North Lake Shore Drive Corridor Planning Committee/Task Force Meeting #5
December 1, 2016
Welcome
Meeting Agenda

• Introductions
• Recap of Task Force/CPC Meeting #4
• Chicago Park District Lakefront Trail Update
• Alternatives Development & Evaluation
  – Review of Level 1 Screening Results
  – Overview of Level 2 Screening Process
  – Example: Level 2 Evaluation
• Junctions Update
• Next Steps
Recap of CPC/TF Meeting #4

• Meeting Held December 2015
• Alternative Development & Evaluation Process
• Overview of Travel Demand Modeling
• Overview of “Building Blocks” Approach
  – Junction treatments
  – Transit treatments
  – Non-motorized travel considerations
  – Shoreline considerations
• Case Study at Chicago Avenue
Chicago Park District
Lakefront Trail
Interim Improvements Update
Goal: Develop recommendations for trail signage, education, and other strategies to improve Lakefront trail use.

How you use it?
• 94% Bicycling
• 48.8% Walking
• 43.5% Running
• 3.2% Rollerblading, etc.

Issues?
• 79.1% People Clogging Path
• 64.8% People Not Moving to the Right
• 44.7% Distracted by Electronics
• 39.1% Not Slowing Down or Yielding
• 33.1% Not Using Proper Passing Signals

Most Important Trail Improvements
• 89.5% Separate Bikes, Runners and Pedestrians
• 48.1% Educate About Safety
• 44.7% Improve Signage and Pavement Parking
• 25.6% Improve Access from City
• 25.6% Year-Round Maintenance
Which of the messages above do you think is most effective promoting safe behavior among all trail users?
Trail surfacing occurred during the summer of 2016
Trail Separation – South Lakefront

PROPOSED PEDESTRIAN PATH

3' WIDE SOFT SURFACE SHOULDERS

14' WIDE ASPHALT PEDESTRIAN TRAIL

PROPOSED COMMUTER PATH

12' WIDE ASPHALT COMMUTER TRAIL
31st Street Trail Separation
31st Street Trail Separation
Range of Alternatives
Development & Evaluation
Phase I Study Process

Data Collection → Purpose & Need → Alternatives Development & Evaluation → Preferred Alternative

Stakeholder Involvement and Agency Input

- Initial Alternatives
- Alternatives Carried Forward
- Finalist Alternatives
Alternatives Development & Evaluation

Stakeholder Involvement and Agency Input

Data Collection  
Purpose & Need  
Initial Alternatives  
Alternatives Carried Forward  
Finalist Alternatives  
Preferred Alternative

- Establish transportation performance criteria
- Identify existing environmental constraints
- Sketch alternatives
- Eliminate alternatives that do not address Purpose & Need
- Compare transportation benefits of alternatives – eliminate underperforming alternatives

Initial Alternatives
Alternatives Development & Evaluation

We are here
Alternatives Evaluation Process

Initial Range of Alternatives

Level 1 Screening
- Major Flaw Screening
  - Major Flaws
  - No Major Flaws

Level 2 Screening
- Refine Alternatives
- Assess Benefits & Impacts
- Stakeholder Input

Meets Purpose & Need Test

Greater Detail

Alternatives Carried Forward

We Are Here
Level 1 Screening

Dismiss an alternative if:

• Major Flaws
  – Does not meet the project purpose and stated objectives
  – Not financially feasible or reasonable based on significantly greater cost compared to other alternatives
  – Severe and unacceptable socio-economic or environmental impacts

• Does not sufficiently meet Purpose & Need
  – Improve safety for all users
  – Improve mobility for all users
  – Address infrastructure deficiencies
  – Improve access and circulation
Range of alternatives fits under five main categories:

• No-Action
• Context Tailored Treatments
• Transitways
• Managed Lanes
• Tunnels and Causeways
2040 No-Action Alternative

Assumes that **routine maintenance** is performed on North Lake Shore Drive, but there are **no additional trail, transit or roadway improvements**.
2040 No-Action (Baseline) Findings

- Bus and auto travel demand is variable across the NLSD
- **Roadway capacity available** north of Irving Park Road
- **Roadway capacity constrained** south of Irving Park Road, with most heavily used segment (autos and buses) between Michigan Avenue and Fullerton Parkway
2040 No-Action Alternative

• **Does not address need for improved mobility**
  – Congestion remains on the Drive for autos and buses
  – No improvements to Lakefront Trail

• **Does not address need to improve safety**
  – Oak Street curve would remain substandard
  – Does not separate cyclists and pedestrians on Lakefront Trail

• **Does not improve existing infrastructure**
2040 No-Action Alternative

• Does not improve access and circulation
  – Access restrictions at Chicago Avenue remain
  – East-west non-motorized connections remain inadequate
  – Does not improve transit access to Lincoln Park

The No-Action alternative does not meet Purpose & Need, but is carried forward as the benchmark against which all other alternatives are measured
Context Tailored Treatments

- Improvements that are tailored to the varying roadway, transit, non-motorized travel and shoreline protection needs along the corridor.
- Recognize that locations along the corridor have varying needs and different contexts within which to satisfy those needs.
- Junction Tool Box driven as discussed at Task Force Meeting #4.
- These treatments can be combined to form many different alternatives.
Context Tailored Treatments

- Non-Motorized Treatments
- Transit Advantage Treatments
- Shoreline Protection Treatments
- Roadway Treatments
Context Tailored Treatments

Non-Motorized Travel Treatments

• **Treatments may include:**
  – Separating cyclists and pedestrians on the Lakefront Trail (LFT)
  – Grade separating LFT bike lanes at tunnels and junctions
  – Improving east-west lakefront access facilities
  – Installing additional grade separated lakefront access facilities

These treatments can be applied as appropriate throughout the corridor to improve safety, mobility and access for non-motorized users.
Transit Advantage Treatments

- Treatments may include:
  - Queue jump facilities
  - Ramp Meters
  - Traffic Signal Priority

These treatments can be applied as appropriate throughout the corridor to improve transit mobility.
Context Tailored Treatments

Shoreline Protection Treatments

• Construction of an increased buffer between portions of NLSD and Lake Michigan which may include:
  – Revetment Walls
  – Beach areas

These treatments can be applied as appropriate throughout the corridor to reduce the risk of wave overtopping and flooding.
Roadway Treatments

Treatments may include:

– Elimination of Access Restrictions (e.g. at Chicago Avenue)
– Oak Street Curve Realignment
– Junction Reconfiguration
– Provision of Improved Ramp Terminals and Weaving Zones
– Frontage Drives
Context Tailored Treatments

Elimination of Access Restrictions

Movements Prohibited During Weekday A.M. Peak Period

Preliminary Only
Context Tailored Treatments

Junction Reconfiguration

- Elimination or relocation of junction access ramps
- Additional access ramp locations
- Change junction type
Context Tailored Treatments

Oak Street Curve Realignment

Option 1

Option 2

Legend
- Blue: Roadway Alignment Option 1
- Red: Roadway Alignment Option 2
- Green: Shoreline Protection Needed to Prevent Flooding

Map of Oak Street Curve Realignment showing two options for realignment with annotations for Grand Avenue, Chicago Avenue, and Michigan Avenue.
Context Tailored Treatments

Improved Ramp Terminals and Weaving Zones

Reduce bottlenecks by:

• Improving exit/entrance ramp terminals at all junctions
• Introducing continuous weaving zones between closely spaced junctions
Context Tailored Treatments

One-Way Frontage Drives

- Improve local circulation
- Potentially applicable where Inner Drive and Outer Drive are in close proximity to one another

Example application
Context Tailored Treatments

• These treatments will be applied as appropriate throughout the corridor to improve safety, mobility and access for all users.

• This category of alternatives can result in several combinations of treatments that respond to needs outlined in the Purpose & Need.

It is recommended that this category of alternatives be further evaluated.
Four options considered:

• Bus on Right – Shoulder/Weaving Zones
• Bus on Left – Dedicated Transitway
• Transitway Off Alignment
• Light Rail Transit
Transitways

Bus on Right – Shoulder/Weaving Zones

- Buses may use shoulder to bypass other traffic.
- Most common use is during peak hours, buses can shift out of congested lanes at any time.
- Buses could operate faster than adjacent lanes but speed would be limited to maintain safe operations.
- Bus-only queue-jump ramps provided at junctions to bypass ramp congestion.
- Shoulders may also be used for disabled vehicles, speed enforcement, etc.
Transitways

Bus on Right – Shoulder/ Weaving Zones

• Improves mobility for buses
• Improves mobility for autos by removing buses from general purpose lanes when congested
• Meets Purpose and Need

It is recommended that this alternative be further evaluated
Transitways

Bus on Left – Dedicated Transitway

- Adds a bus only travel lane with dedicated access
- Travel speeds of up to 45 mph
- Bus only queue-jump ramps provided at junctions
- Provides reliable transit travel times
Transitways

Bus on Left – Dedicated Transitway

• Improves mobility for buses
• Improves mobility for autos by removing buses from general purpose lanes
• Meets Purpose & Need

It is recommended that this alternative be further evaluated
Transitways

Transitway Off Alignment

- Provides separate transitway facility
- Located along urban edge between Inner and Outer Drives in most areas
Transitways

Transitway Off Alignment

- May improve mobility for buses
- Improves mobility for autos by removing buses from general purpose lanes
- Improves access to park by transit compared to transitways along Outer Drive
- Meets Purpose & Need

It is recommended that this alternative be further evaluated
Transitways

Light Rail Transit

• Inflexible operations compared to existing bus routes

• Slow travel speeds due to frequent stops and lack of access-controlled right-of-way

• Requirement for specialized vehicles, maintenance shop and storage yard

• Need for passengers to transfer to/from E-W bus routes
Transitways

Light Rail Transit

- No clear mobility improvement for transit riders compared to express bus service
- Lack of flexibility to adjust to changing markets
- Significantly greater capital (total capital cost >$4B) compared to other alternatives with similar benefits

It is recommended this alternative be dismissed from further consideration as a standalone alternative
Managed Lanes

• Congestion management strategy to improve system performance & provide travel time reliability for some users
• Provides mobility and operational efficiency to adapt to changing travel demands
• Assumes conversion of an existing general purpose lane to a managed lane (3GPL+1ML)
• CTA buses shifted out of general purpose lane to improve transit mobility
• Can be implemented in combination with Context Tailored Treatments and Transitways
Managed Lanes

High Occupancy Vehicle (HOV) Lane

- Priority access by CTA buses and vehicles that have multiple riders
- Single occupant vehicles are not permitted
- HOV does not require a toll

Existing Conditions

3 General Purpose Lanes + 1 HOV Lane
Managed Lanes

High Occupancy Toll (HOT) Lane

• High occupancy vehicles allowed; single occupancy vehicles allowed with user fee

• CTA buses can use HOT lane without user fee

• Congestion-based **variable pricing** is used to maintain acceptable Level of Service; reduces auto capacity by up to 8% in order to maintain reliable travel speeds in the managed lane

Existing Conditions

3 General Purpose Lanes + 1 HOT Lane
Managed Lanes

Express Toll Lane (ETL)

- Vehicles allowed with user fee, regardless of occupancy
- CTA buses can use ETL without user fee
- Congestion-based **variable pricing** is used to maintain acceptable Level of Service; reduces auto capacity by up to 8% in order to maintain reliable travel speeds in the managed lane

Existing Conditions

3 General Purpose Lanes + 1 ETL
Managed Lanes

Bus Only Lane

• Remove all autos from managed lane
• Bus travel speeds of up to 45 mph
• Bus only queue-jump ramps provided at junctions
• Reduce auto capacity along Outer Drive by 25%

Existing Conditions

3 General Purpose Lanes + 1 Bus Only Lane
Managed Lanes

Express Reversible Lanes

• Provide one or more travel lanes to serve southbound traffic in the morning peak period and the northbound direction in the evening peak period

• Priority access by CTA buses

• Increases auto capacity in the peak direction along Outer Drive by 25%; reduces auto capacity in the non-peak direction by 25%

• This option could be implemented with HOV, HOT, ETL or Bus Only Lane
Managed Lanes

CTA buses can use managed lanes

- **HOV**
  - Multiple passenger autos can use lane for free

- **HOT**
  - Multiple passenger autos can use lane for free
  - Single occupancy autos can use the lane for a fee

- **ETL**
  - All autos can use the lane all day for a fee

*It is recommended that these alternatives be further evaluated*
Managed Lanes

CTA buses can use managed lanes

- Vehicles can use SB lanes during the a.m. peak
- Vehicles can use NB lanes during the p.m. peak
- Fees may or may not apply

It is recommended that these alternatives be further evaluated
All tunnel and causeway options would improve the Lakefront Trail and provide a surface boulevard with sidewalks through Lincoln Park. Transit would likely use both the surface boulevard and express tunnel or causeway depending on bus route and time of day.

Three options considered for Outer Drive reconstruction:

• **Submerged Express Tunnel** in Lake Michigan

• **Causeway** in Lake Michigan from Chicago Avenue to Diversey Parkway

• **Land Based Express Tunnel** below surface boulevard on current alignment
Tunnels and Causeways

Submerged Express Tunnel in Lake Michigan

- Outer Drive would be located in submerged tunnel constructed on floor of Lake Michigan from Grand Avenue to Hollywood Avenue.
- Access to tunnel at 3 locations.
- Surface boulevard with at-grade intersections replaces Outer Drive to accommodate local traffic circulation.
Tunnels and Causeways

Submerged Express Tunnel in Lake Michigan

- Primarily serves longer end-to-end travel through corridor
- Concentrates E-W access to tunnel at three locations resulting in impacts to local streets
- Surface boulevard with at-grade intersections would carry majority of NLSD traffic flow, resulting in reduced overall mobility for autos and buses
Tunnels and Causeways

Submerged Express Tunnel in Lake Michigan

- Requires extensive ventilation system to purge auto exhaust and smoke from traffic emergencies
- Requires large multi-story ventilation fan buildings with exhaust stacks at each tunnel portal
- Large capital cost (>$5B) compared to other alternatives with similar benefits - would require user fee
Submerged Express Tunnel in Lake Michigan

• Does not meet Purpose & Need:
  – Does not improve safety and mobility for all users
  – Does not improve access to transit
  – Does not improve transit access to Lincoln Park

• Even with user fees, public costs would far exceed cost of other viable alternatives

It is recommended this alternative be dismissed from further consideration
Realigned Drive on Causeway in Lake Michigan

• Outer Drive relocated onto offshore bridges in Lake Michigan (*causeway*) from Chicago Ave to Diversey Pkwy. Access to causeway at 3 locations
• NLSD possibly shifted east of Belmont Harbor, crossing harbor mouth on tall bridge
• Outer Drive reconstructed on existing alignment north of Addison Street
Tunnels and Causeways

Causeway in Lake Michigan

- Concentrates E-W access to causeway at three locations resulting in impacts to local streets
- Eliminates direct access to Michigan Avenue (Traffic diverted to Chicago Avenue and LaSalle Drive)
- Traffic diversions and adverse travel distance reduce mobility for some transit and auto users
Tunnels and Causeways

Causeway in Lake Michigan

• Causeways will require special measures to prevent pollution of Lake Michigan from roadway runoff and salt spray

• Structure will substantially alter view of Lake Michigan from the shore

• Large capital cost (> $2.6B) compared to other alternatives with similar benefits - would require user fee
Tunnels and Causeways

Causeway in Lake Michigan

• Does not meet Purpose & Need:
  – Does not improve safety and mobility for all users
  – Does not improve access to transit
  – Does not improve transit access to Lincoln Park

• Construction and maintenance costs would far exceed those of other viable alternatives

It is recommended this alternative be dismissed from further consideration
• Outer Drive reconstructed in below ground tunnel from Grand Avenue to Bryn Mawr Avenue. Access to tunnel provided at 9 locations
• Surface boulevard with at-grade intersections replaces Outer Drive to accommodate local traffic circulation
Tunnels and Causeways

**Land Based Express Tunnel**

- May require wider transportation footprint in some areas to provide ramps to and from tunnel
- Replacement of junctions with at-grade intersections on surface boulevard will increase congestion and reduce mobility for autos and buses that travel through surface boulevard intersections
Land Based Express Tunnel

- Requires extensive ventilation system to purge auto exhaust and smoke from traffic emergencies
- Requires frequent ventilation fan buildings with exhaust stacks along tunnel route
- Large capital cost (>\$3B) compared to other alternatives with similar benefits - would require user fee
Tunnels and Causeways

Land Based Express Tunnel

• **Does not meet Purpose & Need:**
  – Does not improve safety and mobility for all users
  – Does not improve access to transit
  – Does not improve transit access to Lincoln Park

*It is recommended this alternative be dismissed from further consideration*

*Note: Short tunnel segments may be considered as a Context Tailored Treatment to minimize roadway impacts*
# Level 1 Screening Summary

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<th>INITIAL RANGE OF ALTERNATIVES CATEGORY</th>
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<th>ALTERNATIVES DISMISSED</th>
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Level 2 Screening
Alternatives Development & Evaluation

Iterative Process of Evaluation

**Initial Alternatives**
- Major Flaws
- Purpose and Need Agreement
- Performance Assessment
- Planning Level Cost Estimate

**Alternatives to be Carried Forward**
- Revise and Refine Features
- More Detailed Performance Assessment
- Assess Environmental Impacts

**Finalist Alternatives**
- Refine Features of Finalists
- Further Performance Review and Evaluation
- More Detailed Environmental Analysis and Review

**Preferred Alternative**
- Prepare Draft EIS
- Address DEIS and Public Hearing Comments
- Identify Preferred Alternative
- Develop Mitigation Strategies
- Prepare Final EIS and ROD

Increasing Level of Alternative Refinement and Analysis

PSG/Agency Coordination and Public Involvement
Further development of alternatives will consider the following criteria:

- Mobility
- Safety
- Social, economic and environmental impacts
- Costs/ benefits
The first step in development of any alternative begins with:

- Understanding existing travel behavior and demand
- Predicting how travel behavior and demand will change in the future under the improvement scenario

Predicting future travel behavior and demand is accomplished using a **Travel Demand Model**
What is a Travel Demand Model?

- A mathematical computer based model that will evaluate trip making characteristics and travel choices for a region/area

- Tool for estimating the number of vehicles or people that will use a specific transportation facility or mode in the system

- TDM is validated to existing conditions

- Forecast travel demand is based on conformed long-range population and employment forecast for the region
What is the CMAP Travel Demand Model?

- The Chicago Metropolitan Agency for Planning (CMAP) is the Chicago-region’s Metropolitan Planning Organization (MPO) and is responsible for preparing a Metropolitan Transportation Plan.

- The CMAP Travel Demand Model serves as the required transportation planning tool for regional travel demand forecasting.

- IDOT relies on CMAP to provide traffic forecasts for all transportation projects in the 7-county metropolitan area.

- The project team is utilizing CMAP data and model inputs to evaluate travel demand and travel performance within the NLSD project area.
Stakeholder Input

Transit improvement measures suggested by some stakeholders at public outreach forums:

• Enhance NLSD bus travel times and reliability
• Implement exclusive bus lanes on NLSD
• Convert general purpose lanes (GPLs) to bus-only managed lanes (BOMLs)

Lane conversion to exclusive bus use (i.e. Bus –only Managed Lanes), *if feasible*, is one means of enhancing transit service without adding additional lanes to NLSD.
Level 2 Screening will help answer a *key question*:

- What would be the effects of reducing the number of general purpose travel lanes on NLSD by converting existing lanes to bus-only managed lanes?

*Travel Demand Modeling* is a tool that will be used to help answer that question.
Bus-Only Managed Lane Alternative

• How would converting a general purpose lane to a bus-only managed lane affect mobility?
• Would safety be improved for all users?
• What are the environmental impacts?
• What are the costs and benefits?
2040 No-Action

The 2040 No-Action scenario, for the area shaded in blue, assumes:

- 15 - 20% population & employment growth
- Only minor changes to the roadways, (i.e., no increases in auto capacity)
- Planned improvements to transit such as Red/ Purple Line Modernization
- No restraint on transit capacity
• Neighborhoods along the NLSD corridor are built-out

• Marginal growth in population anticipated by forecast year 2040

• Of the 67,000 increase in population anticipated for the Study Area, only 7% expected in the vicinity of the corridor
The model predicts:
- Approximately **8% increase** in daily auto trips (52K) by 2040
- Approximately **20% increase** in daily transit trips (42K) by 2040

**2015 Existing Demand** - CMAP Conformity Analysis 2014 Quarter 3 Update

**2040 No-Action**: GoTo 2040 Travel Demand Forecast - CMAP Conformity Analysis 2014 Quarter 3 Update
Approx. 42% of trips in areas A, B, C destined to area D are made by transit (both bus and rail).

Most congested segment of NLSD is forecasted to have approximately 160,000 daily auto trips.

In 2040 No-Action, the 7 bus routes on Outer Drive will share the road with autos.

Due to area growth, NLSD will experience additional congestion and delay for all users (bus, auto).

Congestion causes bunching for buses, affecting wait times and travel time reliability.
Consequences of Reduced Capacity to Auto Mobility

- Evaluate mobility impacts with respect to project’s Purpose & Need for all users on the NLSD corridor

*Three possible options motorists would have to choose when Outer Drive is congested due to the lane conversion alternative:*

- **ADAPT:** Motorists could choose to use the remaining 3 Outer Drive general purpose lanes (*Reduced from 4 to 3*)

- **AVOID:** Motorists could choose to partially or completely re-route to parallel local streets or expressways, change their times of travel, or not take the trip at all

- **MODE SHIFT:** Motorists could choose to shift their mode of travel to bus, train, bike, or walk
ADAPT

• The 2040 model can predict the volume of motorists that are likely to remain on Outer Drive.

• Greater than 70% of the auto trips on the most congested segment of NLSD would have an origin or destination outside the corridor. *(Ref: Animation click here)*

• Approx. 110,000 daily auto trips would use NLSD for a purpose other than the “corridor to downtown” trips.

• These trips would not be directly served by current NLSD bus service.

How will the reduction in capacity affect all users using the NLSD corridor?
The model can predict the volume of motorists that are likely to avoid Outer Drive and which routes they would take instead.

Motorists with origins and destinations outside of the NLSD corridor could seek entirely new routes.

Some motorists may also choose to travel at different times or to not take a trip.

What other roads will be used and what level of impact will that have on all users along those roads?
MODE SHIFT

- The model can predict the volume of motorists that are likely to shift from auto to transit.

*How many people could shift from cars to buses if transit travel times were faster and more reliable under this alternative?*
Findings from the *Bus-only Managed Lane Alternative Case Study* will be shared with the Task Force when available. Results could include:

- Changes in travel times for all transit options
- Predicted mode shift from autos to transit
- Impacts to traffic volumes, travel patterns and congestion levels
Evaluation Process Summary

Alternatives to be Carried Forward

• Revise and Refine Features
• More Detailed Performance Assessment
• Assess Environmental Impacts

Comparison to No Action

• Mobility along NLSD for buses and autos
• Changes in regional and local travel patterns
• Safety of all users
Each alternative has unique features. Benefits and impacts will be quantified so relative comparisons can be made.
Questions?

10 Minute BREAK
Junctions Update & Montrose/Wilson/Lawrence Case Study
Importance of Junctions

• Confluence of many modes: pedestrian, cyclists, transit & motorists
• Affect safety & mobility for all
• Affect transit service & reliability
• Function as gateways to neighborhoods
Junctions Update

Since Task Force #4:

- Junction evaluations have progressed for Chicago Avenue, Michigan Avenue, LaSalle Drive, and Fullerton Parkway
- Preliminary **Context Tailored Treatments** alternatives developed for NLSD from Grand to Fullerton
- Case Study: Montrose/Wilson/Lawrence junction area
- Other junction evaluations ongoing
Context Tailored Treatments

Alternative 1: Corridor Modernization Concept

All Alternatives
Full Access Junction at Chicago Avenue

Each Alternative
Oak Street Curve Realignment

Alternative 1
Adds Separation between Inner and Outer Drive for Lakefront Access Improvements

Each Alternative
Various Transit and Park Access Improvement Recommendations

Alternative 1
Maintains Existing Junction Configurations at Michigan, LaSalle, and Fullerton
Alternative 2: Compressed Diamond Junctions Concept

Context Tailored Treatments

Alternative 2
Maintains Junction Configuration at Michigan

Alternative 2
Reconfigures Inner Drive from Division to Oak/East Lake Shore Drive

Alternative 2
Minimal Separation between Inner and Outer Drive

Alternative 2
Compress Diamond Junction Configurations at LaSalle and Fullerton
Alternative 3: Frontage Drives Concept

- **Alternative 3**: One-Way Frontage Drives from Grand to East Lake Shore Drive
- **Alternative 3**: CTA Bus Only Access between Michigan Avenue and Outer Drive
- **Alternative 3**: Auto Access between Michigan and Outer Drive Relocated to Chicago and/or LaSalle
- **Alternative 3**: Wider Separation between Inner and Outer Drives
- **Alternative 3**: Fullerton Junction Converted to Split Junction with Diversey
Case Study: Montrose-Wilson-Lawrence

Continuing Junctions Evaluation:

- Concept development stage

- Building Blocks approach
  - Junction configurations – Initial Focus
  - Transit treatments
  - Non-Motorized considerations (Ped-Bike)
  - Shoreline considerations

- Range of junction concepts developed and evaluated for comparative advantages/disadvantages

- Exhibits for these concepts available for review and input
Deficiencies & Needs

- Close ¼ mile spacing causes traffic conflicts and capacity constraints
- Very active part of Lincoln Park particularly on weekends
- Traffic spikes during frequent events
- High traffic volume with Montrose Harbor
- Ped/bike traffic must cross the junction ramps at grade which are stop sign controlled
- Mode conflicts present safety concerns and congestion
- Transit access to the park and along Marine Drive needs improvement
Ped/Bike Access and Demand

Weekend Ped/Bike Volumes
XX (XX) = Peak Hour (24 Hour)
8 bus routes operate on or near NLSD between Montrose and Lawrence:
- 147 on Outer Drive
- 136 & 146 on Marine Drive
- Others on Clarendon and the major streets running E-W

136 & 146 experience delays along Marine drive, near Montrose and Lawrence intersections with average runtimes at 5.2 minutes, and up to 11 minutes on bad days.

Runtimes for 147 on weekdays at 8 AM along this section of NLSD range from 3.3 minutes (10 mph) to 6.5 minutes (5 mph).

Bus staging occurs on Wilson and Montrose Avenues for routes 78, 148, and 135; on Marine Drive for the #81, and on Simmonds Drive for the #78 (summer service).
Key Features:

- Montrose Harbor
- Montrose Beach
- Cricket Hill
- Soccer Fields
- Softball Fields
- Skate Park
- Sydney R. Marovitz Golf Course
- Lakefront Trail
- Historical NLSD Bridges over Wilson Ave & Lawrence Ave
Key Considerations:

• Safety
  – Grade separate the Lakefront Trail from arterials streets at the junctions
  – Reduce conflicts between vehicles and east-west ped/bike traffic flow

• Park Access for Ped/Bike
  – Consider removing Wilson Avenue junction with NLSD but keep overpass to create park access gateway

• Traffic Operations
  – Modernize signals and add turn lanes where required at junction intersections and along Marine Drive intersections
  – Improve arterial street capacity to absorb traffic spikes due to weekend Park use, special events, and Montrose Harbor peak use

• Transit Advantages
  – Access to/from NLSD
  – Access to beach
  – Complement reconstruction of Wilson Red Line stop
Montrose/Wilson/Lawrence – Concept 1

Conventional Diamond Junctions

- All-Way Stop Control
- Traffic Signals Added
- Exit Ramp Stop Control
- Traffic Signals Added
- 18' Wide Median
- Intersection Improvement
- Potential Reduction in General Purpose Lanes along Outer Drive
Montrose/Wilson/Lawrence – Concept 2

Compressed Diamond Junctions

- NLSD Realigned
- Ramp Layout Improved
- Traffic Signals Added
- Ramps Realigned Closer to NLSD
- Retaining Walls (Typical All 3 Junctions)
- Intersection Improvement
- Remove Marine Drive Intersection
- Traffic Signals Added
- Ramps Realigned Closer to NLSD
- Retaining Walls (Typical All 3 Junctions)
- Potential Reduction in General Purpose Lanes along Outer Drive
Montrose/Wilson/Lawrence – Concept 3

Single Point Junctions – Montrose and Lawrence

- Ramps Realigned Closer to NLSD
- Retaining Walls Added
- Junction Controlled by Single Traffic Signal

Park Access Enhanced by:
- Removing Ramps
- Eliminate Traffic & Ped/Bike Conflicts
- Keeping NLSD on Overpass

Potential Reduction in General Purpose Lanes along Outer Drive
Traffic Signal Removed
Roundabout Used

Roundabouts Used at Ramp Terminals (Typical)

SB Access to/from NLSD at Montrose Relocation to Signalized Ramp Intersection

Park Access Enhanced
No Junction at Wilson

Potential Reduction in General Purpose Lanes along Outer Drive

Montrose/Wilson/Lawrence – Concept 4
Dismissed from Further Consideration Based on Not Addressing the Project Purpose and Need:

- Unacceptable Travel Performance
- Increased Congestion
- Reduced Access
- Decreased Safety

At-Grade Junctions

Montrose/Wilson/Lawrence – Concept 5

Each Junction Converted to At-Grade Intersection

NLSD Overpass Removed & Traffic Signals Added
Transit – Left Side

Shown with Concept 1
Transit Access only at Wilson

Transit-Only Queue-Jump Ramps
to Signalized Intersection at Wilson

Queue-Jump Ramps Taper into
Bus Transitway (Typical south of
Lawrence and North of Montrose)

48-Foot Wide Median for
Transit on Left Side of NLSD
Transit Queue-Jump Ramps Consideration

- Park Access to/from West Enhanced with Signal Controlled Bus Only Access at Wilson
- No Junction with NLSD going over Wilson
- 48-Foot Wide Median
- Park Access Enhanced
- Bus Only Access Ramps Connect with Bus Transitway on Left along NLSD
Shared Ramp for Vehicles and Buses
Possible Q-Jump and/or Signal Prioritization

Typical 18-Foot Wide Median

Bus Transitway on Right via Multi-Purpose Shoulders
Non-Motorized Access – 3 Junctions

Shown with Concept 2

- Existing Buena Ave. Underpass To be Replaced and Improved
- Peds/Bikes At-Grade under NLSD
- Lakefront Trail Grade-Separated (Typical at Each Cross Street)
- Existing Argyle St. Underpass To be Replaced and Improved
- Lakefront Trail Bike Lanes Grade-Separated above Underpass (Typical)
Non-Motorized Access – 2 Junctions

Shown with Concept 3
Overpass only at Wilson

Existing Buena Ave. Underpass To be Replaced and Improved

Peds/Bikes Grade-Separated Access under Ramps

Existing Argyle St. Underpass To be Replaced and Improved

Lakefront Trail Bike Lanes Grade-Separated above Underpass (Typical)

Lakefront Trail Grade-Separated (Typical at Each Cross Street)

Junction Ramps Removed Overpass Remains
East-West Access is Enhanced

Lake Michigan
Non-Motorized Access

Compatible with East Termini of contemplated Leland Greenway Project

Peds/Bikes under NLSD Vehicle Conflicts Eliminated

North-South LFT Movements over or under Wilson and Ped/Bike Connector
Junction Evaluations Next Steps:

• Further evaluation of alternatives performance and safety
• Continue development and evaluation of Ped/Bike access improvements
• Continue development and evaluation of Transit Advantage improvements
• Comparative evaluation of impacts and cost considerations
• Incorporate feedback and continue analysis
• Continue alternatives development and conduct Level 2 screening
  – Task Force Meetings: Winter 2017
  – Public Meeting #3: 2017
Questions?

JUNCTION, SHORELINE AND NON-MOTORIZED TRAVEL EXHIBITS FOR COMMENT & REVIEW
North Lake Shore Drive

www.northlakeshoredrive.org

Thank You