Lakefront Greenway and Downtown Connector Study

December 31, 2015

Prepared for:

stclair superior development corporation

CAMPUS DISTRICT

WAREHOUSE DISTRICT

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Contents

INTRODUCTION

STUDY PURPOSE

Lake Erie is a valued resource for the City of Cleveland and Northeast Ohio. However, it has historically been difficult for residents on bicycle or foot to access the lakefront, separated by I-90 and the railroad line. Much of the lakefront has been occupied by industrial uses, which also has limited public access. Further, away from the lakefront, relatively few roadways offer bicycle facilities between downtown and the northeastern suburbs and near eastside neighborhoods.

Several trends are converging to heighten interest, at this time, in improving access to the lakefront for pedestrians and bicyclists. Alternative transportation modes are drawing attention from more residents locally and nationwide. The redevelopment of downtown Cleveland and near eastside neighborhoods promises to place larger numbers of residents close to the lakefront. Recognition of the important role played by lakefront development and recreational resources in other major American cities has also served to highlight the potential of a Lakefront Greenway. The Lakefront Greenway and Downtown Connector Study is well-positioned to capitalize on all of these developments.

Sponsors

The potential of this area for multi-modal transportation is exemplified by the three community development districts that have partnered to sponsor the Lakefront Greenway and Downtown Connector Study:

St. Clair-Superior Development Corporation. The service area extends from East 30th Street on the Western boundary to Martin Luther King Boulevard as the Eastern boundary, South to Superior and Payne Avenues and North to Lake Erie in Cleveland, Ohio. The area is home to several diverse populations including ethnic neighborhoods, a stable industrial corridor, growing arts scene, and a myriad of unique dining and shopping venues.

Campus District. Extending from the Shoreway to Orange Avenue between East 30th and 18th Streets, the Campus District includes the following institutions: Cleveland State University, Saint Vincent Charity Medical Center, and Cuyahoga Community College Metropolitan Campus. Also, the area has seen a large increase in residential development including housing for Cleveland State University students and market rate development

Warehouse District. This district encompasses the area between West 10th Street, West 3rd Street, Superior Avenue, and the bluffs overlooking Lake Erie. Listed on the National Register of Historic Places, many buildings have been converted to residential and commercial uses.

Goals and Objectives

The Lakefront Greenway and Downtown Connector Study has two primary goals:

- Improve North and South Marginal Roads for travel by bicyclists and pedestrians.
- Strengthen the connection between lakefront, downtown, and near eastside neighborhoods.

It is anticipated that the goals will be accomplished via the following objectives:

- Establish a Lakefront Greenway along the Marginal Road corridor. The corridor will encompass both North Marginal Road and South Marginal Road, to maximize points of connection to the adjacent neighborhoods.

- Create north-south connections to the Lakefront Greenway. New connections to the Lakefront are envisioned in this plan, along with improvements to existing connections.

- Facilitate east-west connectivity. Along with improvements to the Marginal Roads, bicycle facilities on higher order roadways are needed to enhance bicycle movement within the study area.

Concepts

Products from this study include plans for a trail along both Marginal Roads; the improvement of existing connections to the lakefront and plans for new lakefront connections; and concepts for providing bicycle facilities on higher-order east-west roadways.

STUDY AREA

The study area is largely framed by the lakefront (north); Martin Luther King Jr. Drive (east); Superior Avenue (south); and the Cuyahoga River (west). The East 22nd Street corridor between Superior Avenue and I-90 was also included in the study area to provide connectivity to the planned bicycle facility on this roadway within the Campus District.

TLCI PROCESS

This planning study was primarily funded by a "Transportation for Livable Communities Initiative (TLCI)" grant from the Northeast Ohio Areawide Coordinating Agency (NOACA). The City of Cleveland Planning Commission sponsored the project and provided the local funding match.

The TLCI program provides assistance to communities and public agencies for integrated transportation and land use planning and projects that strengthen community livability. The Lakefront Greenway and Downtown Connector Study addresses many key objectives of the TLCI program:

- Develop transportation projects that provide more travel options through complete streets and context sensitive solutions, increasing user safety and supporting positive public health impacts
- Promote reinvestment in underutilized or vacant/abandoned properties through development concepts supported by multimodal transportation systems
- Support economic development through place-based transportation and land use recommendations, and connect these proposals with existing assets and investments
- Develop transportation projects that provide more travel options through complete streets and context sensitive solutions, increasing user safety and supporting positive public health impacts
- Promote reinvestment in underutilized or vacant/abandoned properties through development concepts supported by multimodal transportation systems
- Support economic development through place-based transportation and land use recommendations, and connect these proposals with existing assets and investments

The grant was provided to St. Clair Superior Development Corporation, the Campus District, and the Historic Warehouse District. These project sponsors enlisted the consulting team of Michael Baker International and the Environmental Design Group to conduct the study.

PUBLIC INVOLVEMENT

An active public involvement process was developed for this study. A Steering Committee was formed with broad representation among city, regional and state stakeholders, with input provided at four Steering Committee meetings. In addition to these Steering Committee meetings, special meetings were held throughout the project, including a design workshop, bicycle network planning, and coordination with Burke Lakefront Airport. These meetings gave Steering Committee members a further opportunity to offer input into the project. Their participation was vital to the concepts as finalized.

Steering Committee members are listed below, organized by sponsoring organization; represented organization; and consulting team members.

Project Sponsors

St Clair Superior CDC
James Amendola
Michael Fleming

Campus District
Bobbi Reichtell

Warehouse District
Tom Starinsky

Represented Organizations

Ariel Ventures
Radhika Reddy

Bike Cleveland
Rob Thompson

Burke Lakefront Airport
Khalid Bahhur

Cleveland Airport Systems
Ren Camacho
Dino Lustri

Cleveland City Planning
Freddie Collier
Marty Cader
Arthur Schmidt
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Cleveland City Sustainability
Jenita McGowan
Michelle Harvanek

Cleveland-Cuyahoga County Port Authority
Linda Sternheimer

Cleveland Metro Parks
Kelly Coffman
Sara Maier

Department of Port Control
Hugh Holley

GCRTA
Amy Snell

NOACA
Ryan Noles
Melissa Thompson

ODOT
Brian Blayney

Residents
April Bleakney
Rachel DuFresne

Trust for Public Lands
Jim Kastelic

Yacht Club – Lakeside
Larry Orlowski

YMCA
Barb Clint

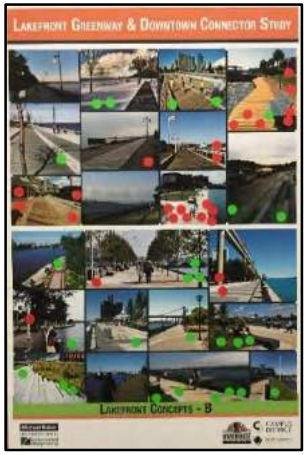
Consulting Team

Michael Baker International
Jim Shea
Daniel Kueper
Kim Guice

Environmental Design Group
Michelle Johnson
Jeff Kerr
Travis Mathews

In addition to regular Steering Committee meetings, two meetings were held to present the project to the public. Both were held at the Ariel International Center on E. 40th Street in the heart of the study area. These meetings incorporated a presentation on potential concepts by consulting team members, followed by a question-and-answer session. After the question-and-answer session, project team members made themselves available for questions at exhibits illustrating concepts. Members of the public were asked to complete questionnaires providing their input on the range of concepts initially offered. This input was used to steer project team members in evaluating and refining developed concepts.

Records of the Steering Committee meetings and the public meetings are provided in Technical Appendix A.



Two public meetings gave area residents, businesspersons and other stakeholders the opportunity to learn more about the project and provide input.

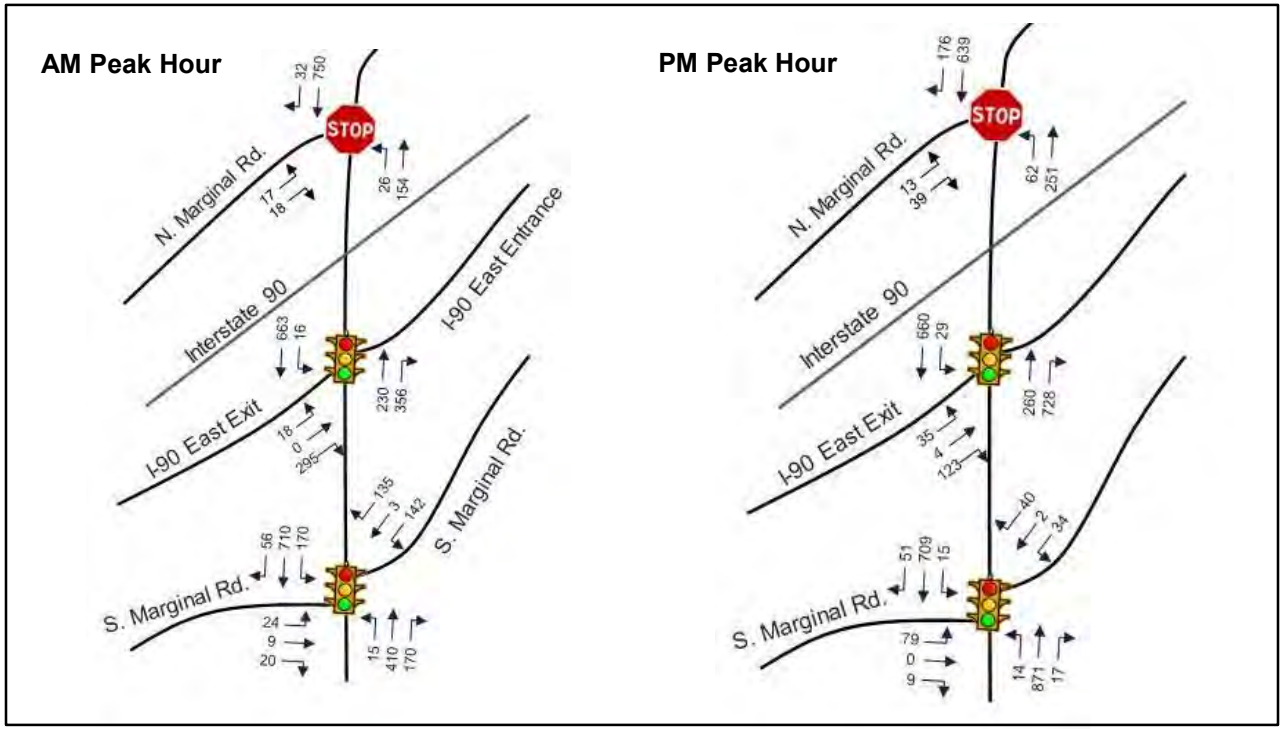
EXISTING CONDITIONS

TRAFFIC VOLUMES

Existing traffic volumes for key roadways were collected from NOACA, ODOT, and traffic reports prepared within the study area. Traffic volumes are an important parameter for multi-modal plans, since they help determine if bicyclists will feel comfortable traveling on roadways, and since they also help determine the feasibility of bicycle treatments that can be applied to these roadways. Average daily traffic (ADT) volumes are summarized in the accompanying table. As indicated, ADT volumes range from 1,500 on North Marginal Road to 26,000 on East 9th Street south of the Shoreway interchange. The ADT exceeds 10,000 on all collector and arterial roadways.

In addition to reviewing collected volumes, the project team conducted peak hour traffic counts on East 55th Street at its intersection with North Marginal Road; the I-90 eastbound entrance and exit; and South Marginal Road. Detailed turning movement counts were collected specifically at these intersections because it was anticipated that capacity reductions were possible.

AM and PM Peak Hour Traffic Volumes: East 55th Street at I-90

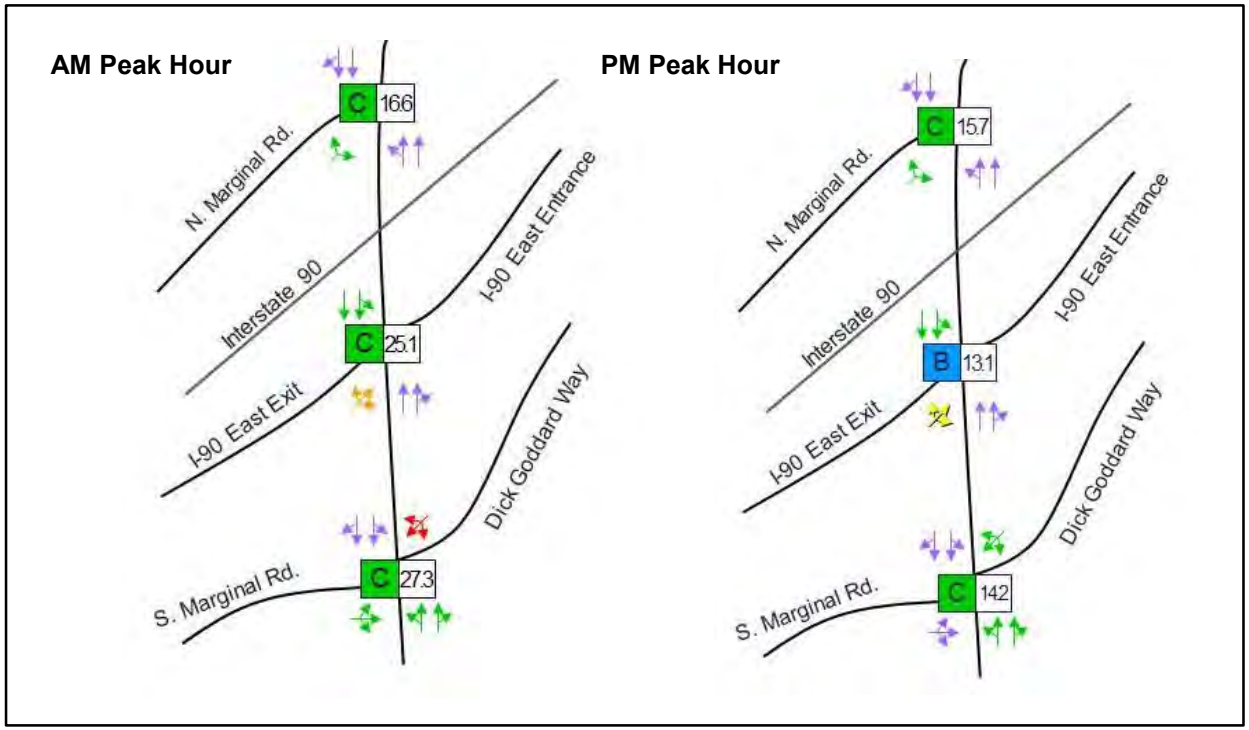


Roadway	ADT Volume	Roadway	ADT Volume
North Marginal Rd		**W. 3rd St**	
west of E. 55th St	1,500	north of W. Lakeside Ave	11,000
South Marginal Rd		**East 9th St**	
west of E. 9th St	3,000	north of N. Marginal Rd	2,900
west of E. 55th St	1,600	south of S. Marginal Rd	26,000
		north of St. Clair Ave	15,500
St. Clair Ave		**E. 55th St**	
east of E. 9th St	18,700	south of S. Marginal Rd	17,700
Superior Ave		**E. 72nd St**	
east of E. 9th St	13,000	north of Gordon Park Drive	7,500
west of E. 18th St	10,000	**Martin Luther King Drive**	
west of E. 30th St	16,000	north of St. Clair Ave	22,500
east of E. 40th St	14,500		

The traffic data was analyzed using Synchro software to assess the traffic performance and operational efficiency at each intersection. The analysis results include the approach delay (measured in seconds of delay), volume-capacity (v/c) ratio, and level of service (LOS) for each approach as well as the overall intersection. Average delay is an indication of the expected delay that would typically be experienced in the lane, on the approach, or at the intersection. Level of service (LOS) is a grading scale based upon average delay, with LOS A representing free-flow conditions, LOS E representing operational capacity, and LOS F being over-capacity. The specific delay thresholds for assessing intersection performance are provided by the Transportation Research Board in the Highway Capacity Manual, as shown in the table to the right.

As seen in the figure, the evaluated intersections operate at LOS B or C during the morning and evening peak hours, indicating modest delays for traffic.

AM and PM Peak Hour Level of Service: East 55th Street at I-90



LEVEL OF SERVICE (LOS)		
LOS	Signalized Intersection Average Delay (sec/veh)	Unsignalized Intersection Average Delay (sec/veh)
A	x < 10	x < 10
B	10 < x < 20	10 < x < 15
C	20 < x < 35	15 < x < 25
D	35 < x < 55	25 < x < 35
E	55 < x < 80	35 < x < 50
F	80 < x	50 < x

BICYCLIST AND PEDESTRIAN CONDITIONS

North Marginal Road

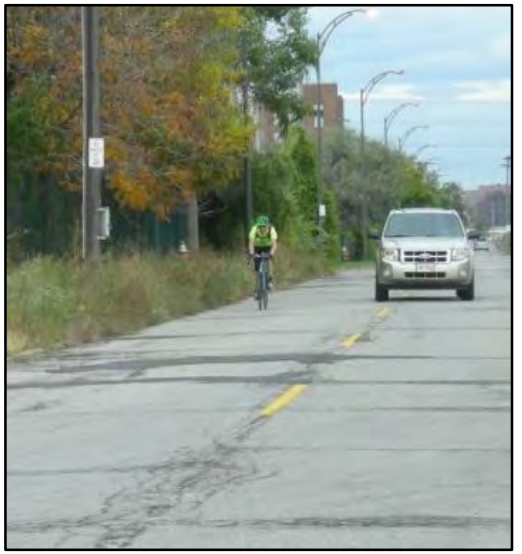
As the closest public roadway to the lakefront in the study area, North Marginal Road has great potential for attracting recreational bicyclists and pedestrians. However, it faces a number of obstacles in doing so:

- At 12 feet in width, the travel lanes on North Marginal are too narrow to be comfortably shared by vehicles and bicyclists.
- The roadway, curbing and shoulder are in poor condition.
- A shared use path is currently present only on limited sections along the roadway: between Marjorie Rosenbaum Plaza and Aviation High School, and east of East 55th Street.
- The path between Marjorie Rosenbaum Plaza and Aviation High School is substandard. Although 10 feet in width for most of this section, some segments are immediately adjacent to a chain-link fence – reducing the usable width by 2 feet – or dangerously narrowed by fire hydrants placed in the middle of the path. Other segments are only 6 feet in width.
- The path is not visually appealing, due to the presence of cobra-head street lights, chain-link fence, and overgrown shrubbery and weeds in some areas.
- Access is limited, with no access points between East 9th and East 55th Streets.
- There is no buffer between North Marginal Road and the Shoreway.

Constraints along North Marginal Road.

Path along North Marginal Road.

Constraints along North Marginal Road.



Pavement conditions along North Marginal Road.

South Marginal Road

Like North Marginal Road, South Marginal Road is 24 feet in width, with two 12-foot lanes. There is no sidewalk or path along virtually the entire length of South Marginal Road; the only sidewalk is located adjacent to the South Harbor Rapid Station. Access to South Marginal Road is limited between East 9th Street and East 55th Street, with the only access points being at East 38th, East 40th, Marquette and East 49th Streets.

South Marginal Road by Rapid Station.

South Marginal Road looking west at East 40th Street

Lakefront Bikeway

All of the lakefront segments within the study area are already designated as part of the Cleveland Lakefront Bikeway. Segments include the lakefront trail east of East 55th Street, North Marginal Road, Erieside Avenue, West 3rd Street, and St. Clair Avenue. The entire bikeway is approximately 17 miles long. The Bikeway consists of various types of on-road and off road facilities. Generally, the Bikeway is signed as shown below.

Existing North-South Connections

Within the study area, there are seven points at which bicyclists and pedestrians can cross the Shoreway and travel in close proximity to the lakefront, as discussed below. The pedestrian bridge at Gordon Park is the only connection not primarily for motorists.

West 3rd Street

With travel lanes of 10 to 11 feet in width, West 3rd Street presents uncomfortable travel conditions for bicyclists. However, this roadway is classified as an existing bikeway on the City of Cleveland Bikeway Master Plan, and many bicyclists may choose to avoid mixing with vehicular traffic by riding on the sidewalk on the east side of the roadway, which is 20 feet in width on the Amtrak overpass. There is no sidewalk on the west side.

East 9th Street

With travel lanes of 10 to 11 feet in width, high traffic volumes, and significant turning movements on and off the Shoreway, East 9th Street presents uncomfortable travel conditions for bicyclists. Sidewalks of 8 feet in width are present on both sides of the bridge over the Shoreway.

Muni Lot Bridge

There is no bicycle facility on the Muni Lot Bridge. Each travel lane is 13 feet in width. A sidewalk is present on the west side of the roadway between the north end of the bridge and South Marginal Road. It terminates on the north end of the bridge, and there is no formal pedestrian or bicycle connection to North Marginal Road. The sidewalk reaches a full width of 6 feet, but the usable width narrows to less than 4 feet next to the guiderail posts.

East 55th Street

Bike lanes are present on the west side of East 55th Street from Fairlie Avenue to the East 55th Street Marina, and on the east side of East 55th Street from Dick Goddard Way to the entrance to the Shoreway. It should be noted that bike lanes are absent on East 55th south of the Fairlie Avenue/Lake Court intersection, which may discourage some bicyclists from using this street. Sidewalks are present along the majority of East 55th Street, but are absent on the west side of East 55th Street north of North Marginal Road. The sidewalks are typically 5 to 6 feet in width through the interchange area

East 72nd Street

Buffered bike lanes are present on East 72nd Street between St. Clair Avenue and the westbound on/off-ramps to the Shoreway. A 5-foot sidewalk is present on the east side of East 72nd Street between the lakefront path and the railroad, and sidewalks are present on both sides of East 72nd Street south of the railroad.

Gordon Park Bridge

A pedestrian bridge spans the Shoreway between Intercity Yacht Club and Gordon Park.

MLK Drive

No bike facilities are present on Martin Luther King Drive through the Shoreway interchange. Bike-compatible shoulders (4 to 5 feet in width) are present on MLK Drive south of the railroad overpass. A sidewalk is on the west side of MLK Drive through the interchange. This is immediately adjacent to the roadway, creating an uncomfortable walking environment.

East-West Roadways

The primary east-west roadways within the study area are Superior Avenue, also signed as U.S. 6; and St. Clair Avenue, signed as Ohio Route 283 east of East 55th Street.

Superior Avenue

Bike lanes are currently present on Superior Avenue between East 55th Street and East 18th Street. Between East 18th Street and Public Square, Superior Avenue is a six-lane roadway, with bus-only travel lanes next to the curb. Although the City has expressed interest in having bicyclists use these lanes, they are currently signed as bus-only due to FTA restrictions. Additional Coordination with the GCRTA will be required to develop a shared use plan for these lanes.

Superior Avenue looking east at East 52nd Street

Superior Avenue looking east at East 13th Street

St. Clair Avenue

No bike lanes are presently found on St. Clair Avenue. East of East 55th Street, St. Clair has a five-lane cross-section and on-street parking. This section of St. Clair, 72 feet wide, is included in preliminary concepts for the Cleveland Midway Bike Plan and will be further evaluated under the Cleveland Midway Cycle Track & Protected Bike Facilities TLCI that is currently underway.

Between East 55th Street and East 13th Street, St. Clair Avenue is typically 60 feet wide, with a four-lane cross-section and on-street parking. Between West 3rd Street and East 13th Street, the cross-section varies, from 60 to 65 feet in width. The curb lane is signed as a bus lane for the peak hour.

St. Clair Avenue looking east at East 63rd Street

PLANNING STUDIES AND PROJECTS

A wide range of plans and projects were reviewed by the consultant team to ensure that proposed recommendations would be consistent with past and on-going planning efforts.

TLCI PLANS

A host of TLCI plans have been prepared for neighborhoods within and adjacent to the three community development organizations sponsoring this project.

Campus District Plan (2011) – This plan called for a wide range of initiatives, with the installation of bike lanes on East 22nd Street between Euclid Avenue and Orange Avenue being most relevant to this study. The Campus District Plan also called for streetscape enhancements and pedestrian amenities.

Asiatown Plan (2010) – Three transportation recommendations are of greatest interest to the Lakefront Greenway study:

- Create a main street for the neighborhood along Superior Avenue.
- Convert travel lanes to parking lanes.
- Provide bike facility along Superior Avenue between 30th and 40th Streets.

Canal Basin District Plan (2010) – This plan called for the installation of trails and bike lanes along such roadways as Frankfort Avenue and Summit to connect with Canal Basin Park and Towpath Trail.

Bike lanes are proposed for East 22nd Street in the 2011 Campus District Plan.

CITY PLANS

Downtown Lakefront Plan (2012) – This plan, covering the lakefront area between West 3rd and East 18th Streets, calls for a walkable, dense, and mixed use urban fabric. The Bicycle Circulation Plan identifies North Marginal Road, Erieside Avenue and West 3rd Street as existing bike paths. A bike path is proposed for South Marginal Road.

PRIVATE PLANS AND PROJECTS

Burke Master Plan Update (2008) -
Greater development is recommended on Burke Lakefront Airport in this master plan update, including new mixed use development on the southwest corner of the property. Geis Corporation has proposed an office park on this site.

North Coast Harbor – Cumberland Development and Trammell Crow announced plans for a large mixed use development on this site north of Cleveland Browns Stadium, including more than 1000 apartments, 80,000 square feet of offices, stores and restaurants, and a downtown school near the science center.

Flats East Bank – Leasing has recently begun at this development on the east bank of the Cuyahoga River, consisting of new office space, retail locations and 240 apartments in the first phase.

Midway Bike Plan – NOACA approved a planning grant for a "midway cycle track" at its June 2015 meeting. The purpose of this study is to determine implementation feasibility of previously identified corridors, develop typical design standards and understand how the improved bicycle infrastructure integrates into the adjacent neighborhoods. The below rendering depicts preliminary Midway Cycle Track concepts along St. Clair Avene.

IMPLICATION FOR LAKEFRONT GREENWAY

Taken together, recent plans and projects in downtown Cleveland create a picture of a region that is undergoing demographic changes that will bolster support for an enhanced bicycle and pedestrian infrastructure. The region is creating a bicycle network as part its long-range vision.

The most significant development in recent years has been the influx of residents and workers in mixed use developments (MUD's) downtown. MUD's are typically associated both with lower vehicular ownership rates and higher rates of walking and bicycling. These MUD's have also been accompanied by a "green infrastructure" with pedestrian and bicycle facilities.

Meanwhile, TLCI studies and other plans have identified the need to develop facilities to expand the city's bicycle network, and to create pedestrian-friendly streets. These studies have also recognized the presence of excess vehicular capacity on many roadways. To take advantage of excess capacity, and meet increasing demand for low stress bicycle facilities, these studies have proposed a variety of innovative bicycle facilities, such as separated bike lanes and median bike lanes.

Studies are clear that one of the most significant determinants to the number of bicyclists in a community is adequate infrastructure, along with the lack of a nucleus of bicycling community. In summary, persons not currently bicycling are more likely to bicycle in the future when they see other persons doing so. Therefore, the trends described in this report are likely to encourage a growing interest in facilities that can accommodate recreational use, along with commuting to work and shopping uses.

Bicycle Circulation Plan for the Downtown Lakefront Plan

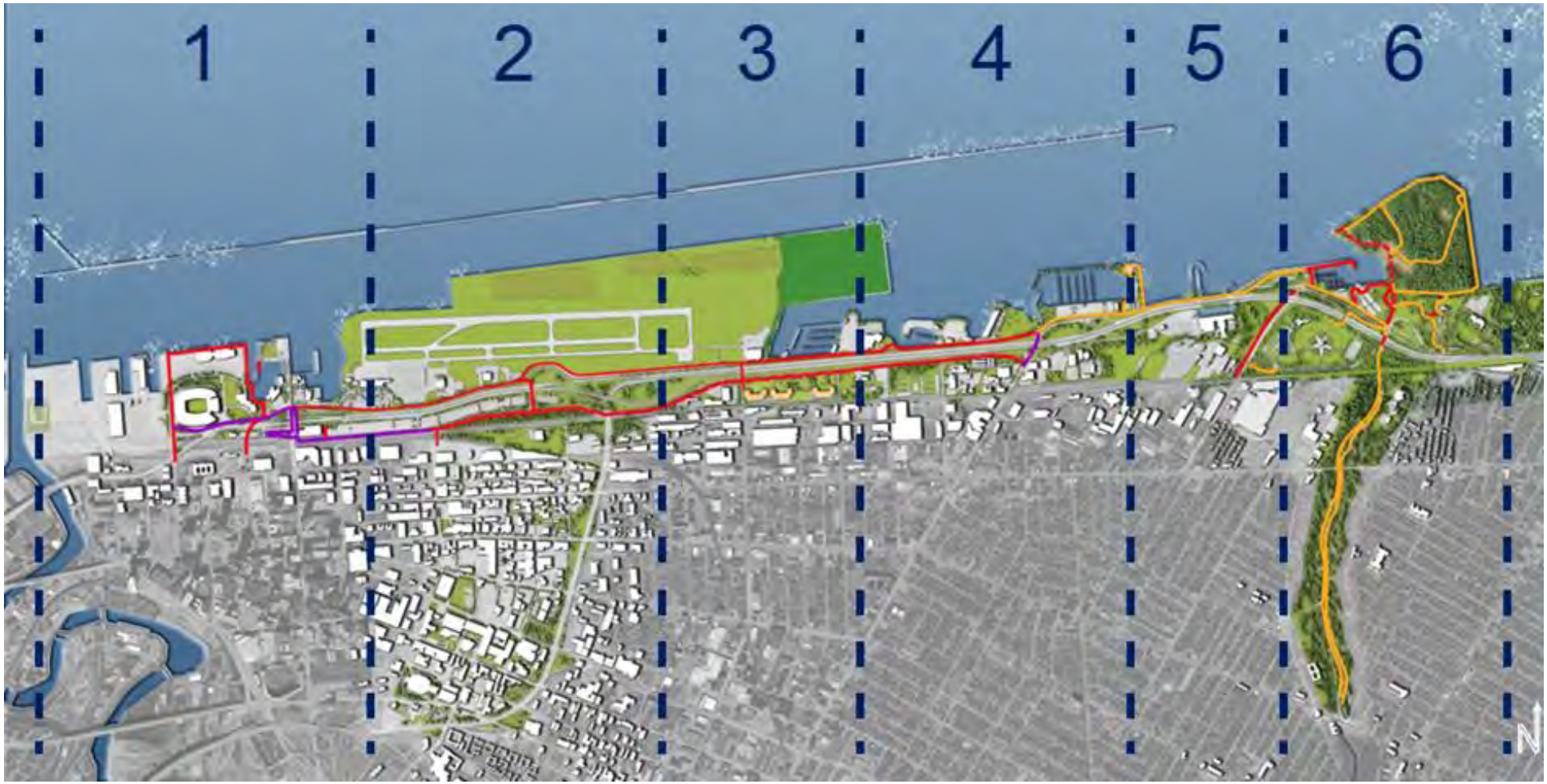
RECOMMENDATIONS

To address facility needs and stakeholder input, recommendations are proposed in three areas:

- Enhance the Marginal Road corridor.
- Connect to the lakefront.
- Improve bicycle network connections between Downtown, the Campus District, and the St. Clair Superior neighborhoods.

Proposed enhancements to the Marginal Road corridor – consisting of both North Marginal Road and South Marginal Road – are presented first. Due to the length of the study area – approximately five miles – the corridor has been divided into six trail and greenway segments, as shown in the diagram below. Proposed trail segments are illustrated in red; existing trail segments in yellow; and on-road improvements in purple.

Proposed improvements in each segment are discussed in the following section of the report.



GREENWAY SEGMENT 1

The bicycle improvements outlined in the 2012 Downtown Lakefront Plan provide the base for trail and greenway improvements in this segment. Redevelopment of the North Coast will enable construction of a multi-use path to the north of Cleveland Browns Stadium, and other improvements are anticipated to East 9th Street Pier. The existing 6-foot wide brick sidewalk along North Marginal Road between East 9th Street and Marjorie Rosenbaum Plaza should be replaced by a 10-foot path as part of the mixed-use redevelopment planned for this area.

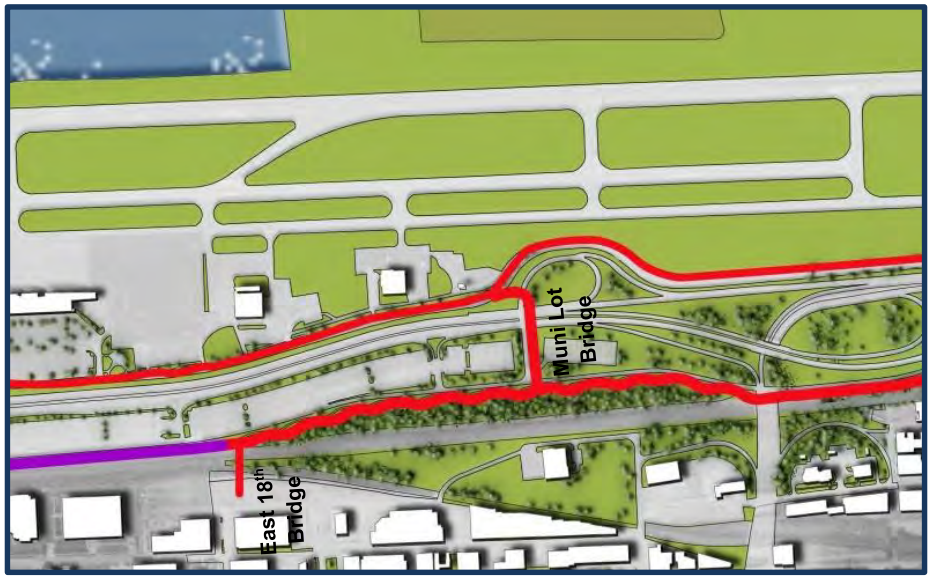
Due to the right-of-way constraints, no path is feasible along South Marginal Road in Segment 1. Rather, shared lane markings (popularly known as “sharrows”) are recommended for this section of the roadway. South Marginal Road is only one lane wide to the south of the Municipal Parking Garage, squeezed between a Jersey barrier and the Garage wall. The typical bicyclist will feel uncomfortable traveling on this roadway section. To give bicyclists traveling along South Marginal Road the option to skirt the Parking Garage to the north in traveling to East 9th Street, a path is recommended for the east side of the Garage. A plan view and ground view drawing illustrate this concept.

Above: proposed path to the east of the Municipal Parking Garage. Below: sharrows are proposed for South Marginal Road, along with the proposed path on the east side of the Garage.

GREENWAY SEGMENT 2

Segment 2 includes one of the constricted segments for the trail along North Marginal Road, as the existing path narrows to 11 feet between North Marginal Road and the Burke Airport fence on the curve north of the Muni Lots Road interchange. Along trail segments with constrained right-of-way, the trail will typically need to be situated immediately next to North Marginal Road. A 2 foot brick paver can be used to demarcate an 8 foot path from North Marginal Road, and add aesthetic interest.

As seen in the public engagement summaries, consideration was given to closing North Marginal Road within the constrained section, from the Muni Lot Bridge east to Aviation High School. This would have enabled the greenway to meander through this section and avoid design restrictions. Ultimately, support from all engaged stakeholders was not established and the alternative was not advanced. Extensive coordination occurred with Burke Lakefront Airport regarding the location of their existing fence and the possibilities of relocating the fence to improve constrained conditions along the corridor. It was determined that Burke Lakefront Airport would find it acceptable to move the fence 2-3 feet at specific location along the corridor where the additional space would help meet trail design criteria.



A grass median of 20 to 25 feet typically separates North Marginal Road from the Shoreway on this section, and could be used to accommodate slight shifts in North Marginal Road if it is desired to widen the path to 10 feet, or install a greater buffer between North Marginal Road and the trail.

Improvements to the Muni Lot Bridge will facilitate access to North Marginal Road in this section, and a new bridge over the railroad at East 18th Street will provide greater access to South Marginal Road. These will be discussed at greater length in the Connections section.

The proposed off-road trail along South Marginal Road begins in this segment. The path is proposed to be 10 feet wide. Adjacent properties are typically set back 35 feet from South Marginal Road, allowing ample room to design a trail with modest horizontal curvature, emphasizing the recreational nature of this trail and incorporating new plantings.

Other municipalities have had experience with fitting paths into restricted rights-of-way. Below is an 8 foot multi-use path recently installed next to Shore Boulevard in Queens, New York.

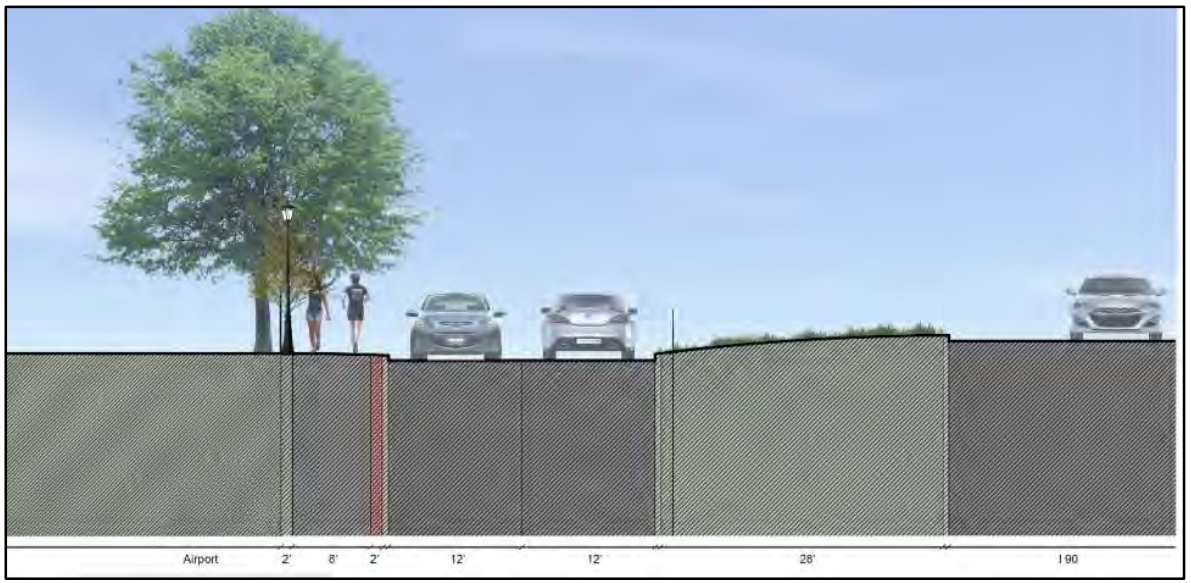
Left and Above: Alternatives for closing North Marginal between the Muni Lot Bridge and Aviation High School were presented at Public Meeting #1 and found to be the preferred public alternative. Prior to Public Meeting #2 it was requested by members of the Steering Committee that the alternative for closing North Marginal be marked as 'Under Negotiation' while further details regarding the location of the Burke Lakefront Airport fence were explored.

It was determined that the closure of the North Marginal road would not be feasible and the negotiations for relocating the Burke Lakefront Airport fence a maximum of 2-3 feet was agreed upon depending on specific site constraints along the North Marginal Road corridor.

Below, South Marginal Road before and after installation of the proposed trail. The large setback provides the opportunity to introduce gentle curves in the path, along with attractive landscaping. Top right, an 8 foot path and 2 foot brick paved buffer are proposed along North Marginal Road in constrained areas. Below right, the proposed trail system along North and South Marginal Road, along with improvements to the Muni Lot Bridge, will facilitate access to Downtown.

South Marginal Road Before

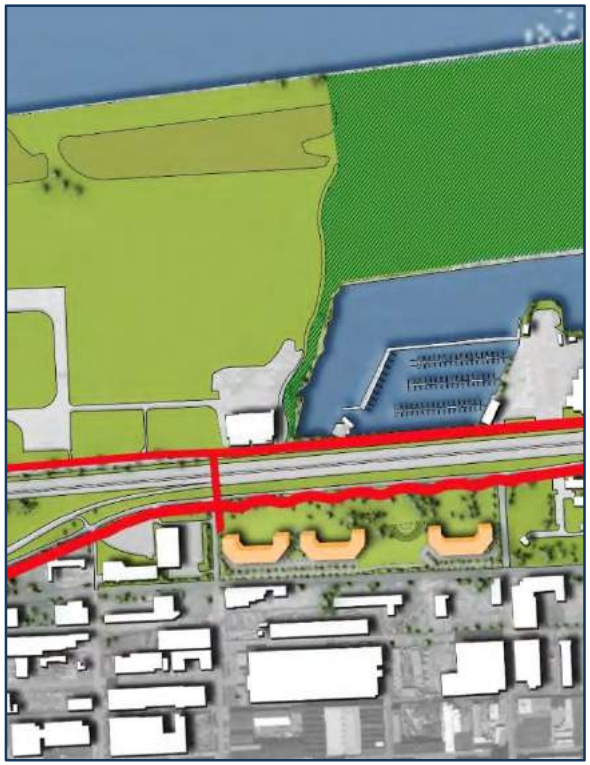
South Marginal Road After



GREENWAY SEGMENT 3

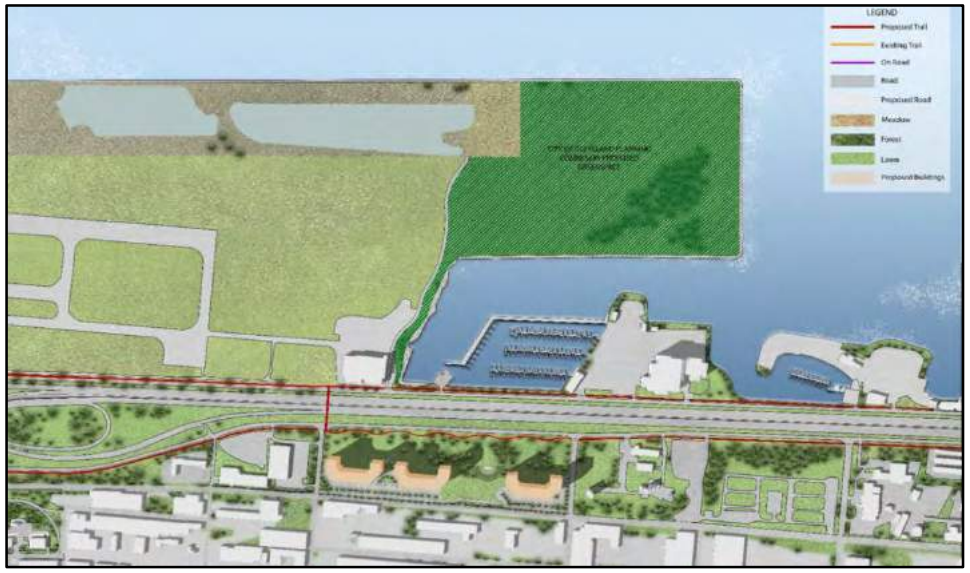
In Segment 3, physical constraints for the proposed trail along North Marginal Road are most conspicuous at the abandoned Aviation High School and the Lakeside Yacht Club. In both locations, the fencing is set back 10 feet from the road. In these locations, the trail should be installed immediately adjacent to North Marginal Road, with a 2 foot brick paver separating the trail from the roadway.

Access to the North Marginal Road trail in this segment will be offered by the proposed pedestrian bridge across the Shoreway at East 40th Street, discussed in greater detail in the Connections section.



Above: North Marginal Road in front of the Lakeside Yacht Club.
Below: The proposed trail, with a 2 foot brick paver buffer between the trail and roadway.

Above: South Marginal Road today.
Below: South Marginal Road with the proposed trail. The ground is level along much of South Marginal Road, but where slopes are present, the wide right-of-way will permit retaining walls, as seen in the drawing.



Above and below, the potential exists for redevelopment along the South Marginal Road trail between East 40th Street and East 49th Street, as illustrated by the new structures in beige. To the north of the Lakeside Yacht Club, the Cleveland Planning Commission recommends a green space for the CDF (confined disposal facility) at Burke Airport. However, continued operations are planned for this CDF well into the future.

GREENWAY SEGMENT 4

The eastern terminus of the South Marginal trail is in this segment, at East 55th Street. Along North Marginal Road, the proposed trail continues east at E. 55th Street by linking with an existing path. Unlike the trail to the west, the existing path meets AASHTO standards of a minimum 10 foot facility.

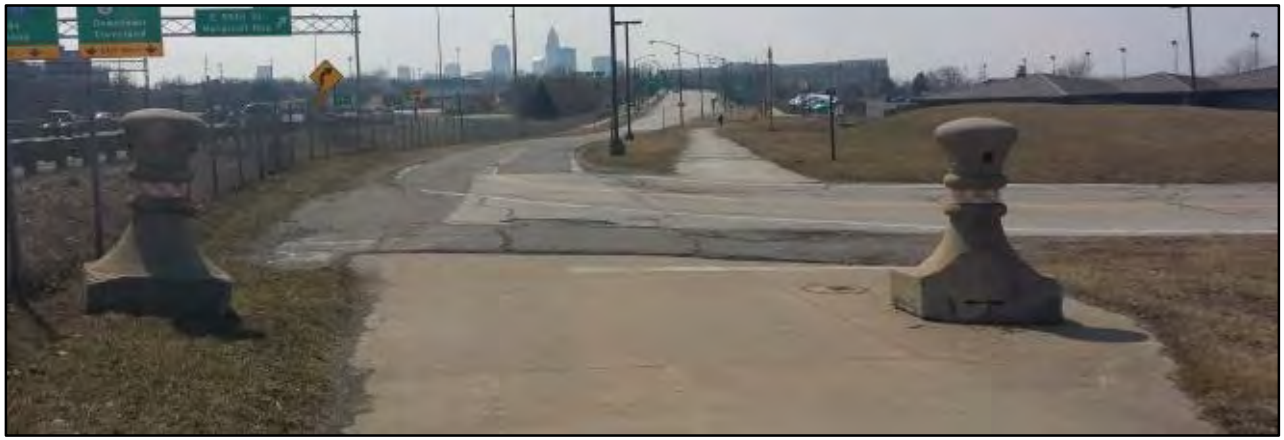
The North Marginal trail faces constraints in two locations in this segment. Along the Forest City Yacht Club, a grass buffer of 10 feet separates the property fence from the roadway. A more significant constraint is present at the Quay 55 development, where a decorative fence at the front of the property is only 4 feet from the roadway. At this latter location, shared lane markings can be installed to alert motorists to the presence of bicyclists; alternatively, physical improvements will be needed to shift the roadway and create more space for non-motorized travel.

Existing conditions along North Marginal Road at the Forest City Yacht Club Proposed

Top right: a stone wall and fencing treatment is proposed along the Yacht Club frontage. At a width of 8 feet, the path is less than the width of 10 feet recommended by AASHTO; a slight shift in roadway alignment could create the space needed for greater width, if desired. Below: trail along South Marginal Road.

GREENWAY SEGMENT 5

The existing path along North Marginal Road in this segment is 10 feet wide and meets AASHTO standards. Other than standard maintenance activities, improvements to the path are generally not warranted at this time. However, to enhance the safety of bicyclists and pedestrians, a high-visibility crossing treatment is recommended at the intersection of the path with North Marginal Road within the East 55th Street Marina. The treatment is illustrated below right.



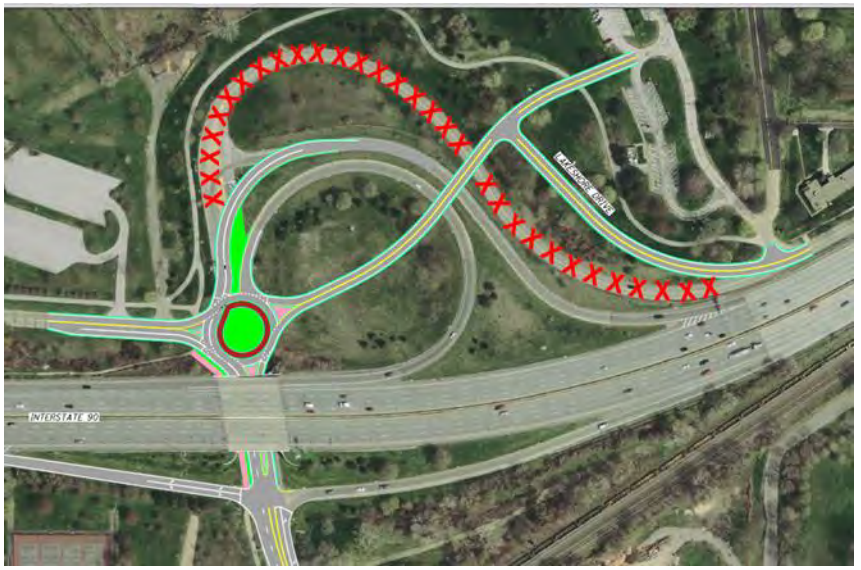
GREENWAY SEGMENT 6

A variety of improvements are recommended in this segment, including new trails for the Lakefront Nature Preserve. These trails are intended, at least in part, to fulfill the promise of the Lakes-to-Lakes Trail, by facilitating greater pedestrian and bicycle access to the lakefront area. These improvements also serve to enhance connectivity between the Intercity Yacht Club and the Nature Preserve.

Improvements are also proposed for the roadway system north of the Shoreway at both East 72nd Street and Martin Luther King Jr. Drive. Although these improvements should have the effect of enhancing safety and facilitating traffic flow in the area of these two interchanges, these were proposed within this project primarily because of the benefits to pedestrian and bicycle mobility in this area. The study team coordinated with ODOT, which was simultaneously preparing a safety study examining conditions at these two interchanges. The recommendations from that study are also included in this report to illustrate how the issues raised as part of this study may be addressed.

Top: Existing conditions at East 72nd Street. Middle: A roundabout is proposed for the East 72nd Street interchange, along with vacating the westbound I-90 exit ramp, and consolidating the westbound entrance ramps. Bottom: the ODOT August 2015 Interstate 90 Safety Study proposes closing both the eastbound on-ramp and westbound off-ramp at East 72nd Street.

Top: MLK Drive existing conditions. Bottom: New paths are shown proximate to the Lakefront Nature Preserve. A roundabout is proposed to process traffic from westbound I-90 and Lakeshore Boulevard. This results in a smaller footprint for vehicular roadways than the existing loop road design.

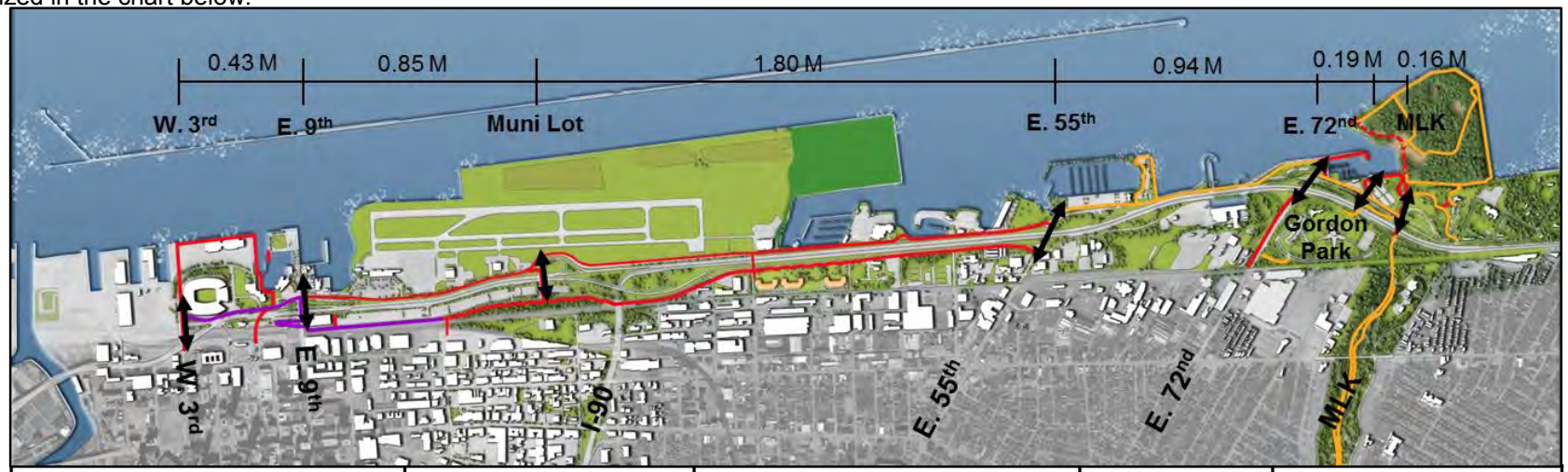


Top: Proposed short-term improvement for the MLK Drive interchange, from the ODOT August 2015 Safety Study. Bottom: Proposed long-term improvement from the ODOT Safety Study. Consistent with the Lakefront Greenway study, vacation of Lakeshore Boulevard and creation of a roundabout is proposed.

Top and bottom: Improvements to the trail system between East 72nd Street and MLK Drive are proposed, along with better connections to the Lakefront Nature Preserve. As discussed above, roundabouts are proposed for East 72nd Street and MLK Drive. The reconfiguration of the roadway system in this area will benefit motorists, bicyclists and pedestrians alike.

EXISTING CONNECTIONS

The seven existing pedestrian connections to the lakefront, and the distance between each, are indicated in the accompanying graphic. In order to determine which crossings to study, and to identify the most feasible improvements to existing connections, each crossing was evaluated in four different categories, as summarized in the chart below.



	Mobility			Property Impacts				Public Comment		Implementation		
	Improves Pedestrian Mobility	Improves Vehicular Mobility	Improves Lakefront Access	Institutional/ Business	Burke Lakefront Airport	ODOT	Freight Rail	Project Stakeholders	General Public	Environmental Impacts	Costs	Further Study?
Improvements to Existing Crossings												
West 3rd Street	🟡	🟡	🟡	🟢	🟢	🟡	🟢	🟢	🟡	🟢	🟡	🟢
East 9th Street	🟡	🟡	🟡	🔴	🟢	🟡	🔴	🟡	🔴	🟡	🔴	🟢
Muni Lot Bridge	🟢	🟢	🟢	🟢	🟢	🔴	🟢	🟢	🟢	🟡	🟡	🟢
East 55th Street	🟢	🟢	🟢	🟢	🟢	🟡	🟢	🟢	🟡	🟡	🟡	🟢
East 72nd Street	🟡	🟡	🟡	🟢	🟢	🟡	🟢	🟢	🔴	🟡	🟡	🟢
Gordon Park Pedestrian Bridge	🟡	N/A	🟡	🟢	🟢	🟢	🟢	🟡	🔴	🟢	🟢	🟢
MLK (Lake-to-Lakes Trail)	🟢	🟡	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
	🟢 Positive Impacts 🟡 Minor/No Change or Impact 🔴 Negative Change or Impact			🟢 Low Impacts 🟡 Moderate Impacts 🔴 High Impacts				🟢 Favorable 🟡 Neutral 🔴 Unfavorable		🟢 Minor Impacts & Costs 🟡 Moderate Impacts & Costs 🔴 Major Impacts & Costs		

The four areas of evaluation include:

Mobility. Improvements to the Muni Lot Bridge, East 55th Street Bridge, and MLK Boulevard Bridge were seen as having the most potential for enhancing pedestrian mobility.

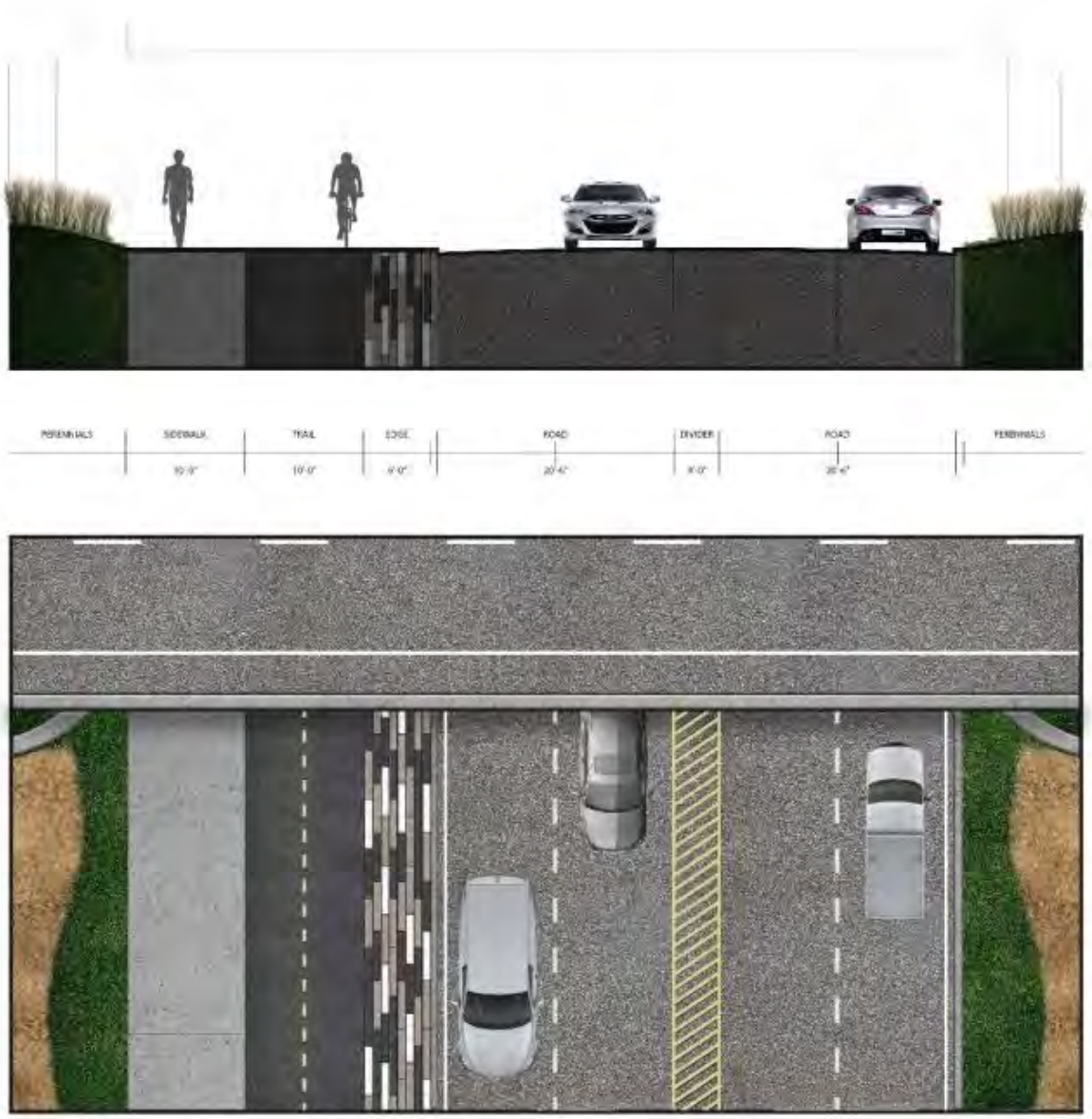
Property Impacts. With the one exception of the East 9th Street Bridge, improvements at the existing crossings could be made with relatively few impacts to adjacent properties.

Public Comment. Options for crossings were presented to the public at the first public meeting. Attendees selected the Muni Lot Bridge and MLK Boulevard as the first preferences for improvements. Attendees were neutral regarding the potential for improvements to West 3rd Street and East 55th Street.

Implementation. Environmental impacts would likely be relatively minor for improvements to connections at West 3rd Street, Gordon Park Bridge, and MLK Boulevard. Costs would be highest for improvements to the crossing at East 9th Street.

In summary, the analysis revealed that there are no significant impediments to making improvements at most of the existing connections to the lakefront. Improvements at East 9th Street would likely be the most costly, with the greatest impacts to existing properties.

Following are proposed concepts to improve conditions for pedestrian and/or bicyclists at existing connections.

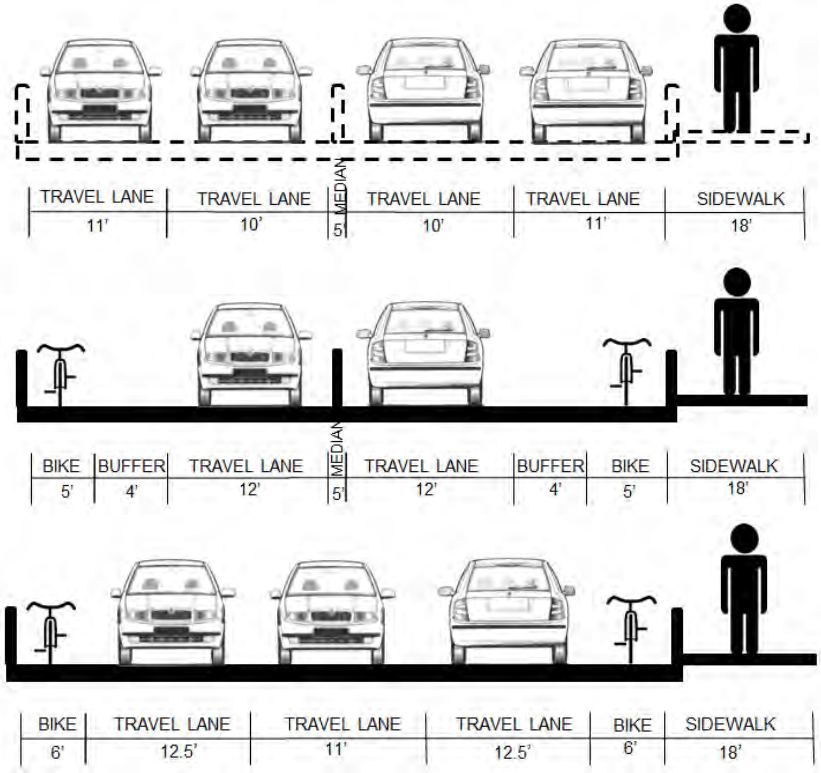


Proposed improvement at MLK Drive, discussed later in this section.

WEST 3RD STREET BRIDGE

Conditions for bicyclists on the West 3rd Street Bridge are uncomfortable, due to 10 to 11 foot travel lanes, as indicated in the top cross-section drawing. The sidewalk is relatively wide, at 18 feet. Some bicyclists choose to ride on the sidewalk currently, but given the difference between on-road and recreational users, it would be desirable to provide bicyclists with a dedicated facility rather than mingling the two modes.

On the right are two examples of concepts that would improve bicycling conditions. West 3rd Street could be reconfigured with one travel lane in each direction, instead of the two lanes in each direction on the existing bridge. Under this scenario, a buffered bike lane could be installed for both directions. Alternatively, as shown in the bottom cross-section, bike lanes could be installed without a buffer. This would provide space for two southbound travel lanes, which would facilitate egress from Cleveland Browns Stadium as well as traffic exiting westbound along SR 2. Under this scenario, the median barrier would need to be removed.



Existing

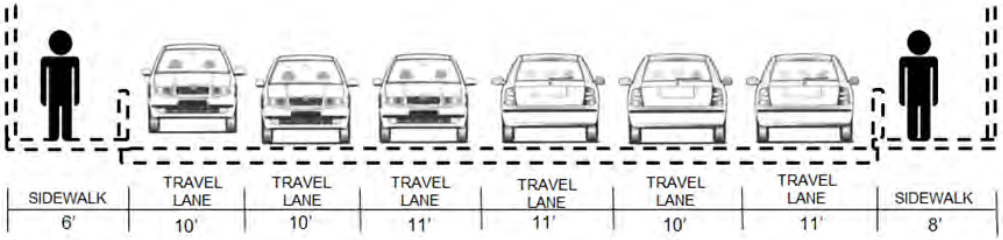
Proposed

EAST 9TH STREET BRIDGE

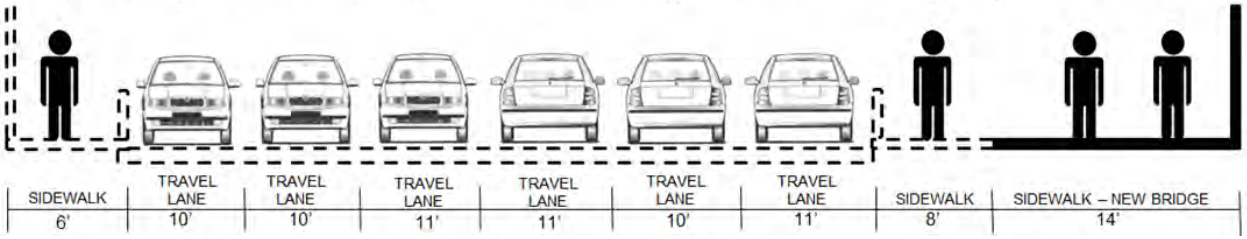
With high traffic volumes and six travel lanes from 10 to 11 feet in width, as indicated in the top cross-section drawing, conditions on East 9th Street are uncomfortable for bicyclists. The sidewalks on the bridge, at 6 to 8 feet, are narrower than on adjacent sections to the north and south. However, given the high traffic volumes on the East 9th Street Bridge, consideration for converting travel lanes to bicycle or pedestrian facilities would need to be further studied and is beyond the scope of this study.

A potential concept, which would leave all travel lane in place, would be install a new, 14-foot wide pedestrian structure immediately west of the existing structure. The sidewalk on the west side of the existing bridge could be combined with the new structure, providing a 22 foot wide sidewalk. It may be possible to stripe a dedicated area for bicyclists under this scenario. The west side of the structure is shown on the typical sections to the right and was chosen to align with the previously widened structure over the railroad to the south. Depending on the location of the proposed intermodal center the location of the proposed bridge could be shifted to the east side of the existing structure to provide more direct access to the intermodal center. This would also facilitate a more direct greenway loop between North and South Marginal Roads.

Existing



Proposed



MUNI LOT BRIDGE

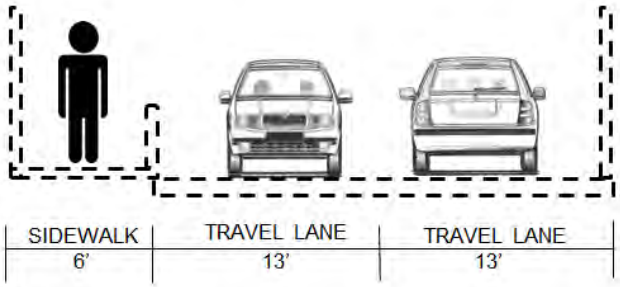
The Muni Lot Bridge roadway is comprised of two 13-foot travel lanes and one 6-foot sidewalk, as indicated in the top cross-section drawing. To better accommodate bicyclists and pedestrians, it is proposed to widen the existing structure. The abutments, piers and deck would be widened 17 feet to the east under this scenario, and the entire deck replaced.

Under this widening scenario, two 6-foot bike lanes could be installed along with two 11-foot travel lanes. A new 10-foot sidewalk would be installed on the east side of the bridge. The improvements are summarized in the bottom cross-section drawing.

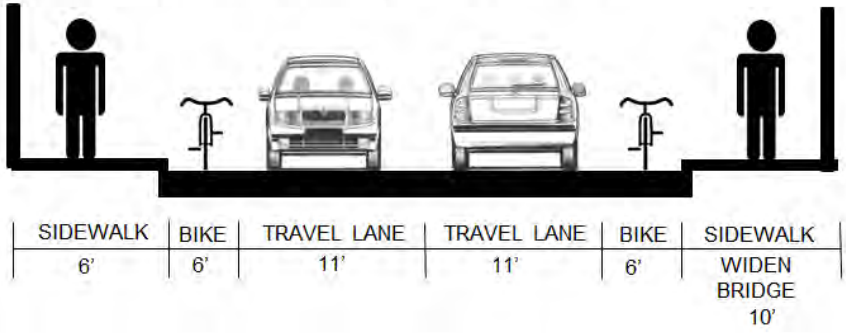
Given the significant distance to pedestrian and bicycle access points to North Marginal Road in either direction, a retrofit of this bridge would be a meaningful advance for pedestrian and bicycle mobility on the corridor.

Additionally, pedestrian and bicycle volumes are expected to increase on the Muni Lot Bridge once the proposed East 18th Street crossing is constructed. It is anticipate that pedestrians and bicyclists will use the East 18th Street crossing to access South Marginal and then the Muni Lot crossing to access North Marginal. In the event that the East 18th crossing is constructed and the Muni Lot structure is not widened, additional signing and markings would be warranted on the Muni Lot Bridge to facilitate this crossing.

Existing



Proposed



EAST 55TH STREET BRIDGE

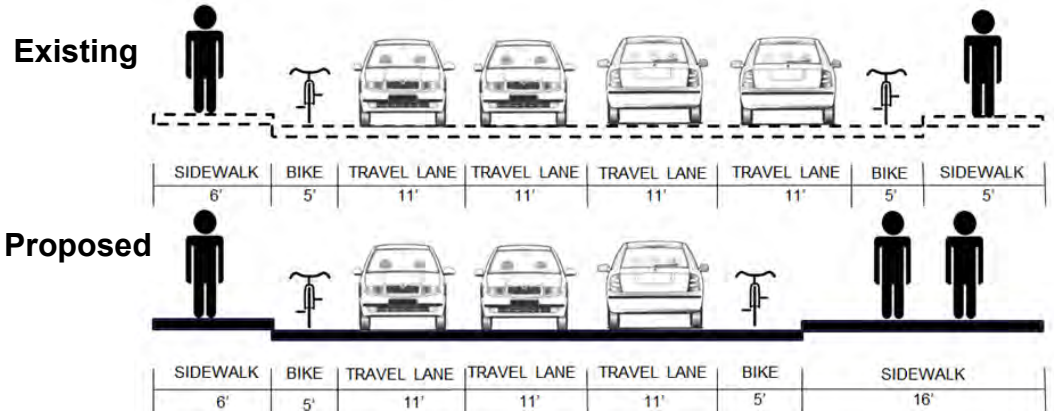
The existing East 55th Street Bridge presents an uncomfortable environment for pedestrians, due to their close proximity to passing traffic. The existing roadway is illustrated in the top cross—section drawing. Since four travel lanes are not required to accommodate the traffic volumes on this bridge, it is proposed to reconfigure East 55th Street in this section as a three-lane roadway. This "road diet" will have minimal effects on traffic delays.

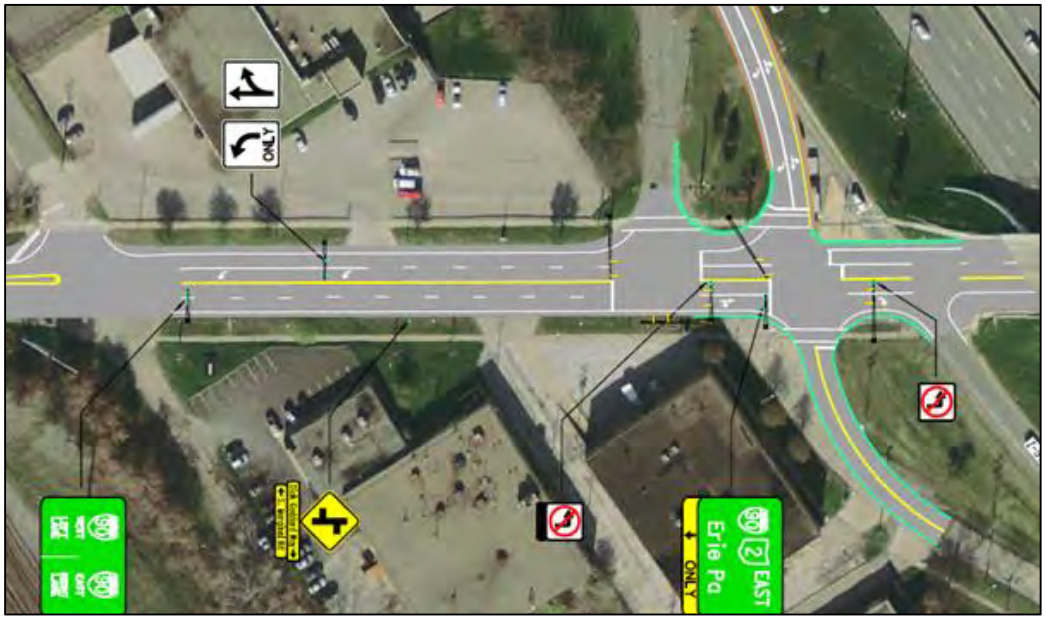
The proposed roadway is illustrated in the bottom cross-section drawing. Instead of the 6-foot sidewalk, a 16-foot sidewalk would be installed on the east side of the bridge, by converting a northbound travel lane into a widened sidewalk. Only minimal approach lane use configurations would need to be adjusted to reclaim the travel lane.

Widening the walk on the west side of the bridge is also a possibility as the width of the existing bridge deck permits. The widened walk on the west side would also create a more user friendly loop system between the North and South Marginal Trails. However, if the west side of the bridge were chosen much of the southern portion of the interchange would require reconstruction to accommodate the roadway tapering associated with the new lane use.

This section of East 55th Street, north of Woodland Avenue, is included in preliminary concepts for the Cleveland Midway Bike Plan and will be further evaluated under the Cleveland Midway Cycle Track & Protected Bike Facilities TLCI that is currently underway.

The proposed reconfiguration of East 55th Street on the I-90 Bridge should be coordinated with the improvements recommended in the ODOT August 2015 Interstate 90 Safety Study. Illustrated on the right, that study recommends reconfiguration of East 55th Street from the bridge to the south, along with improvements to the eastbound on-ramp and off-ramps and signing improvements.

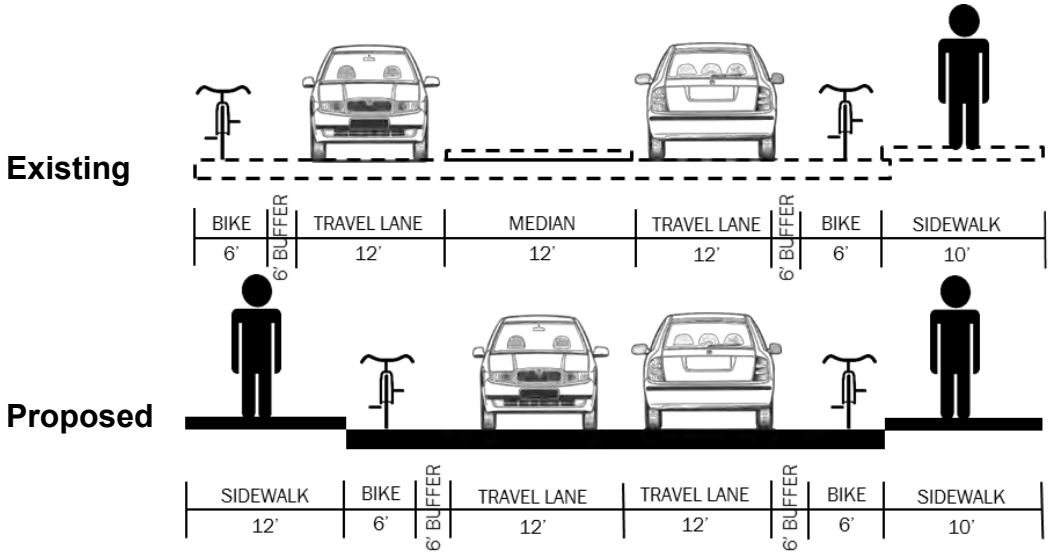




EAST 72ND STREET

East 72nd Street south of the I-90 bridge has buffered bike lanes, with a sidewalk on only the east side of the road. The bike lane on the east side of the road is dropped under the bridge, with sharrows installed to continue the bicycle facility to the Intercity Yacht Club.

The presence of a large concrete median on East 72nd Street offers the opportunity to reconfigure the roadway to make it more welcoming for bicyclists and pedestrians. The removal of the median allows for the addition of a sidewalk on the west side of East 72nd Street, as shown in the bottom cross-section drawing.



MARTIN LUTHER KING JR. DRIVE

Martin Luther King Jr. Drive is also the site of the Lake-to-Lakes Trail. The Trail ends south of the I-90 underpass. Conditions are unpleasant for pedestrians and bicyclists under this bridge, with no dedicated bicycle facility, and pedestrians in close proximity to traffic.

It is proposed to remove the existing concrete median on MLK Drive under the bridge, and to reconfigure the roadway to better accommodate pedestrians and bicyclists. Instead of a concrete median, a 4-foot striped median can serve to separate opposing traffic. A 10-foot sidewalk and 10-foot bicycle path on the west side of the Drive will more safely and comfortably serve pedestrians and bicyclists.

Decorative paving treatments are proposed for the buffer strip between the roadway and the bicycle path, and for the walls and ceiling of the underpass. Lights installed within these paving treatments will provide greater security for non-motorized users at night.

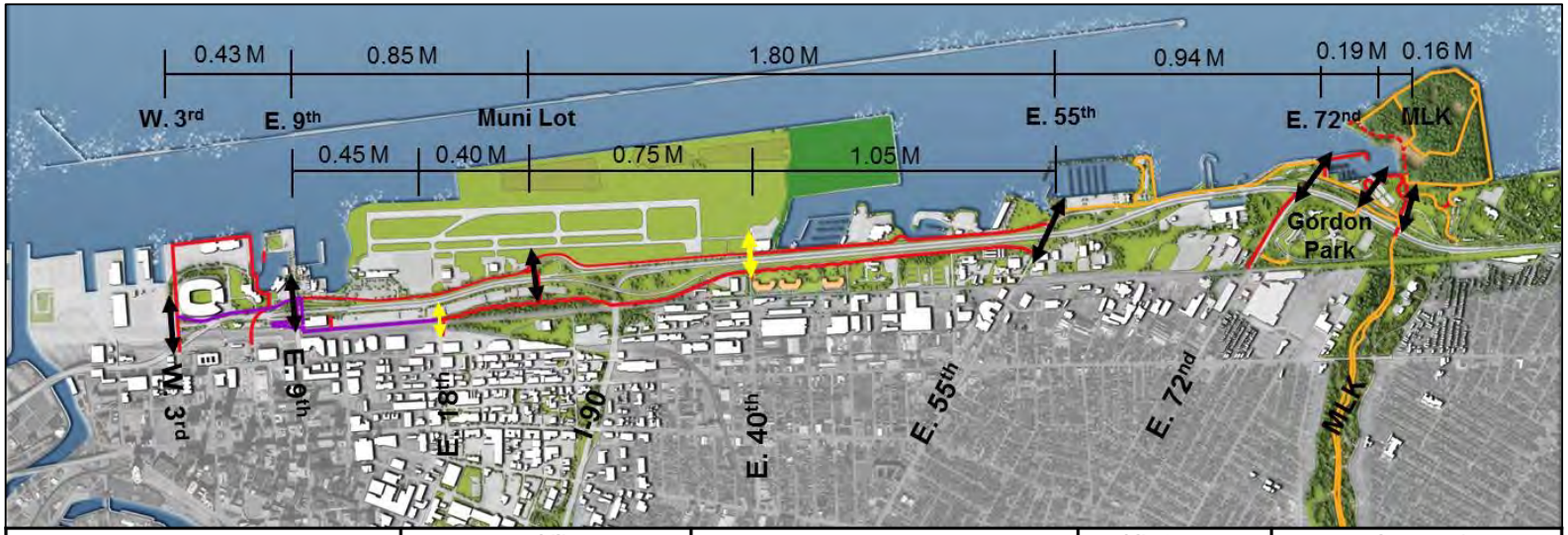
Existing

Proposed Treatment, Day

Proposed Treatment, Night

PROPOSED CROSSINGS

The need for new crossings to the lakefront was identified based on the distance between existing crossings. As indicating in the top diagram, the largest gap is between the Muni Lot Bridge and East 55th Street, at 1.8 miles. Major gaps are also present between East 9th Street and the Muni Lot Bridge, at .85 miles – and between East 55th Street and E. 72nd Street, at .94 miles. To improve access for residents of the near eastside neighborhoods and the Campus District, the study team identified potential crossings at four points: East 16th Street, East 18th Street, East 40th Street, and East 49th Street. The four crossings were evaluated based upon the analysis of the four categories listed in the chart below. Of these crossings, the study team identified two as preferable: East 18th Street and East 40th Street, with East 40th Street being the top priority. These locations are highlighted by the yellow arrows in the aerial.



	Mobility			Property Impacts				Public Comment		Implementation		
	Improves Pedestrian Mobility	Improves Vehicular Mobility	Improves Lakefront Access	Institutional/ Business	Burke Lakefront Airport	ODOT	Freight Rail	Project Stakeholders	General Public	Environmental Impacts	Costs	Further Study?
Proposed Crossings												
East 16th Street to N. Marginal / to S. Marginal	🟢🟡	N/A	🟡🟡	🔴🔴	🔴🟢	🟡🟢	🔴🔴	🔴🟡	🟡🟡	🟡🟡	🔴🟢	🔴🔴
East 18th Street to N. Marginal / to S. Marginal	🟢🟡	N/A	🟡🟡	🔴🔴	🔴🟢	🟡🟢	🔴🔴	🔴🟢	🟡🟡	🟡🟡	🔴🟢	🔴🟢
East 40th Street	🟢	N/A	🟢	🟡	🔴	🟡	🟢	🟢	🟢	🟡	🟢	🟢
East 49th Street	🟡	N/A	🟢	🔴	🟢	🟡	🟢	🔴	🔴	🟢	🟢	🔴
	🟢 Positive Impacts 🟡 Minor/No Change or Impact 🔴 Negative Change or Impact			🟢 Low Impacts 🟡 Moderate Impacts 🔴 High Impacts				🟢 Favorable 🟡 Neutral 🔴 Unfavorable		🟢 Minor Impacts & Costs 🟡 Moderate Impacts & Costs 🔴 Major Impacts & Costs		

Two new pedestrian bridges are proposed to facilitate access to the lakefront.

EAST 18TH STREET BRIDGE

The proposed East 18th Street Bridge has its southern terminus in a parking lot at the intersection of 18th Street and Davenport Avenue. East 18th Street, a higher-order roadway south of St. Clair Avenue, provides a desired connection to the Campus District. North of the span over the railroad tracks, the ramp descends in a series of switchbacks to street level at South Marginal Road. The switchbacks are necessary to meet ADA standards. From this point, pedestrians and bicyclists can use the proposed South Marginal trail to access the Muni Lot Bridge, approximately 1/3 mile to the east. A vertical clearance of 24 feet over the railroad tracks is provided.

EAST 40TH STREET BRIDGE

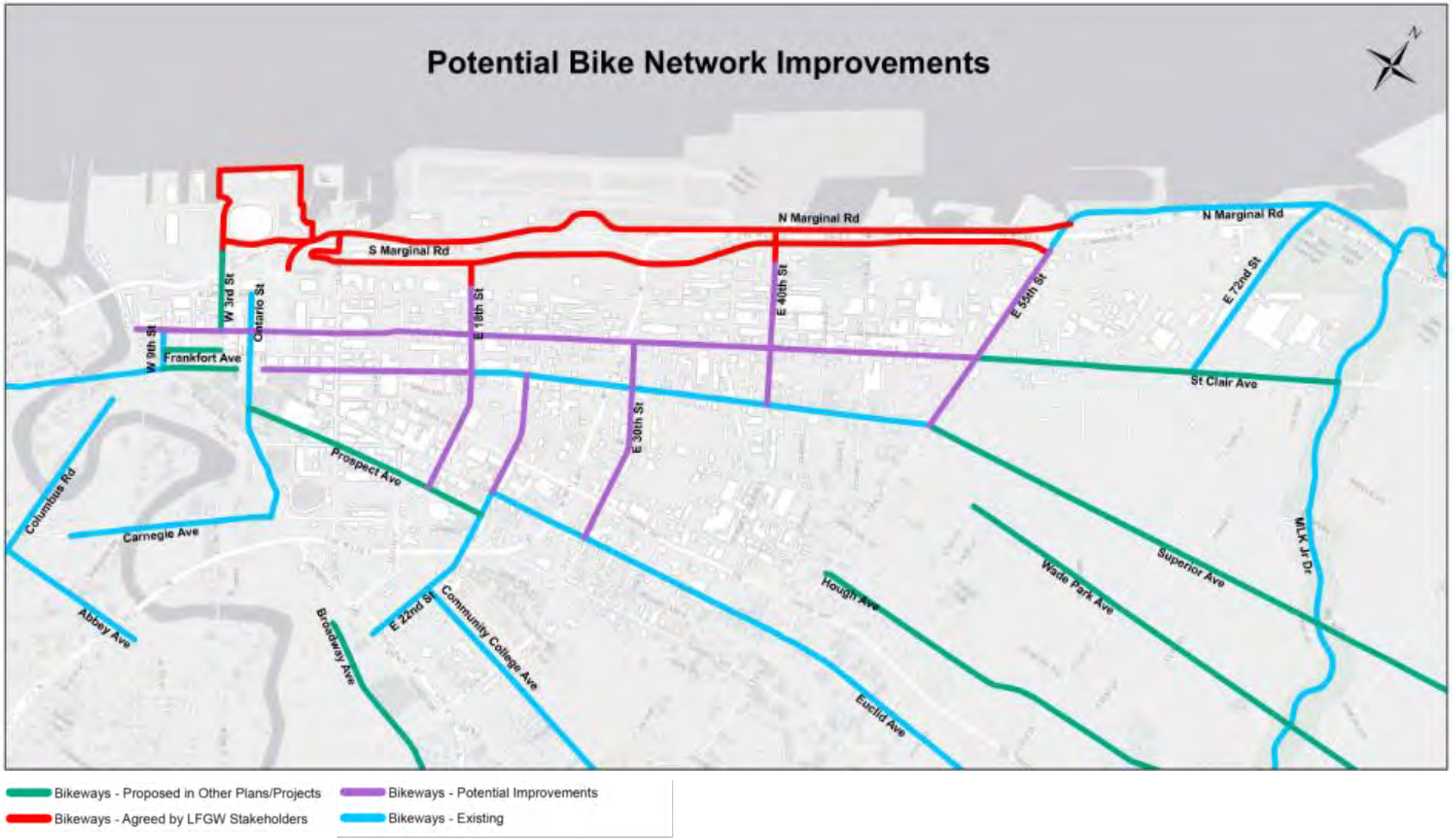
Starting at the intersection of East 40th Street and South Marginal Road, the ramp for the proposed bridge rises to the east. The span crosses the Shoreway just east of the vacant Aviation High School. Due to the constrained landing area, the ramp on the north side would likely be installed between the Shoreway and North Marginal Road. A vertical clearance of 17.5 feet over the Shoreway is provided. From the perspective of access to near eastside neighborhoods, this is the most strategic location for a bridge, interrupting the 1.8 mile gap for lakeside crossings, between the Muni Lot Bridge and East 55th Street.

East 18th Street Crossing

East 40th Street Crossing

BICYCLE NETWORK

Along with improvements and connections to the Marginal Road corridor, the study team prepared a recommended bicycle network plan for the study area. The network is intended to tie together the downtown, Marginal Road corridor, Campus District, and near eastside neighborhoods. The goal is to facilitate both recreational and utilitarian bicycling. The proposed bicycle network is illustrated in the accompanying figure; as indicated, network segments fall into one of four categories.



Existing Facilities

Steady progress has been made in expanding the regional bike network. Within the study area, noteworthy improvements include a bike lane – mostly protected – on East 72nd Street between St. Clair Avenue and the Shoreway. Bike lanes also exist on Superior Avenue between East 18th and East 55th Streets. Bike compatible shoulders are present on Martin Luther King Drive. Other facilities include:

- Ontario Street – sharrows
- Euclid Avenue – bike lanes east of East 22nd Street
- West 9th Street – sharrows
- Superior Avenue west of West 9th Street – bike lanes

Facilities are also present on Carnegie Avenue, Columbus Road, and Abbey Avenue.

Agreed by LFGW Stakeholders

As part of this study, project stakeholders agreed upon improvements to the Marginal Road corridor. Those are discussed at length in this report.

Proposed in Other Plans/Projects

A number of improvements have been proposed by other parties. One of the higher profile recommendations is the "Midway Cycle Track" proposed for St. Clair Avenue between East 55th Street and Martin Luther King Drive. The Canal Basin District Plan proposed bike lanes for Frankfort Avenue.

The Office of Sustainability Bikeway Plan has recommended bikeway improvements to:

- West 3rd Street
- Superior Avenue between West 9th Street and Ontario Street
- Superior Avenue east of East 55th Street. Given the existing ADT of 11,000 to 13,000, traffic volumes could easily be accommodated in a three-lane cross-section. There is potential to install bike lanes, particularly if on-street parking can be restricted to one side of the street.
- Prospect Avenue between Ontario Street and East 22nd Street.

The map shows other roads proposed by the Office of Sustainability for improvements. The Office indicates that these roadways will be prioritized based on network functionality.

Potential Improvements

Superior Avenue

Public Square to East 18th Street – this section has bus lanes, which are intended to serve as a de facto bike lane. Given the wide roadway width (77 feet), and traffic volumes of 8,000 to 14,000 per day in this section, various roadway reconfiguration options may be considered for installing bicycle facilities. For example, existing travel lanes could be reduced in width in order to create shared bus/ bike lanes of 16 feet in width, or the number of travel lanes could be reduced from four to three in a "road diet" in order to create dedicated bike lanes.

St. Clair Avenue

- West 10th Street to West 3rd Street – Given the 58 to 60 foot cartway and moderate traffic volumes, bike facilities may be installed via a three-lane road diet, or by restricting parking to one side of the street.
- West 3rd Street to East 13th Street – If the outside lanes continue to be designated bus only for peak hours, it will be difficult to install bike facilities. Given the 56 to 60 foot cartway and moderate traffic volumes, the potential exists for creating bike facilities under other roadway reconfiguration scenarios.
- East 13th Street to East 55th Street – With a 60 foot cartway, this four-lane roadway could be placed on a road diet to offer three travel lanes, bike lanes, and parking. Off-street parking is generally available, so restricting parking to only one side of the street is also a possibility.

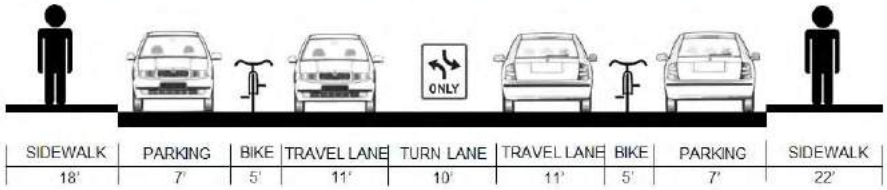
East 55th Street

With average daily traffic volumes between 15,000 and 17,000, a three-lane road diet and bike lanes should be considered for this roadway. East 55th Street is narrowed down to only a two-lane cross-section at the railroad overpass, without significant associated delays, indicating that a three-lane cross-section should suffice in accommodating existing traffic volumes.

East 40th Street

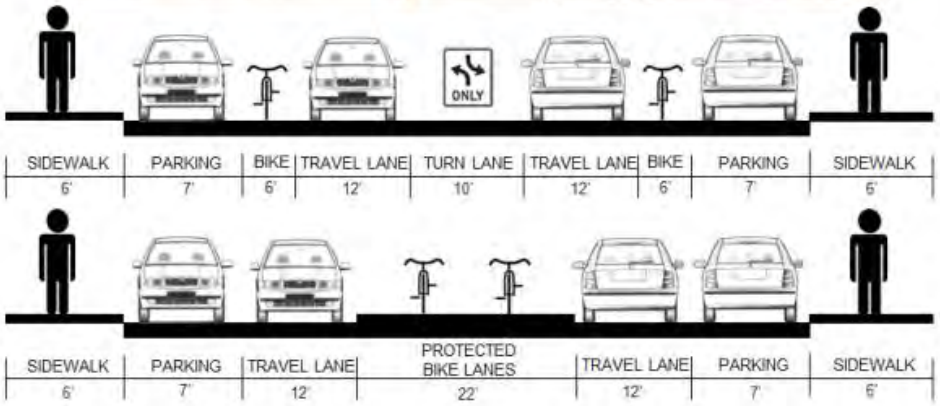
With a 36 foot width, bike lanes could be striped on this roadway if parking is restricted. Given the existing low traffic volumes, this roadway is compatible for bicycle travel in any case even if the roadway cannot be restriped.

St. Clair Avenue at West 3rd Street

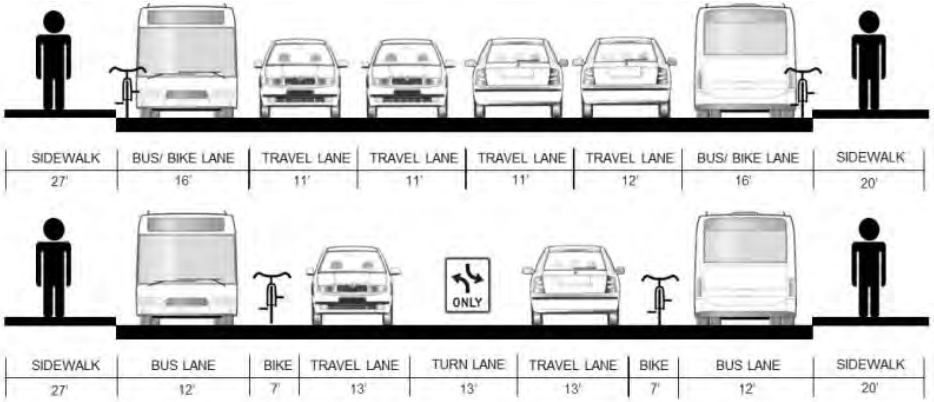


This page provides three examples of how major east-west roadways in the study area may be reconfigured to better accommodate bicyclists. St. Clair Avenue west of East 13th Street varies from 56 to 60 feet; in the narrower sections, it will be necessary to provide cross-section elements with minimum dimensions, or to remove on-street parking from at least one side in order to increase the width of bike lanes and travel lanes. On St. Clair Avenue at West 3rd Street, the cross-section shows 11 foot travel lanes, 5 foot bike lanes, and 7 foot parking lanes. East of East 13th Street, a consistent 60 foot width of St. Clair Avenue provides more space for cross-section elements. On Superior Avenue, with its 77-foot cross-section, either a shared bus/bike lane or individual bike lanes are possibilities.

St. Clair Avenue at East 42nd Street

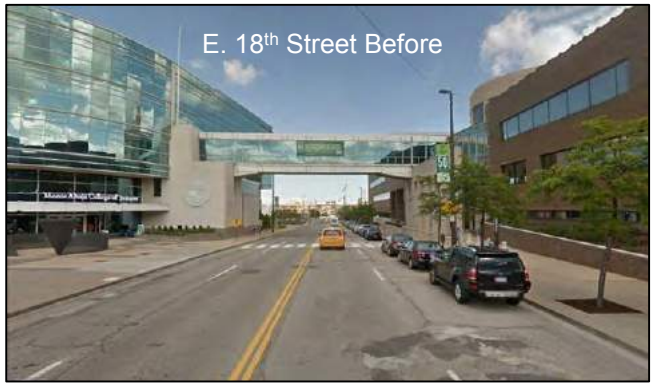


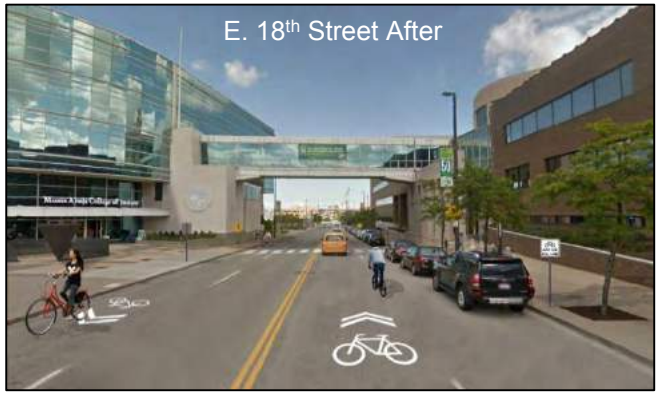
Superior Avenue at East 18th Street

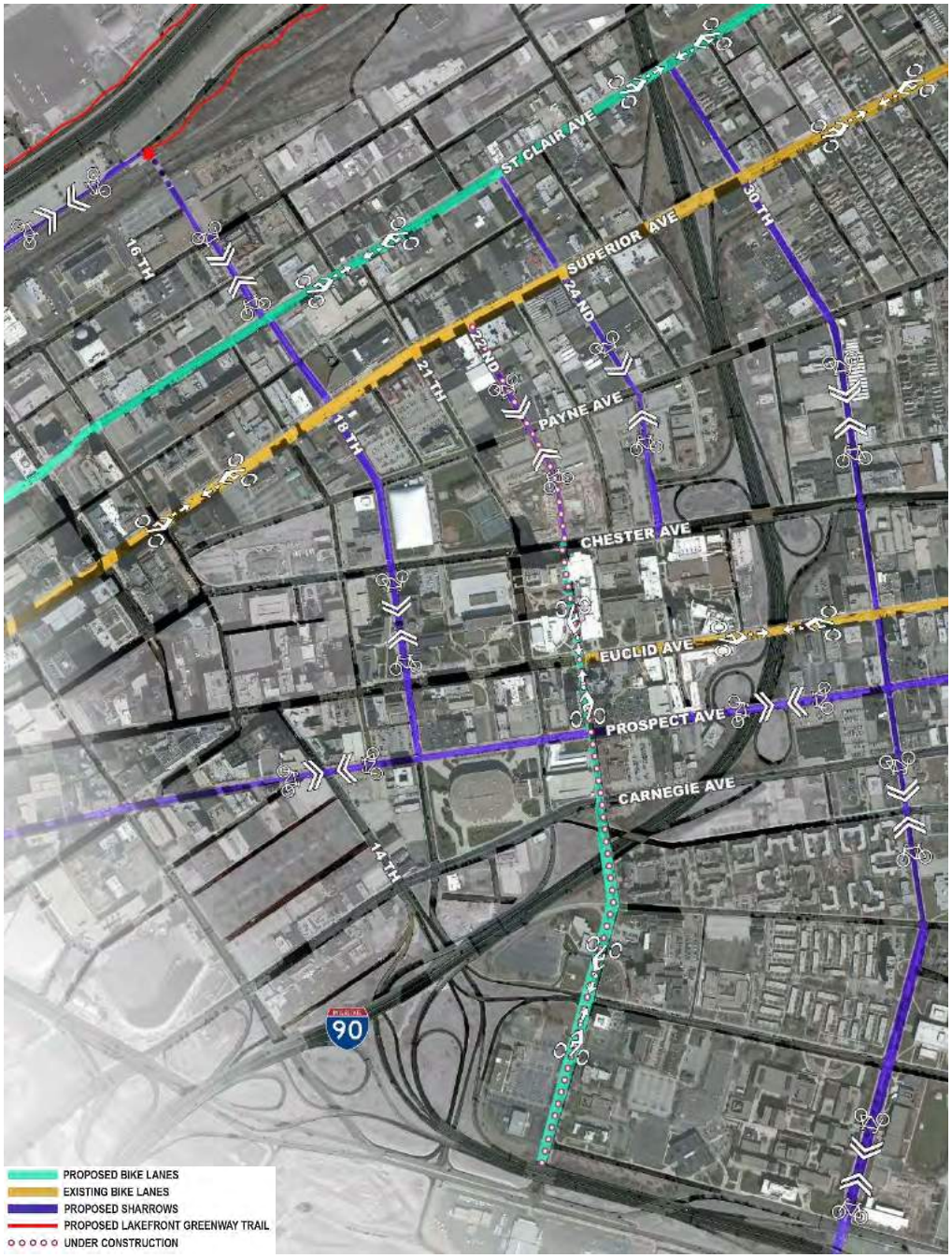


CAMPUS DISTRICT CONNECTIVITY

Bicycle network improvements are proposed to build upon the new bike lanes under construction now along East 22nd Street, which are expected to be completed by June 2016. Shared lane markings are proposed for key streets in the Campus District, including East 30th Street, East 18th Street, East 24th Street, East 22nd Street north of Chester Avenue, and Prospect Avenue. These pavement markings have been shown to encourage bicyclists to ride in a safer manner, and to make motorists more aware of the presence of bicyclists. It may be feasible to install bike lanes on some of these streets; for example, bike lanes could be installed on East 18th Street if on-street parking were restricted. Prior to any installation of new shared lane markings or bike lane markings further analysis should be done regarding on street parking restrictions, signing, intersection capacity and safety.







COST ESTIMATE

Order-of-magnitude cost estimates were prepared for the major capital improvements proposed in this report. It is likely that estimates will change as improvements are actually designed, and engineers are able to specify quantities with greater precision. The plan does not take into account changes or escalation factors in the costs of labor, materials, or equipment. The provided cost estimate does not include right of way, or construction engineering and inspection costs. A general attempt was made to anticipate potential impacts of known and seen utilities, primarily power and traffic poles and fire hydrants. Although these estimates are order-of-magnitude, these will serve as a useful planning tool in moving the proposed improvements forward through subsequent phases. A summary of costs is shown in the accompanying table; more detailed estimates are provided in Technical Appendix A.

Improvement	Probable Costs
Bridges	
West 3rd Street Median Removal	$67,000
East 9th Street Pedestrian Structure	$1,200,000
Muni Lot Bridge Widening	$1,745,000
East 55th Street Reconfiguration	$726,700
East 40th Street Bridge	$4,520,000
East 18th Street Bridge	$5,307,000
Trail Segments	
North Marginal Road Trail	$5,598,482
South Marginal Road Trail, Off-Road	$2,503,359
South Marginal Road Trail, On-Road	$252,387
Erieside Avenue/Lerner Way	$439,964
North Coast Harbor Trail	$973,344
Parking Garage Path	$122,988
East 72nd Street Path	$143,819
MLK Drive Path	$280,505
Lakefront Nature Preserve Trail Segments	$397,768
Intercity Yacht Club	$245,939

FUNDING SOURCES

Following is a brief summary of potential funding sources.

FHWA

Funding under some FHWA programs are at the discretion of ODOT and/or NOACA (Northeast Ohio Areawide Coordinating Agency (NOACA), the region's Metropolitan Planning Organization (MPO). Others require direct application to USDOT or its divisions.

- Surface Transportation Program (STP) – Provides flexible funding that states and localities may use for non-motorized transportation. The flexible nature of this program focuses direct funding to priority areas and areas of greatest need. Eligible projects include bicycle lanes on roadways, paved Shoulders, signed bike routes, and shared use paths. Administered by ODOT and NOACA.
- Congestion Mitigation and Air Quality Improvement Program (CMAQ) – Provides a flexible funding source to State and local governments for transportation projects and programs designed to help States meet the requirements of the Clean Air Act. Eligible projects include bicycle lanes on roadways, signed bike routes, shared use path, and trail/highway intersections. Administered by ODOT and NOACA.
- Transportation Alternatives (TA) – Funds alternative transportation programs and projects, which are not related to roadway capacity. These include pedestrian and bicycle facilities, community improvement activities, and recreational trail projects, among others. Administered by ODOT and NOACA.
- Transportation Investment Generating Economic Recovery (TIGER) Grants – Provides funding for transportation projects that promise to help achieve critical national objectives, such as improving community livability and sustainability. TIGER grants generally require "project readiness," including completion of environmental documentation and design, prior to application to ensure that funding is used expeditiously. The TIGER program is generally highly over-subscribed, with requests far exceeding the available funding, which comprised $600 million nationally in 2014.

Ohio

- Recreational Trails Program – Funded by ODNR, this can be used for urban trail linkages. This can be used as a local match for TA, SRTS, STP and CMAQ programs.
- County and Municipal Bridge Program – Issued by the County Engineers Association and ODOT, this program funds bike and pedestrian facilities that are appurtenances to the bridge project itself.
- State Capital Improvement Program and Local Transportation Improvement Programs – Administered by the Ohio Public Works Commission, these programs fund bike and pedestrian facilities that are appurtenances to the roadway project itself.

IMPLEMENTATION

A well-organized implementation plan will be needed to follow through on the various physical improvements proposed in this study. It is recommended that a Plan Implementation Committee be formed in order to shepherd the improvements to completion. This Committee can be largely comprised of members of the study Steering Committee.

A key task of the Implementation Committee will be to determine a Phasing Plan. Phasing priorities should be based on the following attributes:

- **Cost**. Lower-cost items should be implemented first, simply because it typically takes a longer period of time to design, and assemble and process the funding required for more expensive projects.

- **Ease of Implementation**. Less-complex projects should be implemented first. This helps to create momentum, and therefore a constituency, for implementing the more complex projects. Additionally, it is often a good idea to dovetail improvements, where possible, with other projects if this will result in lower costs. Perhaps the best example would be roadway re-striping improvements for the purpose of installing bike lanes, such as those discussed in the Bicycle Network section. It is less costly, and therefore more feasible, to make these improvements if they can be packaged together with scheduled roadway resurfacing projects.

- **Importance of Implementation**. The Implementation Committee should evaluate the benefit of each project in facilitating bicycle and pedestrian mobility within the study area. Other potential benefits, such as helping to revitalize neighborhoods or commercial districts, should also be taken into consideration. Assessing the importance of a particular project can serve as a counter-weight to projects assessed on the basis of cost and ease of implementation alone, since the most costly projects can sometimes also yield the greatest benefits.