



East Jefferson Corridor Enhancement Plan

Strategic Framework
Planning & Development Department
City of Detroit
July 2019



E. Jefferson Ave



ACKNOWLEDGEMENTS

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY | CONTEXT



East Jefferson is one of Detroit's great streets. The six-mile Jefferson Avenue corridor spans from Downtown's Woodward Avenue, through to Alter Road at the eastern edge of the city. It covers over a dozen distinct neighborhoods that 17,000+ households call home.

The avenue moves people, vehicles, buses, bikes, and scooters to and from job and entertainment centers, and provides critical access to the city's growing network of greenways, parks, and riverfront.

However, the six-lane roadway is currently a barrier for pedestrians. Crossing East Jefferson's 100 to 120 foot wide span on foot can be a

formidable challenge, especially for Detroit's most vulnerable pedestrians -- youth, seniors, and individuals with disabilities. The avenue's auto-oriented uses, lack of consistent streetscape features, and wide roadway create a sense of a thru-way rather than a welcoming, front door to its adjacent neighborhoods.

EXECUTIVE SUMMARY | CONTEXT



Detroit's Department of Transportation (DDOT) received a Federal Transit Administration (FTA) grant to study the East Jefferson Avenue corridor from Woodward Avenue to Alter Road. Over a seven-month period, the City of Detroit, in collaboration with community members, crafted a plan to transform East Jefferson into a street that is safe and enjoyable for all -- pedestrians, bicyclists, bus riders, and drivers.

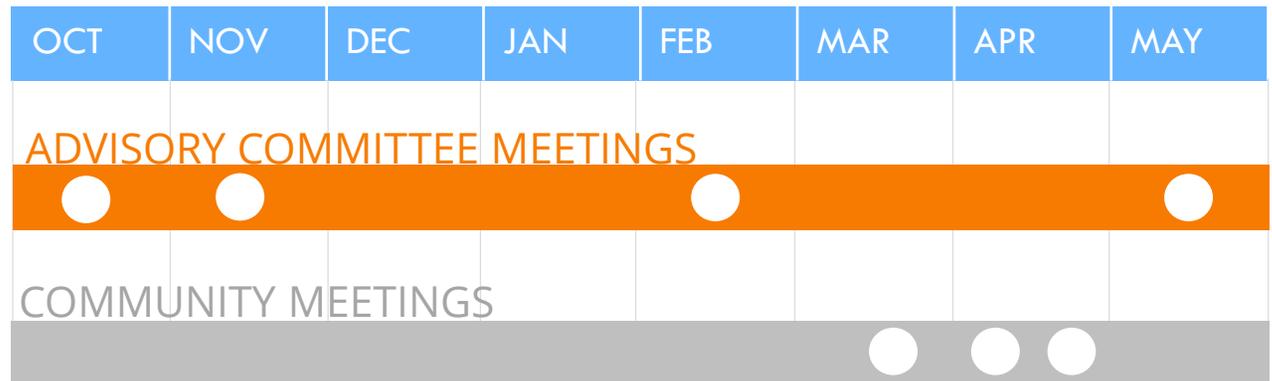
The Strategic Framework identifies public realm and transportation improvements that will improve residents' quality of life by enhancing public transit, supporting economic development, and increasing access to jobs through more frequent and reliable bus service. East Jefferson will be safer for pedestrians, cyclists, and drivers, and the corridor will be able to carry more users without adding vehicle congestion as more people opt to travel by bus, bike, and foot.

EXECUTIVE SUMMARY | ENGAGEMENT

The Plan builds on the strength of recent neighborhood planning efforts within the East Riverfront, the Islandview Greater Villages area, and Jefferson Chalmers and reflects extensive engagement with and feedback from members of these communities.

An Advisory Committee, consisting of residents, business owners, and representatives of community organizations, was formed to provide initial feedback on corridor-wide challenges and opportunities.

Subsequently, community members who attended three neighborhood workshops offered critical input for the Plan's strategies and recommendations.



March 21 Jefferson Chalmers



April 9 East Riverfront



April 25 Islandview Greater Villages

EXECUTIVE SUMMARY | GOALS FOR THE STRATEGIC FRAMEWORK PLAN

The Strategic Framework Plan translates community feedback into four goals to guide the future of the East Jefferson corridor. The Plan's strategies and supporting initiatives to improve safety, enhance transit access, and promote economic development are designed to achieve these goals.



Increase **access** to **jobs**, **neighborhoods** and **public spaces**



Support corridor **businesses** and **retail**

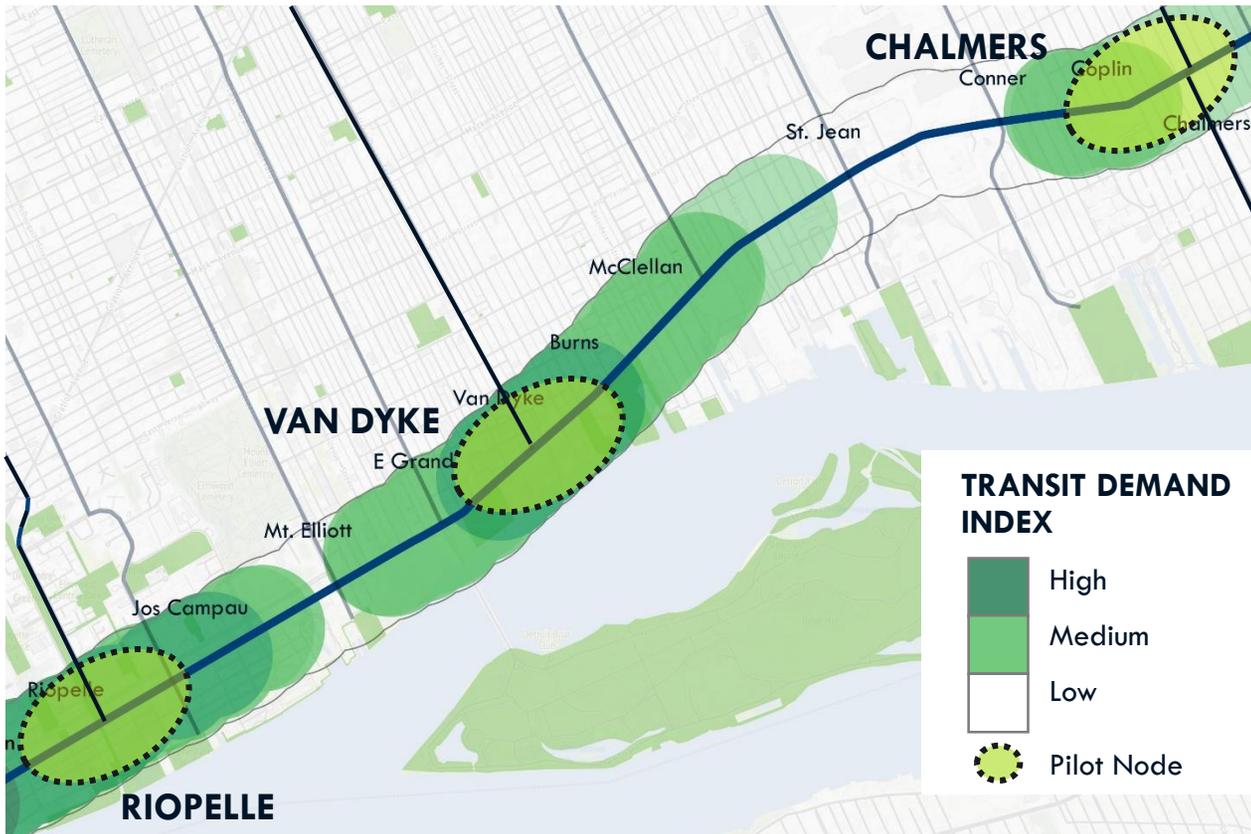


Connect the corridor's **diverse neighborhoods**



Transform the corridor from a **barrier** to a **destination**

EXECUTIVE SUMMARY | PILOT NODES



The Strategic Framework identifies public realm and transportation improvements that:

- **Provide a safe and accessible multi-modal corridor**
- **Strengthen connections**
- **Create a vibrant destination**

The Plan recommends three initial locations -- "Pilot Nodes" -- to implement and test these improvements. The Pilot Nodes build on the current strengths of East Jefferson, and are spaced to maximize current and future transit ridership demand, and equitable access to improvements.

EXECUTIVE SUMMARY | RECOMMENDATIONS



Public realm improvements at the Nodes range from measures to enhance the quality of the roadway and sidewalks (such as repaving and reconstruction) to streetscape improvements, including street trees, benches, and lighting. These improvements should be low-tech, easy to maintain, and durable.

Improvements described at the three Pilot Nodes provide a roadmap for spending the \$17 million in bond financing that the City has secured to advance these projects over the next two years. This “toolkit” of improvements can be expanded across the corridor help to set the stage for enhanced transit and promote economic development.

EXECUTIVE SUMMARY | RECOMMENDATIONS



Short-term measures (1-2 years) at the Pilot Nodes may include pedestrian safety / streetscape improvements, street trees and seating, curb-protected bike lanes, transit shelters, bus boarding islands, and wayfinding signage. Suburban Mobility Regional Transportation (SMART) could utilize DDOT stops to provide express service during peaks.

In the medium-term (10 years), Pilot Nodes could see enhanced treatments such as bus boarding islands with shelters, seating, real-time transit information, longer stretches of pedestrian safety / streetscape improvements, and wayfinding signage. Additional DDOT service that is coordinated with SMART express service could create a consistent and frequent transit trunk line.

Long-term improvements (10+ years) could include Bus Rapid Transit service with dedicated transit-only lanes, multi-modal mobility nodes, raised bike lanes, and landscaped medians. As the corridor grows and develops, levels of population and employment density will better support these phased transit improvements.

EXECUTIVE SUMMARY | RECOMMENDATIONS



Public realm and transportation improvements are important investments that can spur economic vitality along East Jefferson.

A safe and inviting street will help attract more pedestrians to the corridor, adding more foot traffic to support local businesses. Improved transit service will supplement available modes of travel and bring more transit users to East Jefferson's sidewalks and retail offerings.

Providing safe, alternative transportation options for Detroiters will support denser neighborhoods with fewer parking spaces. It will create a more inviting street, activated with shops, restaurants, and businesses, as well as housing for residents of all incomes.

The combined impact of these improvements will help transform Jefferson from a barrier between neighborhoods to a destination.

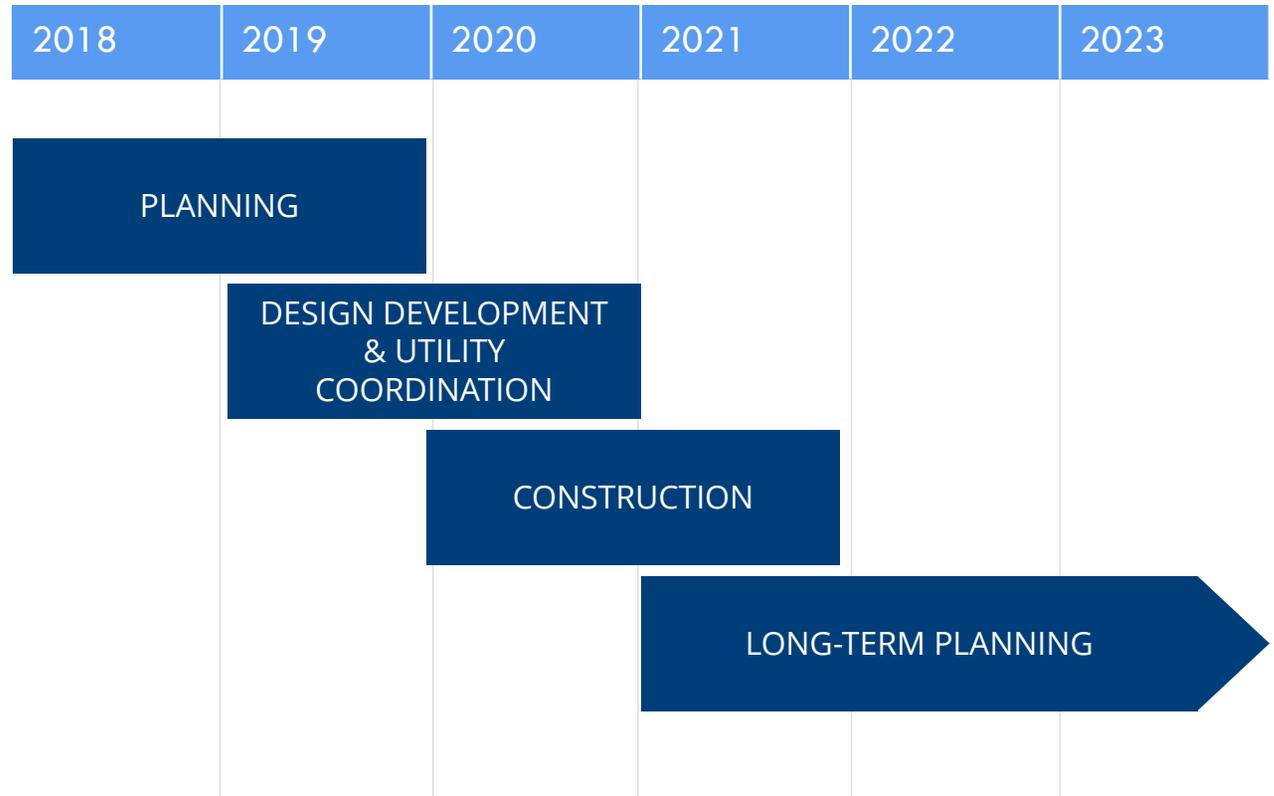
EXECUTIVE SUMMARY | NEXT STEPS

With this initial Plan in place, the City of Detroit can move forward towards implementation of public realm and transportation improvements with the \$17 initial bond funding. Such improvements will improve residents' quality of life and access to jobs across the corridor.

This Plan provides a guide to the transformation of a street that is accessible, safe, and desirable for all modes of travel. This initial planning will lead to the following activities over the next five years:

- **Design development and utility coordination** with an initial focus on the Pilot Nodes and continued engagement with community members.
- **Construction activity** at the Pilot Nodes and ultimately along the entire corridor.
- **Long term planning** to identify further physical improvements, transit strategies, and economic development measures, including possible land use and zoning changes over the next 10+ years.

TIMELINE OF EAST JEFFERSON CORRIDOR IMPROVEMENTS





12345

RR



ENGAGEMENT

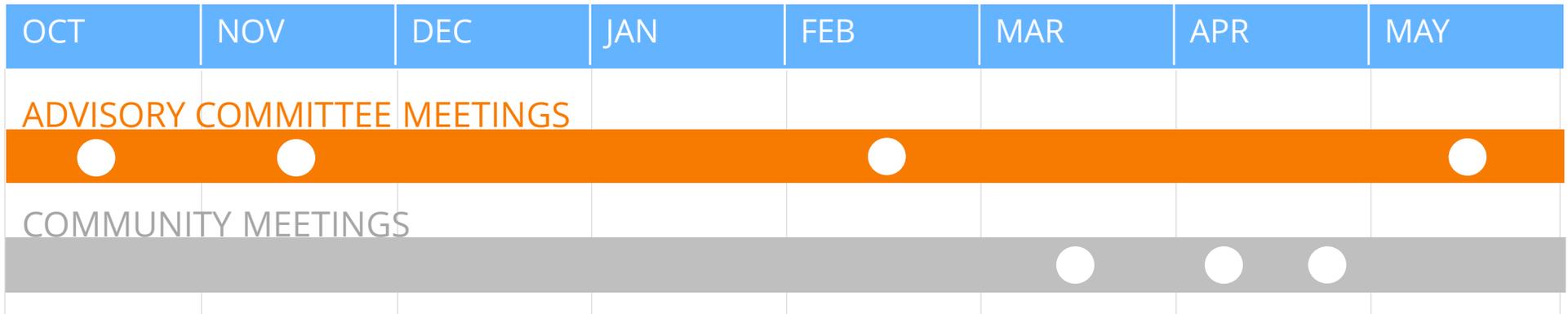
ENGAGEMENT | OVERVIEW

Community feedback and involvement played an important role in shaping the Plan. Residents, business owners, and workers participated in four community workshops held in March and April 2019. In addition, the 21-person Advisory Committee, representing community members along the corridor, met four times during the planning effort to provide ongoing guidance on the strengths, challenges, and opportunities for East Jefferson and feedback on potential strategies for the future.

In addition, the City of Detroit's Planning and Development Department (PDD) convened regular meetings with the Working Group, comprised of representatives from City agencies, departments and local organizations, who provided feedback and direction throughout the development of the Plan. PDD also ensured that the City's utilities, such as the Great Lakes Water Authority, were informed throughout the process.



ENGAGEMENT | PROCESS



Over the course of the seven-month planning process, the City conducted extensive outreach and organized three workshop-style neighborhood meetings. The City hosted the three meetings at well-known community spaces in neighborhoods along the corridor, including Hope Community Church (Jefferson Chalmers), Detroit Academy of Arts and Sciences (East Riverfront), and the Butzel Family Center (Islandview Greater Villages). Approximately 50 to 100 members of the public attended each workshop. Representatives from PDD commenced each meeting with a brief presentation of existing

conditions, sharing neighborhood demographic, transportation, and development statistics. In addition, the City shared recent, local zoning updates at the East Riverfront meeting. PDD, representatives from City departments including DDOT, DPW, and HRD, as well as advisory committee members and consultant team members facilitated discussions at small group tables during the workshop portion of each meeting.

March 21 | Jefferson Chalmers
April 9 | East Riverfront
April 25 | Islandview Greater Villages

ENGAGEMENT | ADVISORY COMMITTEE

In addition to community engagement meetings, at four points throughout the planning process, PDD engaged the Advisory Committee, a group of local business and community leaders, to provide important feedback on the challenges and opportunities along the corridor. Advisory Committee members also served as liaisons for their respective communities, notifying residents of public workshops and participating in these neighborhood-level discussions.

Advisory Committee Members

Leor Barak, Belle Isle Pizza

Brain Carnaghi, Presbyterian Village Apartments

Karen DuPerry, Detroit RiverFront Conservancy

Mac Farr, The Villages Community Development Corporation

Wallace Gilbert, Church of the Messiah

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ENGAGEMENT | COMMUNITY EXERCISE

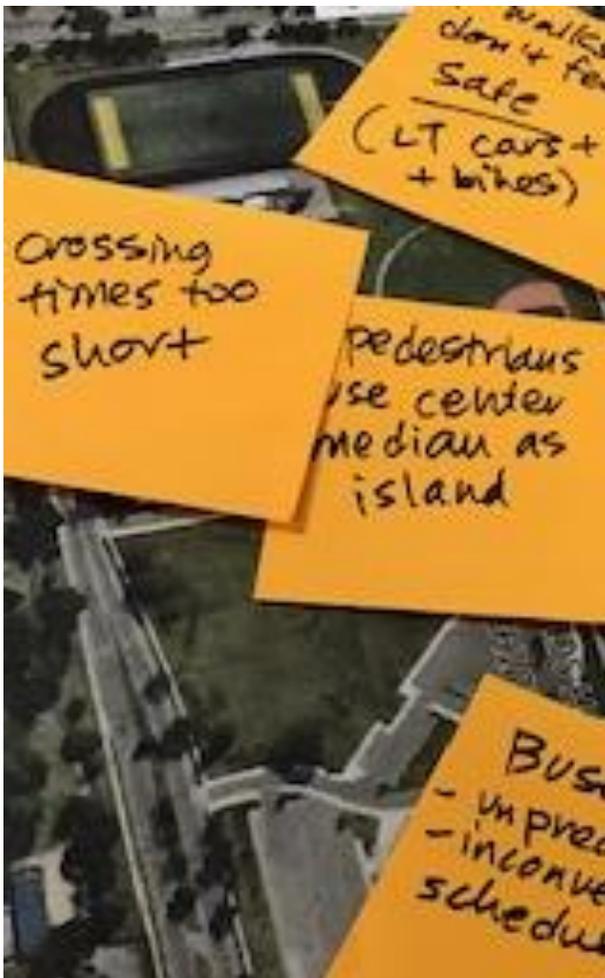
At each of the public meetings across three different neighborhoods, community members participated in small group discussions and reviewed large format aerial maps that showed neighborhood nodes along East Jefferson.

Participants used stickers to indicate areas of strength (i.e., places where people shop, eat, play) and highlight areas of weakness. They identified problems on each map, including locations that reflected hazardous pedestrian conditions and vehicular access, unwelcome public realm conditions, or poor transit service. Participants used yellow dots to present their recommendations to address these challenges. These report-outs were a fun and engaging way to offer feedback and hear the perspective of others in the neighborhood. Full report-out results are presented in the Appendix.



ENGAGEMENT | COMMUNITY EXERCISE

After identifying corridor challenges and opportunities, each table reported back its findings and recommendations at the conclusion of each meeting. These report-outs provided a an engaging method for community members to offer insightful feedback and share perspectives. A detailed presentation of the mapping exercises are provided in the Framework Chapter and Appendix.



ENGAGEMENT | COMMUNITY EXERCISE

Community members offered creative and thoughtful solutions to the corridor's challenges, ranging from traffic safety measures, transit improvements, public realm interventions, and suggestions to add more neighborhood retail and businesses.

CHALLENGES

"Jefferson is **dangerous** to cross, especially if you are a senior."

"I don't take the bus because the **service is unreliable** and doesn't take me where I need to go."

"Sidewalks are in **terrible condition!**"

"There are **no attractions** on the street or places to go."

"We need **more bike racks** and repair stations. Cyclists need education!"

"Cars **drive too fast**. Sometimes they use the bike lane to turn right."

OPPORTUNITIES

"We need to make it **safer** for pedestrians to cross, especially for seniors and kids."

"Buses should **run more often**, should be **cleaner**, and **more convenient**. We need more bus shelters."

"We want **trees, planters, and benches** – especially for seniors to rest. But these things need to be maintained."

"Too many vacant buildings and parking lots. We need **more restaurants, coffee shops, stores, and housing**. We need places to go and visit on the street."

"**Signage** would help highlight each neighborhood along the corridor."







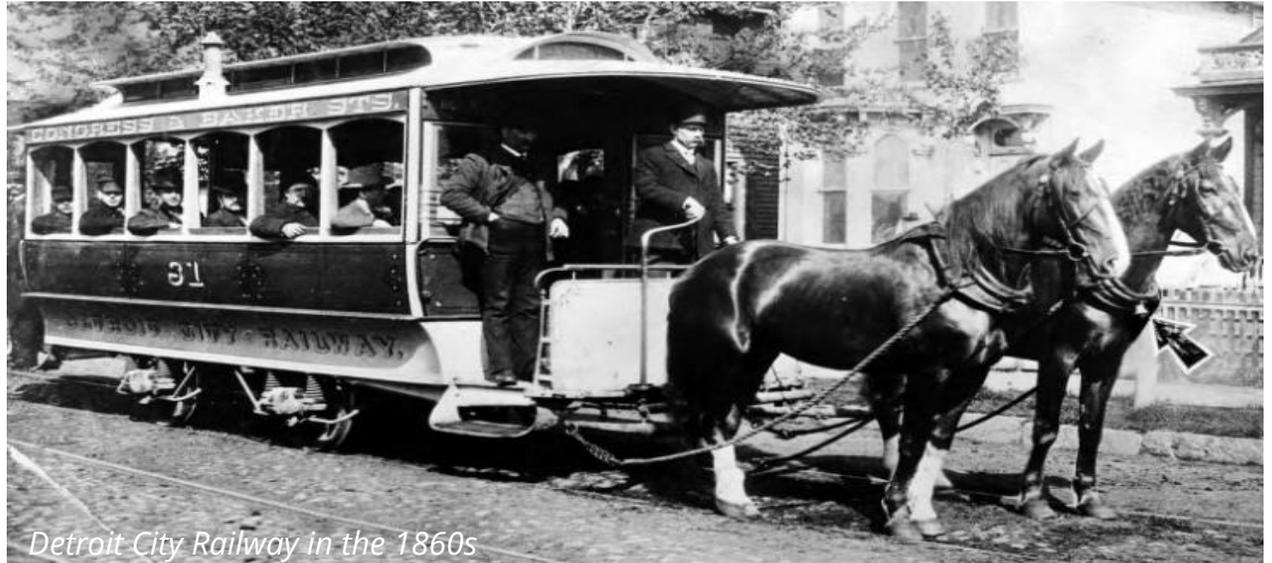
EXISTING CONDITIONS

EXISTING CONDITIONS | HISTORY

The East Jefferson corridor spans six miles, from Woodward Avenue in Downtown Detroit, to Alter Road at the eastern edge of the city. It connects over a dozen unique neighborhoods, from Downtown to Jefferson Chalmers.

The East Jefferson corridor has a rich history of transit-oriented development and served as an important connection between the city's core, residential developments, and farmland to the east.

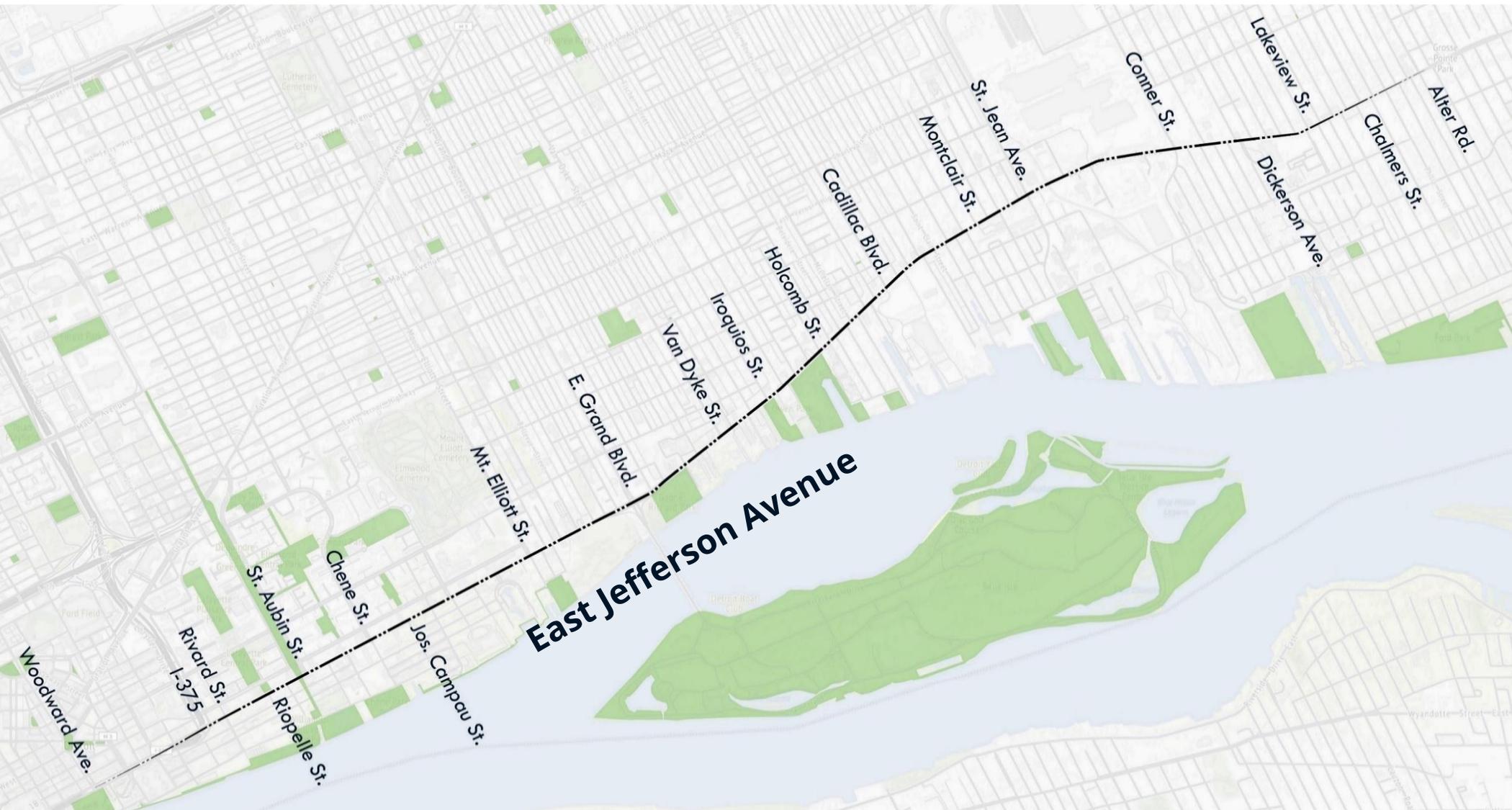
In 1863, the Jefferson Line became the city's first horse-drawn rail line. The Wayburn Loop adjacent to Jefferson and Alter has served as a key railway terminus since the early 1900s. Streetcar service continued to connect Detroiters into the mid-1950s, when bus service replaced rail.



Pictures courtesy of the City of Detroit

EXISTING CONDITIONS | STUDY AREA

The East Jefferson Avenue corridor spans six miles, from Woodward Avenue in Downtown Detroit, to Alter Road at the edge of Grosse Pointe Park. The Study Area includes the area a half-mile north and south of the avenue.



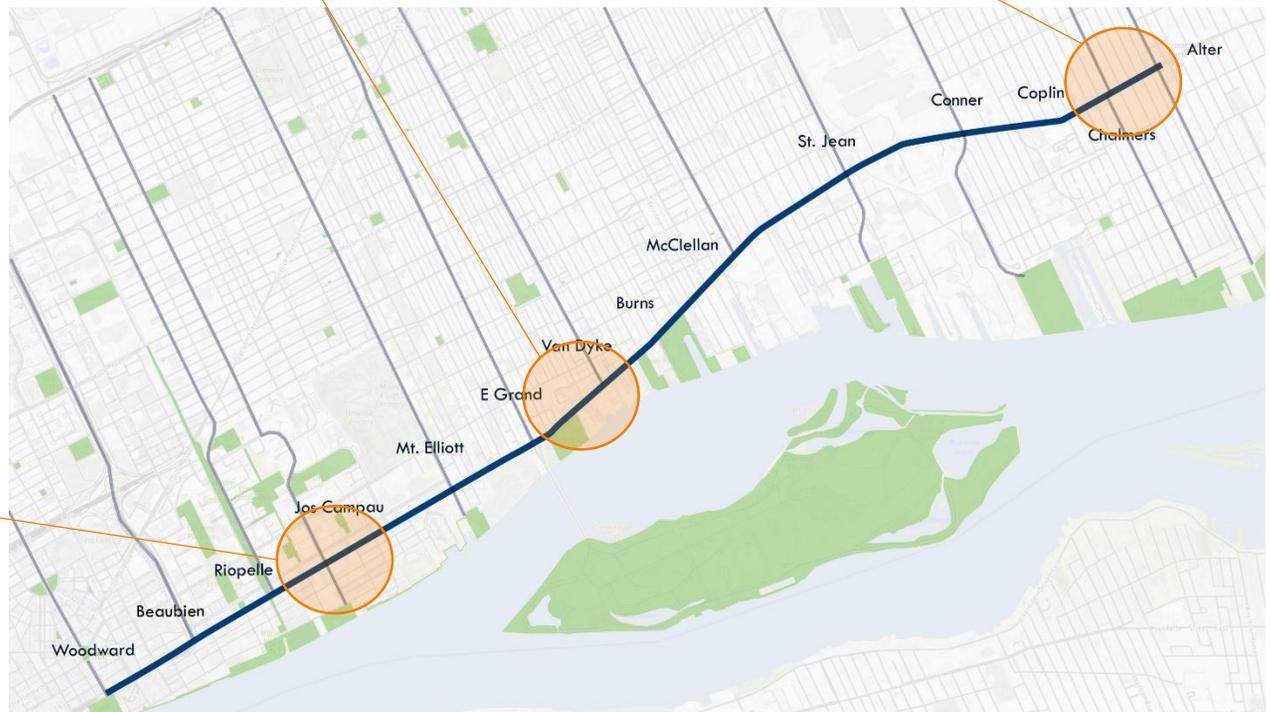
EXISTING CONDITIONS | NEIGHBORHOODS

The corridor connects over a dozen unique neighborhoods, from Downtown east through Jefferson Chalmers. Neighborhoods along East Jefferson embody Detroit's history, weave a diverse narrative of its present, and chart its future.



EXISTING CONDITIONS | OVERVIEW

Today, the Jefferson Avenue right-of-way ranges from 100 feet to 120 feet wide. Curb to curb, the roadway width is between 75 feet and 90 feet. In Spring 2018, the City piloted the six lane roadway to four lanes between Rivard and Lakewood to accommodate protected bicycle lanes and additional on-street parking in both directions.



EXISTING CONDITIONS | OVERVIEW

East Jefferson is an important corridor for the city, adjacent neighborhoods and residents, as well as commuters and travelers. Originally designed to move vehicles efficiently through the city, East Jefferson remains a daunting barrier for the growing numbers of people who travel by foot and bicycle.

- **A barrier:** With four travel lanes and dedicated left turn lanes totaling about 80-90 feet of right of way, East Jefferson can be difficult to cross on foot.
- **An important through road:** East Jefferson connects over a dozen neighborhoods in the city.



EXISTING CONDITIONS | OVERVIEW

- **A bike corridor:** East Jefferson is a multi-modal corridor. Protected bike lanes were installed during the summer of 2018, making East Jefferson the nation's longest, continuous protected bike lane.
- **A connector of parks and open space:** East Jefferson connects a network of parks and greenspace, from the Dequindre Cut Greenway, to the planned Joseph Campau and Conner Creek Greenways, to the East Riverfront.

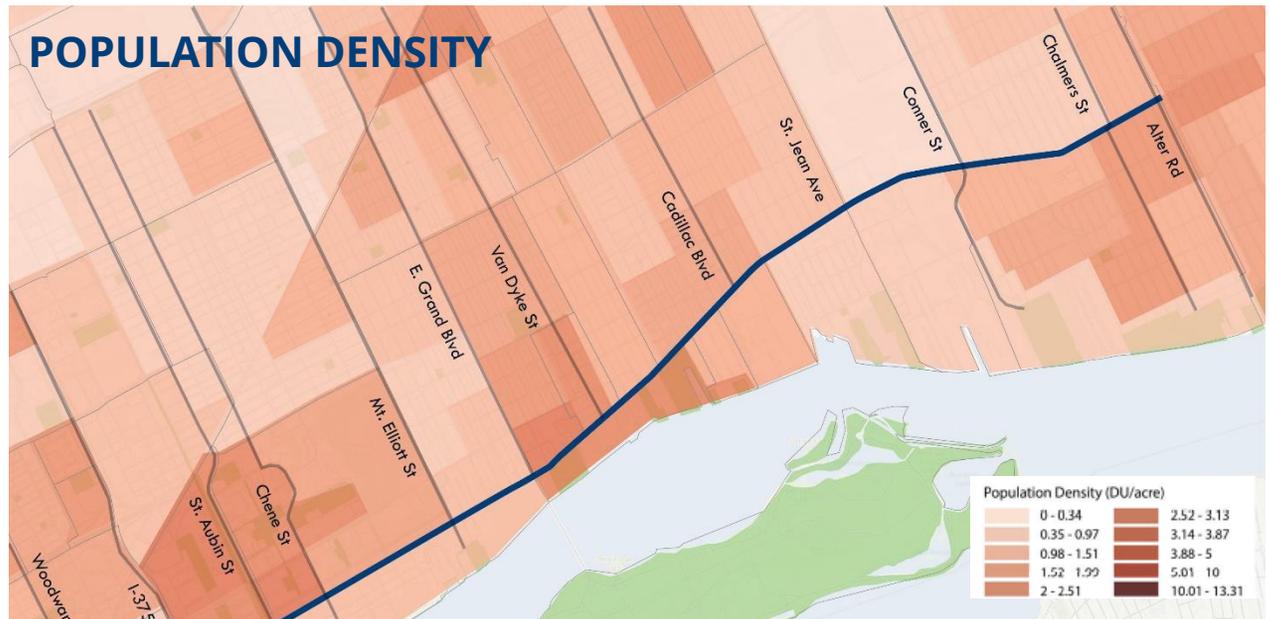


EXISTING CONDITIONS | PEOPLE

The East Jefferson corridor is home to over 17,000 households and about 31,000 people, from Woodward Avenue to Alter Road within a half-mile radius of the corridor.

Population density is greatest in the neighborhoods adjacent to Downtown and the Villages and, to a lesser degree, Jefferson Chalmers, where higher density building types are located and are being built.

The neighborhoods adjacent to East Jefferson are growing – while the City of Detroit’s population has fallen 8% since 2010, the corridor’s population has grown 3%. The millennial and senior population cohorts are increasing. The share of population ages 25-34 has increased from 12.1% to 13.2% since 2010, and the share of residents ages 55+ has increased from 35.1% to 40.3%. This share of older residents along East Jefferson is higher than the city as a whole, whose share of population aged 55+ is just over a quarter.



EXISTING CONDITIONS | EMPLOYMENT



- | | | | |
|---|------------------|----|----------------------------|
| 1 | Greektown Casino | 6 | Blue Cross Blue Shield |
| 2 | Quicken Loans | 7 | Stroh Co |
| 3 | Rock Ventures | 8 | Riverview Jefferson Health |
| 4 | City of Detroit | 9 | UAW |
| 5 | General Motors | 10 | Fiat Chrysler |

Across East Jefferson, over 80,000 daytime workers are employed in a variety of sectors, including professional services, government, manufacturing and health care, across the corridor.

Jobs along the corridor are highly concentrated Downtown due to the presence of diverse professional services and government employers. Job clusters also exist near Van Dyke (e.g., Riverview Jefferson Health, UAW) and at Conner Creek (e.g., Fiat Chrysler). Workers and residents comprise a daytime population of over 100,000 across East Jefferson.

Notably, Fiat Chrysler is expanding its presence in Detroit, and specifically near the corridor, with a \$900 million investment at the Jefferson North Assembly Plant. This expansion is projected to bring 1,100 new jobs to the area.

EXISTING CONDITIONS | DEVELOPMENT ACTIVITY



Recent and pipeline development activity, including new affordable housing, is concentrated near Downtown, East Riverfront, and the Villages. A number of affordable rehabs have also been recently completed around Jefferson Chalmers.

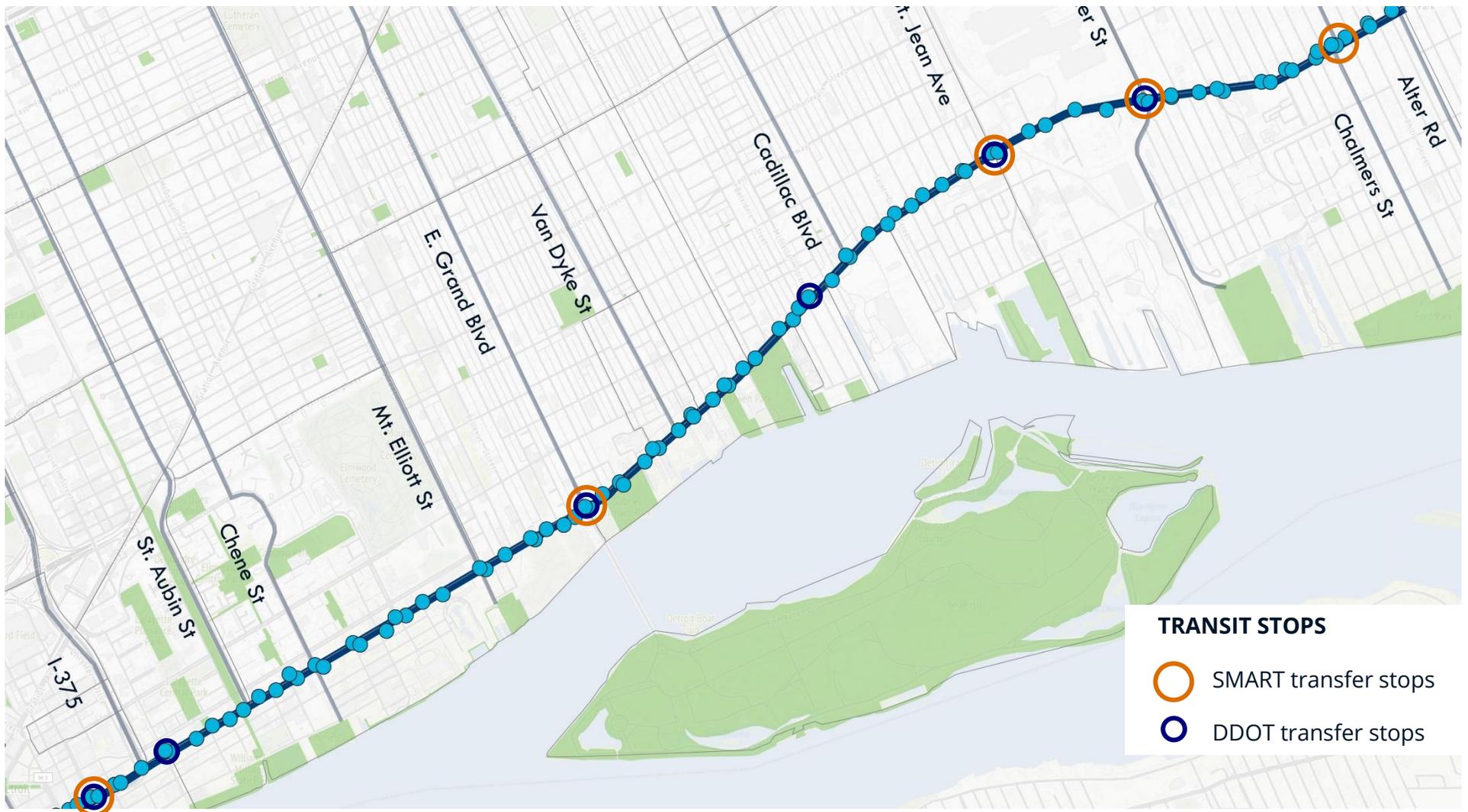
Along the corridor, over 800 new and rehabilitated multifamily residential units have been completed since 2016 within half-mile of East Jefferson. About a quarter of these units are affordable housing.

A strong development pipeline surrounds East Jefferson as well. Over 2,400 additional units under construction or in planning are expected to be completed within five years. Over 700 of these units are expected to be affordable.

Note: 16% of pre-planning, 18% of in-planning, and 41% of under construction units are planned to be affordable.

EXISTING CONDITIONS | TRANSIT STOPS

There are approximately 95 bus stops in both directions along the corridor.

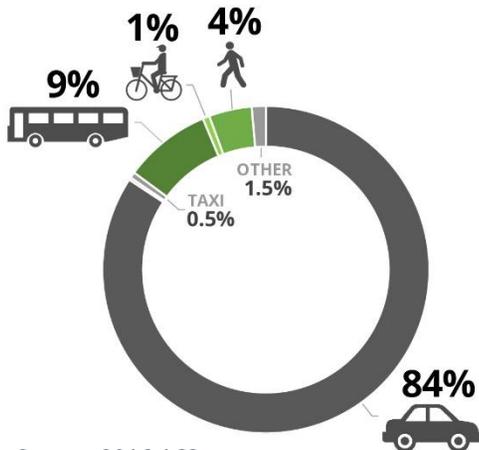


EXISTING CONDITIONS | TRANSIT RIDERSHIP

Within the Study Area, about 15% of households do not own a car. This represents about ½ half of the citywide average of 24.7% households that are non car-owning. The highest numbers of households without cars are located in the Downtown, Islandview, East Village, and Jefferson Chalmers North neighborhoods.

Most residents drive to work, but 9% take public transit and 5% walk or bike for their daily commute. The neighborhoods with the highest rates of walking, biking, or transit commuters are also Downtown,

STUDY AREA COMMUTE MODE SHARE



Source: 2016 ACS

Islandview, East Village, and Jefferson Chalmers North, where non-auto commuting exceeds the City average of 12%.

The corridor is served by both DDOT and SMART bus services. The bus lines that run along various segments within the corridor are identified at right.

Among these routes, DDOT's 9 – Jefferson line carries approximately 80% of all daily bus riders on East Jefferson.

DDOT service:

- 9 – Jefferson
- 80 – Villages Direct

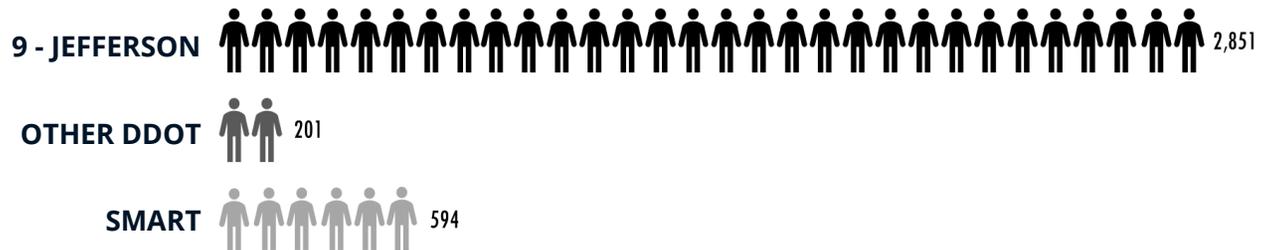
DDOT intersecting service:

- 12 – Conant
- 13 – Conner
- 68 – Chalmers

SMART service:

- 610 – Kercheval / Harper
- 615 – Jefferson
- 635 – Jefferson Express

JEFFERSON CORRIDOR | DAILY RIDERSHIP COMPARISON*



*Each figure represents ~100 riders

Source: DDOT & SMART

EXISTING CONDITIONS | TRAFFIC FLOW

Based on traffic count data collected in April 2019*, East Jefferson sees distinct directional traffic patterns during the peak morning and evening commuting periods in and out of Downtown.

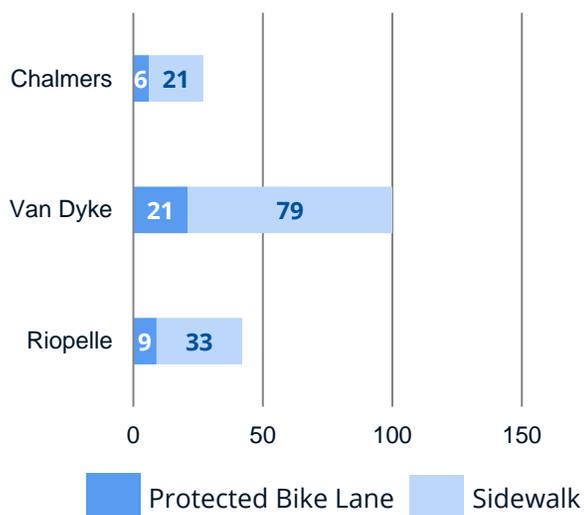
Counts of cyclists show that the majority of bike riders prefer to ride on the sidewalks rather than in the protected bike lane, indicating a general challenge in cyclists' level of comfort and awareness of safe cycling practices.

Count data collected at East Jefferson at Chalmers, Van Dyke, and Riopelle also reveal that signal timing splits and offsets along the corridor are optimized favoring westbound (inbound) traffic in the morning and eastbound (outbound) traffic in the evening. At these locations, signals are timed to progress traffic along Jefferson between signals and also clear the minor street approach queues.

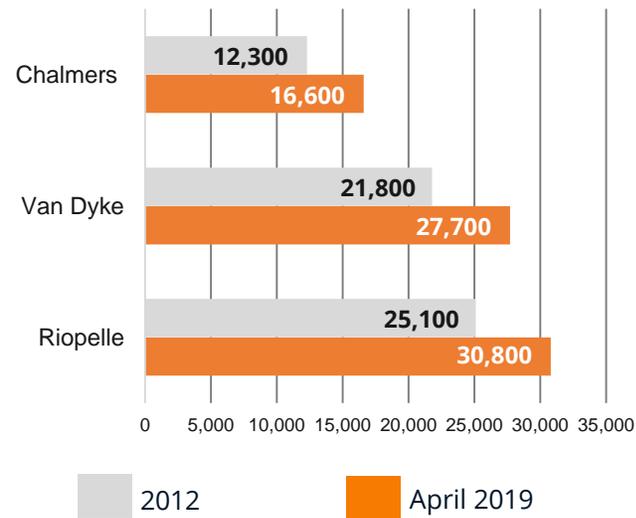
A comparison of recent traffic data to 2012, particularly at Chalmers and Van Dyke, shows an increase in daily vehicular volumes and a decrease in peak hour volumes, which indicates traffic is spreading out more over the course of the day. This may be attributable to a general increase in non-commute traffic activity as well as changing working hours that allow commuters to travel off-peak.



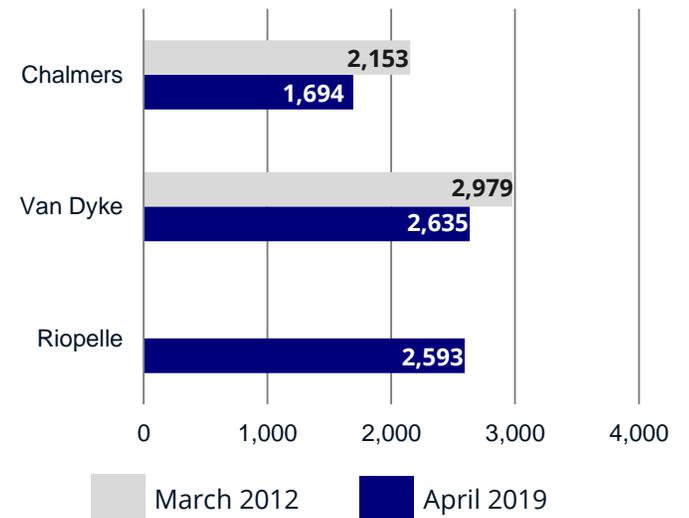
Bike Volumes (24 hours)



Traffic Volumes (24 Hour)



Traffic Volumes (Peak Hour)



EXISTING CONDITIONS | TRAFFIC AND SIGNAL ANALYSIS

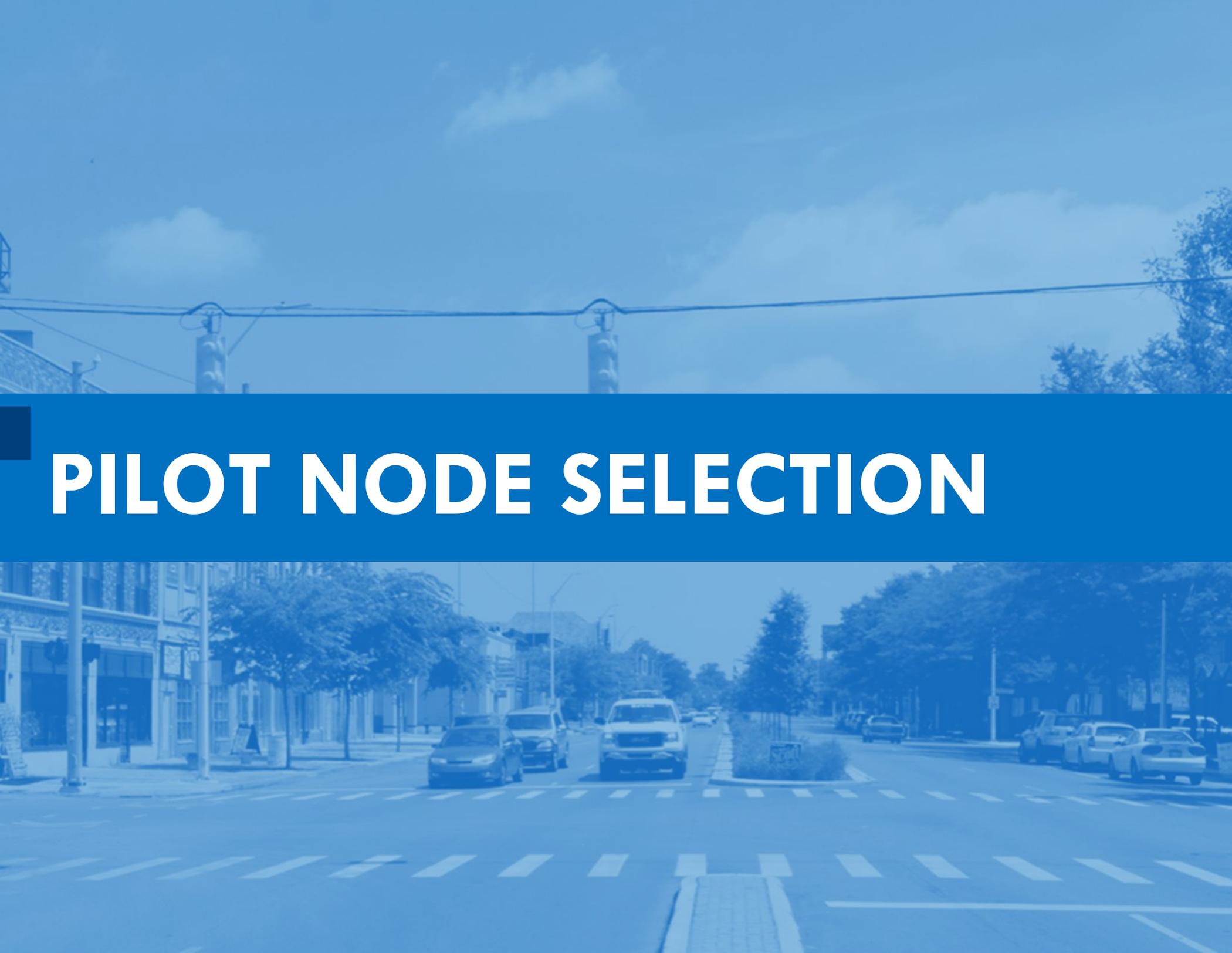
Traffic signals along the corridor operate on a 70-second cycle length and are coordinated to progress traffic along the corridor and clear minor street approaches.

Because of the directionality of traffic, signal timing splits and offsets along the corridor are optimized favoring westbound (inbound) traffic in the morning and eastbound (outbound) traffic in the evening.

Push buttons trigger a pedestrian phase at the signals. At some intersections, when the button is pushed, the signal phasing is thrown off its typical programming and operates “out of coordination,” thus hindering traffic progression for those cycles.

Increasing the standard signal cycle length along the corridor can improve traffic progression. It will also provide longer crossing times that give slow-moving pedestrians additional protection.





PILOT NODE SELECTION

PILOT NODE SELECTION | CRITERIA

Three locations along the corridor were identified to develop and test initial design concepts for achieving Plan goals, including streetscape/public realm and traffic calming interventions, as well as transit improvements.

These three initial locations, or Pilot Nodes, reflect the diversity of neighborhoods across the corridor and build on current strengths as a starting point for articulating future potential. They are spaced to maximize equitable access along the corridor, as well as to reflect realized and future ridership demand.

The following pages present illustrative heat maps of each of these criteria. Layered on top of each other, show where priority locations emerge. A detailed quantitative methodology - a transportation index - was also employed to verify this analysis and is provided in the Appendix.

RESIDENT DEMAND

Population +
Demographics +
New Housing



CURRENT TRANSIT RIDERSHIP

DDOT + SMART Ridership



EMPLOYEE DEMAND

Employment Density



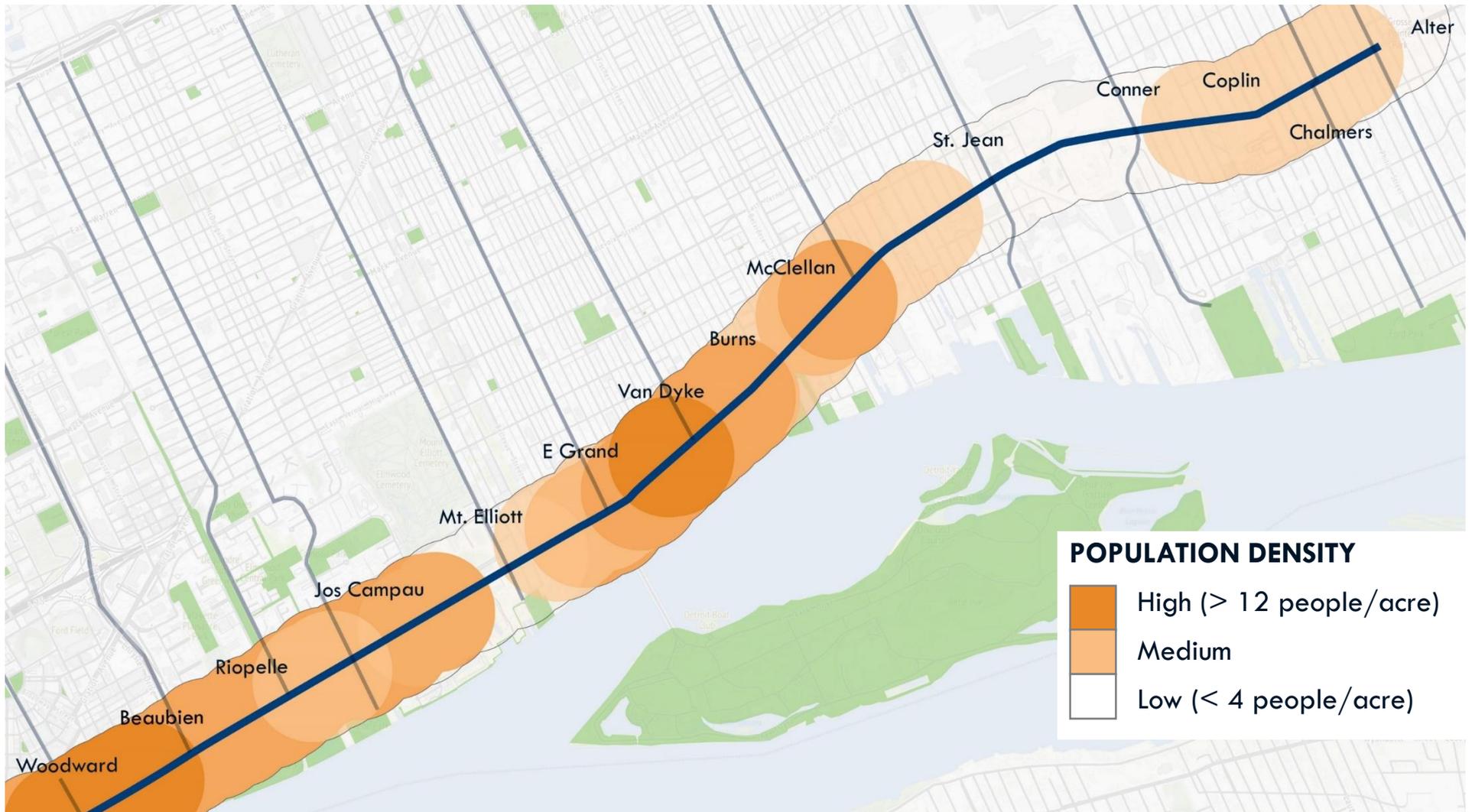
INFRASTRUCTURE NEED + POTENTIAL

Greenways + Pedestrian/ Bike Safety



PILOT NODE SELECTION | RESIDENT DEMAND

Population is concentrated in locations along the corridor where neighborhoods and housing are densest.



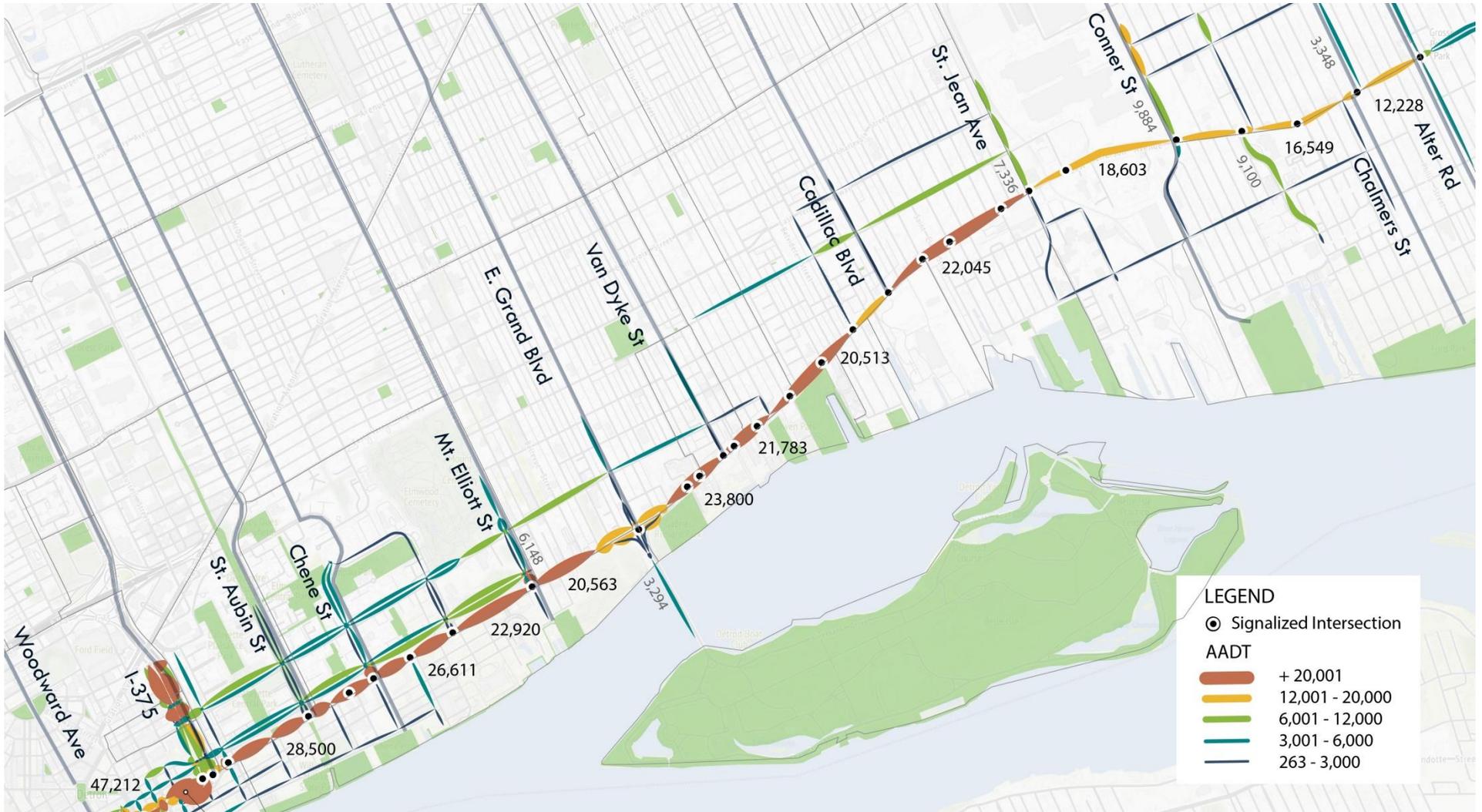
PILOT NODE SELECTION | RESIDENT DEMAND + NEW HOUSING

Population density also coincides with areas experiencing residential development activity and with substantial pockets of affordable housing.



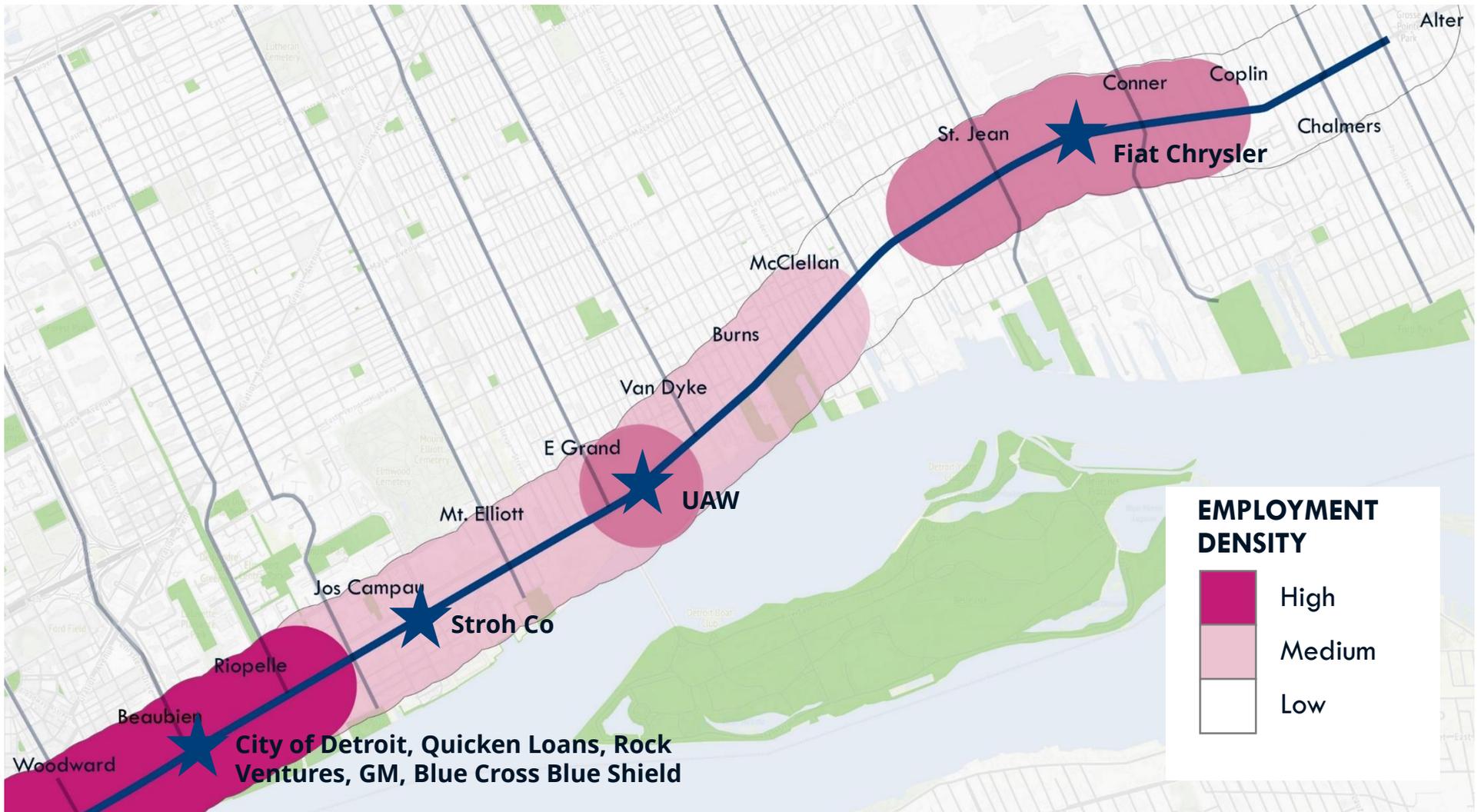
PILOT NODE SELECTION | TRAFFIC 2012 TO 2016

Based on data available from the Southeast Michigan Council of Governments (SEMCOG), Annual Average Daily Traffic (AADT) volumes consistently exceeded 20,000 vehicles between Downtown (Woodward) and Conner Creek (St. Jean). This represents the total number of cars in both directions. The map below shows signalized intersections and AADT volumes where they occur.



PILOT NODE SELECTION | EMPLOYEE DEMAND

Job activity is concentrated in areas where major employers are located, notably Downtown. Employment density between St. Jean and Conner is expected to increase as Fiat Chrysler expands the Jefferson North Assembly Plant.



PILOT NODE SELECTION | TRANSIT RIDERSHIP + ROUTES

High transit ridership locations reflect areas where multiple transit lines serve concentrations of workers and residents. Ridership data below includes the total number of weekday customers boarding and alighting.



PILOT NODE SELECTION | REPORTED PEDESTRIAN + BICYCLE CRASHES (2013-2017)

Car crashes involving pedestrians or bicyclists are concentrated in high-volume areas such as Downtown. The map below highlights locations that are in greatest need of safety improvements.



PILOT NODE SELECTION | BICYCLE + MICRO-MOBILITY INFRASTRUCTURE

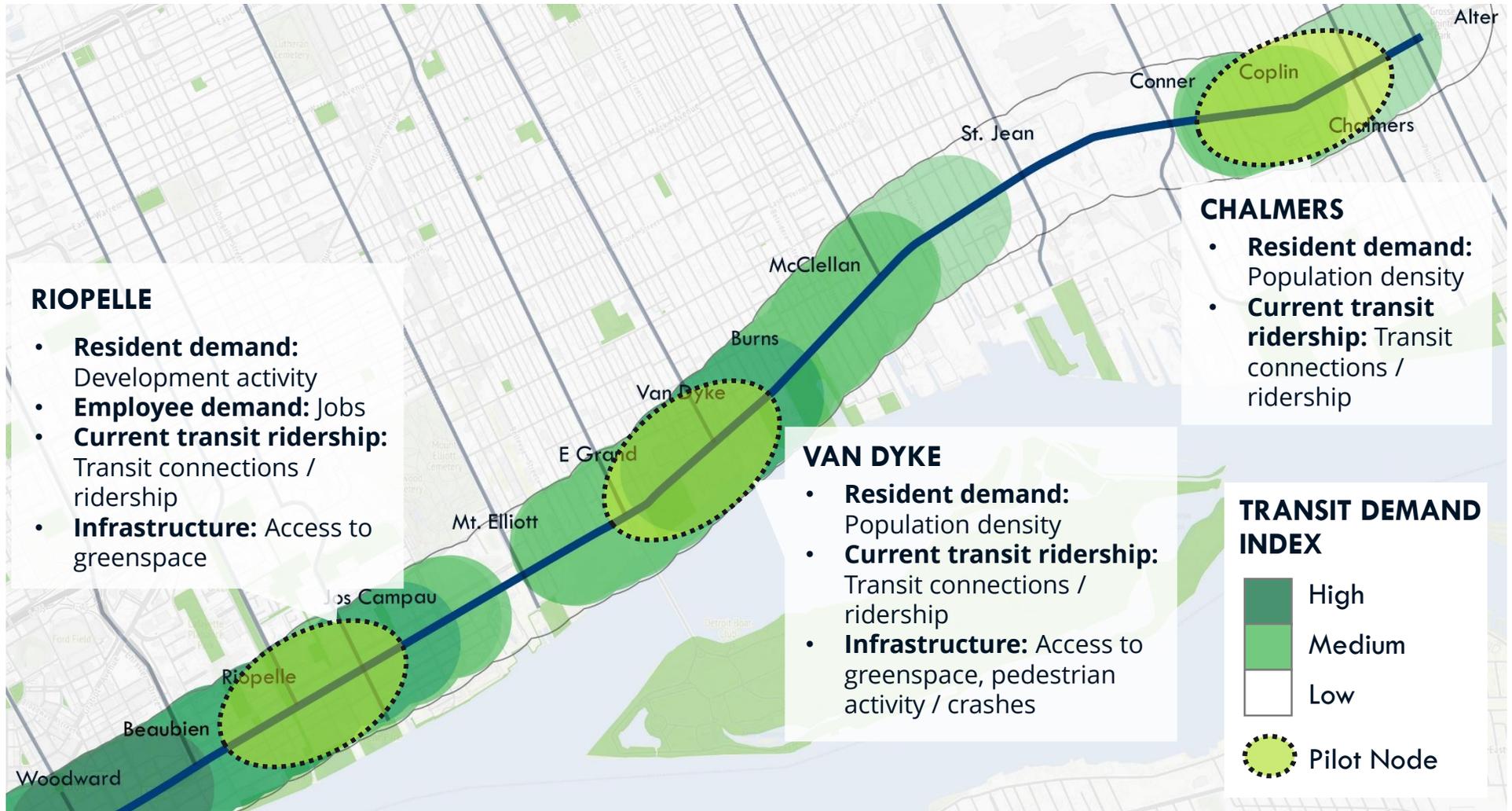
Bike routes and greenways intersect East Jefferson along major north-south streets. Micro-mobility refers to the network of shared scooters and bicycles (human-powered or with electric motors) that are available for short trips (1-3 miles).



*Demand information is based on MoGo usage per station.

PILOT NODE SELECTION | LOCATIONS

Overlaying transit demand and economic activity reveals three nodes of activity that can serve as pilot locations for testing physical and transit improvements. These initial investments can connect East Jefferson’s diverse neighborhoods, enhance multi-modal access, support business and retail, and transform the corridor from a barrier to a destination.





FRAMEWORK

FRAMEWORK | OVERVIEW

This Framework identifies actionable strategies and associated improvements to channel to achieve the goals for the East Jefferson Corridor, with a focus on the initial pilot nodes. It provides recommendations to improve multi-modal transportation access, streetscape and public realm enhancements, and transit service to create a vibrant, safe, and attractive roadway for all Detroiters.

The Framework reflects needs and opportunities articulated by community members, verified through analysis, and identified in discussion with City staff, including representatives from PDD, DDOT, and the Department of Public Works (DPW). Its recommendations will inform how near-term road bond funding will be spent along the corridor, as well as a strategy for longer-term investments.



FRAMEWORK | TRANSIT OPPORTUNITY

Based on current and projected residential and employment density, enhanced bus service is the most viable short-term transit enhancement along the corridor. Enhanced bus systems run at higher frequencies and carry more capacity than local buses. They also cost less than bus rapid transit (BRT) or light rail.

In addition, enhanced bus service typically runs along designated lanes for portions of the route, speeding up travel times and improving reliability.

Enhanced bus stops are more widely dispersed than current local bus service, with stops spaced at approximately half-mile intervals.

Based on these findings, the Plan models potential bus stops spaced a half-mile apart along Jefferson, forming the basis to identify Pilot Node locations.



HEADWAYS

10 -15 Min



SPEED

8 – 60 mph



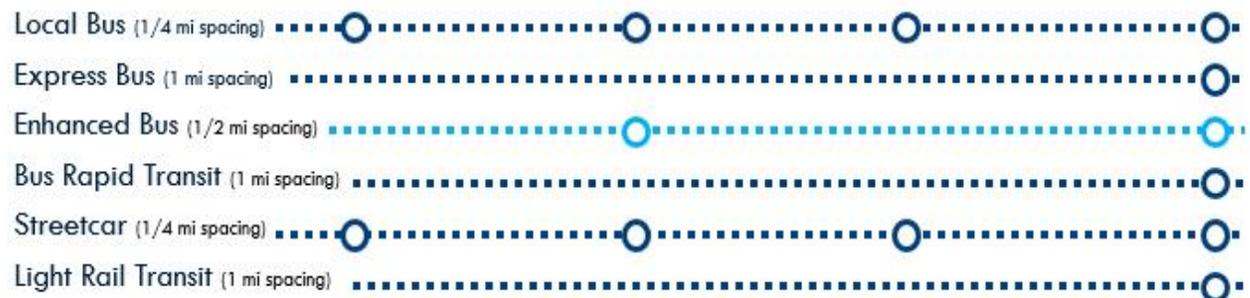
CAPACITY

44 – 62 riders



STOP SPACING

¼ Mi – ½ Mi



Source: FTA target density thresholds for transit modes

FRAMEWORK | STRATEGIES

The following strategies address the four goals described earlier in the Plan: 1) increase access to jobs, neighborhoods and public spaces; 2) support corridor businesses and retail; 3) connect the corridor's diverse neighborhoods; and 4) transform the corridor from a barrier to a destination. Implementing these strategies will help transform East Jefferson into an accessible and safe connector of jobs, neighborhoods and public spaces while helping to grow the corridor's businesses.



Provide a safe and accessible multi-modal corridor

Design traffic safety measures that reduce auto/ bike/ pedestrian conflicts

Improve intersection crossings for the most vulnerable Detroiters, including seniors and children

Provide transit infrastructure to improve bus rider experience and accommodate future enhanced bus service



Strengthen connections

Improve access to adjacent greenways, open spaces, and public venues

Provide better multi-modal access to jobs and employment centers

Strengthen connections between modes, including micro-mobility modes



Create a vibrant destination

Amplify the strength of existing neighborhoods to create attractive, welcoming public places

Attract neighborhood-supportive development, including shopping, dining, and entertainment

FRAMEWORK | PILOT NODE 1: CHALMERS

A Pilot Node at East Jefferson between Chalmers and Lakewood will build off the assets of this historic neighborhood at the far east end of the corridor.

Specific recommendations at this location are based on existing transportation and land use conditions.

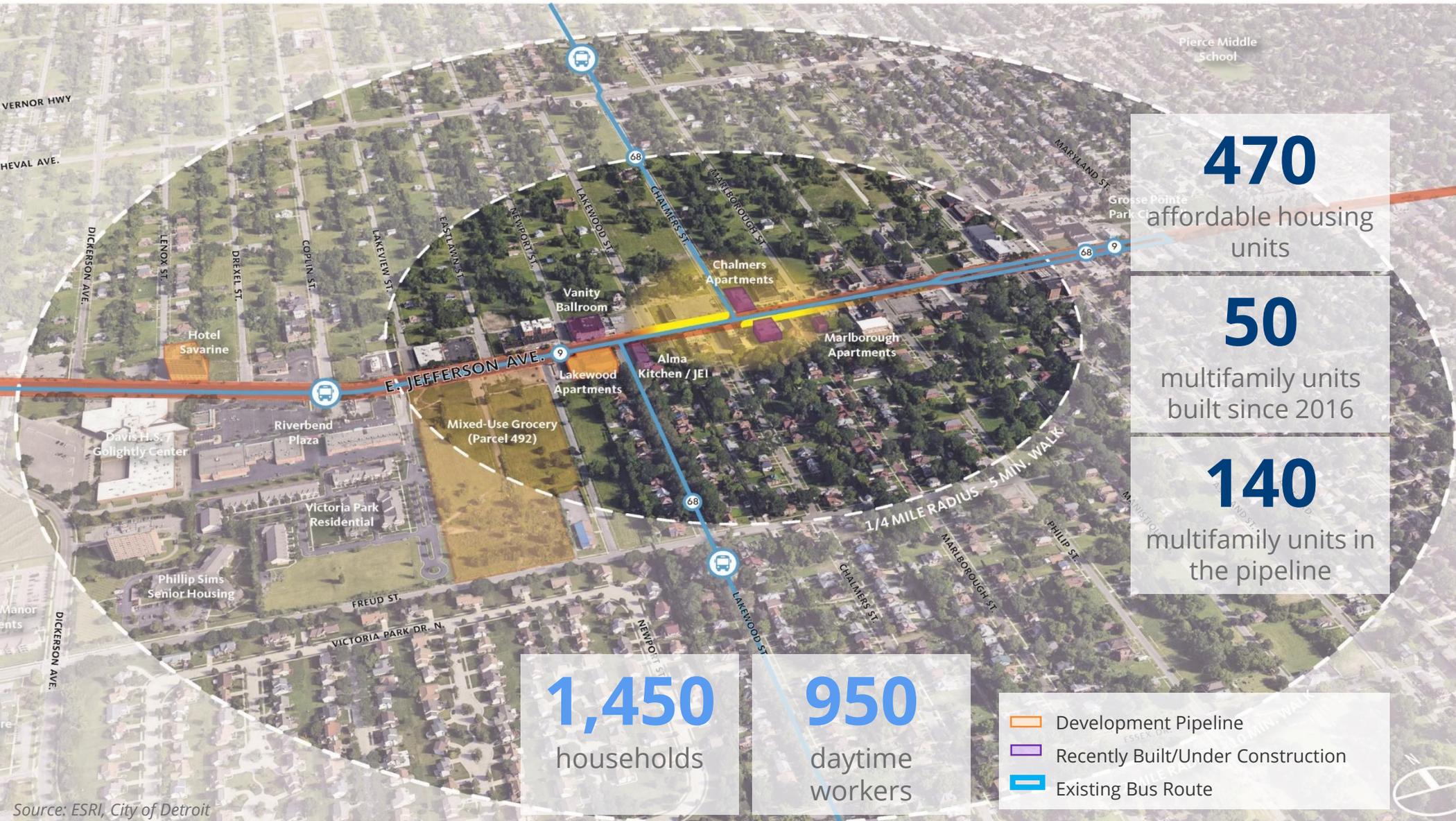
- The 68 Chalmers DDOT route offers an important transfer point for local residents traveling to Downtown. Lakewood is an important link as it allows the bus service on this line to reach destinations in the Jefferson Chalmers as far south as Korte.
- Bike lanes implemented in 2018 have improved traffic calming and encouraged more cycling.
- The percentage of commuters who walk, bike and use transit on their journey to work is especially high ($\approx 25\%$) compared to other census tracts along the eastern portion of the corridor (see Appendix: Transit Demand Index).
- The historic urban fabric supports walkable access to transit, including minimum setbacks and wide sidewalks.



East Jefferson at Chalmers

FRAMEWORK | CHALMERS EXISTING CONDITIONS

At the eastern edge of the corridor, Chalmers supports a neighborhood-scale, historic commercial corridor with new and pipeline development activity, including multifamily rehabs, within a half-mile radius.



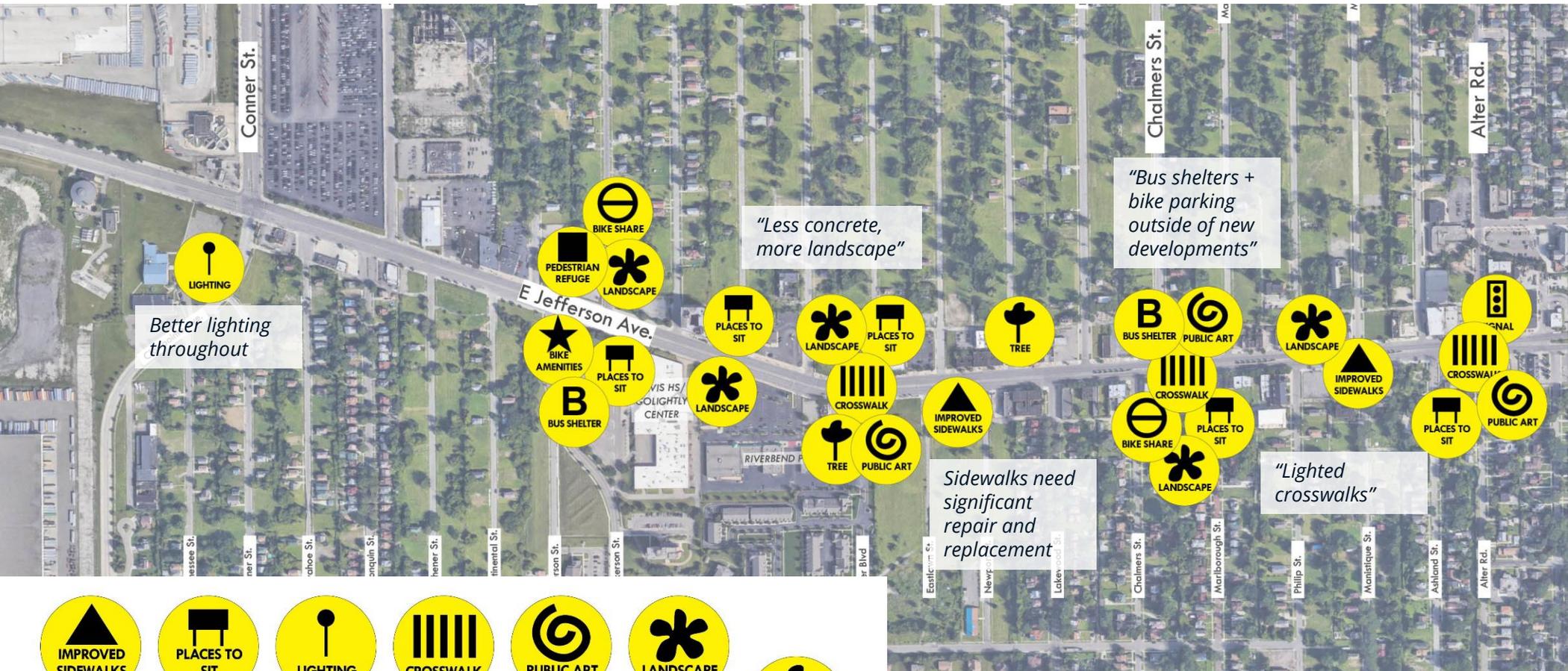
FRAMEWORK | CHALMERS COMMUNITY FEEDBACK

The Chalmers Pilot Node will benefit from public realm, pedestrian safety and transit infrastructure enhancements. During the neighborhood workshop session, stakeholders identified the following key issues and existing assets at this location.



FRAMEWORK | CHALMERS COMMUNITY FEEDBACK

Meeting participants recommended improvements to Jefferson’s sidewalk and roadways, improved bus stops and shelters, and more street furniture and landscaping. A summary of all groups’ results are located in the appendix.



FRAMEWORK | CHALMERS CONCEPT IMPROVEMENTS



Provide a safe and accessible multi-modal corridor

- 1 Street repaving**
- 2 Sidewalk reconstruction**

Chalmers sidewalks are in poor condition, and are obstructed by historic treatment. Sidewalk upgrades will ensure that pedestrians are able to safely travel along the corridor.
- 3 Pedestrian-oriented lighting**

Pedestrian-focused lighting will improve the perception of safety at night.
- 4 Protected refuge islands**

Crossings connect local businesses with parking, transit stops, and residential destinations. The existing street geometry will support protected refuges, where needed, to reduce crossing distances.
- 5 Protected bike lanes with curbs**

This treatment will protect the on-street facility with raised curbs in key locations.



Strengthen connections

- 6 Bus boarding islands with shelters and off-board ticketing**

Demands for improved bus service and facilities can be addressed with bus boarding islands and shelters. Enhancements may include real time arrival signage, seating, off-board ticketing, heat elements, wayfinding, and even police call boxes.
- 7 Updated traffic signal with Transit Signal Priority (TSP)**

Strategic bus queue jumps and transit signal priority can help make bus service more reliable by reducing bus delays due to traffic queues, and giving buses a competitive advantage at intersections.



Create a vibrant destination

- 8 Street trees**

Street trees will provide shade and buffer from the travel way.
- 9 Benches and other opportunities for seating**

Seating will offer opportunities for resting and socialization.

FRAMEWORK | CHALMERS CONCEPT



Possible Chalmers / Lakewood Design Treatment

FRAMEWORK | PILOT NODE 2: VAN DYKE

Van Dyke is one of the corridor's most transit supportive locations, based on the area's concentration of residents and workers, as well as the location's critical access to major open space resources.

- Van Dyke and East Jefferson reflects the highest population density of all other potential corridor locations.
- Employment density is also high compared to other locations along the mid-portion of the Study Area.
- There are convenient connections to transit services on East Lafayette Street.
- The percentage of commuters who walk, bike and use transit on their journey to work is especially high for residents living within a 10 minute walk of Van Dyke and Jefferson (~50%). (See Appendix: Transit Demand Index)



Van Dyke Activity Node (Outbound) Google



Van Dyke Activity Node (Inbound) Google

FRAMEWORK | VAN DYKE EXISTING CONDITIONS

Van Dyke is the second densest area along the corridor with a sizeable number of affordable units and large number of daytime workers within a half-mile radius.



Source: ESRI, City of Detroit

FRAMEWORK | VAN DYKE COMMUNITY FEEDBACK

A Pilot Node at Van Dyke will benefit from public realm (especially pedestrian safety) and transit infrastructure enhancements. During the neighborhood workshop session, stakeholders identified the following key issues and existing assets at this location.



FRAMEWORK | VAN DYKE COMMUNITY FEEDBACK

Meeting participants were concerned about hazardous pedestrian crossings and general safety of the corridor, but also embraced some of the area's assets, such as Pewabic Pottery and local parks.

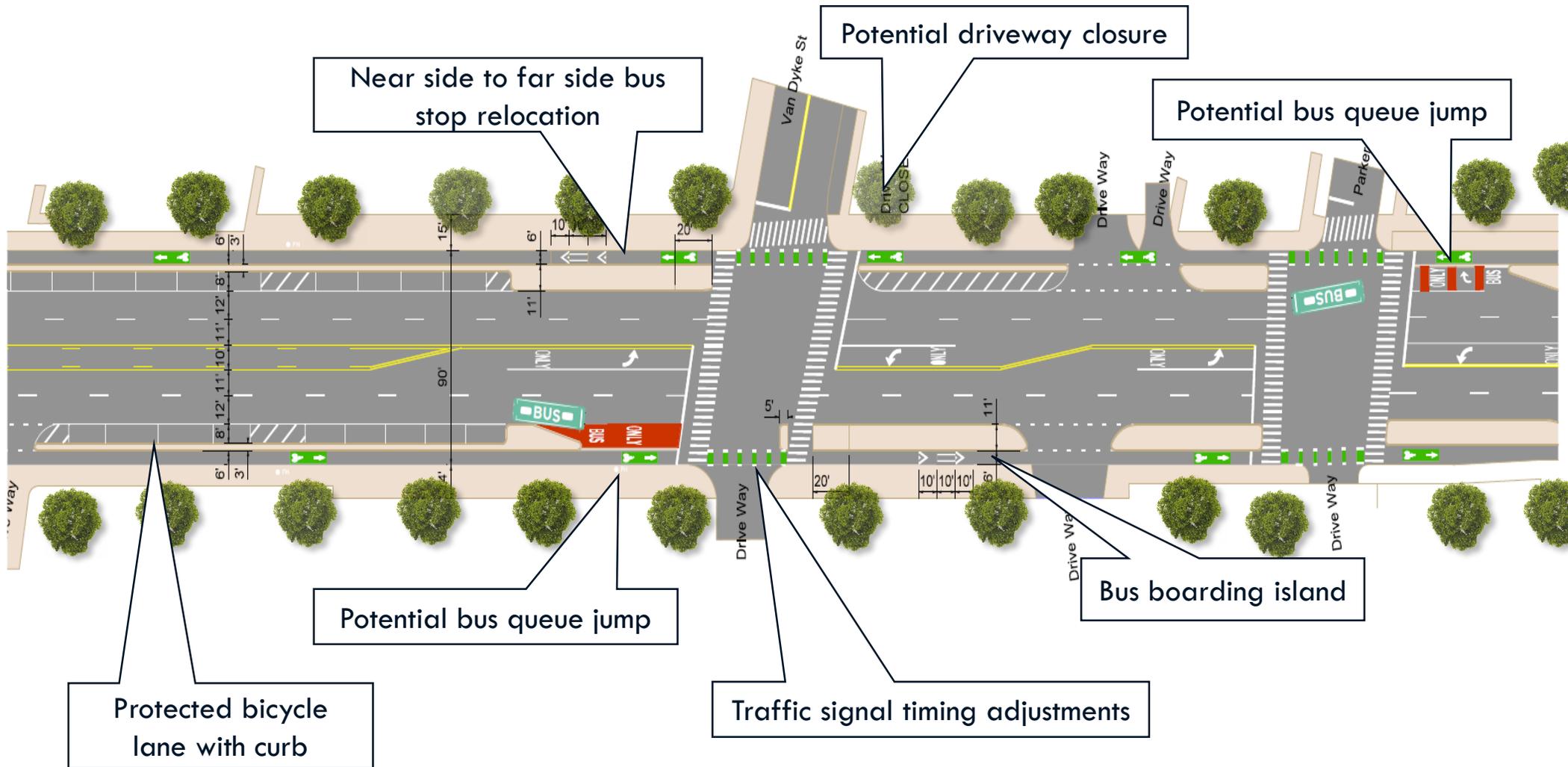


FRAMEWORK | VAN DYKE COMMUNITY FEEDBACK

Participants provided suggestions for beautifying the street through art and lighting, cyclist education, and better accommodations for bus riders. A summary of all groups' results are located in the appendix.



FRAMEWORK | VAN DYKE CONCEPT



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FRAMEWORK | VAN DYKE CONCEPT IMPROVEMENTS



Provide a safe and accessible multi-modal corridor

- 1 Street repaving**
- 2 Sidewalk reconstruction**
Sidewalk upgrades will ensure that pedestrians are able to safely travel along the corridor.
- 3 Pedestrian-oriented lighting and wayfinding**
Lighting will improve the perception of safety at night.
- 4 Protected refuge islands**
Safe crossing at Van Dyke and Parker will connect UAW employees with local businesses and transit stops, and will improve access for Greater Villages residents.
- 5 Protected bike lanes with curbs**
Further protect the on-street facility with raised curb in strategic locations.
- * Access management**
Eliminating one of the gas station's four driveways will improve pedestrian safety and traffic conflict.



Strengthen connections

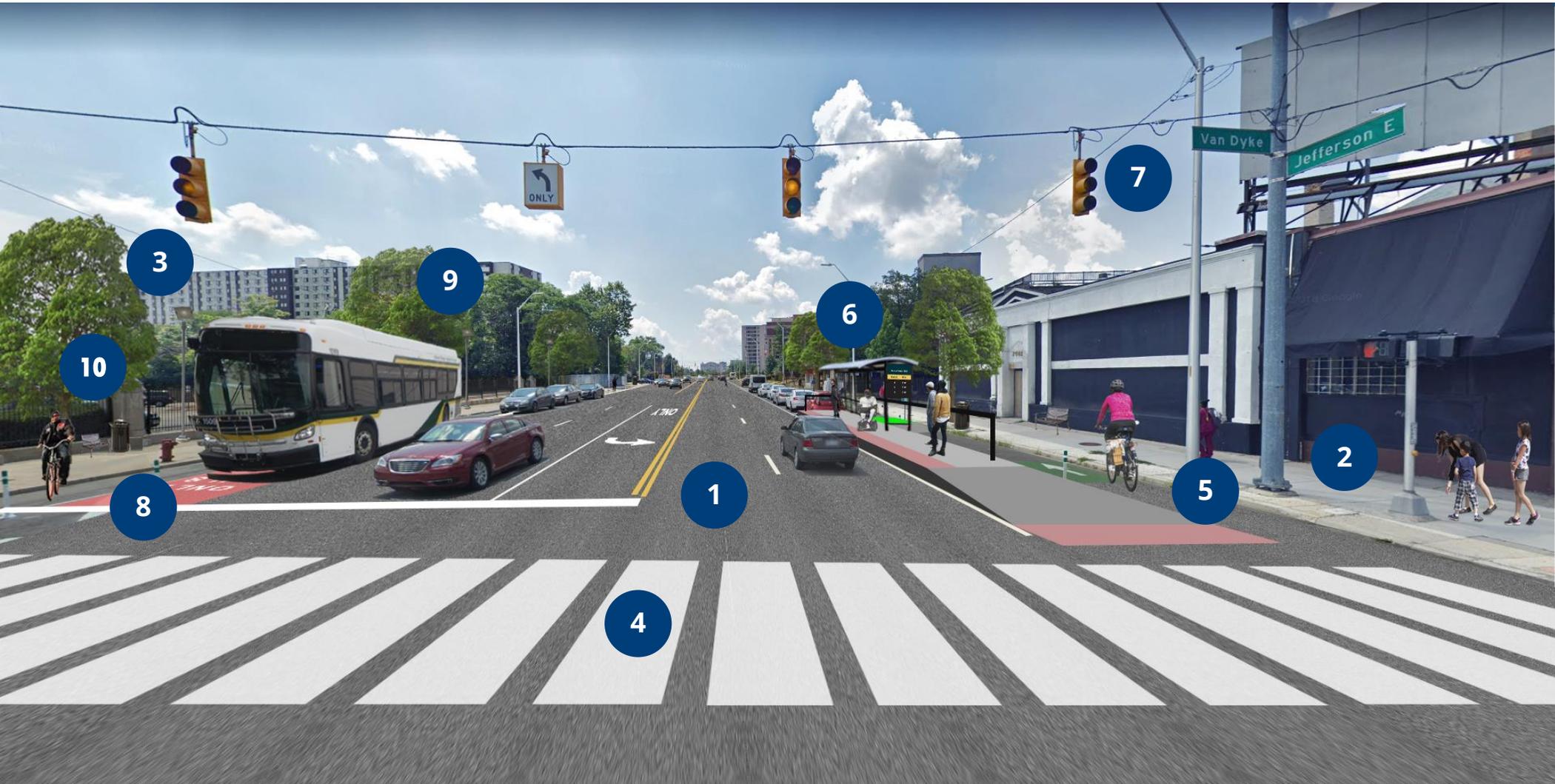
- 6 Relocation of bus stop and bus islands with shelters, etc.**
Shifting the inbound bus stop from near side to far side will help with transit performance. Demands for improved bus services and facilities could be addressed with bus boarding islands, shelters and off-board ticketing.
- 7 Adjust traffic signal timings**
Longer cycle lengths and pedestrian crossing times will give additional time to pedestrians that need it to safely cross Jefferson.
- 8 Updated traffic signal with Transit Signal Priority (TSP) and bus queue jump**
Strategic bus queue jumps could help make bus service more reliable by giving them a competitive advantage to traffic queues.



Create a vibrant destination

- 9 Street trees**
Street trees will provide shade and buffer from the travel way.
- 10 Benches and other opportunities for seating**
Seating will offer opportunities for resting and socialization.
- * Wayfinding**
Wayfinding will help customers make connections from Jefferson services to nearby 5 Van Dyke/Lafayette and 80 Villages Direct bus line.
- * Placemaking**
Streetscape and urban design improvements will help strengthen the physical and neighborhood character of the node.

FRAMEWORK | VAN DYKE CONCEPT

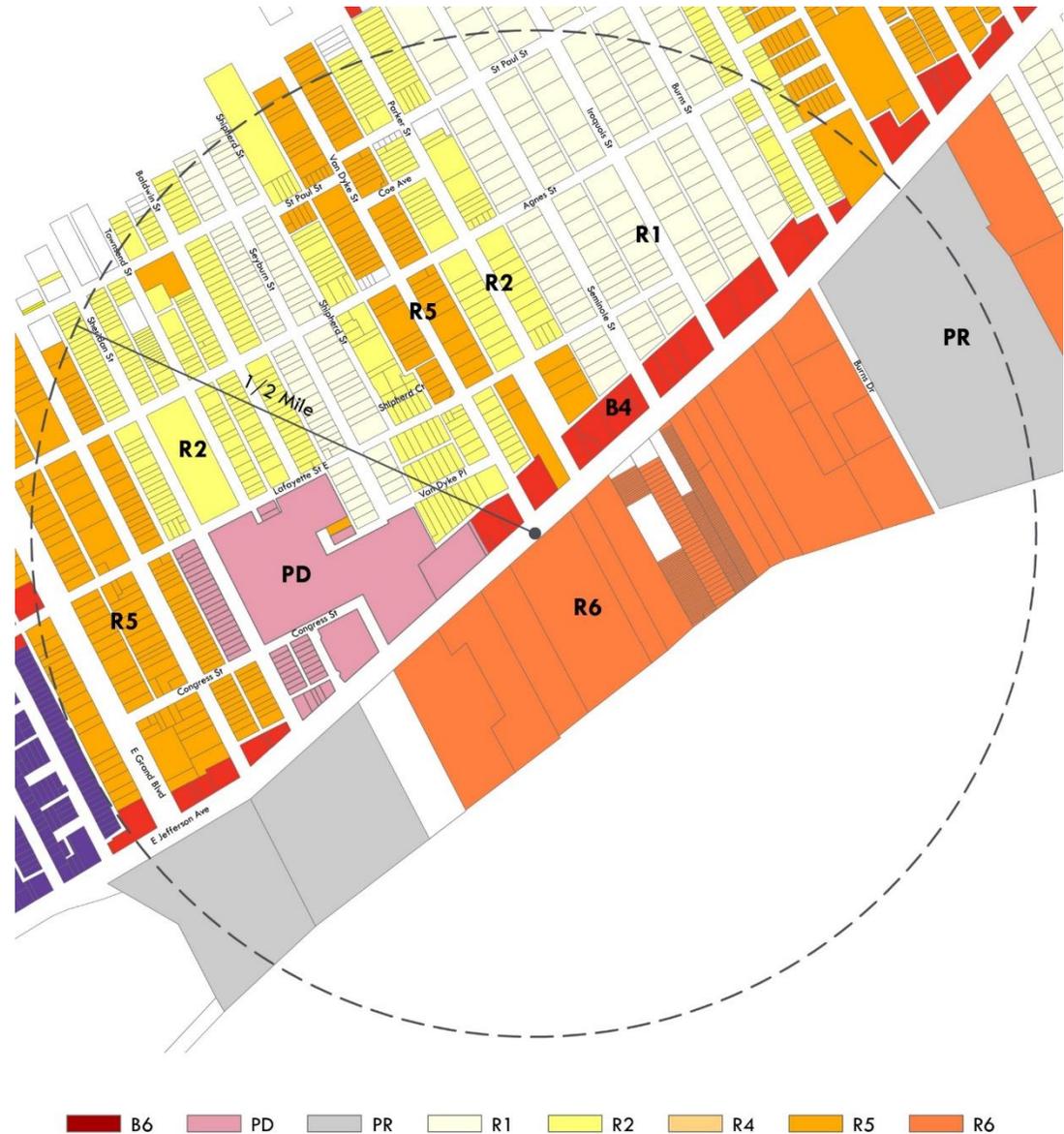


Possible Van Dyke Design Treatment

FRAMEWORK | VAN DYKE LAND USE & ZONING

Zoning in the Van Dyke Pilot Node supports higher-density residential uses along with B4 business districts along some of the Jefferson frontage. If built to entitled capacity, future development has the potential to enhance density and walkability.

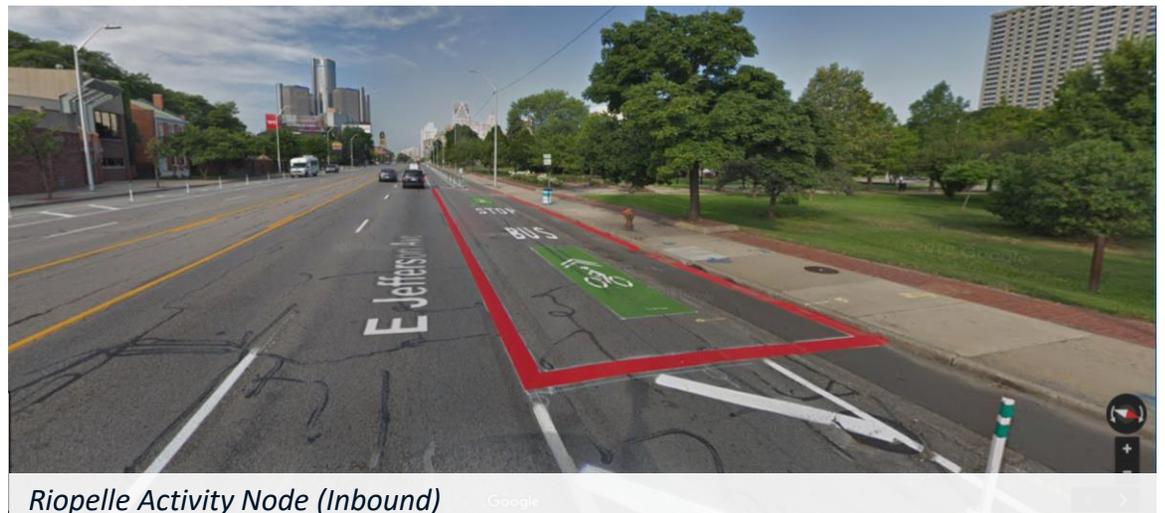
As in all Pilot Nodes, consideration should be given to zoning modifications that remove auto-oriented uses from the Jefferson Avenue frontage at a minimum. The Van Dyke Node provides a good example of a common situation on the corridor where automobile parking, filling stations and auto-oriented development norms prevent walkability and transit-friendly density (and limit the eventual development benefits that can be associated with transit investment). In the long-term, zoning changes should be considered to allow increased density and more mixed-use development north along Van Dyke to support walkable connections from Jefferson to the residents to the north.



FRAMEWORK | PILOT NODE 3: RIOPELLE

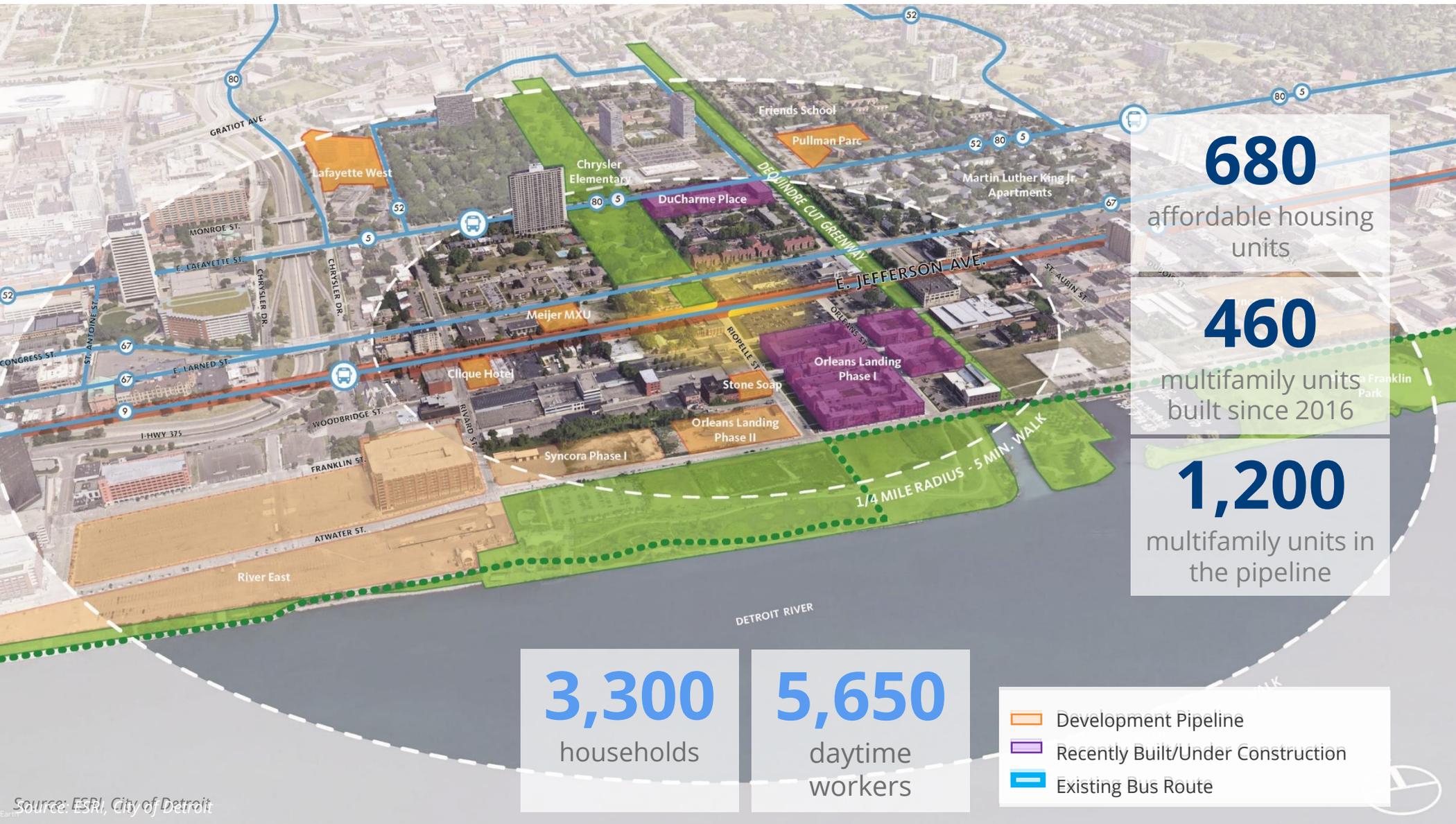
Riopelle is an important location near Downtown that has seen significant development activity with more to come.

- Riopelle connects to the Lafayette Plaisance Park and Milliken State Park and Harbor, and knits neighborhoods along the RiverWalk. Multimodal connections will support transit access and ridership of service at this location.
- Riopelle provides convenient access to transit on Larned.
- This location has substantial population and employment density compared to adjacent areas.
- The number of households that do not own cars is high relative to other Census tracts along the corridor (~41%). (See Appendix: Transit Demand Index)



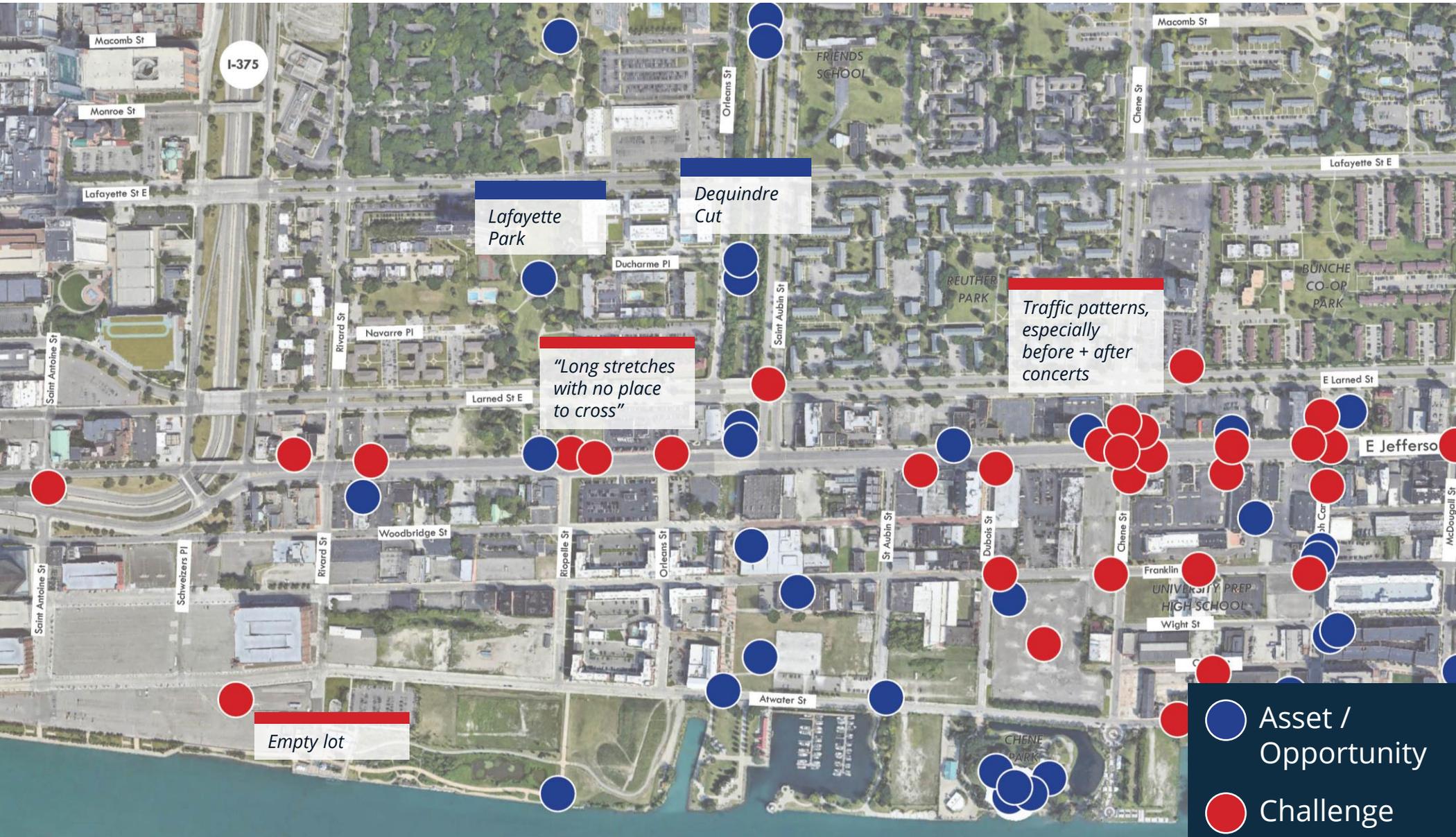
FRAMEWORK | RIOPELLE EXISTING CONDITIONS

Riopelle suggests clear demand potential, with a high number of existing households and daytime workers, and a large multifamily pipeline within a half-mile radius.



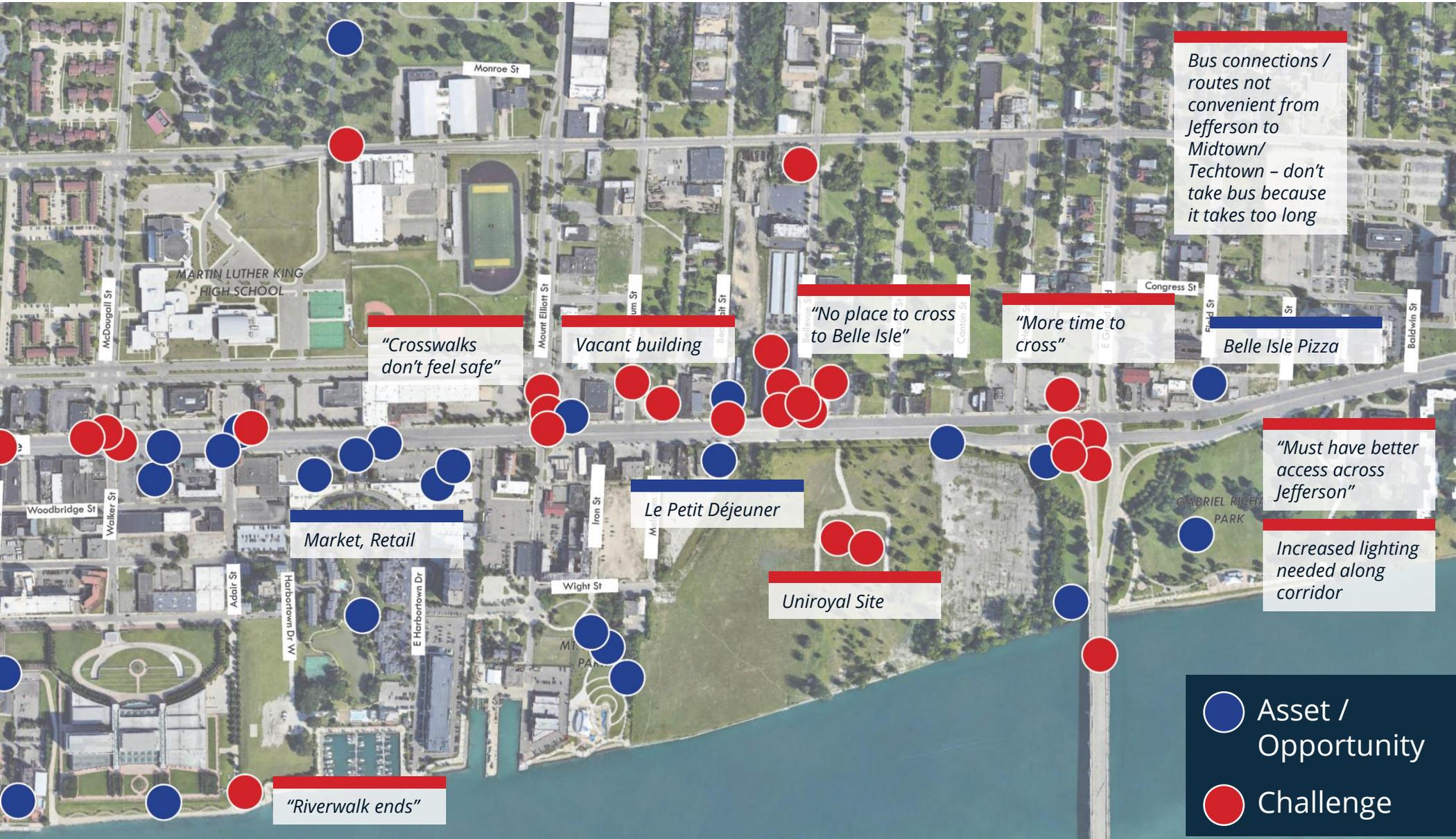
FRAMEWORK | RIOPELLE COMMUNITY FEEDBACK

Riopelle will benefit from public realm, pedestrian safety, and transit infrastructure enhancements. In particular, traffic safety improvements are key to enhancing pedestrian access. During the neighborhood workshop session, stakeholders identified the following key issues and existing assets at this location.



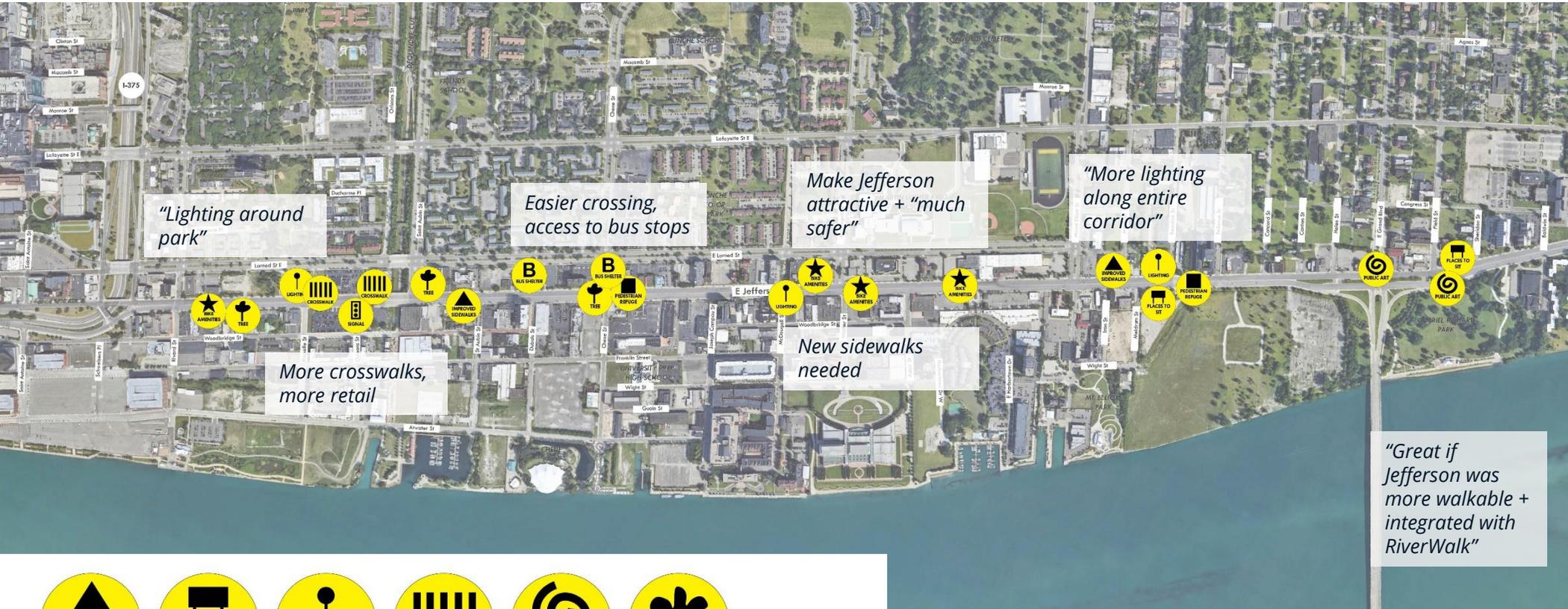
FRAMEWORK | RIOPELLE COMMUNITY FEEDBACK

Similar to other node locations, participants were concerned about hazardous pedestrian crossings, vacant buildings, and the need for more lighting and seating along the corridor.



FRAMEWORK | RIOPELLE COMMUNITY FEEDBACK

Community members wanted to see better lighting, streetscape elements, and improvements to intersections to make crossings safer. A summary of all groups' results are located in the appendix.



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FRAMEWORK | RIOPELLE CONCEPT IMPROVEMENTS



Provide a safe and accessible multi-modal corridor

- 1 Street repaving**
- 2 Sidewalk reconstruction**

Riopelle's sidewalks are in poor condition. Sidewalk upgrades will ensure that pedestrians are able to safely travel along the corridor.
- 3 Pedestrian-oriented lighting**

Pedestrian-focused lighting will improve the perception of safety at night.
- 4 Protected refuge islands**

Safe multimodal crossing facilities at Riopelle will improve access to the adjacent riverfront, trails, and parks for pedestrians and bicyclists.
- 5 Protected bike lanes with curbs**

Safe multimodal facilities at Riopelle will improve access to the adjacent riverfront, trails, and parks for pedestrians and bicyclists. A bike box will allow cyclists to stage waiting to cross East Jefferson to reach the riverfront trails.



Strengthen connections

- 6 Signalized intersection**

In the long-term, plan for a traffic signal at Riopelle as future development within East Riverfront occurs. This will allow for a safe pedestrian crossing spaced midway between St. Aubin and Rivard Streets.
- 7 Relocation of bus stop and bus islands with shelters, etc.**

Shifting the inbound bus stop from near side to far side will help with transit performance. Demands for improved bus services and facilities could be addressed with bus boarding islands, shelters and off-board ticketing.
- 8 Updated traffic signal with Transit Signal Priority (TSP) and bus queue jump**

Strategic bus queue jumps will improve bus service reliability by giving them a competitive advantage to traffic queues.



Create a vibrant destination

- 9 Street trees**

Street trees will provide shade and buffer from the travel way.
- 10 Benches and other opportunities for seating**

Seating will offer opportunities for resting and socialization.

FRAMEWORK | RIOPELLE CONCEPT

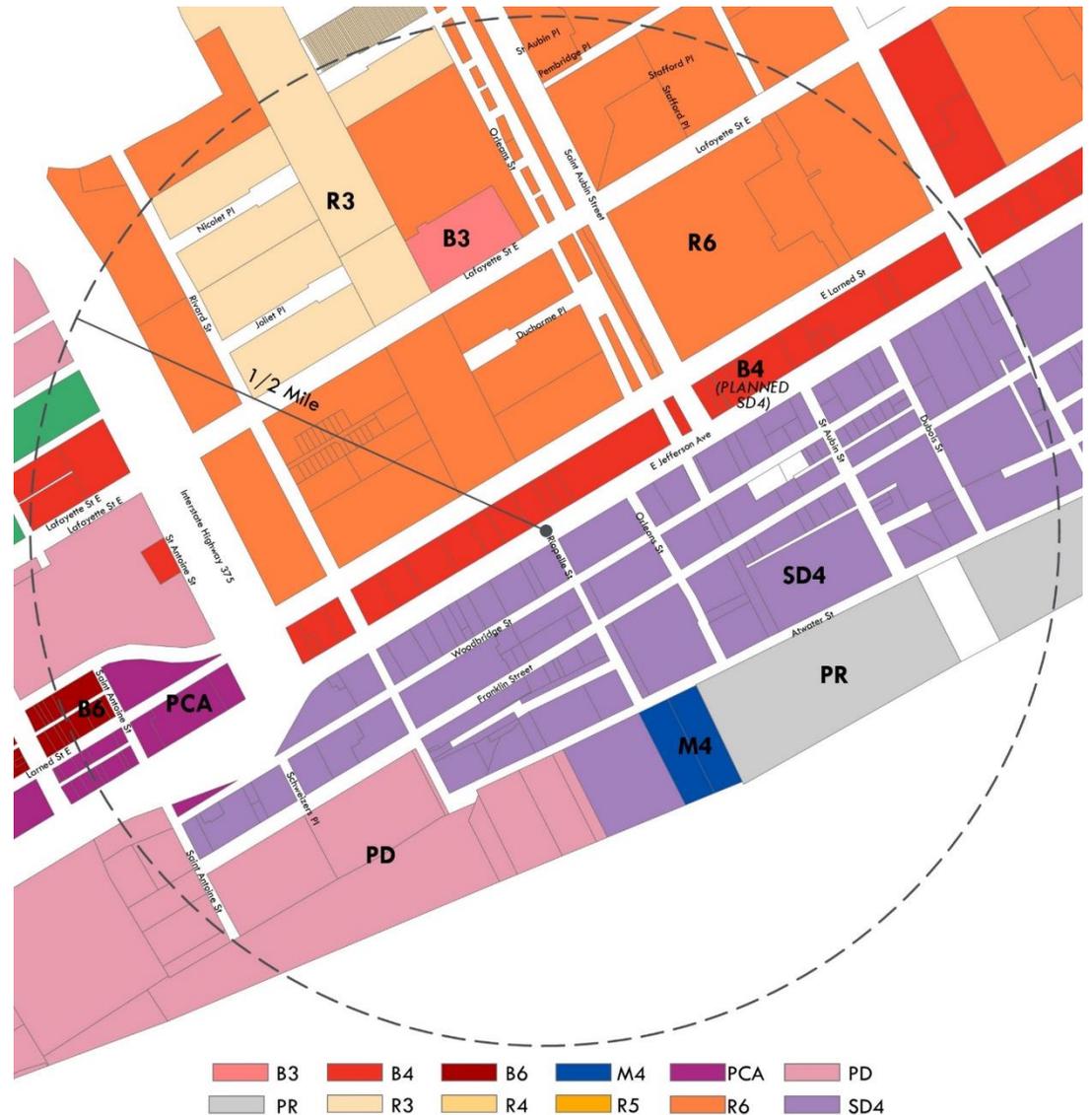


Possible Riopelle Design Treatment

FRAMEWORK | RIOPELLE LAND USE & ZONING

A significant portion of the Riopelle Node is currently zoned to support transit-oriented development. Planned zoning to SD4 along the north Jefferson frontage will further enhance this node's potential.

Recent zoning modifications that allow reductions for off street parking requirements (allowing a 25% reduction for most commercial uses, and reducing the multifamily requirement to .75 spaces per residential unit (down from 1.25/unit) are similarly conducive to transit-oriented development. These changes allow a more aggressive parking reduction than the market currently is willing or able to build. From a zoning perspective, the Riopelle Node as it is envisioned to develop in the East Riverfront Framework plans, is well-positioned to demonstrate the development benefits of transit investment on Jefferson.



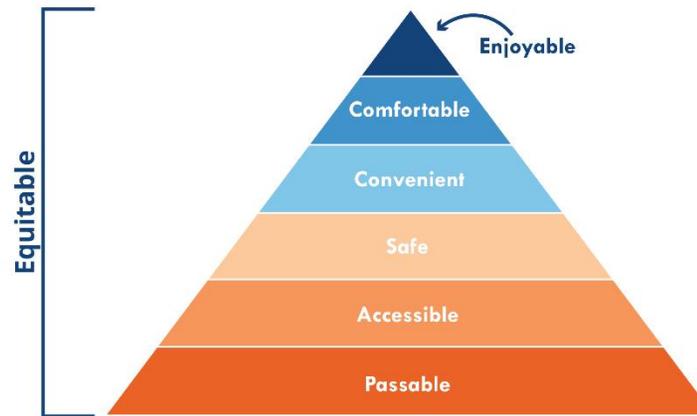
FRAMEWORK | COMPLETE STREETS TOOLBOX

Streets must be passable for all. No matter the individual's physical ability or neighborhood, everyone should be able to travel along and across every street.

Complete streets push beyond the bottom rung of the hierarchy of street needs and aim to allow users of all ages and abilities to safely use all streets and to deliver convenient, comfortable journeys for people driving, walking, biking, and using public transit.

While all complete streets have similar goals, there is no list of required features. Per the National Complete Streets Coalition, complete streets projects often include: wider and improved sidewalks, bike lanes, crosswalks and pedestrian refuge islands, landscaping and street trees, and upgraded transit shelters.

Hierarchy of Street Needs



The **Complete Streets Toolbox** (see Appendix) can guide City agencies and stakeholder groups in prioritizing the many street design tools.

Developed for the East Jefferson corridor, the Toolbox can be applied and used as a resource for the entire City of Detroit. Each tool includes an explanatory description, benefits, application guidance, and estimates of costs and time to completion.

The Toolbox is divided into four sections:

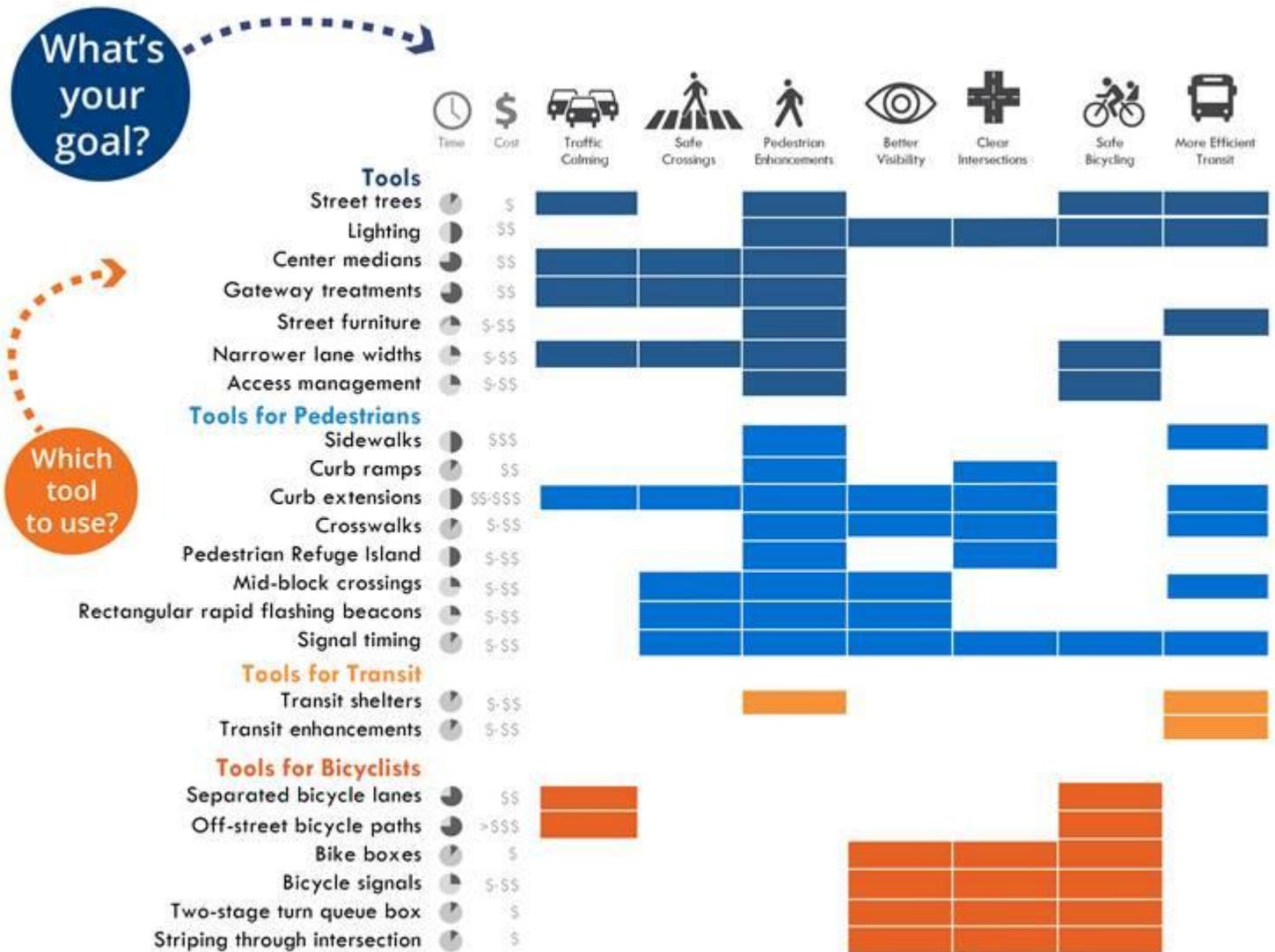
1. General Street Design Tools + Strategies
2. Street Design Tools for Pedestrians,
3. Street Design Tools for Transit
4. Street Design Tools for Bicyclists

The Toolbox also includes a matrix specific to potential activity nodes across the East Jefferson corridor that indicates where certain complete street tools may be most beneficial.

FRAMEWORK | COMPLETE STREETS TOOLBOX

Selecting the Right Tools

The Complete Streets Toolbox offers different sets of solutions based on the goals of the intervention and the resources available.



FRAMEWORK | COMPLETE STREETS TOOLBOX

Context-Based Solutions

This matrix indicates how complete street treatments may be applied to locations across the corridor outside of the Pilot Nodes.

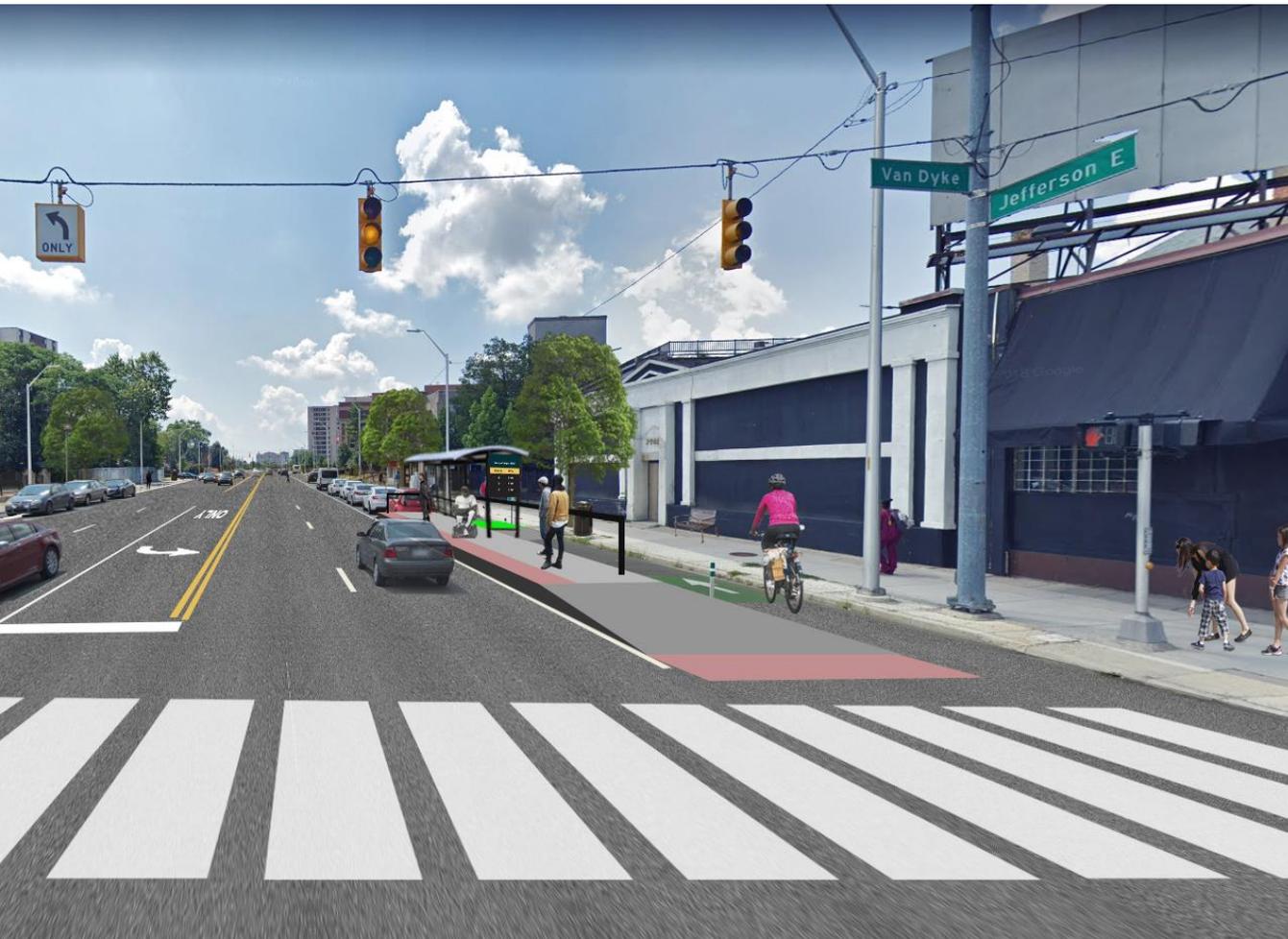






NEXT STEPS

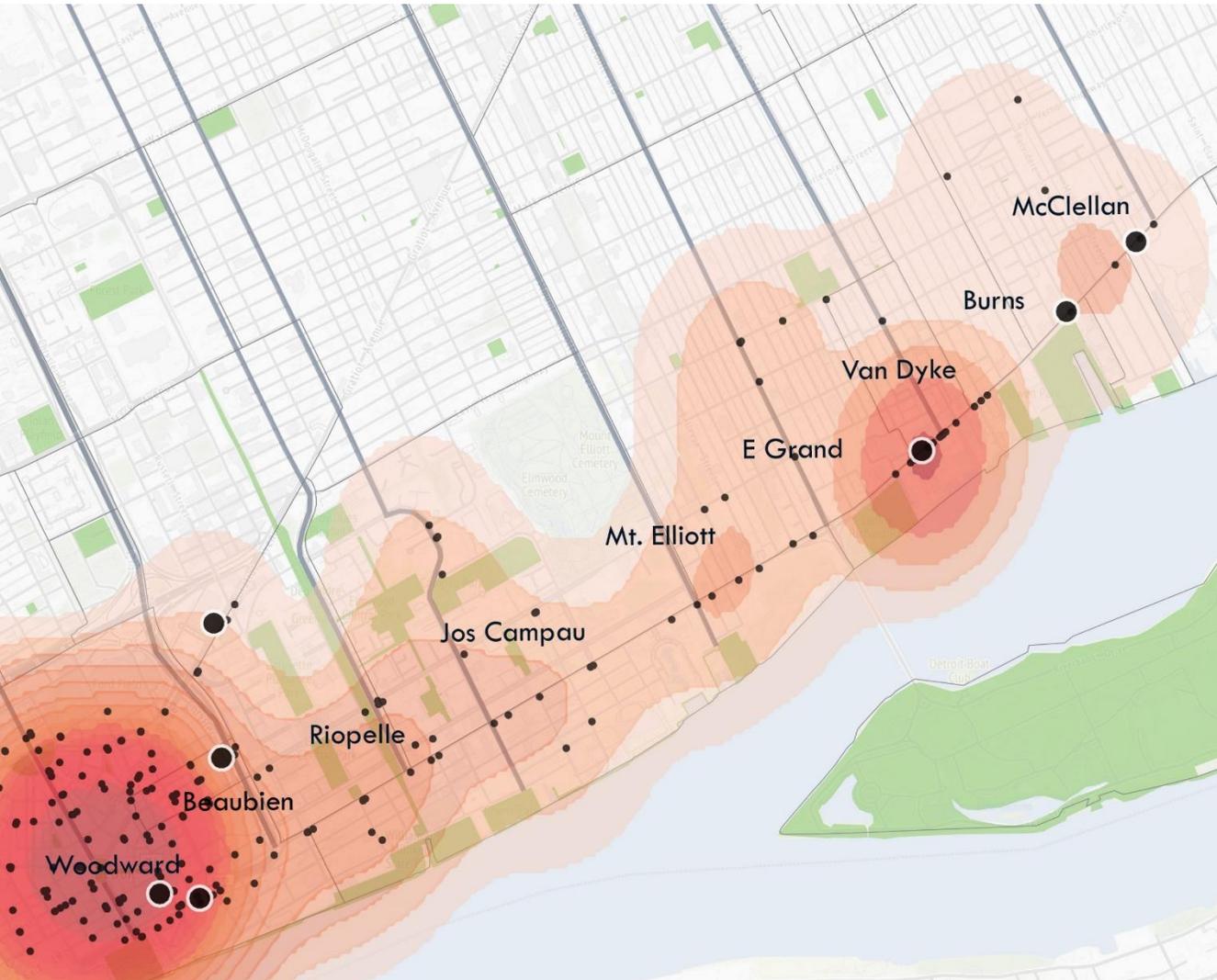
NEXT STEPS | STREETSCAPE IMPROVEMENTS



Integrated placemaking, transportation, and economic development strategies will support the transformation of East Jefferson into one of the city's iconic, visible, and welcoming great streets.

- 1. Leverage the City's current streetscape contract to focus on improvements at Pilot Node locations.** Feedback from community meetings and further engineering analysis should inform detailed designs to identify capital investments at these locations.
- 2. Prioritize streetscape improvements at locations beyond the Pilot Nodes that see high pedestrian, bike, and transit rider numbers to strengthen placemaking across the corridor.** These improvements will also support future economic development and investment at key locations. Recommendations by key locations across the corridor are provided in the Complete Streets Toolbox (see Appendix).

NEXT STEPS | PEDESTRIAN SAFETY IMPROVEMENTS



- 1. Protect pedestrians.** Traditional traffic engineering practices focus on vehicles and concentrate on reducing travel times, improving vehicular speeds, and enhancing vehicular congestion. Upgrading sidewalks, improving the visibility of crosswalks and creating pedestrian refuges will help protect pedestrians and calm vehicular traffic across the corridor.
- 2. Improve traffic signal performance for all users.** Traffic signal locations and timing are key to reducing speeds and increasing safe crossing opportunities for pedestrians and bicyclists. Installing traffic signals at key crossing locations, such as Riopelle, will help accommodate crossings. Lengthening the pedestrian cycle timing across the corridor will give pedestrians (especially seniors and people with disabilities) additional time to cross, while ensuring efficient traffic flow.

NEXT STEPS | EDUCATION AND OUTREACH



- 1. Conduct targeted outreach with the community to determine the real and perceived barriers to using protected bike lanes safely.** While many communities are enjoying new high-quality bike facilities, significant challenges persist in building an awareness of safe cycling practices.

- 2. Design and deliver a public awareness campaign that addresses perceptions of bicycling across the corridor.** This may include safety skills and bike maintenance training, group rides and open street events, promotional materials, and coordination with transit. Program consistency is essential for building good habits. These efforts must be inclusive of linguistic minorities and provide flexible formats to accommodate individual needs. Detroit has a growing tradition in group rides and reaching out to senior and disabled cyclists, as well as cyclists of color and women.

Today's protected facilities and education efforts cultivate the next generation of riders and ensure that the availability of safe cycling infrastructure benefits all communities.

NEXT STEPS | ECONOMIC DEVELOPMENT STRATEGIES

- 1. Engage business owners and civic organizations** to participate in the ongoing planning and design of the corridor.
- 2. Support the ongoing maintenance of public realm improvements**, such as landscaping and public art by determining a financing mechanism and working with civic organizations to support ongoing maintenance.
- 3. Review zoning regulations** at key Pilot Nodes and key locations to ensure that zoning supports higher-density, mixed-use buildings with reduced parking requirements.
- 4. Promote the development and preservation of affordable housing and commercial spaces** along the corridor. Inclusive land use and development policies should be considered along East Jefferson to ensure that public realm and transportation



Rendering courtesy of Neumann Smith Architecture

investments benefit all Detroiters. Leverage the Inclusionary Housing Ordinance, public financing options, public land assembly, and

development incentive streamlining to promote inclusive housing development as the corridor changes.

NEXT STEPS | TRANSIT IMPROVEMENTS

- 1. Consolidate bus stops.** Bus stop spacing has significant impacts on transit services, and East Jefferson has a high density of bus stops. (See Appendix: Transit Service and Spacing Recommendation). Reducing approximately 36 bus stops while maintaining stop walkability will: reduce bus dwell times; make more efficient use of crowded curb space; and make transit a more competitive option for potential customers.
- 2. Invest in Pilot Nodes and core bus stops.** Remaining stops should be provided with high quality transit access features including bus shelters (with heating elements), seating, real-time arrival signage, pedestrian lighting, wayfinding / trip planning information, and “green light” cameras. Such features will improve customer experiences while waiting (especially during inclement weather), and provide essential information to make the system easier for all to use.
- 3. Coordinate with SMART services.** DDOT shares the East Jefferson corridor with SMART regional express buses. Service operations between the two agencies should be coordinated to maximize transit availability and reduce confusion for potential riders. SMART buses should function as express routes during commutes, share facilities with DDOT, and stop only at key locations (including the three Pilot Nodes) to allow customers to board and alight.
- 4. Strategically deploy transit enhancements.** Bus boarding islands (curb extensions that align the bus stop with the parking lane while maintaining protected bicycle lanes) should be installed at key stops to increase space for waiting customers and reduce bus delays entering the flow of traffic. Transit signal priority and queue jumps can be strategically deployed across the corridor to reduce transit delays and give buses priority over private vehicles.



NEXT STEPS | TRANSIT OPPORTUNITY

Based on current and projected residential and employment density, enhanced bus service is the most viable short-term transit enhancement along the corridor.

Enhanced bus systems run at higher frequencies and carry more capacity than local buses. They also cost less than bus rapid transit or light rail.

In addition, enhanced bus service typically runs along designated lanes for portions of the route, speeding up travel times and improving reliability.

Enhanced bus stops are more widely dispersed than current local bus service, with stops spaced at approximately half-mile intervals.

Based on these findings, the Plan models potential bus stops spaced a half-mile apart along Jefferson, forming the basis to identify Pilot Node locations.



HEADWAYS
10 -15 Min



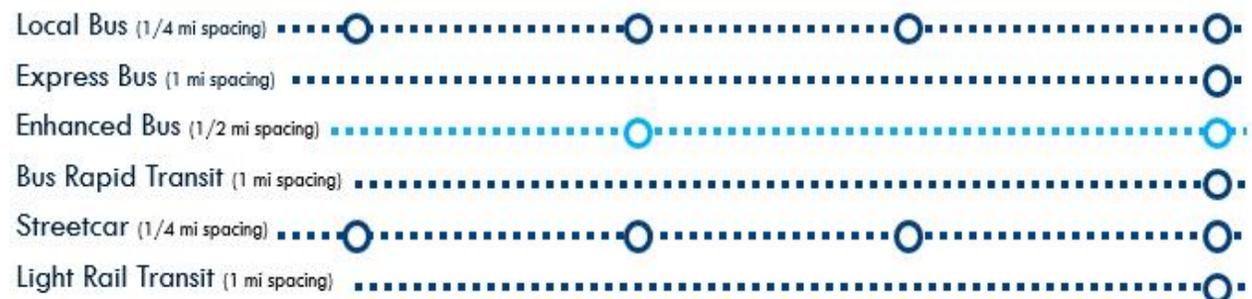
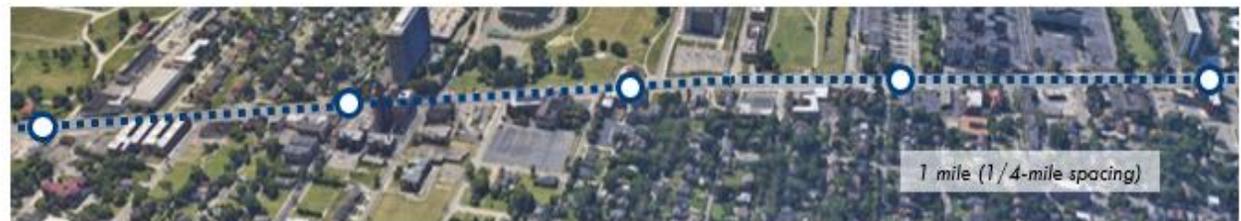
SPEED
8 – 60 mph



CAPACITY
44 – 62 riders



STOP SPACING
¼ Mi – ½ Mi



Source: FTA target density thresholds for transit modes

NEXT STEPS | TRANSIT OPPORTUNITY

The East Jefferson corridor poses opportunity for future transit investments, it is important to keep the City's dynamic employment and population densities.

The Federal Transit Administration (FTA) has provided guidance in relation to matching transit modes (local bus, express bus, enhanced bus, bus rapid transit, streetcar, and

light rail transit) with residential and employment densities. The table below lists residential and commercial density characteristics that were observed where these types of transit services are present.

Per the FTA guidance, there are several stretches along East Jefferson where existing densities may support enhanced bus service. However, factors indicating potential suitability for enhanced bus are not consistently found across the corridor.

As the corridor continues to redevelop its jobs and housing assets, it will potentially become more favorable for enhanced bus.

The next page indicates where the potential supportive conditions are present. The red rectangles (A & B) indicate where current residential or commercial densities do not support enhanced bus service. Improving these areas should be prioritized prior to implementing future enhanced bus service.

Transit Technology	Core Residential Density (du/acre)	Core Commercial Density (em/acre)	Centers Residential Density (du/acre)	Centers Commercial Density (em/acre)	Corridors Residential Density (du/acre)	Corridors Commercial Density (em/acre)
Local Bus	n/a	n/a	n/a	n/a	n/a	n/a
Express Bus	20+	200	n/a	n/a	n/a	n/a
Enhanced Bus	20+	200	10-20	2-5	5-10	2-5
Bus Rapid Transit	35+	500	25-35	100-150	12-25	30-40
Streetcar	20-35	200-500	n/a	n/a	n/a	n/a
Light Rail Transit	35+	500	25-35	100-150	12-25	30-40

Based on FTA (2014). *Planning for Transit-Supportive Development: A Practitioner's Guide*

NEXT STEPS | TRANSIT OPPORTUNITY



NEXT STEPS | TRANSIT OPPORTUNITY

Moving forward, as the conditions for supportive development emerge. East Jefferson is a likely candidate for enhanced bus improvements. The 9 - Jefferson is one of the system's connect 10 lines and carries 80% of the corridor's transit customers. Based on DDOT's existing 9 schedule and service area, it is likely that \$2.01 million per year will be required to operate the service.

This analysis assumes the following:

- *When enhanced bus is launched, local service is maintained with 30 minute headway*
- *Enhanced service is every 10-15 min.*
- *Operating cost \$70 per hour*
- *20 minute pull trips*
- *Current schedule is accurate*
- *Time savings of enhanced bus service treatments are at least 2 min (3%)*
- *Spare vehicles not included*
- *No coordination of local and enhanced bus scheduling*
- *Fare revenue not included*

Launching enhanced bus will require:

- *\$2.4 million more in annual operating cost (118% increase over current)*
- *5 additional buses*
- *17 additional operators*

	Fleet Requirement	Weekday Cost	Weekend Cost	Operators
Existing Route 9 Service (≈15 min peak)	6 buses	\$1.64 million	\$371,000	15

	Fleet Requirement	Weekday Cost	Weekend Cost	Operators
Proposed Enhanced Bus Service (10 min peak/ 15 min off)	8 buses	\$1.98 million	\$463,000	18

	Fleet Requirement	Weekday Cost	Weekend Cost	Operators
Proposed Local Bus Service (30 min all times)	3 buses	\$1.39 million	\$568,000	14

Alternative approaches can reduce cost of local service:

- *Eliminating local service*
- *Only providing local service as a temporary transition option*
- *Providing less frequent local service*
- *Coordinating scheduling with frequent enhanced bus service to remove duplicative trips*

NEXT STEPS | TRANSIT OPPORTUNITY

The below locations reflect future, potential enhanced bus stops along the corridor .



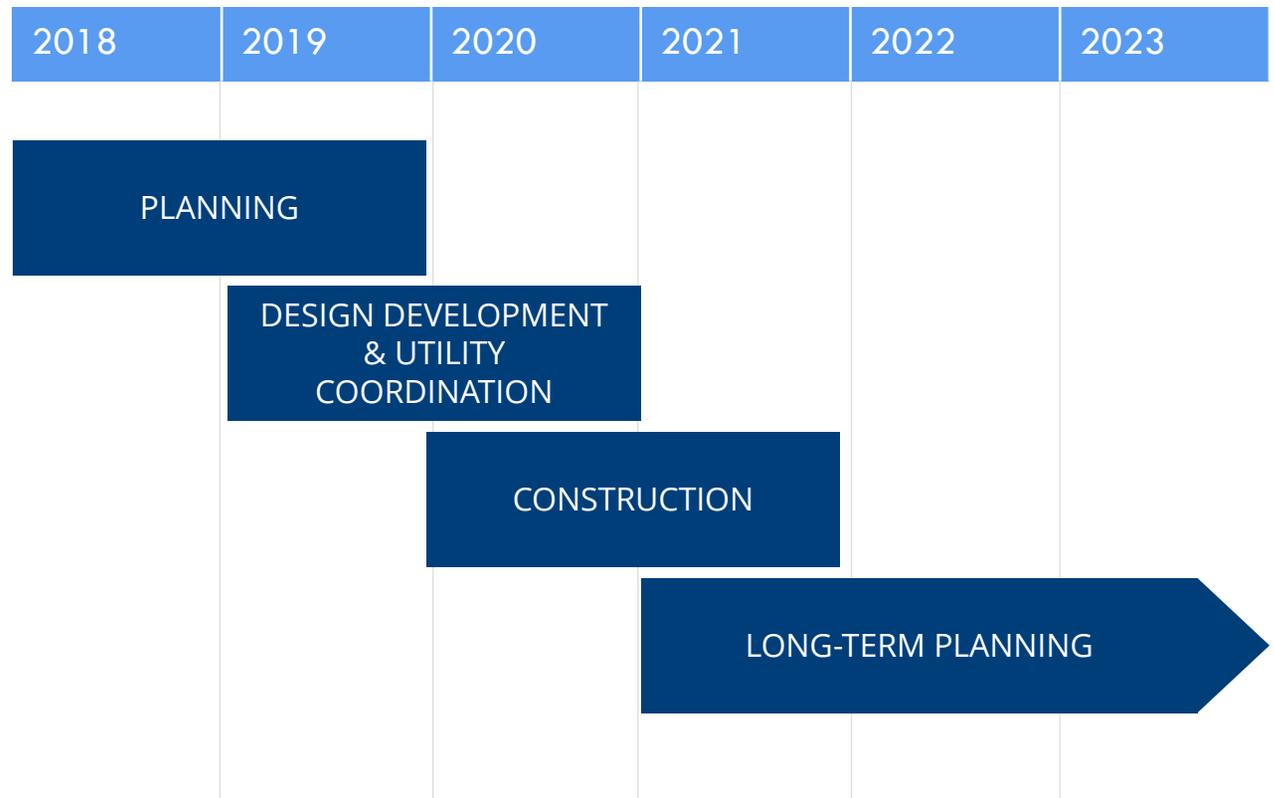
NEXT STEPS | CONCLUSION

With this initial Plan in place, the City of Detroit can move forward towards implementation of public realm and transportation improvements with the \$17 initial bond funding. Such improvements will improve residents' quality of life across the corridor.

This Plan provides a guide to the transformation of a street that is accessible, safe, and desirable for all modes of travel. This initial planning will lead to the following activities over the next five years:

- **Design development and utility coordination** with an initial focus on the Pilot Nodes and continued engagement with community members.
- **Construction activity** at the Pilot Nodes and ultimately along the entire corridor.
- **Long term planning** to identify further physical improvements, transit strategies, and economic development measures, including possible land use and zoning changes over the next 10+ years.

TIMELINE OF EAST JEFFERSON CORRIDOR IMPROVEMENTS



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BIK

Finance Michigan



APPENDICES

APPENDIX | GLOSSARY

Average Annual Daily Traffic (AADT)

| Annual average daily traffic is a simple, but useful, measurement of how busy the road is. It is used primarily in transportation planning and transportation engineering and reflects the volumes of traffic travelling in both directions.

Bus Boarding Island

| Bus boarding islands are dedicated waiting and boarding areas for passengers that streamline transit service and improve accessibility by allowing buses to stop in traffic lanes instead of pulling to the curb. Bus boarding islands may be separated from the sidewalk by a bike channel, eliminating conflicts between transit vehicles and bikes at stops.

Bus Bulb | A bus bulb is an arrangement by which a sidewalk is extended outwards for a bus stop. Typically the bus bulb replaces the street that would otherwise be part of a parking lane. With bus bulbs a bus can stay in its traffic lane to board customers, instead of having to pull over to the curb.

Bus Rapid Transit (BRT)

| Bus Rapid Transit is a high-quality bus-based transit system that delivers fast and efficient service which may feature dedicated lanes, busways, transit signal priority, off-board fare collection, elevated platforms and enhanced stations. With BRT transit agencies can deliver high quality transit service like light rail but at a lower cost.

Commute Mode Share

| Commute mode share measures how workers aged 16 years and over commute (including: bicycle, private vehicles - car, truck, van, taxicab, and motorcycle, public transportation - bus, rail, and ferry, and walking). Data on commute mode share come from the estimates from the American Community Survey (ACS).

Enhanced Bus Service

| Refers to an option for improving existing bus service. Enhanced bus service uses low-floor, low-emission buses, but without dedicated bus lanes (the key difference from BRT). Stops are planned at greater distances than existing bus service.

Micromobility

| A category of modes of transportation that are provided by very light vehicles such as electric scooters, shared bicycles, electric pedal assisted bicycles, and other modes. Rather than use existing modes (vehicles, transit, walking, etc.) a user would join a micromobility sharing network to be able to travel short distances (less than five miles – a distance range that accounts for 60% of the trips in the US).

Pilot Node

| For the East Jefferson corridor, pilot nodes are locations where public realm and transportation improvements are focused. Pilot Nodes reflect the diversity of neighborhoods across the corridor and build on current strengths of the area. They are spaced to maximize equitable access along the corridor and to reflect realized and future ridership demand.

Transit Signal Priority

| Transit Signal Priority refers to a set of operational improvements that use technology to reduce dwell time at traffic signals for transit vehicles by holding green lights longer or shortening red lights.

APPENDIX | TRANSIT DEMAND INDEX

To identify nodes for strategic development and supportive transportation infrastructure and services long the corridor, we developed a Transit Demand Index. The index compares the estimated transit demand for the corridor's 98 transit stops (this includes DDOT and SMART stops serving both east and west bound directions). The index provided a means to create a relative demand ranking of the transit stops along the East Jefferson corridor to support prioritization for neighborhood development and transit investments. For the purpose of the analysis, each stop area is defined as a 0.25 mile buffer (representing 5 to 10-minute walking distances) from each transit stop along the corridor.

The Transit Demand Index combines five metrics and creates a measure that compares each stop:

% of Walk, Bike, and Transit Commuters | Based on data from the 2016 American Community

Survey (ACS) Journey to Work data, the team calculated the total number of people who walked, rode a bicycle, or used public transit for each block group to determine the percentage of walk, bike, or transit commuters. Next, the average percentage for block groups within a 0.25-mile radius of each stop was calculated.

Population Density (Dwelling Units/acre) | Population density was calculated using the 2016 ACS population estimates per each block group divided by the block group area. Assuming a factor of 4 people per dwelling units (DU) to convert population into DU, the average population density was calculated for all block groups within a 0.25-mile radius of each stop.

Employment Density (jobs/acre) | Total number of jobs by block group was estimated using the US Census Bureau's Longitudinal Employer-Household Dynamics (LEHD)

Origin-Destination Employment Statistics (2014). Job density or jobs/acre was calculated given the area of each block group; job density was averaged between all block groups within a 0.25-mile radius of each stop.

% of Zero Car Households | The total number of households that do not have vehicles per block group was identified and a percentage of zero vehicle households per block group was calculated using the 2016 ACS data. Next, the percentage of zero car households was averaged for all block groups within a 0.25-mile radius of each stop.

Transit Ridership | For each stop location, the team calculated the total numbers of riders, summing the boarding and alighting at each stop along the corridor, based on 2012 DDOT ridership data.

APPENDIX | TRANSIT DEMAND INDEX

Once the metrics were calculated, and a common framework was developed to compare and aggregate the data. A relative scoring system where each stop's metric was compared to the maximum value identified at all of the stops along the corridor was employed for all five metrics. A score was assigned based on the metric weighting. The value was divided by the maximum and then multiplied the ratio by the maximum value. The table below describes the formulas utilized for each stop area.

Scores were calculated for stops across all five metrics, and a total score adding the metric scores together was created. Thus, for the five metrics, a perfect score would be 17.

Prioritizing the existing set of bus stops provided a starting point for the node analysis. The node selection / prioritization process took into consideration the development potential for each node, using the number of adjacent soft sites and the availability of publicly controlled parcels. Dispersion of corridor's nodes was also an important factor. Local transit service requires consistent stop spacing - at least 0.25 Miles between stops is recommended for services not within the urban core.

TOTAL SCORE PER STOP AREA

- + *Population Density Score*
- + *Employment Density Score*
- + *% ZCH Score*
- + *% WBT Commute Score*
- + *Transit Ridership Score*

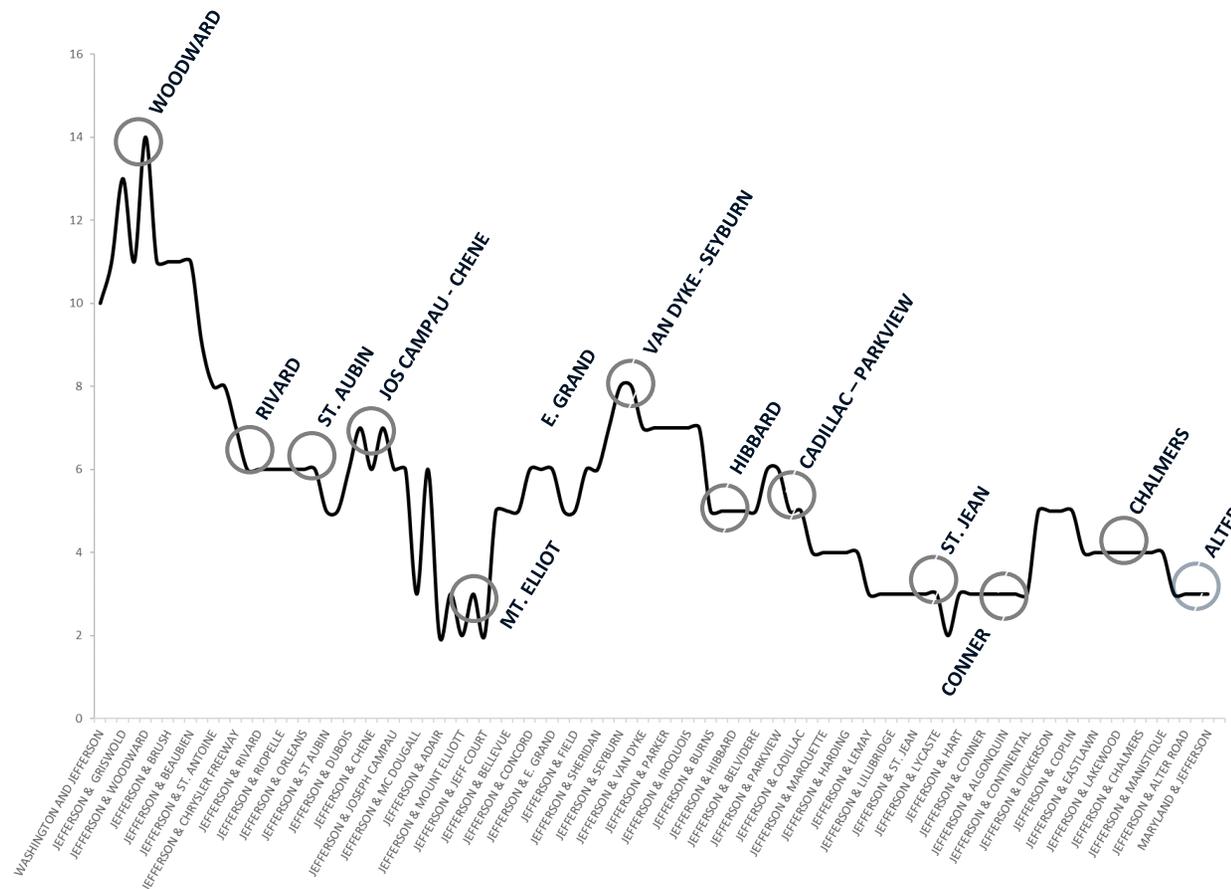
METRIC SCORING FORMULAS

METRIC	VALUE	FORMULA
% of Walk, Bike, and Transit (WBT) Commuters	0 – 5	$\% \text{ WBT Commuter Score} = 5 * \frac{\text{Average \% WBT Commuter}}{\text{Maximum Avg. \% WBT Commuter}}$
Population Density (Dwelling Units/acre)	0 – 4	$\text{Population Density Score} = 4 * \frac{\text{Average Population Density}}{\text{Maximum Avg. Population Density}}$
Employment Density (jobs/acre)	0 – 4	$\text{Employment Density Score} = 4 * \frac{\text{Average Emp. Density}}{\text{Maximum Avg. Emp. Density}}$
% of Zero Car Households (ZCH)	0 – 3	$\% \text{ ZCH Score} = 3 * \frac{\text{Average \% ZCH}}{\text{Maximum Avg. \% ZCH}}$
Transit Ridership	0 – 3	$\text{Transit Ridership Score} = 3 * \frac{\text{Total Riders per Stop}}{\text{Maximum Riders per Stop}}$

APPENDIX | TRANSIT DEMAND INDEX

The below graph presents the transit demand data per stop as a line graph and highlights the index fluctuation across the East Jefferson corridor.

TRANSIT DEMAND INDEX VALUES FOR EACH STOP LOCATION

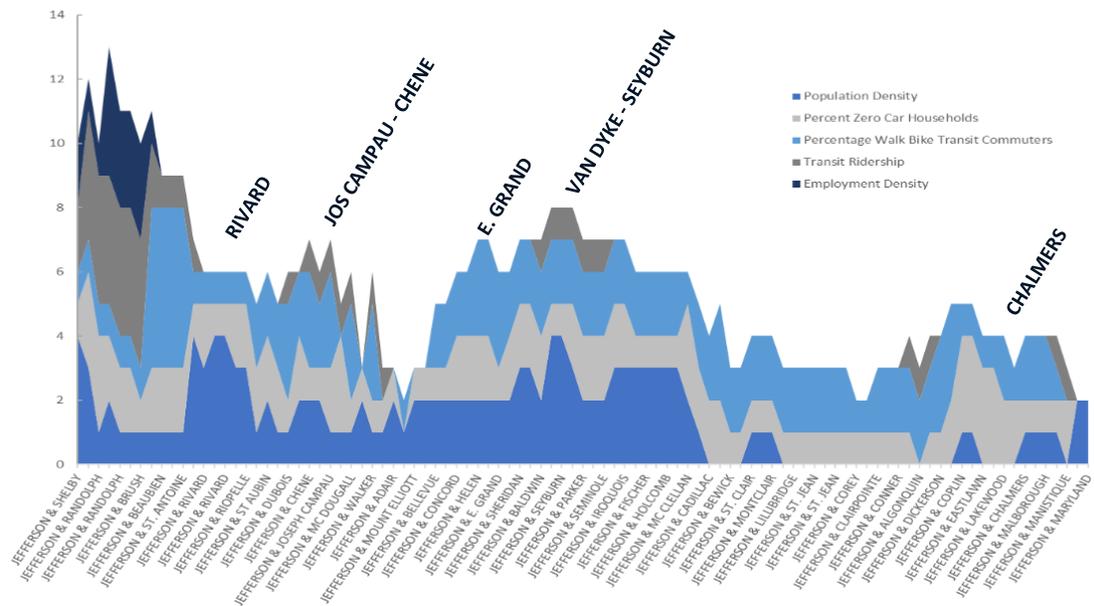


APPENDIX | TRANSIT DEMAND INDEX

The adjacent graph illustrates how the five metrics impact the complete Transit Demand Index score. Employment density and transit ridership pushes up the index for the downtown stops. Walk, bike and transit mode share has the largest impact on near east stops (from Bellevue through McClellan). For the far east stops (Coplin to Maryland), reductions in the percentage of zero car households and walk, bike, and transit mode share create a dip the index values.

The transit demand index analysis formed a base to explore and prioritize potential nodes. The goal of the analysis was not to simply choose the highest scoring nodes, but to put them in context with each other and support investment decisions that would support existing strengths and create tangible benefits across the entire corridor. Thus, the index supports the project goal of developing phased mobility service and infrastructure investments to catalyze a virtuous cycle of East Jefferson investment.

TRANSIT DEMAND INDEX COMPONENTS SUMMED FOR EACH BUS STOP/KEY INTERSECTION



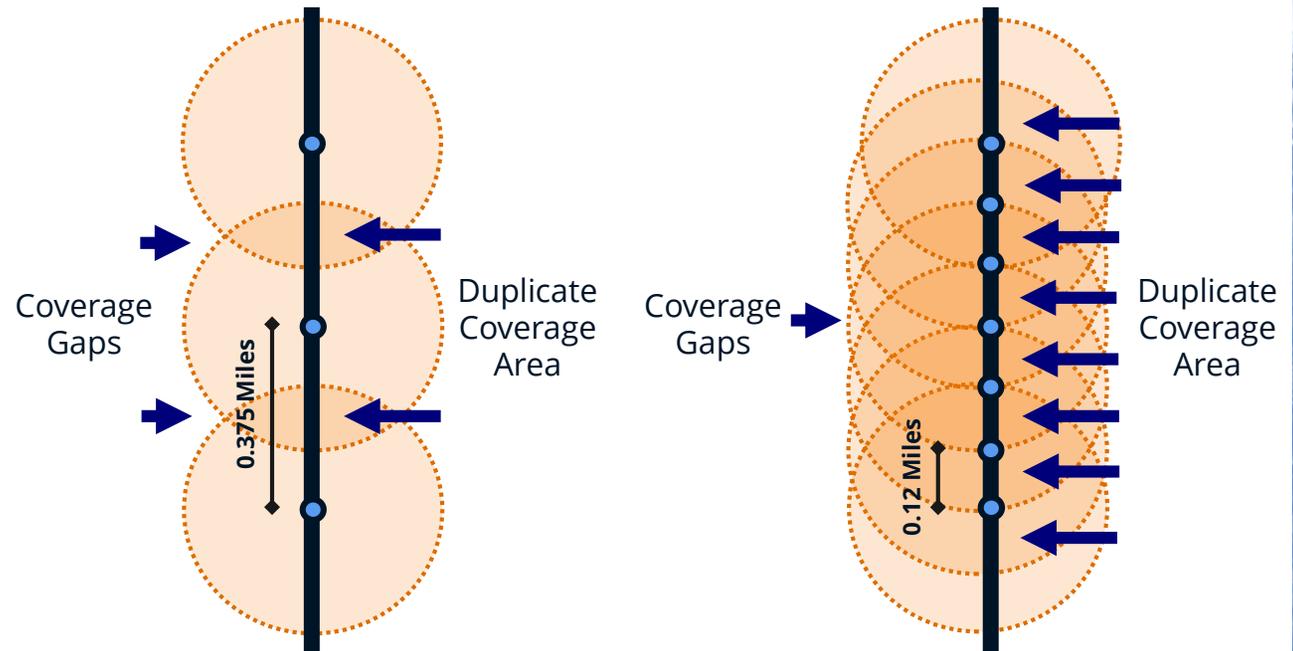
APPENDIX | TRANSIT SERVICE AND SPACING RECOMMENDATION

Bus stop spacing has significant impacts on transit services. It is important to calibrate stop spacing to match transit demand.

Access to transit is typically estimated by assuming that transit customers are willing to walk 0.25 miles (\approx 5 - 10 minutes). Local bus stops should be spaced with this key distance in mind. Proper stop spacing minimizes the following:

- **Duplicate coverage area** | *The area that has more than one stop within walking distance.* Moving stops further apart reduces the duplicate coverage area so each stop area can serve a unique set of customers.
- **Coverage gap** | *The area outside the walking distance to each bus stop.* Moving stops further apart, increases the coverage gap.

Public transit agencies have a choice in how they balance these two impacts.



The diagram above illustrates a spacing scenario of \approx 0.375 Miles. At this distance, the 0.25 Mile walk distance to each stop is overlaid and creates an area of duplicate coverage.

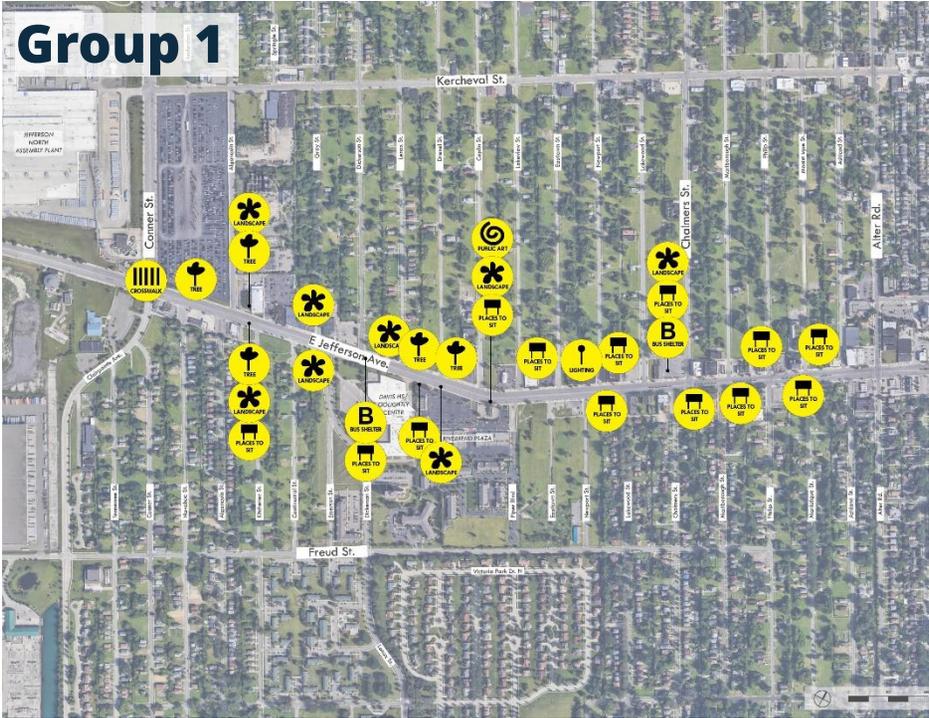
In contrast, the 6.0 Mile long East Jefferson study area, has approximately 50 bus stops in each direction. Thus bus stops are located on average every 0.12 Miles.

The diagram above illustrates how with 0.12 Mile bus stop spacing, there is a significant amount of overlap in coverage between each stop. This high density of stops translates into transit being a less competitive option when compared with SOVs. The increased number of stops also means that travel times would be higher and that more drivers and buses would be required for the service to meet posted route schedules.

FRAMEWORK | JEFFERSON CHALMERS COMMUNITY FEEDBACK

Stakeholders identified desired interventions during the community workshop.

Intervention Toolkit



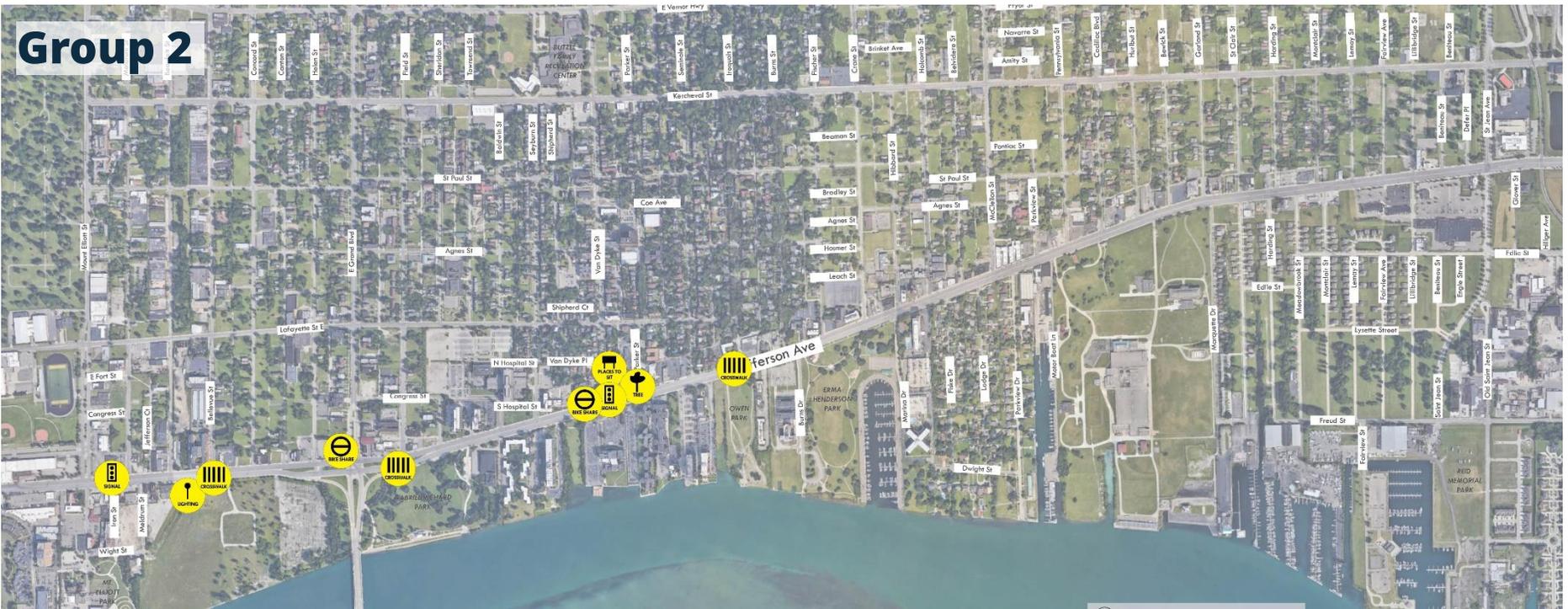
FRAMEWORK | IVGV COMMUNITY FEEDBACK

Stakeholders identified desired interventions during the community workshop.

Group 1



Group 2



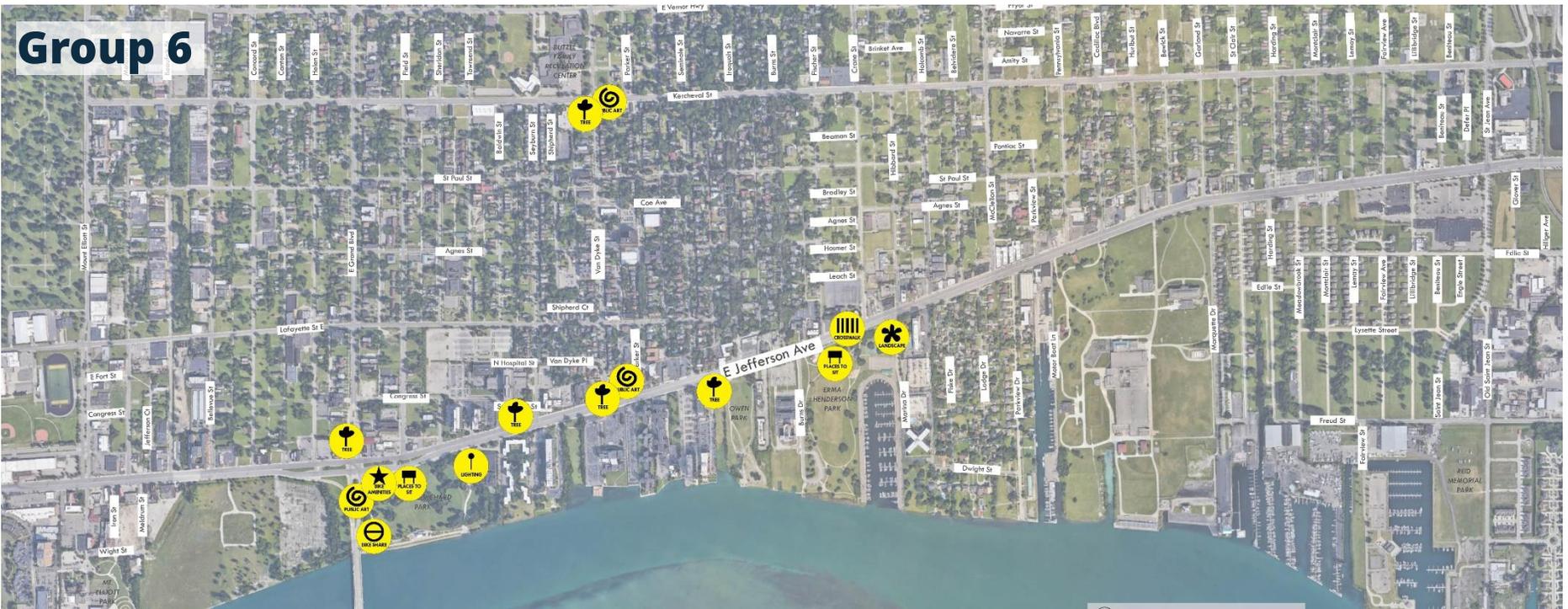
FRAMEWORK | IVGV COMMUNITY FEEDBACK

Stakeholders identified desired interventions during the community workshop.

Group 5

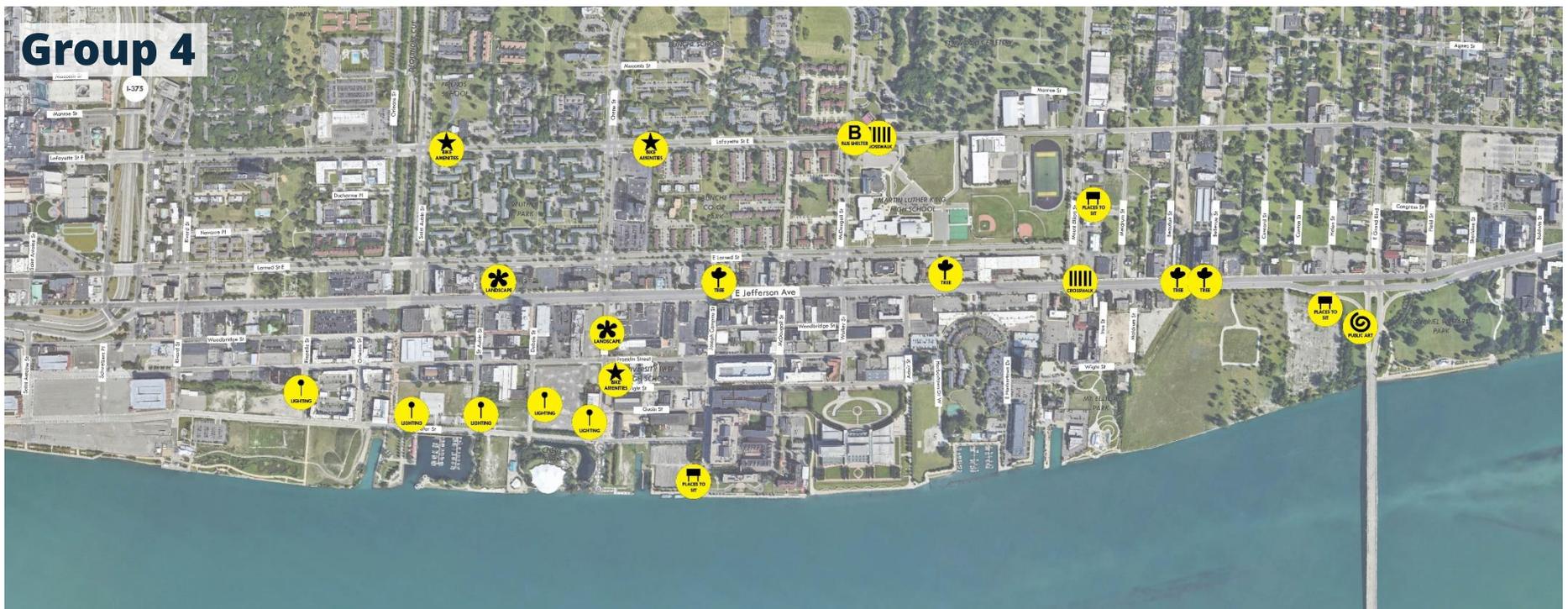


Group 6



FRAMEWORK | EAST RIVERFRONT COMMUNITY FEEDBACK

Stakeholders identified desired interventions during the community workshop.





COMPLETE STREETS TOOLKIT