



# North Lake Shore Drive Task Force Meeting #10

March 9, 2020

# Welcome





# Meeting Agenda

- Introduction
- Study Overview
- Level 2 Screening Update
- Managed Lanes (ML) Alternatives Review
  - ML Overview
  - ML Alternatives Evaluation and Results
  - ML Alternatives Workshop
- Next Steps



# NLSD 2019 Review

- Community Meetings
  - Montrose-Wilson-Lawrence Avenue Corridor
  - Diversey Parkway to Irving Park Road Corridor
  - Northern Terminus Traffic Study (NTTS)
- Community Outreach
  - Fifth Third Bike the Drive
  - Chicago Public Libraries
- Continued Project Study Group coordination



# Task Force Meetings #10 and #11

- Task Force Meeting #10 (today)
  - Present Managed Lanes Alternatives evaluation
  - Managed Lanes Alternatives workshop
  - Post Meeting Comment Period through March 23, 2020 (two weeks)
- Task Force Meeting #11 (late spring 2020)
  - Review stakeholder comments, updates as applicable
  - Recommend Top Performing Managed Lanes Alternative(s)
  - Public Meeting #4 Preview



***Public Meeting #4 will be held in the summer of 2020***



# Purpose and Need

**Purpose:** To improve the NLSD multi-modal transportation facility.

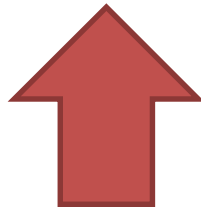
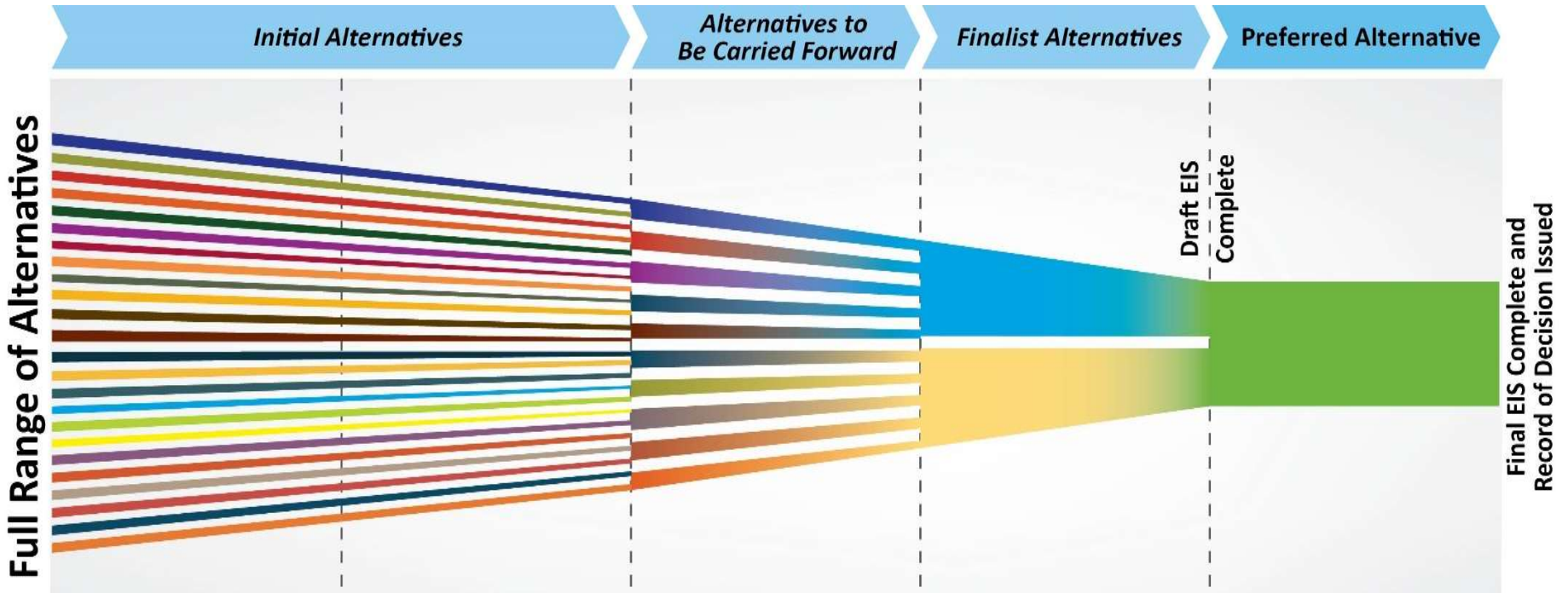
## Improvement Needs:

- Improve safety for all users
- Improve mobility for all users
- Address infrastructure deficiencies
- Improve access and circulation

*Purpose and Need Statement is basis for evaluating alternatives.*



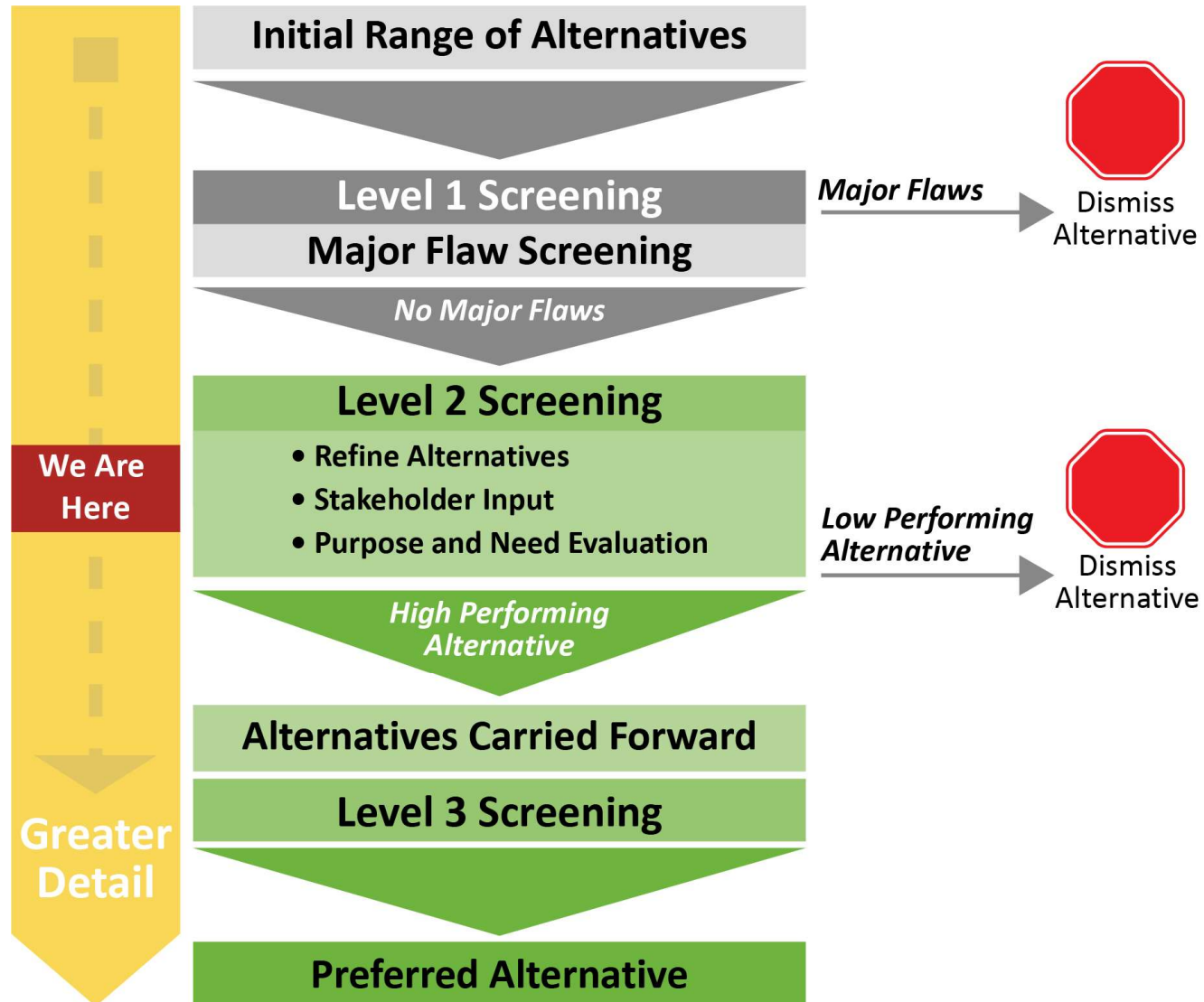
# Alternatives Development & Evaluation



**We are here**



# Alternatives Screening Process






# Level 2 Screening Update





# 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
Context Tailored Treatments	Corridor Modernization		
	Compressed Roadway		
	Frontage Drive		
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		
	Bus Only Lane		
	Express Toll Lane		
	Express Reversible Lanes		
	Toll Lanes		



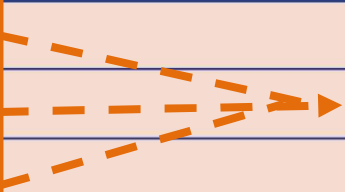


# Task Force Meeting #8 Recap

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



# Alternative to be Carried Forward

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
Context Tailored Treatments	Corridor Modernization		<b>Top Performing CTT with Transit Advantages</b>
	Compressed Roadway		
	Frontage Drive		
Transitways			
Managed Lanes	Express Toll Lane		
	Express Reversible Lanes		
	Toll Lanes		

**Task Force #8 - March 2018**  
 Recommended Context Tailored Treatments Top Performing Alternative with Transit Advantages

**Alternative 1:**  
 Corridor Modernization Concept

**Alternative 2:**  
 Compressed Roadway Concept

**Alternative 3:**  
 Frontage Drive Concept





# Level 2 Screening

## Context Tailored Treatments

Top Performing Context Tailored Treatments with Transit Advantages\*





 *Alternative to be Carried Forward*



\*NLSD between Grand and Montrose Avenues is depicted.



# Level 2 Screening

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Managed Lanes	High Occupancy Vehicle Lane		
	High Occupancy Toll Lane		
	Bus Only Lane		
	Express Toll Lane		
	Express Reversible Lanes		
	Toll Lanes		






# Task Force Meeting #9 Recap

- Meeting held July 10, 2018
- 53 Attendees
- Context Tailored Treatments Alternatives Update
- Transitways Alternatives Workshop



# Alternative to be Carried Forward

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
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	Dedicated Transitway – Off Alignment	Dedicated Transitway – Off Alignment	
Managed Lanes	High Occupancy Vehicle Lane		
	High Occupancy T		
	Bus Only La		
	Express Toll L		
	Express Reversible Lanes		
	Toll Lanes		

**Task Force #9 – July 2018**  
**Recommended Transitways Top Performing Alternative**





# Level 2 Screening

## Transitways

Dedicated Transitway – Left\*





 *Alternative to be Carried Forward*



\*NLSD between Grand and Montrose Avenues is depicted.



# Level 2 Screening

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	Frontage Drive		
Transitways	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	
Managed Lanes	High Occupancy Vehicle Lane		<p><b>Task Force #10 – TODAY</b> Review Managed Lanes Level 2 Screening</p> <p><b>Task Force Meeting #11 – May 2020</b> Recommend Top Performing Managed Lane Alternative(s)</p>
	High Occupancy Toll Lane		
	Bus Only Lane		
	Express Toll Lane		
	Express Reversible Lanes		
	Toll Lanes		





# Managed Lanes Overview



# Managed Lanes Definition

## What are Managed Lanes?

Lanes that use one or more operational strategies to manage traffic demand and operate more efficiently than general purpose lanes.



# Managed Lanes Benefits

## Benefits

- Improved transit service
- Improved mobility
- Trip time reliability
- Increased efficiency of existing corridor
- Potential operational cost recovery





# Managed Lanes Alternatives Review



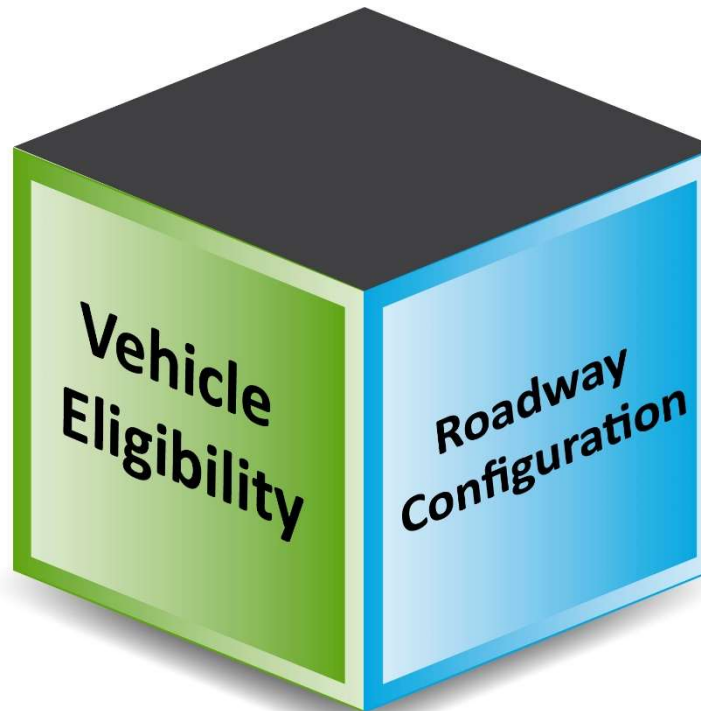
# Managed Lanes

*Presented at Task Force Meeting #7*

## Managed Lanes

Options that **convert one or more existing general purpose lanes** to a managed lane to provide high mobility for buses and some autos

Eligibility standards  
which restrict the use of  
lanes to specific users

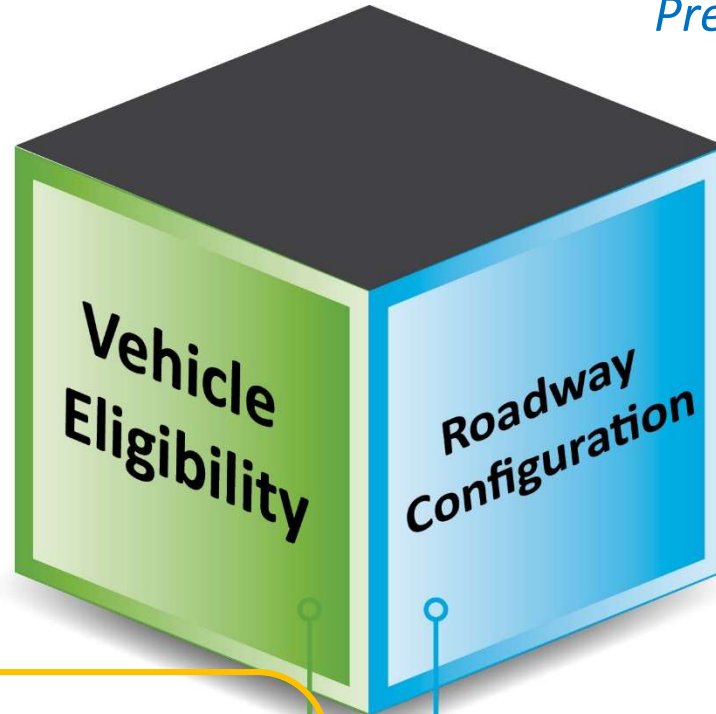


Physical configuration  
of the roadway



# Vehicle Eligibility

*Presented at Task Force Meeting #7*



- High Occupancy Vehicle Lane
- High Occupancy Toll Lane
- Bus Only Lane
- Express Toll Lane
- Express Reversible Lanes
- Toll Lanes

- 3+1 Bus Only Lane
- 3+1 Managed Lane
- 2+2 Managed Lanes
- 3+2 Reversible Managed Lanes
- 4+1 Contraflow Bus Only Lane



# Vehicle Eligibility

RANGE OF ALTERNATIVES CATEGORY	VEHICLE ELIGIBILITY
<b>Managed Lanes</b>	High Occupancy Vehicle Lane
	High Occupancy Toll Lane
	Bus Only Lane
	Express Toll Lane
	Express Reversible Lanes
	Toll Lanes



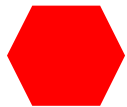


# Vehicle Eligibility

## RANGE OF ALTERNATIVES CATEGORY

## VEHICLE ELIGIBILITY

To ensure free flow of transit and autos in the managed lanes, it is recommended to dismiss HOV and HOT.



*These options are dismissed from further consideration*

High Occupancy Vehicle Lane

High Occupancy Toll Lane

Bus Only Lane

Express Toll Lane

Express Reversible Lanes

Toll Lanes

# Vehicle Eligibility

RANGE OF ALTERNATIVES CATEGORY	VEHICLE ELIGIBILITY
<p>These options fit within the Managed Lanes alternatives currently being evaluated.</p> <p>Tolling as a funding/financing strategy will be considered in Level 3 Screening.</p>	High Occupancy Vehicle Lane
	High Occupancy Toll Lane
	Bus Only Lane
	Express Toll Lane
	Express Reversible Lanes
	Toll Lanes

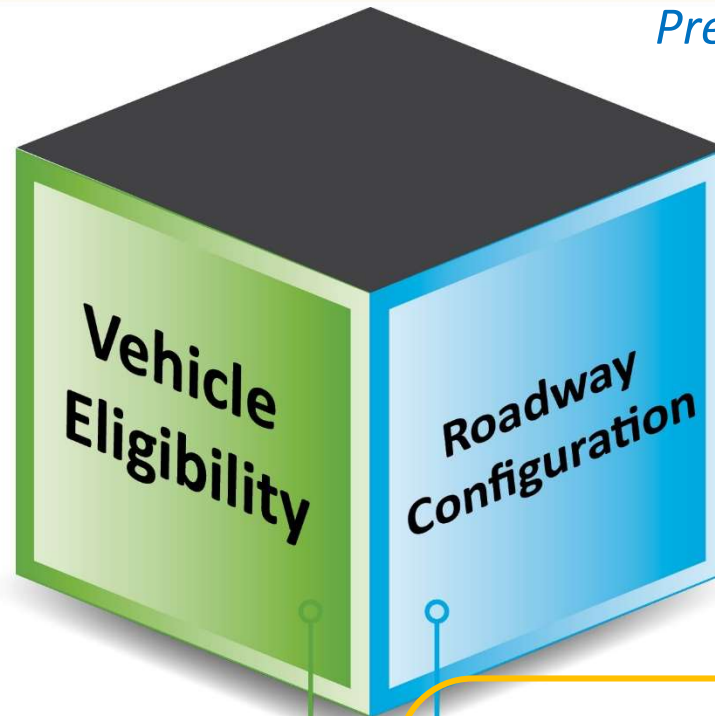
These options fit within the Managed Lanes alternatives currently being evaluated.

Tolling as a funding/financing strategy will be considered in Level 3 Screening.



# Roadway Configuration

*Presented at Task Force Meeting #7*





- High Occupancy Vehicle Lane
- High Occupancy Toll Lane
- **Bus Only Lane**
- **Express Toll Lane**
- **Express Reversible Lanes**
- **Toll Lanes (Level 3 Screening)**

- **3+1 Bus Only Lane**
- **3+1 Managed Lane**
- **2+2 Managed Lanes**
- **3+2 Reversible Managed Lanes**
- **4+1 Contraflow Bus Only Lane**



# Managed Lanes Alternatives

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	3+1 Managed Lane		
	2+2 Managed Lanes		
	3+2 Reversible Managed Lanes		
	4+1 Contraflow Bus Only Lane		





# Managed Lanes Alternatives

## Existing Typical Section Between Junctions



# Managed Lanes Alternatives

## 3+1 Bus Only Lane\*



\*Converts one general purpose lane in each direction to a *Bus-Only Managed Lane*.

# Managed Lanes Alternatives

## 3+1 Managed Lane\*



\*Converts one general purpose lane in each direction to a **Shared *Bus/Auto* Managed Lane**.

# Managed Lanes Alternatives

## 2+2 Managed Lanes\*



\*Converts two general purpose lanes in each direction to **Shared Bus/Auto Managed Lanes**.





# Managed Lanes Alternatives

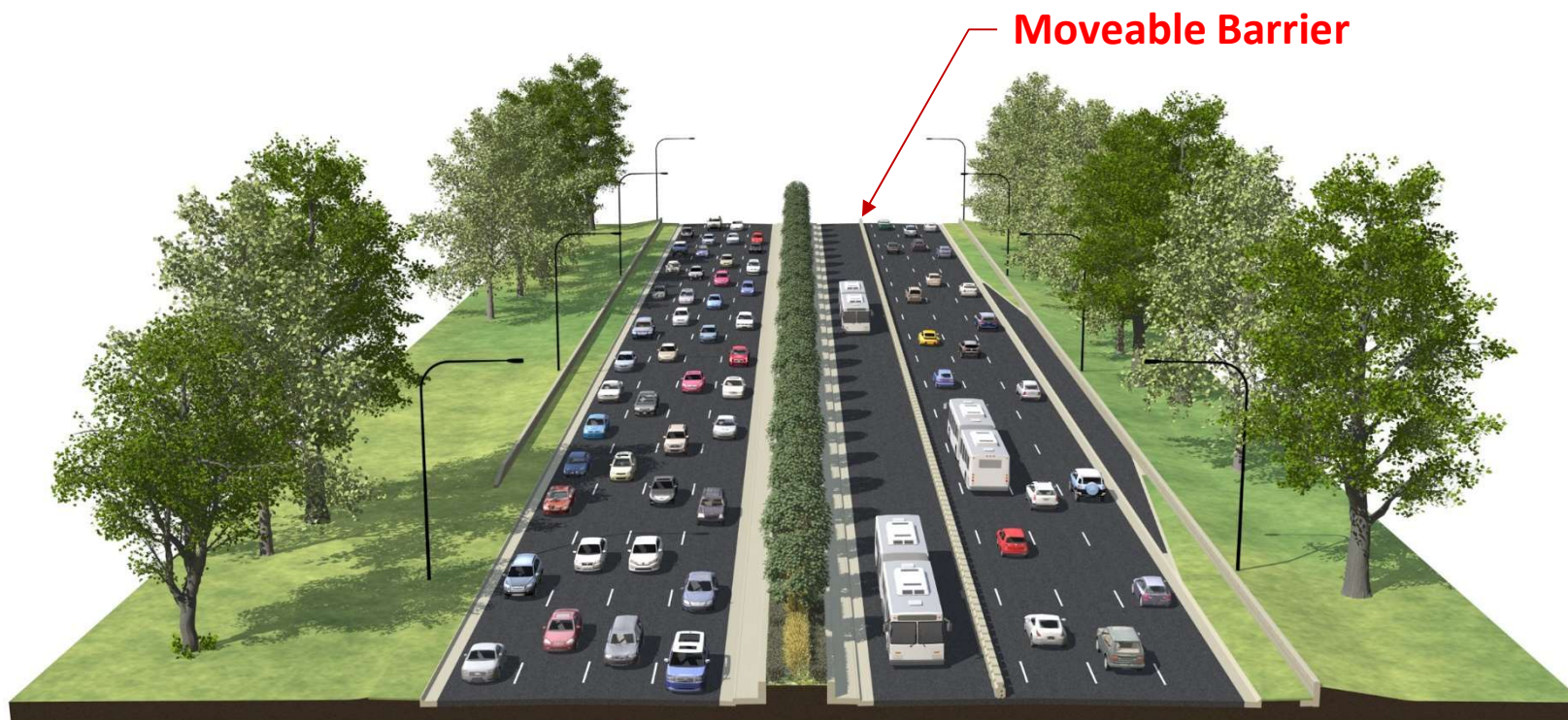
## 3+2 Reversible Managed Lanes\*



\*Replaces one general purpose lane in each direction with two **Reversible Managed Lanes**.

# Managed Lanes Alternatives

## 4+1 Contraflow Bus Only Lane\*

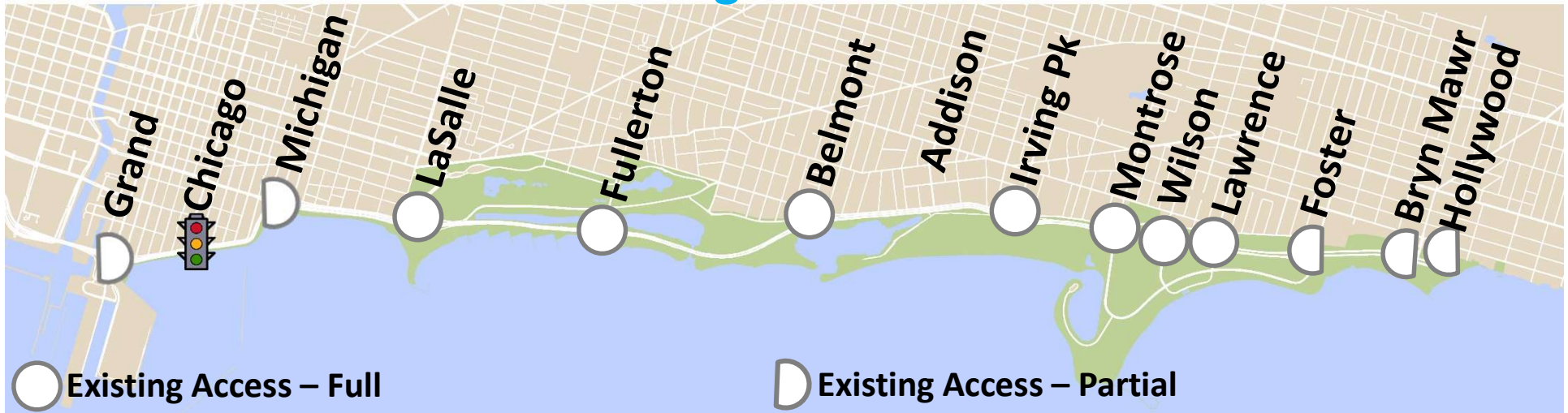


\*Provides **Southbound Contraflow Bus-only Lane** via moveable concrete barrier for A.M. Peak Period. Buses would operate in General Purpose Lanes with CTT Transit Advantages in P.M. Peak Period.



# General Purpose Lanes Access

## Existing Conditions



## Proposed Access



# 3+1 Bus Only Lane Access

3+1 Bus Only Lane

## Proposed General Purpose Lane Access



## Proposed Managed Lanes Access





# 3+1 ML, 2+2 ML and 3+2 RML Access

3+1 Managed Lane

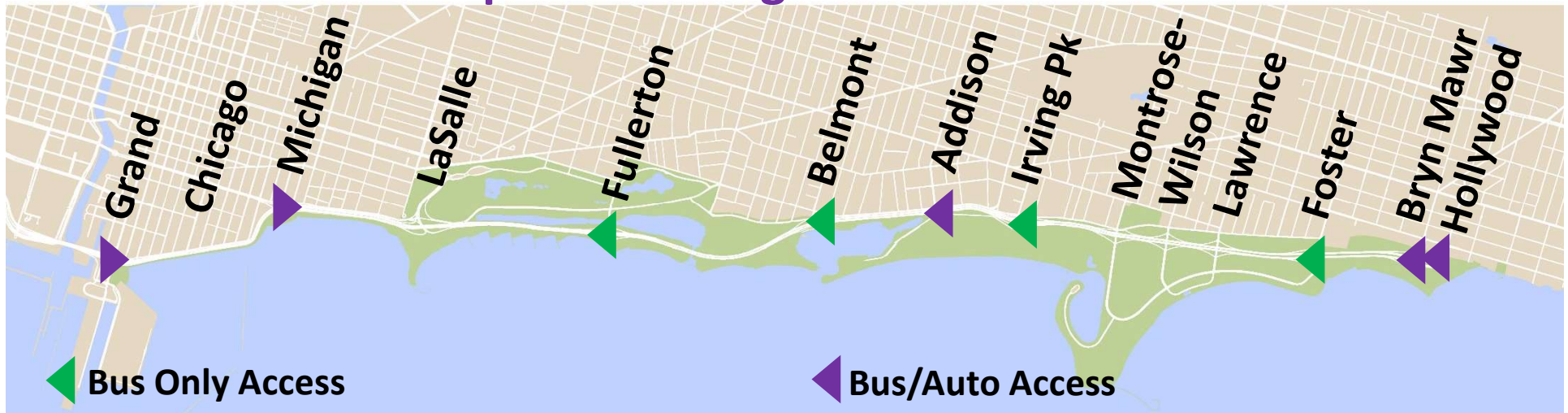
2+2 Managed Lanes

3+2 Reversible Managed Lanes

## Proposed General Purpose Lane Access



## Proposed Managed Lanes Access



# 4+1 Contraflow Bus Only Lane Access

4+1 Contraflow Bus Only Lane

## Proposed General Purpose Lane Access



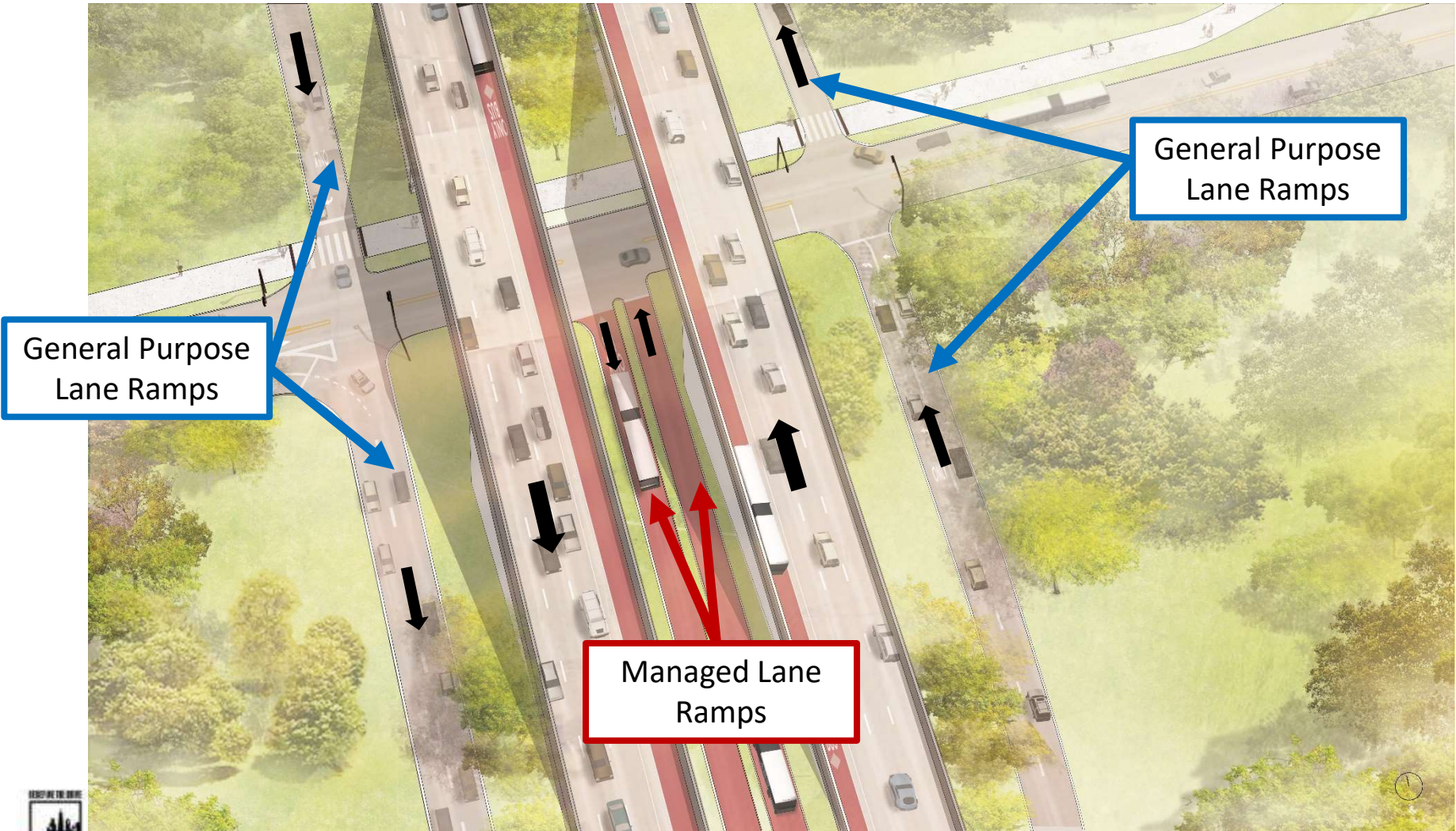
## Proposed Managed Lanes Access

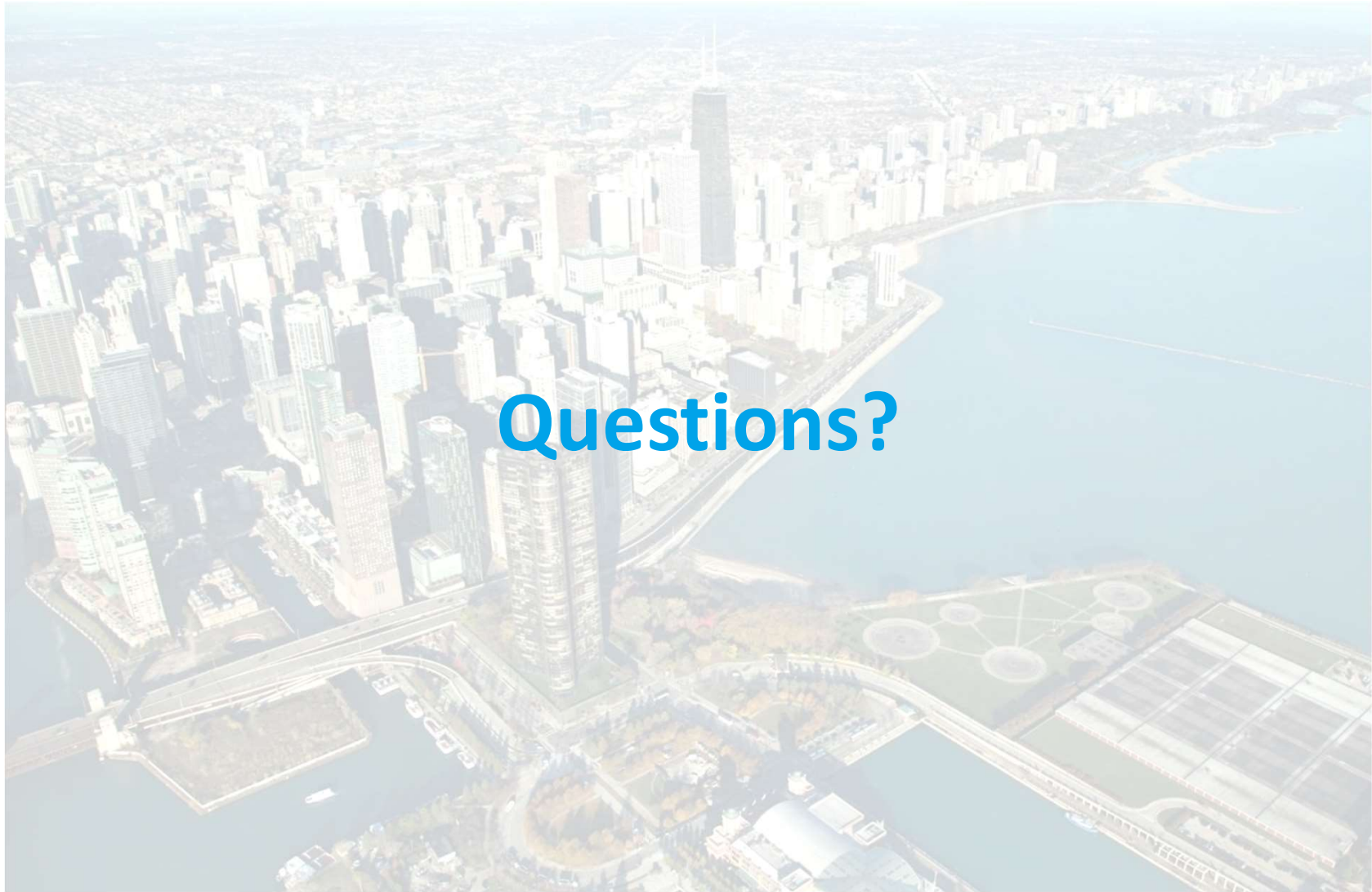




# Managed Lanes Access

*Example Junction: 3+1 Bus Only Lane*









# Managed Lanes Alternatives Evaluation & Results



# Managed Lanes Evaluation

## Managed Lane Evaluation Tools

### CMAP Travel Demand Model

- “Macro” performance

### VISSIM Model

- “Micro” performance
- Extensive calibration efforts
- Results based upon average of 20 model runs for both “average” and “poor” conditions

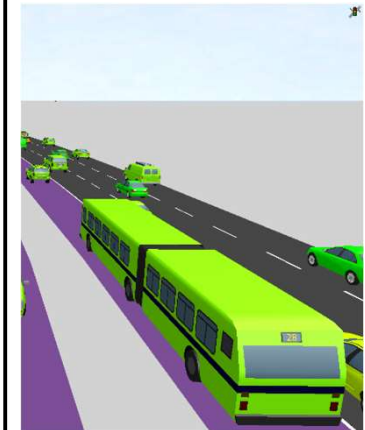
### Average and Poor Conditions

- Based upon historical NLSD data
- Average conditions - good weather, no speed reduction (70% of the time)
- Poor conditions –bad weather, average speed reduced by 12% (30% of the time)

Travel Demand Modeling Study Area



VISSIM Model Screen Capture



## Managed Lanes Evaluation Methodology

1. Major Flaw Review
2. Ratio scoring, comparison to No Action Alternative
3. Select highest performer(s)

# Managed Lanes Evaluation – Major Flaw Review

## Major flaw review

- Unique project setting, early environmental considerations
- Goal: identify and dismiss alternatives with distinguishing or relatively higher impacts

***Most constrained area is between Irving Park Road and Montrose Avenue***



# Managed Lanes Evaluation – Major Flaw Review

## 3+2 Reversible Managed Lanes Alternative (3+2 RML)

The 3+2 RML Alternative is the widest of all ML alternatives

- Two barrier medians are required



**Typical 3+2 RML Cross Section**

The 3+2 RML Alternative footprint was reduced as much as possible

- Landscaped median eliminated

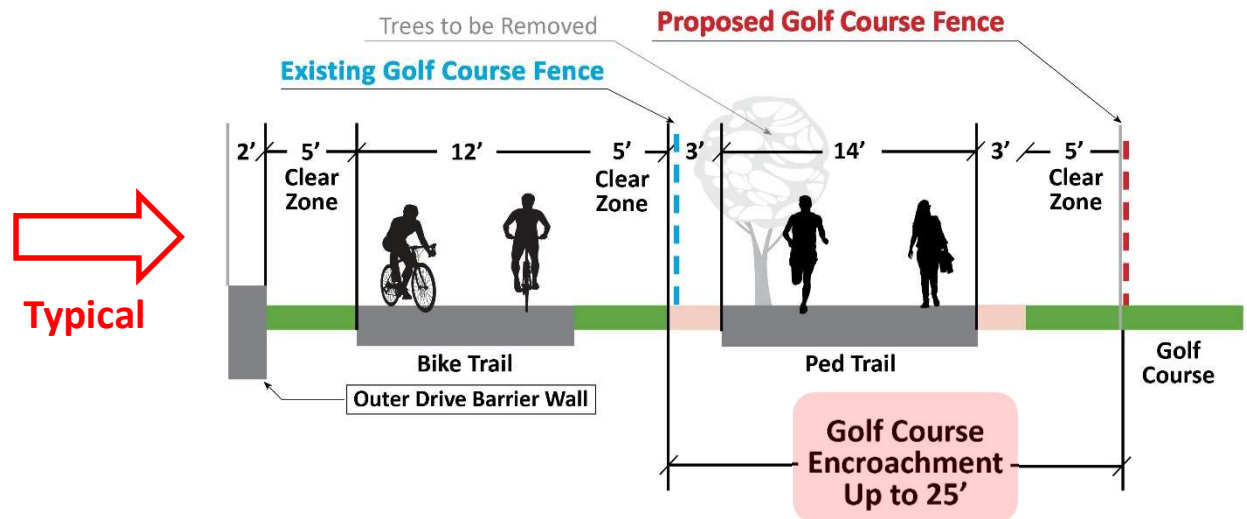


**Minimal 3+2 RML Cross Section**

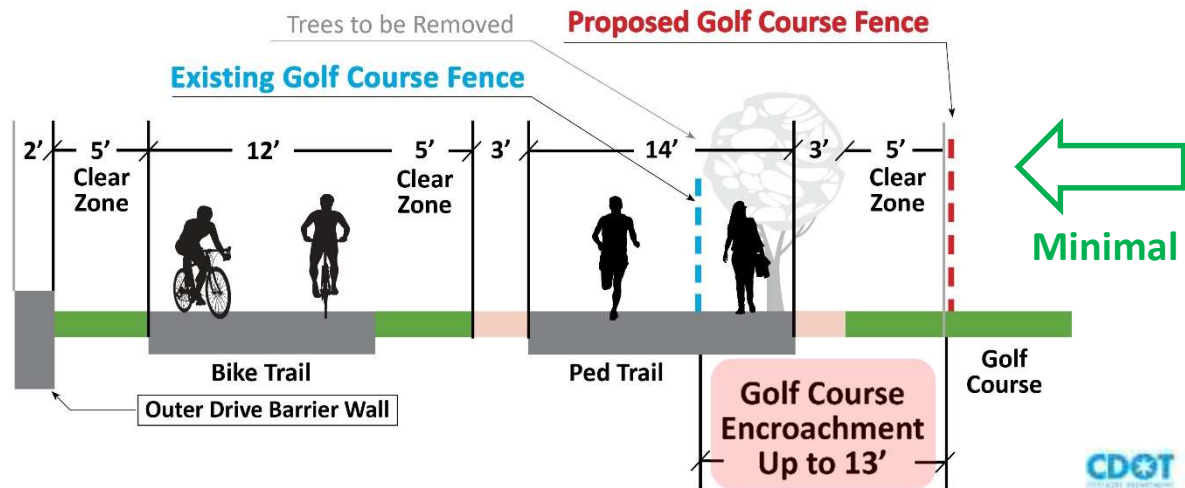
# Managed Lanes Evaluation – Major Flaw Review

- The typical 3+2 RML cross section would **encroach up to 25 feet** into the Golf Course
- Even with minimization techniques, the 3+2 RML cross section would encroach **up to 13 feet** into the Golf Course
- **No other NLSD Alternative encroaches into the Golf Course**
- **Other alternatives avoid this impact while addressing the Purpose and Need**

## Encroachment with Typical Cross Section

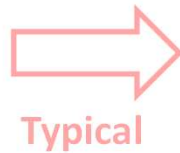


## Encroachment with Minimal Cross Section

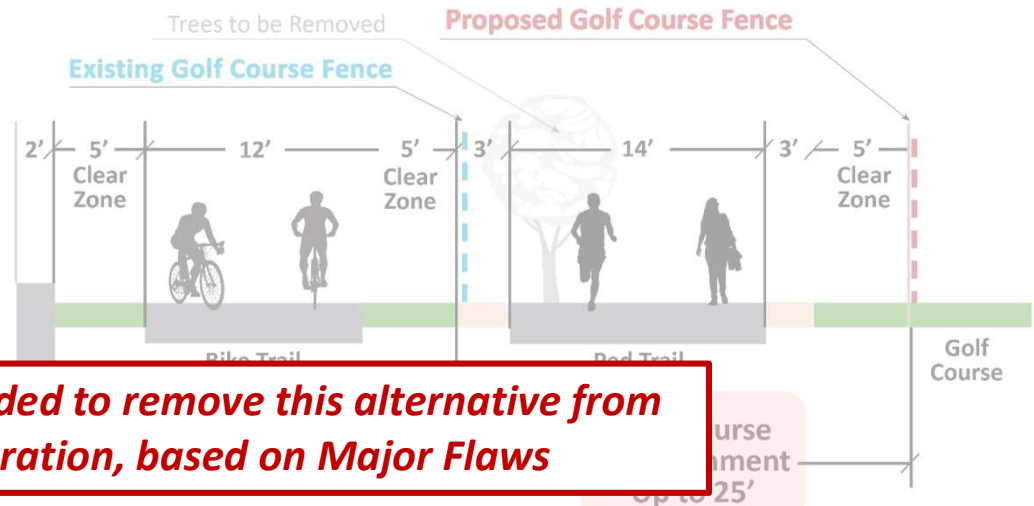


# Managed Lanes Evaluation – Major Flaw Review

- The typical 3+2 RML cross section would encroach up to 25 feet into the Golf Course
- Even with minimization techniques, the 3+2 RML cross section would encroach up to 25 feet into the Golf Course



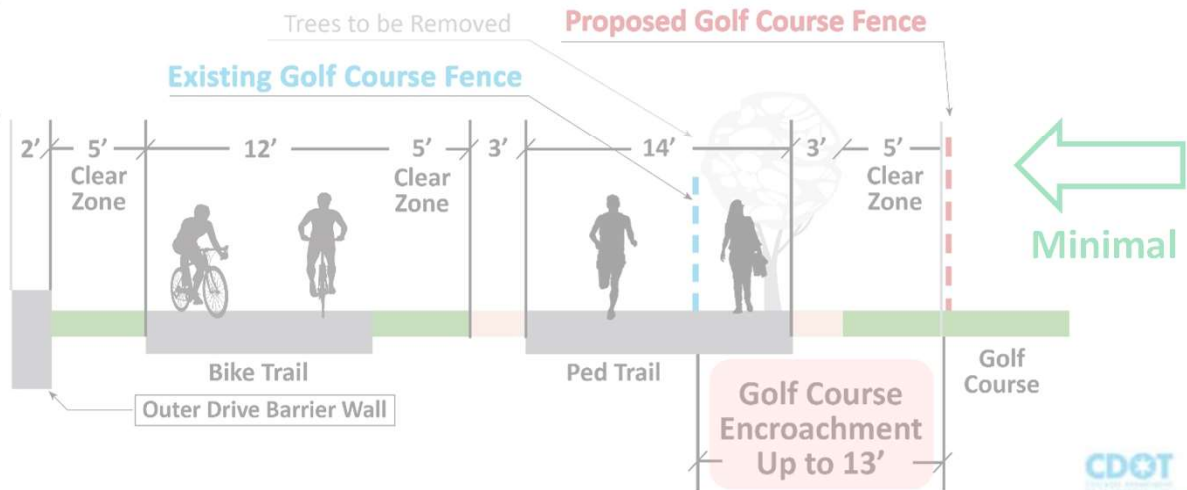
## Encroachment with Typical Cross Section





***It is recommended to remove this alternative from further consideration, based on Major Flaws***

- No other NLSD Alternative encroaches into the Golf Course
- Other alternatives avoid this impact while addressing the Purpose and Need

## Encroachment with Minimal Cross Section



# Managed Lanes Alternatives

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	3+1 Managed Lane		
	2+2 Managed Lanes		
	3+2 Reversible Managed Lanes	3+2 Reversible Managed Lanes	
	4+1 Contraflow Bus Only Lane		



# Managed Lanes Evaluation Criteria

## 1. Transit Mobility (bus travel times)

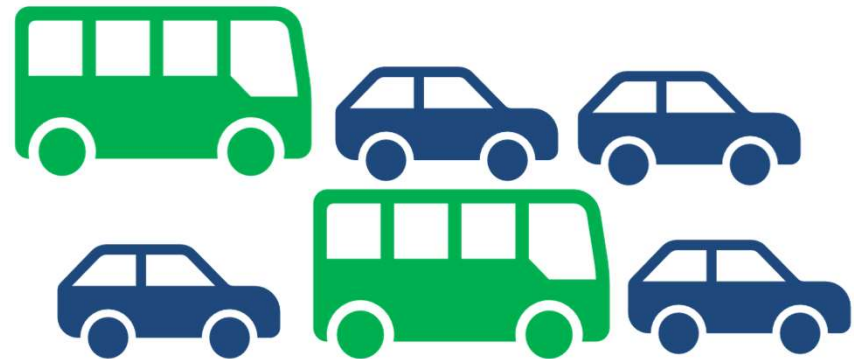
- A.M. and P.M. peaks
- Average and poor conditions
- Lower travel times favored

## 2. Transit Reliability

- A.M. and P.M. peaks
- Travel time range between average and poor conditions
- Smallest range favored

## 3. Total Person Throughput

- Total auto and transit riders in NLSD corridor
- A.M. and P.M. peaks
- Greatest throughput favored





# Managed Lanes Evaluation Criteria

## 4. Vehicular Mobility

- A.M. and P.M. peaks
- Average and poor conditions
- Lower travel times favored



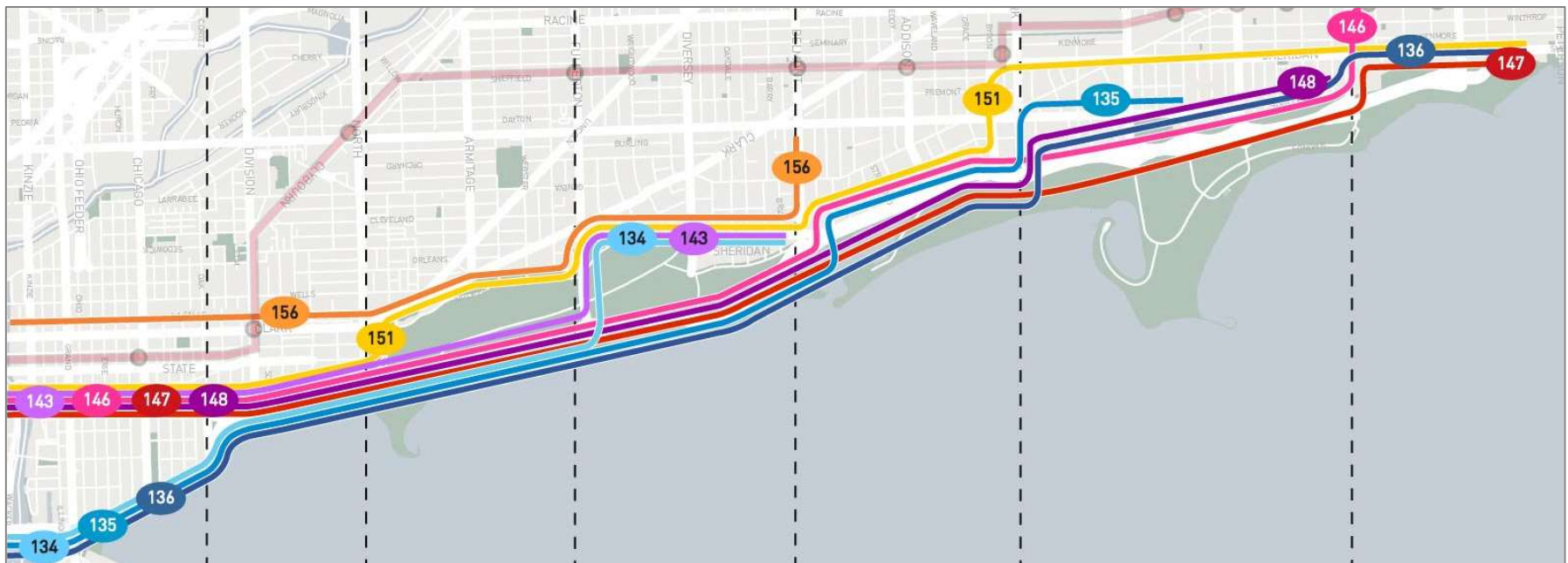
## 5. Daily Traffic Volume Change

- Converting GP Lanes to Managed Lanes will change traffic volumes on the Outer Drive
- There may be traffic attracted or diverted
- Relative least amount of **traffic diversion or attraction** favored

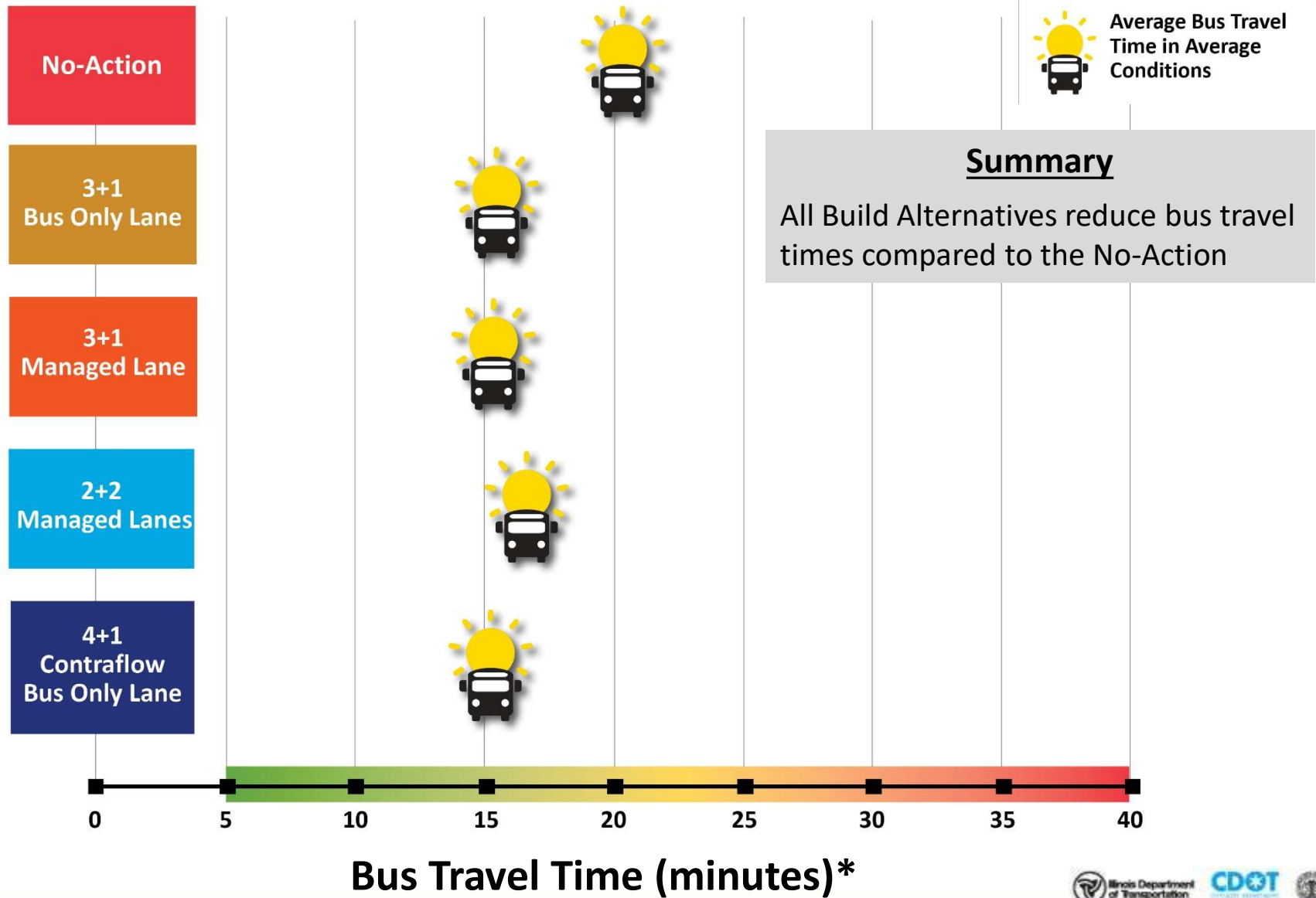


# Transit Performance Analysis

- Includes all 7 CTA express bus routes on the Inner and Outer Drives, between Grand Avenue and Foster Avenue
- Travel times are a combined average of all routes

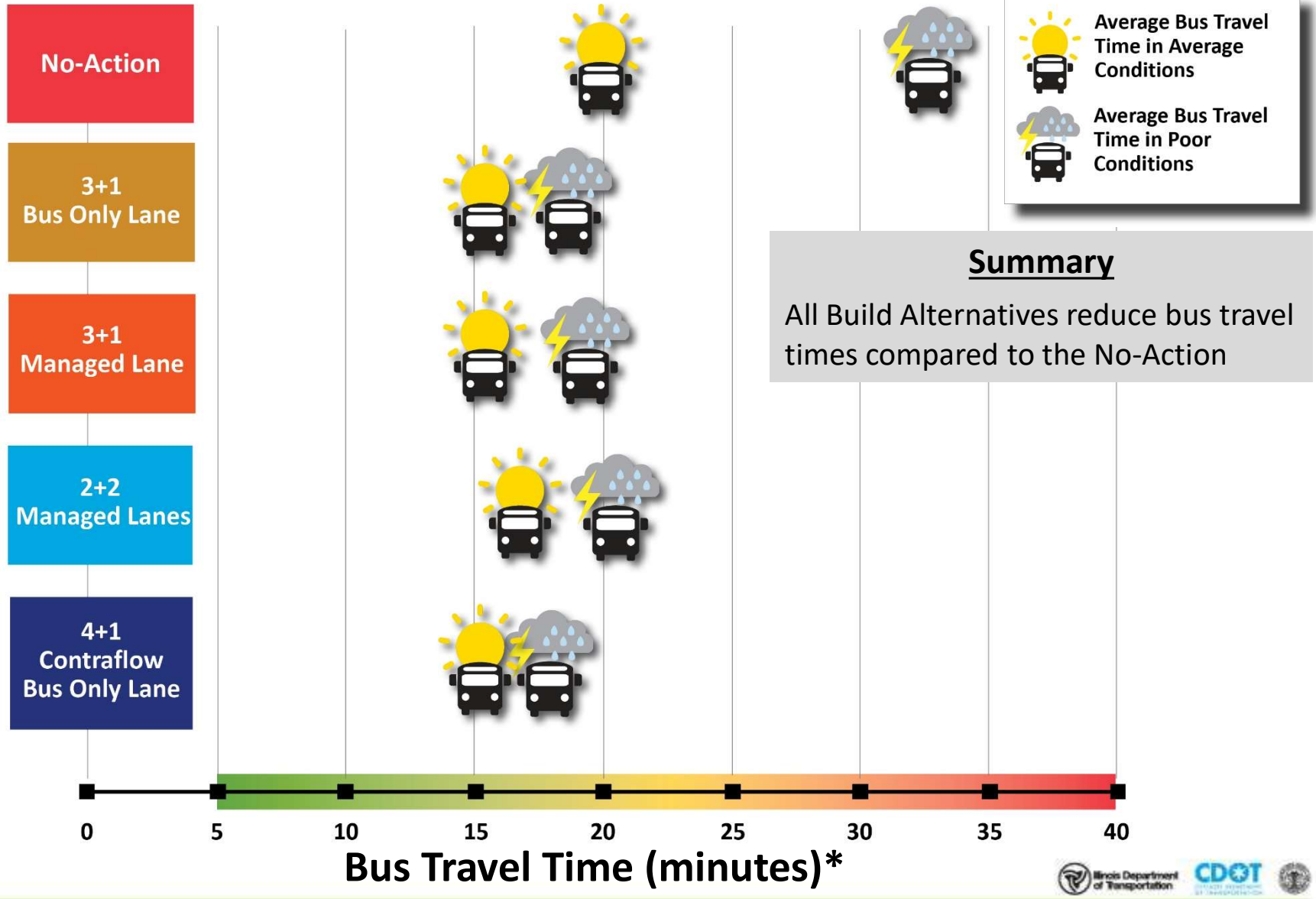


# Transit Mobility – Average Conditions



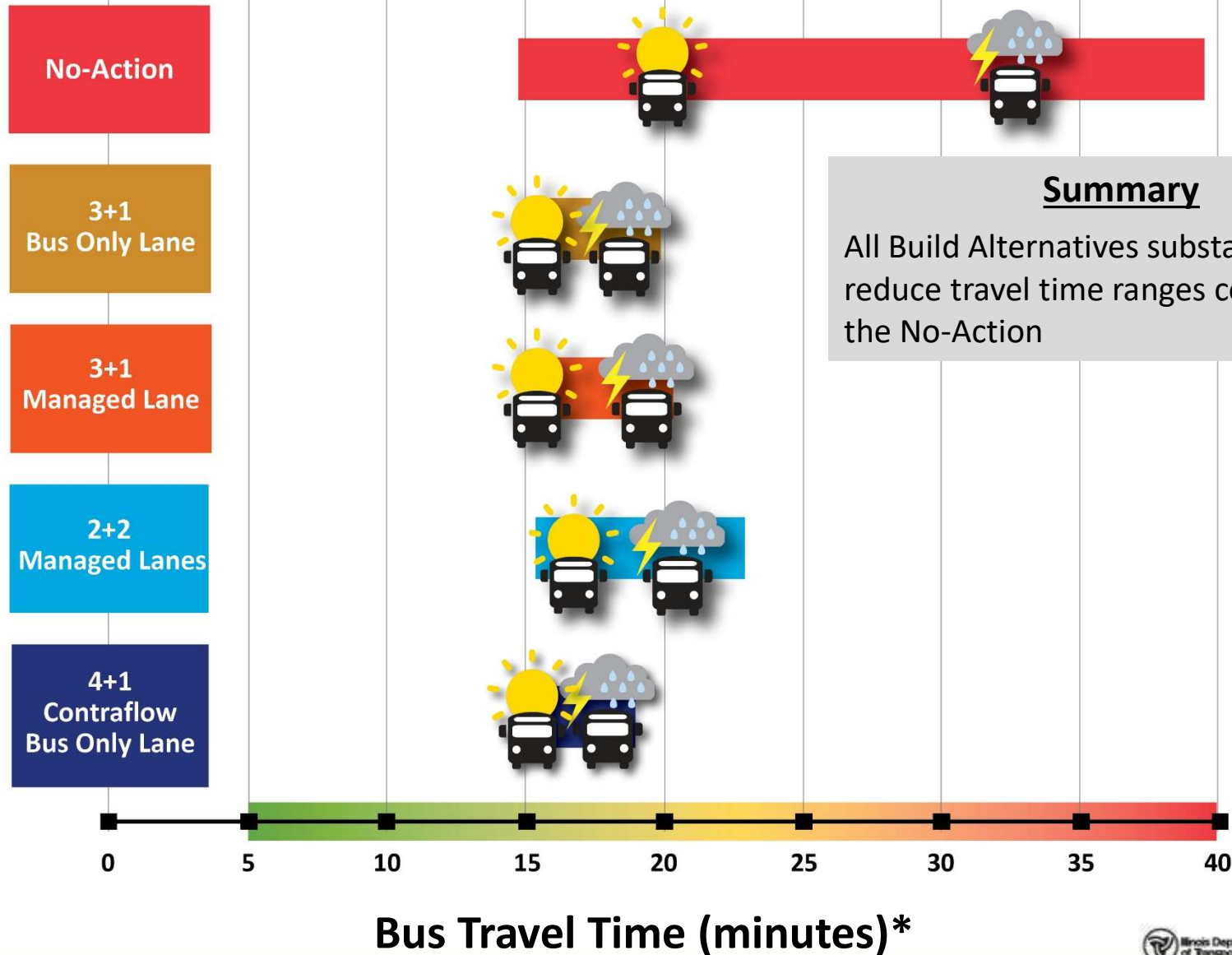
\*AM peak hour in southbound direction; average of all routes

# Transit Mobility – Poor Conditions



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

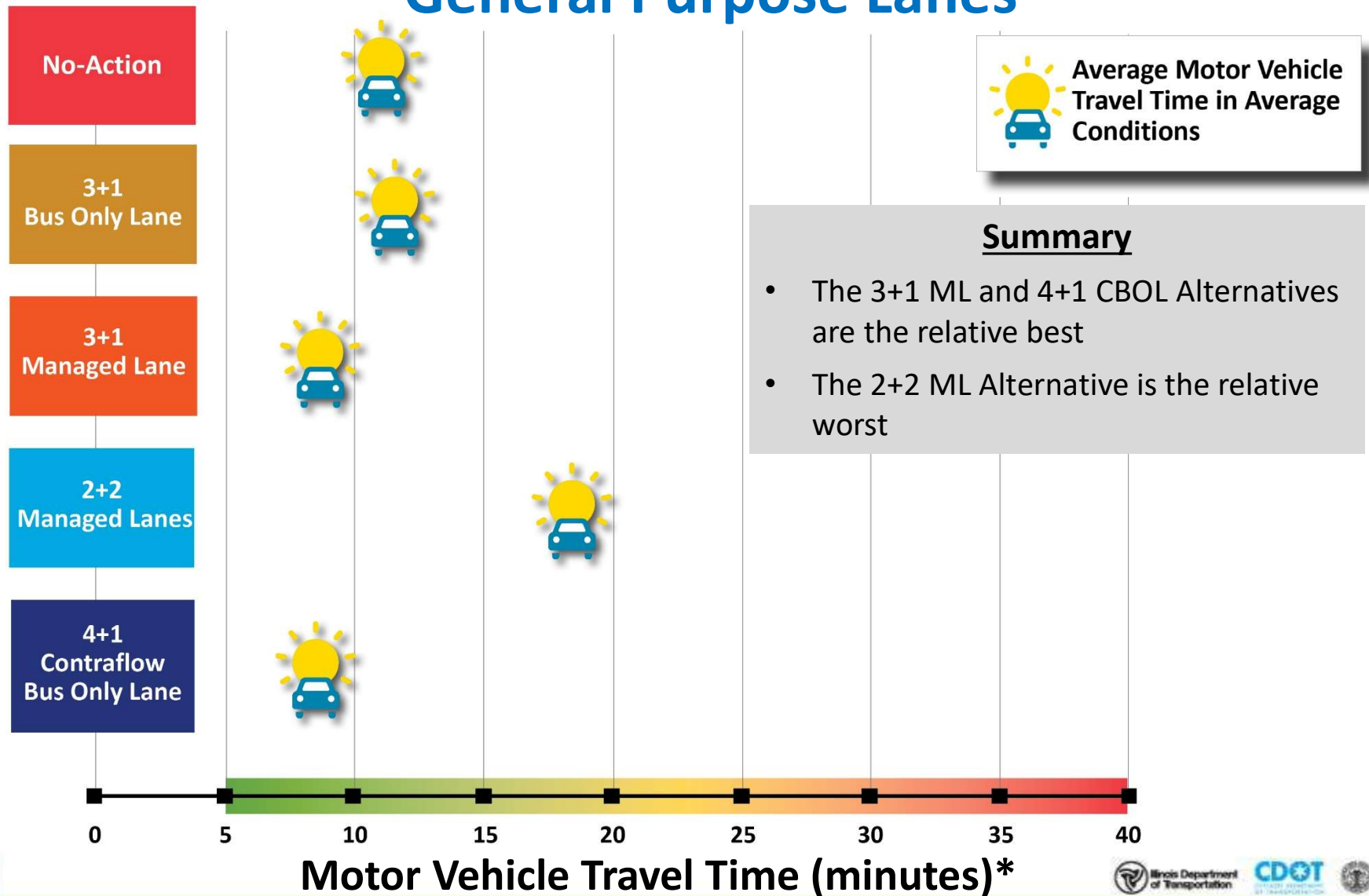
# Transit Reliability – All Conditions



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

# Vehicular Mobility – Average Conditions

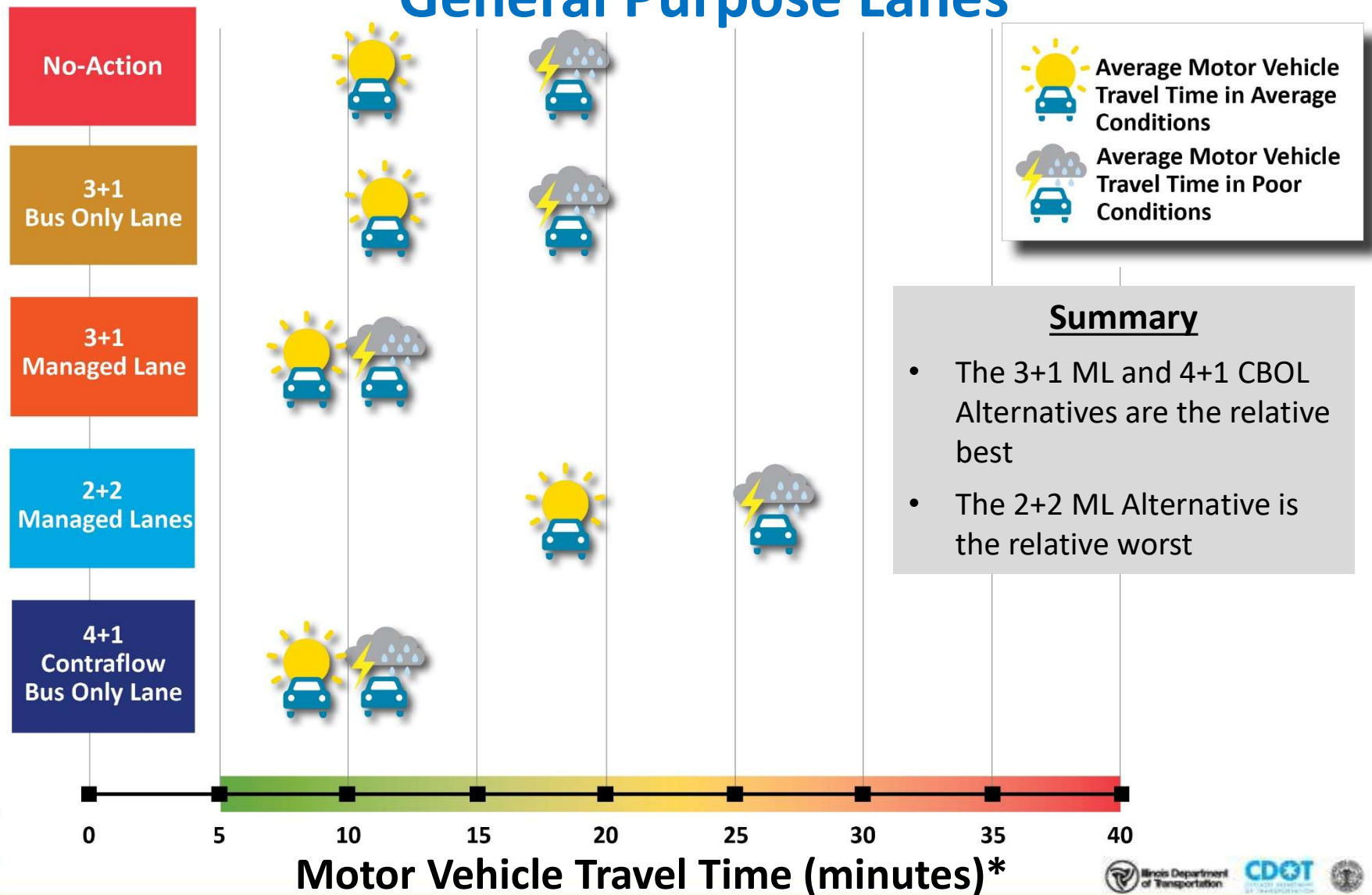
## General Purpose Lanes



\*AM peak hour in southbound direction

# Vehicular Mobility – Poor Conditions

## General Purpose Lanes



\*AM peak hour in southbound direction

# Vehicular Mobility – Average Conditions

## Managed Lanes


No-Action

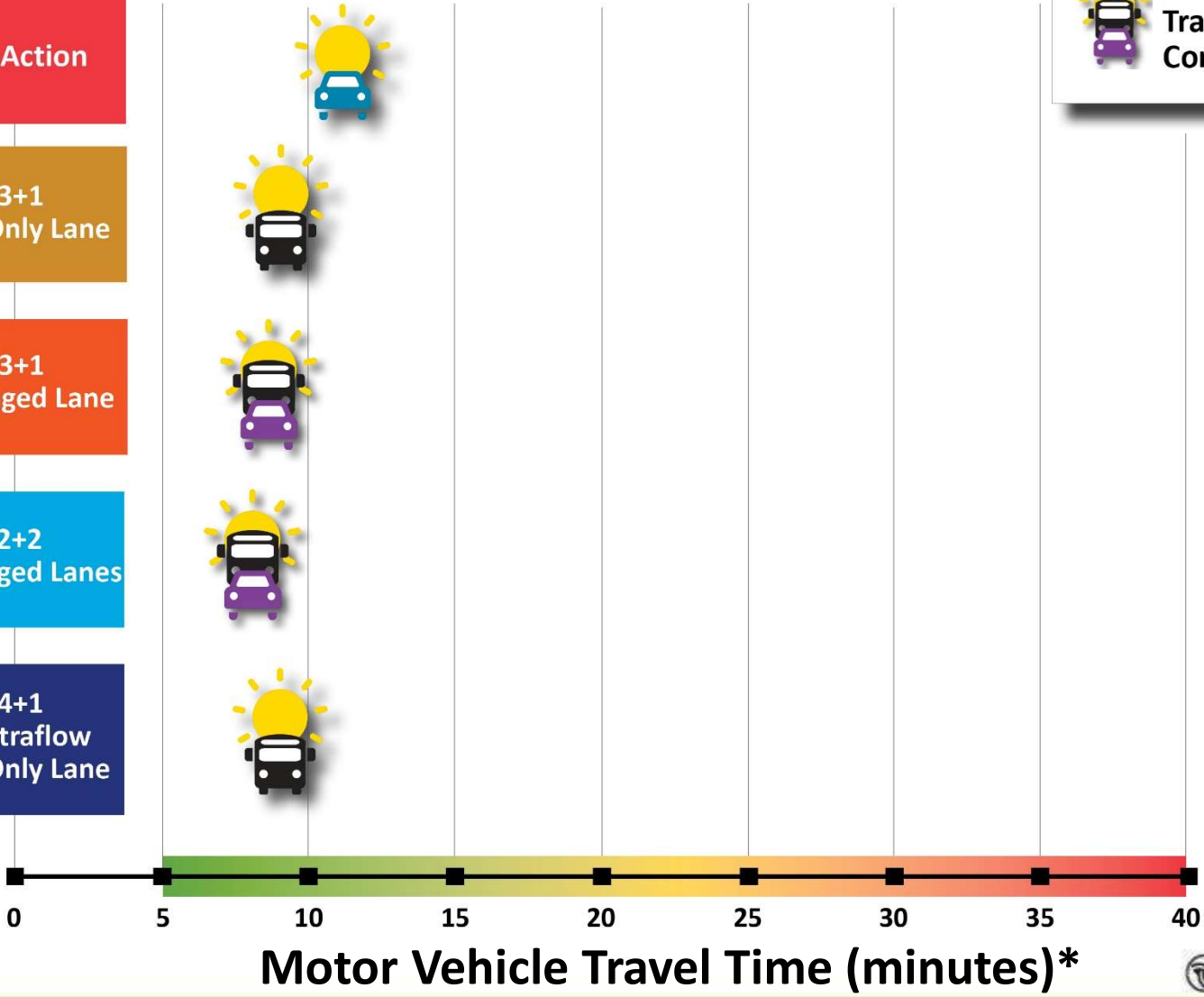
3+1  
Bus Only Lane

3+1  
Managed Lane

2+2  
Managed Lanes

4+1  
Contraflow  
Bus Only Lane

 Average Motor Vehicle  
Travel Time in Average  
Conditions

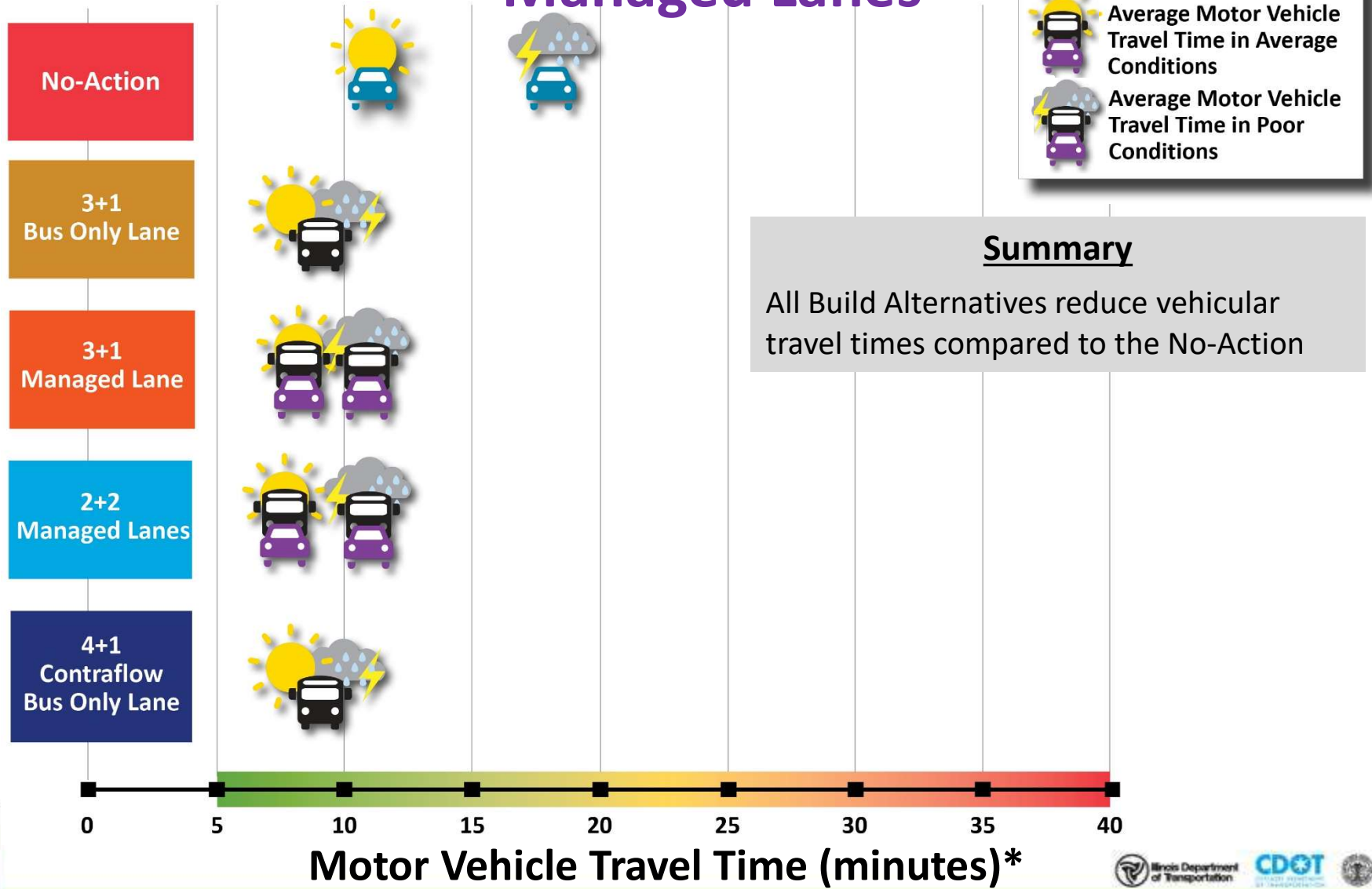


\*AM peak hour in southbound direction



# Vehicular Mobility – Poor Conditions

## Managed Lanes

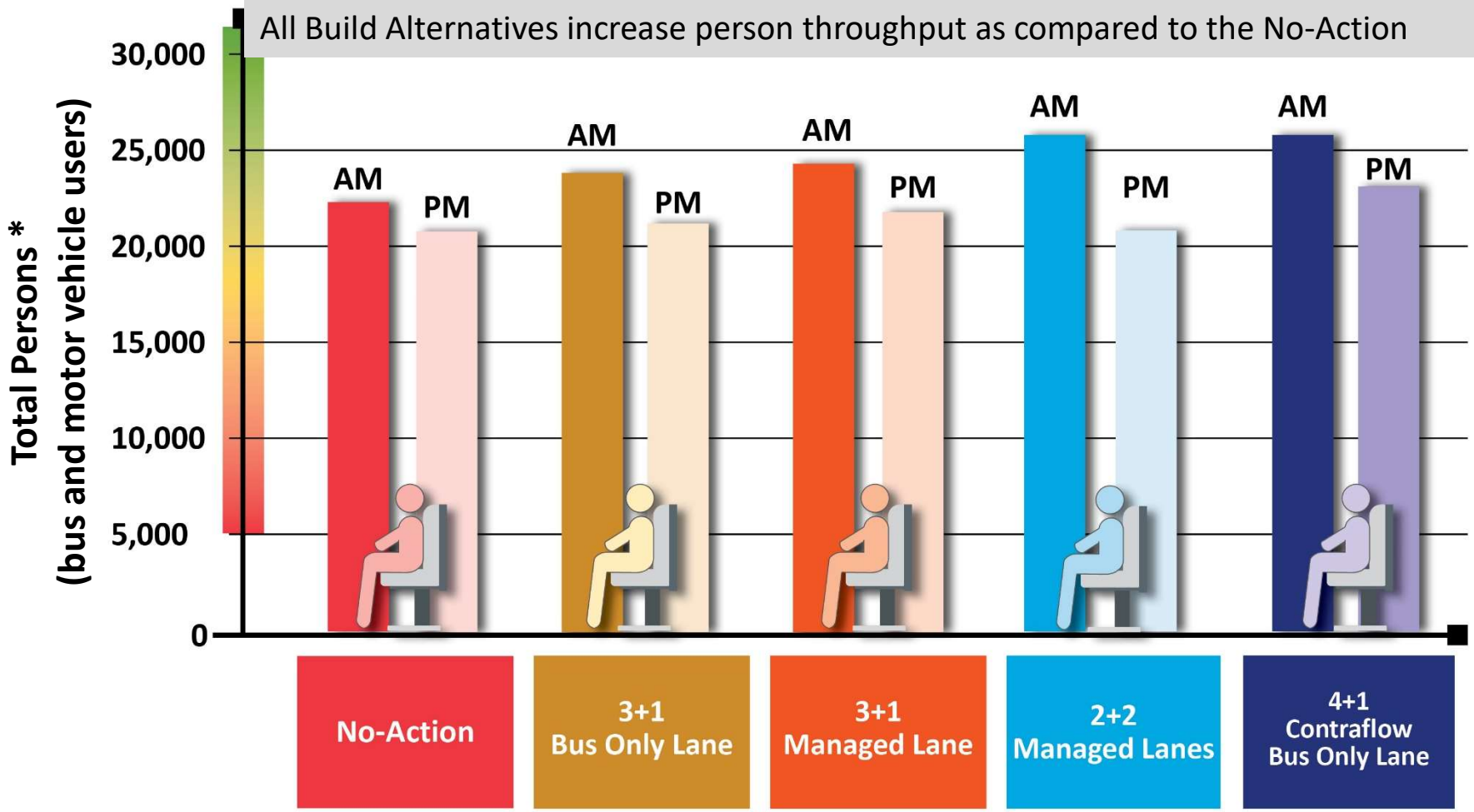


\*AM peak hour in southbound direction

# Total Person Throughput – Peak Hour

## Summary

All Build Alternatives increase person throughput as compared to the No-Action

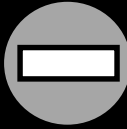


\*AM peak hour in southbound direction; PM peak hour in northbound direction; reflects LaSalle Drive to Fullerton Avenue



# Daily Volume Change: 3+1 BOL

3+1 Bus Only Lane



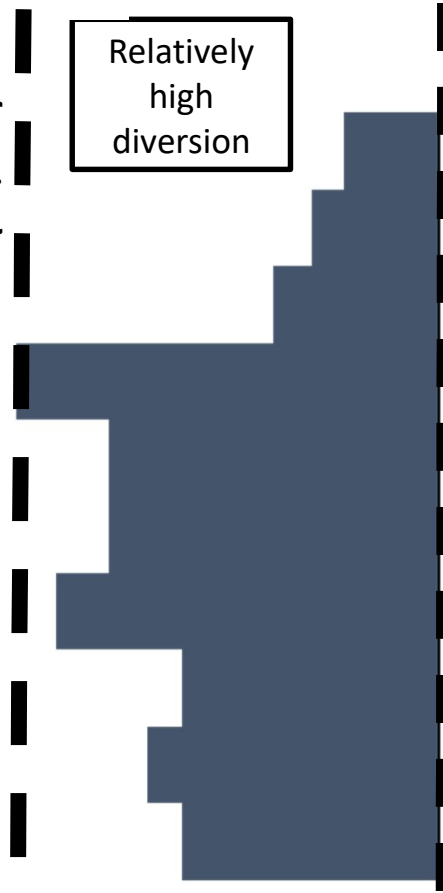
Traffic Diverted

Traffic Attracted to NLSD



Maximum Diversion (10,000)

Relatively high diversion



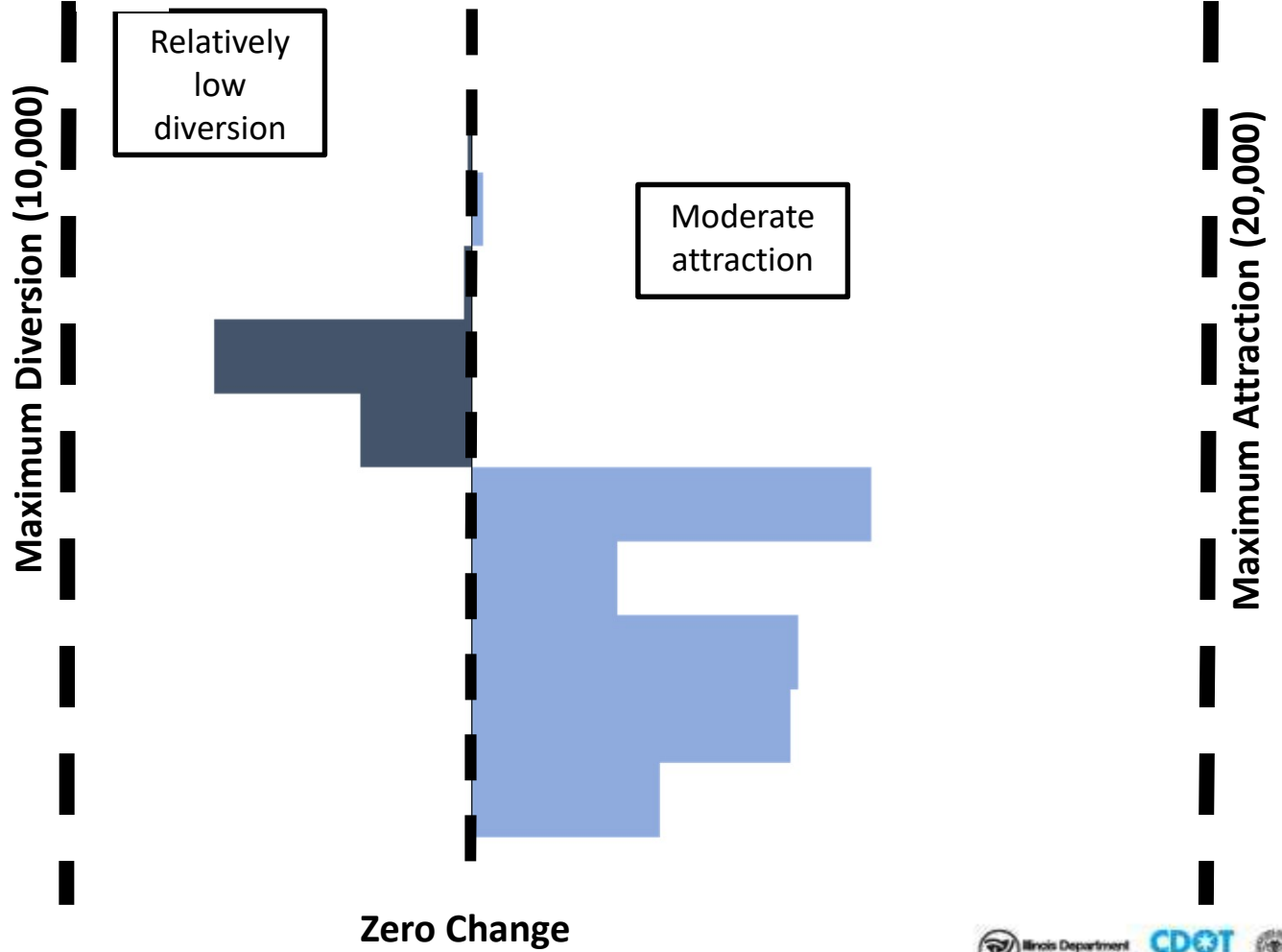
Maximum Attraction (20,000)

Zero Change



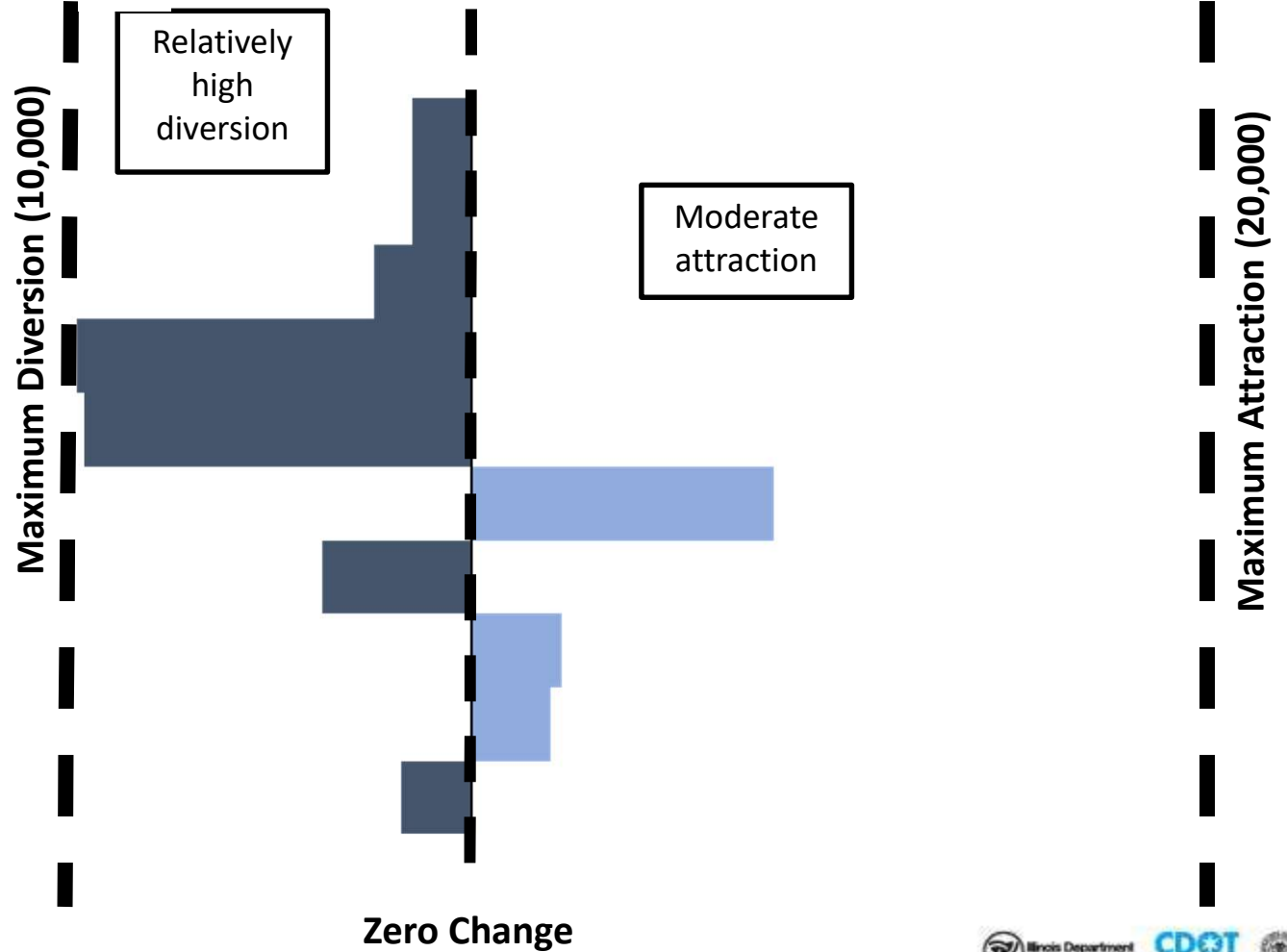
# Daily Volume Change: 3+1 ML

3+1 Managed Lane



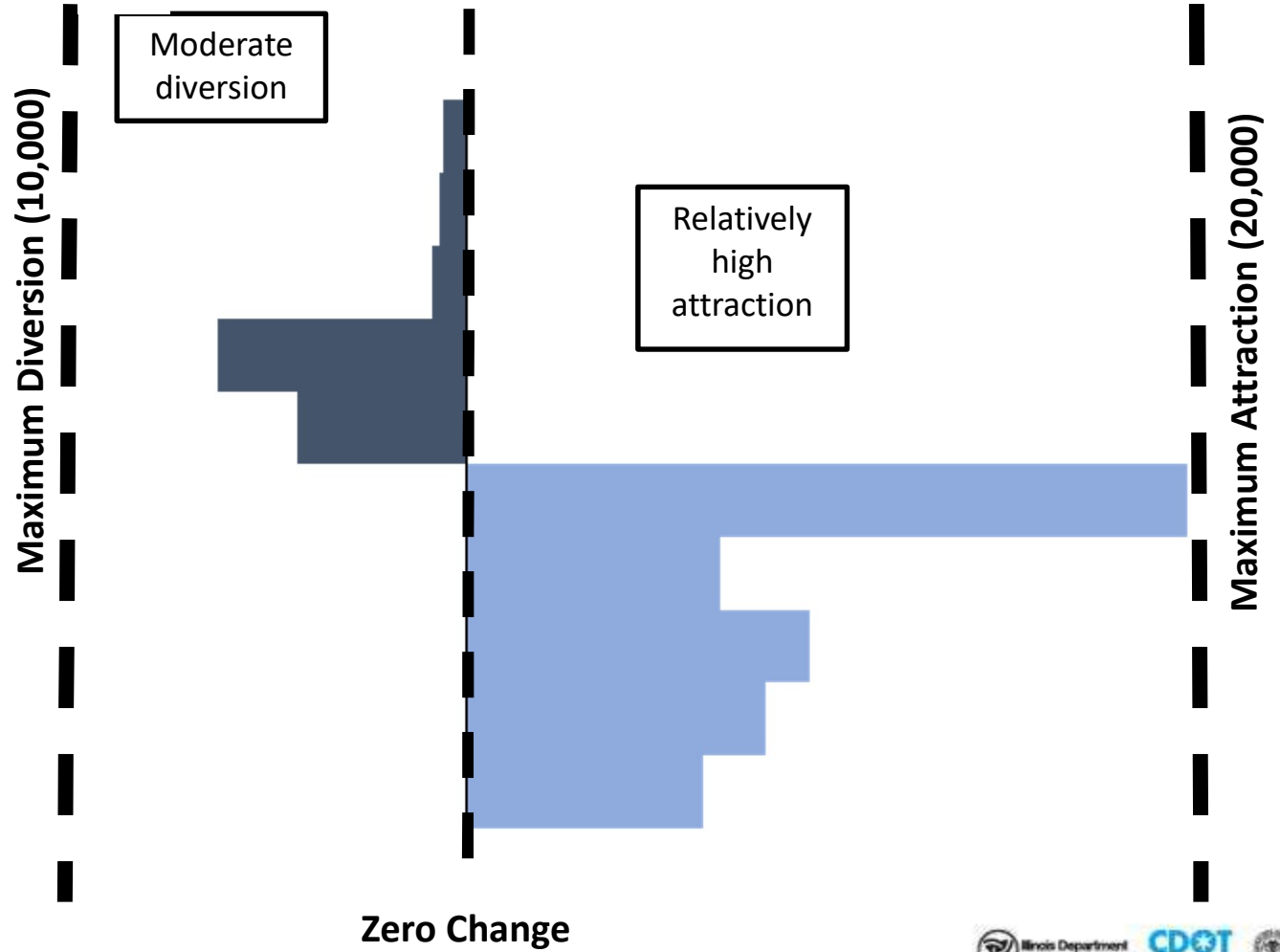
# Daily Volume Change: 2+2 ML

2+2 Managed Lanes



# Daily Volume Change: 4+1 CBOL

4+1 Contraflow Bus Only Lane



# Managed Lanes – Composite Score

## Ratio Method

Scoring provides a composite, data driven result

### Ratio Scoring Methodology

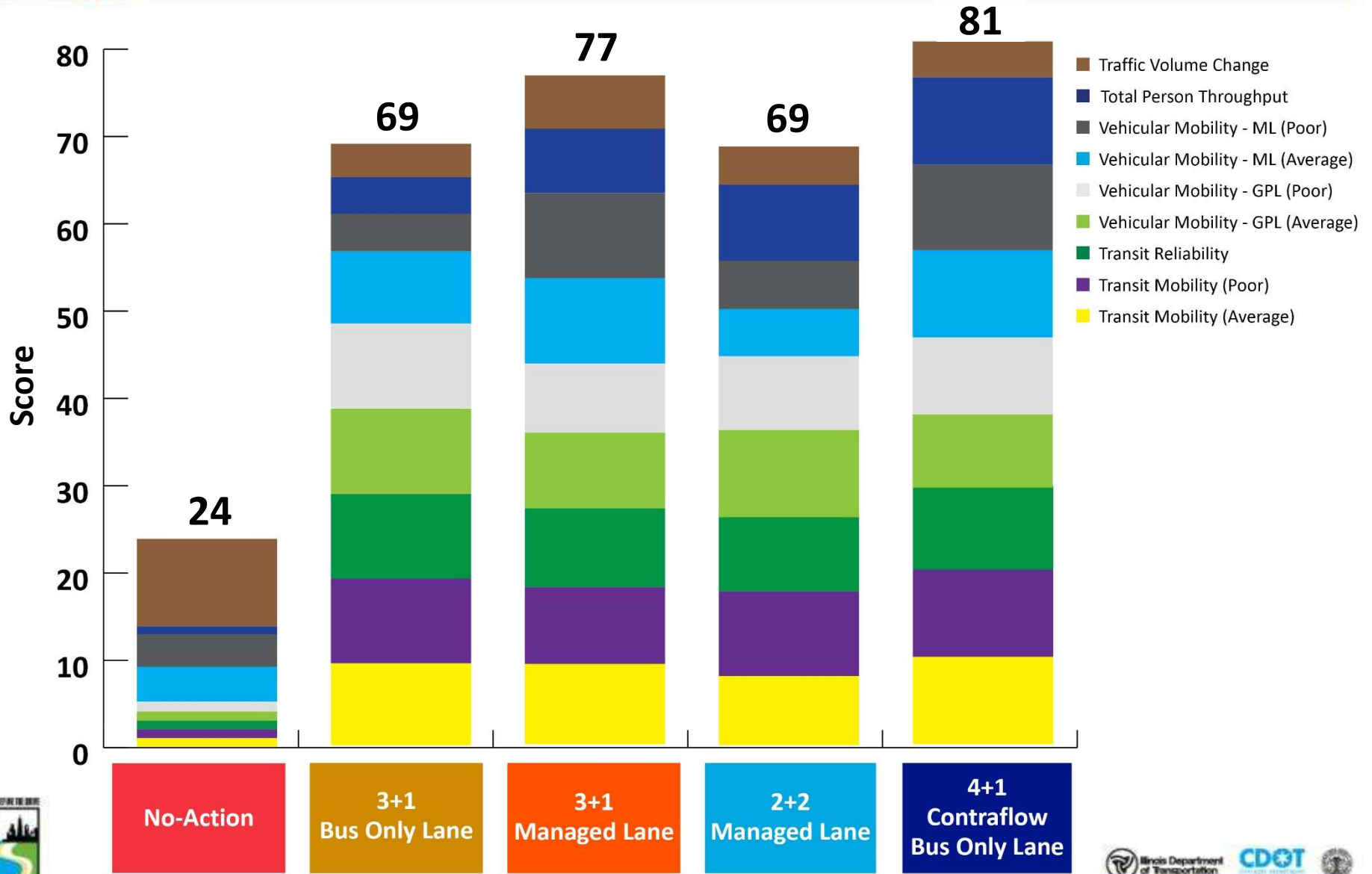
- Score individual criteria for each alternative; worst performing alternative is scored as 1, best performing alternative is scored as 10
- Proportional scores for everything in between
- Add individual scores to create overall score for each alternative
- Nine criteria, for a maximum score of 90

### Example

Travel Time Savings	Score
1 minute	1
11 minutes	5.3
20 minutes	10



# Managed Lanes – Composite Score







# Managed Lanes Workshop

**Break: 10 min**

**Workshop: 60 minutes**

**Breakout Feedback Report**

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



# NLSD Phase I Study Next Steps

## Managed Lanes

High Occupancy Vehicle Lane

High Occupancy Toll Lane

3+1 Bus Only Lane

3+1 Managed Lane

2+2 Managed Lanes

4+1 Contraflow Bus Only Lane

3+2 Reversible Managed Lanes

**Recommend to carry forward 1 to 2 alternatives for Level 3 Screening at Task Force Meeting #11**



# NLSD Phase I Study Next Steps

- Review Feedback & Confirm Potential ML Alternatives to be Carried Forward
- Task Force Meeting #11: Late Spring 2020
  - Present ML Alternatives to be Carried Forward
  - Review Level 3 Screening Process and Public Meeting Preview
- Public Meeting #4: Summer 2020



***Please provide comments by March 23 to be included as part of the meeting record.***



# *Thank You*

*Please join us in the back of the room to  
review the CTT and TW refinements*

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