Webinar Information

How to ask a question

- Please type your questions throughout the meeting, rather than wait
- Questions will be answered during the two designated time periods
- The project team will post answers to your unanswered questions on the project website
- Please test this feature by providing your name and organization!
Today’s Panelists

• Nathan Roseberry
  – Chicago Department of Transportation

• Kimberly Murphy
  – Illinois Department of Transportation

• Lissa Domoracki
  – Metro Strategies, Inc.

• Michael Folkening
  – Civiltech Engineering, Inc.

• Peter Harmet
  – Christopher B. Burke Engineering

• Amanda Kleinwachter
  – Civiltech Engineering, Inc.
Meeting Agenda

• Introduction
• Task Force #10 Recap
• Task Force #10 Comments and Questions
  – Break and Response to Questions (Session #1)
• Refined Managed Lanes (ML) Alternatives Evaluation
• Recommended Alternatives to be Carried Forward
• Public Meeting #4 Preview
• Level 3 Screening Preview
• Next Steps
  – Break and Response to Questions (Session #2)
Task Force Meeting #10 Recap

• Meeting held on March 9, 2020 at CMAP
• 60 Task Force members attended
• 8 written Task Force comments
Task Force #10
Comments and Questions
Key Themes

• Baseline improvements are common to all alternatives
• Refinements to 4+1 Contraflow Bus Only Lane Alternative (4+1 CBOL)
• NLSD and climate change
• Managed Lanes management strategies
• Transit mode share
• Managed Lanes alternatives evaluation criteria and results
Key Themes

• Baseline improvements common to all alternatives

What improvements are common to all alternatives?
Baseline Improvements

Transit Improvements

• Transit improvements are provided through the corridor including spot improvements such as bus priority signals, bus turnarounds, and staging areas

• Improvements serve N-S buses along NLSD and E-W buses to/from Lincoln Park
Baseline Improvements

Chicago Avenue Junction

- Replaces existing signal with full junction
- Eliminates major traffic bottleneck and improves safety
- Improves access to Lincoln Park for people walking, people biking and transit
Baseline Improvements

Oak Street S-Curve

- Flatten the curve of the roadway to address safety and congestion issues
Baseline Improvements

Shoreline Protection

• Prevents wave overtopping from reaching the Outer Drive and Lakefront Trail bike path
• Shoreline protection primarily between Grand Avenue and Fullerton Parkway
Baseline Improvements

Green Space

- Shoreline extended east, from Grand Avenue to Fullerton Parkway
- Corridor-wide transportation footprint also reduced, where feasible
- Minimum of 64 acres of green space added
Baseline Improvements

Clear Zones

- Clear zones added along roadway edges to improve safety and to provide space for disabled vehicles, incident management and speed enforcement

*Grand Avenue to Montrose Avenue depicted*
Baseline Improvements

Lakefront Trail Improvements

• Trail separation for people walking and biking
• Grade separation at junctions for people walking and biking from motor vehicles
• Reconstruct existing east-west crossings and provide additional access (every ¼ mile along the corridor)
• Expand existing sidewalks and paths at junctions
Baseline Improvements

Northern Terminus Traffic Study

• Focused study of the northern terminus

• Study goals:
  – To address high traffic volume issues in area
  – Preserve neighborhood quality of life
  – Improve pedestrian and bicycle safety
  – Improve safety, mobility, and accessibility for all users
Key Themes

- Base improvements are common to all alternatives
- **Refinements to 4+1 Contraflow Bus Only Lane Alternative (4+1 CBOL)**
- NLSD and climate change
- Managed Lanes management strategies
- Transit mode share
- Managed Lanes alternatives evaluation criteria and results
4+1 Contraflow Bus Only Lane

Feedback from Task Force

• Mixture of viewpoints
• Key comment was lack of northbound managed lane
  – Operational flexibility
  – Forward compatibility
• Additional comments
  – Reliability during cold weather conditions
  – Long term maintenance
  – Emergency access provisions
•
Managed Lanes Evaluation - Major Flaw Review

- The original 4+1 CBOL Alternative included a Southbound Bus Only Lane during the AM Peak Hour
- Based on feedback, the 4+1 CBOL Alternative was refined to also include a Northbound Bus Only Lane during the PM Peak Hour
  - Refined layout is more consistent with other Managed Lane Alternatives
Managed Lanes Evaluation – Major Flaw Review

• With the revised cross section, the 4+1 CBOL would encroach **up to 15 feet** into the Golf Course

• *As mentioned with the 3+2 Reversible Managed Lanes (3+2 RML), other alternatives avoid this impact while addressing the Purpose and Need*

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**Revised 4+1 CBOL Typical Cross Section**

- **Existing Golf Course Fence**
- **Proposed Golf Course Fence**
- **Clear Zone**
- **Golf Course Encroachment Up to 15’**
- **Outer Drive Barrier Wall**
• With the revised cross section, the 4+1 CBOL would encroach up to 15 feet into the Golf Course

• As mentioned with the 3+2 Reversible Managed Lanes (3+2 RML), other alternatives avoid this impact while addressing the Purpose and Need

It is recommended to remove this alternative from further consideration, based on Major Flaws
# Level 2 Screening

<table>
<thead>
<tr>
<th>RANGE OF ALTERNATIVES CATEGORY</th>
<th>RANGE OF ALTERNATIVES</th>
<th>RECOMMENDED FOR DISMISSAL (LEVEL 2 SCREENING)</th>
<th>RECOMMENDED TO BE CARRIED FORWARD</th>
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<tr>
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<td>Transitways</td>
<td>Transit Advantages at Junctions</td>
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<td>Bus on Shoulder – Right</td>
<td>Bus on Shoulder – Right</td>
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<td>Dedicated Transitway – Left</td>
<td>Dedicated Transitway – Left</td>
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<td>Managed Lanes</td>
<td>3+1 Bus Only Lane</td>
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<td>3+1 Managed Lane</td>
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<td>2+2 Managed Lanes</td>
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<td>3+2 Reversible Managed Lanes</td>
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<td>4+1 Contraflow Bus Only Lane</td>
<td>4+1 Contraflow Bus Only Lane</td>
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</tr>
</tbody>
</table>
Key Themes

- Base improvements are common to all alternatives
- Refinements to 4+1 Contraflow Bus Only Lane Alternative (4+1 CBOL)
- **NLSD and climate change**

*How is climate change being considered?*
All NLSD planning considers local and regional plans for climate change adaptation:

- Must meet regional and federal air quality standards
- Prioritizing transit operations
- Improving accommodations for people who bike and walk
- Improving access to green space and parks
All proposed alternatives and designs address stormwater concerns by:

- Incorporating climate resilient infrastructure including shoreline protection techniques
- Adding green space and green infrastructure

Example: Bioswale retention system
Key Themes

- Base improvements are common to all alternatives
- Refinements to 4+1 Contraflow Bus Only Lane Alternative (4+1 CBOL)
- NLSD and climate change
- Managed Lanes management strategies

Why were certain junctions chosen for ML access for motor vehicles?

Why is direct access to the ML needed?

How would the ML tolling operate and what would it look like?
ML Access Frequency

- Access points create congestion, reduce ML speed
- Limited ML access assures high transit mobility and reliability
- Max capacity to maintain 40 mph speed = 1,200 vehicles/hour

Intermittent Access

- Requires weaving
- Safety concerns
- Less efficient

Intermittent ML access example (Requires weaving)
Managed Lane Access

Direct Access
- Eliminates weaving
- Improves safety
- Improves efficiency

Northern Terminus
- Access at Bryn Mawr and at Hollywood proposed to spread demand
- Compatible with Northern Terminus Traffic Study alternatives
Proposed Managed Lane Access Locations

Proposed General Purpose Lane Access

Proposed Managed Lanes Access

Bus Only Access  Bus/Auto Access
Managed Lane Tolling

Tolling Concept

• **Three possible types** (Static, Time-of-day and Dynamic)

• **Dynamic tolling**
  o Variable toll rate that changes in real time based on ML volume
  o Toll rate fixed once vehicle enters ML

• **Dynamic tolling recommended to:**
  o Control ML volume
  o Assure high ML mobility
Toll Collection and Enforcement

- **ML Toll collection** done electronically with the use of cameras
- Illinois Tollway’s *I-Pass* transponder system may be used for vehicle identification
- Toll collection equipment likely required at all ML entrances and exits
Managed Lane Tolling

Toll Enforcement
- Accomplished electronically with cameras at the junctions

ML Access Enforcement
- Accomplished electronically with cameras along the Outer Drive at regular intervals
Managed Lane Tolling

Tolling Equipment

• Equipment can be tailored to individual project settings to the extent possible
Managed Lane Tolling

Managed Lane Advanced Signing

• Advanced ML signs would provide:
  o Directions to ML access ramps or lanes
  o Real time toll amounts for travel to downstream ML exits

• Majority of ML signing would be located outside of Lincoln Park on approach roadways

Example Cross Street Approach Signing
Key Themes

• Base improvements are common to all alternatives
• Refinements to 4+1 Contraflow Bus Only Lane Alternative (4+1 CBOL)
• NLSD and climate change
• Managed Lanes management strategies
• Transit mode share

How does each Managed Lane alternative affect transit mode share?
Transit Mode Share

What is Mode Share?
The percentage of trips by a mode of travel, such as:
• Transit
• Auto
• Bike/Walk

What is a Mode Shift?
A change from one mode (e.g., auto) to another (e.g., transit)

The change in Mode Share will be used to define Mode Shift
What basic factors influence transit mode share?

**Travel Demand**
- Current and future ridership

**Travel Patterns**

**Mobility and Reliability**
- Travel time
- Variation in travel time
- Value of time

**Service Frequency**
- Waiting time
- Connections
- Additional reliability
Transit growth is unconstrained (there is always space available on bus)

- 20% growth by 2040 (No Action)

Auto growth is constrained (lack of capacity improvements)

- 8% growth by 2040 (No Action)
Travel Patterns - Origins

A.M Travel Patterns

• A.M. Peak is the highest/critical peak
• Southbound is the predominant NLSD travel direction during the A.M. peak
  ➢ Majority of trips entering Outer Drive originate from area shown
  ➢ Majority destined for downtown
Travel Patterns – Existing Transit Coverage

Transit Coverage
- Longer distance trips
- CTA and Metra Rail

Transit Catchment Areas
- Within ½ mile of a bus stop or rail station
- Overlap between Catchment Areas

Origin area has extensive transit coverage
All Managed Lane Alternatives improve Bus Mobility and Reliability:

**Bus Travel Times**
- Reduced by up to 44%

**Bus Reliability**
- Improved by to 78%

Transit Mobility (From Task Force #10)
Travel time (and cost) increased for *some* autos:

- Reduced General Purpose lane capacity
- Diversion to arterial system
- Tolled managed lanes

Vehicular Mobility (From Task Force #10)
Service Frequency

All Managed Lane Alternatives assume a substantial increase in frequency:

**Existing:** buses every 4 to 7 minutes (peak period)
- AM: 95 buses
- PM: 55 buses

**Modeled:** buses every 2 minutes (peak period)
- AM: 182 buses
- PM: 182 buses

### Number of Buses

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>Modeled (2040)</th>
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<tbody>
<tr>
<td>AM Peak</td>
<td>95</td>
<td>182</td>
</tr>
<tr>
<td>PM Peak</td>
<td>55</td>
<td>182</td>
</tr>
</tbody>
</table>
Transit Mode Share - Results

No Action Alternative (2040)
- 45.7% transit mode share
- 2.2% increase over existing

- Downtown employment growth
- Base CTA improvements
3+1 Bus Only Lane Alternative
- 46.6% transit mode share
- 0.9% increase over No Action

- Only buses in managed lane
- Improved bus mobility
- Reduced auto mobility
Transit Mode Share - Results

3+1 Managed Lane Alternative
- 46.4% transit mode share
- 0.7% increase over No Action

- Buses and autos use managed lane
- Improved bus mobility
- Improved auto mobility
2+2 Managed Lane Alternative
• 47.2% transit mode share
• 1.5% increase over No Action

- 2 Managed Lanes (buses and autos)
- Improved bus mobility
- Reduced auto mobility
Travel Demand and Service Frequency

How do the Managed Lane Alternatives accommodate the additional travel demand and service frequency?

Managed Lane Goal: maintain 40 mph speed
• Single Lane capacity: 1,200 vehicles per hour
• Two Lane capacity: 2,800 vehicles per hour

*Red lines represent the existing roadway width
Available Capacity of Managed Lanes

1,200 = Max Volume for free flow speed

3+1 BOL Alternative

85% of capacity available

15% of managed lane capacity used

182 Buses

Time of Day

SB Buses
Available Capacity of Managed Lanes

1,200 = Max Volume for free flow speed

1,028 vehicles

83% of managed lane capacity used

182 Buses

17% of capacity available
Available Capacity of Managed Lanes

\[2,800 = \text{Max Volume for free flow speed}\]

(2 Managed Lanes)

- **1,648 Vehicles**
- **182 Buses**

59% of managed lane capacity used

41% of capacity available
10 MINUTE BREAK
Response to Questions
Key Themes

Managed Lanes Alternatives evaluation criteria and results

*Can you provide more details on each of the criterion and provide both AM and PM results?*

What are the traffic effects on the adjacent arterials?

*Can you provide more detail on person throughput?*

What is the balance between transit and auto evaluation criteria?
Transit Mobility

Bus travel times measured within NLSD area:

- Along Outer Drive (portion of bus route within Managed Lane)
- Along Inner Drive (portion of bus route along arterial system)
- Southbound (A.M), Northbound (P.M.) – average and poor conditions
Transit Mobility

- Combined average of all 7 CTA Express Bus routes (“composite”)
- Relative comparison of composite bus travel time
- Example: CTA Route 134 - Travel time measured from Stockton/Cannon intersection to Grand Ave (3.3 miles).
Transit Mobility (Average Conditions) – AM & PM

**AM and PM Summary**
All Build Alternatives reduce bus travel times compared to the No-Action
Transit Mobility (Poor Conditions) – AM & PM

AM and PM Summary
All Build Alternatives reduce bus travel times compared to the No-Action
**Transit Reliability**

*Transit reliability* is the range between the worst travel times under poor conditions and the best travel time under average conditions.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Best</th>
<th>Worst</th>
<th>Range</th>
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</thead>
<tbody>
<tr>
<td>No Action Alternative</td>
<td>14.6 min</td>
<td>39.1 min</td>
<td>24.5 min</td>
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<tr>
<td>A.M. Travel Time*</td>
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<td></td>
<td></td>
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<tr>
<td>2+2 ML Alternative</td>
<td>16.4 min</td>
<td>23.6 min</td>
<td>7.2 min</td>
</tr>
<tr>
<td>A.M. Travel Time*</td>
<td></td>
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</tr>
</tbody>
</table>

*Composite travel time for 7 CTA Express Bus Routes*
Transit Reliability (All Conditions) – AM & PM

AM and PM Summary

All Build Alternatives substantially reduce travel time ranges compared to the No-Action
Vehicular Mobility (General Purpose Lanes)

Vehicular Travel Times Measured in the General-Purpose Lanes

- Southbound (A.M.) – average and poor conditions
- Northbound (P.M.) – average and poor conditions
Vehicular Mobility (Average Conditions) – AM & PM

**General Purpose Lane**

**AM Summary**
- The 3+1 ML Alternative *reduces travel times* compared to the No Action
- The 3+1 BOL and 2+2 ML Alternatives *increase travel times* compared to the No Action

**PM Summary**
- All Build Alternatives reduce travel times compared to the No Action

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**Travel Times (Minutes)**

- **Southbound Motor Vehicle Travel Time (AM)**
- **Northbound Motor Vehicle Travel Time (PM)**

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**AM & PM**

- **No-Action**
- **3+1 Bus Only Lane**
- **3+1 Managed Lane**
- **2+2 Managed Lanes**
Vehicular Mobility (Poor Conditions) – AM & PM

General Purpose Lane

AM Summary
• The 3+1 ML Alternative reduces travel times compared to the No Action
• The 3+1 BOL and 2+2 ML Alternatives increase travel times compared to the No Action

PM Summary
• All Build Alternatives reduce travel times compared to the No Action
Vehicular Travel Times Measured in the Managed Lane*

- Southbound (A.M) – average and poor conditions
- Northbound (P.M.) – average and poor conditions

*Bus travel times used for 3+1 BOL Alternative
Vehicular Mobility (Average Conditions) – AM & PM

Managed Lane

No-Action

3+1 Bus Only Lane

3+1 Managed Lane

2+2 Managed Lanes

AM and PM Summary
All Build Alternatives reduce vehicular travel times compared to the No-Action

Travel Times (Minutes)

0 5 10 15 20 25 30 35 40

Southbound Motor Vehicle Travel Time (AM)

Northbound Motor Vehicle Travel Time (PM)
Vehicular Mobility (Poor Conditions) – AM & PM

Managed Lane

**AM and PM Summary**

All Build Alternatives reduce vehicular travel times compared to the No-Action

- 3+1 BOL Alternative is the relative best

**Travel Times (Minutes)**

- Southbound Motor Vehicle Travel Time (AM)
- Northbound Motor Vehicle Travel Time (PM)
TF #10 Comments and Questions

Key Themes

Managed Lanes Alternatives evaluation criteria and results

Can you provide more details on each of the criterion and provide both AM and PM results?

What are the traffic effects on the adjacent arterials?

Can you provide more detail on person throughput?

What is the balance between transit and auto evaluation criteria?
Initial Analysis (TF #10)
• Outer Drive, daily volume change
• North-south travel
• Relative least change from No Action favored

Supplemental Analysis (TF #11)
• Arterial system
• A.M. and P.M. Peak Hour
• North-south travel
• 10% or greater change identified
• Relative least change from No Action favored
Traffic Volume Change (AM Peak)

3+1 BOL

3+1 ML

2+2 ML

10% or greater traffic increase

10% or greater traffic decrease

10% or greater traffic increase
Traffic Volume Change (PM Peak)

- **3+1 BOL**
- **3+1 ML**
- **2+2 ML**

- **10% or greater traffic increase**
- **10% or greater traffic decrease**

[Map showing traffic changes in different road configurations]
Summary

- Net increase in arterial volume for both A.M. and P.M. Peaks
- The arterial network is most congested in A.M. peak, limits change in volume
- The arterial network is less congested in P.M. peak, allows more volume change
Key Themes

Managed Lanes Alternatives evaluation criteria and results

Can you provide more details on each of the criterion and provide both AM and PM results?

What are the traffic effects on the adjacent arterials?

Can you provide more detail on person throughput?

What is the balance between transit and auto evaluation criteria?
Daily Trips To and From Work (within NLSD corridor)

Daily Person Throughput

Summary

• Transit person trips increased over the No Action
• Auto person trips same or less than No Action
• All Managed Lane Alternatives increase person throughput
Key Themes

Managed Lanes Alternatives evaluation criteria and results

Can you provide more details on each of the criterion and provide both AM and PM results?

What are the traffic effects on the adjacent arterials?

Can you provide more detail on person throughput?

What is the balance between transit and auto evaluation criteria?
## Managed Lanes Evaluation Criteria

<table>
<thead>
<tr>
<th>Level 2 Managed Lanes Screening Criteria</th>
<th>Transit</th>
<th>Auto</th>
<th>Transit &amp; Auto Related</th>
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</thead>
<tbody>
<tr>
<td>Transit Mobility (Average)</td>
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<td>Transit Mode Share</td>
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</table>

| Total Criteria                           | 4       | 4    | 3    |

A balance of vehicular and transit evaluation factors was used.
# Updated Ratio Scoring

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>No-Action</th>
<th>3+1 Bus Only Lane</th>
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<th>2+2 Managed Lanes</th>
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<td><strong>81.8</strong></td>
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Managed Lane – Composite Score

Top Performing Managed Lane Alternative

- Transit Mode Share
- Arterial Volume Change (Peak Hour)
- Outer Drive Volume Change (Daily)
- Daily Person Throughput
- Vehicular Mobility - ML (Poor)
- Vehicular Mobility - ML (Average)
- Vehicular Mobility - GPL (Poor)
- Vehicular Mobility - GPL (Average)
- Transit Reliability (All)
- Transit Mobility (Poor)
- Transit Mobility (Average)
Managed Lane Evaluation Summary

The 3+1 Managed Lane Alternative:
- Improves bus mobility and reliability
- Increases transit mode share
- Increases person throughput

And, the 3+1 Managed Lane Alternative:
- Improves vehicular mobility
  - 3+1 BOL and 2+2 ML Alternatives increase congestion
- Efficient use of Managed Lane capacity
- Relative least volume change
- Forward compatible with the 3+1 BOL and 2+2 ML Alternatives
- Satisfies the project Purpose and Need
Stakeholder Involvement

Level 2 Screening

- Task Force Meetings
- Project Study Group
- Community Meetings
- Public Meetings
- Project Website
Project Study Group Recap – Managed Lane Alternatives Evaluation

- Provided alternatives development and evaluation guidance.
- Concurred with the Major Flaw review.
- Supported and concurred with the technical analysis.
- CTA does not fully concur and recommends that the 3+1 BOL Alternative also be carried forward for further evaluation and discussion.
- Many perspectives are considered in the evaluation process, which must satisfy NEPA Requirements.
Recommended Alternatives to be Carried Forward (ATBCF)
## Level 2 Screening

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# Level 2 Screening

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<th>RECOMMENDED TO BE CARRIED FORWARD</th>
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Alternatives to be Carried Forward

Context Tailored Treatment with Transit Advantages
- Baseline improvements
- Spot transit improvements (queue jump lanes, bus priority Signals)

Dedicated Transitway – Left
- Baseline improvements
- Added space for transit (bus only lane)

3+1 Managed Lane
- Baseline improvements
- Converted space (shared lane for transit and some autos)
Public Meeting #4 Preview

- Last Public Meeting (#3) held in July 2017
- Public Meeting #4 to take place in summer 2020
- Content from Task Force #7-11 to be covered
- Tentative meeting format:
  - Interactive website and survey
  - Small group discussions
Meeting Topics

• Level 2 Screening Review (TF #7-11)
• Alternatives to be Carried Forward (ATBCF)
  – Context Tailored Treatments (TF #8)
  – Transitways (TF #7, TF #9)
  – Managed Lanes (TF #7, TF #10, TF #11)
• Lakefront Trail and Park Access Improvements (TF #8)
• Shoreline Protection (TF #8)
Level 3 Screening Preview
Purpose and Need Factors*
- Transit mobility and reliability
- Vehicular mobility and reliability
- Network volume change
- Person throughput
- Safety

Social Factors
- Population and employment effects
- Displacements
- Equity

Economic Factors
- Construction cost
- Revenue potential
- Productivity

*Park and Transit Access – likely to have similar benefits
Environmental Factors

- Climate Change
- Natural resources
- T&E Species
- Historic Structures/Section 106
- Park facilities/Section 4(f)
- Change in paved surface and green space
- Environmental Justice (EJ)
- Surface water quality
- Waters of the US
- Visual effects
- Traffic noise
- Air quality
- Indirect and cumulative effects
Discussion/Next Steps
NLSD Phase I Study Next Steps

• Review feedback provided from the Task Force and refine alternative designs
• Preparation for Public Meeting #4: Summer 2020
• Begin Level 3 Screening

*Please provide comments by June 25 to be included as part of the Task Force Meeting #11 record.*
5 MINUTE BREAK
Response to Questions
Thank You!

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