEMCOG | MDOT

MDOT Complete Streets Process Guide for Southeast Michigan



Appendix E Traffic & Crash Analyses Resources

Bicycle and Pedestrian Mobility Plan for Southeast Michigan; SEMCOG; March 2020

Making Our Roads Safer | One Countermeasure at a Time; FHWA; 2021 Edition

MDOT Complete Streets Process Guide for Southeast Michigan; SEMCOG & MDOT

Guidance for Installation of Pedestrian Crosswalks on Michigan State Trunkline Highways; MDOT; March 2020

Guidance for Trunkline Main Streets; MDOT; Unknown Date

Geometric Design Guide for Crossovers GEO-670e; MDOT; June 2014

Multimodal Tool; SEMCOG

The Detroit River International Crossing Study - Level Three Traffic Analysis Technical Report (TAR) 2040 Update; MDOT & WSP

Ecorse Creek Committee Vision Plan; City of Ecorse & SmithGroup July 2020

West Jefferson Corridor Plan; Cities of Ecorse & River Rouge; McKenna; November 2019

MDOT Design Manuals

www.semcog.org – Various Data and Map Sources

City of Lincoln Park
Michigan

March 14, 2022

RECAST SPARK- Lincoln Park, MI

Current Situation & Urgency

Lincoln Park, Michigan is a small city in the Detroit that struggles to attract people and active businesses to the Southfield corridor to create a downtown, a community destination, and more economic opportunity for local residents. Currently, some segments of the corridor are filled with auto service businesses and the area designated for the future downtown has some suburban retail, but the area is also filled with significant vacancies and deteriorating buildings creating less and less opportunity for a vibrant destination in this part of the city and discouraging investment in the area.

But Lincoln Park's leaders see the chance to create a stronger place that brings a diversity of business types and owners to the Southfield corridor and recognizes that small-scale manufacturing businesses from the community can help achieve this outcome while creating new generational wealth building opportunities.

The current model of the Southfield corridor is likely to continue to deteriorate over time if nothing happens. If the old commercial corridor cannot help to attract families to buy homes and open businesses in the area, then housing in the surrounding neighborhood will to deteriorate, the downward spiral from the 1950's will continue, vacancies will grow, the city will lose more tax dollars, and the historic neglect of this area will be perpetuated.

The city is likely to lose people who love Lincoln Park, lose business owners who believe in this community, lose the chance to create more opportunity for more people, and lose hope.

Lincoln Park needs help 1) identifying its competitive edge with small-scale manufacturing, 2) bringing this new business type into storefronts and connecting them to property owners, 3) creating business development programming to support these small businesses and others like them, and 4) establishing Lincoln Park, and specifically segments of the Southfield corridor, as a destination for small-scale manufacturing businesses and new opportunities for both long-term and new residents of the city.

Recast Spark Summary

Lincoln Park leaders see the potential in the area and have a vision of what to create: a vibrant destination filled with people walking through the neighborhood, stopping in at the grocery store or people stopping in shops, lingering, and spending money in other stores after they visit a restaurant. People come to downtown for memorable events, the farmer's market, and to run into friends. Shops and activities build on the community and its growing and heritage – they help the Southfield corridor stand out in the region as a destination for locals to spend an evening or an afternoon and the local businesses help the neighborhood rebuild its wealth and community pride and showcase the growing diversity of the community.

The storefronts will include business owners from a diversity of race, ethnicities, and languages who are ready to make their business dreams become part of the community, buy a home there or deepen their local roots, and become a believer in the community.

This vision is outside the grasp of Lincoln Park as it stands right now with significant vacancies on sections of the Southfield corridor, an area designated for downtown that is still designed for suburban cars not people, with a growing number of deteriorating buildings, and no foot traffic.

But it is absolutely achievable with the right steps.

Southfield corridor, as it stands today, will continue to lose its competition with neighboring communities. With little to do along the corridor, people have no reason to spend time there

and likely have a negative perception of the area, or don't even think about it as a place to be. The lack of a downtown grid, no clear identity for the place, or foot traffic along the corridor make standard retail shops a challenge, and in this pandemic time and the unpredictability of in-person shopping, the chance for new traditional retail to succeed is pretty low. Additionally, the historic disinvestment in the area likely makes external investors question the viability of the area to grow.

Lincoln Park leaders see the potential of this area but are not sure of the next steps to redevelop the corridor and support local small business growth to create more economic opportunity for the local population. The community does not have a business development program to support growing small businesses. The current property owners are not particularly engaged, and in some cases may be purposefully neglectful. Some newer property owners are redeveloping smaller properties on their own, but with little to no support to be part of a broader initiative for downtown.

There are three parts to make segments of the Southfield corridor come alive in a new way:

- Identify small-scale manufacturing businesses from the community and region and understand their needs and how they could operate on the corridor.

- Understand property owner and small business development assets and challenges.

- Develop a clear quick hit strategy that builds off of existing investments to support a thriving Southfield corridor that benefits local residents and attracts people from the region.

No one big investment will change the trajectory of Southfield corridor. It will become a thriving place only through a series of targeted, actionable steps to change the real estate market, create spaces and support for local small businesses, and purposefully connect with the struggling community around it. Direct engagement in this area also creates the opportunity to find and bring in a diversity of business owners to help make Southfield corridor an inclusive

and unique place that reflects the valuable heritage of the community and attracts shoppers from throughout the region.

Neighborhood and Economic Development Model Recommendation

We recommend a strategy that focuses on small-scale manufacturing to bring energy to the Southfield corridor.

Small-scale manufacturing businesses, and space for this business type in a neighborhood, are missing tools to create thriving neighborhood centers and downtowns. This type of business produces tangible goods (for example - hot sauce, handbags, or hardware) with one to twenty employees - a size that fits into the fabric of most neighborhoods and storefronts. These businesses provide a number of benefits to a city and the neighborhood:

- Business ownership is open to anyone with an entrepreneurial spirit and the ability to make something - college and advanced degree not required.
- The skill to create comes from every population in the city - allowing us to build an inclusive community of business owners and have more people build wealth for their families.
- Employees at these businesses make, on average, 50-100% more than their service or retail counterparts, allowing more people to move out of poverty and into the middle class.
- The businesses are locally owned, meaning they typically invest their revenue back into the community and hire from within it.
- They are often native to e-commerce which means that they bring revenue into the city from the rest of the country (and possibly internationally) from online sales.
- They help a city or a neighborhood stand out and remain unique even as a place is built up and changes.

This type of business, and their owners, will be a great base to build up the business presence along Southfield corridor, build foot traffic, create new wealth building opportunities for more people, and brand Southfield corridor as the locals' place to be, stroll, and linger with your family.

How to Make this Happen

Now is the time to fill specific segments of Southfield corridor with new and interesting businesses and showcase this area as THE place to be for a small-scale manufacturing business ready to grow.

How we get there:

First, we need to identify small-scale manufacturing and artisan businesses in the neighborhoods and the city and understand their needs to grow locally, their potential for the corridor, and real estate or economic development models to support them.

Second, we need to engage select property owners to understand their challenges, and how locally owned product businesses may become part of their strategy, and how different businesses can help to create a vibrant area.

Then, we need to identify a diverse mix of business types and owners to become part of the new Southfield corridor to represent all populations of the city, with an emphasis on those excluded from storefronts in the past alongside more recent residents, and understand their needs and goals for being on Southfield corridor.

And finally, we need to develop a clear quick-hit strategy that builds off of existing investments to support a thriving place that benefits local residents and creates a future area that attracts new entrepreneurs from the community to bring new energy to the Southfield corridor.

Immediate Next Steps

Now that we see the long-term vision, let's get clear on immediate recommended next steps:

1. Bring small-scale manufacturing businesses into the work (we can help with this)

   Find, engage, and understand small-scale manufacturing businesses in Lincoln Park and bring them into storefronts, business development programming, and branding for the Southfield corridor.

2. Promote Lincoln Park to families and business owners in the region

   Create events to attract families from the city and the surrounding neighborhood to small outdoor events to remind people of the potential of the Southfield corridor during this unpredictable time.

3. Find new allies (we'll help with this too)

   Some policies may need to be changed to best support the Southfield corridor. Now is the time to build new allies to support local businesses and set up for success.

Summary

In sum, if you want to get Lincoln Park's Southfield corridor on track to build a thriving local economy that will support the city and the community for decades to come, we recommend engaging the community in the planning and execution of opening small-scale manufacturing businesses and small business storefronts.

Without these efforts, there are too many chances for Southfield corridor and the surrounding neighborhoods to stall, fail, or continue to go in the wrong direction and set the city up for a slowdown for generations.

By systematically bringing business owners, community members, and other local leaders into the conversation, interpreting the community's input to achieve specific outcomes, and putting them in action, Lincoln Park will be set up for short- and long-term economic success that includes more people.

Moving Forward:

Recast Leaders: $15,000 *

- $995 already paid for Recast Spark
= $14,005 paid in full upfront or $1,800 per month for 10 months

Based on the Spark, we will partner with your team to bring small-scale manufacturing businesses into segments of the Southfield corridor to create a vibrant and thriving place that represents the heritage and potential of your community and brings local residents together to create more economic opportunity. With this foundational set of actions, you will be able to start building the energy along Southfield corridor and create a stronger local economy for the long haul.

Your city will:

- Build a stronger, more resilient, more inclusive, business community.
- Find the right local businesses for Southfield corridor.
- Bring small-scale manufacturing businesses into the limelight to achieve these outcomes.
- Grow buy-in to bring targeted sections of Southfield corridor back to life and increase property values.
- Redevelop properties and adopt key business development models.
- Implement new models within six to twelve months.

Recast Leaders is an exclusive 10-month cohort membership with training and coaching for the city to execute the following:

- Define clear outcomes for the project to understand what it means to succeed in the neighborhood, who needs to benefit from the investment, and how this effort can build on projects completed in the past.

- Create lists of small-scale manufacturing business owners, property owners, civic leaders who can connect us to a diversity of business owners, small business service providers, local elected and other established leaders in economic and real estate development in the community.

- Conduct one-on-one interviews with business owners in the neighborhood and the city, and with Southfield corridor property owners to understand what works about the community and having a business, what are the most important assets and greatest challenges, and how could small-scale manufacturing benefit their work.

- Facilitate small group discussions with service providers, the economic development authority, chamber, and other distinct audiences to get their input about what works and what is challenging to business development and the neighborhood.

- Analyze all the information from the interviews and small group discussions to clearly articulate the major assets and challenges businesses and the neighborhood face and the most important gaps to fill based on the outcomes set out at the start, based on the Recast City Eight Essential Criteria.

- Design and write an action plan for the neighborhood to bring small-scale manufacturing into economic and real estate development projects to create a thriving place that residents (and visitors) are excited to visit, with a focus on actions for the next 3-12 months.

- Execute the top actions from the plan with direct coaching and mentoring, including access to top national experts leading those models and projects.

RECAST LEADERS IS AN INTENSIVE GET-IT-DONE-FOR-YOUR-CITY PROGRAM FOR PLACES COMMITTED TO MAKING THINGS HAPPEN.

** Price is valid until September 2022. After this period, pricing is subject to change.*

Are you ready to put the Southfield corridor on the fast track to economic stability and a thriving local economy?

We are ready to take this on with you.

With Recast Leaders, we take you through this process step by step and ensure that you have the right actions to take on immediately. We make sure you bring your neighborhood back to life ASAP.

<u>Recast Leaders</u>

- **Support your project and team to implement changes fast along every step of the 10 months**
- **Ensure your team is moving forward at lightning speed with bi-weekly trainings, coaching, and mentorship, alongside other cohort communities**
- **Teach your team to conduct user research interviews and meetings with community members to get to the heart of their needs and bring that capacity in-house**
- **Provide you and your team with detailed answers by analyzing all input alongside you every step of the way**
- **Help you develop a complete action plan with clear steps for the next 3-12 months**
- **Coach and advise you through implementation of your top priorities**

RECAST CITY

Recast City is a national consulting firm that works with real estate developers, city, county and other civic leaders, and business owners to integrate manufacturing space for small-scale producers into redevelopment projects. We build the startup community for small manufacturers and makers in the city - across industries of textiles, electronics, wood, metal and other materials.

> *Recast City brings together small-scale manufacturers and community developers to strengthen our neighborhoods, build value in our real estate, and create more job opportunities for residents.*

We help landowners, developers, and city leaders understand this growing business sector and how to incorporate it into real estate products. We help maker industry entrepreneurs and small manufacturing business owners get the support and exposure they need. And we help communities create more good paying jobs for our local residents.

For additional information, contact:

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Recast City LLC

Our understanding of what makes a strong local economy is changing. We know that people and businesses pick a place first. That downtowns matter. And that what makes a place unique is just as important as, well, just about anything else.

The Soul of the Community study by the Knight Foundation made it clear: People are tied to a place because it is inclusive, there are places to gather, and there is some aesthetic beauty of the place – the buildings, the natural environment.

Yet when we work on city redevelopment plans, we forget these key elements. We know that we need to tie economic development and place together. We know that we want people to remember to love where they live.

That's where we come in - Recast City.

We work with local leaders to create great places that build energy, increase the number of good paying jobs, fill storefronts, and make people proud of where they're from. All by bringing small-scale manufacturing businesses to the forefront.

Small-scale manufacturing businesses (any business making a tangible good from handbags, to hot sauce, to hardware) on main street give us that competitive edge. They are modern manufacturing (Good paying jobs, but clean and quiet neighbors). They give us an attraction on main street (Look through that window to see what they're making!). They have diverse revenue models selling in-person and online (They're not dependent on foot traffic). And they remind our neighbors that we have something to be proud of when they see the locally owned businesses thrive.

ILANA PREUSS

Founder & CEO

Ilana Preuss is the Founder of Recast City LLC, a consulting firm that works with real estate developers, city and other civic leaders to integrate space for small-scale producers into redevelopment projects and place-based economic development. She is passionate about making great places and sees that small-scale manufacturers are a missing piece in today's mixed-use development and commercial property repositioning, and an essential strategy to create more economic opportunity for more people.

Her recently published book, Recast Your City: How to Save Your Downtown with Small-Scale Manufacturing, (Island Press 2021) is a how-to book for every local jurisdiction to build a stronger, more inclusive economy and a thriving downtown with this hidden gem of the entrepreneurial world.

With over 20 years of experience in city development, Ms. Preuss works with real estate developers, economic development corporations, and other local leaders to go from idea to plan to action to build great places with vibrant economies. She supports businesses and organizations to develop strategies with measurable and achievable outcomes.

Preuss' passion for great places grew out of her experience working with big and small cities all over the country when she led the technical assistance program at the U.S. EPA Smart Growth Program, and as the Vice President & Chief of Staff at Smart Growth America.

Now through her work at Recast City, Ms. Preuss works with business leaders to understand the local small-scale manufacturing sector, discover the potential to enhance real estate

development, and tap state and federal resources for support. She works with real estate developers to integrate small-scale manufacturing businesses into new and rehab products to increase a project's value and draw people to the target neighborhood. She works with economic development authorities to identify key assets in the local community and build goals and tactics to create vibrant and sustainable economic growth.

Ms. Preuss' projects at Recast City span the country – from Washington, D.C. to Honolulu, HI. Through work with real estate developers, foundations, city planning and economic development offices, and with mayors, she develops demand analyses, economic development strategies, and business-retention and planning policies. Her technique of intensive one-on-one engagement with local business owners and other stakeholders provides clients with a deep understanding of local challenges and opportunities for success.

In 2017, Ms. Preuss co-authored, Made in PLACE: Small-scale manufacturing and placemaking, in partnership with Smart Growth America and funded by a grant from the U.S. Economic Development Administration, and she co-authored, Discovering Your City's Maker Economy, a field guide for National League of Cities, in partnership with NLC, Etsy, and the Urban Manufacturing Alliance. She also authored a chapter in Creative Placemaking, a publication by the National Endowment for the Arts.

Ms. Preuss is an experienced speaker, see her presentation "The Coming Revolution: Small-Scale Urban Industrial Development," and her TEDx presentation, "The Economic Power of Great Places." She is a regular press spokesperson featured in the New York Times and USA Today.