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CHEERS

Transportation Study

September 2023

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Project Meetings

Date	Attendees	Meeting Purpose	Feedback Received
May 9, 2023	WRT, Arup	Initial introduction between WRT and the transportation team at Arup to discuss what to include in the transportation assessment	• Propose ideas for pedestrian crossings • Need traffic volume analysis to pursue CD road idea
June 14, 2023	WRT, Metroparks, ODOT, Arup	Arup to shared an update on the transportation assessment and received feedback for how to progress	• Research parking strategies
August 17, 2023	City of Cleveland, WRT, Arup	Initial presentation of the transportation assessment to the City and further discussion about ongoing projects in the area	• Discussion around details of the proposed CD road • Need for an interchange study to confirm the removal of 72nd • Parking strategy of interest to the City and multi modal design proposed

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1. Executive Summary

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Executive Summary

Proposed recommendations:

- Redesign intersections to reduce conflict points for vulnerable road users
- Implement changes along 55th St and 72nd St to increase safety for pedestrians and bicyclists and create more attractive routes to the park
- Install a parking strategy of dynamic signage to reduce cars idling trying to find a parking spot

The following recommendation will require additional studies to determine feasibility of proposed reconfiguration:

- Convert N Lakeshore Blvd to a two-lane collector distributor (CD) road to allow for removal of I-90 interchange ramps. Recommendation accounts for the use of existing ramps, when possible, but a true reconfiguration of ramps would increase safety and connectivity options

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CHEERS Transportation Study

Goal: To provide guidance on how to improve connectivity to the future expanded park by designing for continuous safety, comfort, and accessibility.

Topics: Bicycle and pedestrian safety & comfort, intersection design, parking

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Focus Areas

- Highway / ramp configurations
- Intersection design
- Roadway conditions along 55th St & 72nd St
- Highway Crossings
- Parking Strategy

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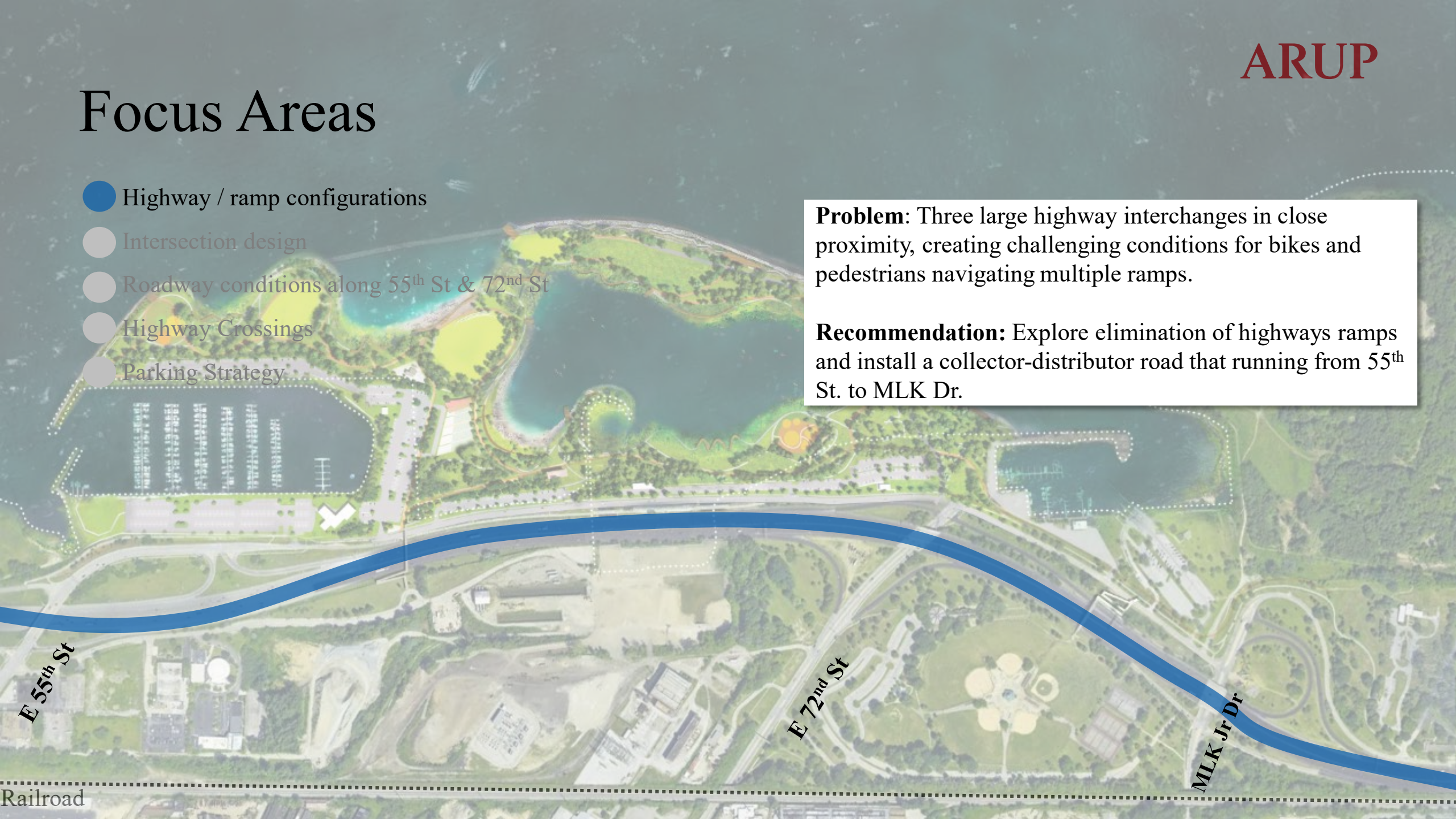
- Parking Strategy

Problem: Three large highway interchanges in close proximity, creating challenging conditions for bikes and pedestrians navigating multiple ramps.

Recommendation: Explore elimination of highways ramps and install a collector-distributor road that running from 55th St. to MLK Dr.



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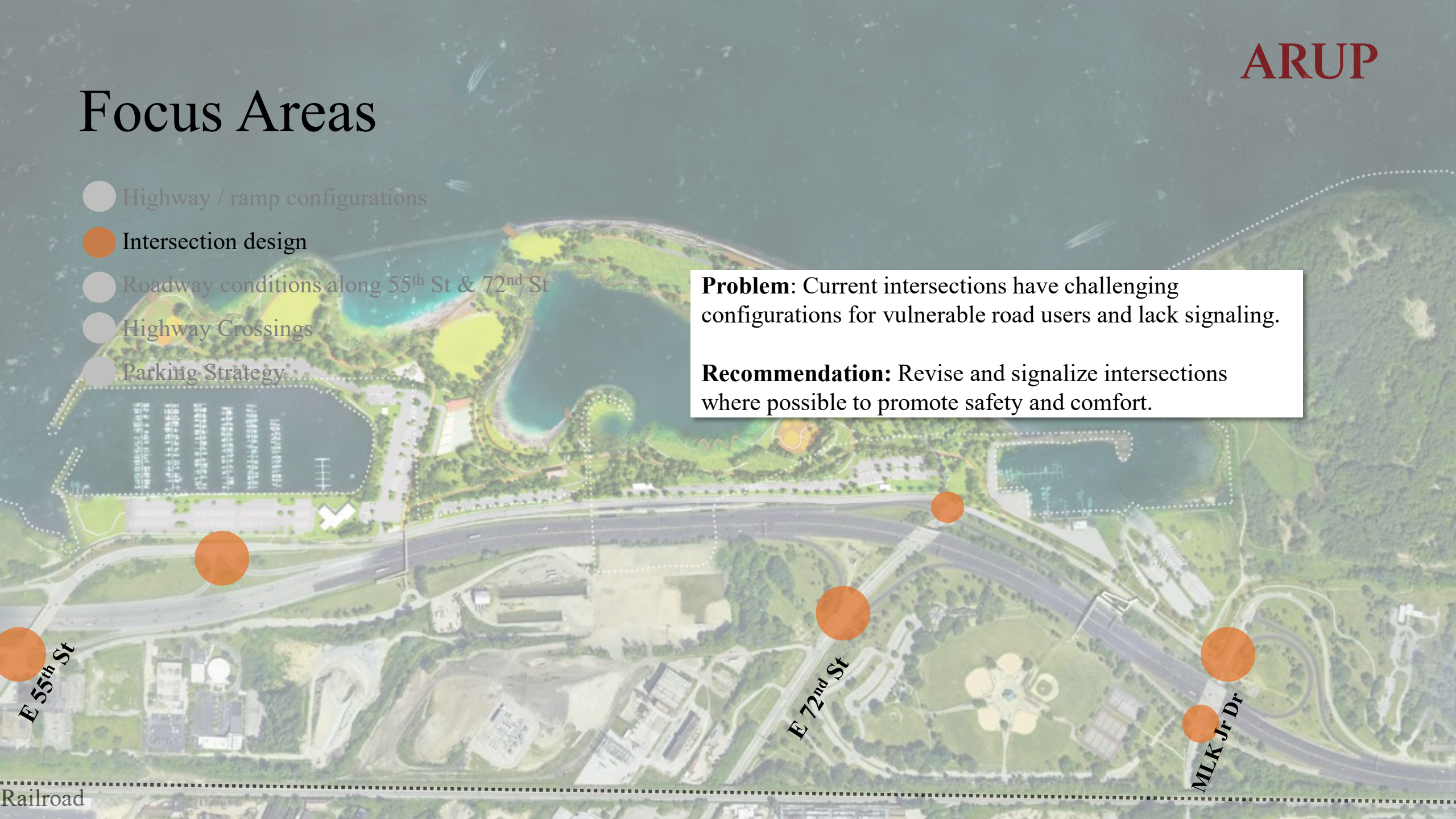
Focus Areas

- Highway / ramp configurations
- Intersection design
- Roadway conditions along 55th St & 72nd St
- Highway Crossings
- Parking Strategy

Problem: Current intersections have challenging configurations for vulnerable road users and lack signaling.

Recommendation: Revise and signalize intersections where possible to promote safety and comfort.



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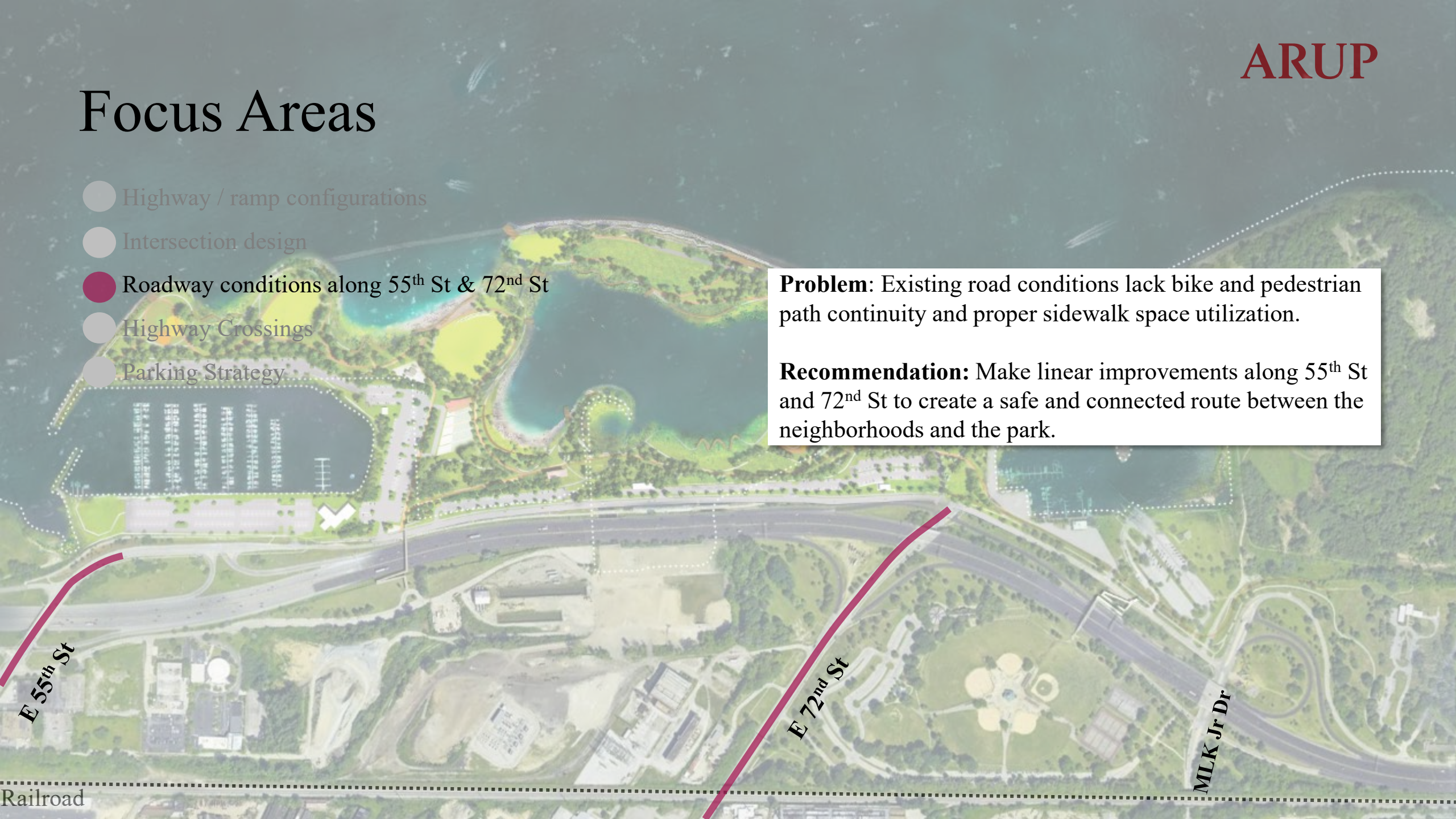
Focus Areas

- Highway / ramp configurations
- Intersection design
- Roadway conditions along 55th St & 72nd St
- Highway Crossings
- Parking Strategy

Problem: Existing road conditions lack bike and pedestrian path continuity and proper sidewalk space utilization.

Recommendation: Make linear improvements along 55th St and 72nd St to create a safe and connected route between the neighborhoods and the park.



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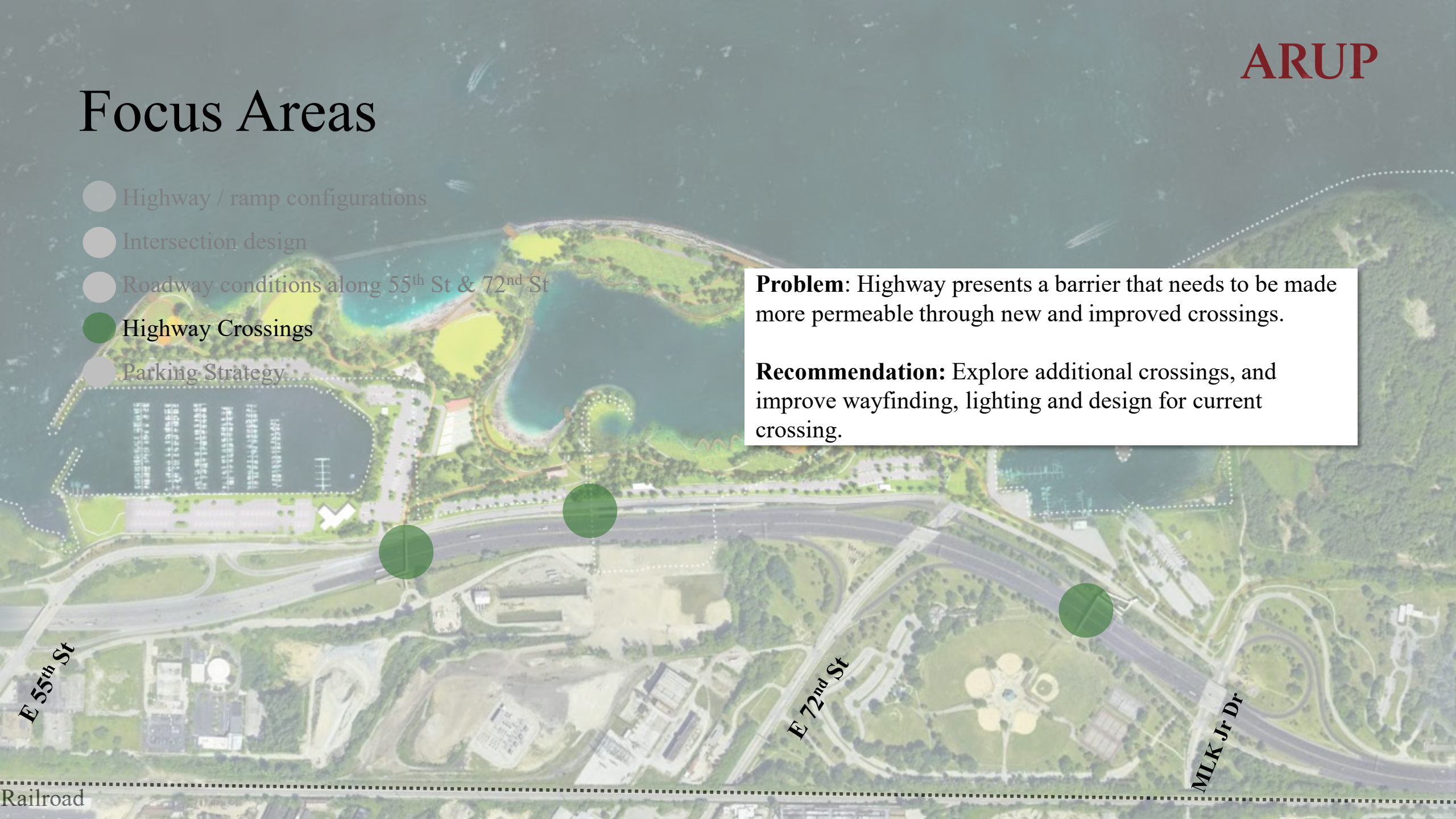
Focus Areas

- Highway / ramp configurations
- Intersection design
- Roadway conditions along 55th St & 72nd St
- Highway Crossings
- Parking Strategy

Problem: Highway presents a barrier that needs to be made more permeable through new and improved crossings.

Recommendation: Explore additional crossings, and improve wayfinding, lighting and design for current crossing.



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Focus Areas

- Highway / ramp configurations
- Intersection design
- Roadway conditions along 55th St & 72nd St
- Highway Crossings
- Parking Strategy

Problem: While providing parking, need to eliminate as much traffic as possible on park roadways and space allocated to parking.

Recommendation: Explore green and intelligent parking solutions.

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2. Highway / Ramp Configurations

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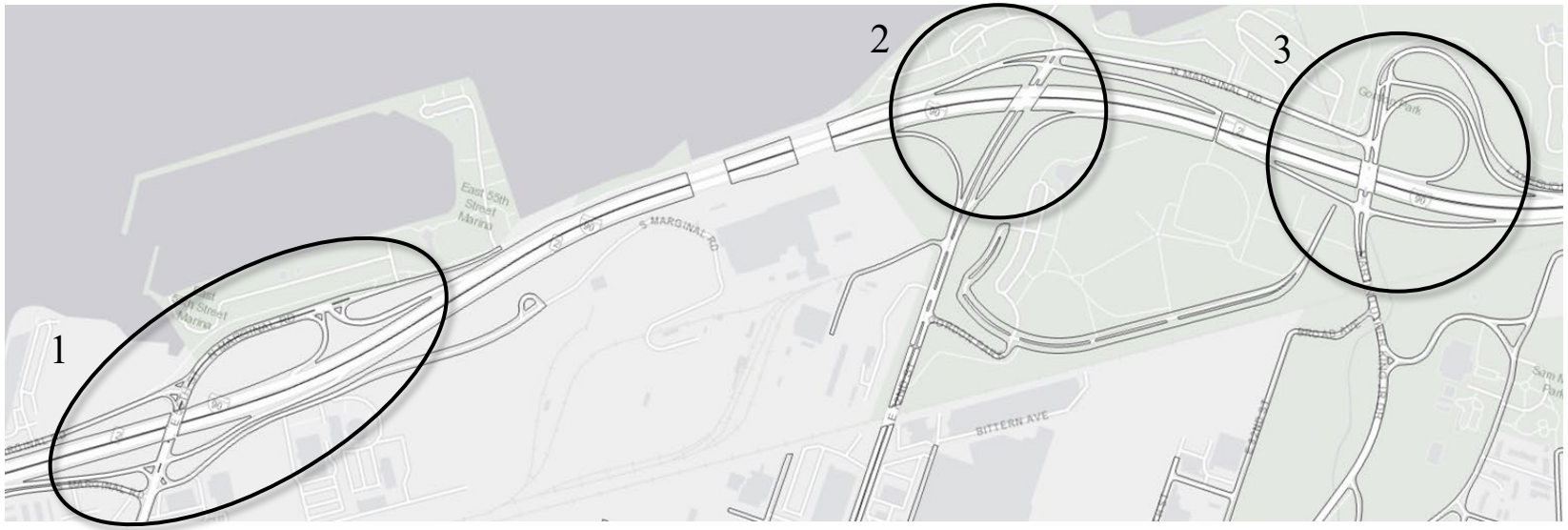
Problem Identification

There are **three** highway interchanges within 1.25 linear miles of each other in the CHEERS project area.

These are *complete* interchanges – meaning they allow full movement in all directions. This introduces many ramps intersecting the local streets, all with relatively low volumes, yet creating challenging conditions for bikes and pedestrians.



If desired, existing ramps can be significantly modified, creating safer and more comfortable active mobility connections at key nodes.

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Potential Solution | CD Road

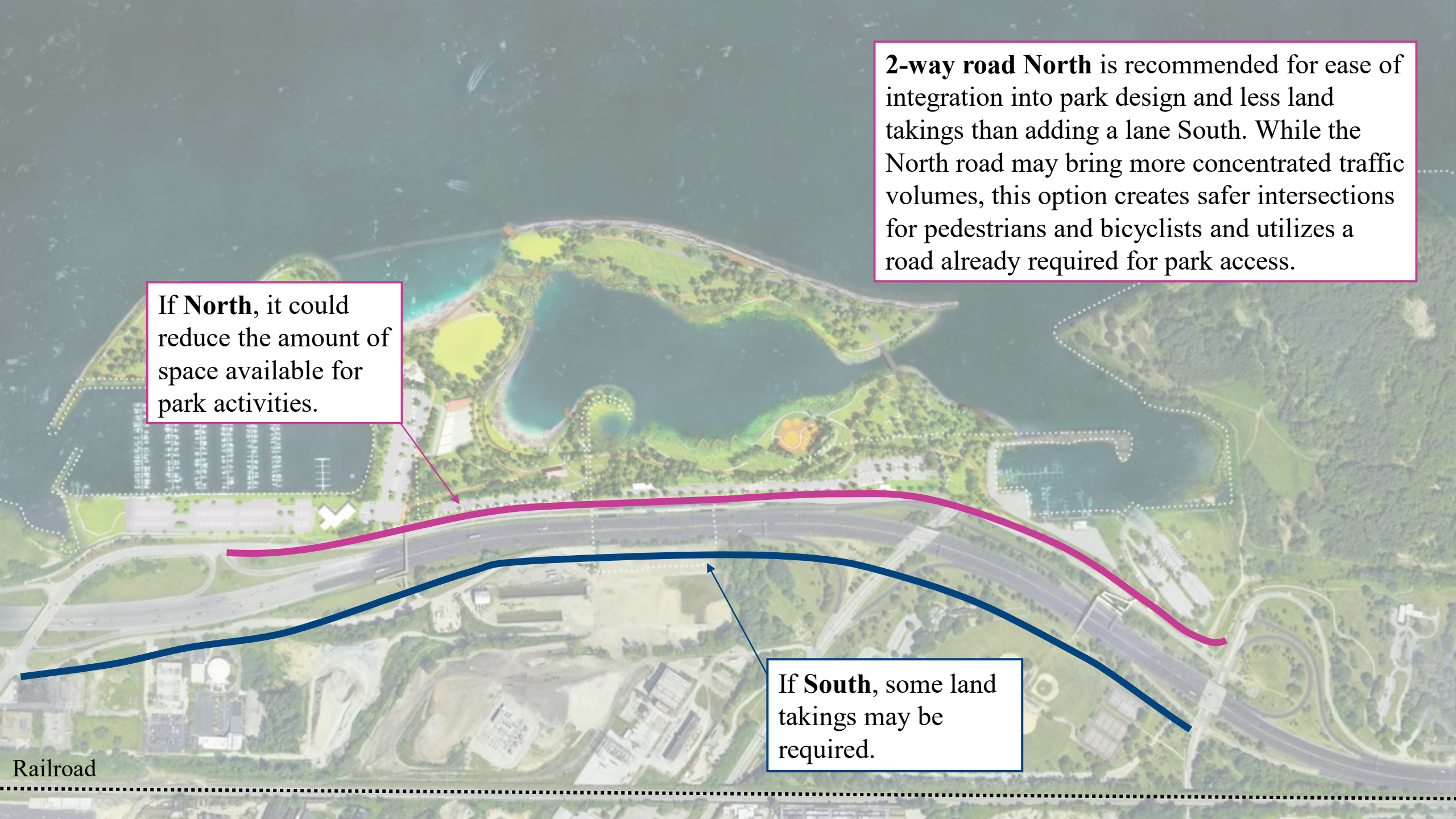
A **Collector/Distributor (CD) Road** can be used to replace the three interchanges and eliminate 8 of the 12 existing highways ramps.

- The roadway would be a 2-lane road, stretching from 55th St to MLK Dr
- Could be placed north or south of I-90

The CD road would provide a parallel facility for traffic bound for the three interchanges, simplifying intersections while maintaining highway access. The traffic volume analysis shows minimal traffic volumes diverted with the removal of the 72nd interchange.

Eliminating the interchanges would create opportunities for improved bike and pedestrian connections, increasing safety and improving comfort for all to access the waterfront.

Note: All references to new signals would require a signal warrant analysis


2-way road North is recommended for ease of integration into park design and less land takings than adding a lane South. While the North road may bring more concentrated traffic volumes, this option creates safer intersections for pedestrians and bicyclists and utilizes a road already required for park access.
If **North**, it could reduce the amount of space available for park activities.
If **South**, some land takings may be required.
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In the CD road scenario, these **8 ramps** could be **eliminated**.

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North Road Option Travel Patterns

Travel patterns using the CD Road

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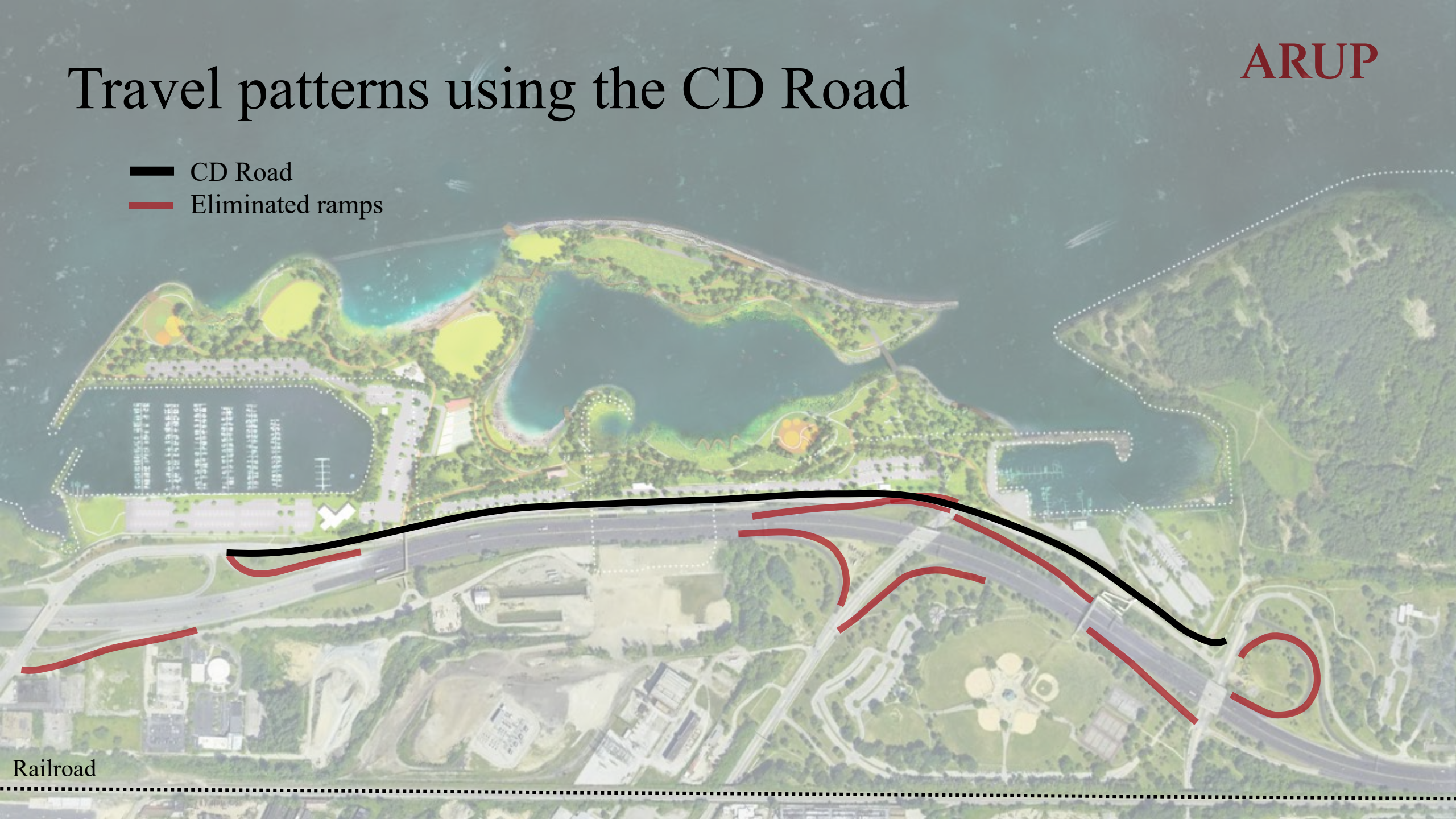

Travel patterns – From I-90 East

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CD Road

1. I-90 East→ E 55th St
2. I-90 East→ E 72nd St
3. I-90 East→ MLK Dr

Travel patterns – From I-90 West

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CD Road

1. I-90 West→ E 55th St
2. I-90 West→ E 72nd St
3. I-90 West→ MLK Dr

Travel patterns – To I-90 East

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CD Road

1. E 55th St → I-90 East
2. E 72nd St → I-90 East
3. MLK Dr → I-90 East

Travel patterns – To I-90 West

*Further study required to evaluate existing entrance ramps to confirm if it meets current design criteria for acceleration lane distance

1. E 55th St → I-90 West
2. E 72nd St → I-90 West
3. MLK Dr → I-90 West

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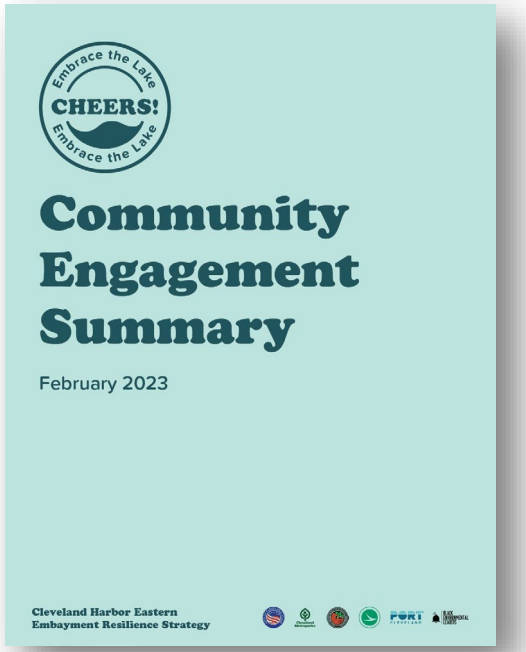
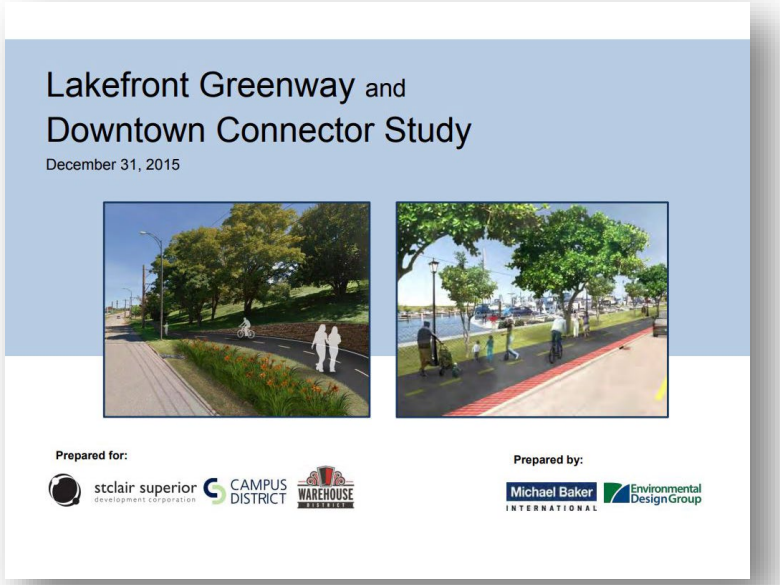
Previous Studies Reviewed

The Community Engagement Summary, a 2016 Ohio Department of Transportation Study, and the Lakefront Greenway and Downtown Connector Study are three reports reviewed to shape our recommendations.



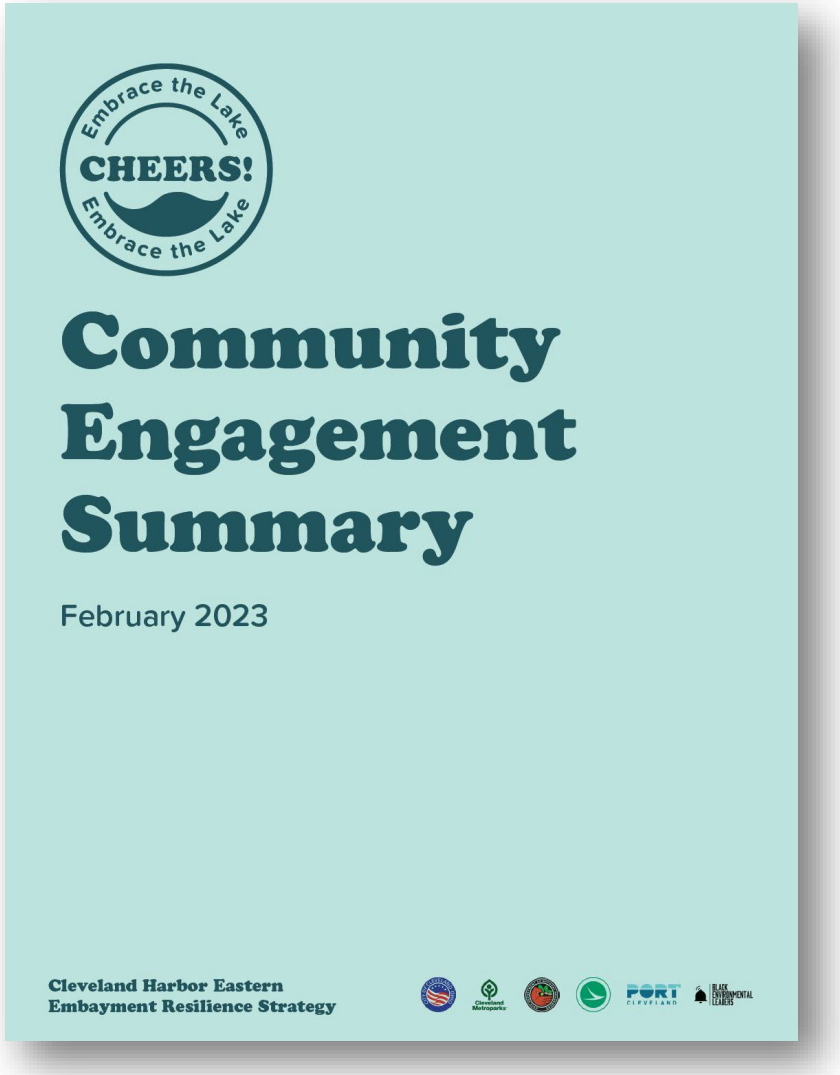


Community Engagement Summary

A top priority for nearly all community members is improving connections and access from the neighborhood to the lakefront. This includes creating a better ped/bike experience and increasing places to park and ride or shuttle drop-off.

Community feedback included the following items:

- Pedestrian bridge enhancements
- Improvements to lighting and perception of safety needed on pedestrian bridge and underpasses.
- Consistent and connected bikeways from neighborhoods to lakefront bikeway.
- Visual improvements to Gordon park bridge and potential need for additional pedestrian bridge.



Link to Report: Feb Engagement Summary (002).pdf

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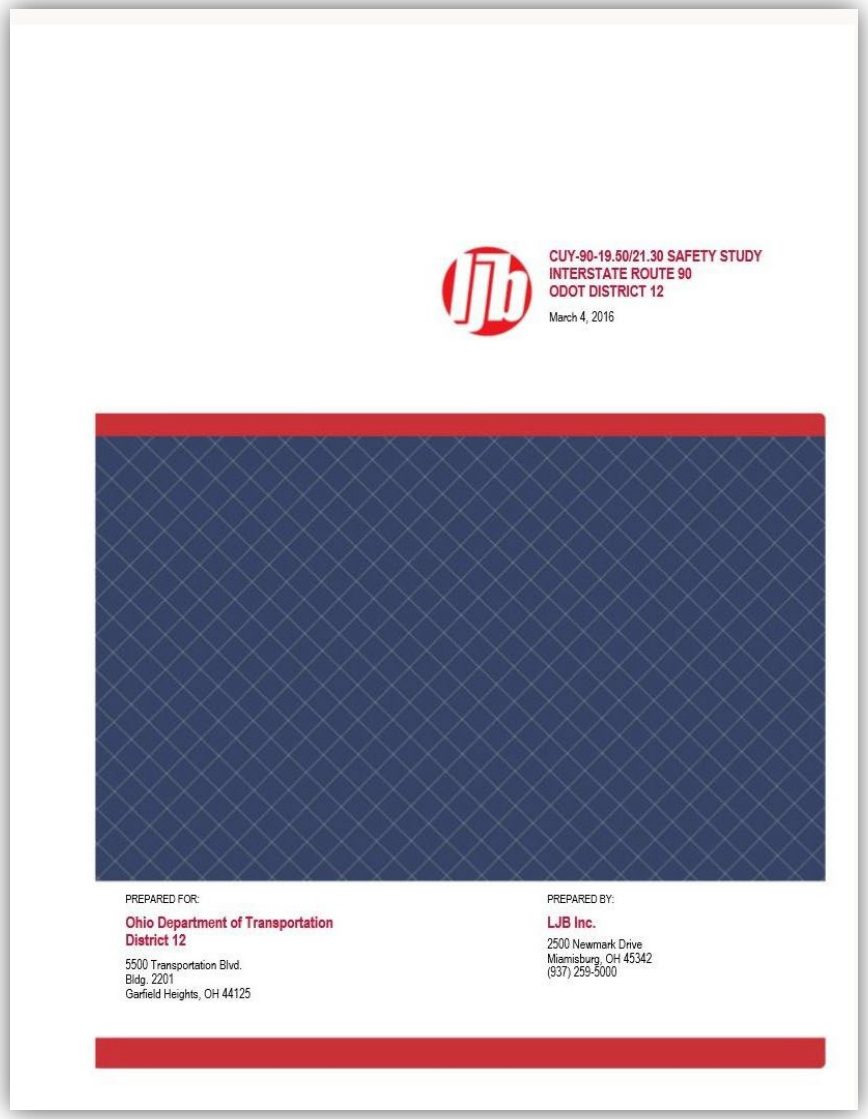
ODOT I-90 Safety Study

Overview

Published in 2016, this study evaluated the existing safety performance of a 1.8-mile segment of I-90 and at the interchanges with E. 55th Street, 72nd Street, and MLK Jr. Drive.

- The study provided recommended countermeasures as methods to reduce crashes along these segments of I-90.
- Between 2011 and 2013, 405 crashes were recorded in this area of I-90, one of which was fatal.



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ODOT I-90 Safety Study

Recommended Countermeasures

The following items were recommended to improve safety performance at either the intersection of I-90 and 55th St, 72nd St, or MLK Drive:

- Revise lane transitions at the railroad crossing
- Signalize intersections as a separate signal phase
- **Remove entrance and exit ramps at 72nd Street interchange to divert traffic to Lakeshore Blvd**
- Provide dedicated left turn lanes at intersections
- Convert the exit ramp approach to a roundabout intersection
- Realign Lakeshore Blvd with future park access

ODOT's Safety Study states the "reconfiguring of ramps at E 72nd Street is not further evaluated in this study due to higher costs and impacts to Gordon Park. This alternative may be considered if other alternatives are determined not to be feasible". This idea was not pursued partly due to land impacts and the complexity of building a CD road to 55th street with the existing power plant canal. The development of the park reduces this complexity and allows the opportunity to pursue preliminary engineering to develop an alignment to reconfigure the ramps and construct a CD roadway parallel to I-90.

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CD Road Traffic Analysis Details

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Traffic Volume Analysis

A traffic volume analysis was done for the CD road to determine size requirements and understand potential impact on the surrounding land.

Peak traffic volumes from the ODOT I-90 Safety Study were used to estimate how many cars the CD road would need to service at different times of the day. The data is projected for year 2034 to ensure that the design year conditions are being considered.

Implications of future additional traffic to/from the park is not considered.

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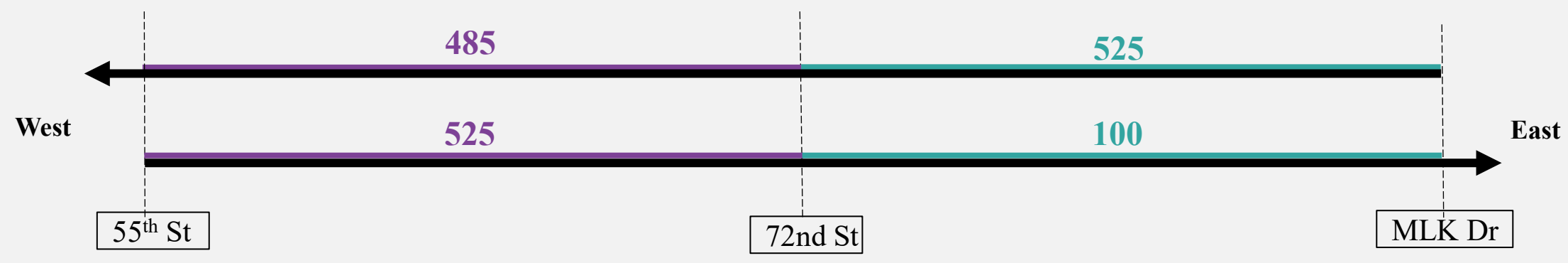
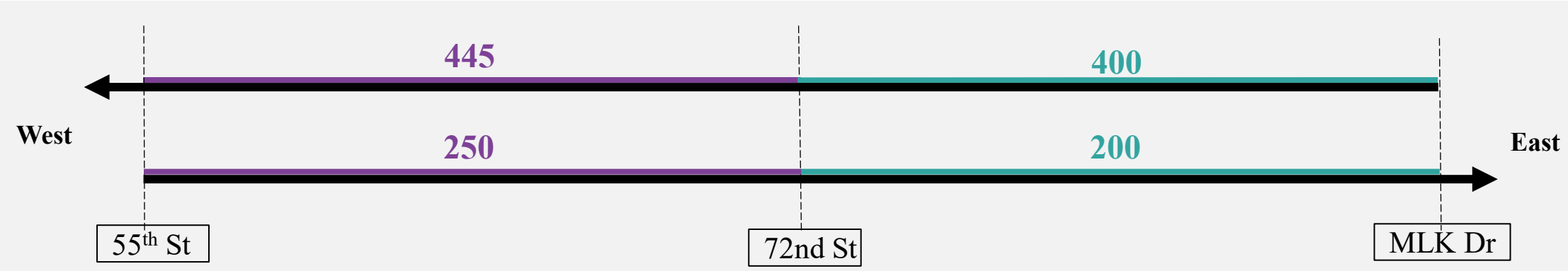
Traffic Volume Analysis

2034 Projection

Peak **morning** volumes show a maximum of 525 cars heading Westbound, and 525 cars heading Eastbound.



Peak **evening** volumes show a maximum of 445 cars heading Westbound, and 250 cars heading Eastbound.



The traffic volumes using the exits above equal ~10% of total volumes in the 2034 projection.

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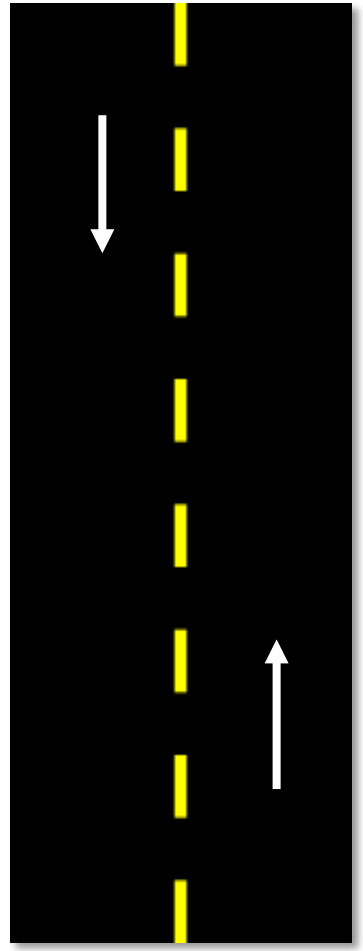
CD Road Size Requirements

Using a conservative approach and assuming a Type III speed road, this volume analysis shows that **1 lane** in each direction is sufficient to accommodate steady traffic flow between 55th St and MLK Dr with a high degree of freedom (LOS B).

Type of Roadway	
I	50 mph
II	45 mph
III	35 mph
V	25 mph



CD Road Case Studies

Arup looked at the following CD road case studies for examples of road width, length, and distance between exits:

- Cross Bronx Service Road, Bronx, New York
- Jean Baptiste Point DuSable Lake Shore Drive, Chicago, Illinois
- West Frontage Road, Berkley, California
- Northbound I-5, Seattle, Washington

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Collector-Distributor Intersection Changes

Collector-Distributor Intersection Changes

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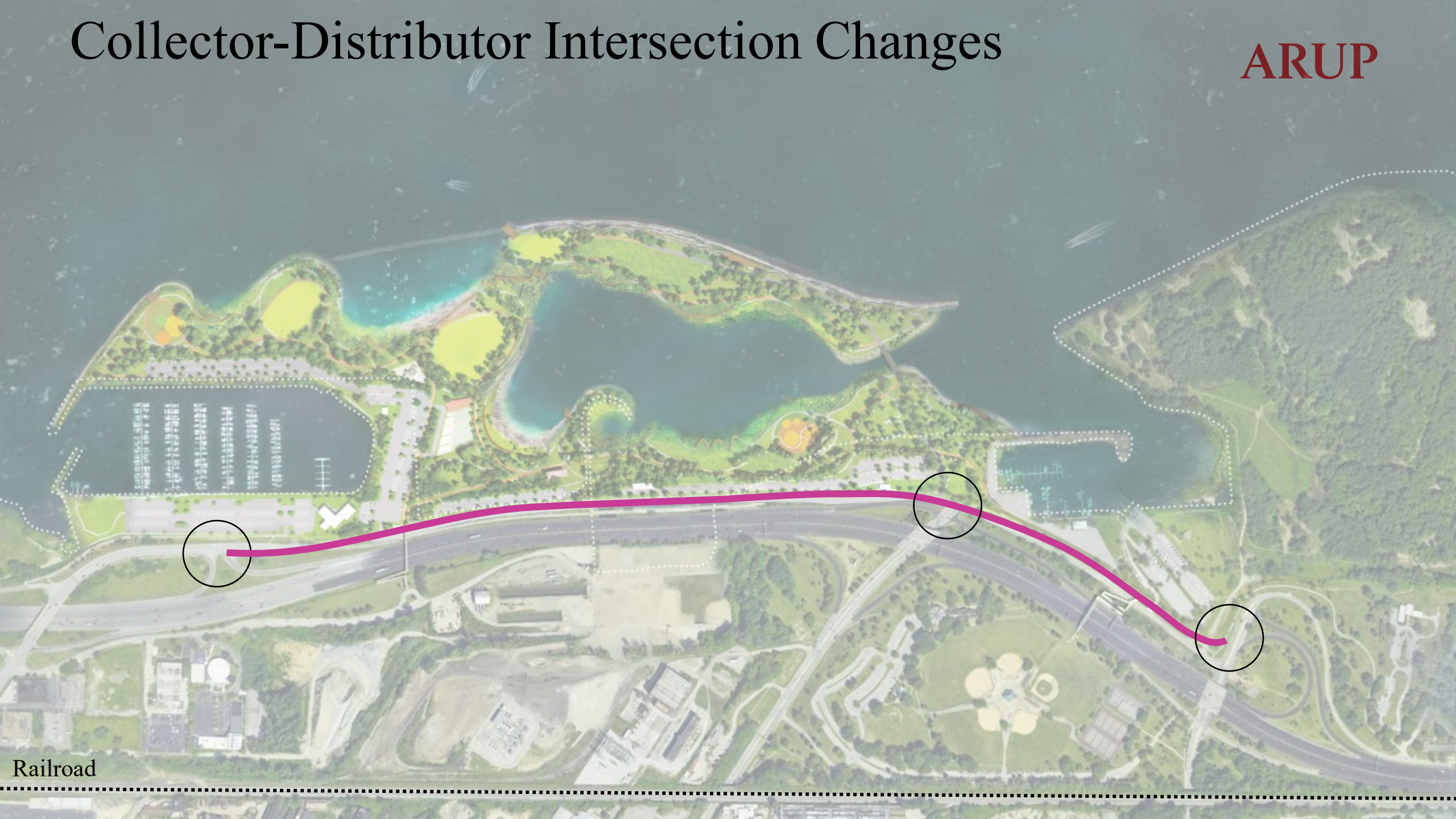

Collector-Distributor Intersection Changes

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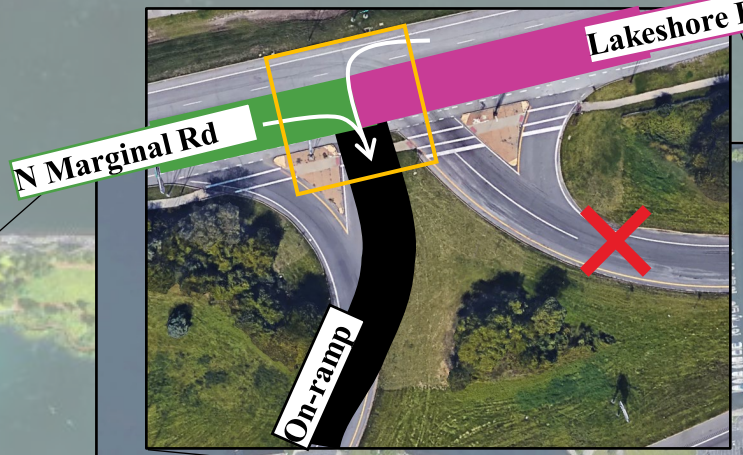
Intersection:

- Straighten out ramps
- Create a 3-way intersection with signals
- Eliminate traffic islands
- Eliminate northside off-ramp and southside on-ramp onto I-90



On-ramp
Off-ramp
New signalized intersection
Ramp eliminated

Lakeshore Blvd

N Marginal Rd

E 55th

Railroad

Collector-Distributor Intersection Changes

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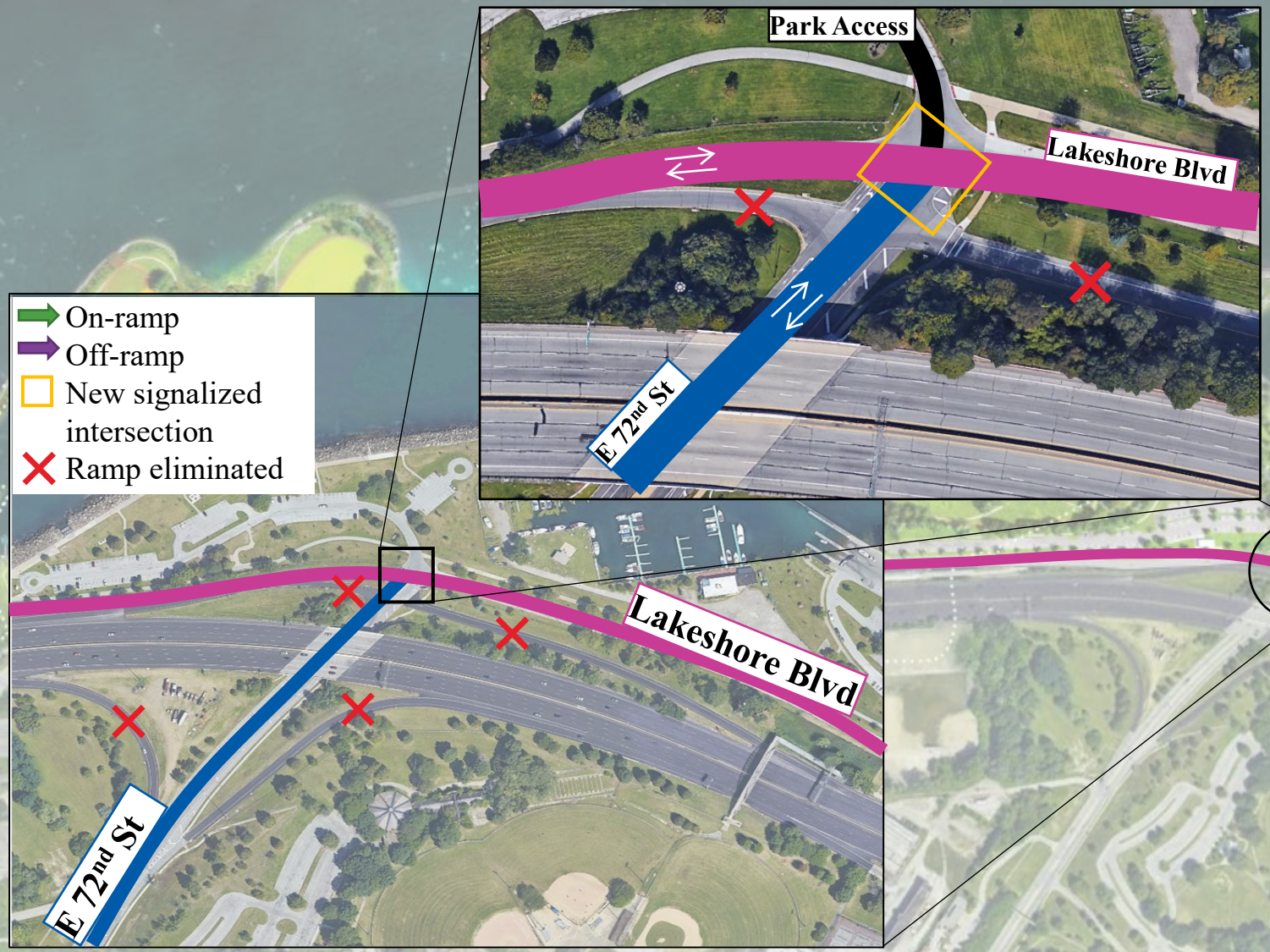

Intersection:

- Form a 4-way intersection with signals
- Turn off the CD road to access E 72nnd St or to access the park
- Eliminate all 4 ramps to I-90

Collector-Distributor Intersection Changes

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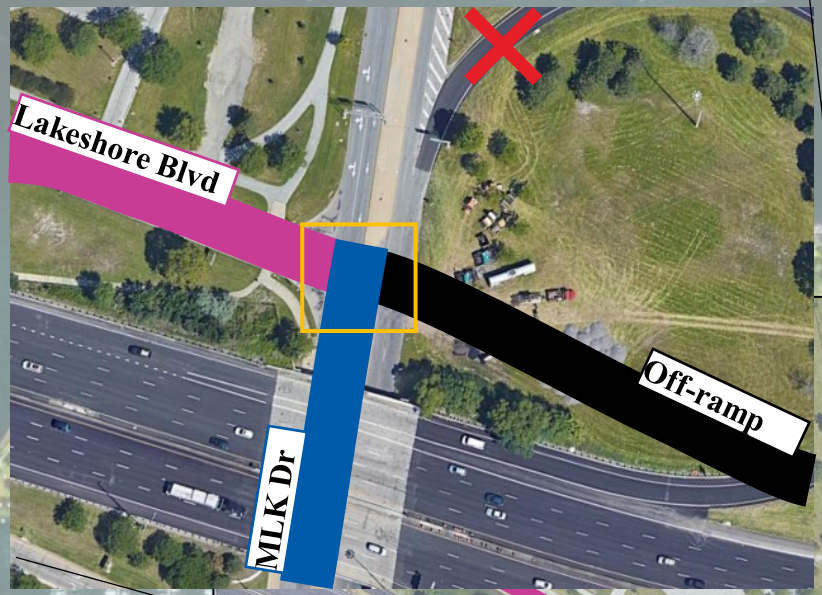

On-ramp
Off-ramp
New signalized intersection
Ramp eliminated

MLK Dr

Intersection:

- Form a 4-way intersection with signals
- Beginning of CD road Westbound / end of CD road Eastbound
- Eliminate northside on-ramp and southside off-ramp on I-90

Railroad

Existing Cross Sections

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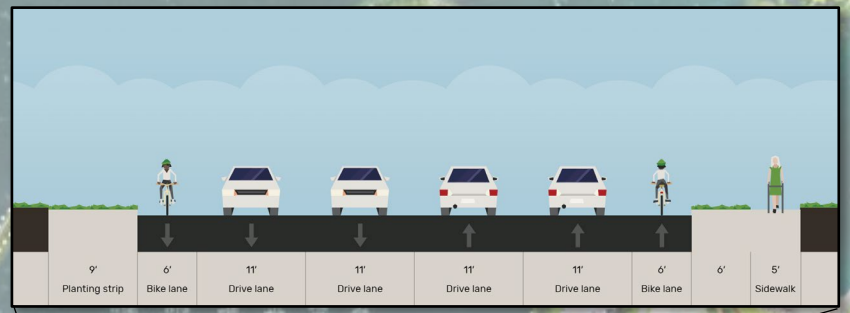
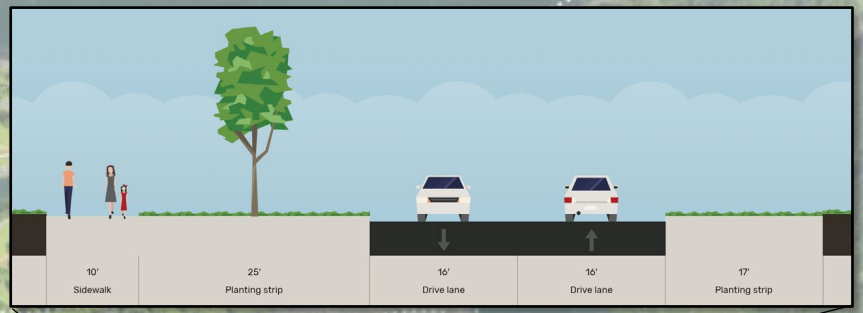
1 N Marginal Rd after 55th St



2 N Marginal Rd after 72nd St



Railroad

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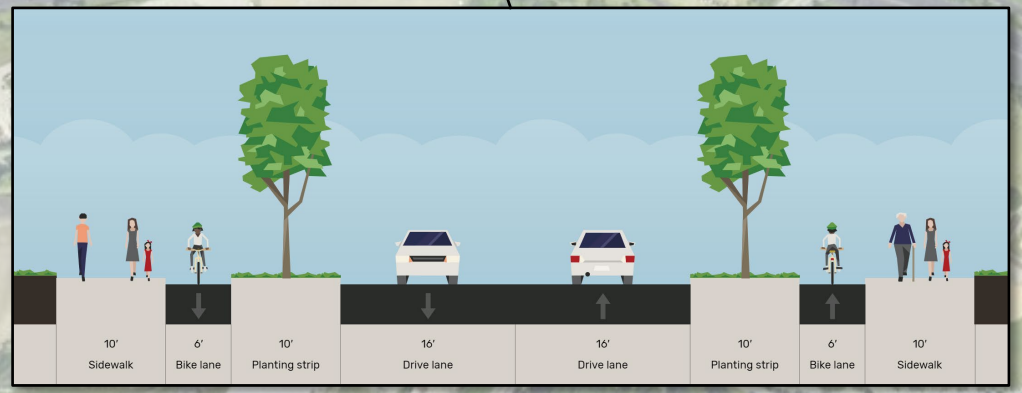
Proposed cross section of Lakeshore Blvd

The proposed design uses the existing ROW to provide bike and pedestrian access on each side, with pathways that are separated the from the road, without significant increase in dimension.



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3. Intersection Design Concepts

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Value & Methodology

Pedestrians and cyclists must travel across I-90 to reach the park, and it is important to make sure that they feel **comfortable** and **safe** doing so.

With the following adjustments, the on-ramp and off-ramp intersections at E 55th St, E72nd St, and MLK Dr can be improved to ensure better travel conditions for people accessing the park:

Limit the number of conflict points for pedestrians to cross by combining adjacent roads and consolidating intersection points

Add signals at each intersection to help control traffic and make the roads safer to cross. Count down timers and push buttons should be installed at signalized intersections

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Design Considerations

This section's **overall goal** is to improve existing intersections and reduce conflict points to increase pedestrian and bicyclist safety in the study area.

The following items should be taken into consideration to achieve the outlined goal:

- Engage early with Cleveland City Traffic Engineering to evaluate concepts and pursue any necessary studies
- Intersection design should enhance safety and reduce driver confusion at I-90 entrance ramps
- All references to new signals would require a signal warrant analysis
- Design concepts will be refined upon future detailed studies and dependent on available time and resources allotted to the project

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Wrong-Way Ramp Signage

Without reconstructing intersections, wrong-way alert systems and wrong way signage are the most used technologies and practices to warn drivers they are approaching oncoming traffic.

Research shows that sign type does not play a significant part in whether a driver continues down a wrong-way. It mostly depends on the time of day and if the driver is impaired.

Wrong Way Alert Systems detect wrong-way drivers in the sign activation zone and flash warning alerts

Wrong Way Signs warn wrong-way drivers approaching the ramp. No technology involved.

Source: ASSESSMENT OF THE EFFECTIVENESS OF WRONG WAY DRIVING COUNTERMEASURES AND MITIGATION METHODS, 113

E 55th Street

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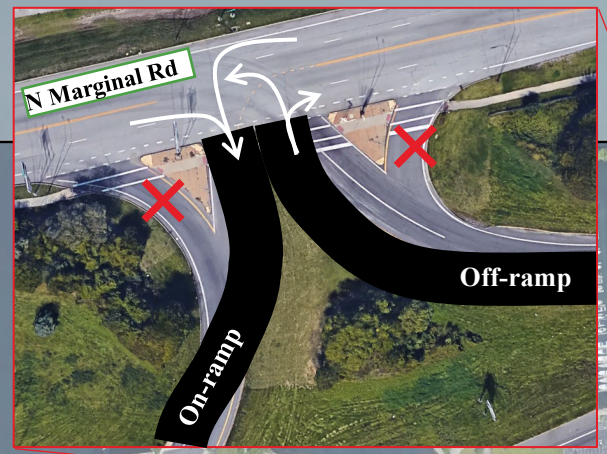
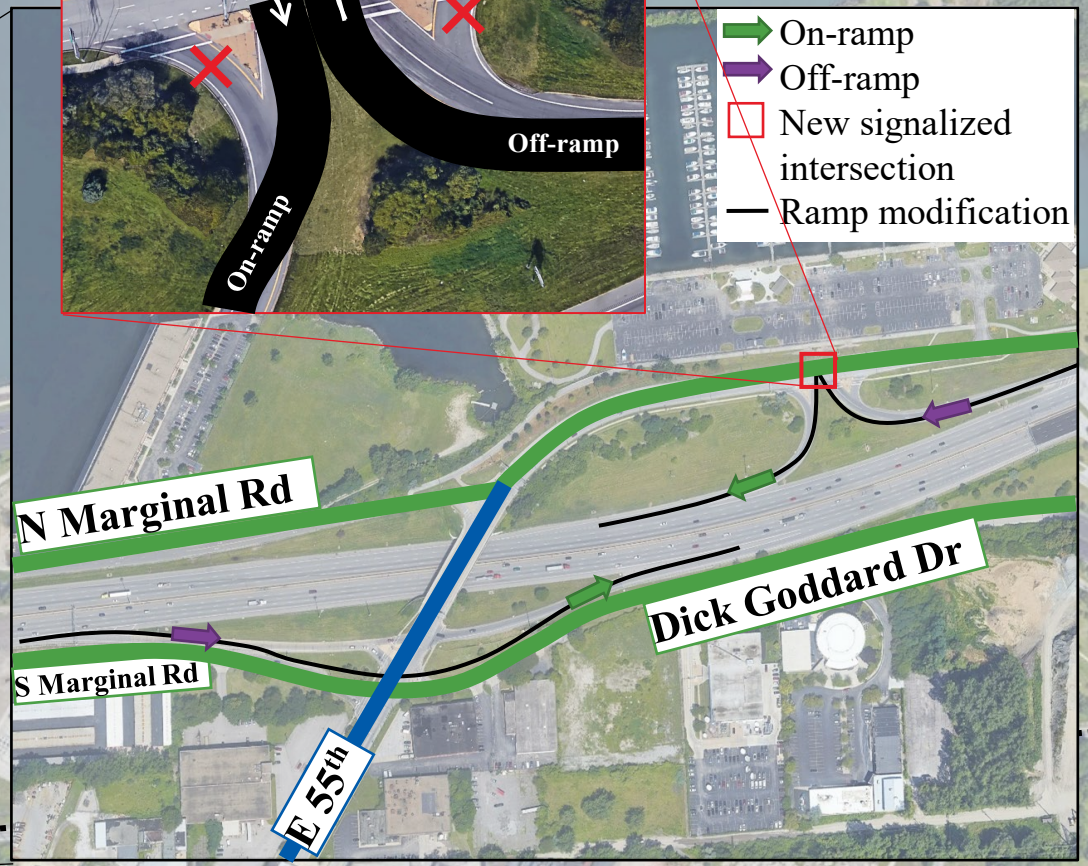
North Intersection:

- Straighten out ramps
- Create a 3-way intersection with signals at Lakeshore Blvd
- Eliminate traffic islands
- Consider exit ramp curve design speeds





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E 55th Street

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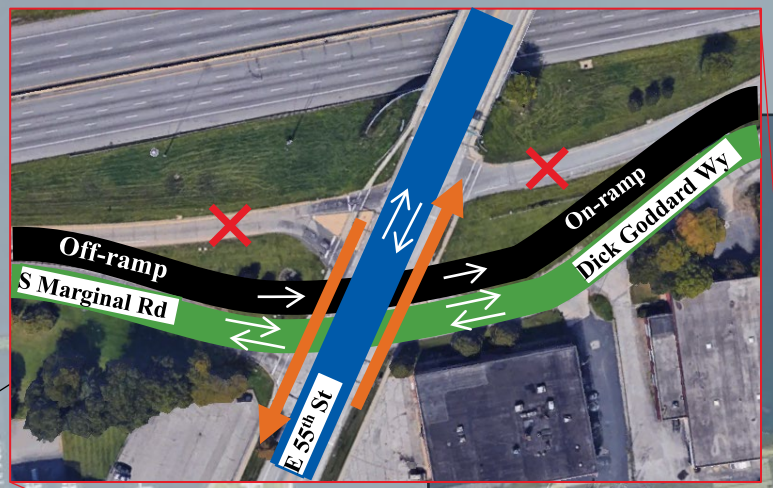
South Intersection:

- Create one larger 4-way intersection with signals
- Re-align the on and off-ramps to be adjacent with Dick Goddard Dr and S Marginal Rd, respectively
- Add protected phase for bicyclists
- Eliminate traffic islands
- Possible roundabout



On-ramp
Off-ramp
New signalized intersection
Ramp modification
Protected phase for bicyclists

N Marginal Rd

Dick Goddard Dr

S Marginal Rd

E 55th

Railroad

E 72nd Street

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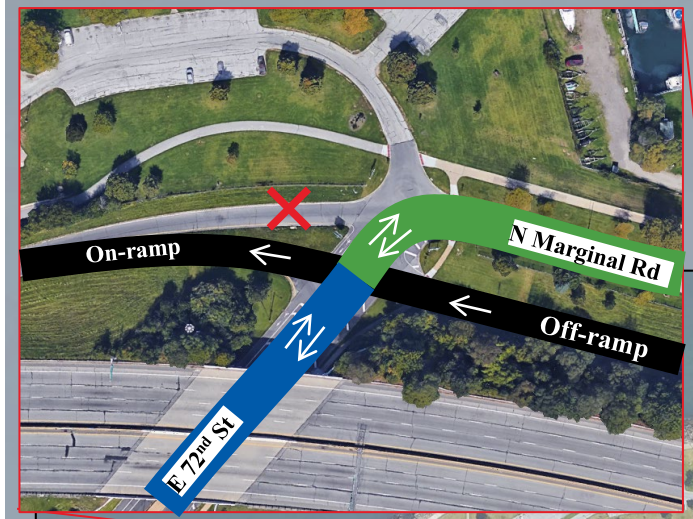

North Intersection:

- Create one 4-way intersection with signals
- Eliminate the direct on-ramp from Lakeshore Blvd

On-ramp
Off-ramp
New signalized intersection
Ramp modification

N Marginal Rd

E 72nd St

Railroad

E 72nd Street

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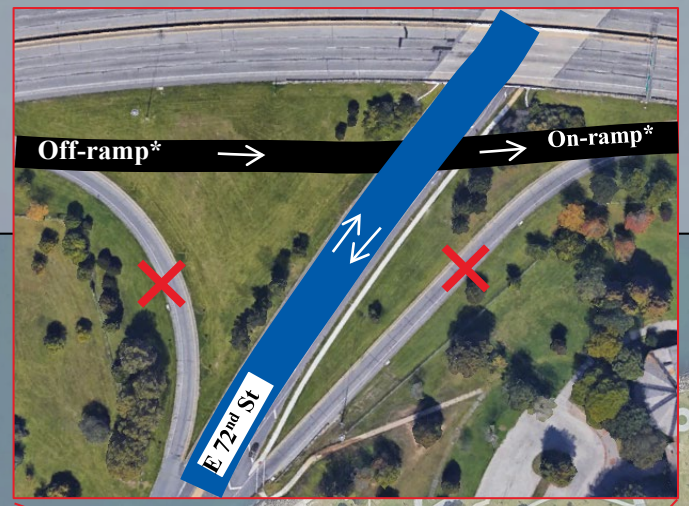

South Intersection:

- Straighten out ramps
- Create a 4-way intersection at E 72nd with signals

On-ramp
Off-ramp
New signalized intersection
Ramp modification

N Marginal Rd

E 72nd St

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*If the concept to straighten out the ramps is pursued, the existing grade may change design and further studies should be pursued. This falls outside of scope for the current transportation assessment.

MLK Dr

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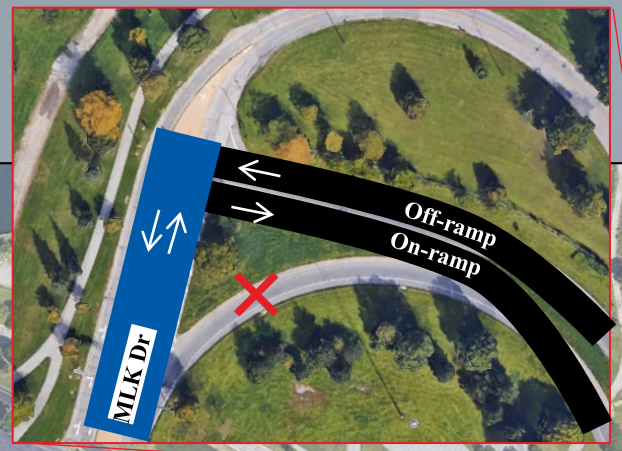
North Intersection:

- Realign on-ramp to be adjacent to the off-ramp*
- Create 3-way intersection at MLK Dr with signals



On-ramp
Off-ramp
New signalized intersection
Ramp modification
No modification

MLK Dr

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*Precise details of the ramp location would be refined based on engineering needs, community feedback, and environmental concerns upon a more detailed study.

MLK Dr

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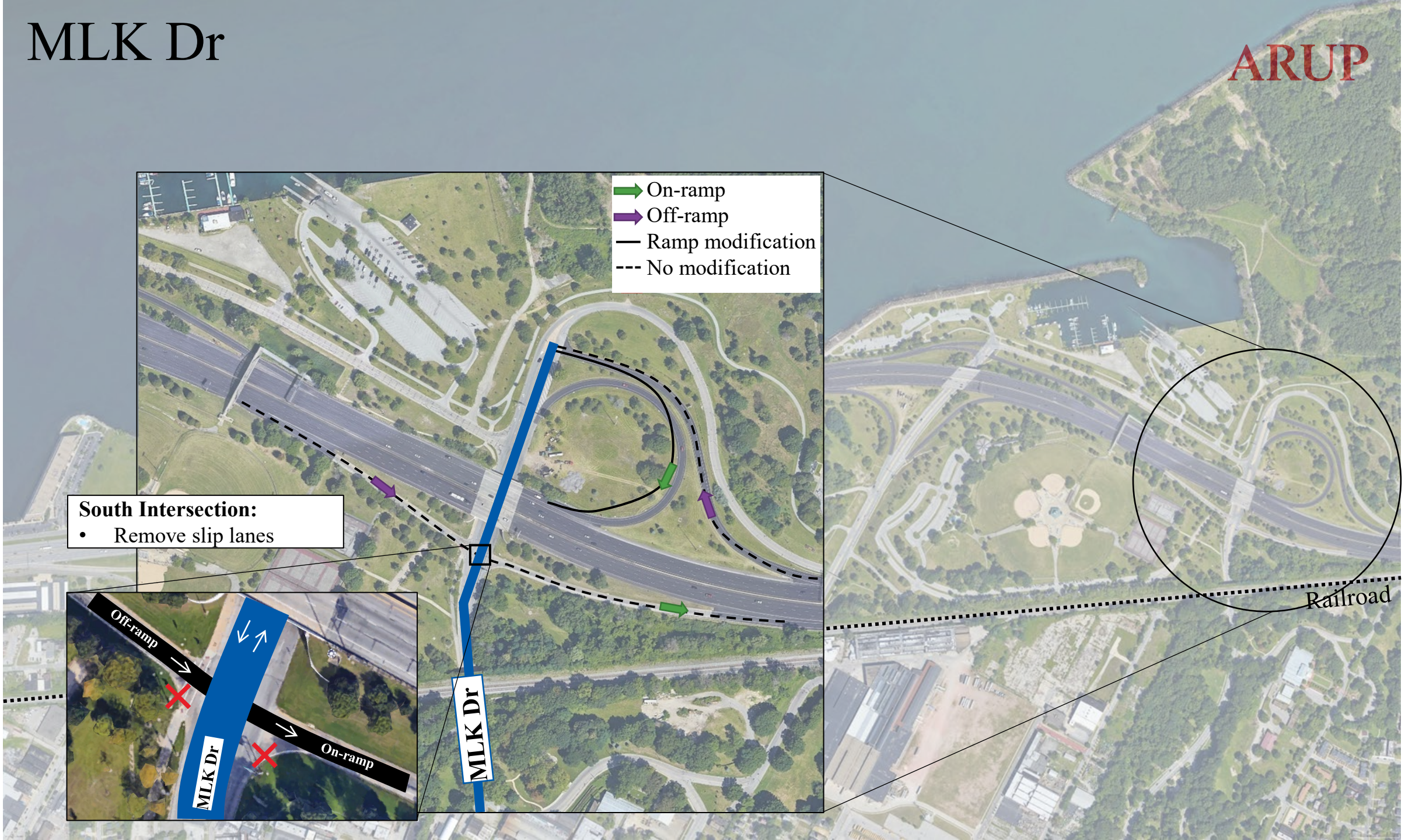
On-ramp
Off-ramp
Ramp modification
No modification
South Intersection:
• Remove slip lanes
Off-ramp
MLK Dr
On-ramp
MLK Dr
Railroad

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Improving Roadway conditions along 55th St & 72nd St

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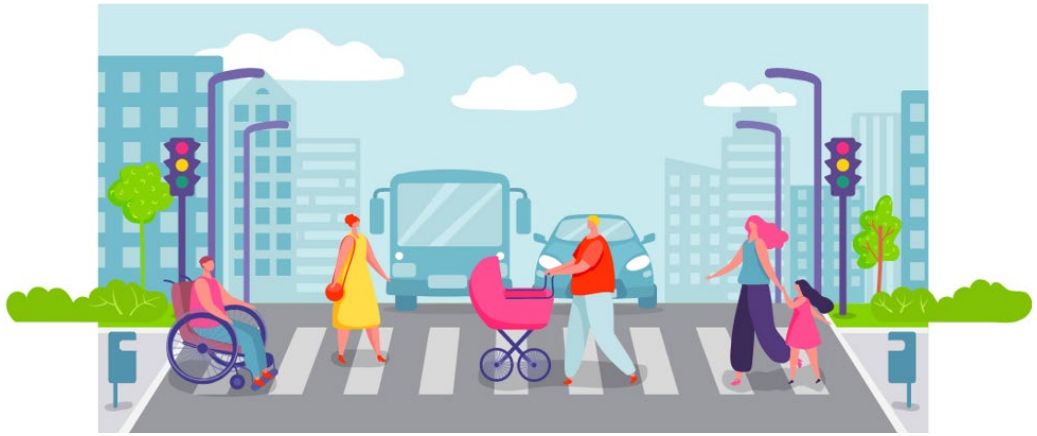
Understanding the Bike/Ped Experience

The journey from your neighborhood the park is a part of the overall park experience. The route should provide a safe, easy, and enjoyable journey for pedestrians and cyclists from beginning to end.



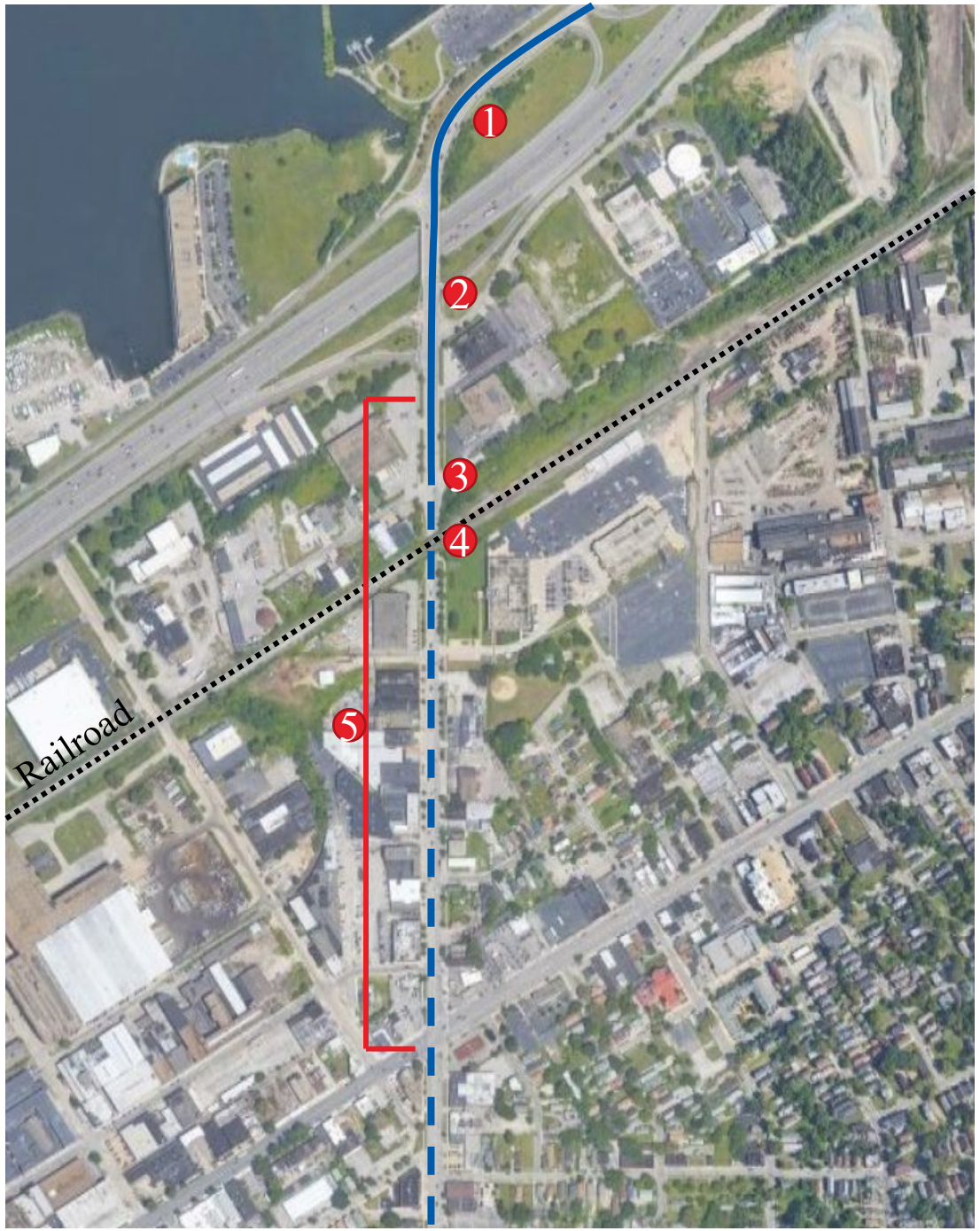
Current road and sidewalk conditions on E 55th St and E 72nd St were assessed to determine problem areas and possible opportunities for improvement.

This section reviews the **existing conditions** provides a **proposed redesign** of E 55th St and E 72nd St.

E 55th Street

Existing Conditions

1. No sidewalk on the West side of the road until it reaches I-90
2. No barrier between bike lane and traffic for the entire dedicated bike lane section
3. Both dedicated bike lanes merge into sharrow
4. Road goes down to one lane in each direction underneath the railroad. Pinch point areas North and South of the railroad with only 6’ of sidewalk space available.
5. Large planting strips on the West and East sides of the road.



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Dedicated bike lanes

Sharrow

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E 55th Street

Summary of Proposed Design

We propose to maintain the drivable width of E 55th St while implementing a **shared-use path** (SUP) for bicyclists and pedestrians within the available sidewalk spaces.

- One pedestrian sidewalk and one-way bike lane on each side of the road.
- The SUP will run continuously from the Lakefront Park to the neighborhoods behind St Clair Ave.
- The total width should be a minimum of 10 ft (8 ft minimum in rare cases)
- Planter strips should be maintained and/or added to create a buffer between the path and the road.

To minimize cost and effort, this design **does not require significant construction or reconstruction of curbs**. This re-design can be **achieved through low-impact modifications** using paint, bollards, path paving, etc.

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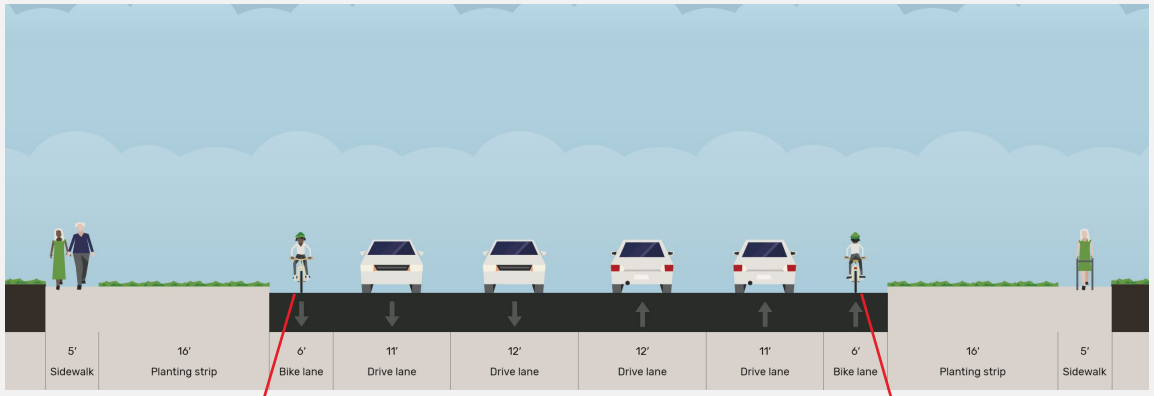
E 55th Street

Proposed Street Design within the Existing ROW

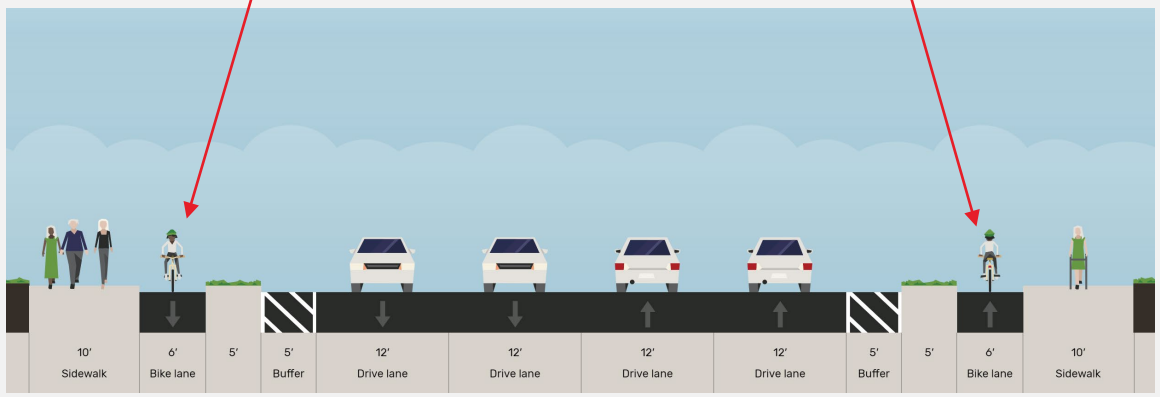
Between S Marginal Rd & Railroad

Existing ROW:
58 ft curb to curb
100 ft width including sidewalks

Existing



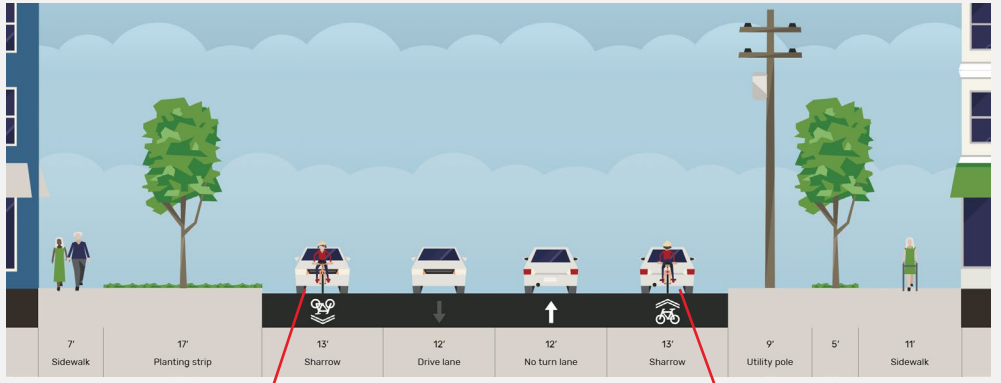
Proposed



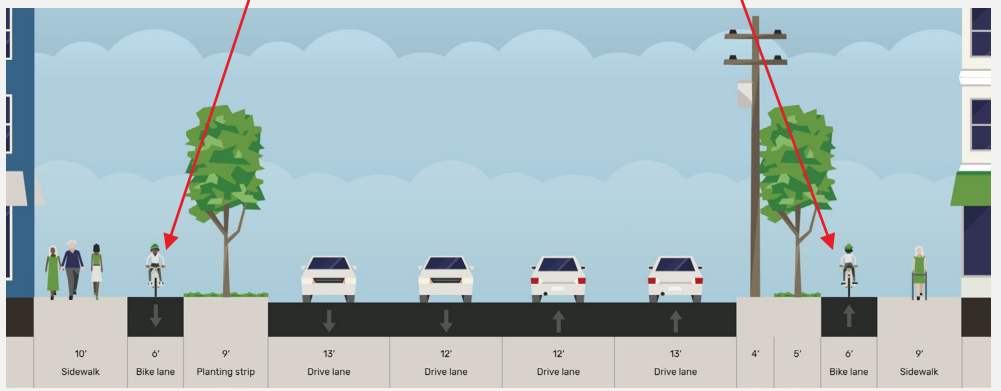
Between Railroad & St Clair Ave

Existing ROW:
50 ft curb to curb
99 ft width including sidewalks

Existing



Proposed

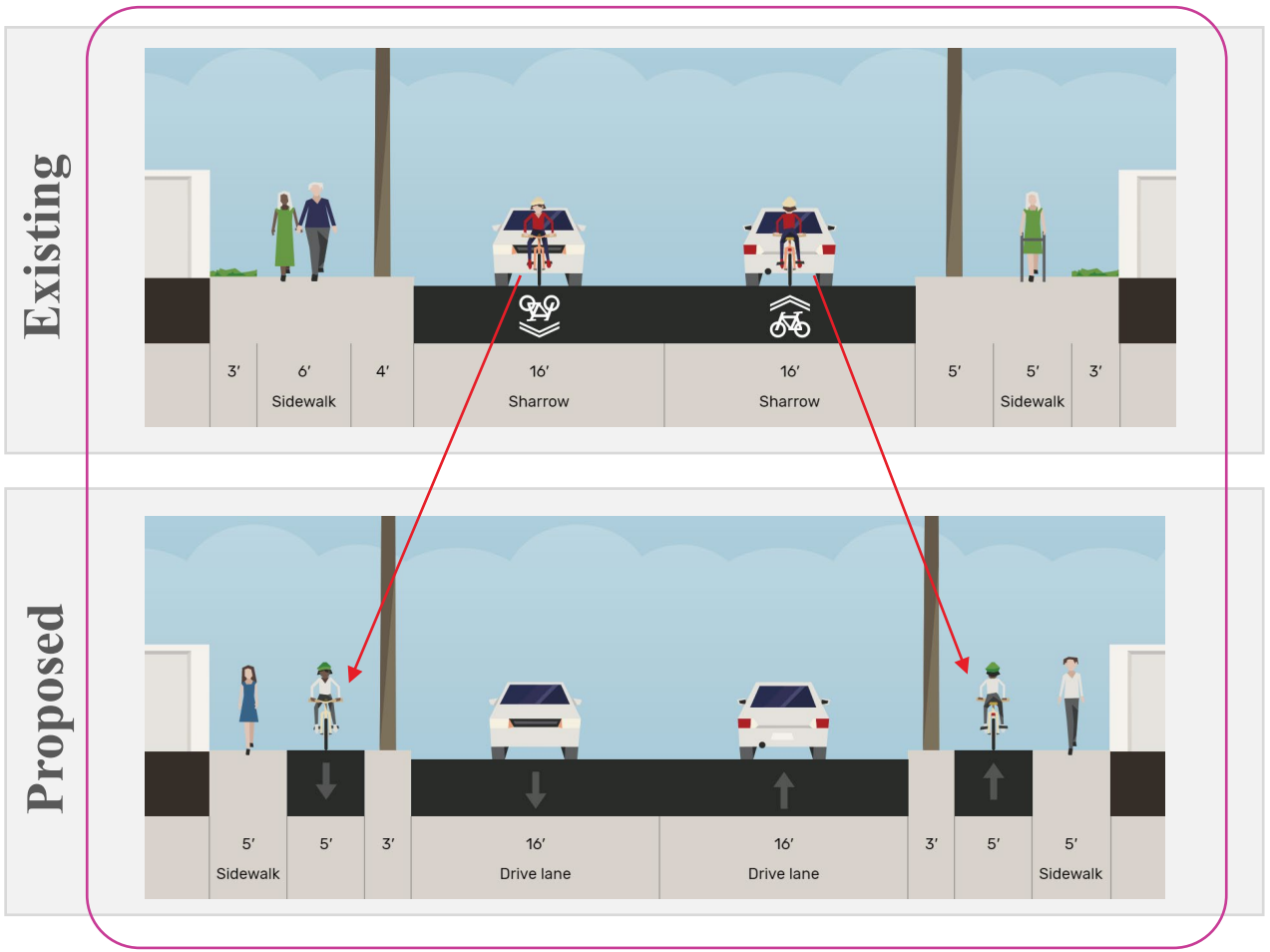


E 55th Street

Proposed Street Design within the Existing ROW

Existing ROW:
32 ft curb to curb
58 ft including sidewalks

Underneath the Railroad



- The road goes down to one lane in each direction under the rail bridge.
- The road narrows under the bridge but space still allows for 10' minimum for a shared-use path.
- Two different surface materials should be used to differentiate between the pedestrian and bicyclist lanes to prevent accidents and improve accessibility.
- There are pinch points area North and South of the railroad where only 6' of sidewalk space is available.

Additional considerations:
The general aesthetic and visual appeal underneath the railroad can be improved to enhance the safety and comfort of pedestrians and bikes. Installing features such as lighting, art, signage, etc. can help to create a more welcoming and enjoyable space.

E 72nd Street

Existing Conditions

1. North facing bike lane merges into sharrow with 14’ buffer
2. Both dedicated bike lanes merge into sharrows at intersection with highway ramps
3. No sidewalk on the west side of the street until south of the railroad
4. Road characteristics are a 12’ drive lane, 7’ bike lane with a 6’ buffer between
5. Road characteristics remain constant under the railroad
6. For both directions there is an unprotected bike lane between a drive lane and parking lane

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E 72nd Street

Summary of Proposed Design

We propose maintaining the width of 72nd street and implementing the following changes:

- Bike lanes continue the entire length of 72nd St from Lakeshore Blvd to St Clair Ave
- Increase visibility of bicyclists by painting the bike lanes green, adding stripes and bollards in buffer areas, and by adding road safety signage.
- Specific attention towards increasing safety where intersecting lanes merge with 72nd Street
- After Detour Ave, switch the parking lane and bike lane to provide better protection for bicyclist

To minimize cost and effort, this design **does not require significant construction or reconstruction of curbs**. This re-design can be **achieved through low-impact modifications** using paint, bollards, path paving, etc.

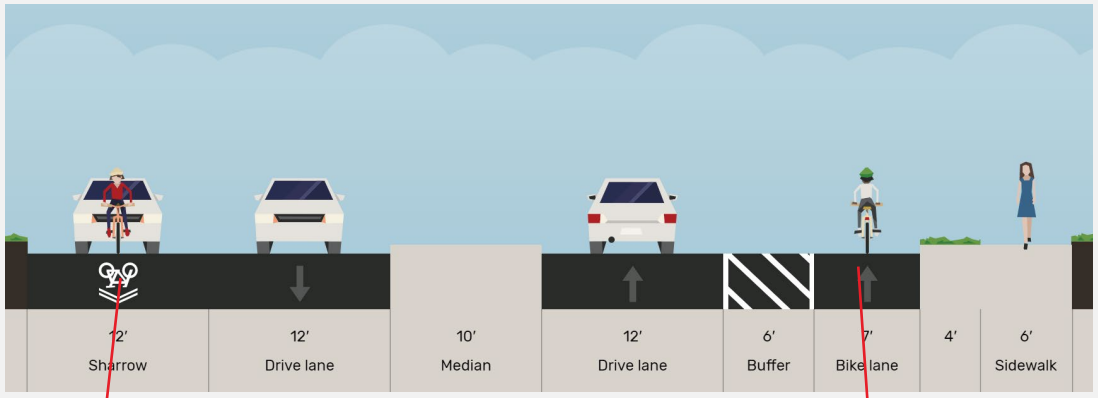
E 72nd Street

Proposed Street Design within the Existing ROW

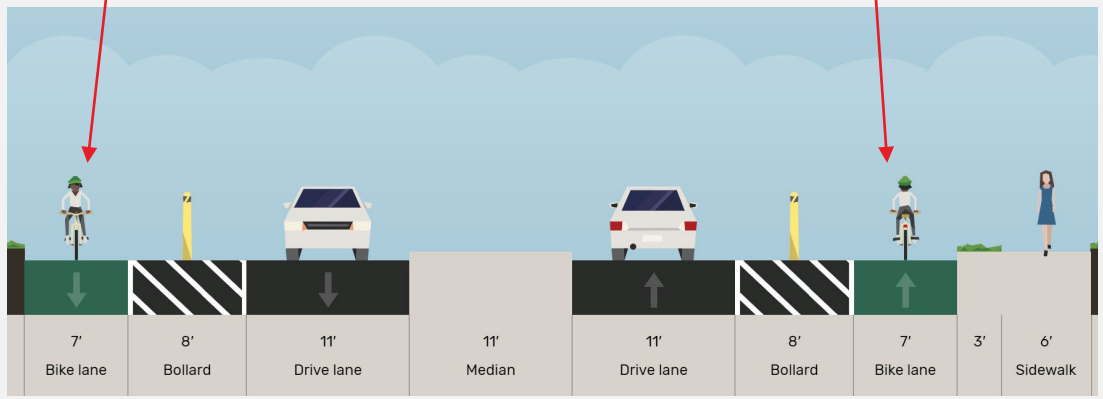
Between Lakeshore Blvd & Railroad

Existing ROW:
63 ft curb to curb
72 ft including sidewalks

Existing



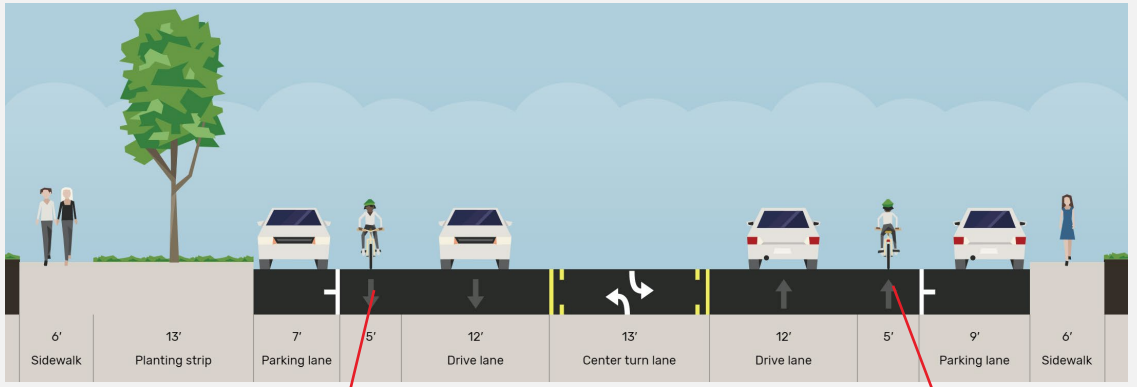
Proposed



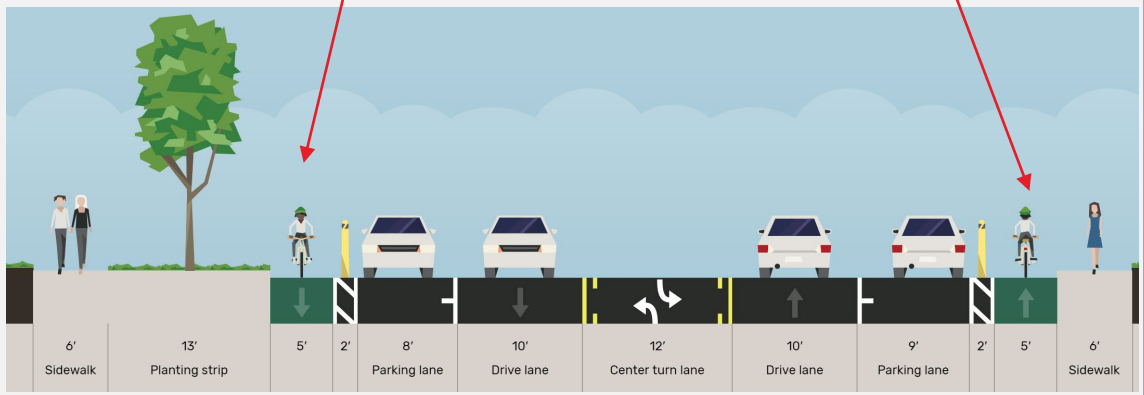
Between St Clair Ave & Detour Ave

Existing ROW:
63 ft curb to curb
88 ft including sidewalks

Existing



Proposed

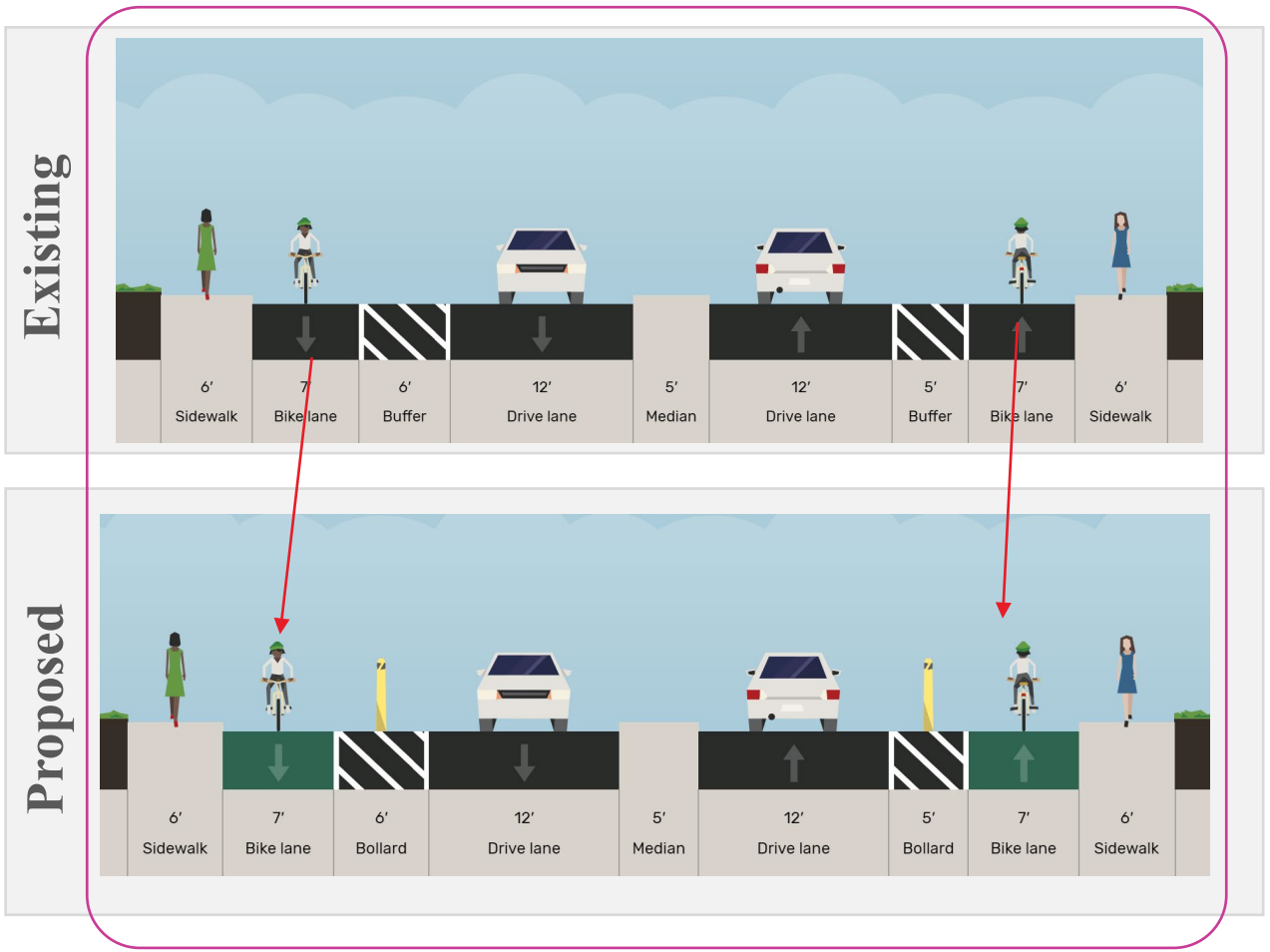


E 72nd Street

Proposed Street Design within the Existing ROW

Existing ROW:
54 ft curb to curb
66 ft including sidewalks

Underneath the Railroad



- The road maintains width under the railroad with a narrower concrete medium.
- The existing buffer between the drive lane and bike lane is not clearly marked nor provides physical protection.
- There are pinch points North and South of the railroad where only 6' of sidewalk space is available

Additional considerations:
The general aesthetic and visual appeal underneath the railroad can be improved to enhance the safety and comfort of pedestrians and bikes. Installing features such as lighting, art, signage, etc. can help to create a more welcoming and enjoyable space.

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Highway Crossings

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Overview

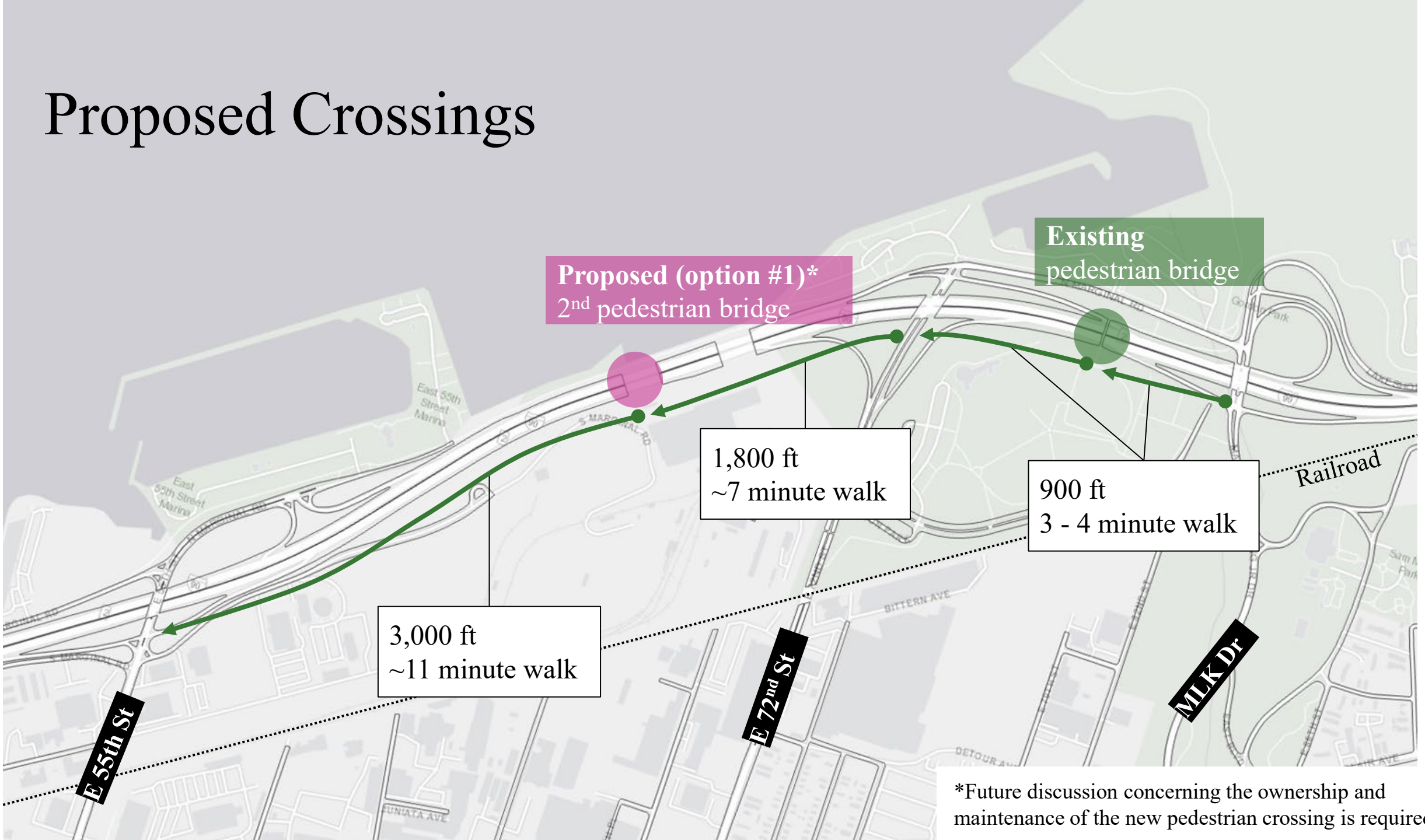
2 Number of Crossings

- It is recommended to have pedestrian crossings no more than a 10 minute walk apart over I-90 between E 55th St and MLK Dr.
- Propose a realignment of the crossing between E 55th St and E 72nd St to limit the travel time in between access points.

Crossing Design / Ease of Use

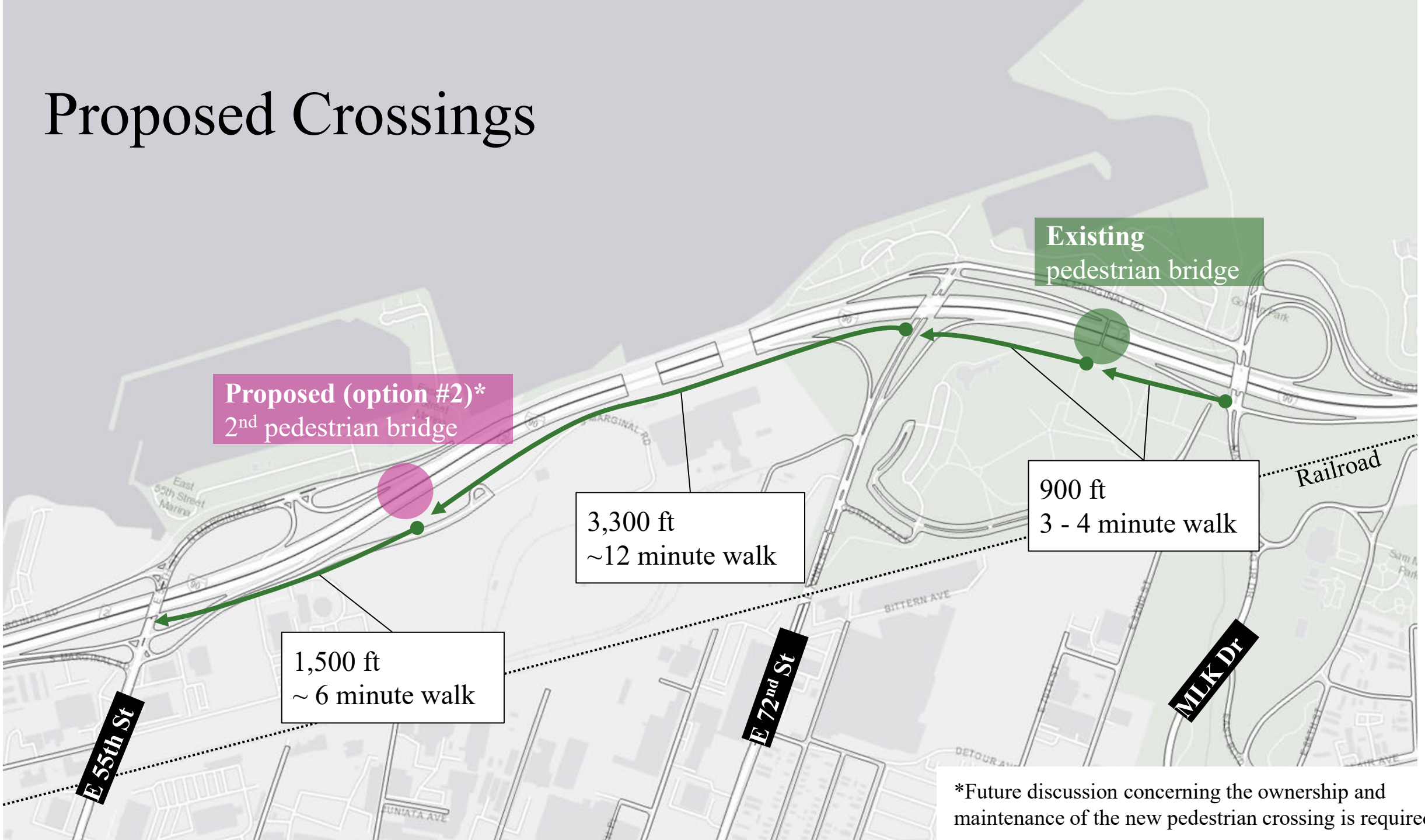
- Highway crossings should be designed to accommodate pedestrians, bikes, and wheelchair users.
- Existing and planned highway crossings should be sufficiently lit and visually appealing to enhance the user experience.

Proposed Crossings



*Future discussion concerning the ownership and maintenance of the new pedestrian crossing is required

Proposed Crossings



*Future discussion concerning the ownership and maintenance of the new pedestrian crossing is required

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Proposed pedestrian bridge

An additional pedestrian bridge would provide excellent connectivity between growing areas and the park. It should:

- Be made a part of any development agreement for the affected parcels, as a way of providing community benefit
- Be aligned to connect the marina directly with a new development
- Either pedestrian bridge location alternative will minimize the travel time for those crossing the highway
- Prioritize user safety and comfort, and should incorporate similar features to the other bridges such as lighting design, art, signage, etc.

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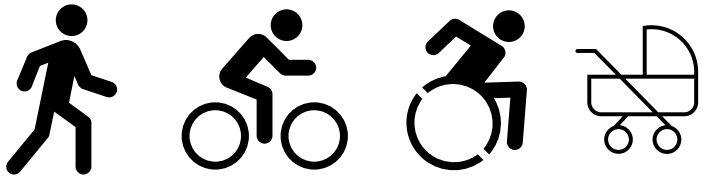
Crossing Design / Ease of Use

Highway crossings providing entry to the park should be designed for all modes of travel.

The entry and exit points on each side of the crossing should have a combination of stairs and ramps/elevators to accommodate pedestrians, bikes/scooters, strollers, and wheelchair users.



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Highway Crossing Case Studies

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Highland Bridge

Denver, CO

Highland Bridge is a 323 ft long single span pedestrian bridge over the I-25 connecting the Highlands Neighborhood with Denver's 16th Street corridor.

The arch is a space frame truss consisting of three (3) 16-inch diameter pipes. The arch rises to a height of 75 feet above I-25. The deck is supported by 12 cables arranged diagonally from the bottom chord of the truss.

East side: one grade level plaza and one upper plaza
West side: elevated plaza

"Bicyclists highlighted the need for a vertical circulation area to traverse a 13-ft change in grade from the deck down to the existing street elevation. The need for long ramp access, in addition to stair access, drove the design toward an architecturally sophisticated and urban solution."

Highland Pedestrian Bridge – Hamon Infrastructure
Highland Bridge - Denver, CO - Pedestrian Suspension Bridges on Waymarking.com

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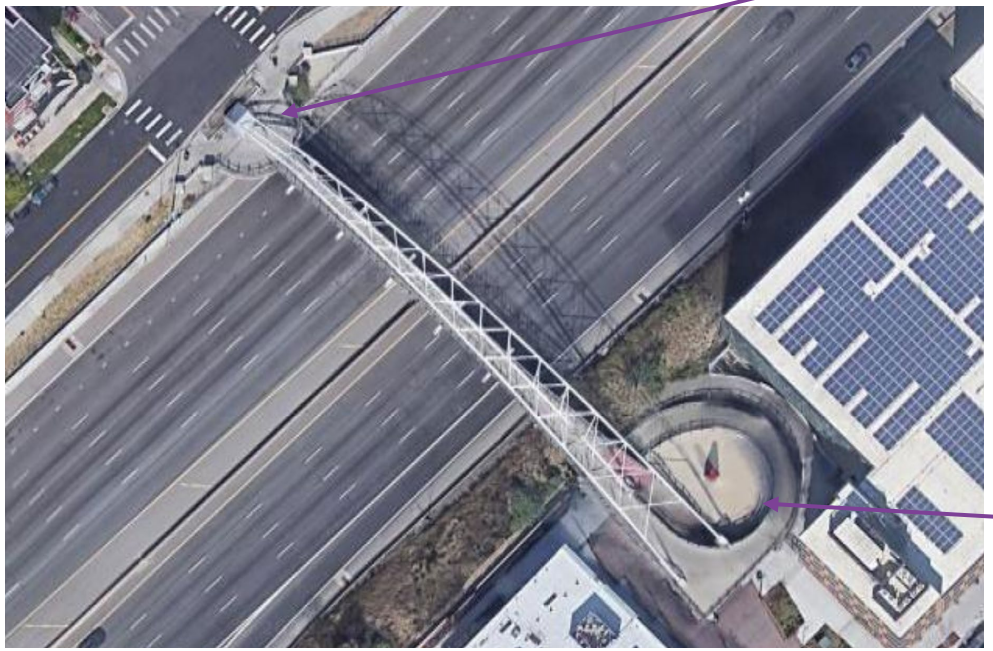
Highland Bridge

Denver, CO



West side

East side

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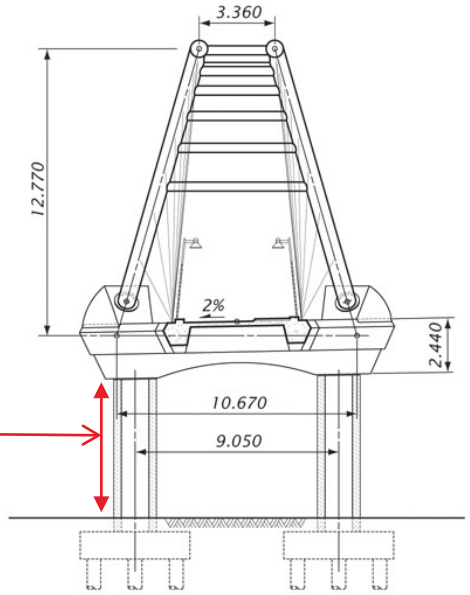
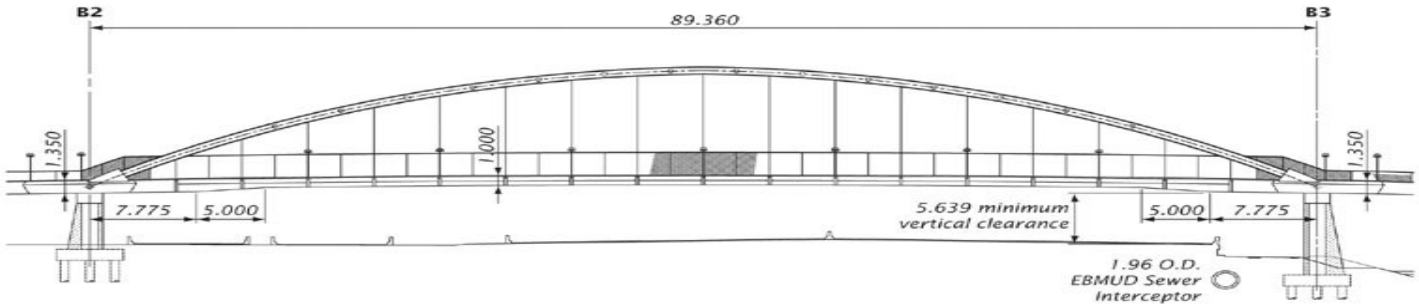
Berkeley Marina Overpass

Berkeley, CA

This crossing is constructed to allow bicycles, pedestrians, and wheelchair users to access the marina.

- 279 ft long, 15 ft wide, spanning over I-80, Bolivar Dr, and West Frontage Rd (slide 21)
- Min. Vertical Clearance: **18.5 ft** (5.639 m)
- Two lanes for bikes and a raised sidewalk
- Forms part of the San Francisco Bay trail
- Curved ramps on each side for entry/exit





OPAC - Berkeley Pedestrian Overcrossing (opacengineers.com)

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Berkeley Marina Overpass

Berkeley, CA

Approximately 0.1 miles from the base of the bridge to the ramp entrance on either side.

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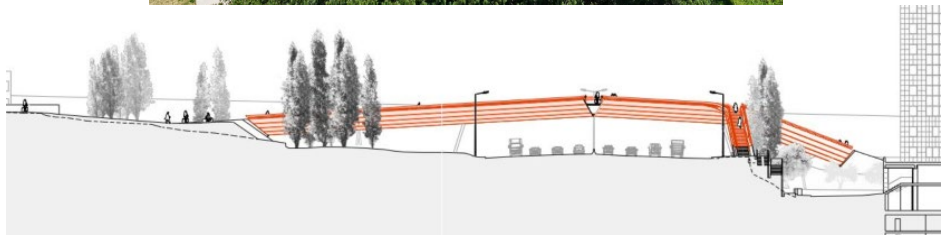
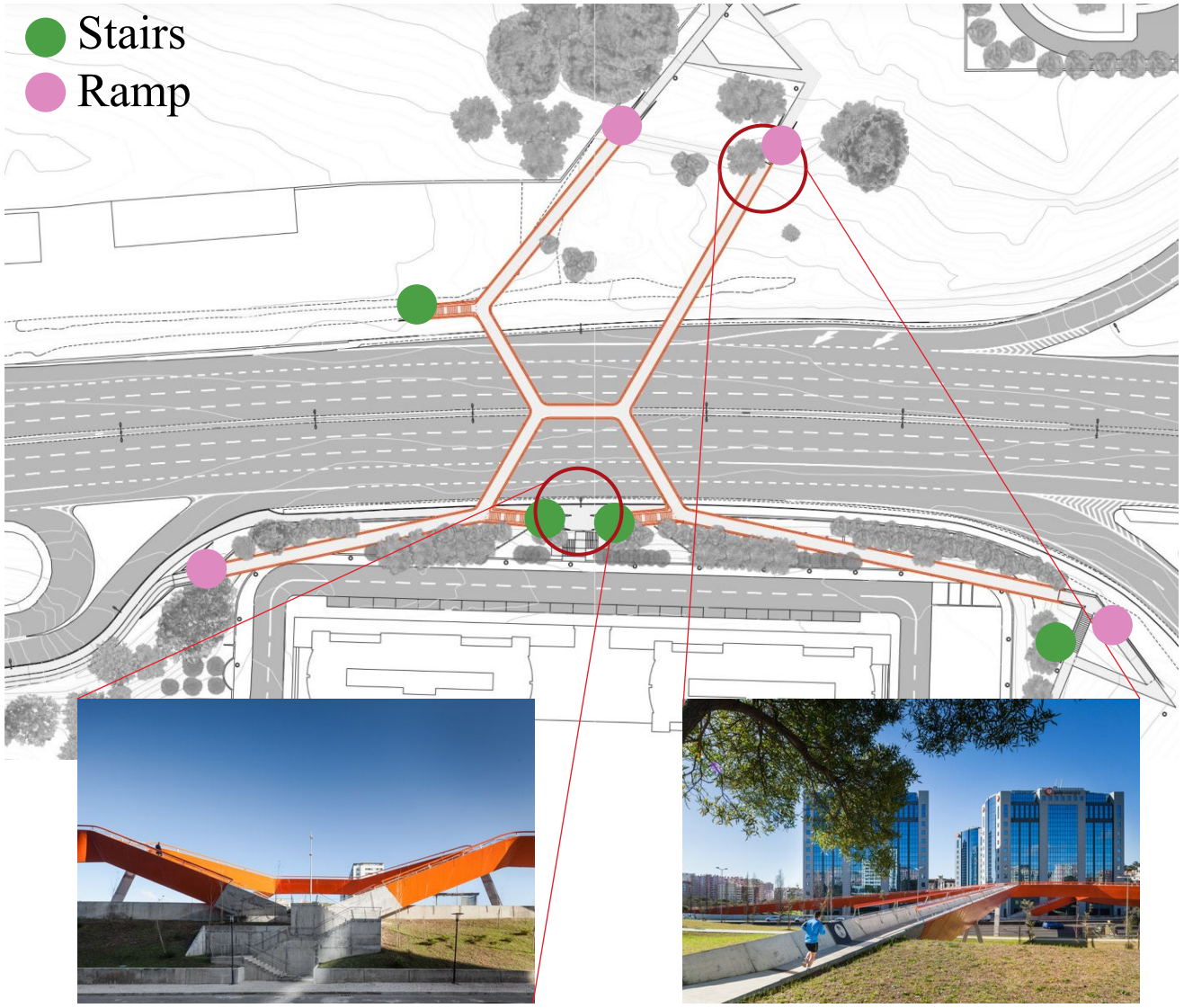
Ponte Segundo Circular

Lisbon, Portugal

This bridge establishes an accesses network in both sides of the highway using a branched design





Pedestrian and Cycling Bridge by MXT Studio | Infrastructure buildings (architonic.com)

Pedestrian and Cycling Bridge | Ceregeiro - Atelier de Arquitectura Paisagista

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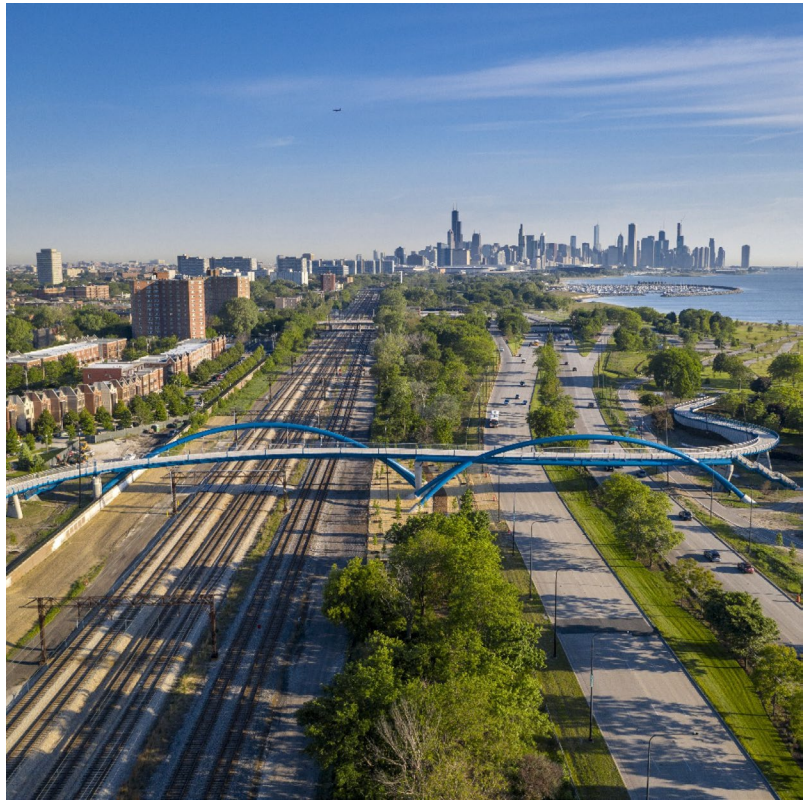
Lake Shore Drive 41st St Pedestrian Crossing

Chicago, IL

The designed pedestrian bridge supported by a single arch in Chicago, encourages cycling, skating and walking.

The bridge is 1,500-feet in length, with long inclined arches on sweeping curves.

The structure has a complicated geometry, which created challenges to design, fabricate and erect overactive railroad tracks and a major highway carrying 100,000 vehicles daily.



Source: 41st Street and 43rd Street Pedestrian Bridges, Lake Shore Drive, Chicago | Cordogan Clark & Associates | Archinect

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Parking Strategy

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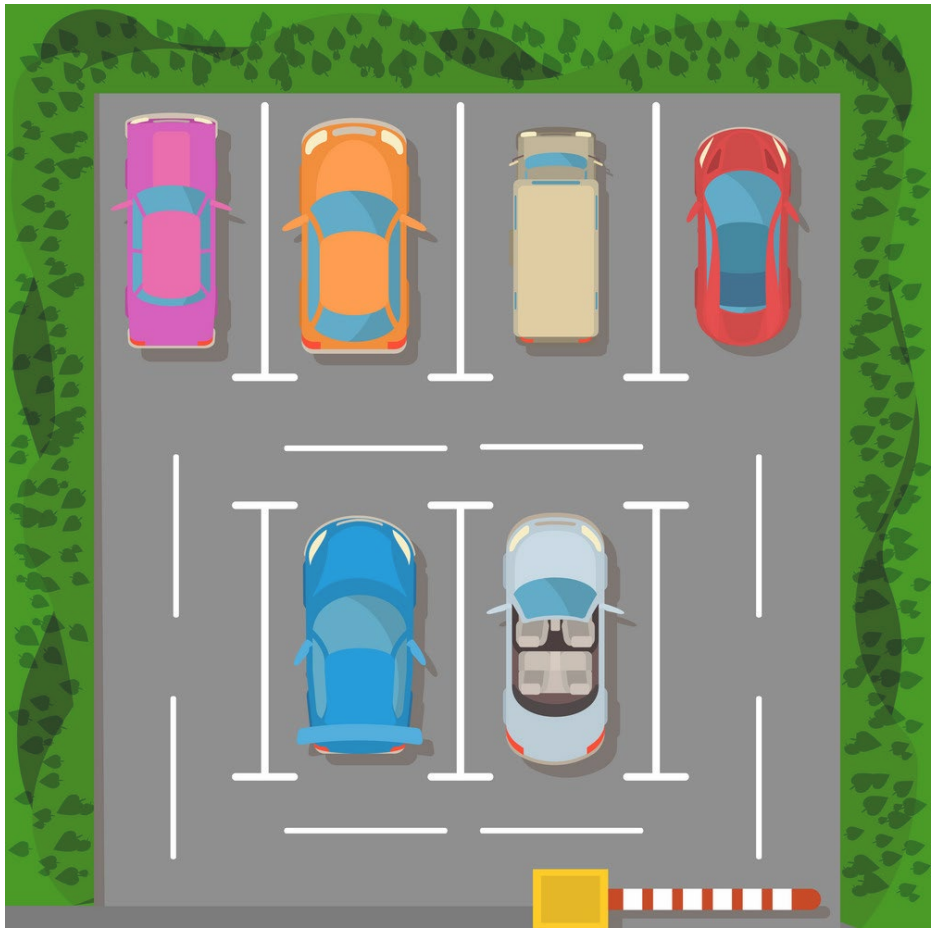
Objective

Parking Strategy

The parking strategy should aim to enable visitors to quickly identify available parking spaces located near to where they intend to enter the park.

Parking will also need to comfortably accommodate visitor volumes for large events.



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Dynamic Parking Capacity Signs

Parking Strategy

The site and surrounding areas have multiple small parking lots, requiring an intelligent information strategy to avoid visitors circling looking for an available parking spot.

Arup recommends installing dynamic signs to provide guidance to visitors with vehicles and help inform them to make parking decisions at a glance.

The installation of a parking guidance system will help improve user experience by reducing the stress and frustration of finding an open spot, in turn increasing the likelihood of the user returning to the park. The ease of finding a spot may result in a reduction of traffic congestion, emissions, and fuel consumption.

Northern Beaches Council, Sydney, Australia, Source

Natick Mall, Boston, MA, Source

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Event Parking Installation

Parking Strategy

Peak parking needs (for events) likely greatly exceed the volume for normal operation. Thus, temporary parking should be considered.

For temporary event parking, Arup recommends installing a semi-permeable, semi-permanent paver to allow for grass parking.

This allows for temporary parking spaces while protecting the grass and reducing urban heat island effects by not using concrete/asphalt.

TRUEGRID ROOT pavers, https://www.truegridpaver.com/fastest-way-to-add-parking-area/

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