Corridor Advisory Group and Task Force Meeting #5

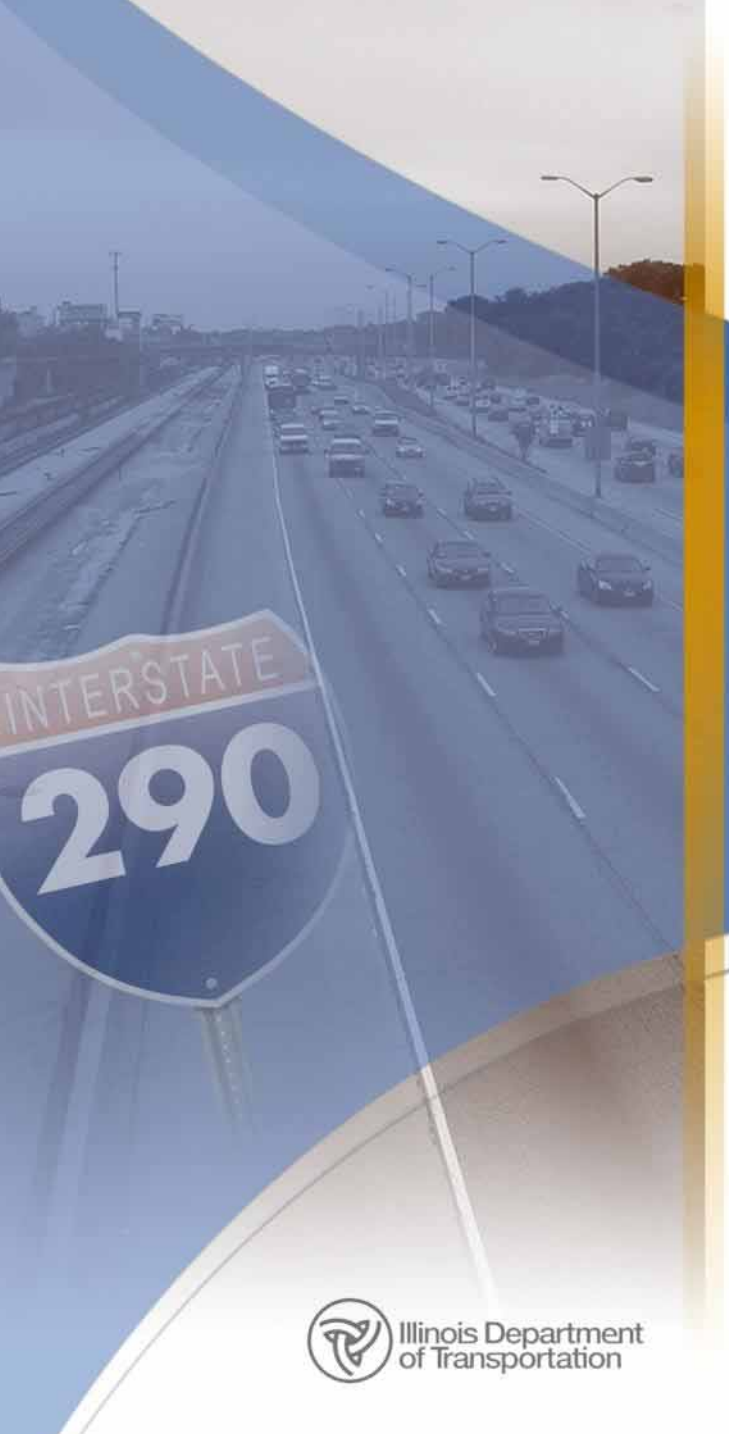
July 22, 2010

Illinois Department of Transportation

Eisenhower expressway

Agenda

- Recap CAG/TF #4
- Technical Analysis Findings – Highway Safety and Operations
- Purpose and Need
- Next Steps
- Transportation Toolbox Presentations



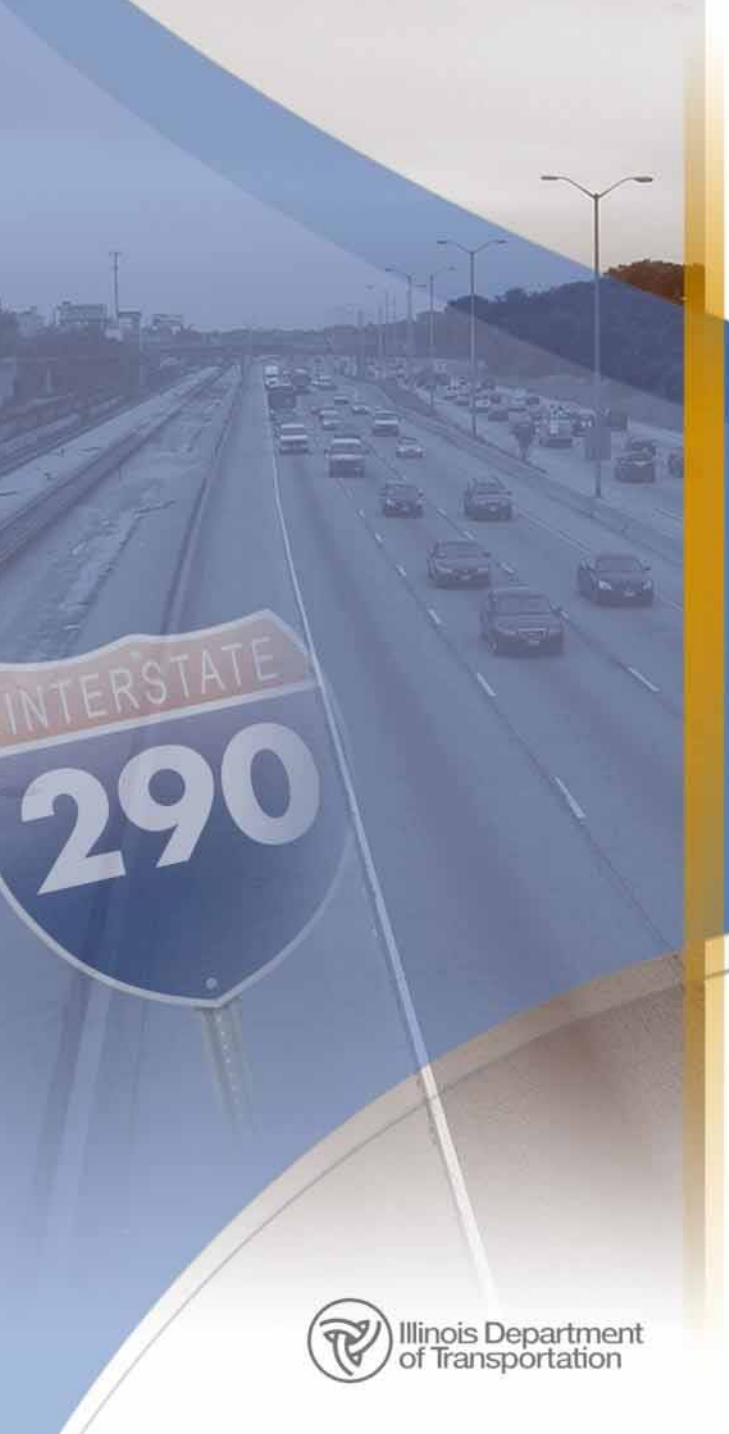
CAG/TF #4 Recap

Illinois Department of Transportation

Eisenhower expressway

CAG /TF #4 Recap

- Problem Statement
- Technical Analysis Findings
- Existing Transportation System Summary of Findings
- 2030 Baseline (No Build) Forecasts
- Initial Purpose & Need Discussion



Safety/Operations

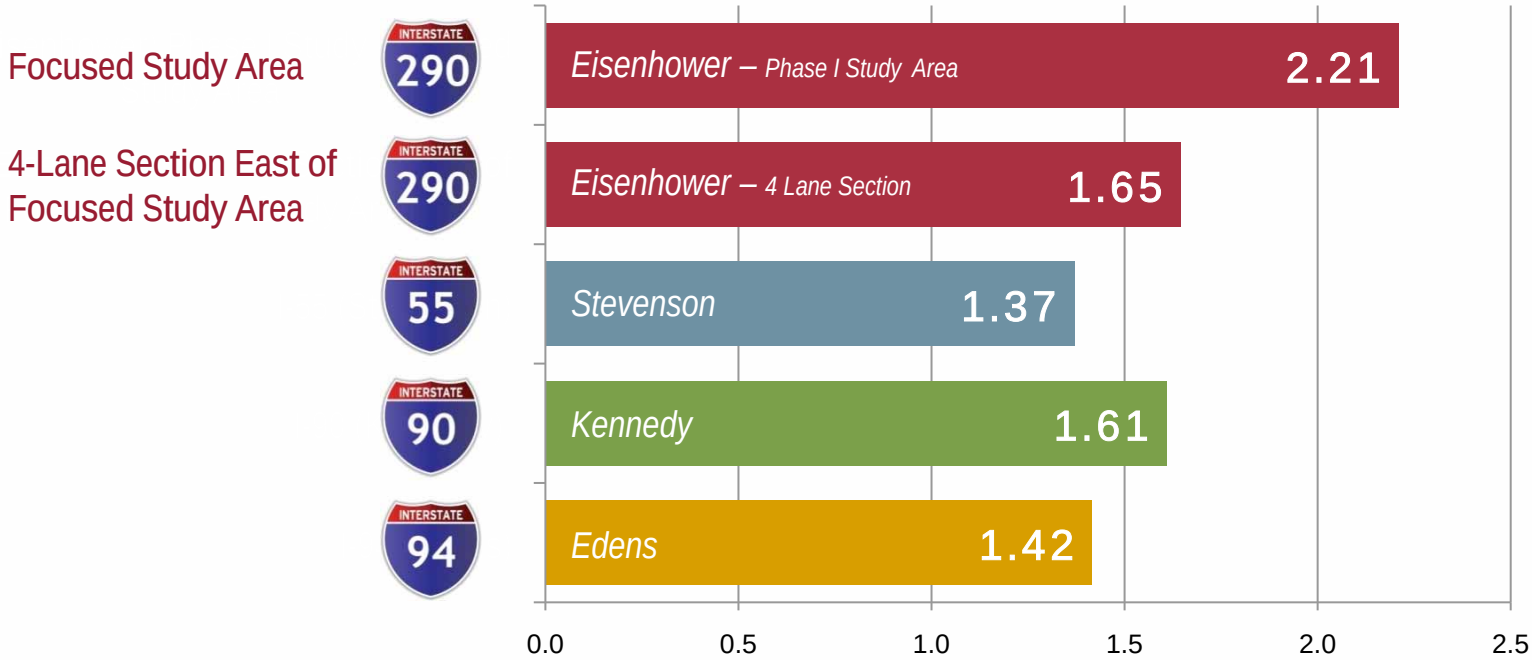
Illinois Department of Transportation

Eisenhower expressway

I-290 Comparative Crash Rates

CHICAGO AREA EXPRESSWAYS

Crashes per Million Vehicles per Mile



- ***Highest overall crash rate: I-290 between I-294 and Kostner Ave***
- ***Highest sub-section crash rate: I-290 from Central to Austin (3.5)***
- ***8 highest sub-section crash rates (out of 34): on I-290 within study area***

Illinois Department of Transportation

Source: IDOT Crash Data 2006-2008

Eisenhower expressway

Primary Crash Factors

Congestion & Poor Operations:

- 97% of mainline congested up to 17 hrs. each weekday
- Rear end crashes are predominant type, followed by sideswipes and fixed object crashes
- 94% of rear-end crashes occur during congested periods
- 64% of all crashes are rear end
- **Primary causes:** demand exceeds capacity, lane/capacity reductions

Primary Crash Factors

Roadway Design Factors (*associated crash type*):

- Abrupt ramp departure angles – short gore lengths (***sideswipe, rear end***)
- Inconsistent exit and entrance ramp patterns between successive ramps (***side swipe, rear end***)
- Narrow shoulder widths (***side swipe***)
- Substandard curve geometry and sight distance (***rear end, fixed object***)
- Lack of lane channelization at intersections (***rear end, side swipe***)
- Inadequate turn lane storage at intersections (***rear end, side swipe***)

DUI – Related Crashes on I-290

- 21% Severe injury DUI crashes (14 of 67)
- No DUI-related fatalities
- DUI-related severe crashes on mainline only
- 71% of severe DUI crashes were off-peak
  - between 9 PM and 6 AM (similar to statewide experience)
- Fatal DUI crash statistics (2008):
  - 31% Nationwide
  - 35% in Illinois

Sources: IDOT Crash Data 2006-2008
National Highway Traffic Safety Administration FARS, 2008

EB Mainline Crashes "Hot Spots"

I-290 EISENHOWER EXPRESSWAY
MAINLINE OPERATIONS, DEFICIENCIES & CRASHES

CAG #5 PRESENTATION
July 22, 2010

SHEET 1 of 2

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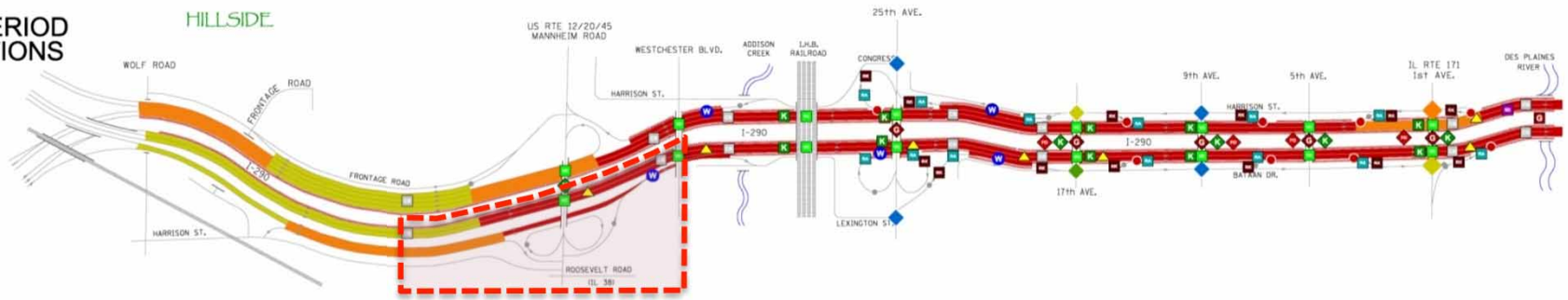
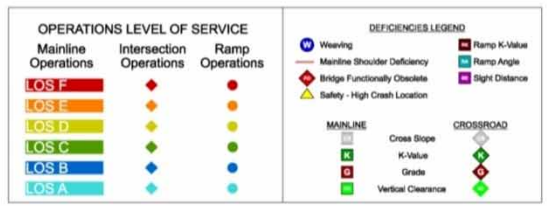
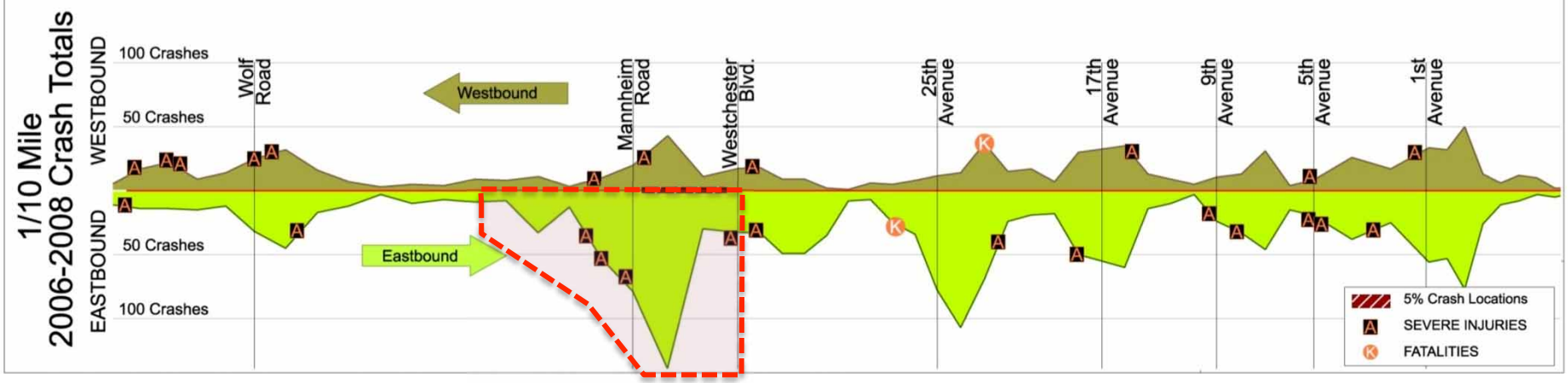
NOT TO SCALE

PEAK PERIOD OPERATIONS







EB Mainline Crash "Hot Spots"

½ mile west of Mannheim Rd. to Westchester Blvd.

- 409 Crashes per mile – Highest EB Crash section
- **Crash Types:** 62% rear-end, 18% side-swipe, 15% fixed object
- **Contributing Causes:**
  - Heavy Congestion (LOS F) – due to down stream lane drop/capacity reduction
  - Narrow shoulders

EB Mainline Crashes "Hot Spots"

I-290 EISENHOWER EXPRESSWAY
MAINLINE OPERATIONS, DEFICIENCIES & CRASHES

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SHEET 1 of 2

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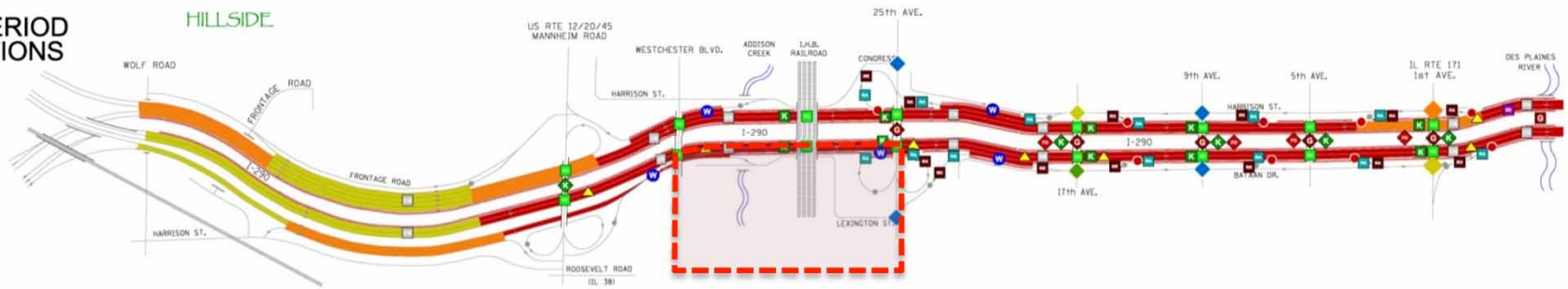
PEAK PERIOD OPERATIONS



OPERATIONS LEVEL OF SERVICE

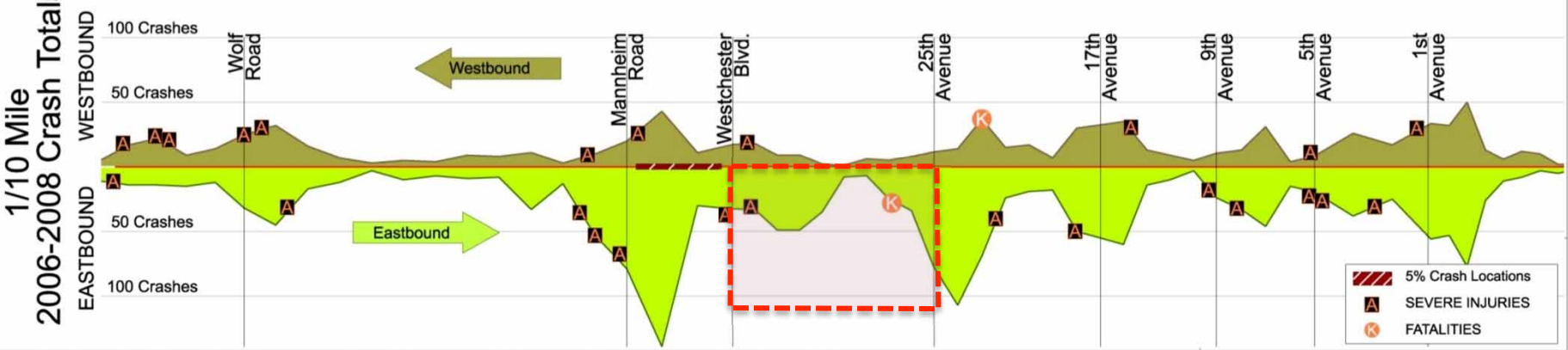
	Mainline Operations	Intersection Operations	Ramp Operations
LOS F			
LOS E			
LOS D			
LOS C			
LOS B			
LOS A			

DEFICIENCIES LEGEND

- W Weaving
- Mainline Shoulder Deficiency
- Bridge Functionally Obsolete
- Safety - High Crash Location
- Ramp K-Value
- Ramp Angle
- Sight Distance

MAINLINE: Cross Slope, K-Value, Grade, Vertical Clearance
CROSSROAD: K, G

1/10 Mile 2006-2008 Crash Totals

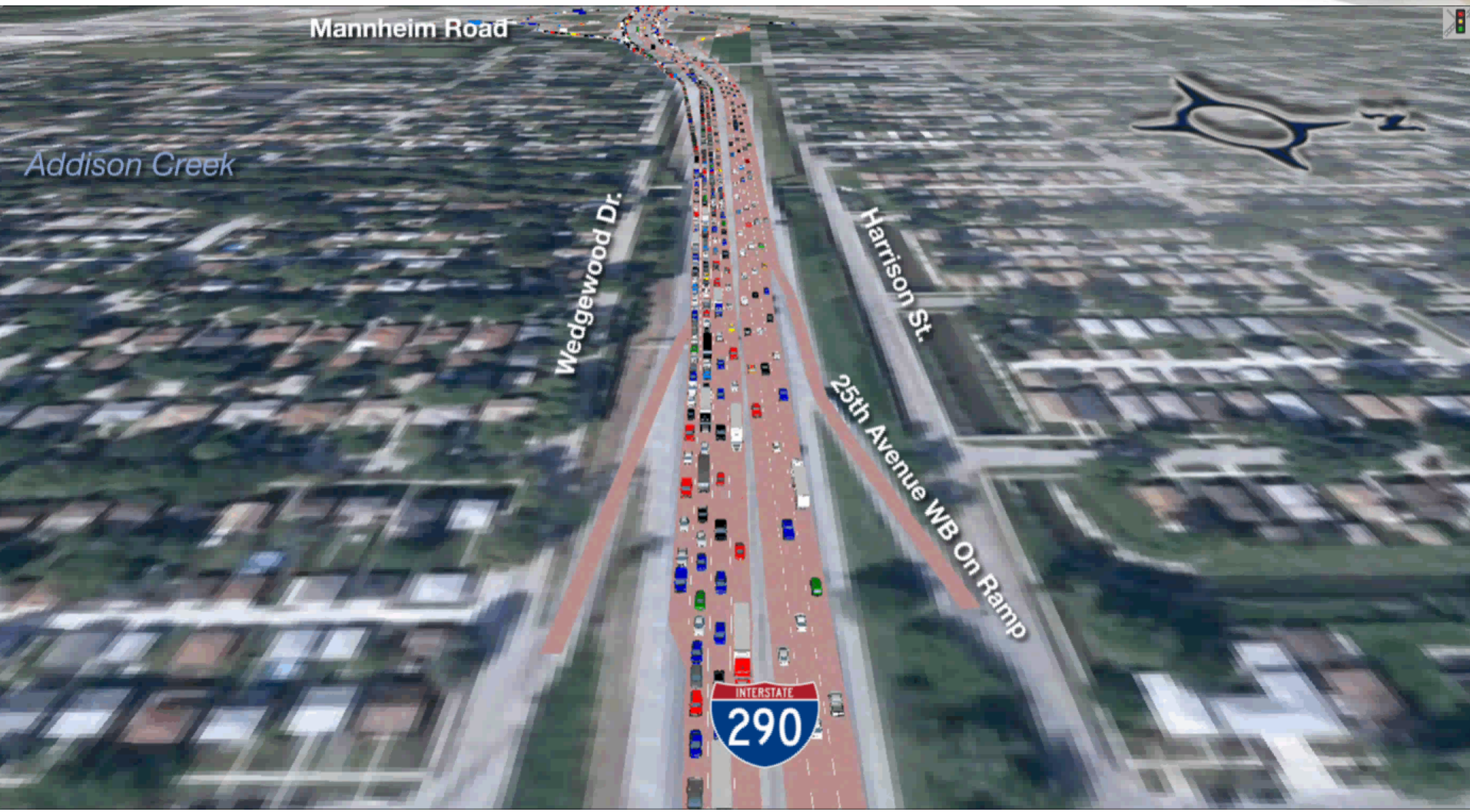


EB Mainline Crash "Hot Spots"

Westchester Blvd to 25th Avenue

- 374 crashes per mile
- Crash Types: 56% rear-end, 33% side-swipe:
- Contributing Causes:
  - Congestion (LOS F) – due to capacity reduction/lane drop to 25th Avenue
  - Weaving maneuvers at CD road entrance/auxiliary lane drop
  - Narrow Shoulders

EB Mainline/CD Road AM Operations
AM Peak Period



EB Mainline Crashes "Hot Spots"

I-290 EISENHOWER EXPRESSWAY
MAINLINE OPERATIONS, DEFICIENCIES & CRASHES

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SHEET 1 of 2

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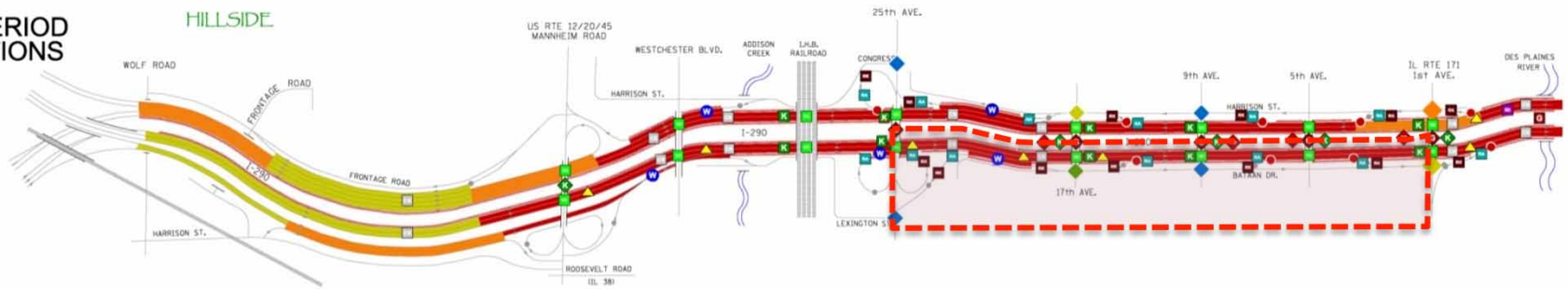
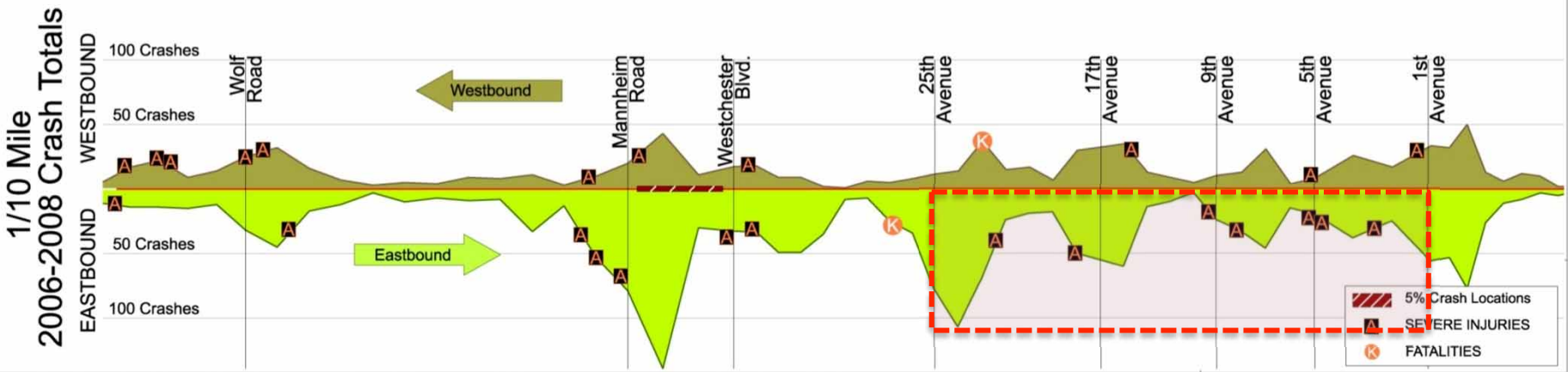
PEAK PERIOD OPERATIONS





EB Mainline Crash "Hot Spots"

25th Avenue to 1st Avenue

- 329 crashes per mile
- Crash Types: 78% rear-end, 15% side-swipe
- Contributing Causes:
  - Severe stop-and-go Congestion (LOS F)
  - Substandard ramp geometry (short gore lengths)
  - Closely spaced ramp weaving maneuvers
  - Narrow shoulders

WB Mainline Crashes "Hot Spots"

I-290 EISENHOWER EXPRESSWAY
MAINLINE OPERATIONS, DEFICIENCIES & CRASHES

CAG #5 PRESENTATION
July 22, 2010

SHEET 2 of 2

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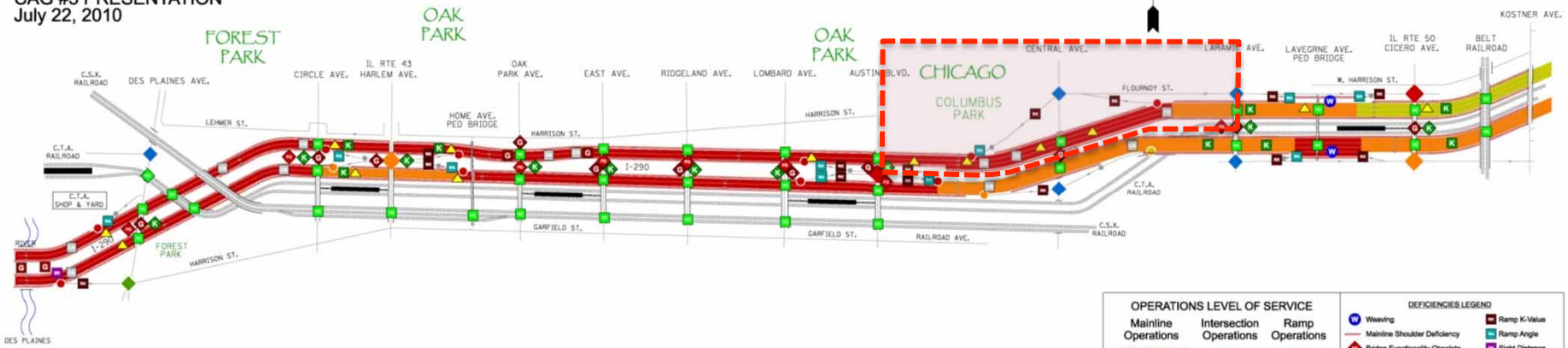

OPERATIONS LEVEL OF SERVICE

Mainline Operations	Intersection Operations	Ramp Operations
LOS F		
LOS E		
LOS D		
LOS C		
LOS B		
LOS A		

DEFICIENCIES LEGEND

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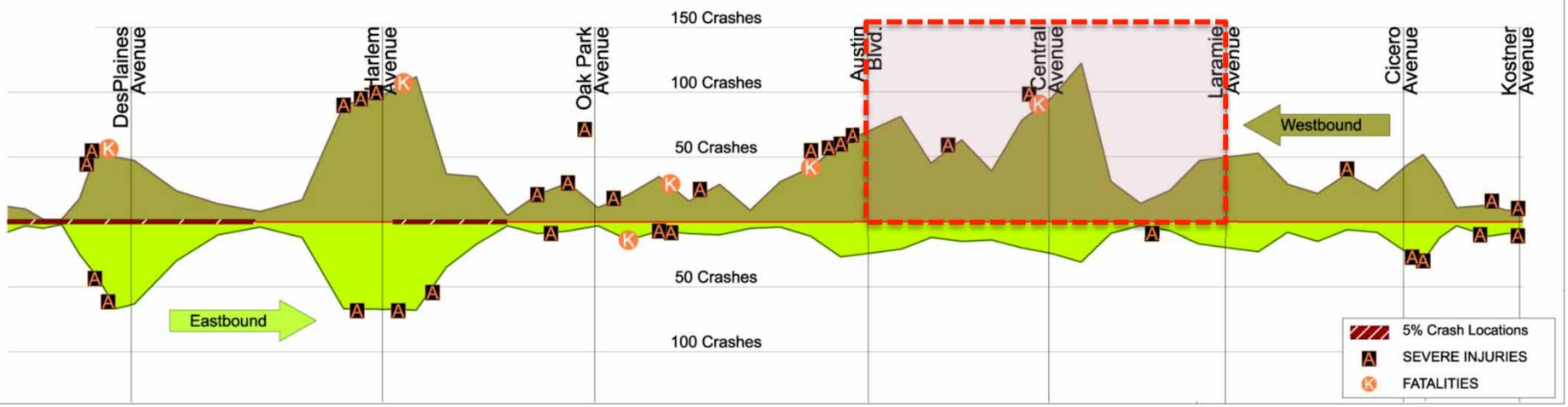
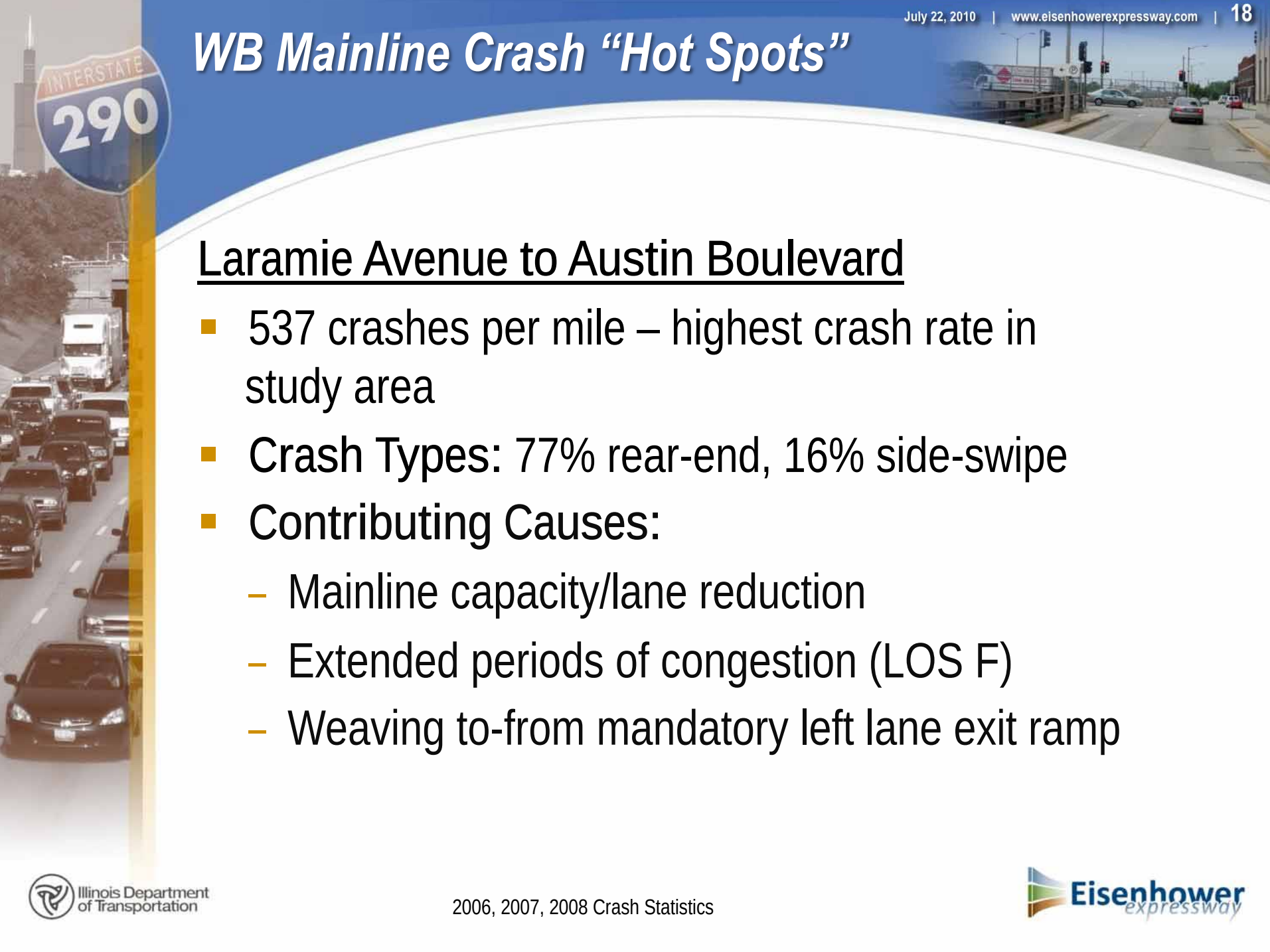


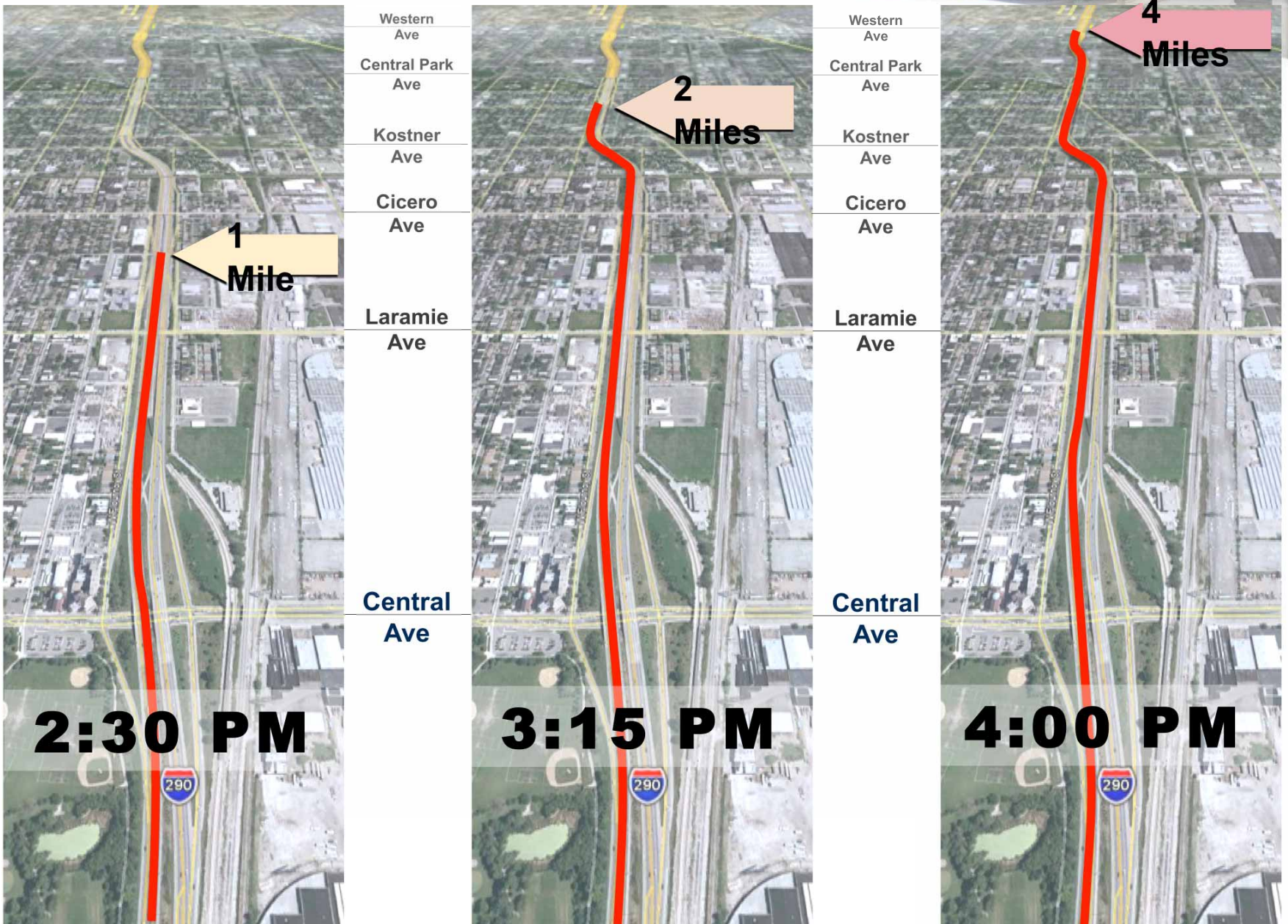
WB Mainline Crash "Hot Spots"



Laramie Avenue to Austin Boulevard

- 537 crashes per mile – highest crash rate in study area
- Crash Types: 77% rear-end, 16% side-swipe
- Contributing Causes:
  - Mainline capacity/lane reduction
  - Extended periods of congestion (LOS F)
  - Weaving to-from mandatory left lane exit ramp

WB Mainline Congestion Spillback from Austin Blvd. Lane Drop



I-290 WB Operations west of Austin Blvd. — PM Peak Period

WB Mainline Crashes "Hot Spots"

I-290 EISENHOWER EXPRESSWAY
MAINLINE OPERATIONS, DEFICIENCIES & CRASHES

CAG #5 PRESENTATION
July 22, 2010

SHEET 2 of 2

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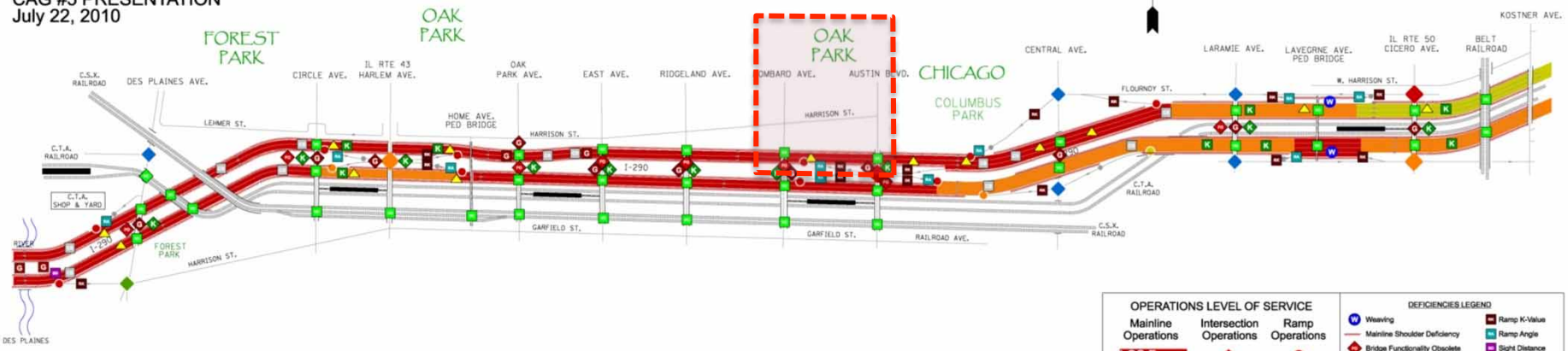

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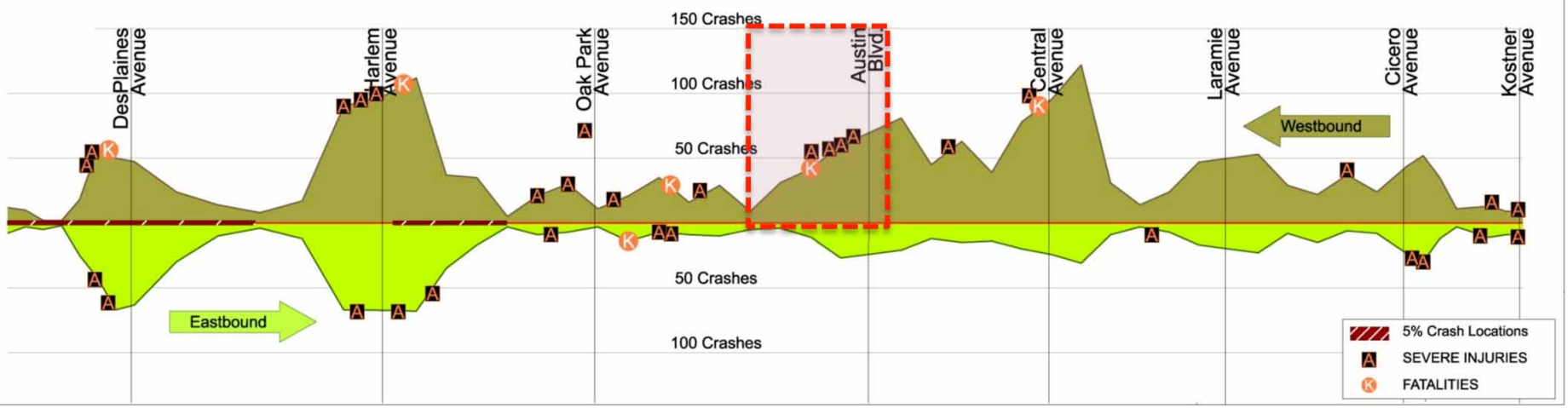
MAINLINE / CROSSROAD

- Cross Slope
- K K-Value
- G Grade
- Vertical Clearance



WB Mainline Crash "Hot Spots"

Austin Boulevard to west of Austin Blvd. on ramp

- 434 crashes per mile
- **Crash Types:** 83% rear-end, 10% side-swipe
- Contributing Causes:
  - Congestion (LOS F)
  - Narrow Shoulders
  - Left hand merging maneuvers

WB Mainline Crashes "Hot Spots"

I-290 EISENHOWER EXPRESSWAY
MAINLINE OPERATIONS, DEFICIENCIES & CRASHES

CAG #5 PRESENTATION
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SHEET 2 of 2

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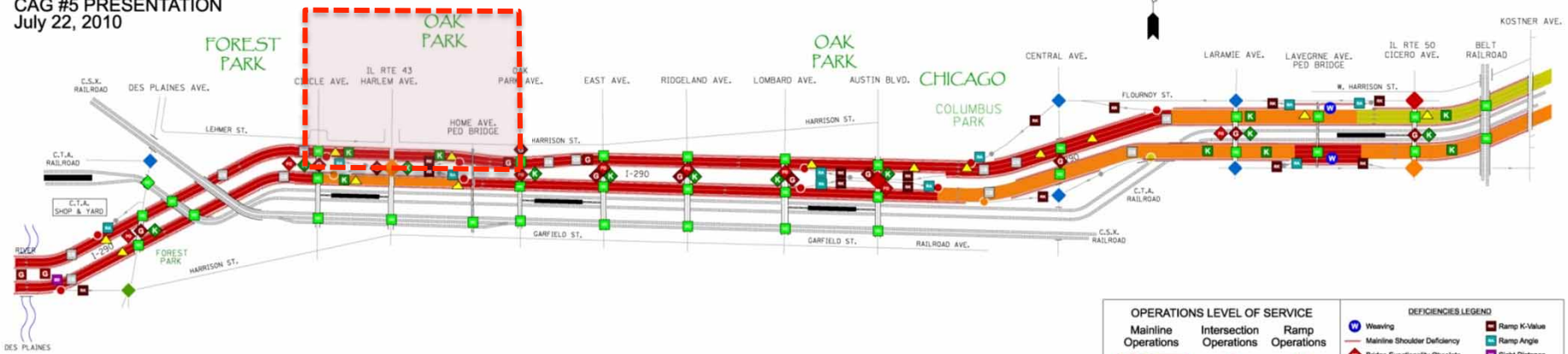

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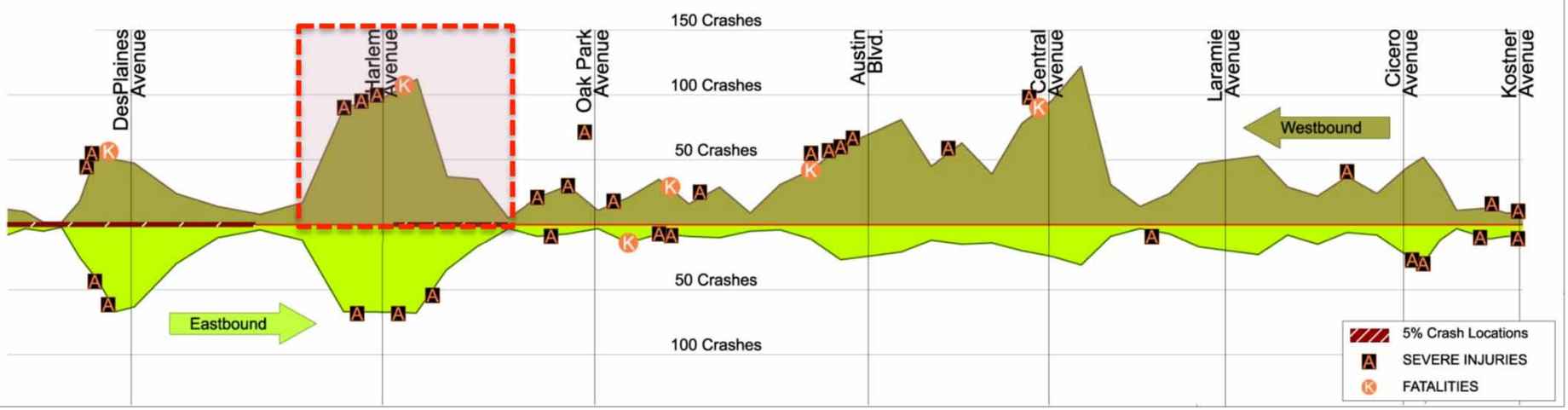
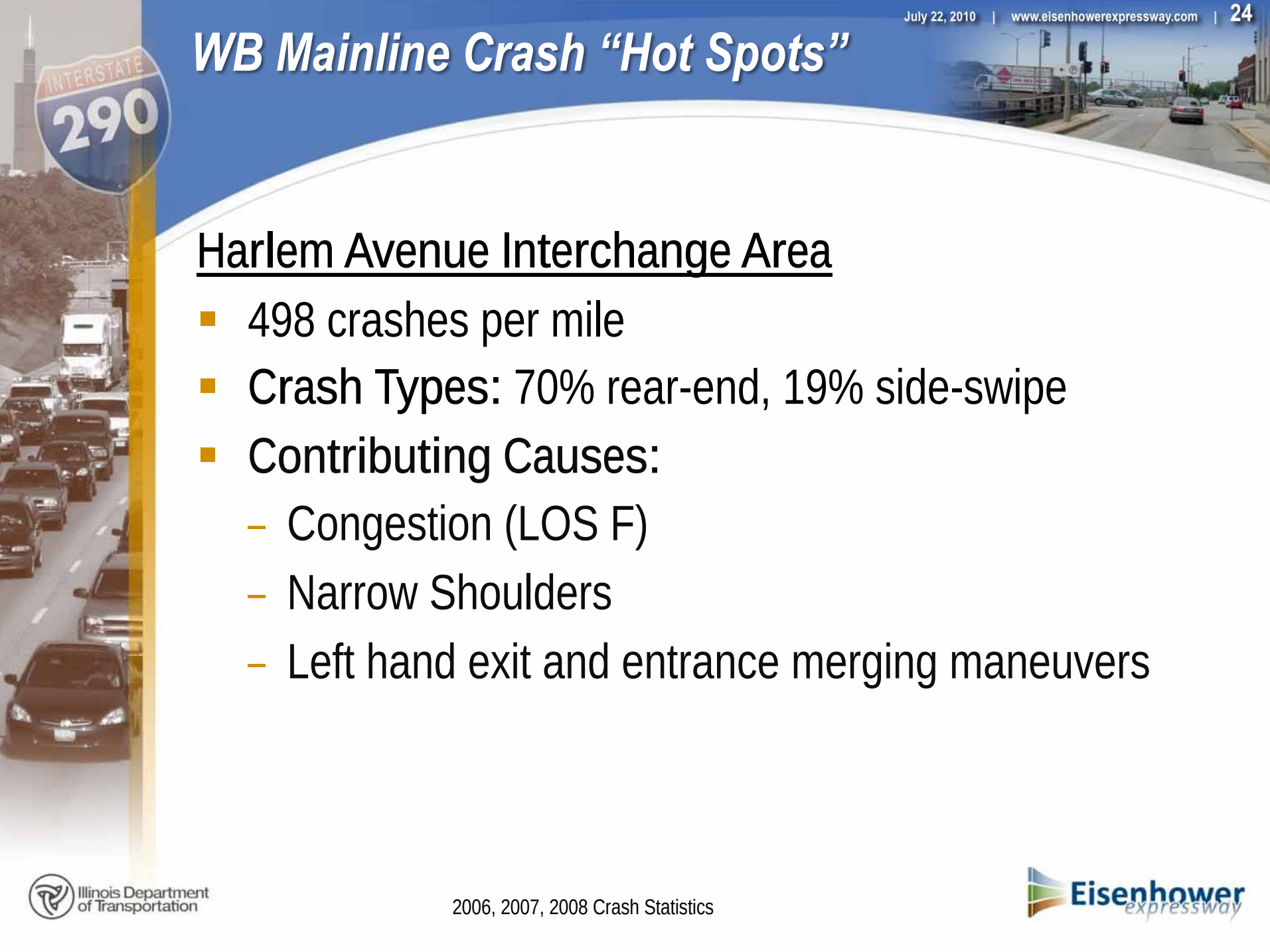


WB Mainline Crash "Hot Spots"



Harlem Avenue Interchange Area

- 498 crashes per mile
- Crash Types: 70% rear-end, 19% side-swipe
- Contributing Causes:
  - Congestion (LOS F)
  - Narrow Shoulders
  - Left hand exit and entrance merging maneuvers

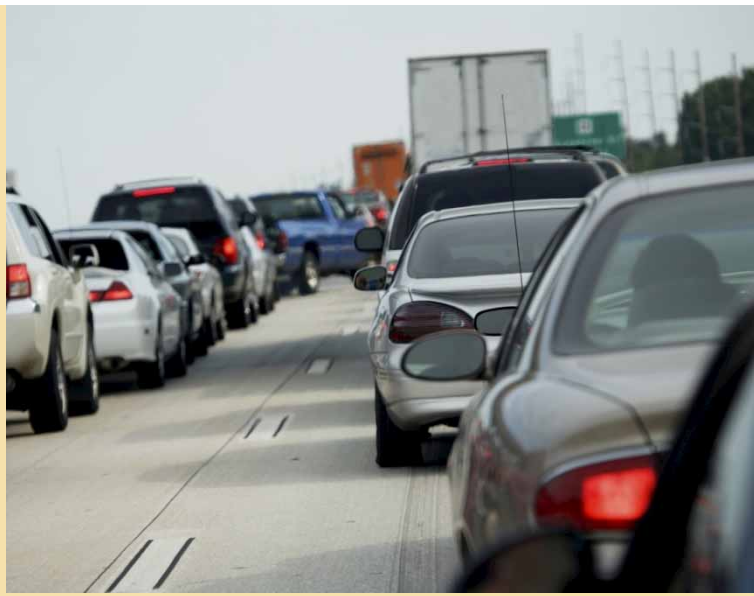
I-290 WB Operations at Harlem Ave PM Peak Period

Crossroad Crash Causes

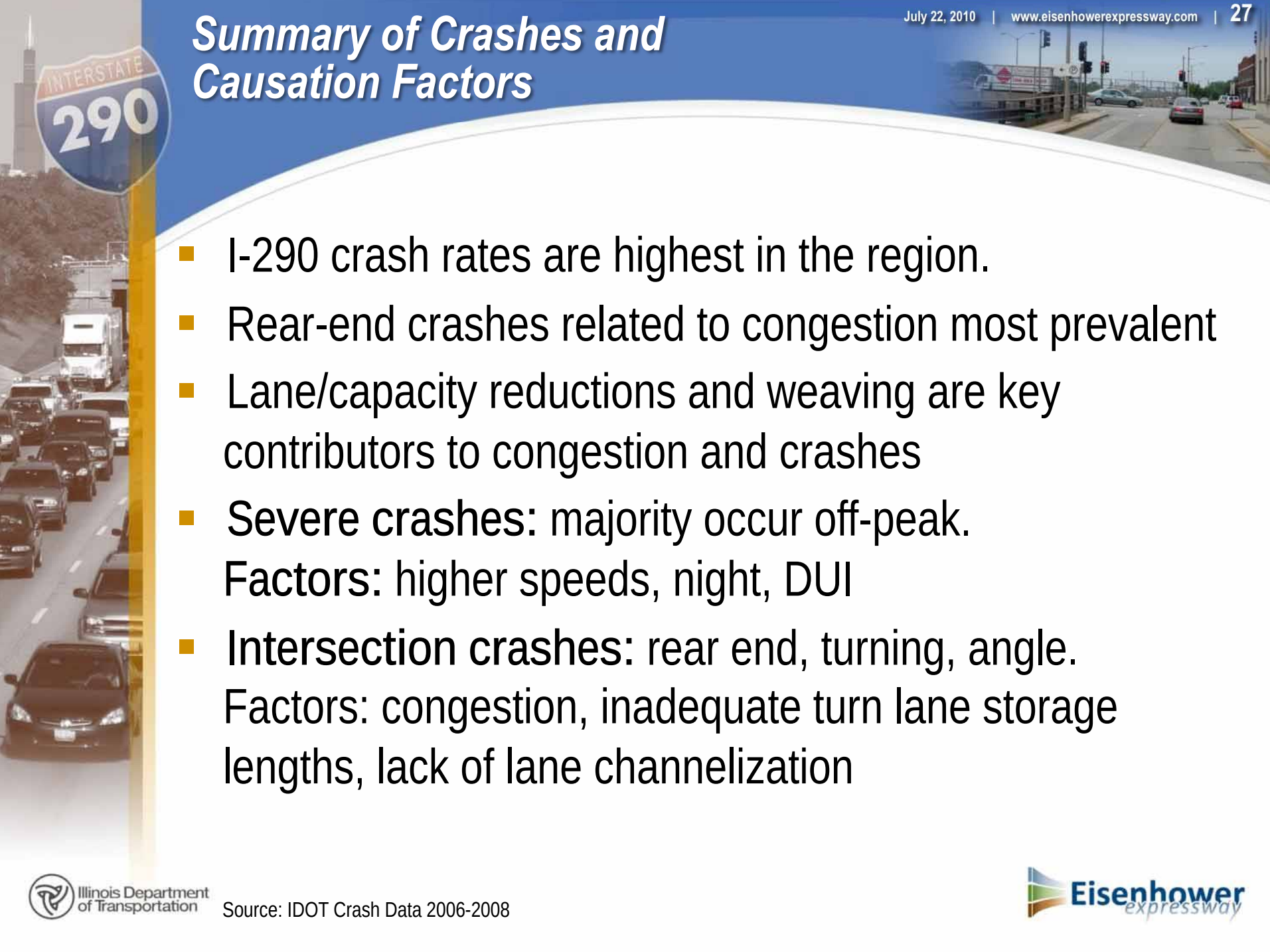
- Overall Crash Types:
  - 32% turning
  - 32% rear-end
  - 14% angle
  - 13% sideswipe

Contributing Causes:

- Congestion (demand exceeding capacity)
- Inadequate turn lane storage lengths
- Narrow lanes and lack of channelization



Summary of Crashes and Causation Factors



- I-290 crash rates are highest in the region.
- Rear-end crashes related to congestion most prevalent
- Lane/capacity reductions and weaving are key contributors to congestion and crashes
- **Severe crashes:** majority occur off-peak.
  Factors: higher speeds, night, DUI
- **Intersection crashes:** rear end, turning, angle.
  Factors: congestion, inadequate turn lane storage lengths, lack of lane channelization

Source: IDOT Crash Data 2006-2008

Distracted Driving

Definition: ***"any non-driving activity a person engages in while operating a motor vehicle"***

- **Visual** – taking your eyes off the road
- **Manual** – taking your hands of the wheel
- **Cognitive** – taking your mind off what you're doing

D!STRACTION.GOV

From US DOT website
www.distraction.gov

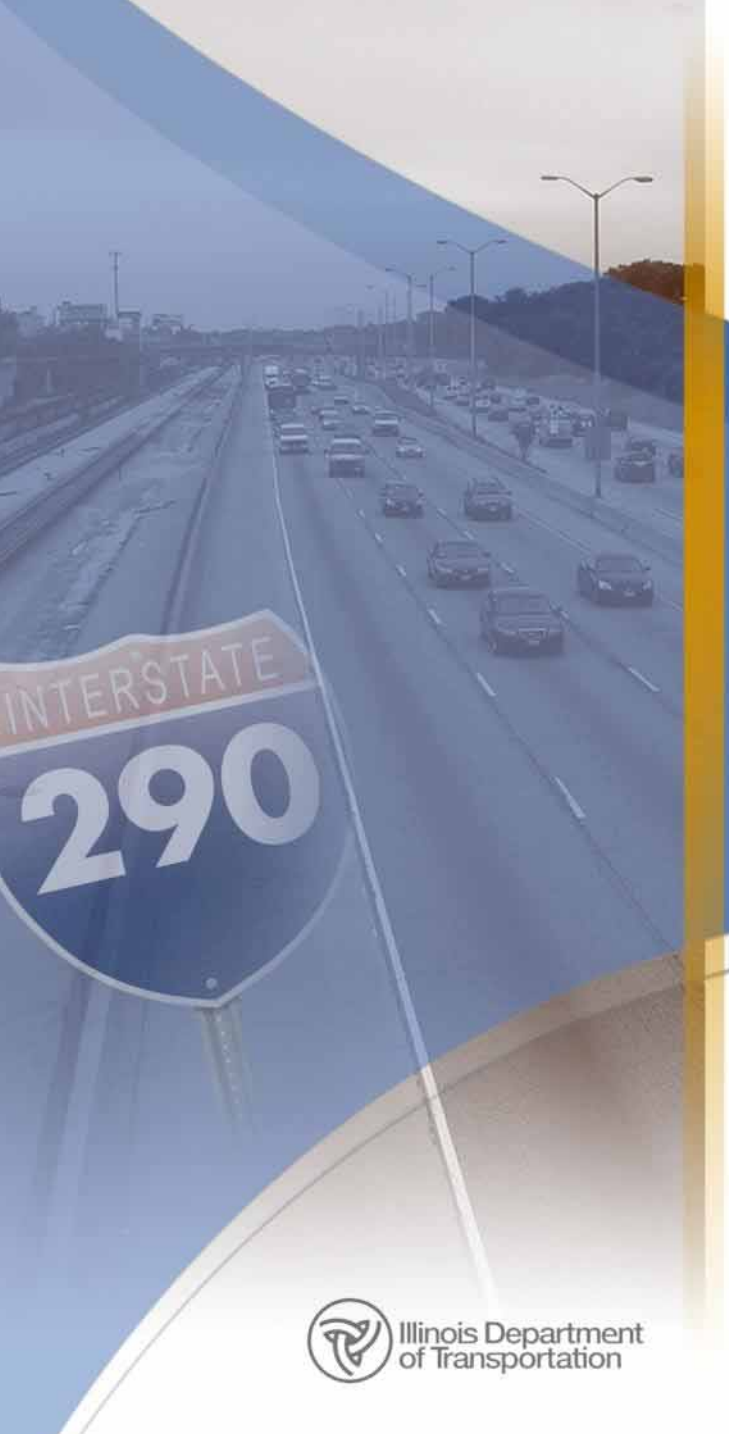
- 5,870 fatalities in 2008 attributed to distracted driving (16% of all)
- Younger drivers most susceptible
- Cell phone usage while driving can increase crash likelihood 4x
- Education and enforcement are most common tools against DD

Source: www.Distraction.gov, the official US DOT website for distracted driving

Detailed Crash Report

More detailed information can be found in the I-290 Crash Analysis Technical Memo

- Detailed Crash Data
- Mainline Section Analysis
- Ramp, Crossroad & Frontage Roads
- K&A Analysis
- Contributing Factors

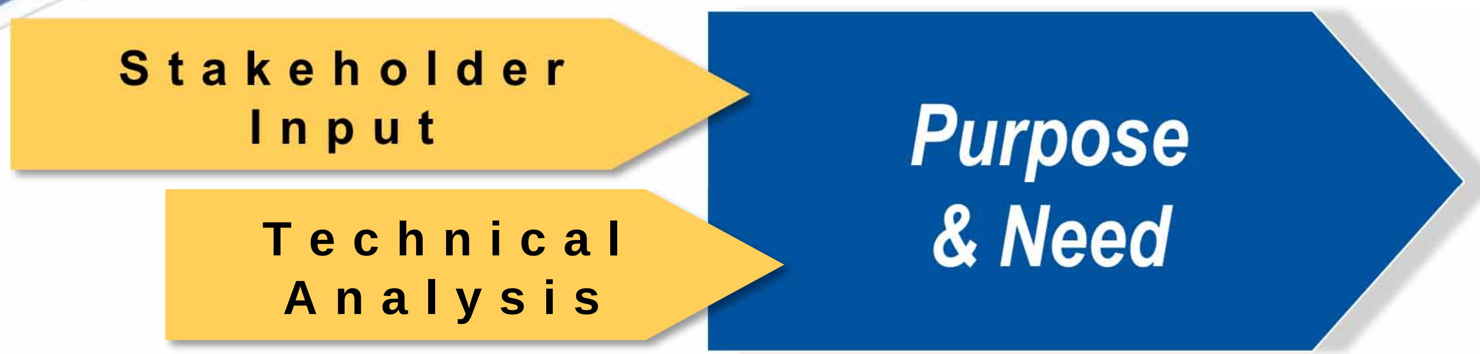


Purpose and Need Discussion

Illinois Department of Transportation

Eisenhower expressway

What is a Purpose & Need Statement?



- A summary of the transportation problems to be addressed – what are the needs, why should they be addressed
- Written broadly enough to consider a range of potential solutions
- Provides a basis for evaluating initial alternatives

Initial Needs Discussion

Regional and Local Travel

Technical Analysis Findings	Problem Statement	Stakeholder Input
• Heavy I-290 traffic congestion • Parallel arterial congestion • Need for improved connectivity • Improve reverse commute options	• Traffic congestion on I-290 and arterials • Improve mobility • Connectivity (north-south and east-west)	• Address corridor and regional travel needs • Maximize corridor mobility across all modes • Improve reverse commute options • Foster smart growth • Improve access to jobs

Initial Needs Discussion (continued)

Operational

Technical Analysis Findings	Problem Statement	Stakeholder Input
• **Roadway Operational Deficiencies:** – Poor Levels of Service on I-290 and Arterials – **Mainline:** Inadequate Capacity, Geometric Deficiencies, Basic # of Lanes and Lane Balance Deficiencies* – **Ramp Junctions:** Complex Maneuvers (Close Ramp Spacing), Non-Uniform Geometry, High Volumes, Inadequate Acceleration/Deceleration Lanes* – **Interchange Intersections:** Inadequate Capacity and Storage, Non-Optimized Signal Timing, Inadequate Geometry* • **Bus Transit:** Longer bus travel times, multiple transfers, varying service hours & frequencies	• Traffic congestion on Eisenhower Expressway and arterial roads • Transit speed of service	• Address I-290 traffic congestion. • Improve operation & performance of I-290 • Address the capacity-demand mismatch • Improve service for local and through trips • Address traffic congestion on 1st Ave. • Reduce arterial congestion

*Additional information since CAG #4

Needs Summary Points

Improve Local and Regional Travel

	Technical Analysis Findings	Problem Statement	Stakeholder Input
Regional Travel	◆	★	♥
▪ Substantial travel and congestion in the study area	◆	★	♥
▪ Mainline congestion 17 hours per day	◆		
– *97% of Mainline is LOS D or worse during peak hours*			
– *100% of Ramp Junctions are LOS D or worse during peak hours*			
Local Travel	◆	★	♥
▪ 7 of 10 interchanges have failing movements	◆		
▪ 92% of parallel arterials are congested or very congested	◆		
▪ Bus travel times & reliability worse due to arterial congestion	◆		

Needs Summary Points *(continued)*

Improve Local and Regional Travel *(continued)*

Technical Analysis Findings | Problem Statement | Stakeholder Input

Improve Access to Employment

- Capacity constraints and congestion limit ability to serve growth in traditional and reverse commute markets
- Traditional commute
  - *W/NW Cook & DuPage Co. workers traveling to Chicago face heavy study area congestion via roadways*
- Reverse commute
  - *Chicago workers traveling to W/NW suburbs face heavy study area congestion via roadways*
  - *More transit reverse commute options are needed*
- Study area
  - *All of the interstates segments & over half of the arterial street segments have congested vehicle miles of travel (CVMT)*

Initial Needs Discussion

Safety

Technical Analysis Findings	Problem Statement	Stakeholder Input
• I-290 high crash rates and # of crashes in comparison to similar area facilities* • Rear-end crashes most prevalent overall; congestion a contributing factor* • Crash "hot spots" – near Mannheim EB, Austin and Harlem WB* • **Severe crashes:** non-congested periods, higher speeds, DUI, mixture of crash types* • Bicycle/pedestrian crashes related to deficiencies*	• Roadway Safety • Improve safety of pedestrian and bicycle facilities	• Reduce crashes • Improve safety for motorists at interchanges • Left hand ramps • Detection and clearance of accidents • Harrison and Bataan Dr. frontage roads are not safe • Improve pedestrian safety at interchanges and rail stations

*Additional information since CAG #4

Needs Summary Points

Improve Safety for All Users

	Technical Analysis Findings	Problem Statement	Stakeholder Input
Pedestrian – vehicle conflicts on cross roads	◆	★	♥
ADA ramp and sidewalk deficiencies	◆		
Limited bicycle accommodations	◆	★	♥
I-290 experienced higher crash rates than comparable facilities	◆		

Needs Summary Points *(continued)*

Improve Safety for All Users *(continued)*

	Technical Analysis Findings	Problem Statement	Stakeholder Input
Predominant rear-end & side swipes crashes **Contributing factors:** congestion, weaving & geometrics	◆		
– **EB high crash segments:** W. of 25th, 25th to 1st and DesPlaines to Harlem	◆		
– **WB high crash segments:** Laramie to Austin and East Ave. to CSX Overpass	◆		

Initial Needs Discussion

Modal Opportunities & Connections

Technical Analysis Findings	Problem Statement	Stakeholder Input
• Lack of transit reverse commute options, connections to employment centers • Problematic intermodal connections (Pace/CTA/Metra) • Problematic pedestrian access to transit • Bus stops for CTA stations in traffic lanes & opposite stations • Constrained Metra/CTA park-and-ride facilities • Bicycle facility deficiencies • ADA access deficiencies	• Lack of transit reverse commute options & access • Improved connectivity and accessibility for pedestrian and bicycle	• Improve access to jobs by multiple modes of transportation • Improve trail connectivity • Improve bicycle access to CBD and lakefront • Improve access to recreational opportunities • Improve pedestrian crossings over and along corridor

Needs Summary Points

Improve Modal Connections & Opportunities

	Technical Analysis Findings	Problem Statement	Stakeholder Input
▪ Improve Transit Connections	◆	★	♥
– CTA Blue Line station access	◆	★	♥
• Poor pedestrian environment due to pedestrian/vehicle conflicts & narrow sidewalks			
• Bicycle access difficult due to lack of bicycle lanes & inadequate shoulders			
• Bus transfers block traffic & may require passengers to cross traffic			
• CTA intermediate stations are non-ADA compliant			
– Congested auto access and constrained capacity at CTA Forest Park park-and-ride facility	◆		

Needs Summary Points (continued)

Improve Modal Connections & Opportunities (cont.)

	Technical Analysis Findings	Problem Statement	Stakeholder Input
Improve Non-Motorized Connections	◆	★	♥
• Limited access opportunities across I-290 corridor			
• Pedestrian and bicycle facilities substandard			
• Some sidewalks non-ADA compliant			

Initial Needs Discussion

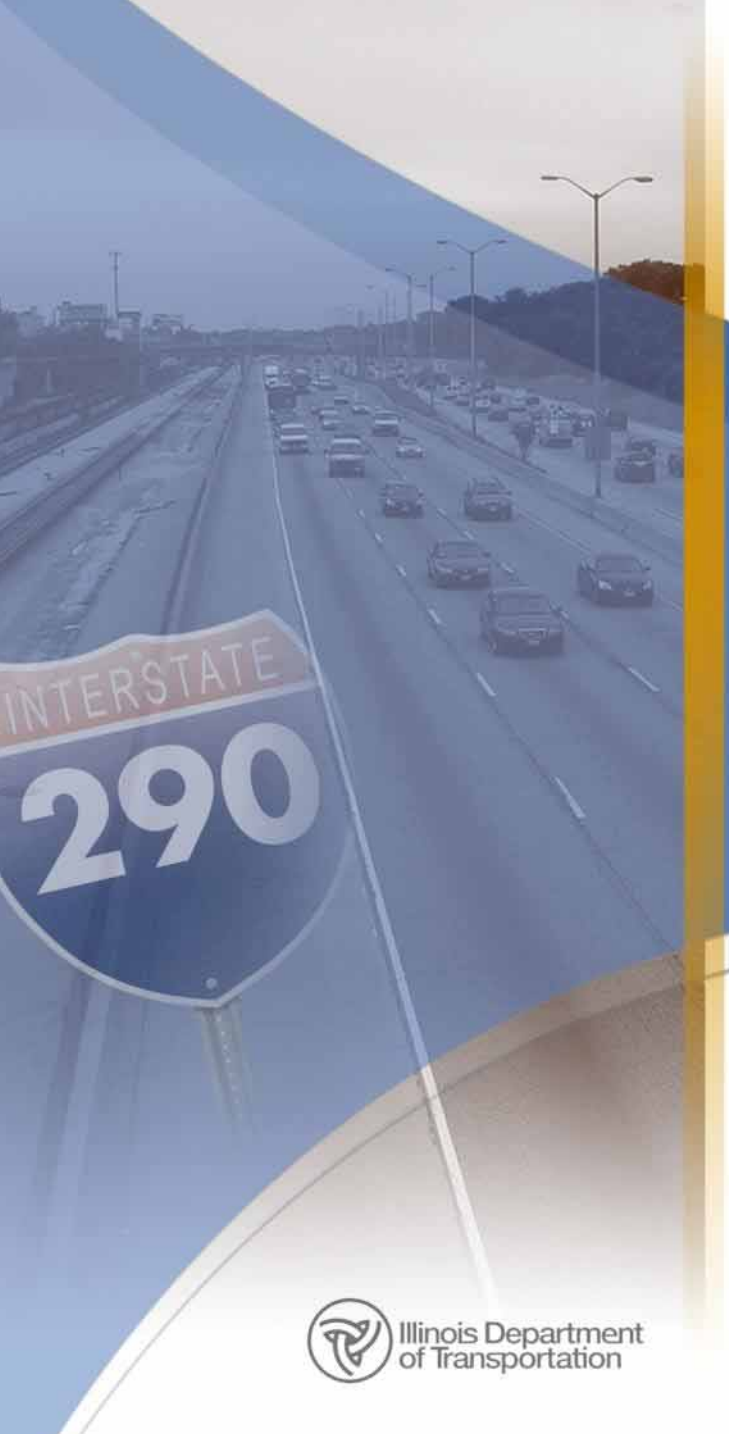
Age/Design

Technical Analysis Findings	Problem Statement	Stakeholder Input
• I-290 pavement & CTA track bed/yard & shop nearing end of useful life • Substandard I-290 geometrics (shoulders, ramps, intersection turning, vertical profile & clearance, bridge functional obsolescence) • Inadequate storm sewer system in trench (I-290/CTA/CSX) & obsolete pump station • CTA intermediate stations not ADA compliant & Metra station improvements • Varied bus stop infrastructure • CSX vertical clearance & grade	• Infrastructure condition • Safety • Physical community cohesion	• Increase lifespan of roadway • Address poor condition • In need of repair • Fix pavement buckles • Address uniformity of ramps • Lengthen ramps • Address narrow shoulders • Bridges are in poor condition

Needs Summary Points

Improve Facility Condition/Design

	Technical Analysis Findings	Problem Statement	Stakeholder Input
Original design & construction of I-290 over 50 years old			
– Pavement base requires reconstruction	◆	★	♥
– Address Structure condition	◆	★	♥
– Address Geometric Design	◆	★	♥
• Mainline			
• Interchanges			
• Clearances			
• Drainage			

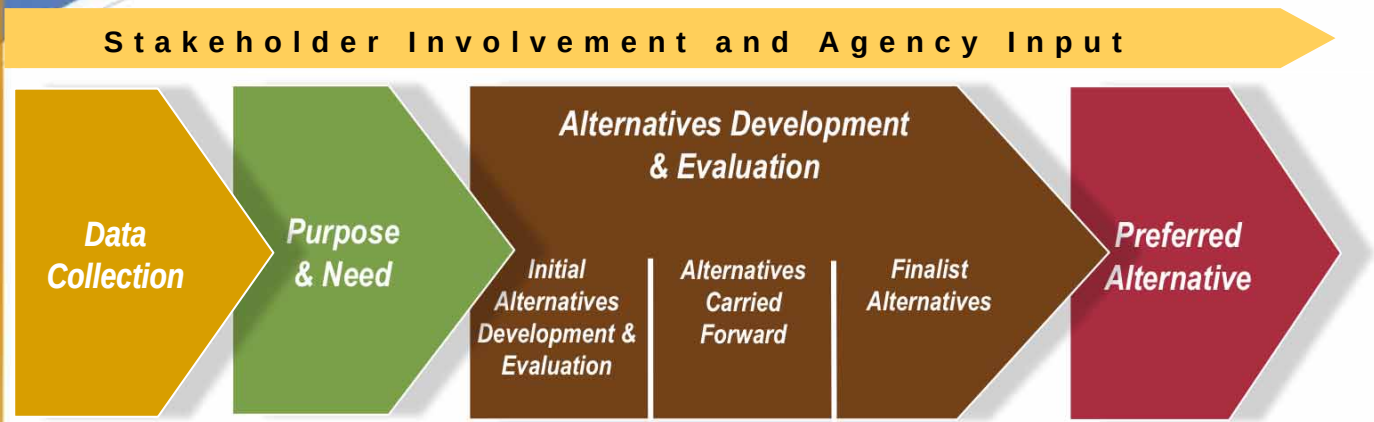


Alternatives Development Process

Illinois Department of Transportation

Eisenhower expressway

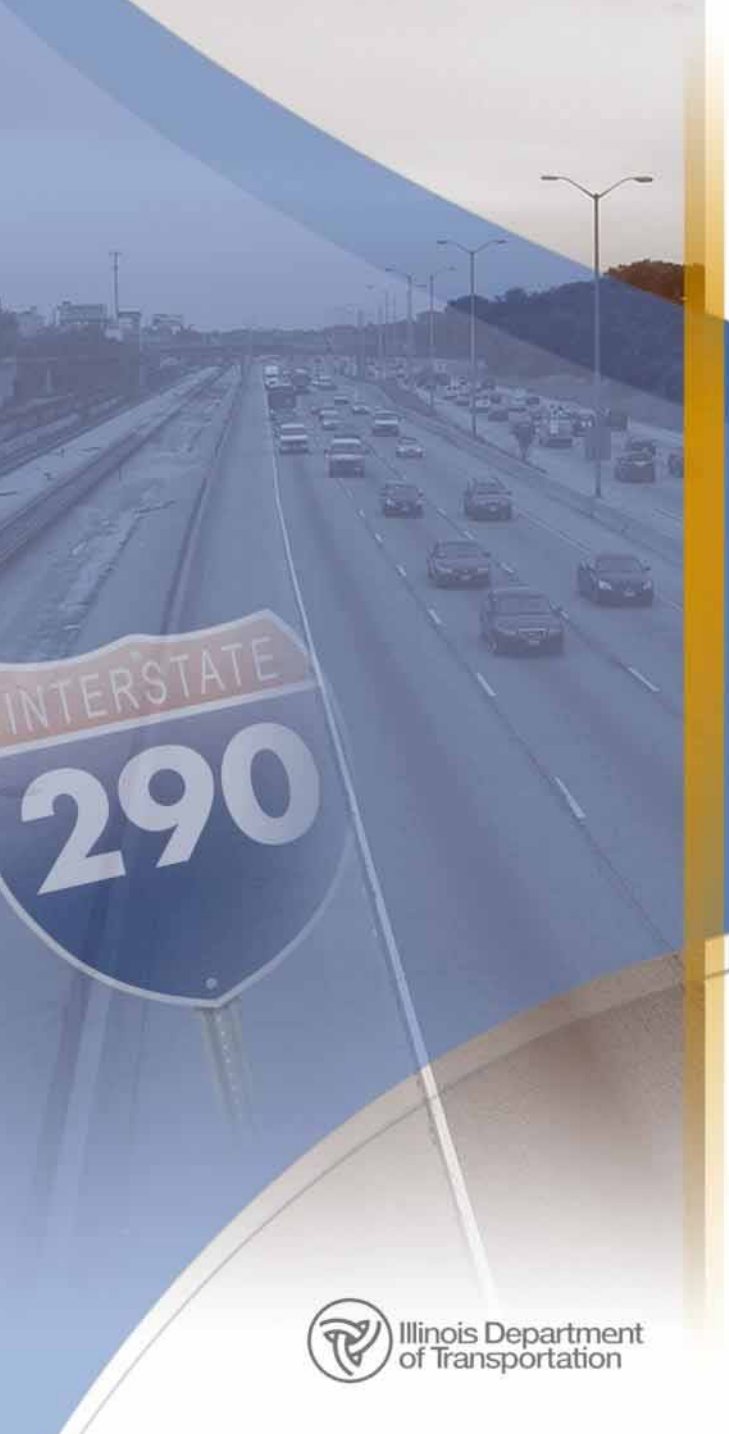
Alternatives Development Process



- Reasonable alternatives identified and evaluated to address established needs
- Conceptual to Detailed
  - Stakeholder input
  - Refinement
  - Evaluation
  - Repeat
- Single Modes to Combinations

Alternative Evaluation Criteria

- Travel Benefits
- Impacts (built and natural)
- Cost
- Sustainability



Next Steps

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Next Steps

- Draft Purpose & Need
- Evaluation Measures
- Initial Alternatives Workshop

Upcoming Meeting

SAVE THE DATE...

Corridor Advisory Group and Task Force Meeting #6

September 2010

Date and Location TBA

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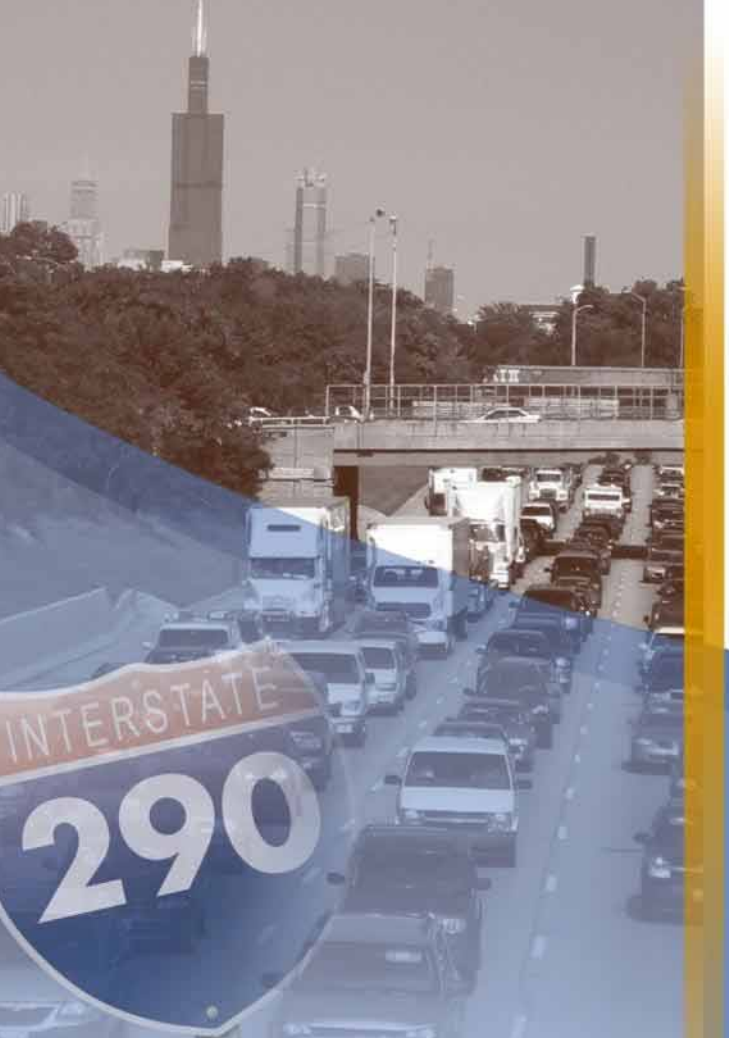
Eisenhower expressway



Questions?

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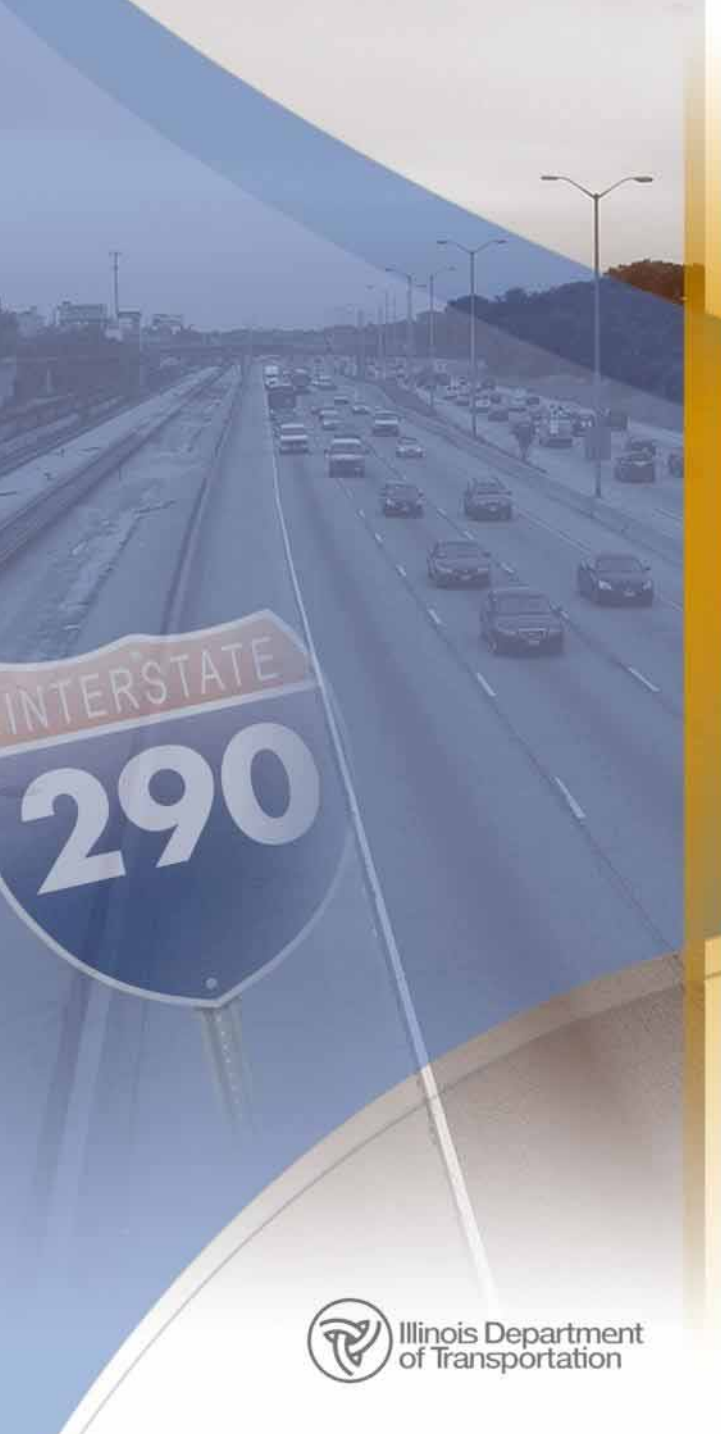

Transportation Toolbox Presentations

- Safety
- Managed Lanes
- Transit

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