



# North Lake Shore Drive Corridor Planning Committee/ Task Force Meeting #9

July 10, 2018

# Welcome





# Meeting Agenda

- Introductions
- Task Force #8 Recap
- Level 2 Screening Update
- Context Tailored Treatments Top Performing Alternative Update
- Transitways Alternatives Workshop
  - Transitways Alternatives Update
  - Workshop
- Next Steps

# CPC/TF Meeting #8 Recap

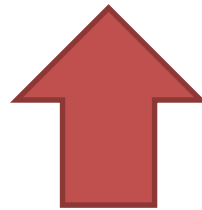
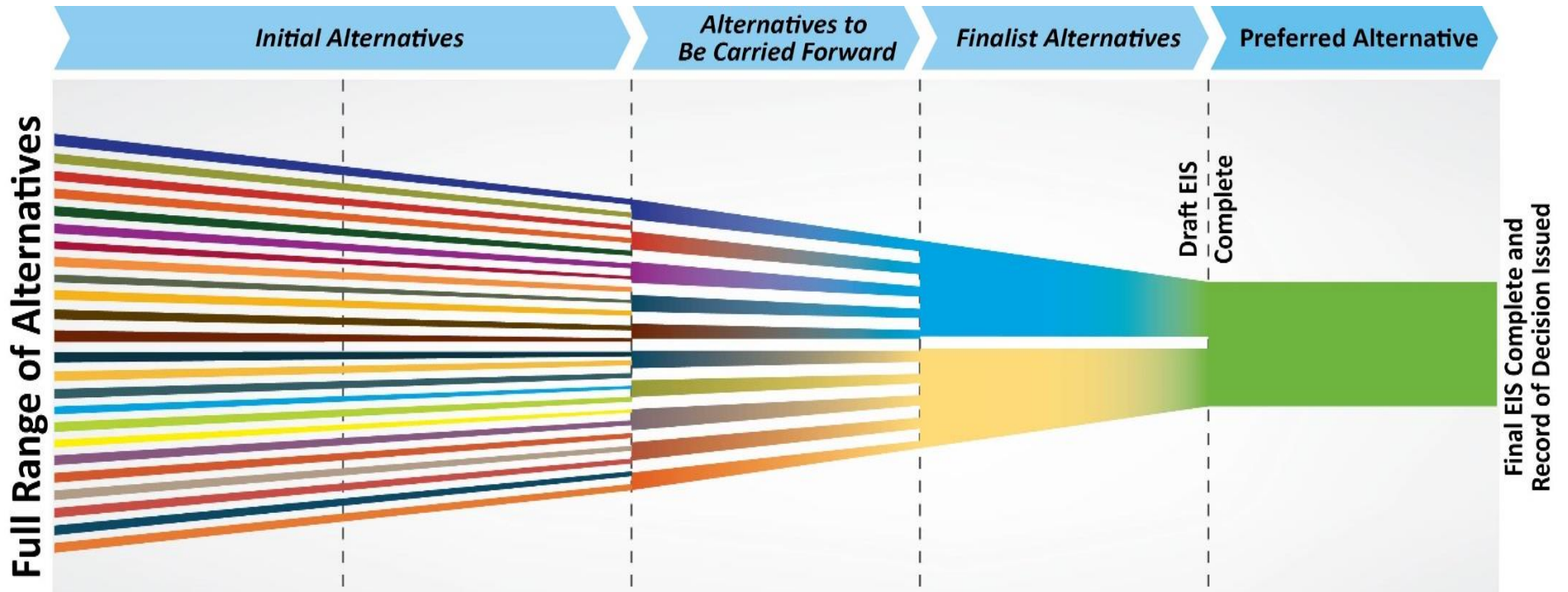
- Meeting held March 12, 2018
- 69 Attendees
- Lakefront Trail & Park Access Concepts Workshop
- Context Tailored Treatments Alternatives Update





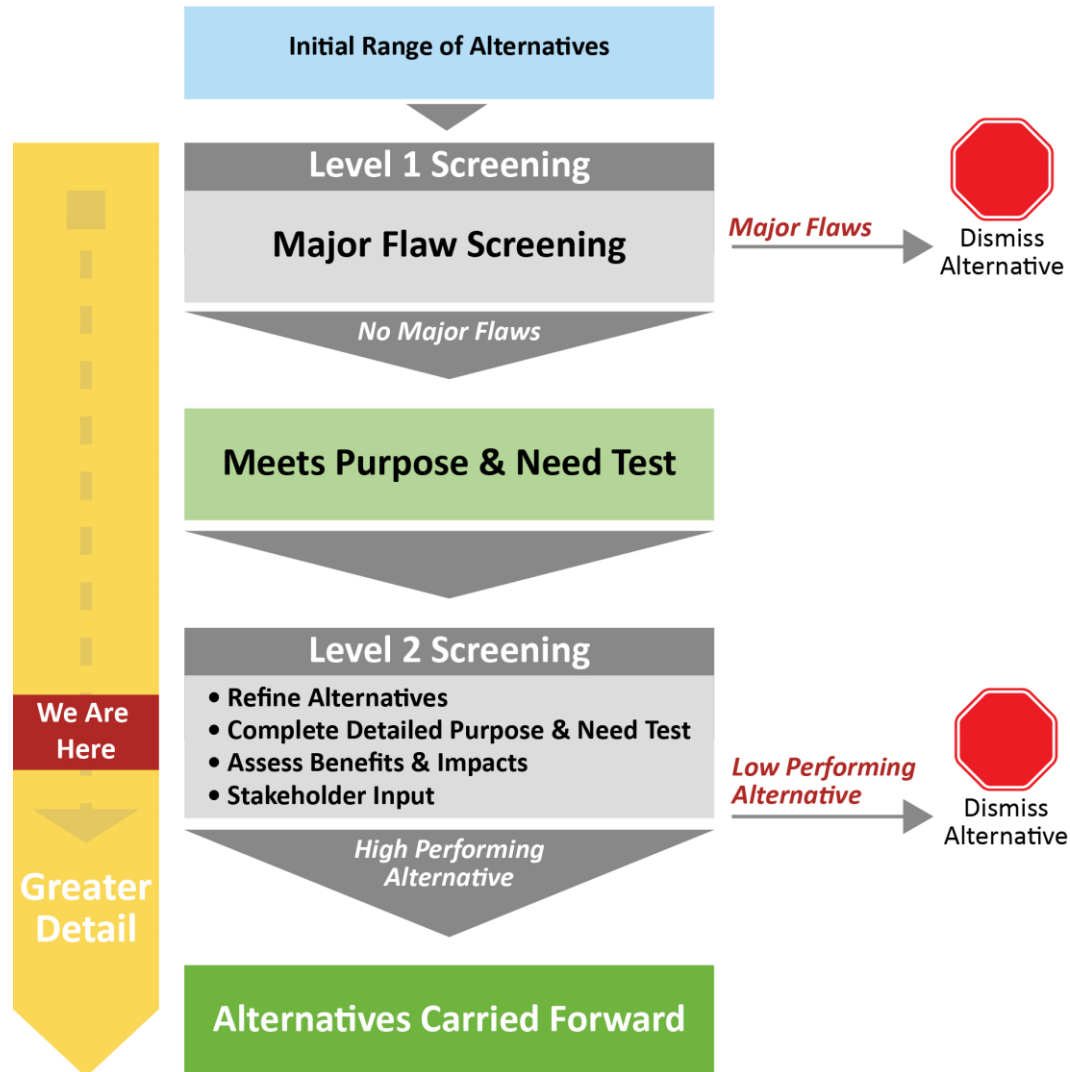
# Level 2 Screening Update

# Alternatives Development & Evaluation




**We are here**

# Alternatives Screening Process



# Level 1 Screening Summary

INITIAL RANGE OF ALTERNATIVES CATEGORY	INITIAL RANGE OF ALTERNATIVES	RECOMMENDED FOR DISMISSAL (LEVEL 1 SCREENING) 	RANGE OF ALTERNATIVES
No-Action	No-Action	N/A	No-Action
Transitways	Transit Advantages at Junctions		Transit Advantages at Junctions
	Bus on Shoulder – Right		Bus on Shoulder – Right
	Dedicated Transitway – Left		Dedicated Transitway – Left
	Dedicated Transitway – Off Alignment		Dedicated Transitway – Off Alignment
	Light Rail Transit	Light Rail Transit	Dedicated Transitway – Off Alignment
Managed Lanes	High Occupancy Vehicle Lane		High Occupancy Vehicle Lane
	High Occupancy Toll Lane		High Occupancy Toll Lane
	Express Toll Lane		Express Toll Lane
	Bus Only Lane		Bus Only Lane
	Express Reversible Lanes		Express Reversible Lanes
	Toll Lanes		Toll Lanes
Tunnels and Causeways	Submerged Express Tunnel in Lake	Submerged Express Tunnel in Lake	Express Reversible Lanes
	Land Based Express Tunnel	Land Based Express Tunnel	Toll Lanes
	Causeway in Lake	Causeway in Lake	Corridor Modernization
Context Tailored Treatments	Corridor Modernization		Compressed Roadway
	Compressed Roadway		Frontage Drive
	Frontage Drive		



# Level 2 Screening

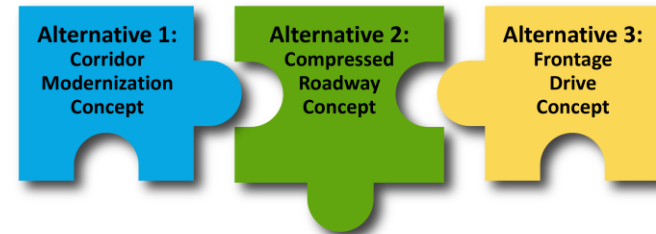
RANGE OF ALTERNATIVES CATEGORY	RANGE OF ALTERNATIVES
No-Action	No-Action
Transitways	Transit Advantages at Junctions
	Bus on Shoulder – Right
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	High Occupancy Toll Lane
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	Toll Lanes
Context Tailored Treatments	Corridor Modernization
	Compressed Roadway
	Frontage Drive







# Level 2 Screening

RANGE OF ALTERNATIVES CATEGORY	RANGE OF ALTERNATIVES
No-Action	No-Action
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Context Tailored Treatments	Corridor Modernization
	Compressed Roadway
	Frontage Drive





**(MARCH 2018) Task Force #8:  
Recommended CTT Top  
Performing Alternative;  
Review Refinements Today**



# Level 2 Screening

RANGE OF ALTERNATIVES CATEGORY	RANGE OF ALTERNATIVES	RECOMMENDED FOR DISMISSAL (LEVEL 2 SCREENING) 	RECOMMENDED TO BE CARRIED FORWARD 
No-Action	No-Action	N/A	N/A
Transitways	Transit Advantages at Junctions		
	Bus on Shoulder – Right		
	Dedicated Transitway – Left		
	Dedicated Transitway – Off Alignment		
Managed Lanes	High Occupancy Vehicle Lane		
	High Occupancy Toll Lane		
	Express Toll Lane		
	Bus Only Lane		
	Express Reversible Lanes		
	Toll Lanes		
Context Tailored Treatments	Corridor Modernization		Top Performing CTT with Transit Advantages
	Compressed Roadway		
	Frontage Drive		

# Level 2 Screening

RANGE OF ALTERNATIVES CATEGORY	RANGE OF ALTERNATIVES	RECOMMENDED FOR DISMISSAL (LEVEL 2 SCREENING) 	RECOMMENDED TO BE CARRIED FORWARD 
No-Action	No-Action	N/A	N/A
Transitways	Transit Advantages at Junctions	<div style="border: 2px solid orange; padding: 10px; text-align: center;"> <p><b>(TODAY) Task Force #9: Recommend Transitways Top Performing Alternatives</b></p> </div>	
	Bus on Shoulder – Right		
	Dedicated Transitway – Left		
	Dedicated Transitway – Off Alignment		
Managed Lanes	High Occupancy Vehicle Lane		
	High Occupancy Toll Lane		
	Express Toll Lane		
	Bus Only Lane		
	Express Reversible Lanes		
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Context Tailored Treatments	Corridor Modernization		Top Performing CTT with Transit Advantages
	Compressed Roadway		
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	Bus on Shoulder – Right		
	Dedicated Transitway – Left		
	Dedicated Transitway – Off Alignment		
Managed Lanes	High Occupancy Vehicle Lane		
	High Occupancy Toll Lane	<div style="border: 2px solid orange; padding: 10px; text-align: center;"> <p><b>(FALL 2018) Task Force #10: Recommend 1-2 Managed Lanes Top Performing Alternatives</b></p> </div>	
	Express Toll Lane		
	Bus Only Lane		
	Express Reversible Lanes		
	Toll Lanes		
Context Tailored Treatments	Corridor Modernization		
	Compressed Roadway		
	Frontage Drive		



# Context Tailored Treatments Top Performing Alternative Update

























# CTT Top Performing Alternative

- What we heard at Task Force #8:
  - Encouragement for improved pedestrian and bicycle infrastructure
  - Support for bus turnarounds
  - Concern regarding pumping station location and aesthetics
  - Interest in impacts of shoreline protections
  - Additional information requested on depressed portions of NLSD
  - Support for improved access for users of all modes at Chicago Avenue
  - Preference for signalized intersection at Foster Avenue junction to enhance safety

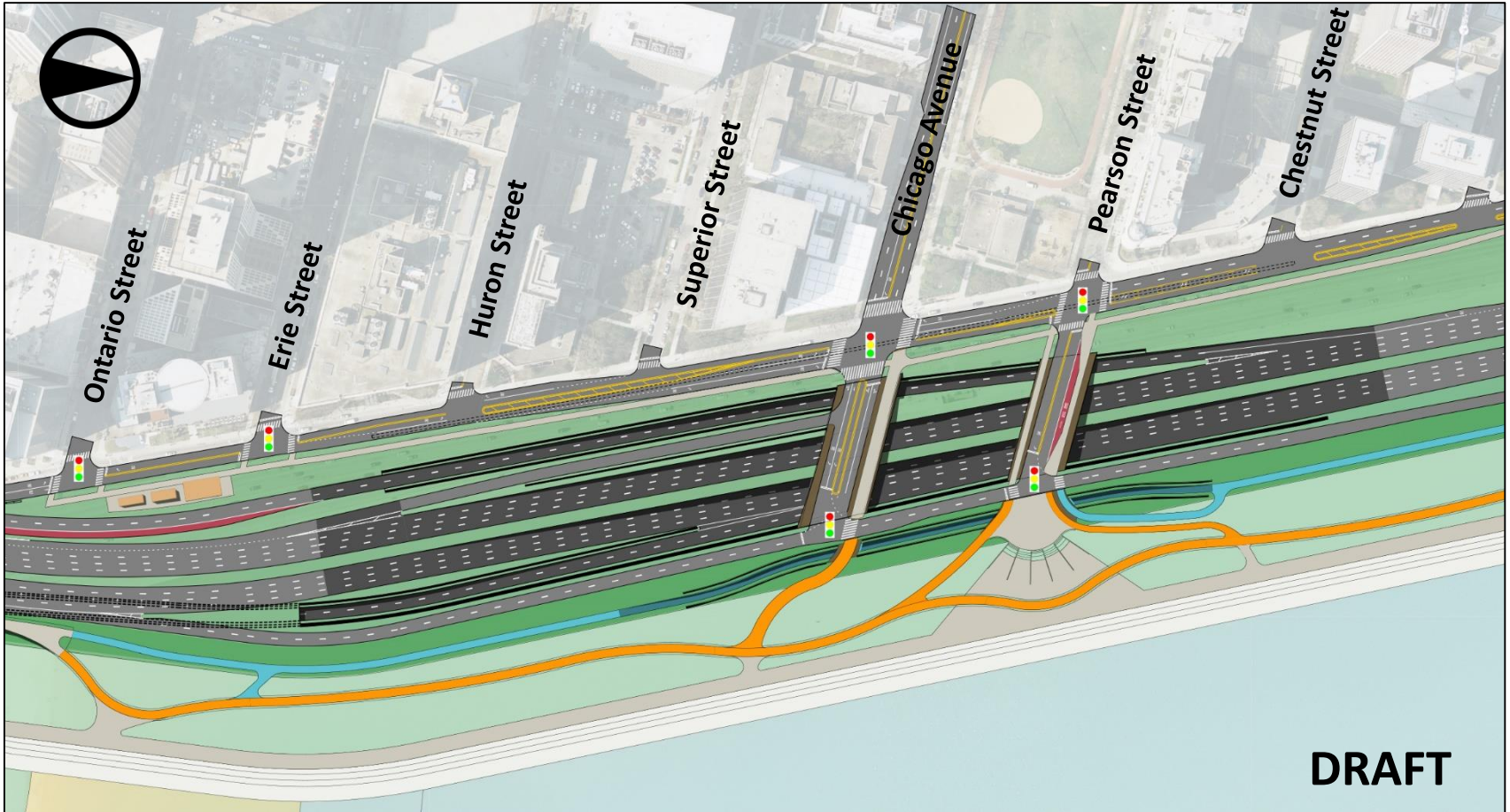
# CTT Top Performing Alternative

Revisions made to four locations:

- Chicago Avenue
- Michigan Avenue
- Belmont Avenue
- Foster Avenue

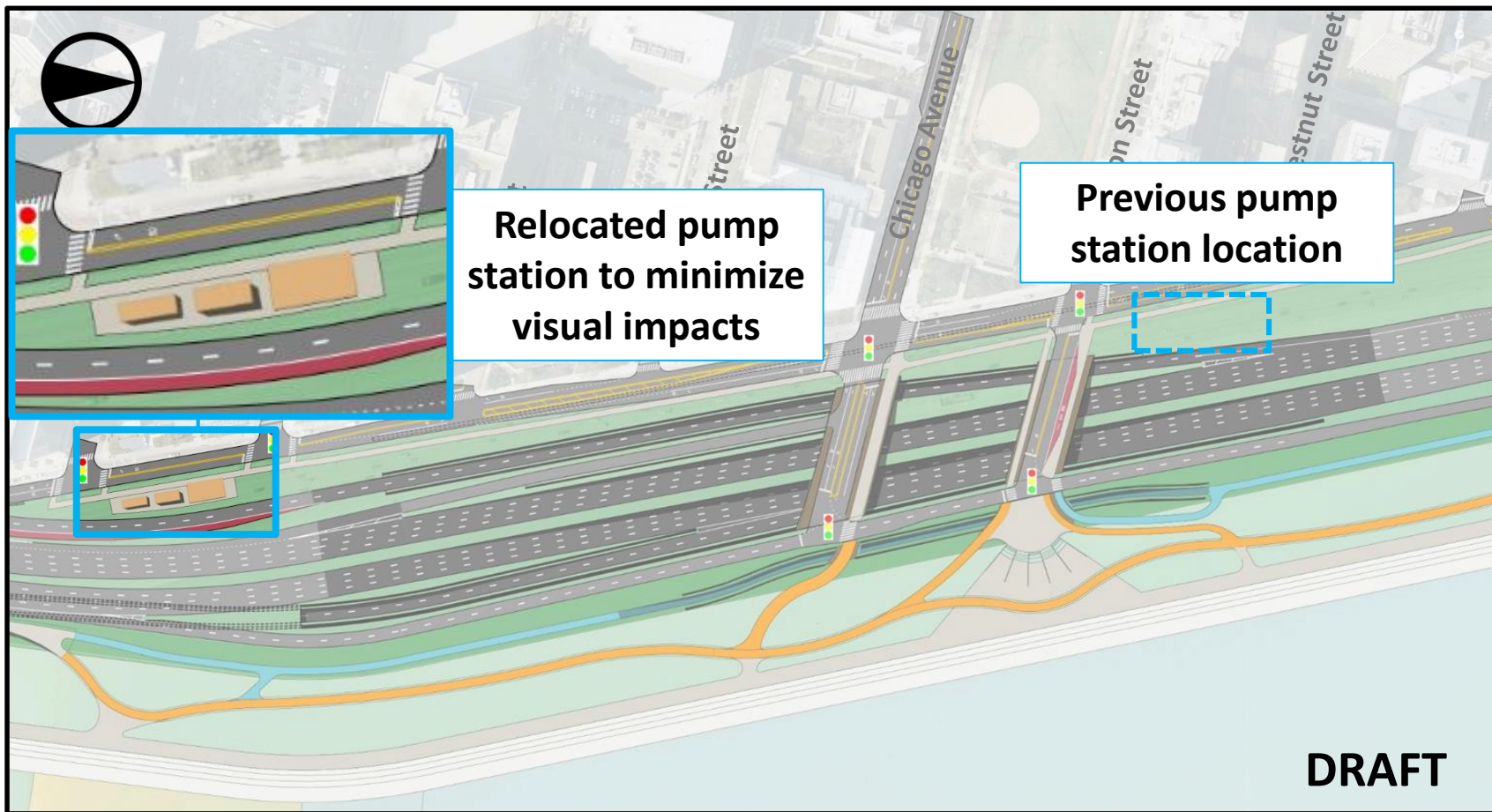
LEGEND	<u>Below Grade</u>	<u>At Grade</u>	<u>Above Grade</u>		
				Roadway Facility	 Park
				Bus-Only Facility	 Shoreline Swale
				LFT Bike Trail	 Beach
				LFT Pedestrian Trail	 Park Paths
		Pump Station Facility		 One-Way Street	
		Bridges and Tunnels		 Two-Way Street	
				 Existing Divvy Station	
					 Existing Jogging Trail

# Chicago Avenue Refined CTT Alternative

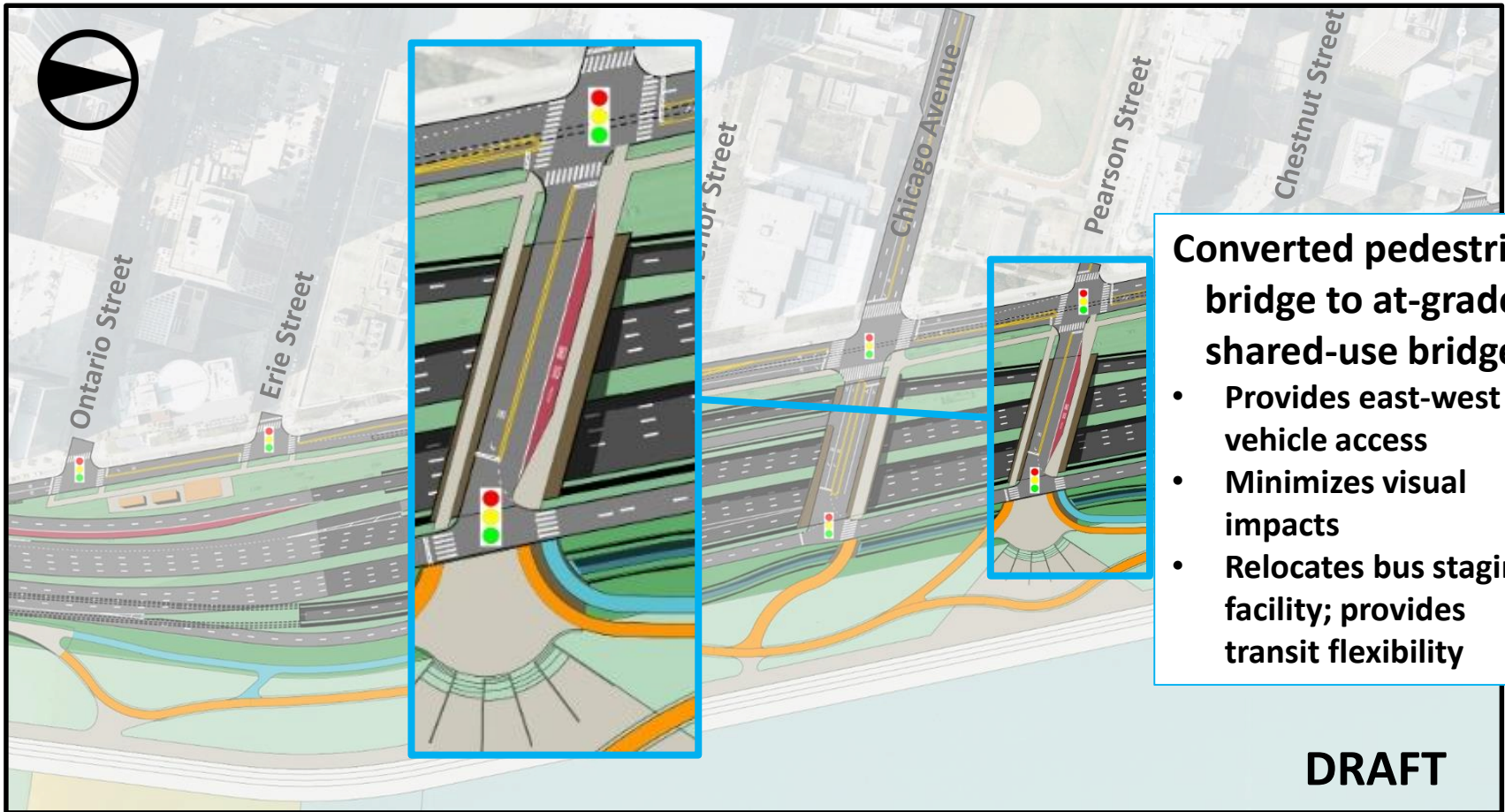




# Chicago Avenue Refined CTT Alternative



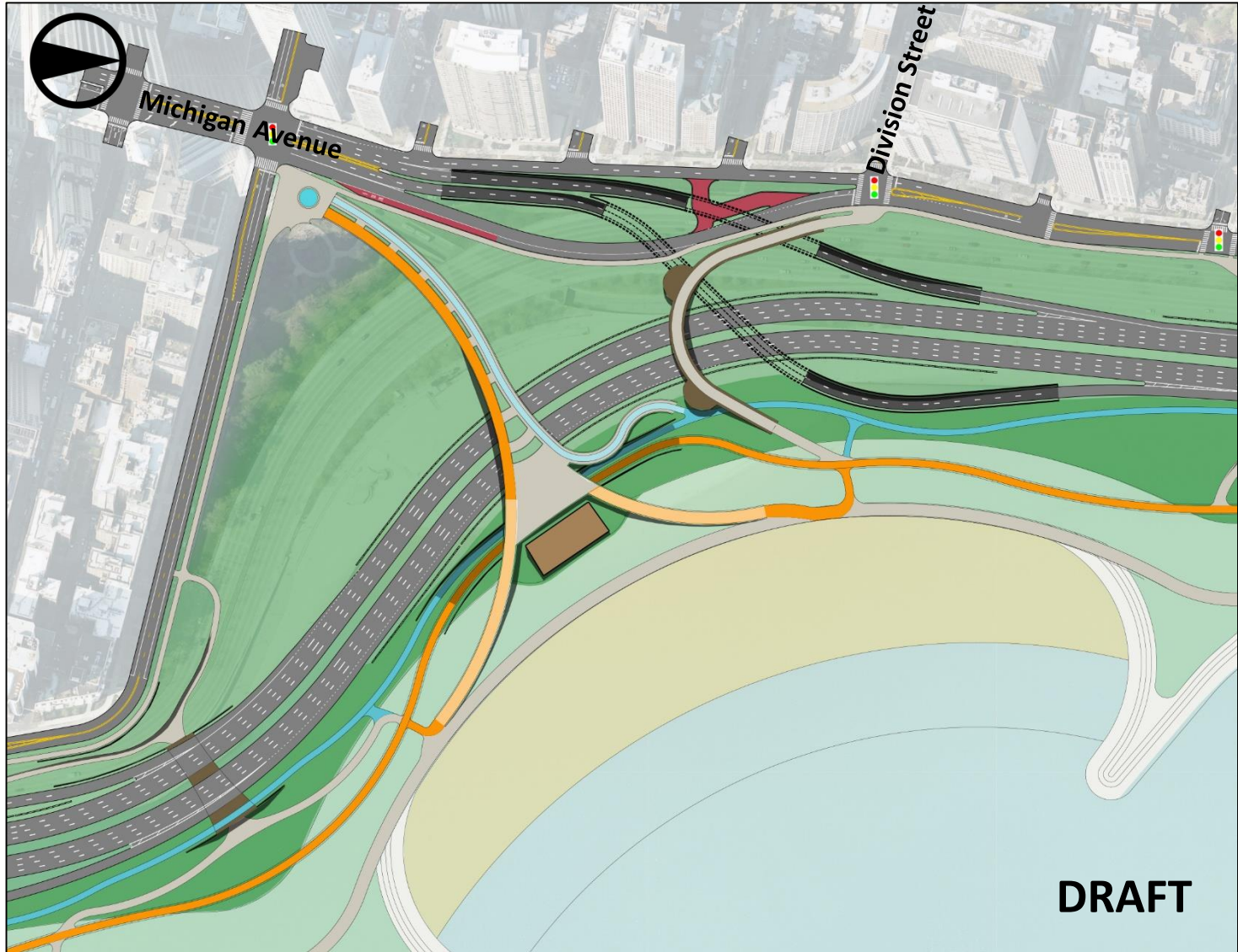
# Chicago Avenue Refined CTT Alternative



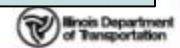
- Converted pedestrian bridge to at-grade shared-use bridge**
- Provides east-west vehicle access
  - Minimizes visual impacts
  - Relocates bus staging facility; provides transit flexibility

**DRAFT**

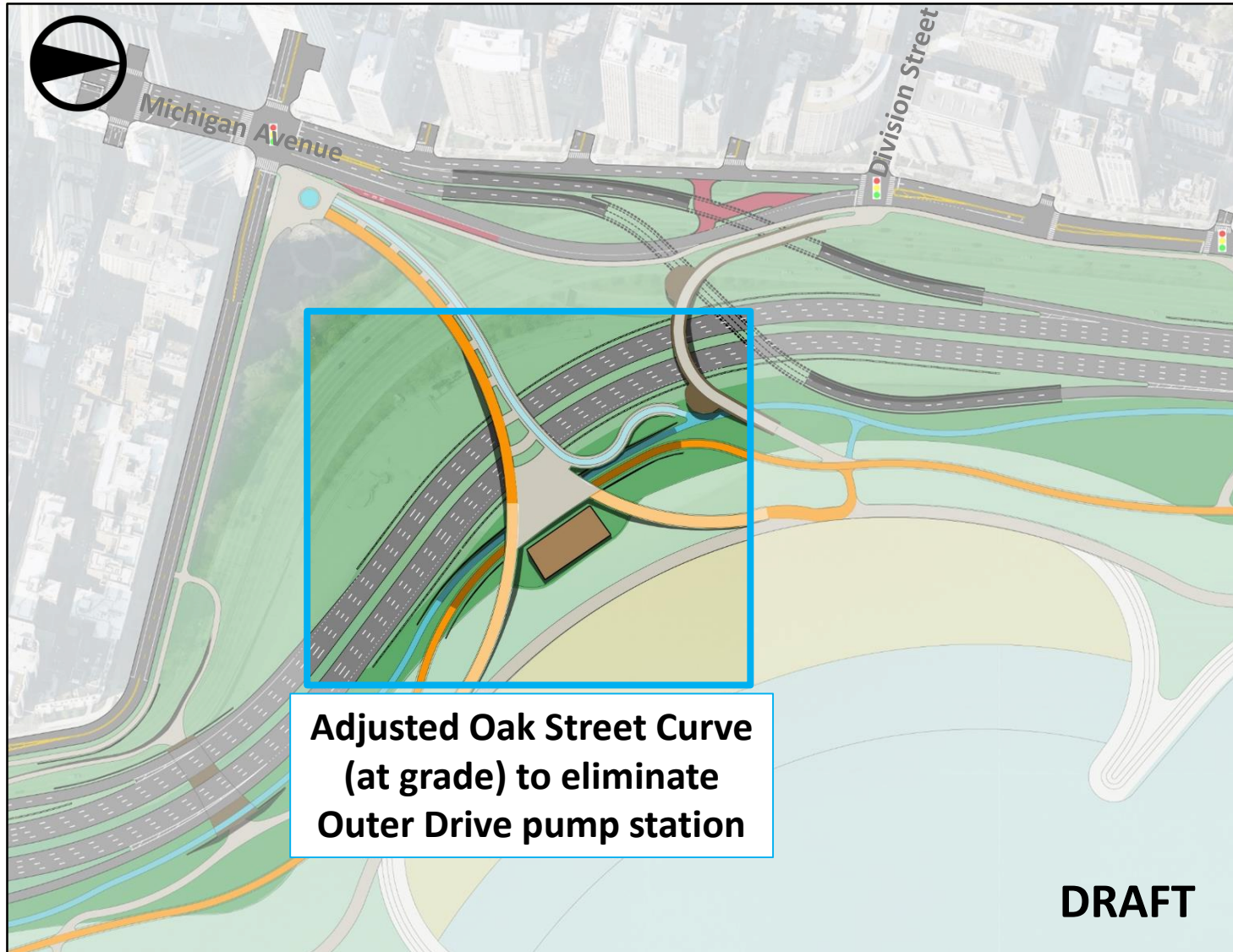
# Michigan Avenue Refined CTT Alternative



**DRAFT**



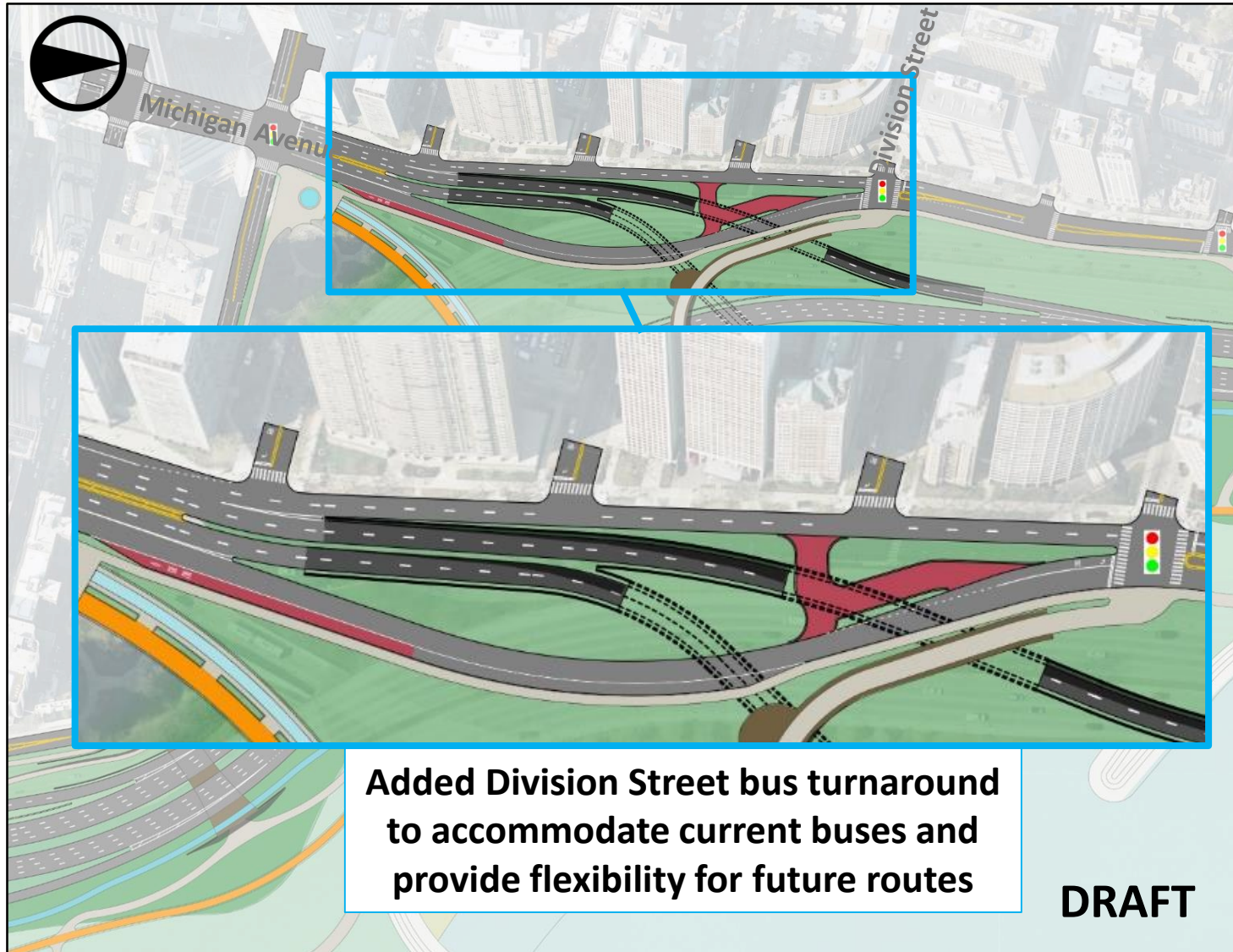
# Michigan Avenue Refined CTT Alternative



**Adjusted Oak Street Curve  
(at grade) to eliminate  
Outer Drive pump station**

**DRAFT**

# Michigan Avenue Refined CTT Alternative



**Added Division Street bus turnaround to accommodate current buses and provide flexibility for future routes**

**DRAFT**

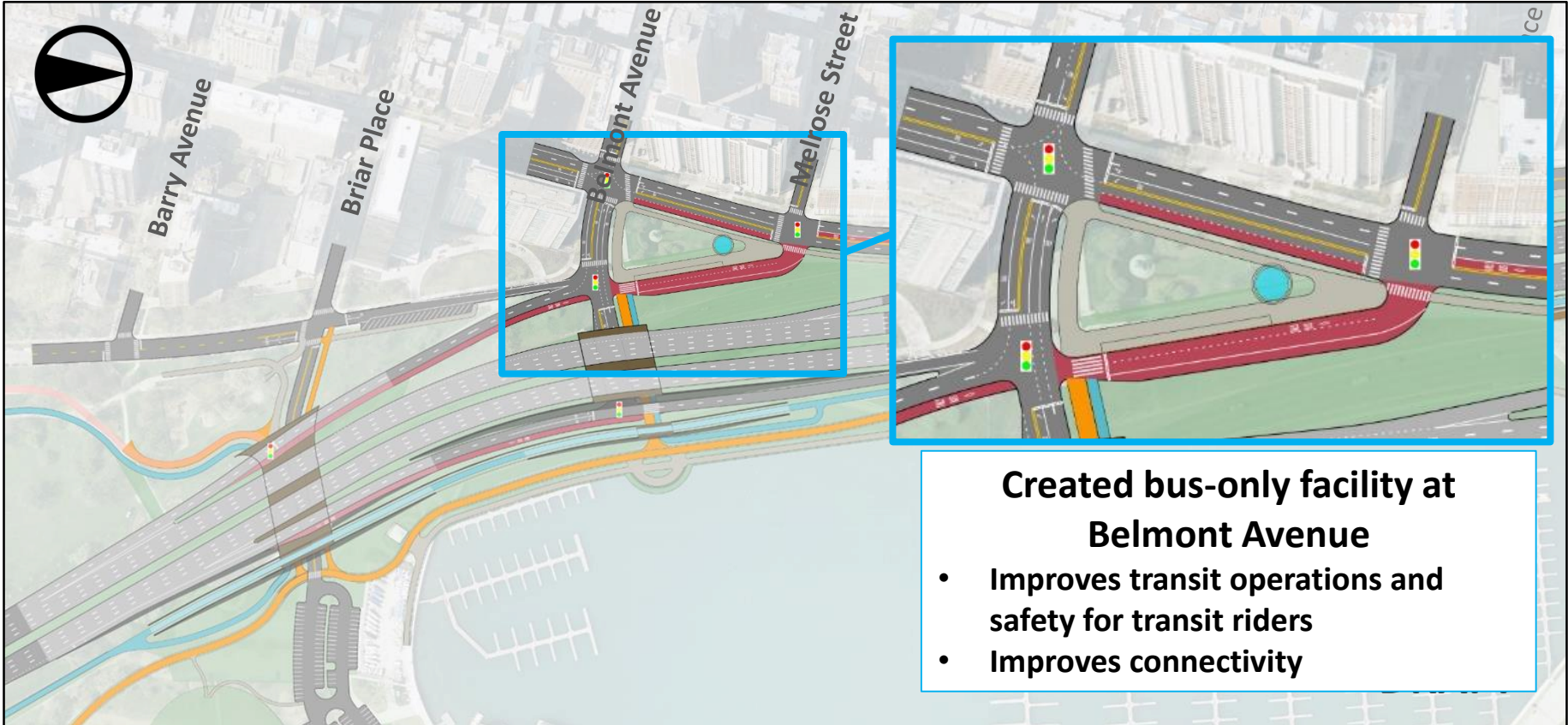
# Belmont Avenue Refined CTT Alternative



# Belmont Avenue Refined CTT Alternative



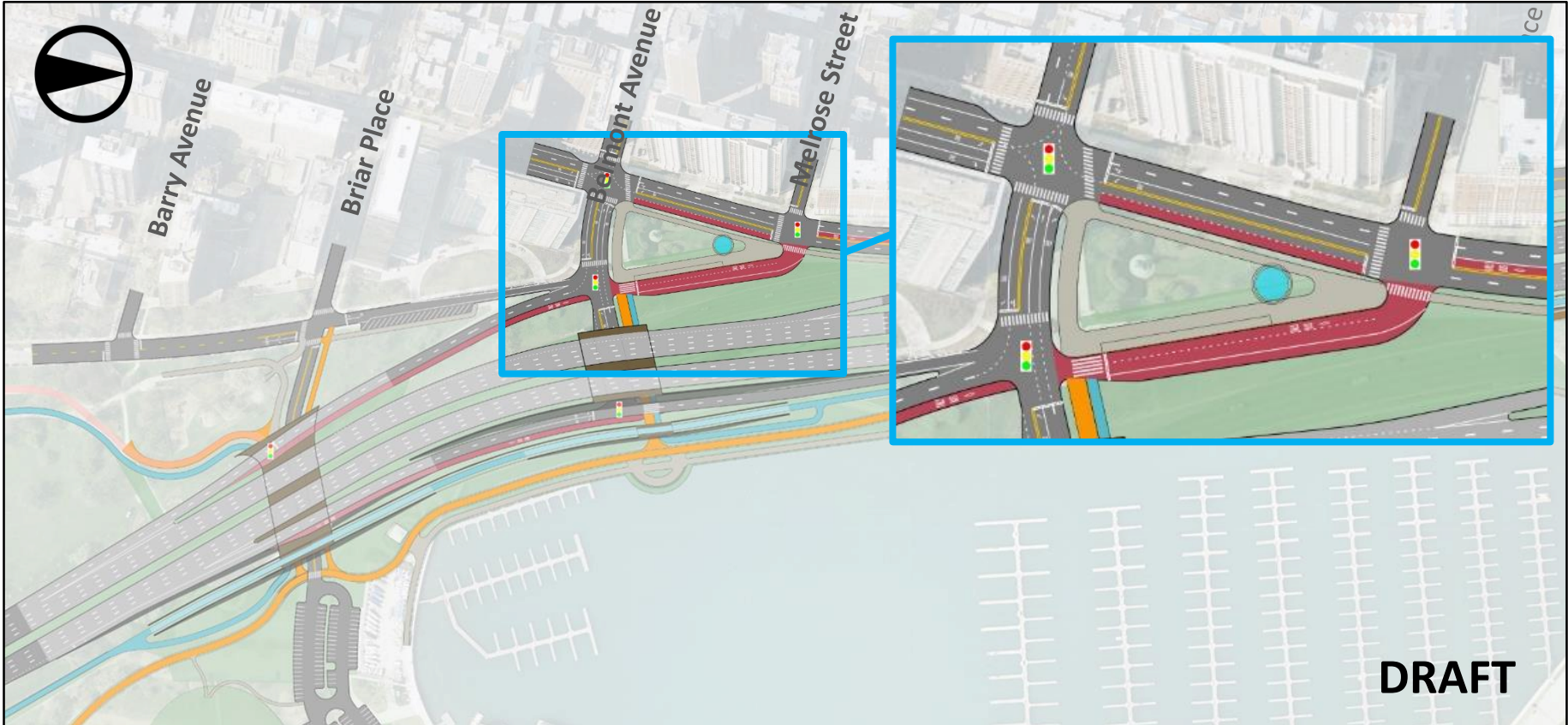
# Belmont Avenue Refined CTT Alternative



## Southbound Bus Entrance Maneuvers

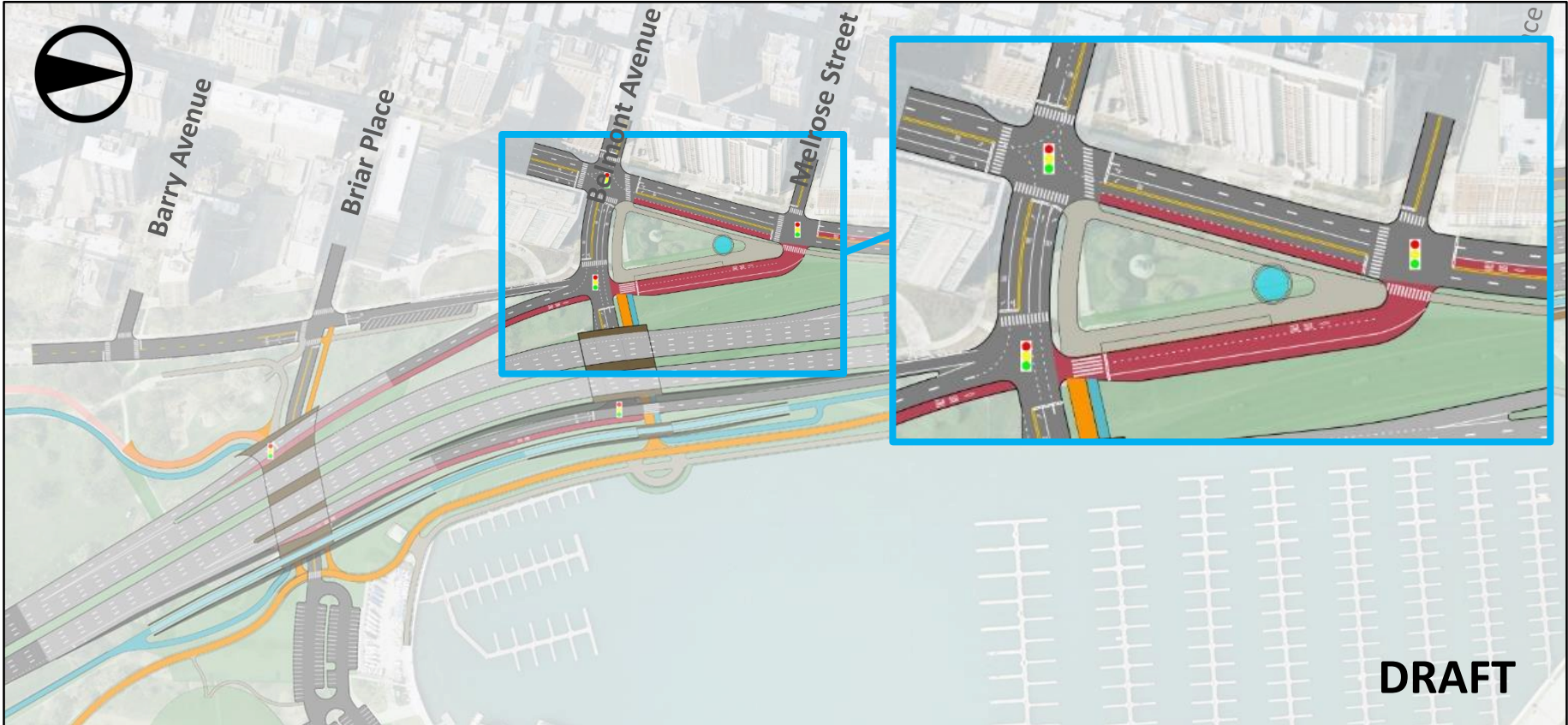


# Belmont Avenue Refined CTT Alternative



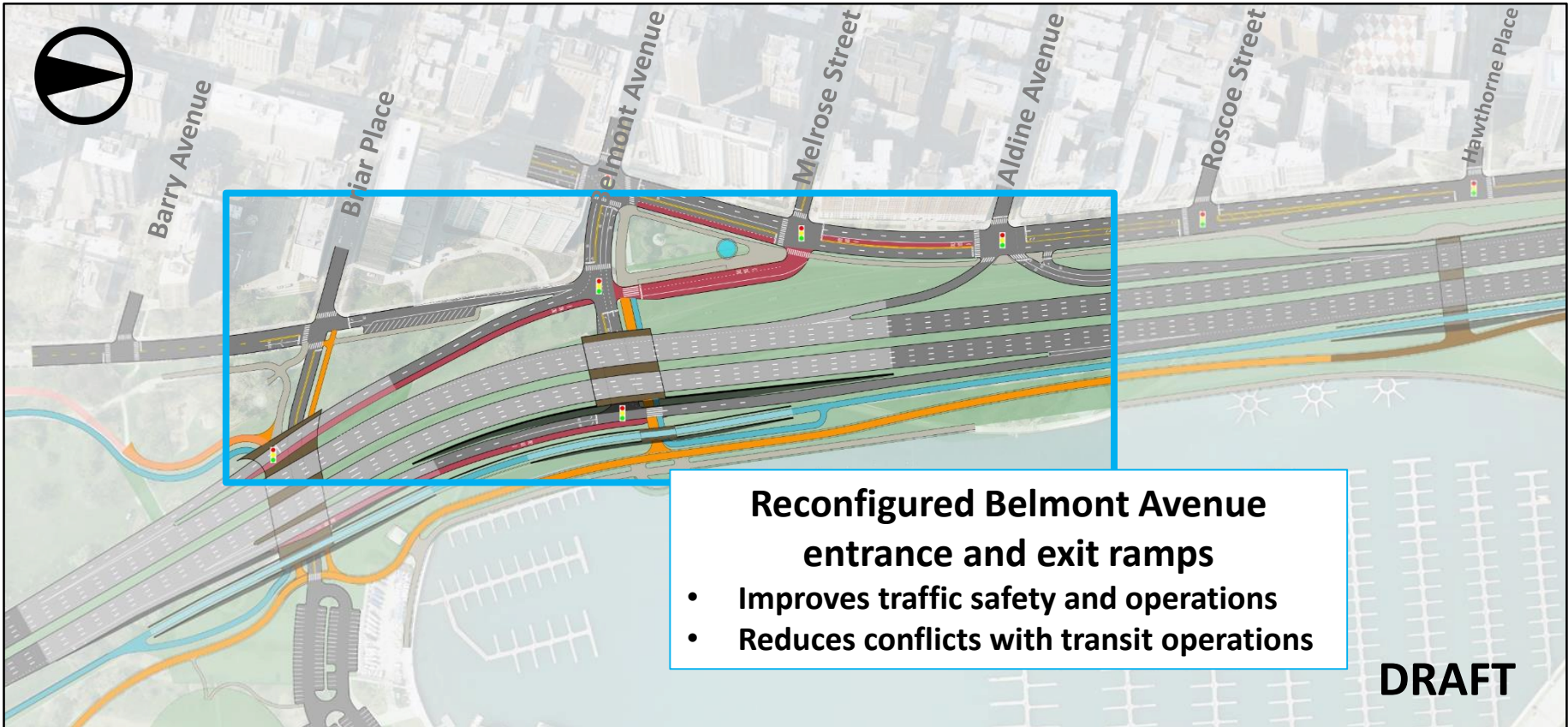
## Northbound Bus Exit Maneuvers

# Belmont Avenue Refined CTT Alternative

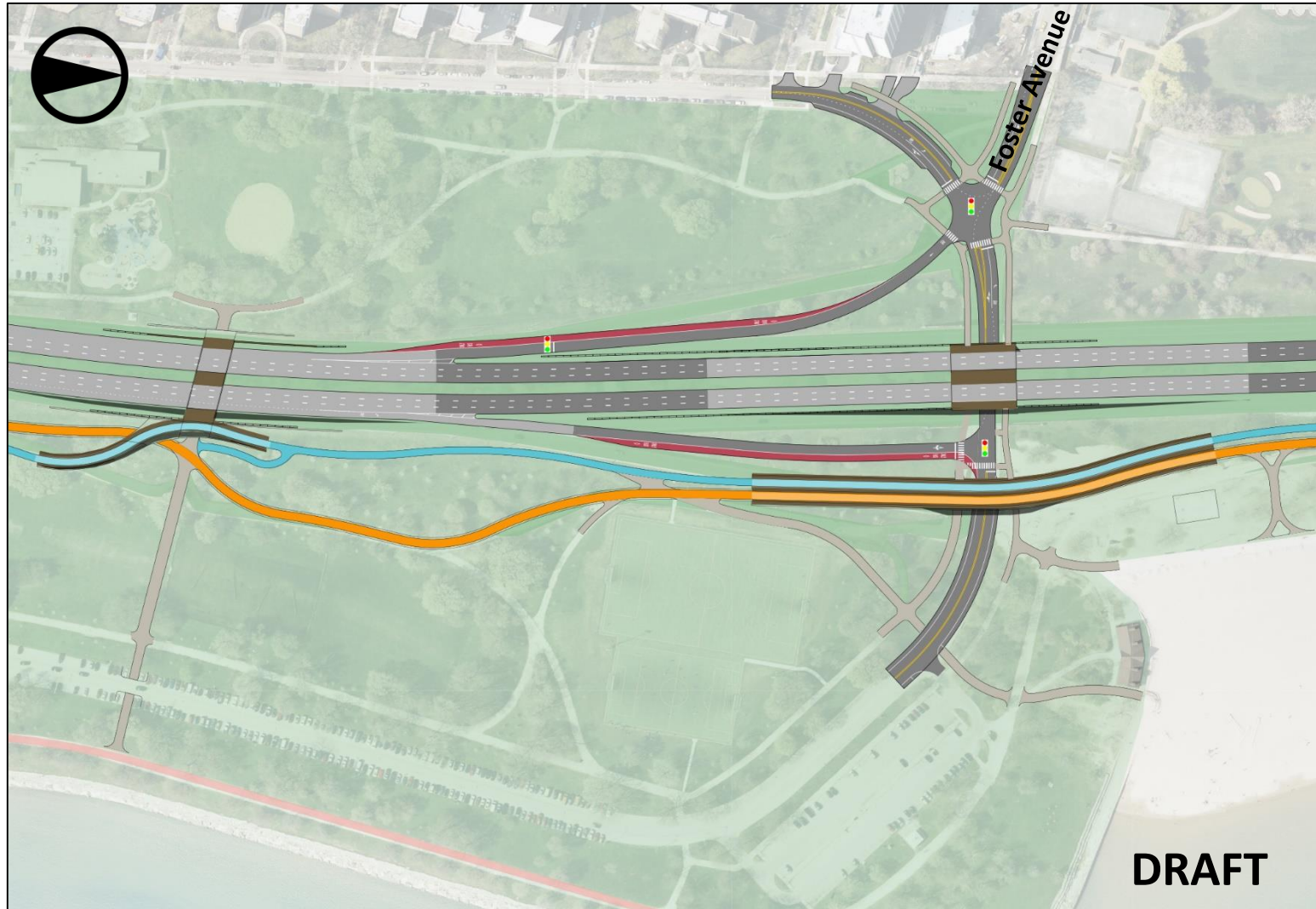


**Eastbound Bus Turnaround Maneuvers**

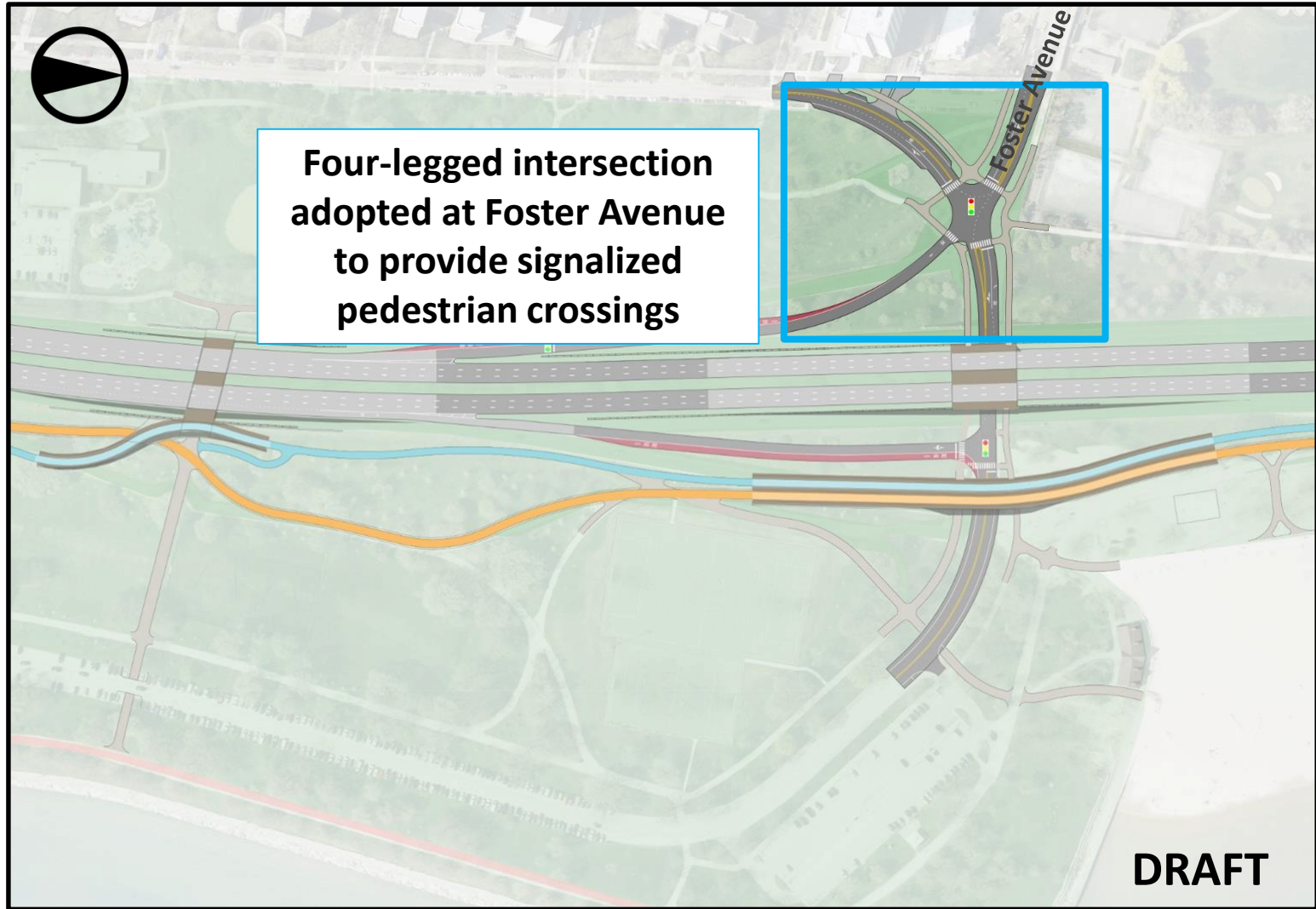
# Belmont Avenue Refined CTT Alternative

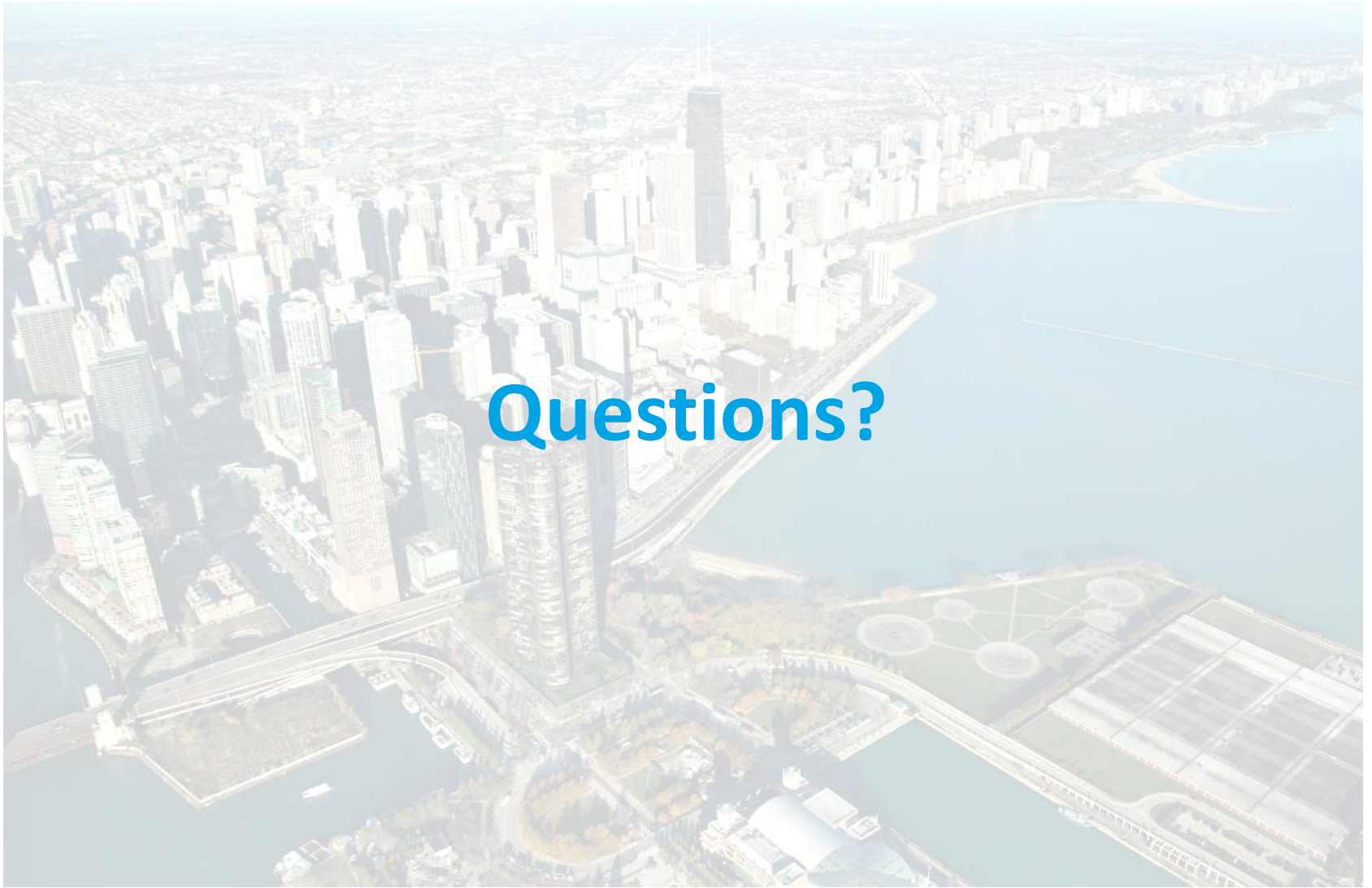


# Foster Avenue Refined CTT Alternative



# Foster Avenue Refined CTT Alternative







# Transitway Alternatives Review



# Transitways

Presented at Task Force Meeting #7:

RANGE OF ALTERNATIVES CATEGORY	RANGE OF ALTERNATIVES
Transitways	Transit Advantages at Junctions
	Bus on Shoulder – Right
	Dedicated Transitway – Left
	Dedicated Transitway – Off Alignment

Options that **add dedicated transit space** in addition to existing general purpose lanes to improve transit mobility.



# Typical Section Between Junctions

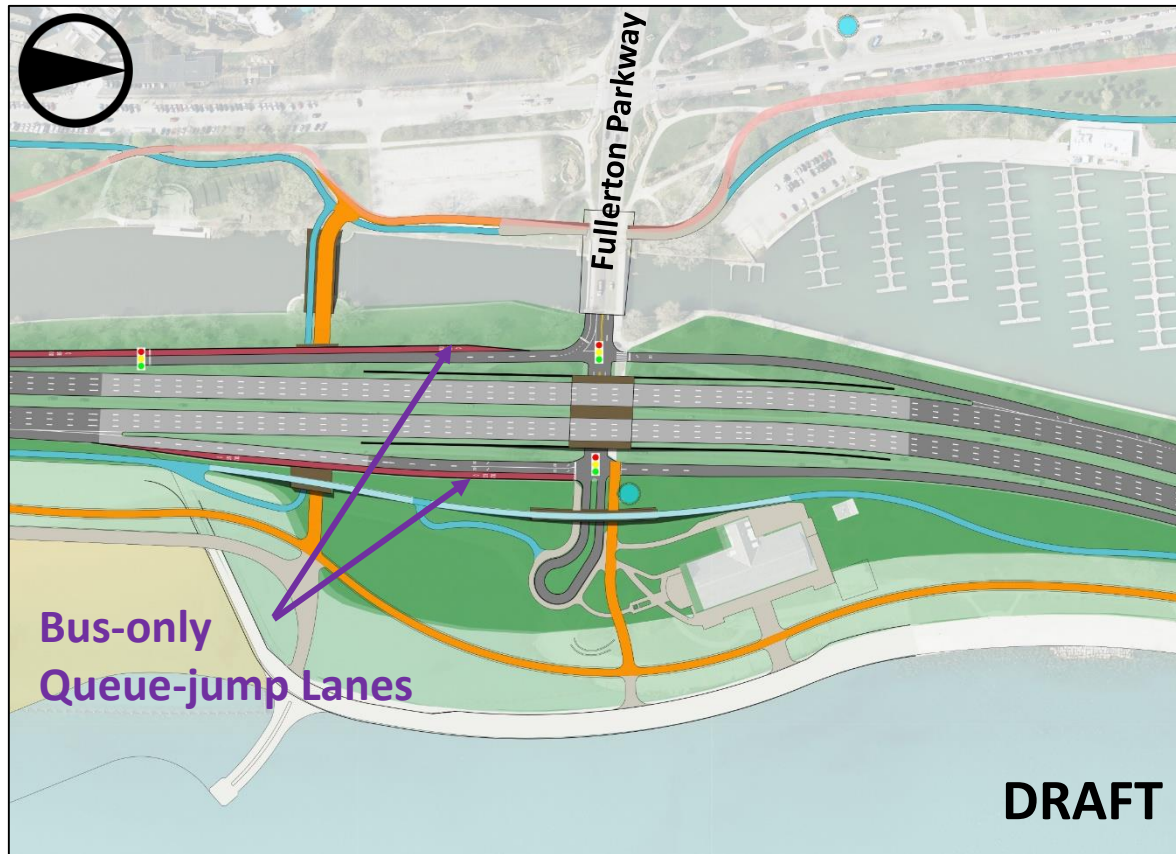
## *Existing Typical Section Looking North*



NLSD between Grand and Montrose Avenues is depicted.

# Transitway Alternatives

## Top Performing CTT (Transit Advantages)



Example: Fullerton Parkway

# Transitway Alternatives

## Bus on Shoulder - Right



# Transitway Alternatives

## Dedicated Transitway - Left



# Transitway Alternatives

## Dedicated Transitway - Off Alignment



Existing Roadway Width



NLSD between Grand and Montrose Avenues is depicted.

# Transitways Level 2 Screening

Presented at Task Force Meeting #7:

Criteria
Safety
Mobility
Reliability
Ridership
Access
Visual Effects
Footprint
Construction Cost
Constructability
Sustainability
Equity

Criteria to be reviewed today:

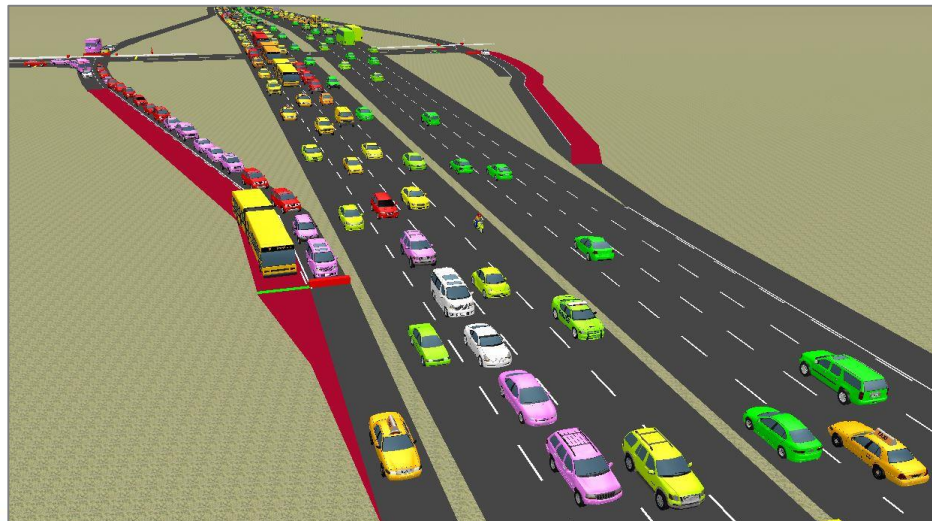
Category	Criteria
Transit Effects (Mobility, Reliability, Ridership)	Transit Riders in Peak Hour
	Daily Transit Ridership
	Transit Mobility
	Transit Reliability
Transportation & Park Footprint (Footprint)	Total Pavement Area
	Land Devoted to Transportation Use
	Net Change in Park Space
Cost (Construction Cost)	Construction Cost

- Quantitative
- Sufficient Engineering/Detail Coordination
- Expanded evaluation at next stage

# Transitways Level 2 Screening

## Transit Performance Analyses

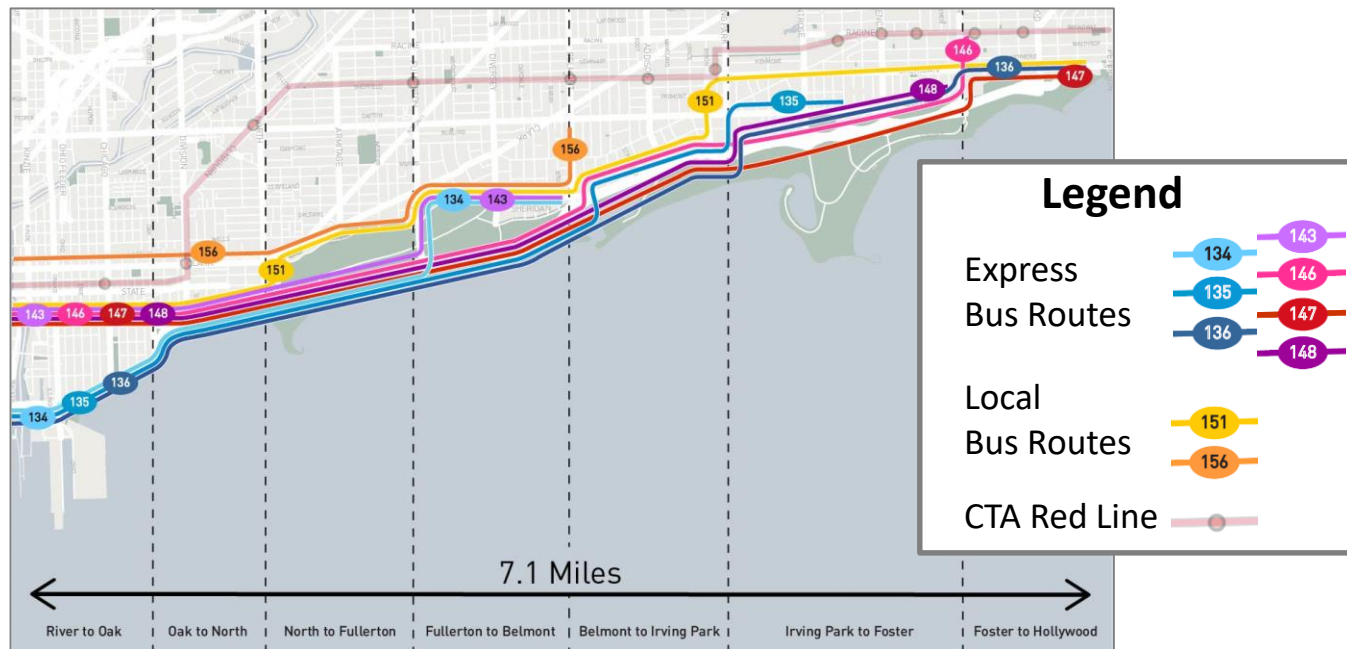
- Performance of Transitway alternatives modeled using **VISSIM**.
- **VISSIM** is a sophisticated multi-modal traffic flow simulation software which:
  - Can explicitly model and evaluate transit routes, stops & service frequency.
  - Can model Transit Signal Priority (TSP), queue jump and bypass lanes, and transit-only lanes.



# Transitways Level 2 Screening

## Transit Performance Analysis

- Analysis includes all 7 CTA express bus routes on the Inner and Outer Drives, between Grand Avenue and Foster Avenue.

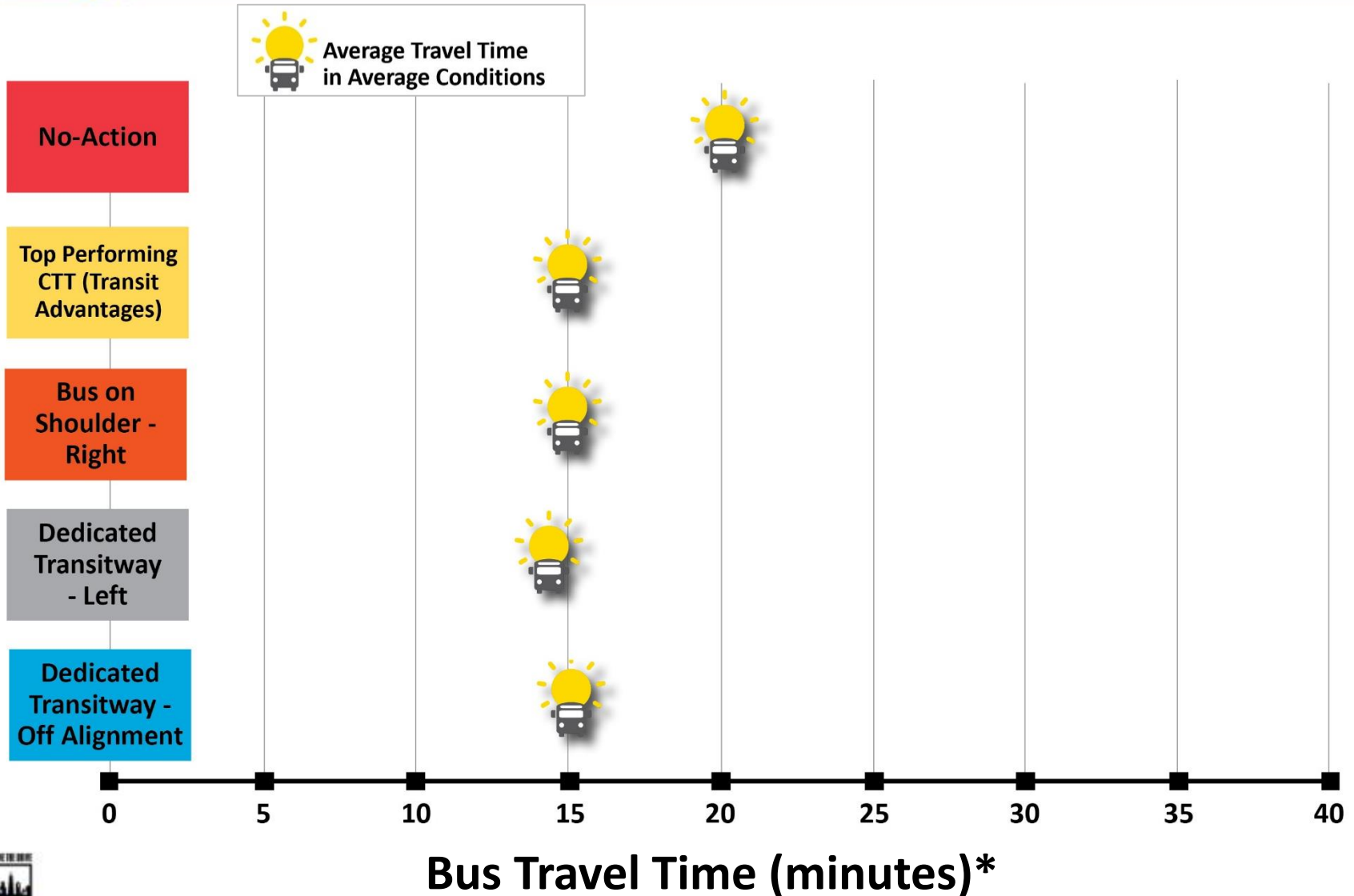




## Transit Performance Analysis

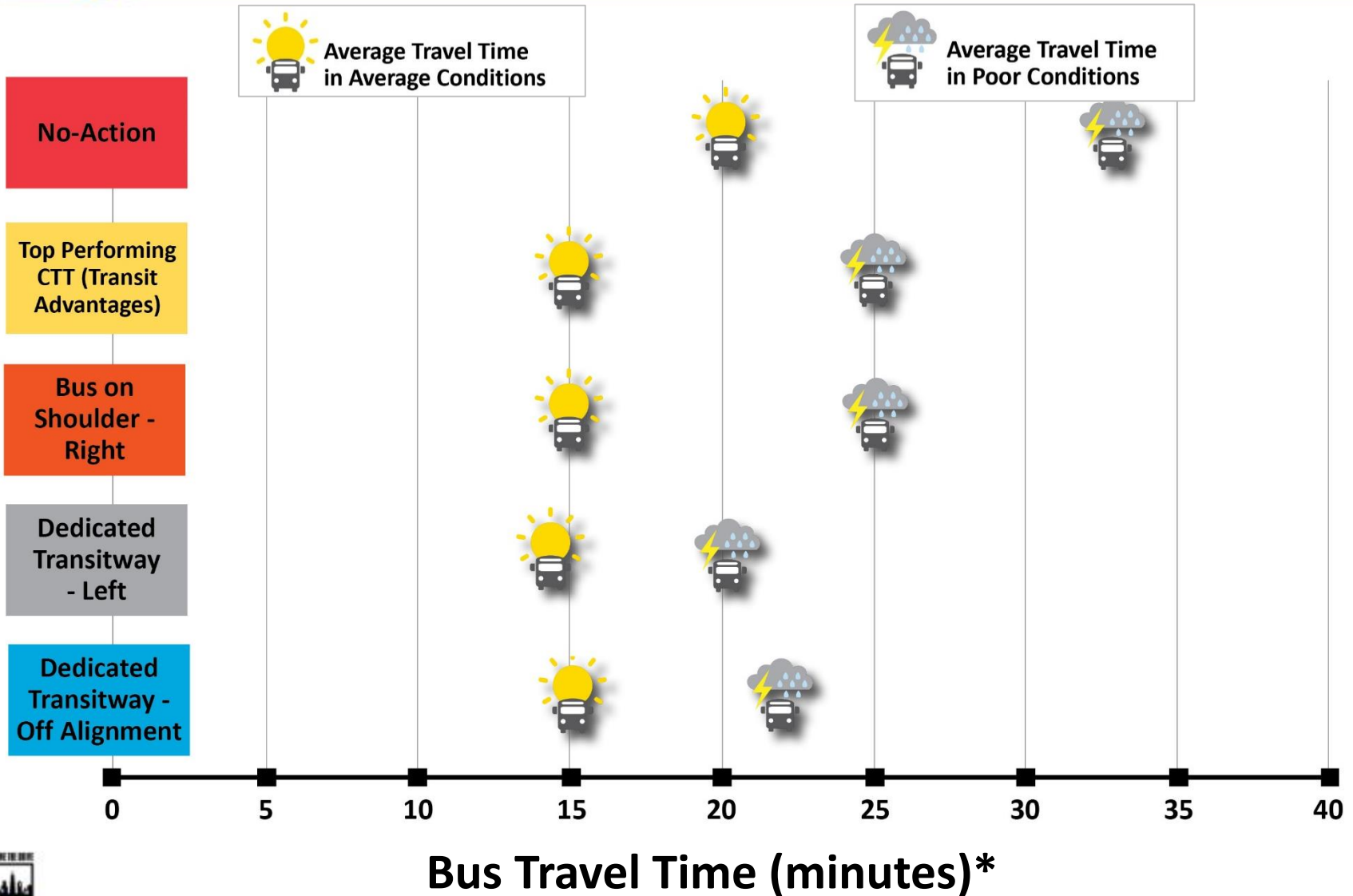
- The express bus routes were modeled based on 2040 CMAP travel projections.
- Average travel times for each bus route were developed from 20 VISSIM model runs for both “average” and “poor” traffic conditions.
- Average travel times for each bus route were then averaged to determine transit mobility and reliability metrics.
- Performance metrics are reported for A.M. peak hour (7:30 a.m. - 8:30 a.m.).

# Transit Mobility & Reliability



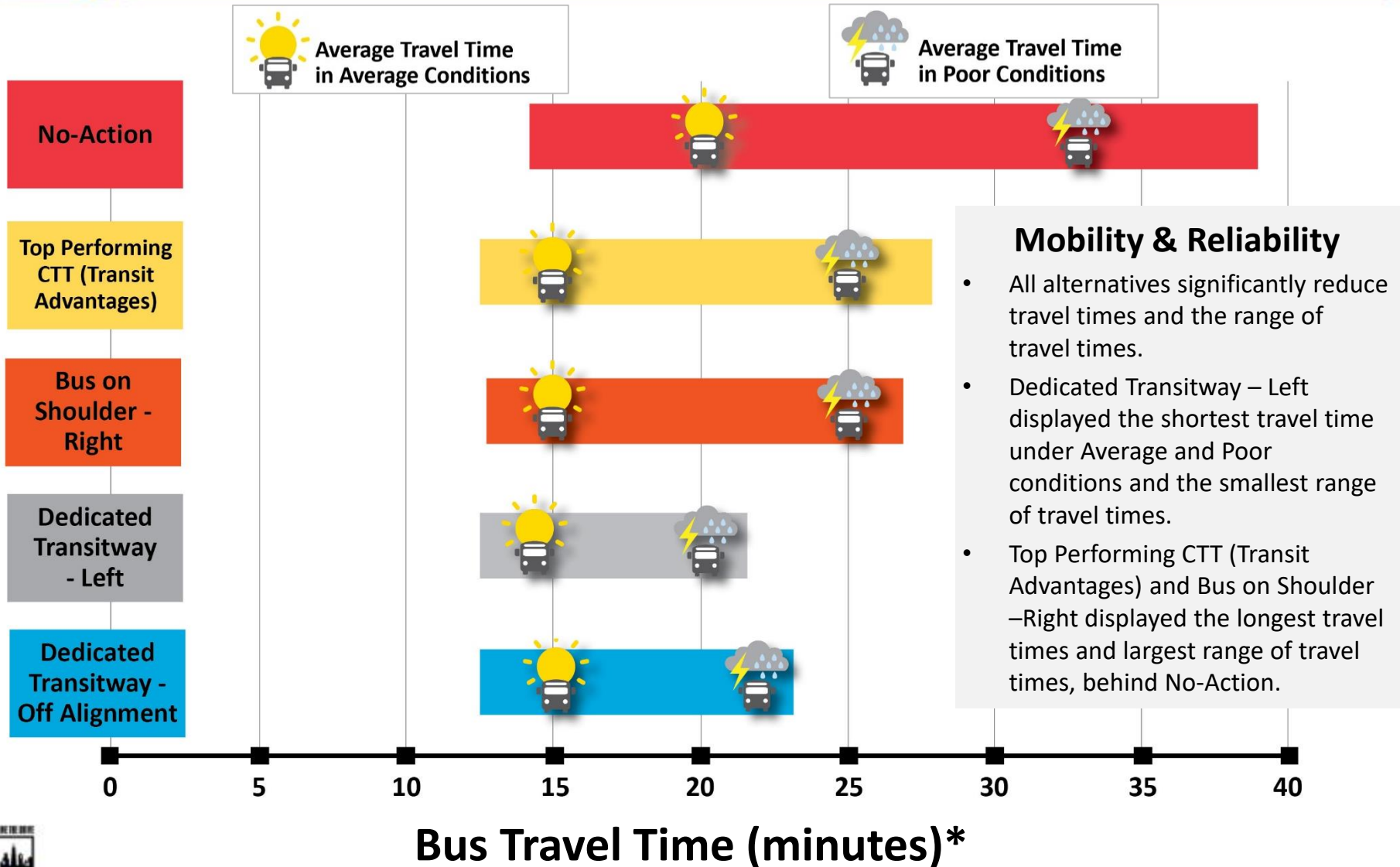
\*AM peak hour in southbound direction; average of all routes

# Transit Mobility & Reliability



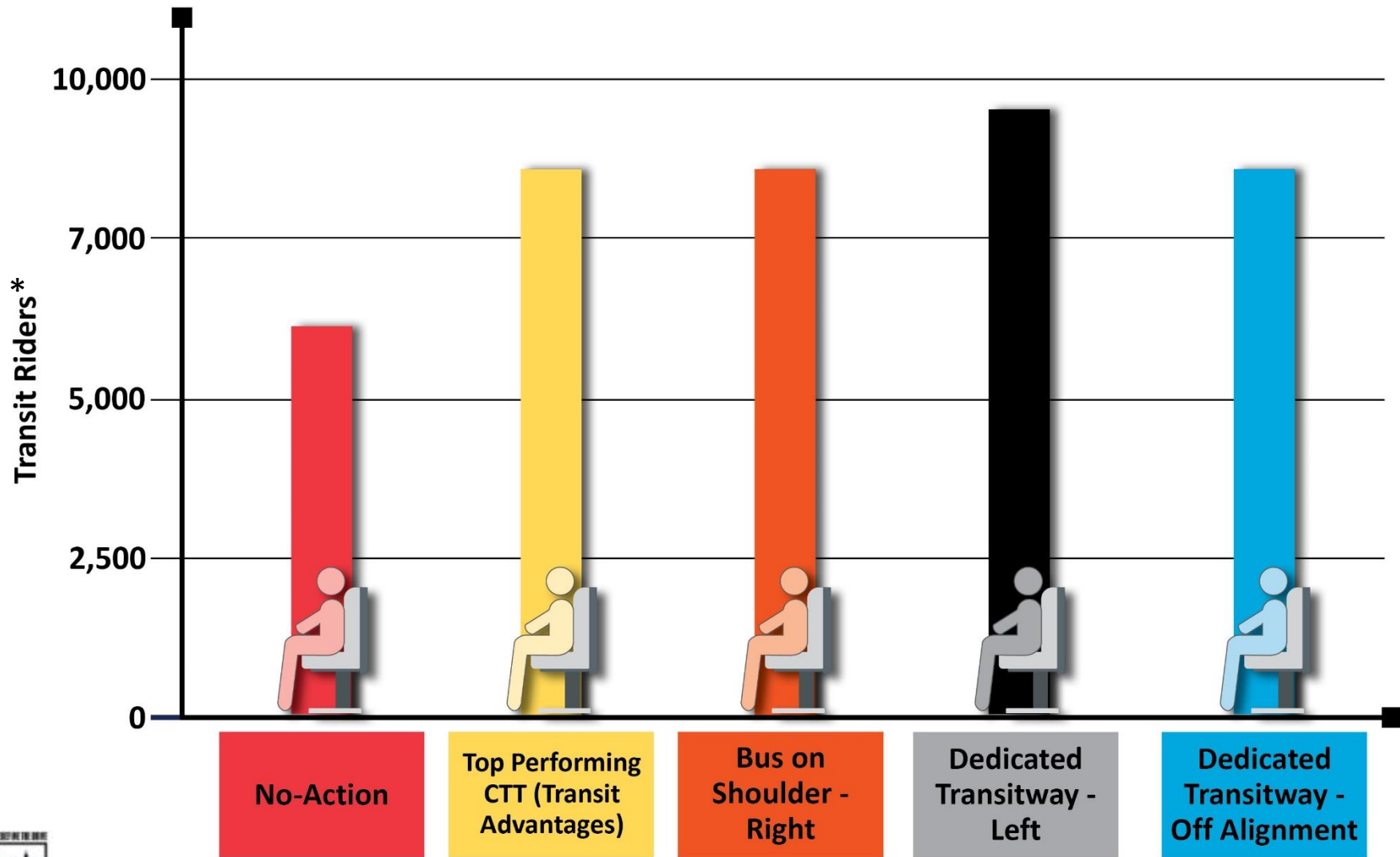
\*AM peak hour in southbound direction; average of all routes

# Transit Mobility & Reliability



\*AM peak hour in southbound direction; average of all routes

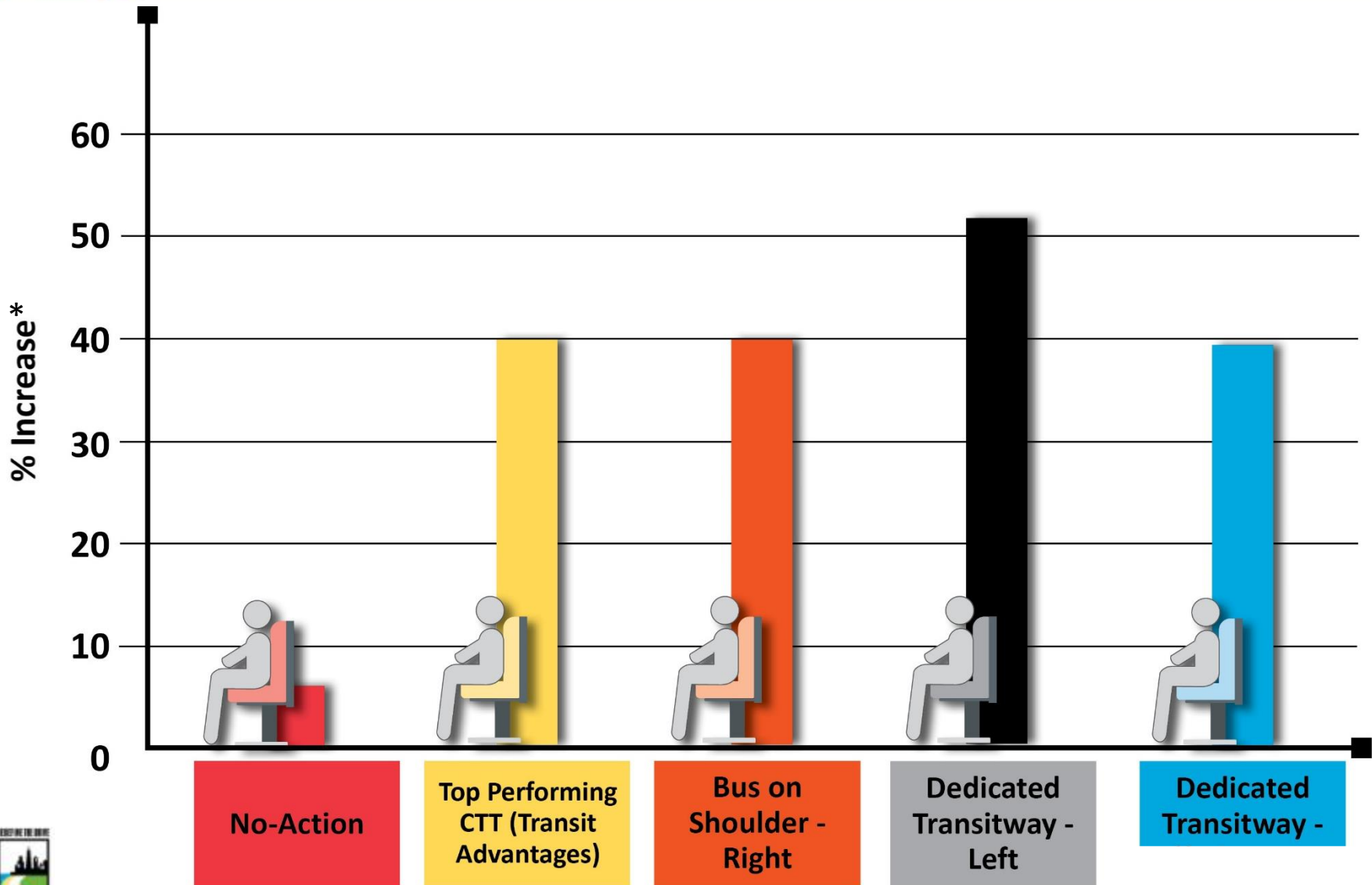
# Transit Riders in Peak Hour



\*AM peak hour in southbound direction; average of all routes



# Daily Transit Ridership (% Increase)



*\*Average of all routes*

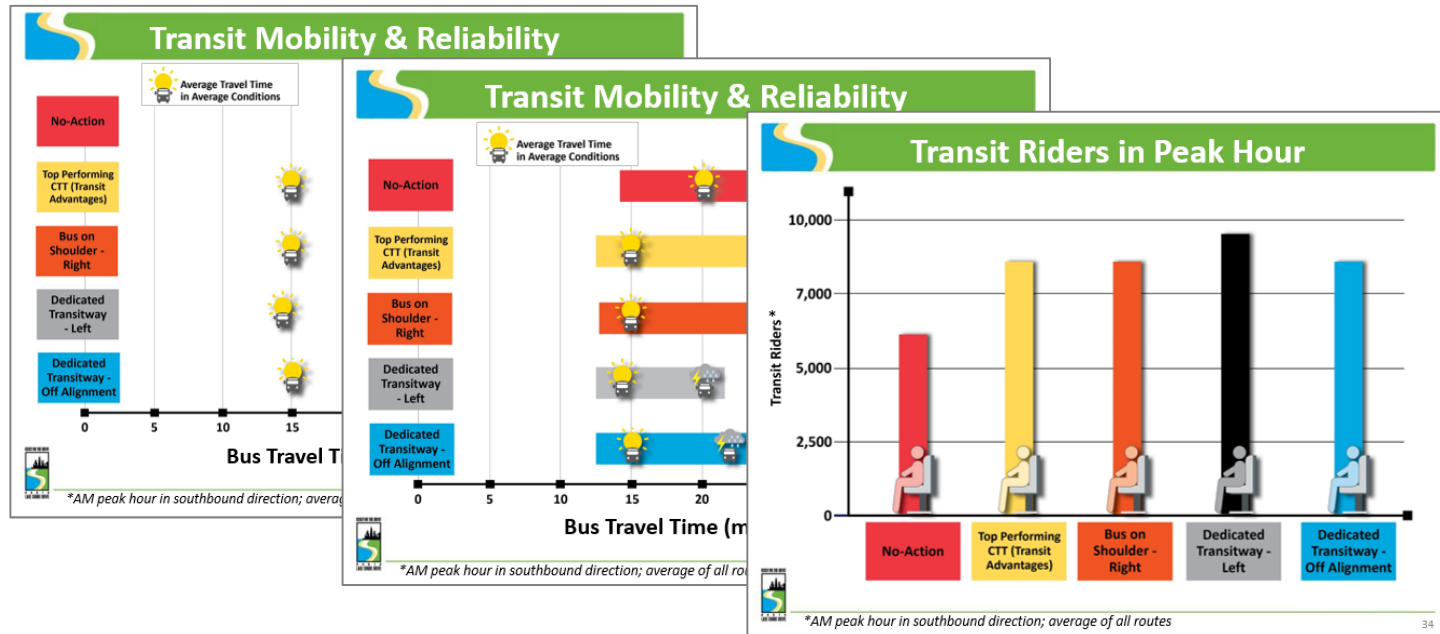
# Transitways – Composite Score

- Determine individual performance results for each Transitway alternative
- Develop a composite result through scoring

Category	Criteria
Transit Effects	Transit Riders in Peak Hour
	Daily Transit Ridership
	Transit Mobility
	Transit Reliability
Transportation & Park Footprint	Total Pavement Area
	Land Devoted to Transportation Use
	Net Change in Park Space
Cost	Construction Cost

# Transitways – Composite Score

- Takes a given alternative's results for each criterion and combines them into a composite score
- Illustrates overall differences between alternatives and creates a ranking of alternatives





# Transitways – Composite Score

## Ratio Method

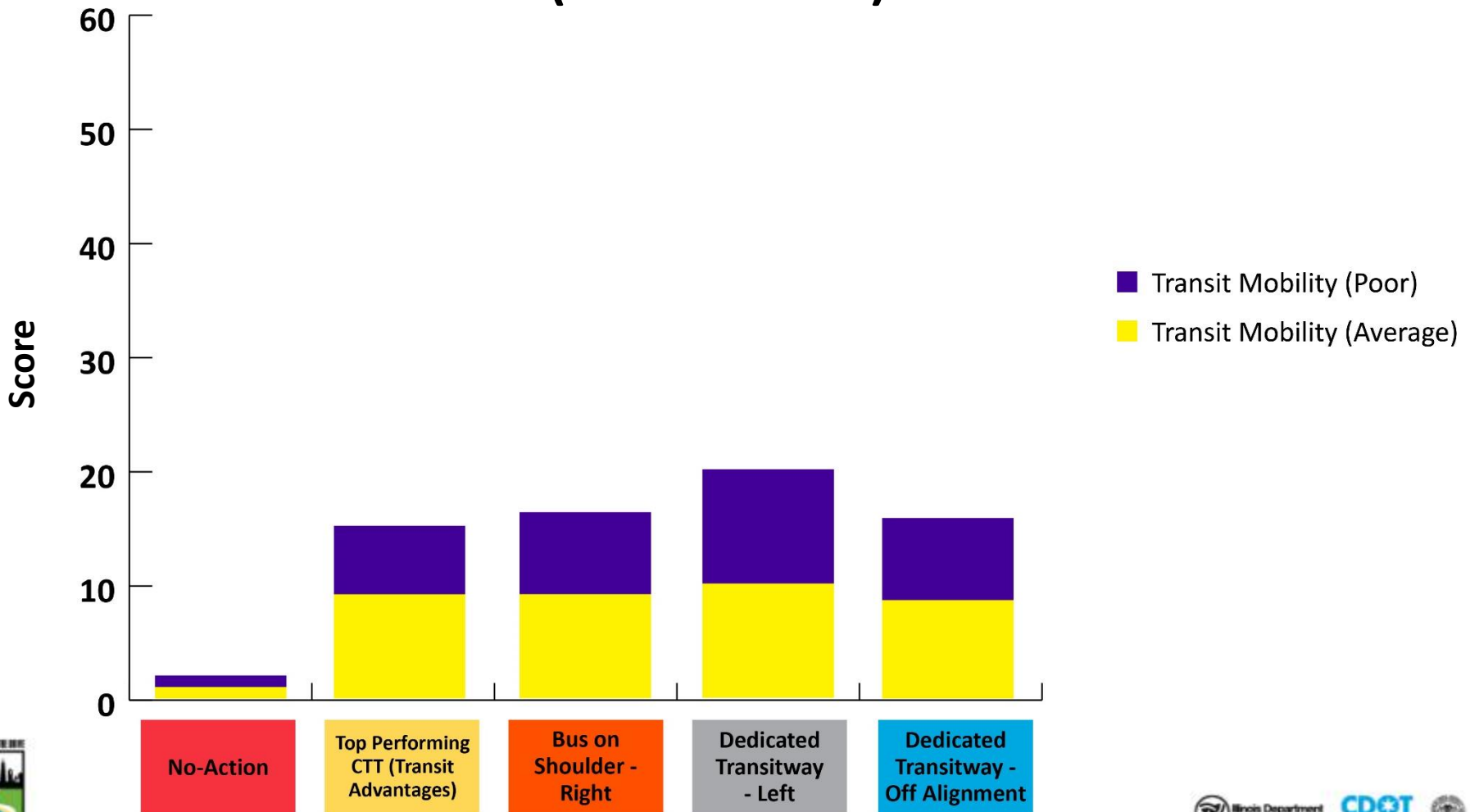
- Score individual criteria for each alternative; worst performing alternative is scored as 1, best performing alternative is scored as 10
- Proportional scores for everything in between
- Add individual scores to create overall score for each alternative
- Six criteria, for a maximum score of 60
- Ratio scoring is more sensitive to differences in benefits/impacts, as compared to 1-2-3 ranking system

### Example

Travel Time Savings	Score
1 minute	1
11 minutes	5.2
20 minutes	10

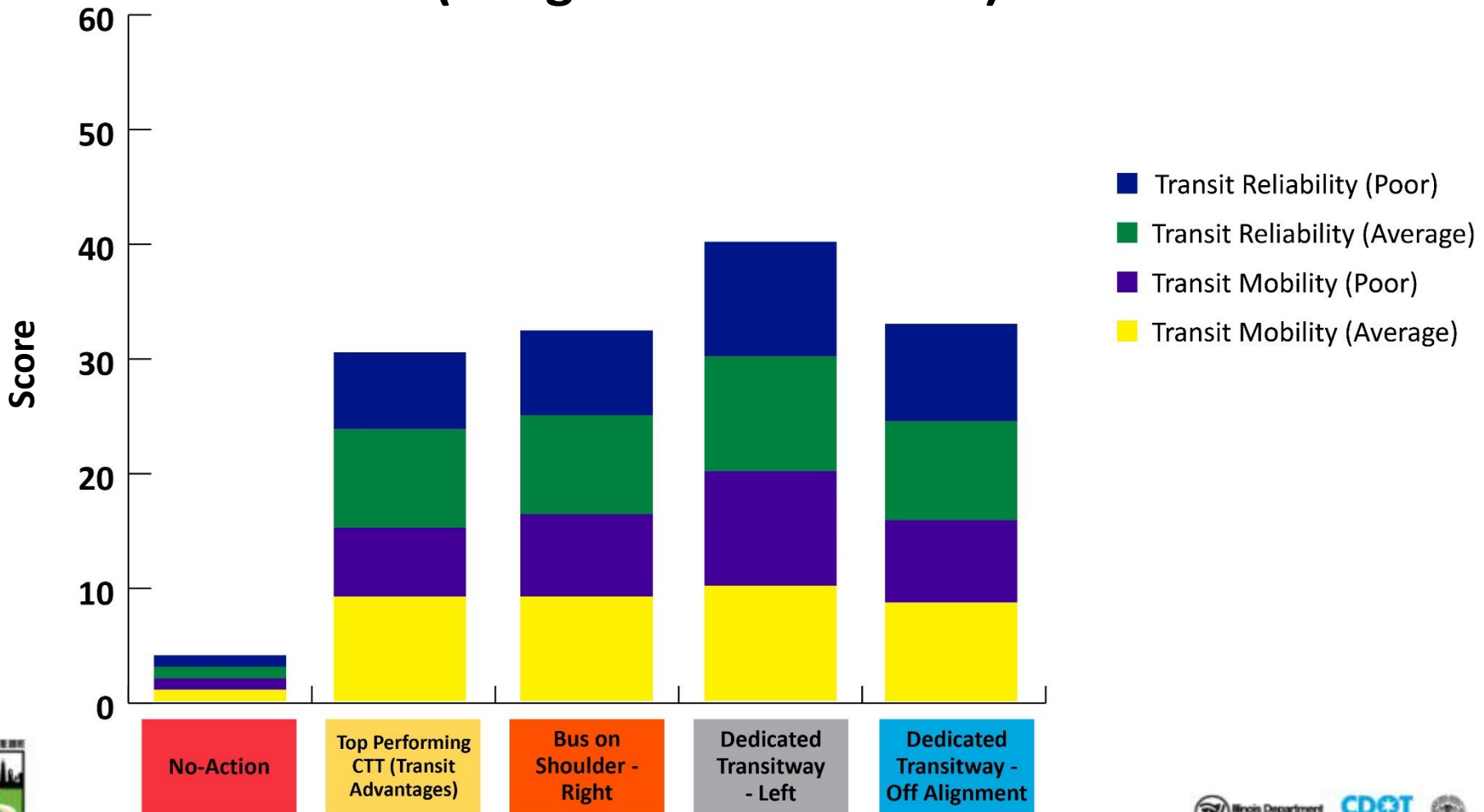
# Transitways - Composite Score

## Transit Mobility (Travel Times)



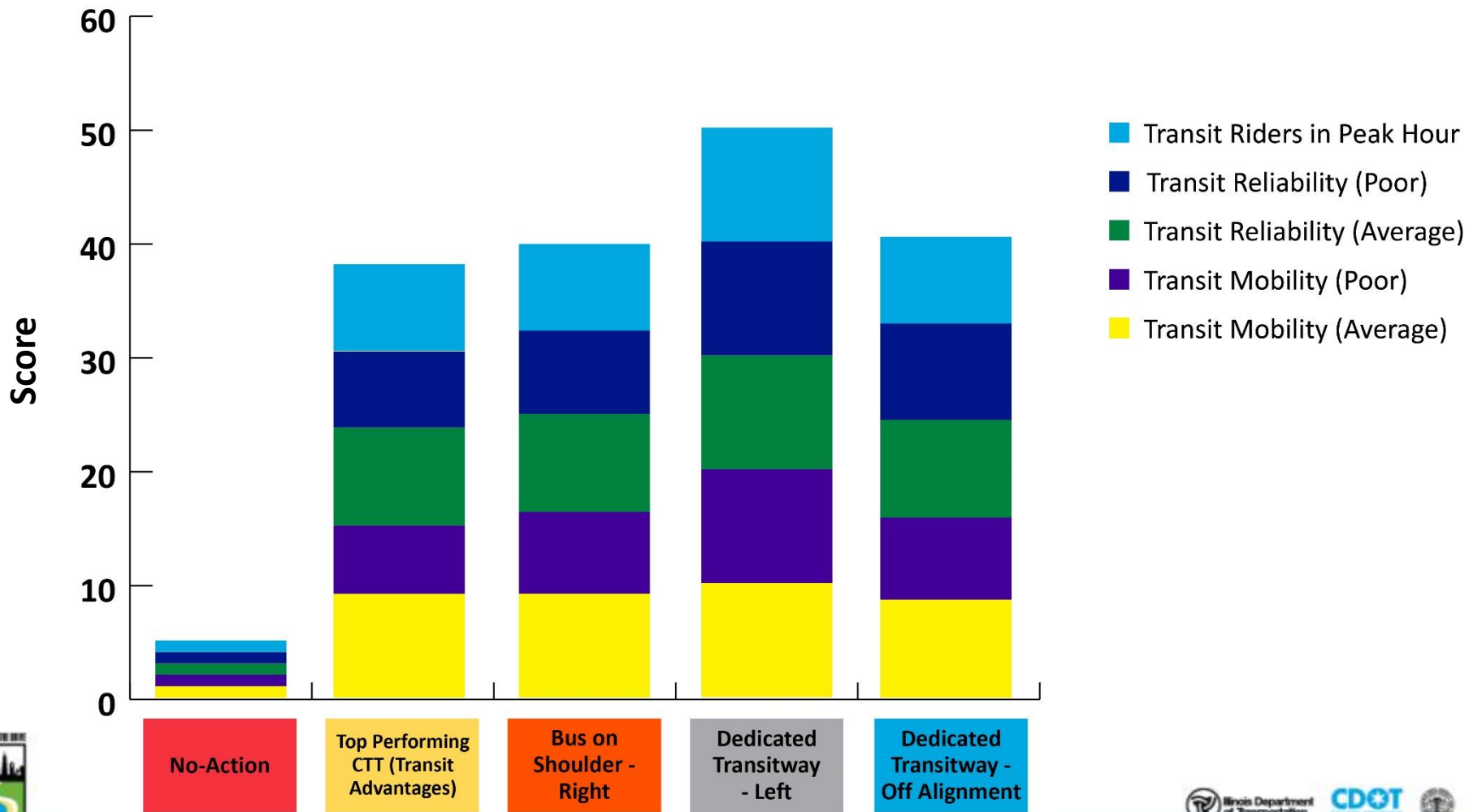
# Transitways - Composite Score

## Transit Reliability (Range of Travel Times)



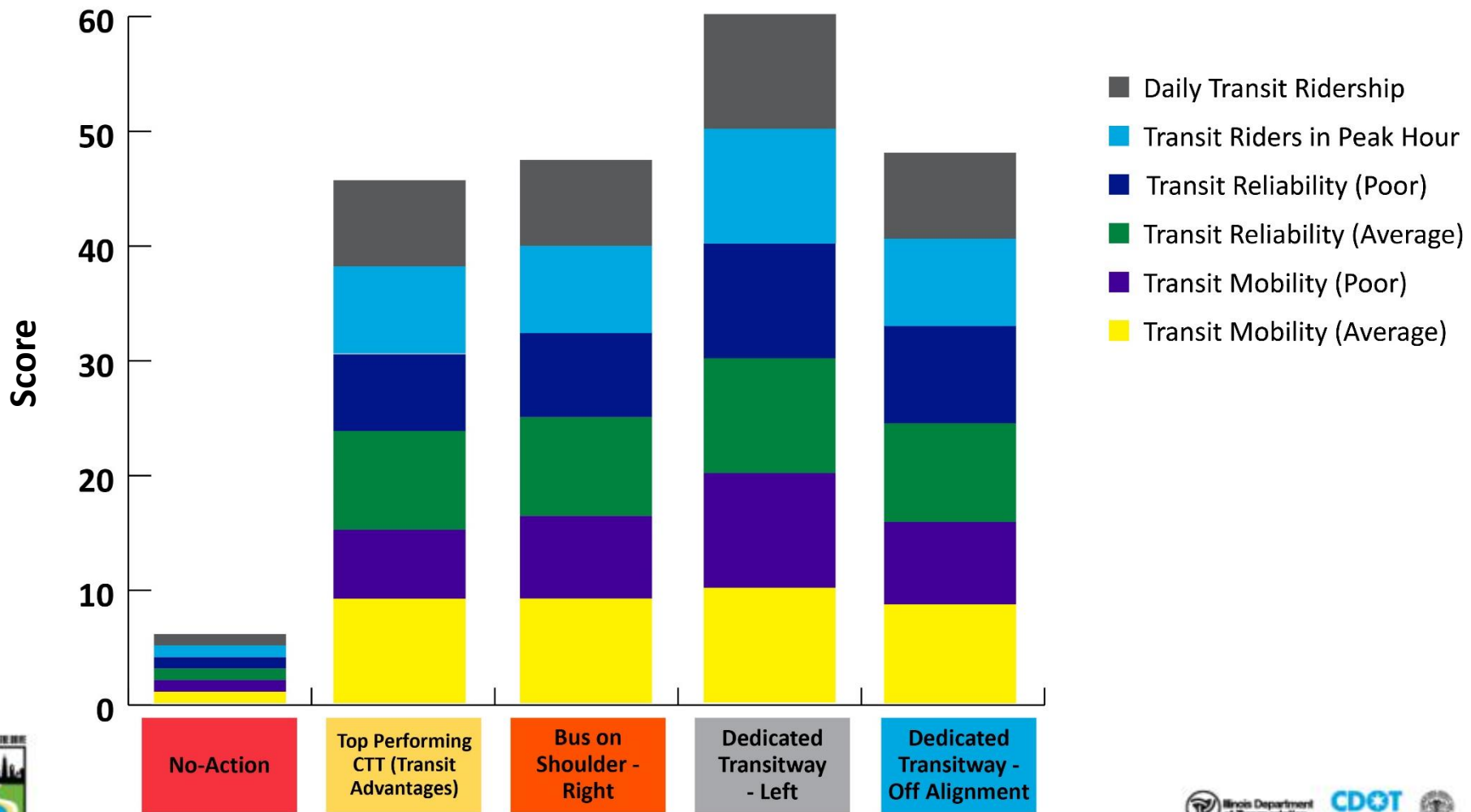
# Transitways - Composite Score

## Transit Riders in Peak Hour



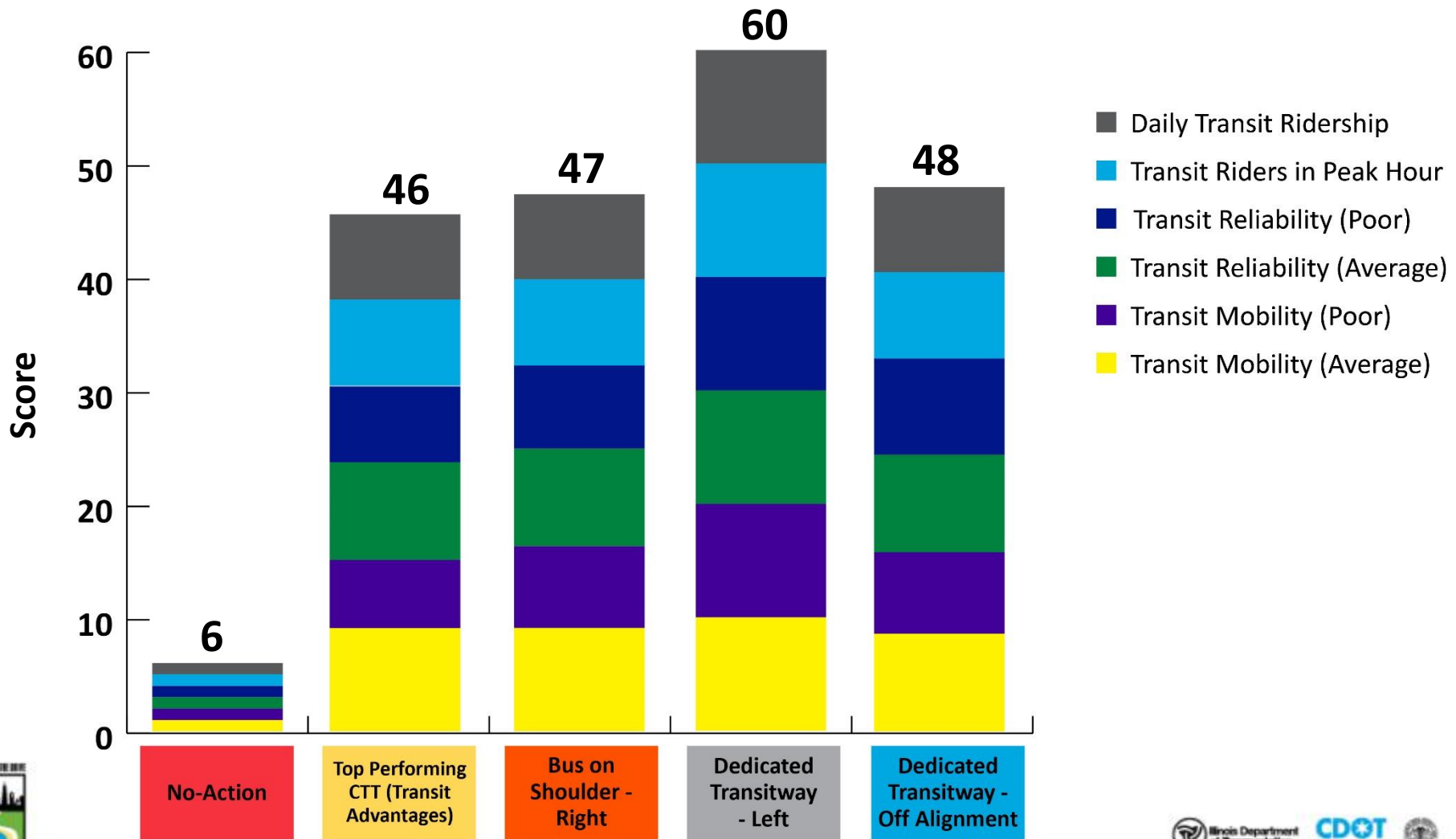
# Transitways - Composite Score

## Daily Transit Ridership (% Increase)



# Transitways - Composite Score

## Alternatives Ranking



# Additional Evaluation Criteria

- Completed high level review of cost and footprint
  - Illustrates relationships between transportation and park footprints, CTT and Transitway costs
  - Conceptual level of detail
- Further engineering and coordination required
- Will be reviewed in detail at next stage

Category	Criteria
Transit Effects	Transit Riders in Peak Hour
	Daily Transit Ridership
	Transit Mobility
	Transit Reliability
Transportation & Park Footprint	Total Pavement Area
	Land Devoted to Transportation Use
	Net Change in Park Space
Cost	Construction Cost



# Transportation & Park Footprint

## Baseline Parameters

- For existing NLSD, the boundary of Lincoln Park (park space) was obtained from park extents provided by the Chicago Park District.
- For proposed NLSD Transitway alternatives, the boundary reflects changes in park land that would result from proposed shoreline protection improvements and proposed filling of portions of Belmont Harbor.

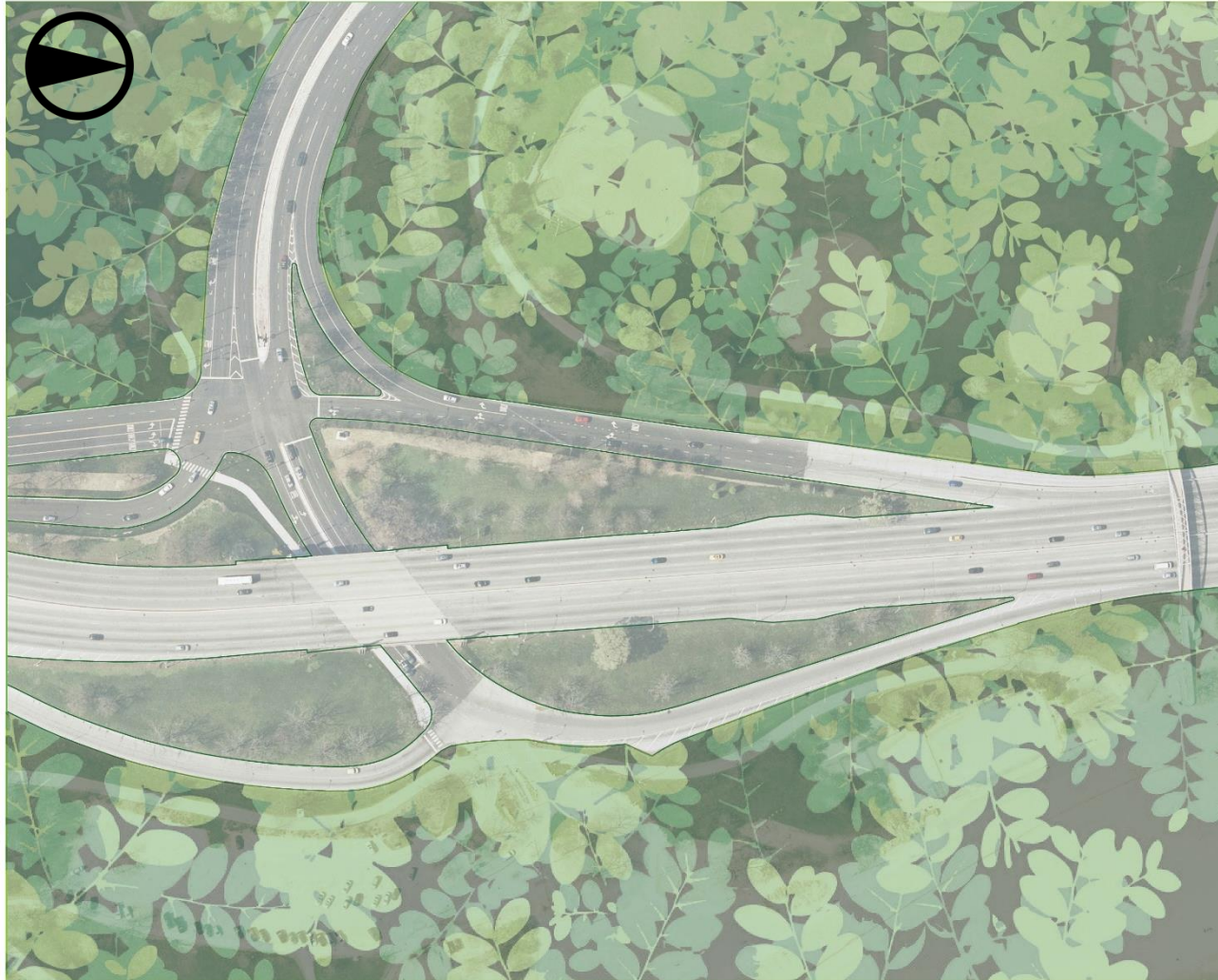


# Transportation & Park Footprint



Example: LaSalle Drive

# Transportation & Park Footprint



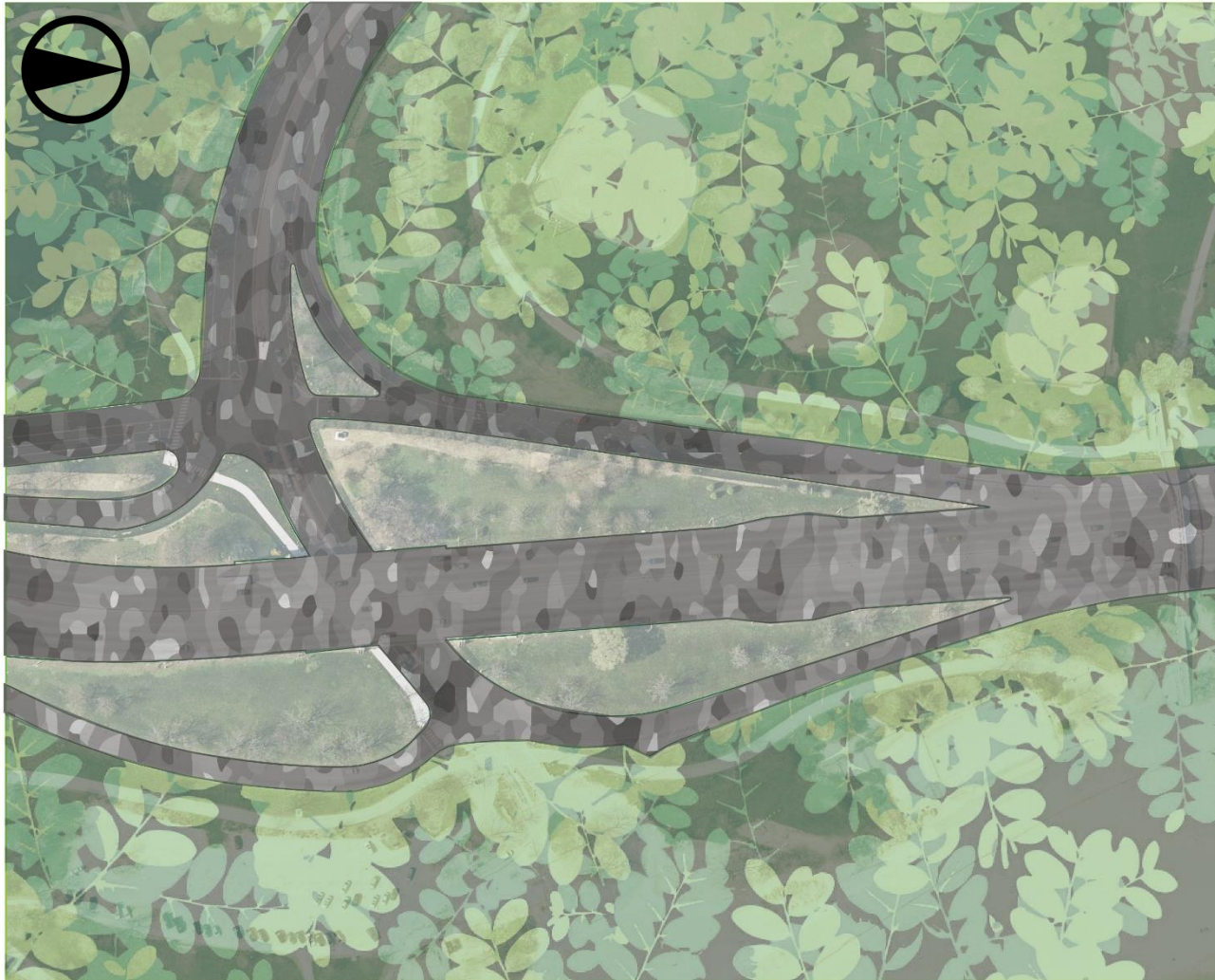
## Existing Park Space



Total Acres:  
1,069

Example: LaSalle Drive

# Transportation & Park Footprint



## Existing Park Space



Total Acres:  
1,069

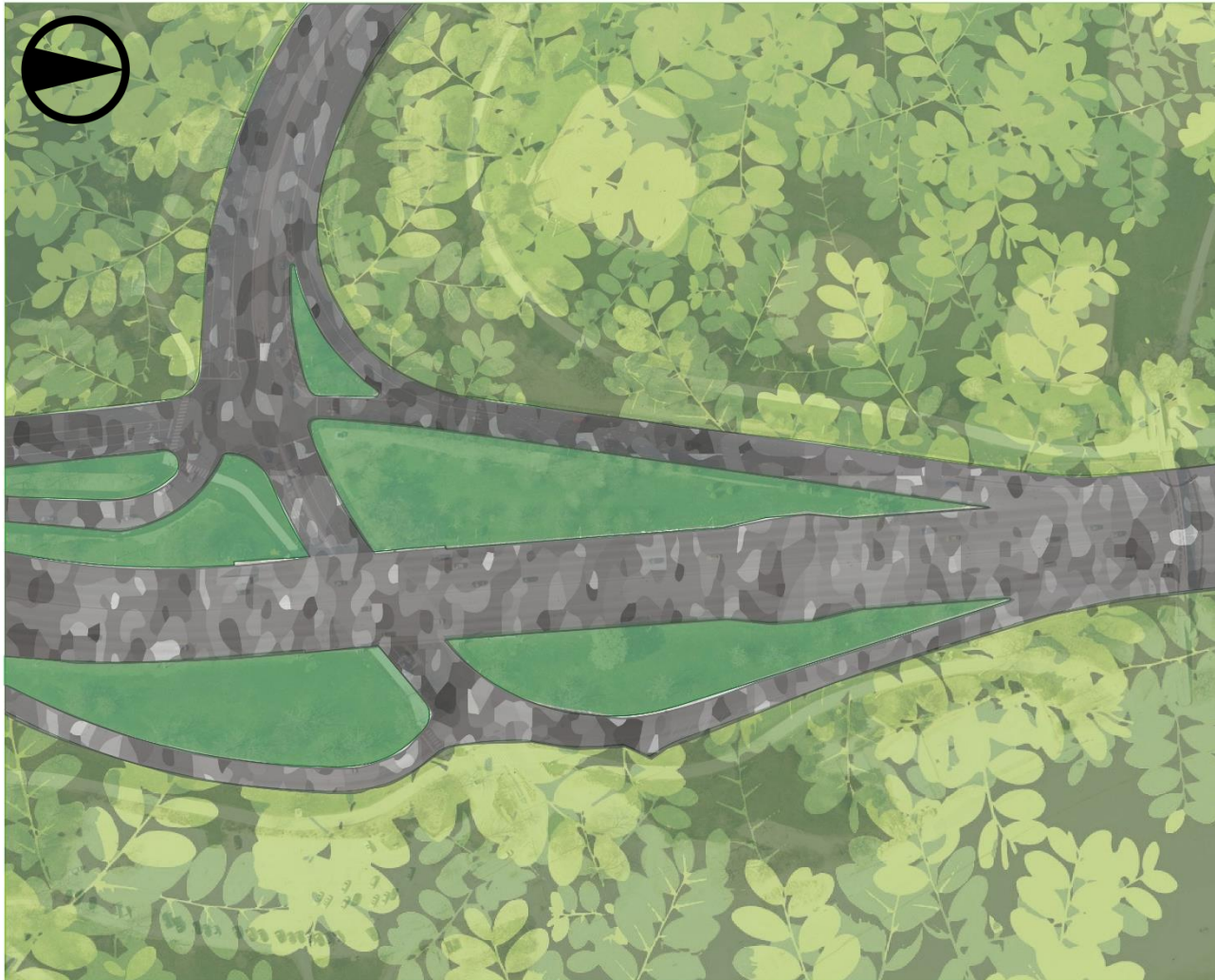
## Existing Pavement



Total Acres:  
142

Example: LaSalle Drive

# Transportation & Park Footprint



## Existing Park Space



Total Acres:  
1,069

## Existing Pavement



Total Acres:  
142

## Existing Other Land for Transportation Use

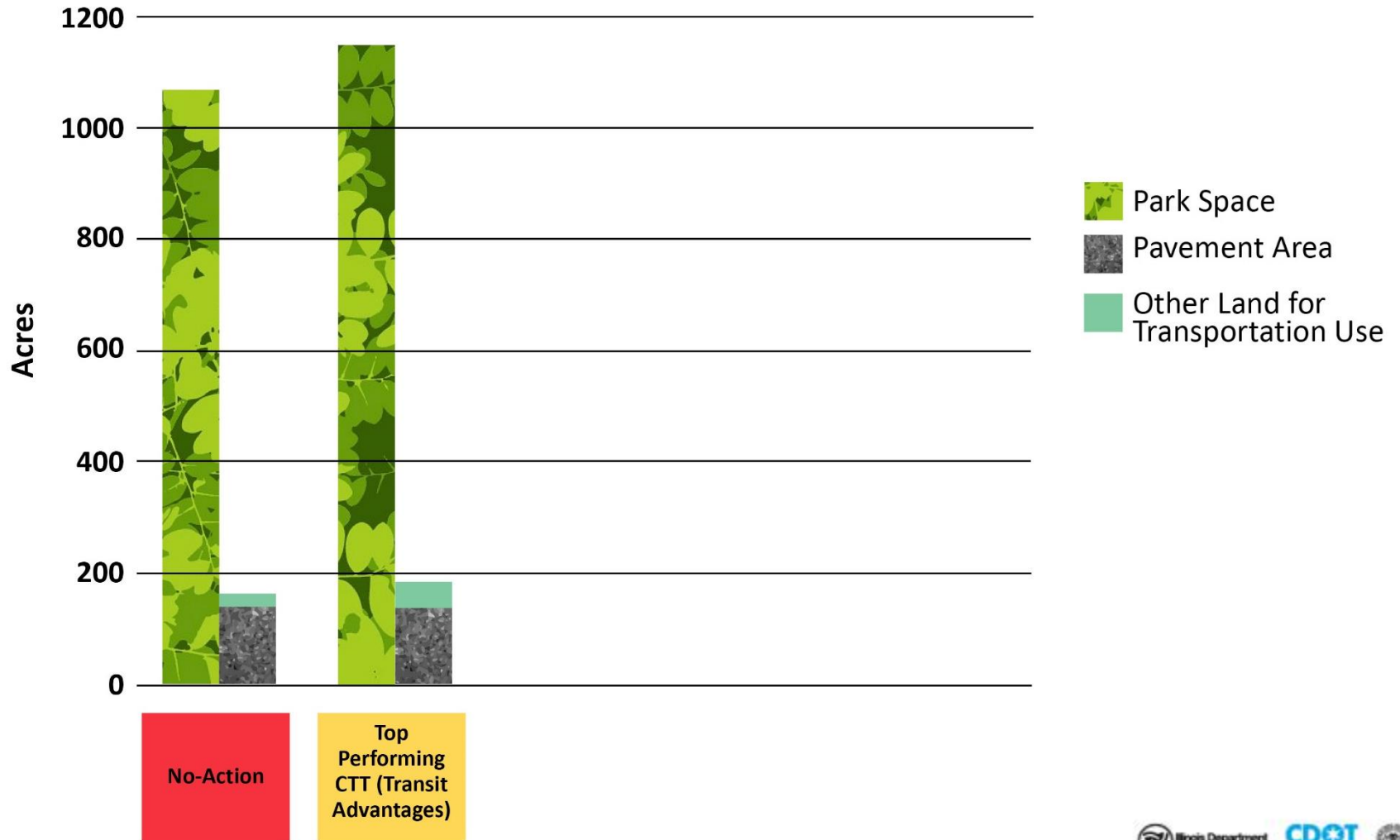


Total Acres:  
30

Example: LaSalle Drive

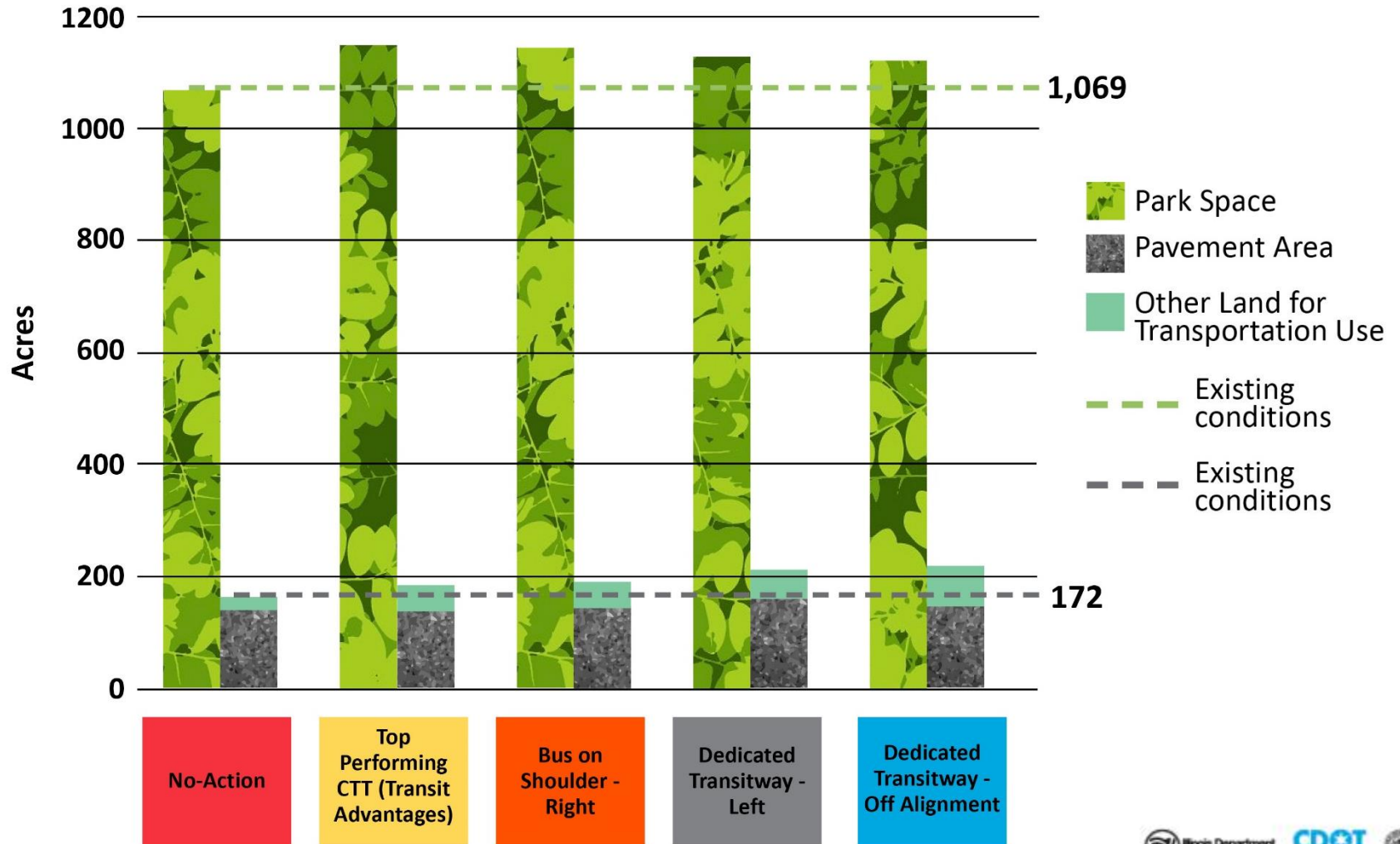
# Transportation and Park Footprint

## Total Footprints (Entire Corridor)



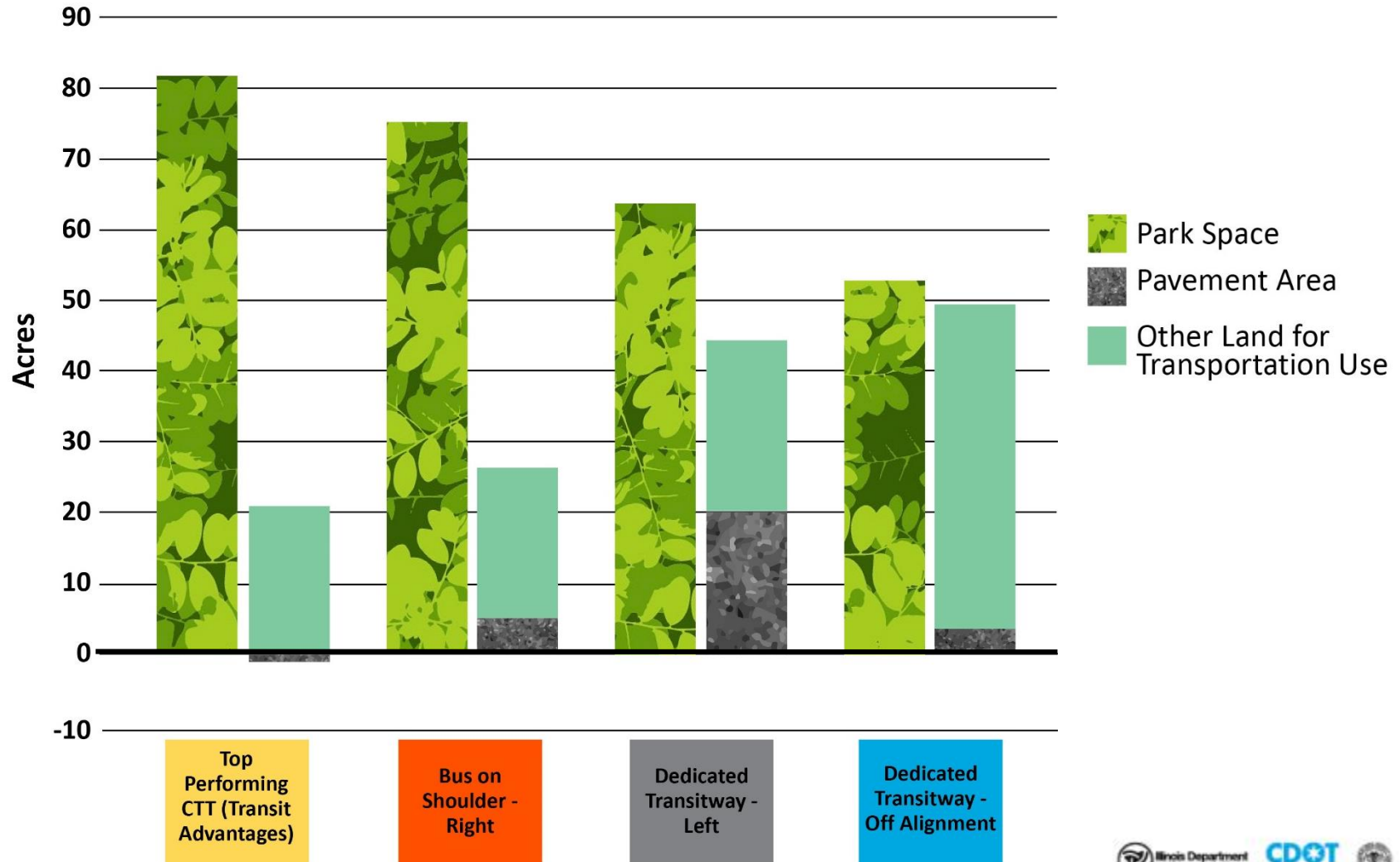
# Transportation and Park Footprint

## Total Footprints (Entire Corridor)



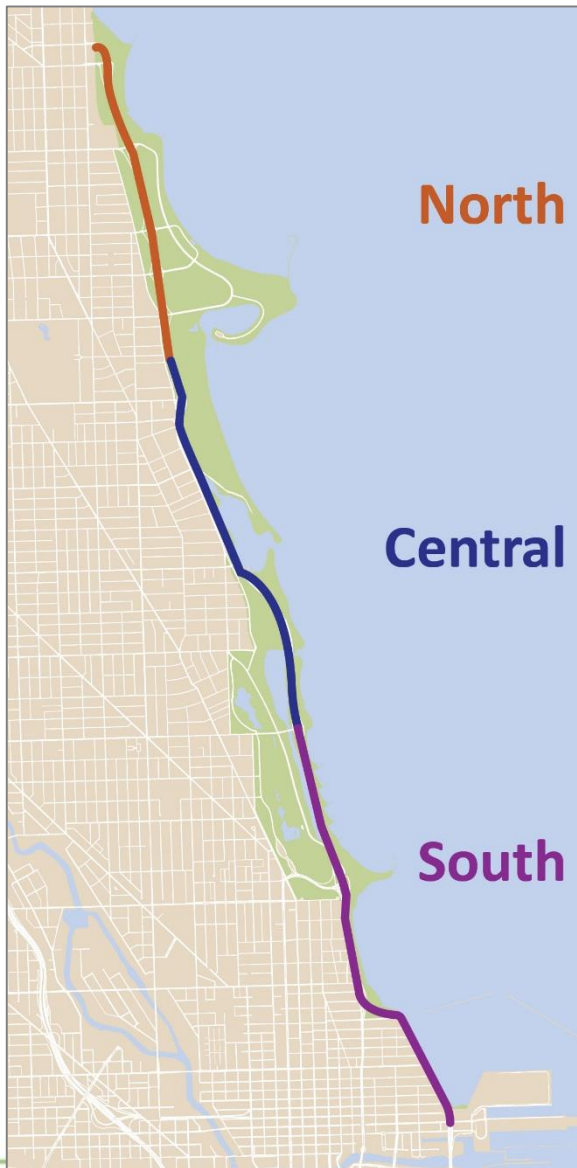
# Transportation and Park Footprint

## Net Change in Footprints (Entire Corridor)



# Transportation and Park Footprint

## Corridor Segments



**North**

Montrose Avenue to Hollywood Avenue

**Central**

Diversey Parkway to Montrose Avenue

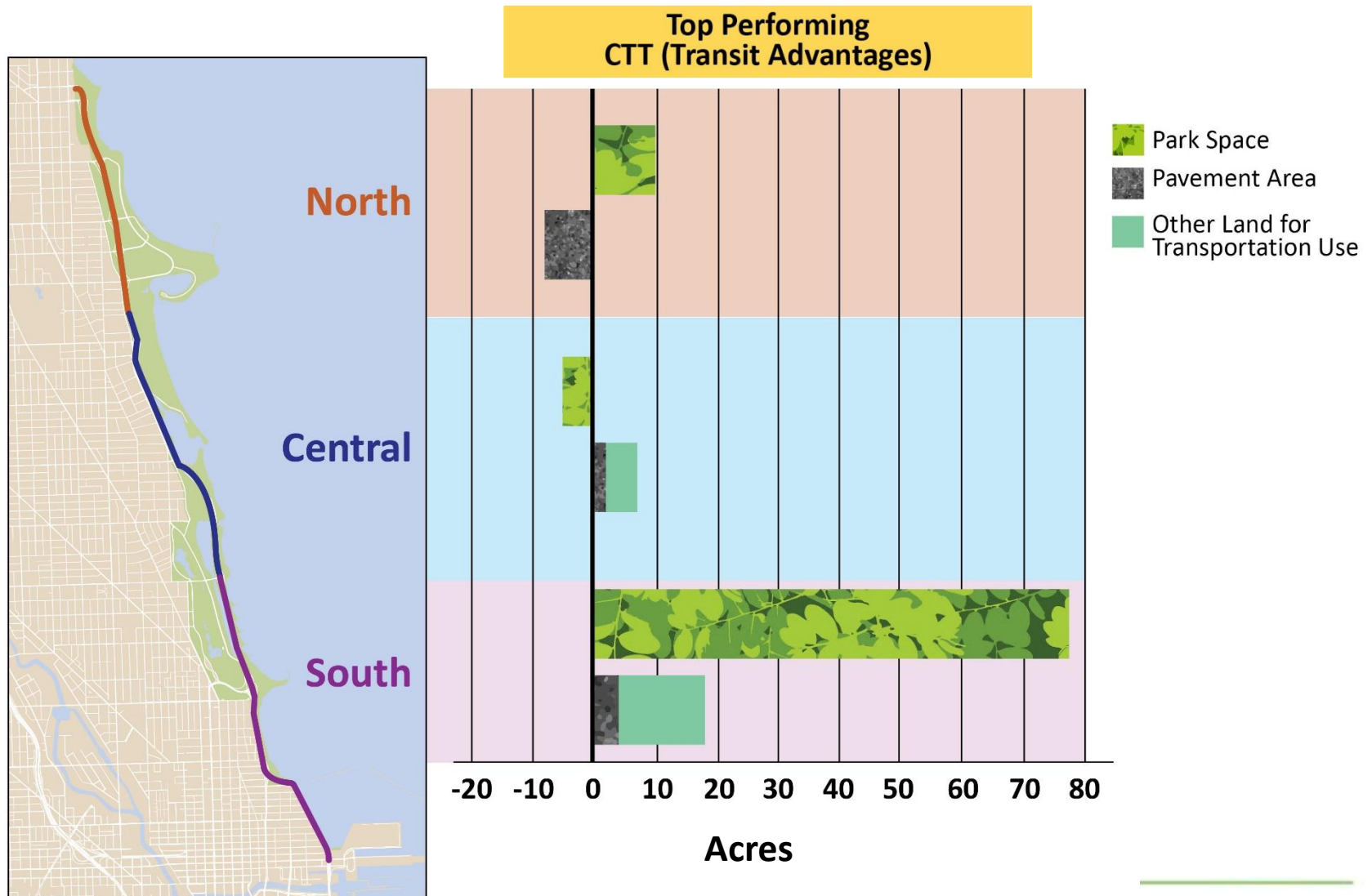
**South**

Grand Avenue to Diversey Parkway



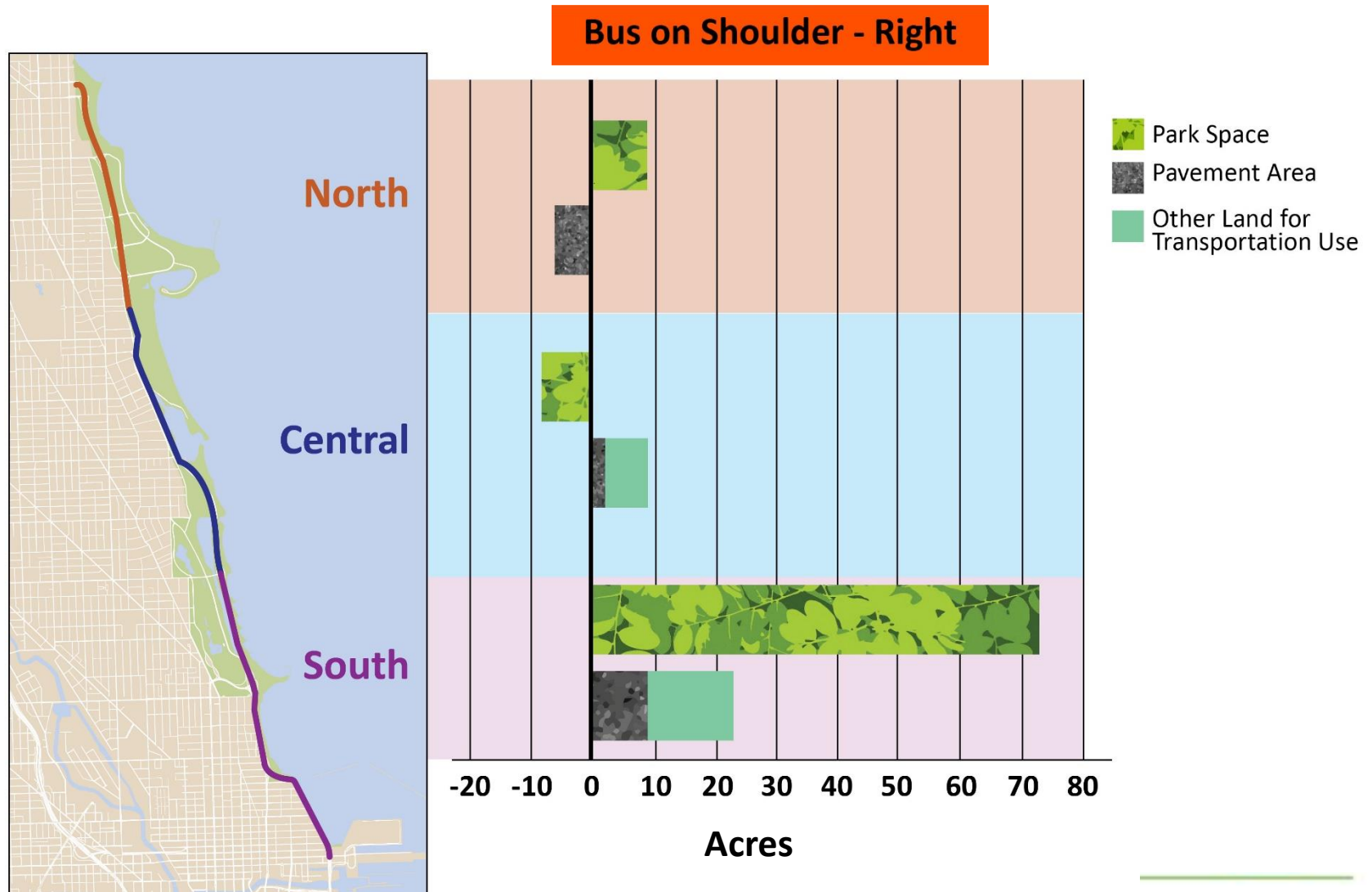
# Transportation and Park Footprint

## Net Change in Footprints (By Segment)



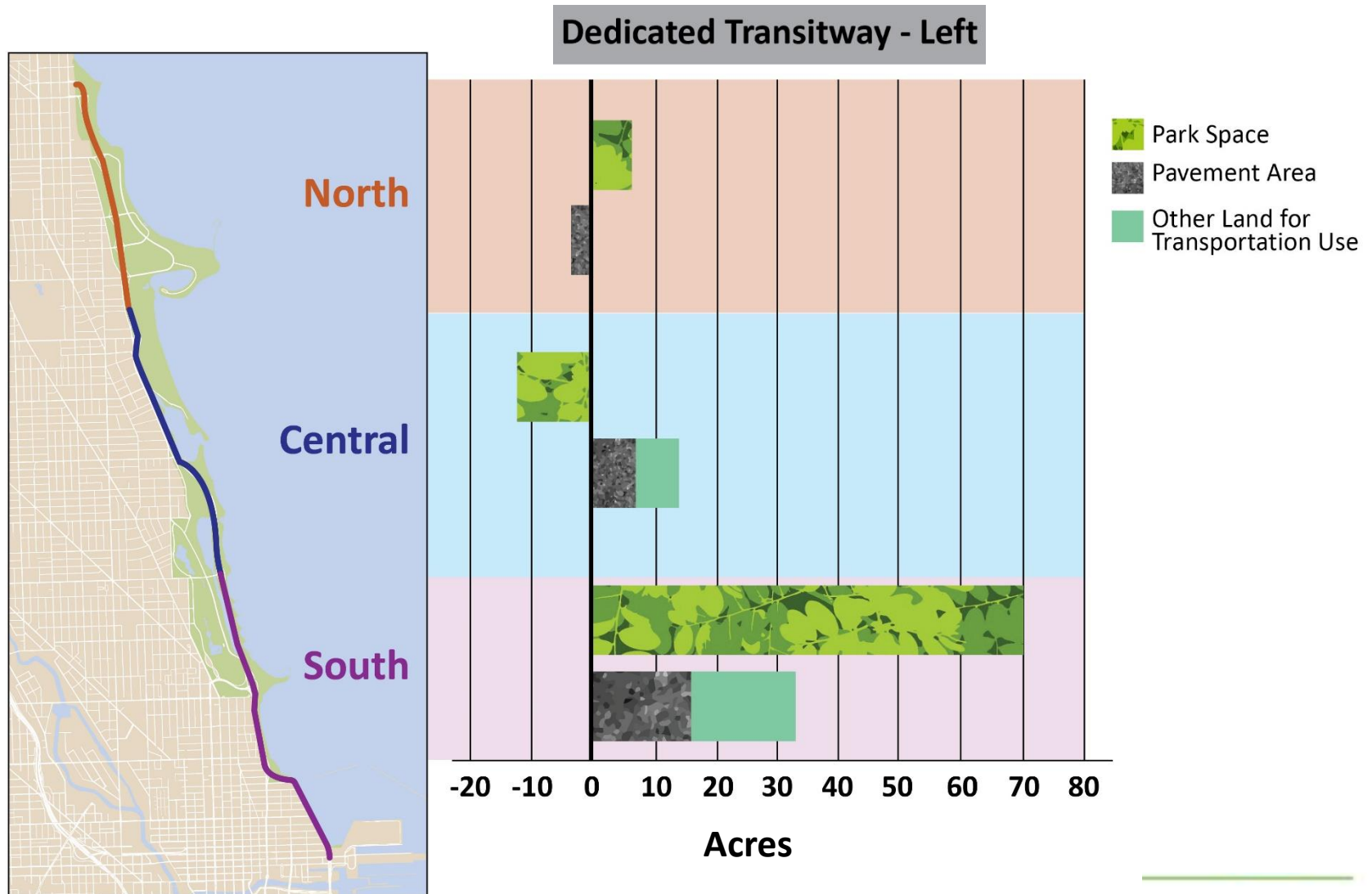
# Transportation and Park Footprint

## Net Change in Footprints (By Segment)



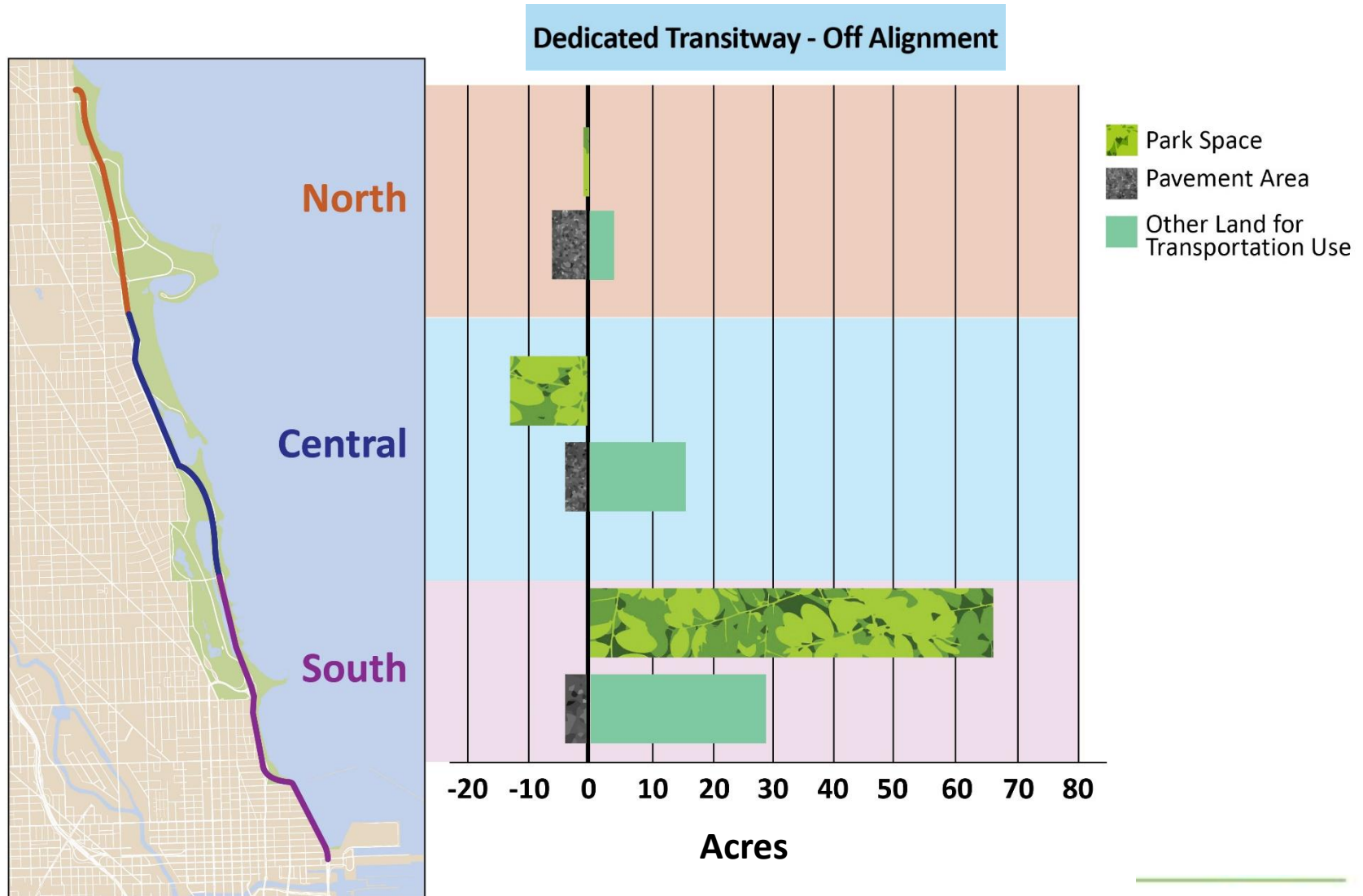
# Transportation and Park Footprint

## Net Change in Footprints (By Segment)



# Transportation and Park Footprint

## Net Change in Footprints (By Segment)



# Preliminary Estimated Project Cost

## Baseline Parameters

Estimated Top Performing CTT Alternative  
Cost

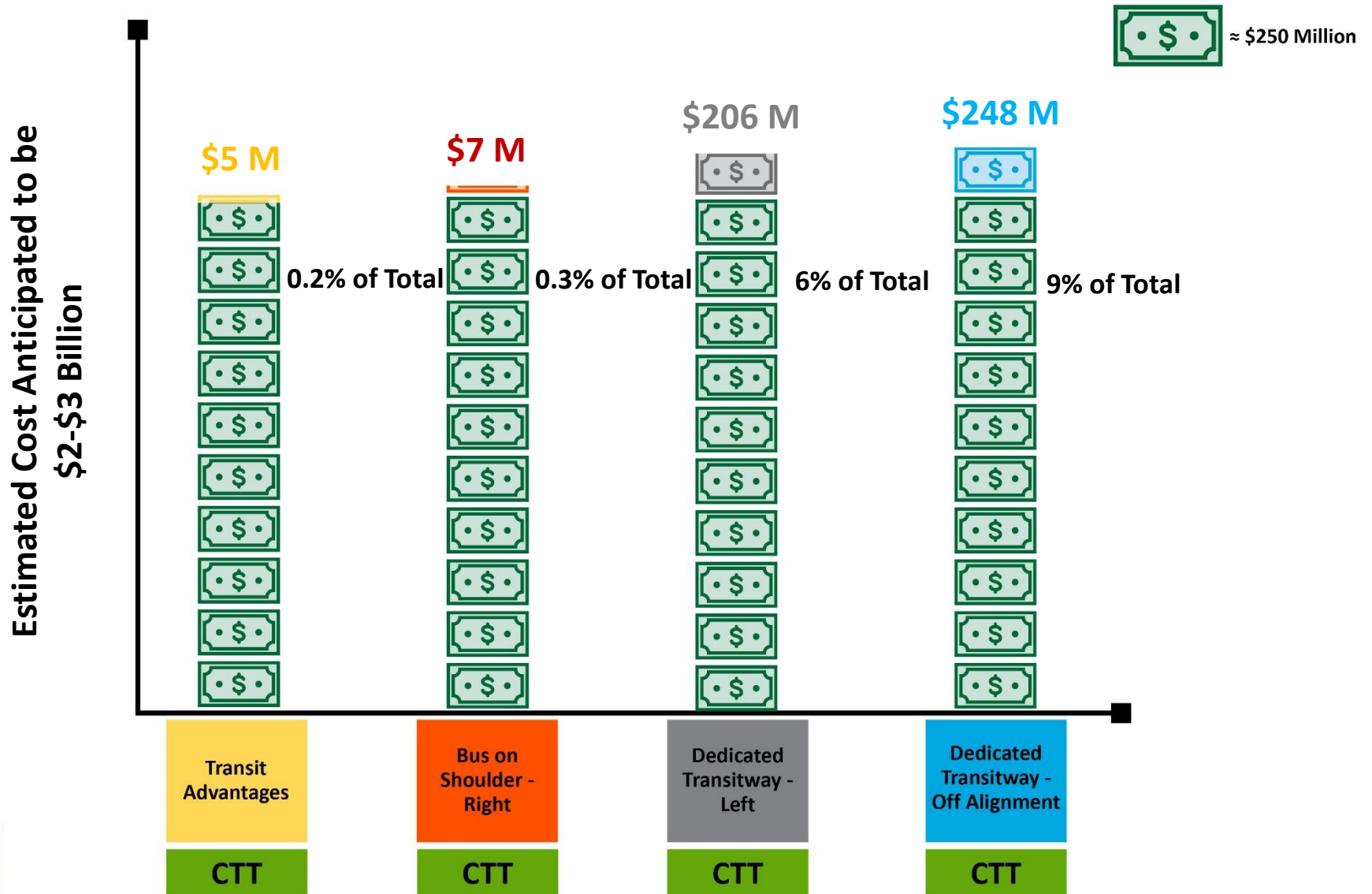


- Preliminary estimated Top Performing CTT Alternative cost is between \$2 - \$3 billion (2017 Dollars)
- Based on conceptual geometry, shoreline protection needs and Lakefront Trail improvements
- Used for relative comparison at this stage
- Further refinements/updates at next stage

Top Performing  
Context Treatment  
(CTT) Alternative

 ≈ \$250 Million

# Preliminary Estimated Project Costs



# Transitways Key Findings



## Level 2 Screening

RANGE OF ALTERNATIVES CATEGORY	RANGE OF ALTERNATIVES
Transitways	✓ Transit Advantages at Junctions
	✗ Bus on Shoulder – Right
	✓ Dedicated Transitway – Left
	✗ Dedicated Transitway – Off Alignment

Recommended to be Carried Forward

Recommended to be Dismissed

# Level 2 Screening

RANGE OF ALTERNATIVES CATEGORY	RANGE OF ALTERNATIVES	RECOMMENDED FOR DISMISSAL (LEVEL 2 SCREENING) 	RECOMMENDED TO BE CARRIED FORWARD 
No-Action		N/A	N/A
Transitways	Bus on Shoulder – Right	Bus on Shoulder – Right	
	Dedicated Transitway – Left		Dedicated Transitway – Left
	Dedicated Transitway – Off Alignment	Dedicated Transitway – Off Alignment	
Managed Lanes	High Occupancy Vehicle Lane		
	High Occupancy Toll Lane		
	Express Toll Lane		
	Bus Only Lane		
	Express Reversible Lanes		
	Toll Lanes		
Context Tailored Treatments	Corridor Modernization		Top Performing CTT with Transit Advantages
	Compressed Roadway		
	Frontage Drive		

**(FALL 2018) Task Force #10:  
Recommend 1-2 Managed Lanes  
Top Performing Alternatives**

Transit Advantages at Junctions







# Transitways Workshop

**Break: 10 min**

**Workshop: 50 minutes**

**Breakout Feedback Report**

**BREAKOUT GROUPS**  
**(color assigned groups)**



# Breakout Feedback Report





# NLSD Phase I Study Next Steps

- Review feedback & confirm potential Transitways Alternatives to be Carried Forward
- Evaluate Managed Lanes Alternatives
- Task Force Meeting #10: Fall 2018
- Public Meeting #4: Winter 2018





# North Lake Shore Drive

[www.northlakeshoredrive.org](http://www.northlakeshoredrive.org)

*Thank You*

