City of Madison: LRTPC

WisDOT SWR Major Studies Update

September 29, 2016

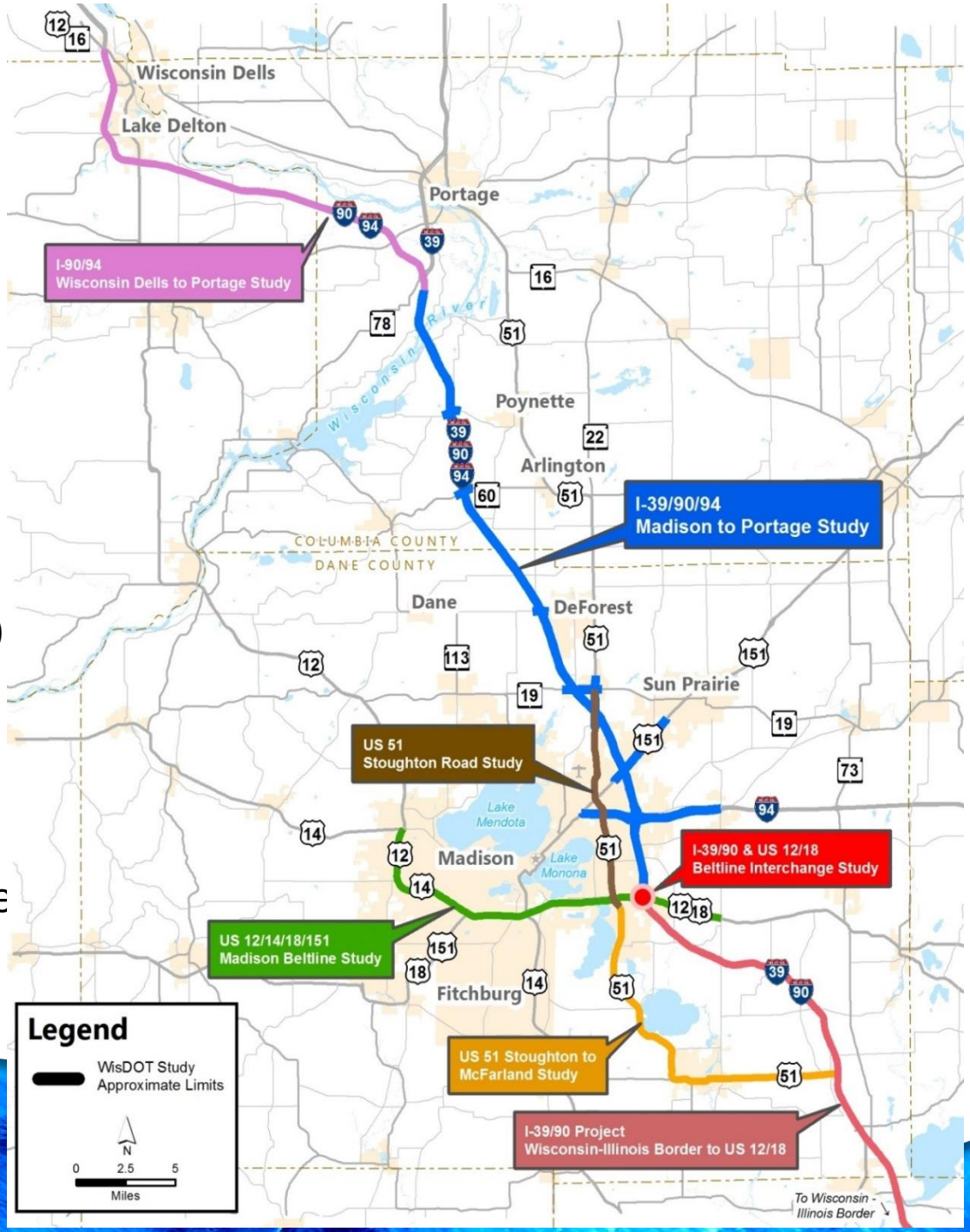
Agenda

WisDOT SWR Major Studies Update

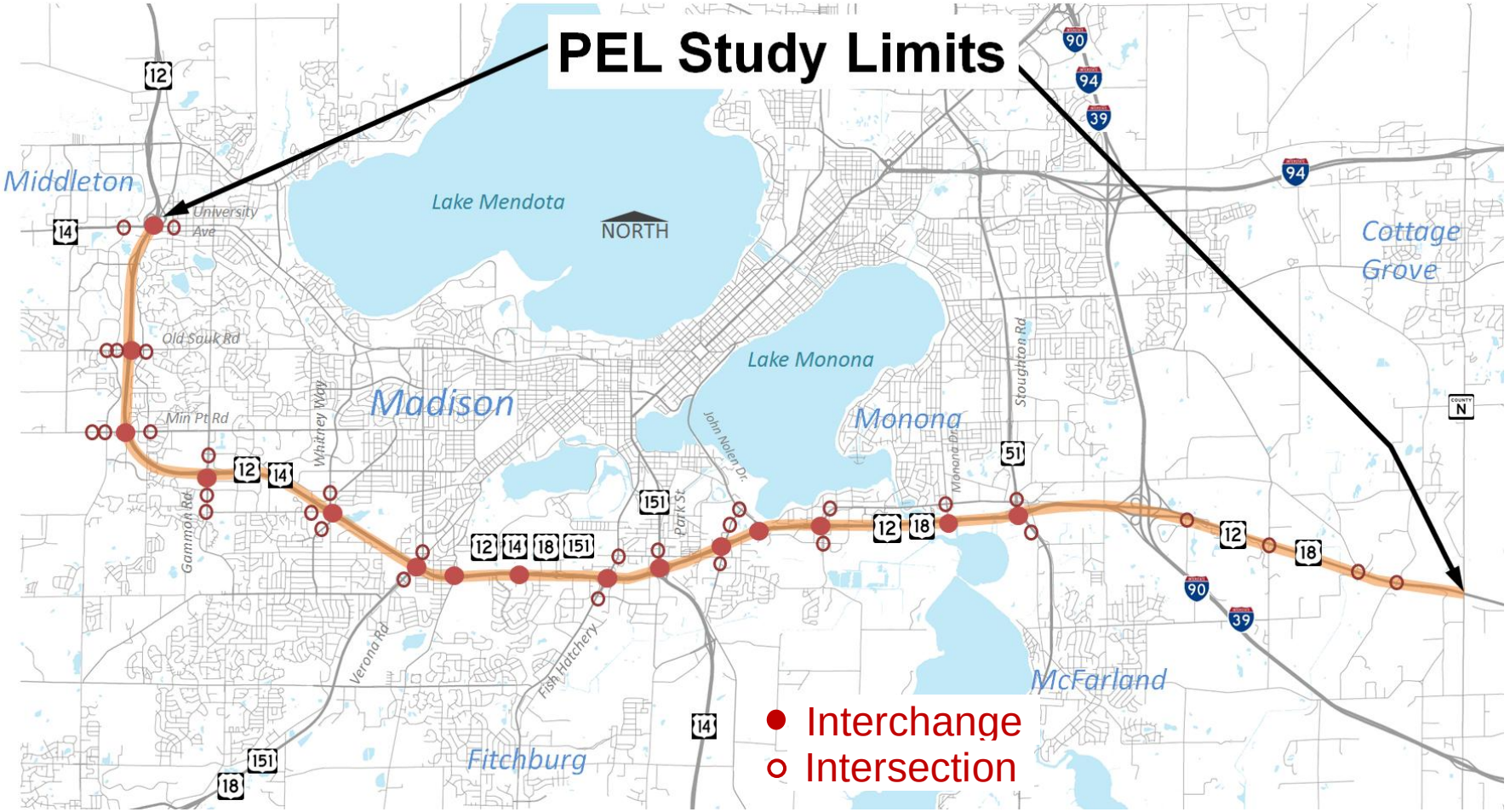
- Madison Beltline Study
- US 51 Stoughton Road Study
- US 51 Stoughton – McFarland Study
- I-39/90/94 (Madison – Portage) Study
- WIS 19 Non-Major Corridor Study

SWR Major Studies

- Madison Beltline Study
- US 51 Stoughton Rd Study
- US 51 Stoughton – McFarland Study
- I-39/90/94 (Madison – Portage) Study
- I-90/94 (Wis Dells – Portage) Study
- I-39/90 & US 12/18 Interchange (BIC) Study (MEGA)

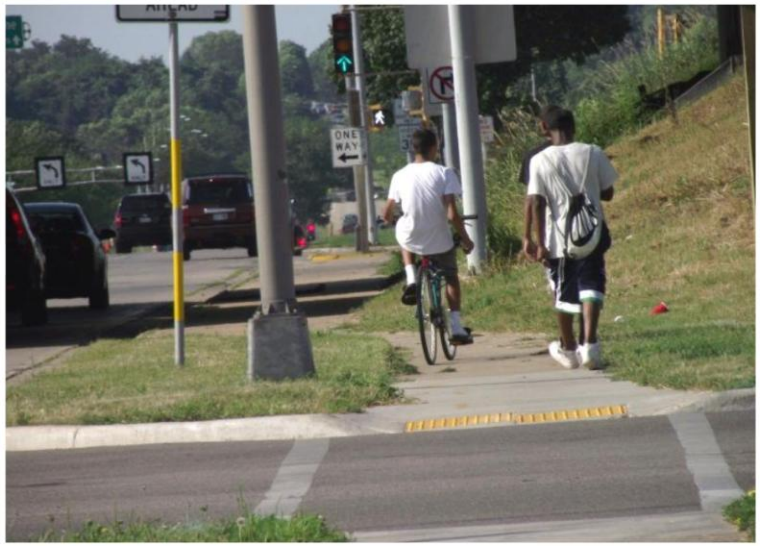


Beltline Study Limits

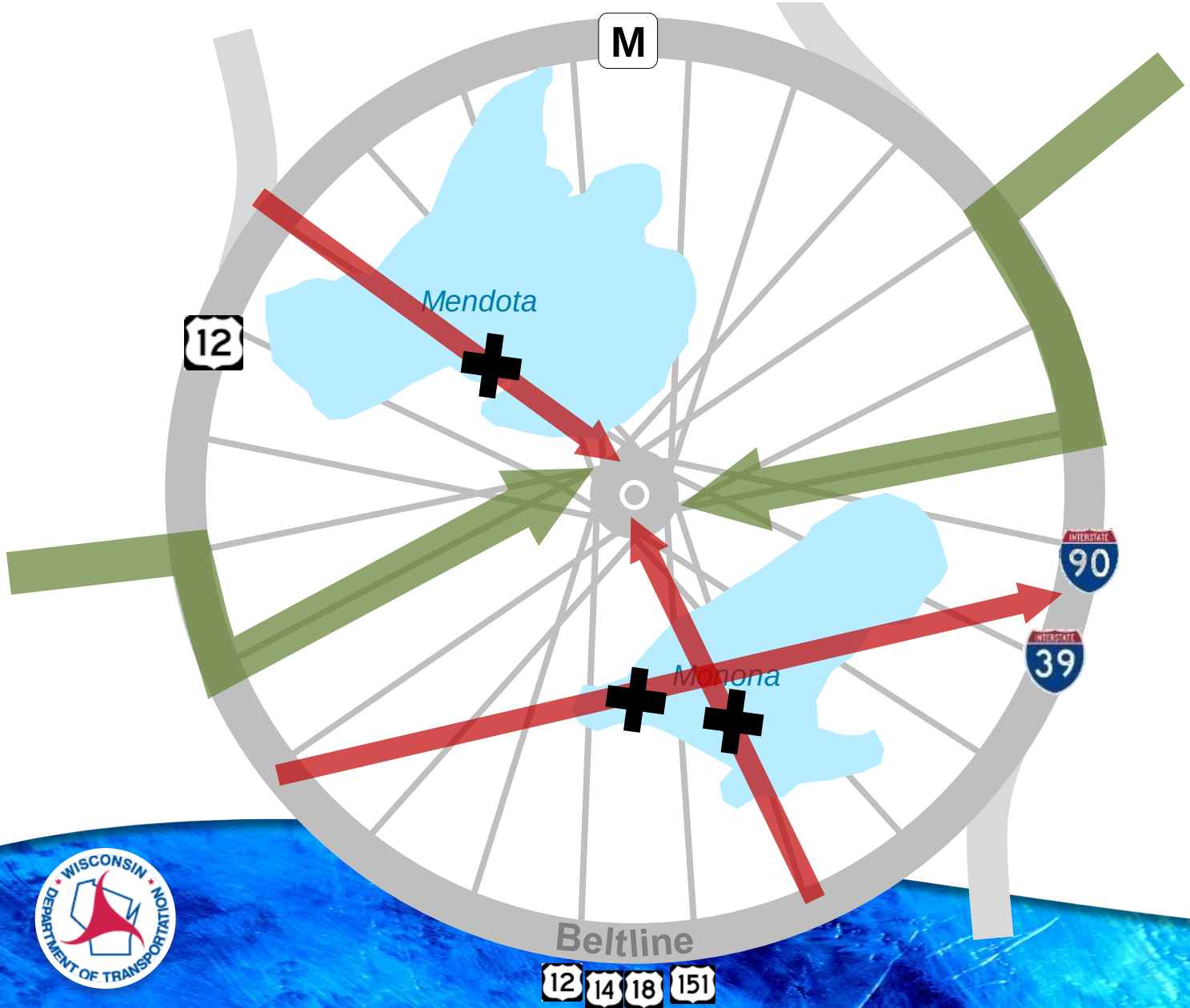


Why is the Beltline being studied?

- Motor vehicle congestion
- High crash rate
- Complex Regional traffic patterns
- Bike/pedestrian accommodation needs
- Transit needs
- Few alternate routes
- Deteriorating physical conditions



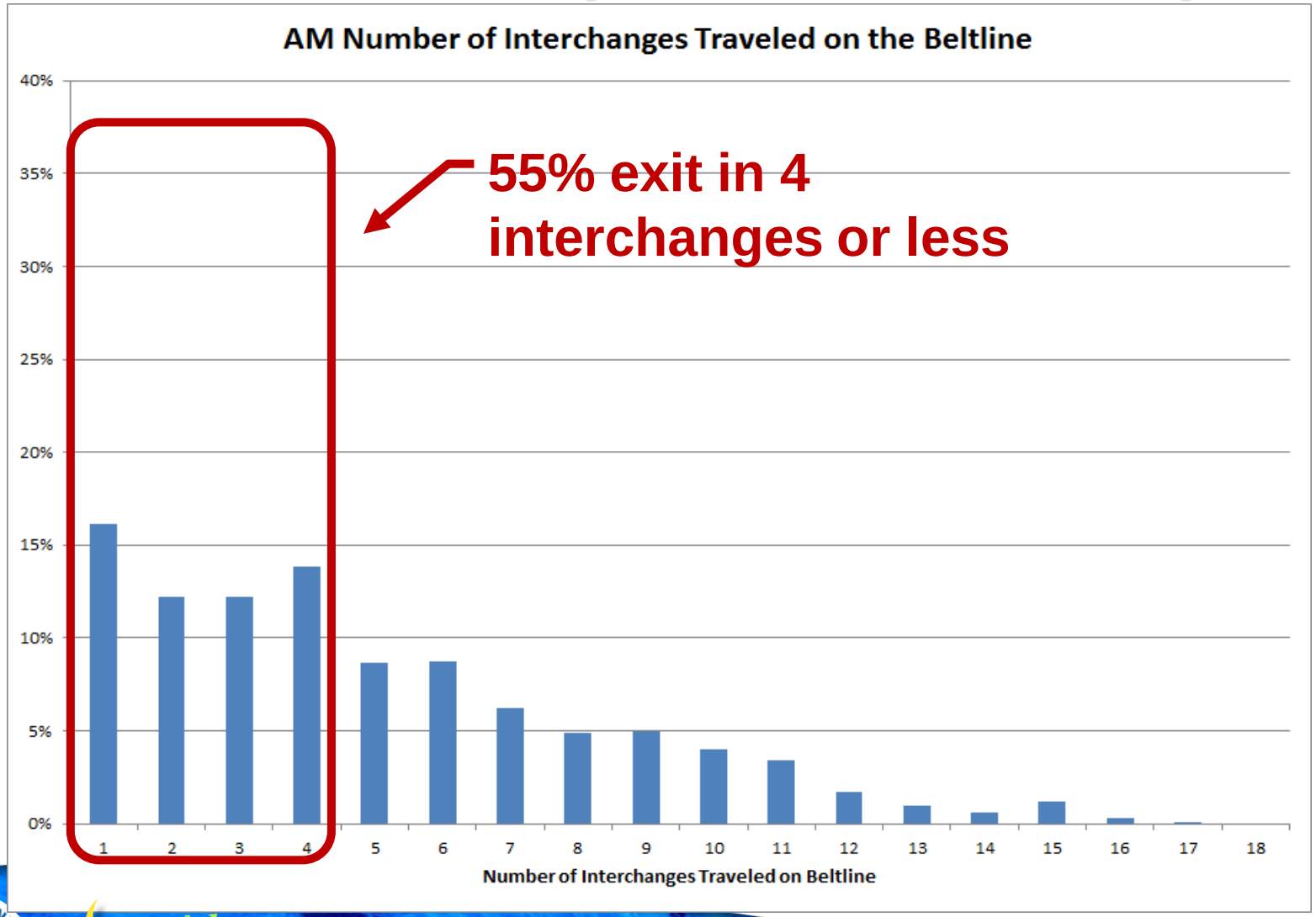
Geographically challenging travel



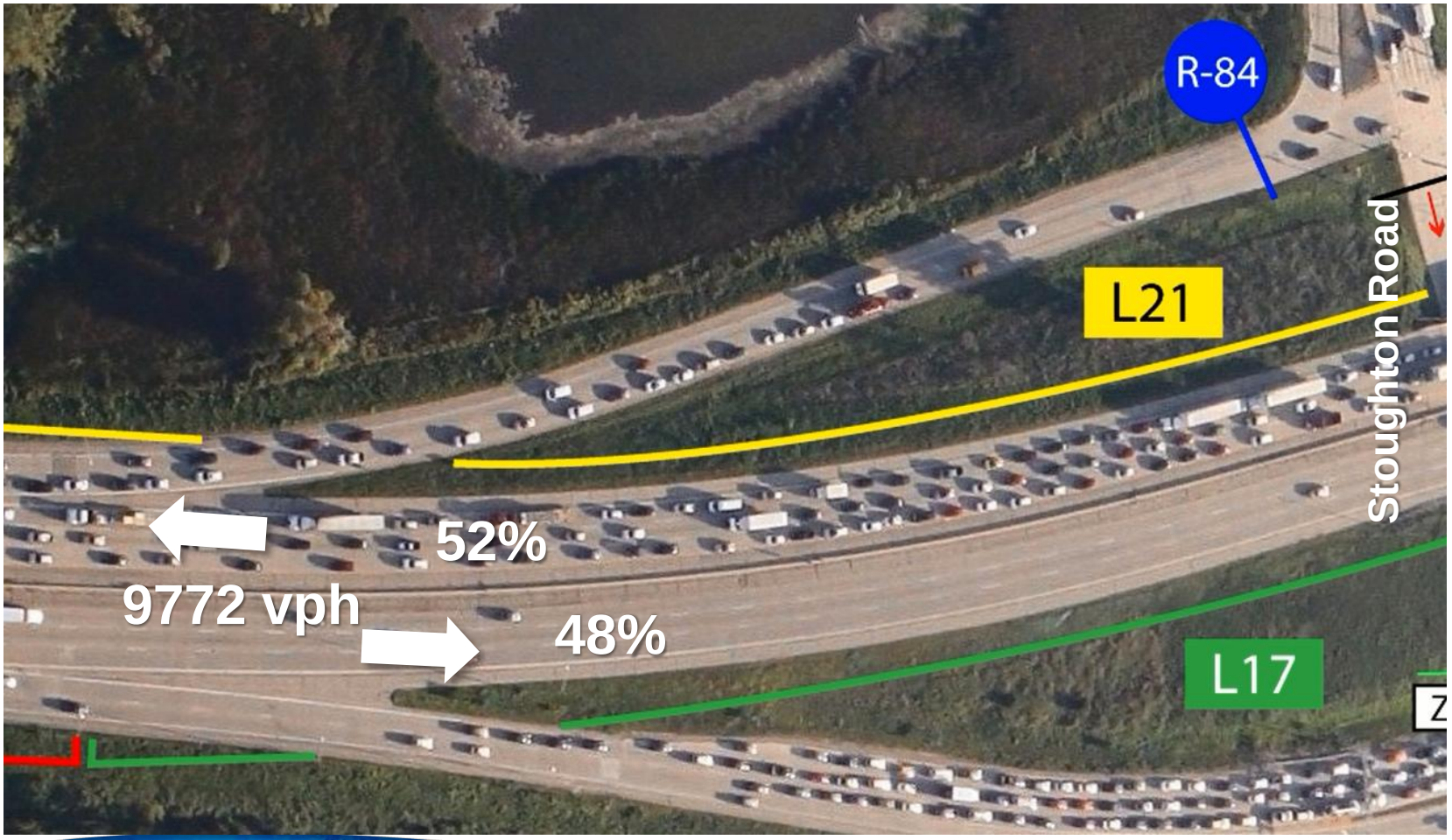
Direct

Indirect

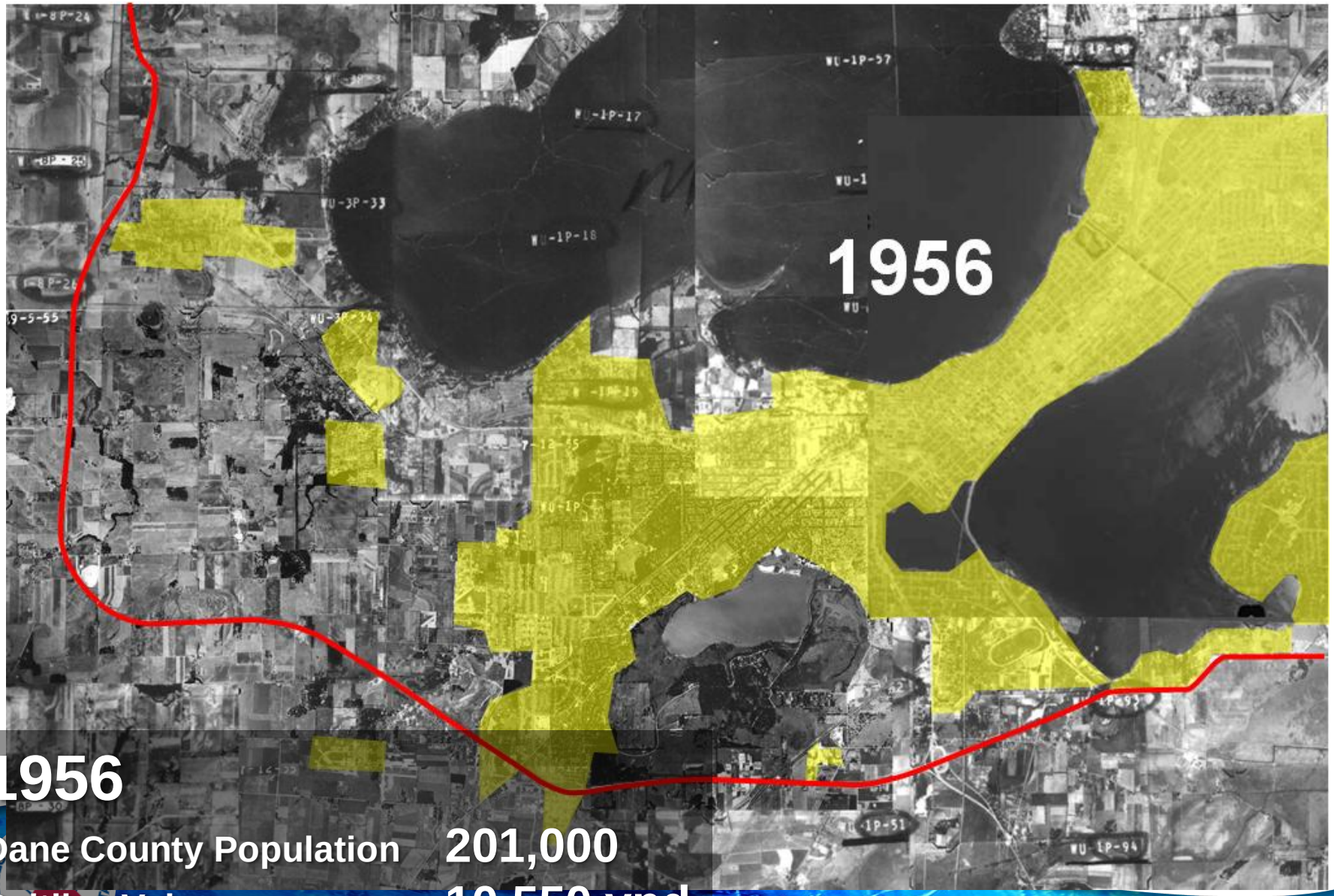
Beltline traffic comprised of short trips



The problem is more than just volumes



Important resources located adjacent to Beltline



1956

Dane County Population	201,000
Beltline Volume	10,550 vpd


2012
2013
Dane County Population 503,000
Beltline Volume 123,000 vpd
2.5 X
10.5 X

Beltline Study: Three Parts

Part 1 : O/D Study

- Data Collection = Summer/Fall 2012
- Analysis = 2013/14
- Completed Report = Fall 2014

Part 2: Planning and Environment Linkages (PEL) Study

- Work Plan = Fall 2012
- Completion = Fall 2016

Part 3: Environmental Impact Statement

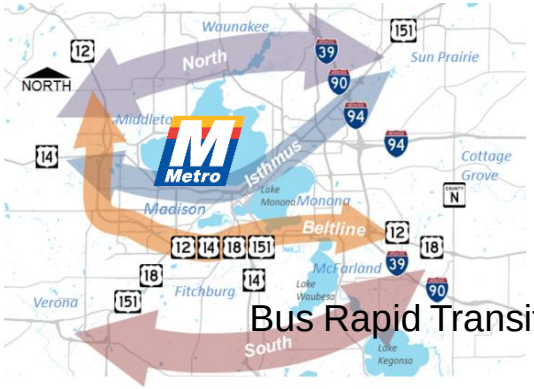
- Begin = Fall/Winter 2016
- Anticipated Completion Dates

(Multiple environmental documents)

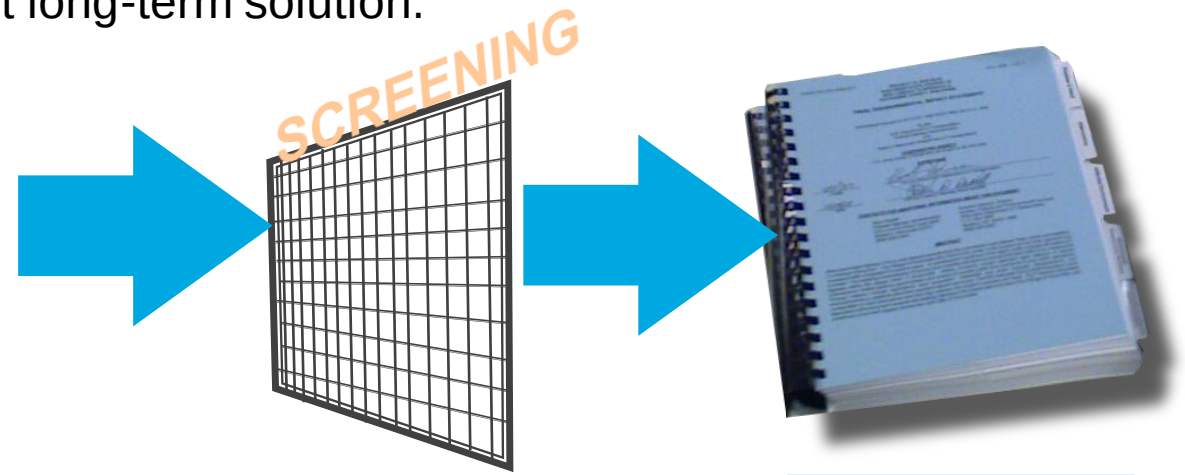
2018-2022

PEL process is Outreach Focused

A COLLABORATIVE approach to transportation decision making that engages a broad spectrum of agencies and community stakeholders and considers the area's long-term environmental, community and economic goals in developing the best long-term solution.



Bus Rapid Transit



Develop Problem Statement, Goals, and Objectives → **Develop Screening Criteria** → **Develop Strategies and Evaluate (Screen)** → **Identify Strategies to Bring Forward into NEPA**

We are here

Beltline PEL Objectives are Multi-Modal

- Improve safety for all travel modes.
- Address Beltline infrastructure condition and deficiencies.
- Address system mobility (congestion) for all travel modes.
  1. Pedestrian
  2. Bicycle
  3. Transit
  4. Local and regional passenger vehicles
  5. Freight
- Limit adverse social, cultural, and environmental effects to the extent practicable.
- Increase system travel time reliability for regional and local trips.
- Improve connections across and adjacent to the Beltline for all travel modes.
- Enhance efficient regional multimodal access to Madison metropolitan area economic centers.
- Decrease Beltline traffic diversion impacts to neighborhood streets.
- Enhance transit ridership and routing opportunities.
- Improve pedestrian and bicycle accommodations.
- Complement other major transportation initiatives and studies in the Madison area.
- Support infrastructure and other measures that encourage alternatives to single occupancy vehicle travel.

Beltline Stakeholder Involvement

Government

- City of Madison – Department of Civil Rights
- Village of Cottage Grove
- South Metropolitan Planning Council
- Village of Oregon
- Dane County Executive's Office
- Village of DeForest
- City of Madison PBMVC
- City of Madison LRTPC
- City of Madison Planning Commission
- City of Middleton Council
- Village of Maple Bluff
- City of Fitchburg Public Works
- City of Fitchburg Council
- Village of Waunakee
- City of Stoughton
- Local Government Briefings–3 meetings

Groups

- Network of Black Professionals
- Greater Madison Chamber of Commerce (GMCC)-Public Policy Committee
- Madison Region Economic Partnership (MADREP)
- Smart Growth Greater Madison
- John Muir Sierra Club
- State Smart Transportation Initiative
- Centro Hispano
- Urban League of Greater Madison
- Allied Area Taskforce
- Downtown Madison Inc.- Trans. & Parking Committee-Bicycle subcommittee

Neighborhoods

- East Madison Monona Rotary Club
- Meadowood Neighborhood Association
- Waunakee Rotary Club
- Madison South Rotary
- Greater Madison Convention & Visitors Bureau-Community Relations Committee
- Greater Madison Convention & Visitors Bureau (GMCVB)
- YWCA – Construct U Class
- Arbor Hills Neighborhood
- Rotary Club of Madison – West Towne
- Town of Verona
- Latino Academy
- Orchard Ridge Neighborhood Association
- Madison West Rotary Club
- Dunn's Marsh Neighborhood Association
- Wisconsin Energy Institute
- Optimist Breakfast Club of Madison
- Madison Horizons Rotary
- Leopold Neighborhood Assoc.
- Realtors Assoc. of South Central Wisconsin–Government Affairs Committee
- UW Arboretum
- University Research Park
- YWCA
- Downtown Madison Rotary
- National Active Retired Federal Employees Association

Committees

- Policy Advisory Committee (PAC)–10 meetings
- Technical Advisory Committee (TAC)–9 meetings
- Agency Meetings–3 meetings
- Transit Focus group–2 meetings
- Bike/Pedestrian Focus Group–6 meetings

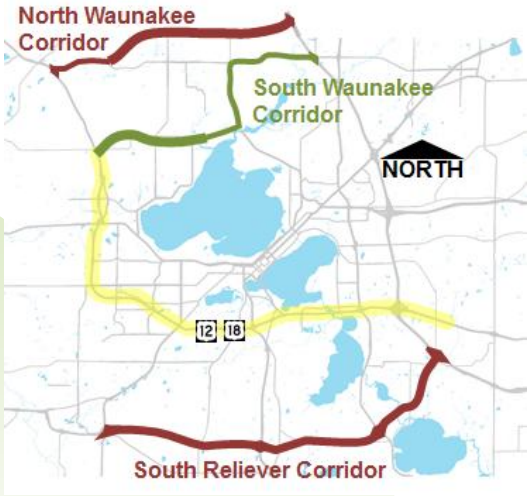
170+ Meetings since start of PEL

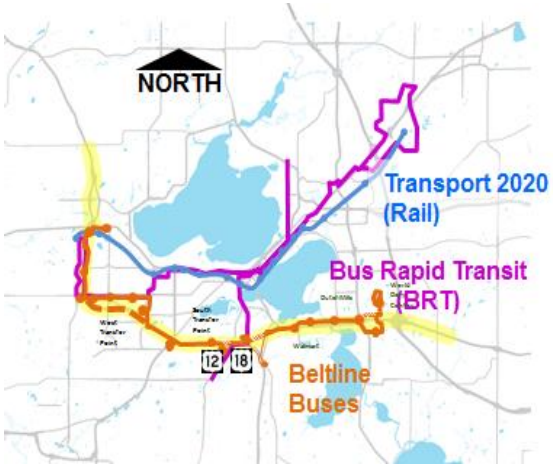
- Public Involvement Meetings (PIMs)–22 meetings

Screening strategies

High Level look at Broad Range of Potentially Effective **Stand-alone Strategies**

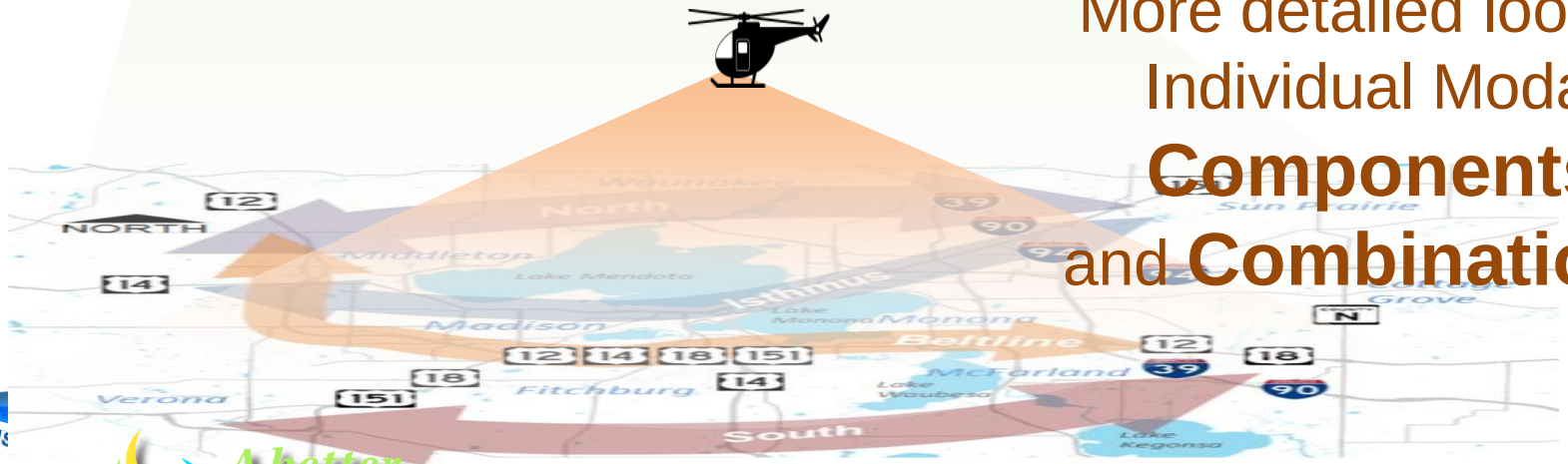
Alternate Corridors



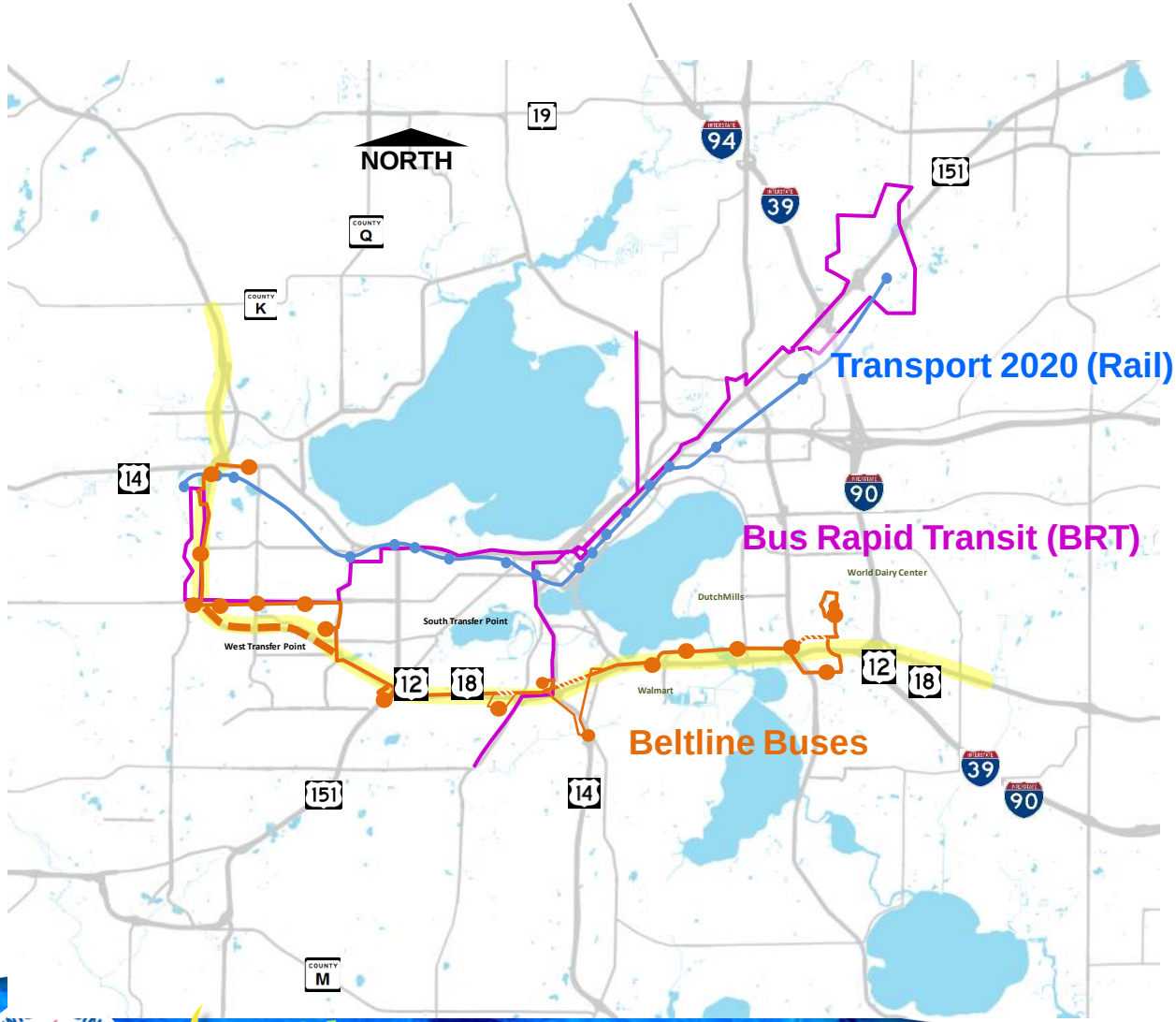


Alternate Modes

More detailed look at Individual Modal **Components** and **Combinations**

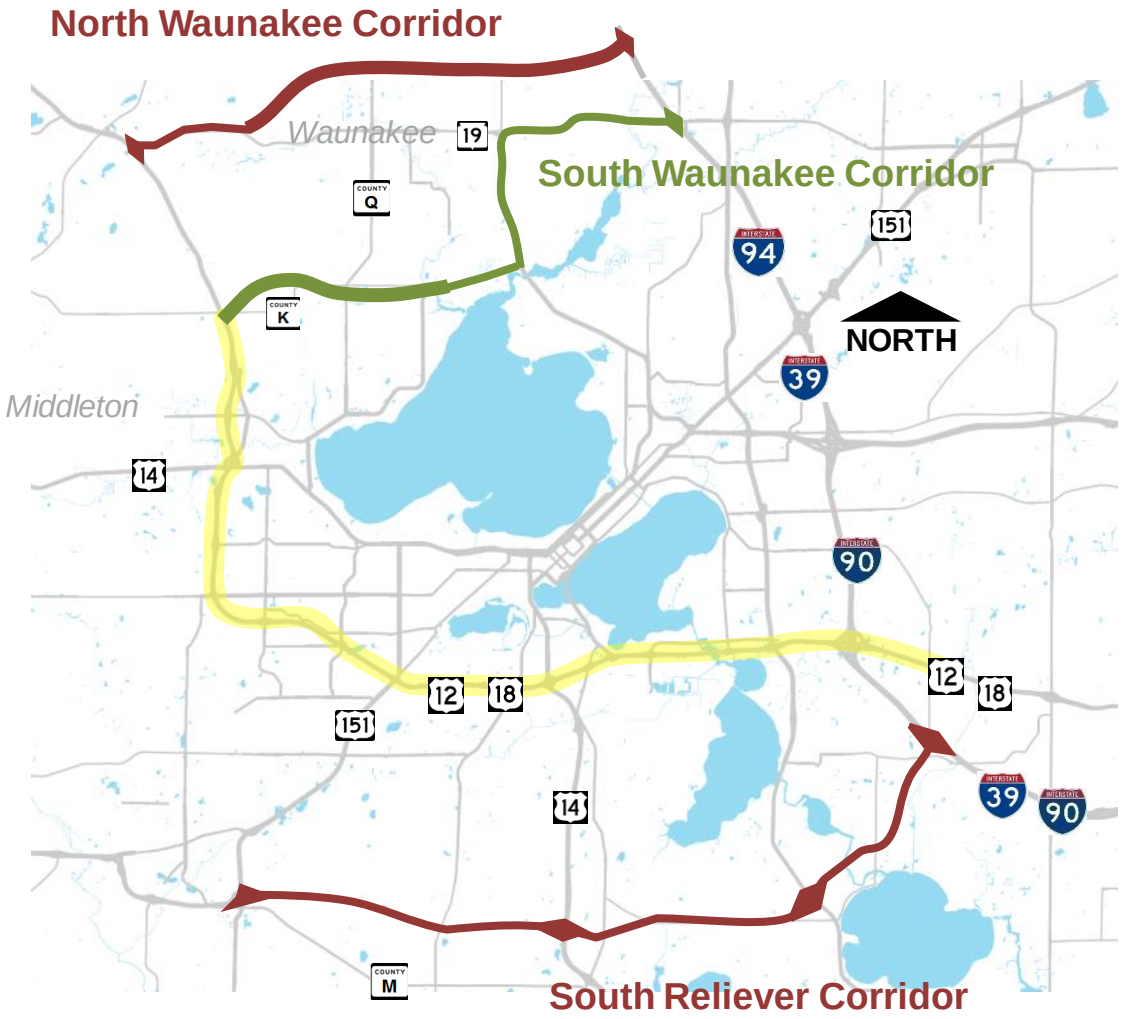


Evaluation of broad modal strategies



Transit

Evaluation of broad modal strategies

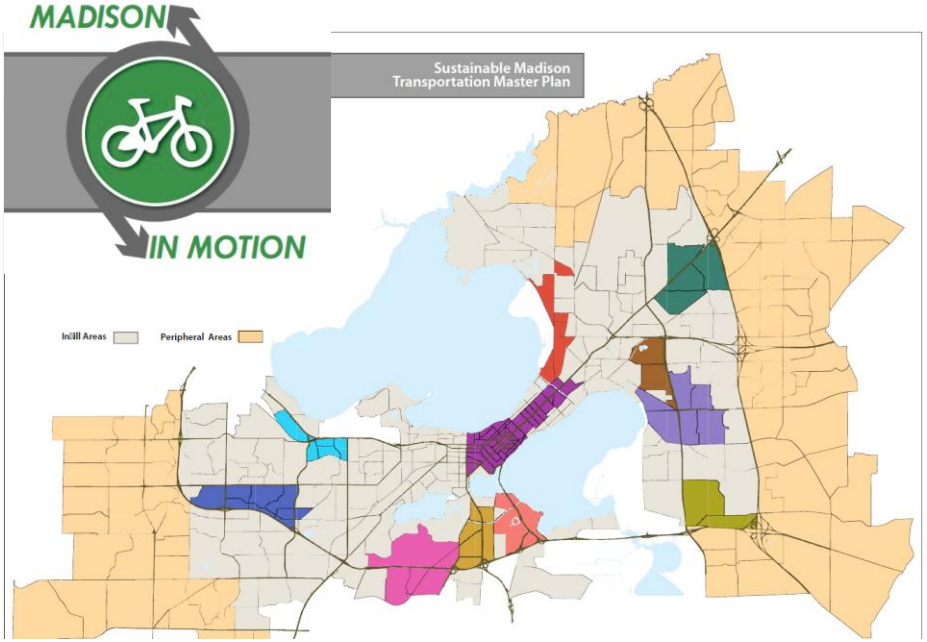


Highway Corridors

A better BELTLINE
Studying Highways 12, 14, 18, 151

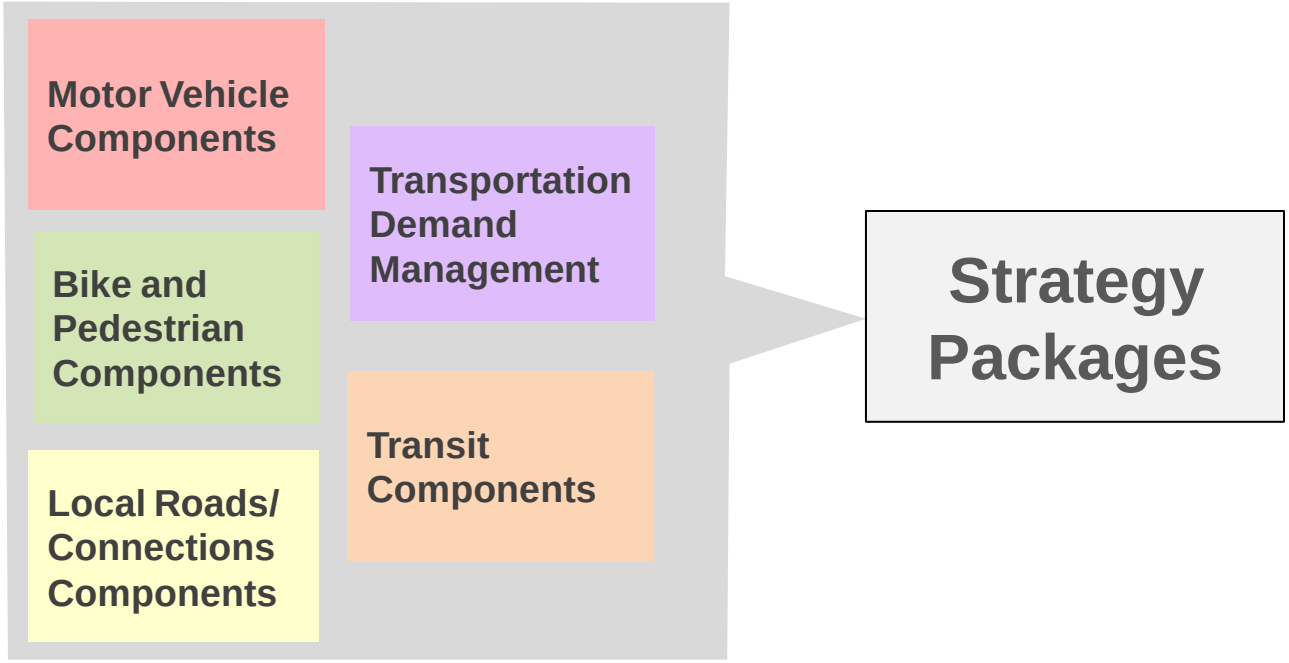
Evaluation of scenarios

More Compact Land Use



Triple Bike/ Transit Ridership

Assemble individual components into Strategy Packages



Example Motor vehicle components

1. Hard Shoulder Running

Allows all vehicles to use one of the two shoulders as a travel

2. Bus on Shoulder

Allows buses to use shoulder under certain conditions.

3. Bus Only Lane

A dedicated bus lane, typically located on the inside.

Example Motor vehicle components

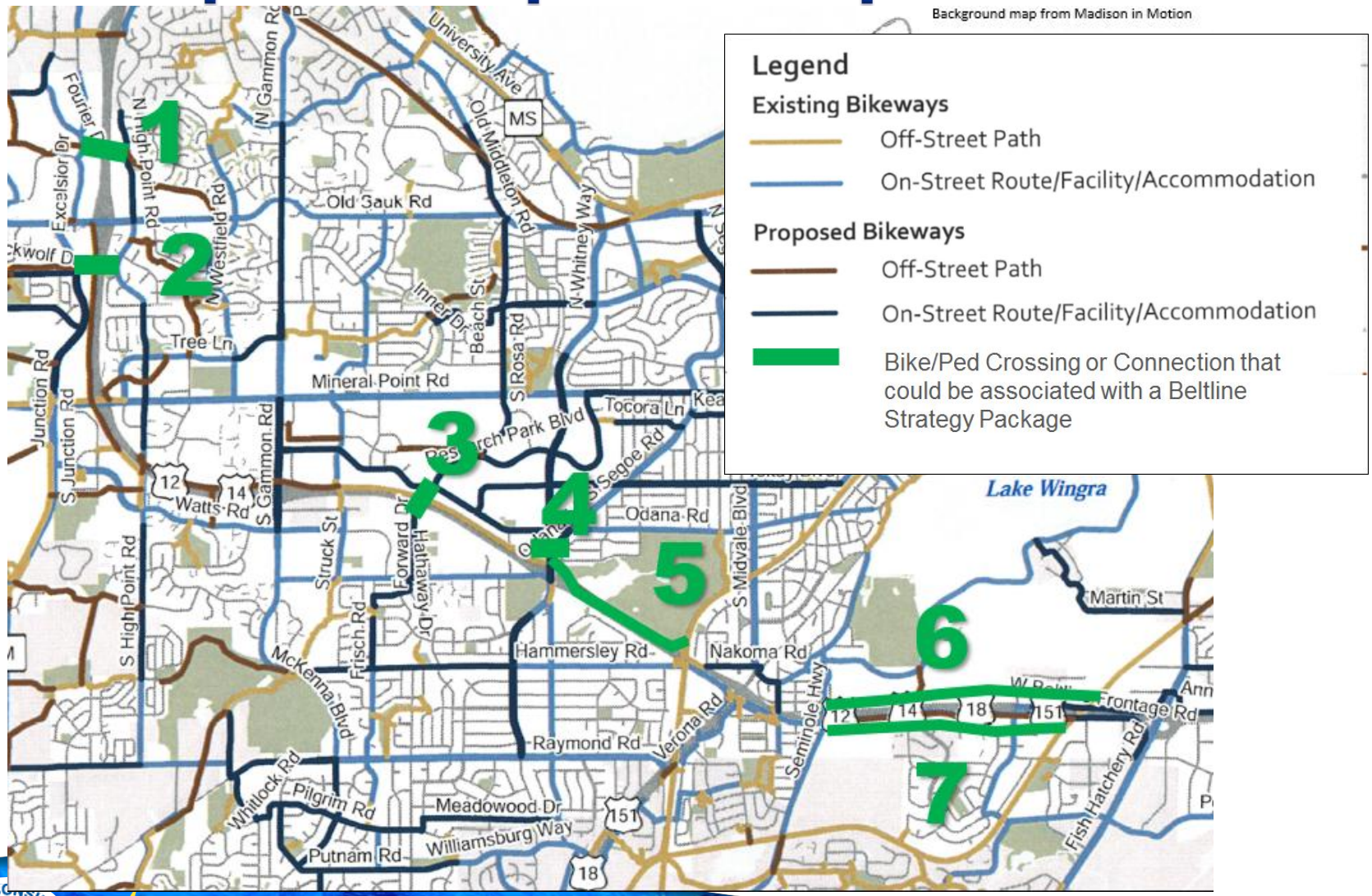
4. High Occupancy Vehicle Lane
(option for tolling - HOT lane - could be examined)

Dedicated lane for vehicles with 2 or more occupants. Static or dynamic tolling could be examined. (often called High Occupancy Toll lane, or HOT lane).

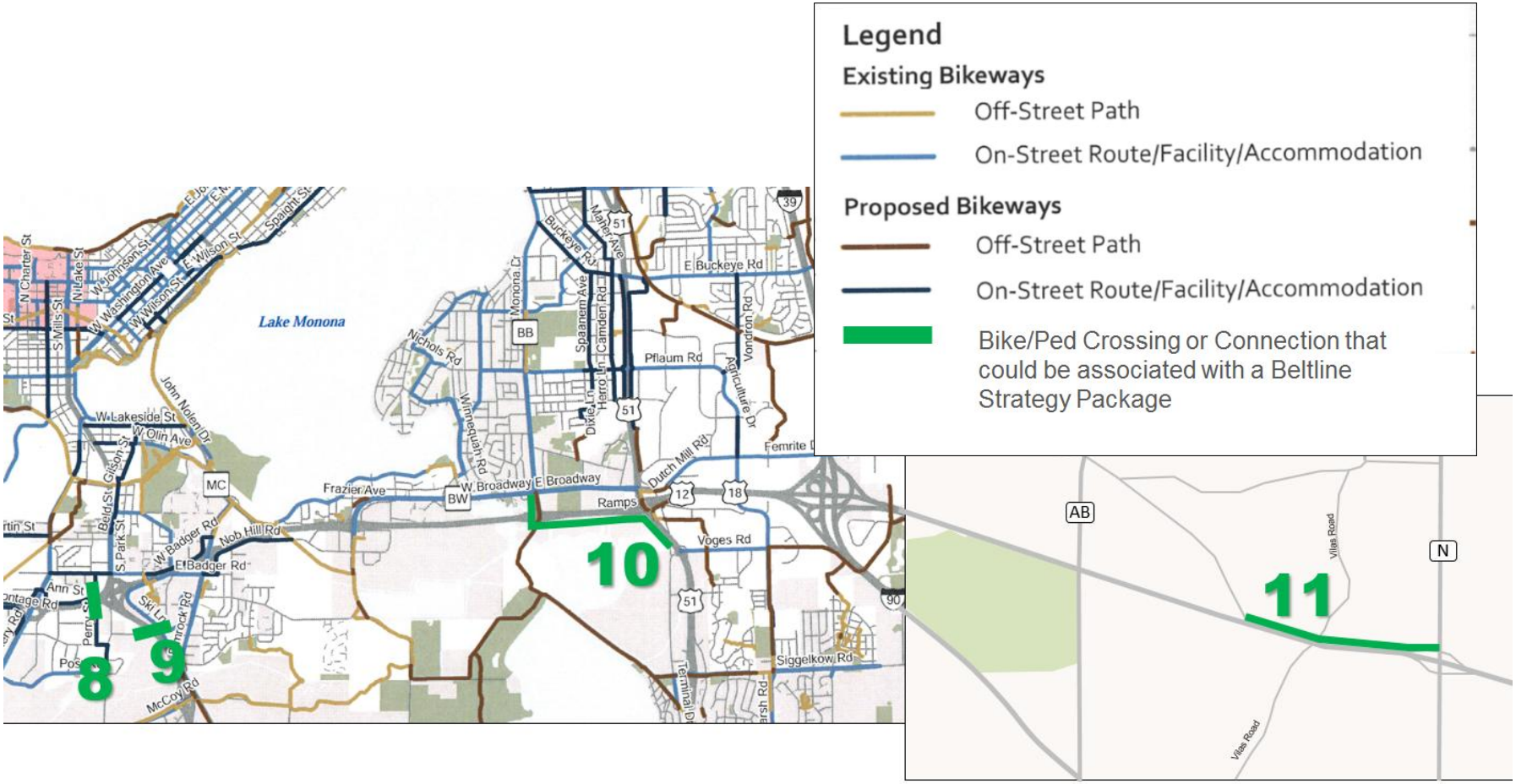
5. Conventional Capacity Expansion Lane(s)

General purpose lane(s) for all vehicles.

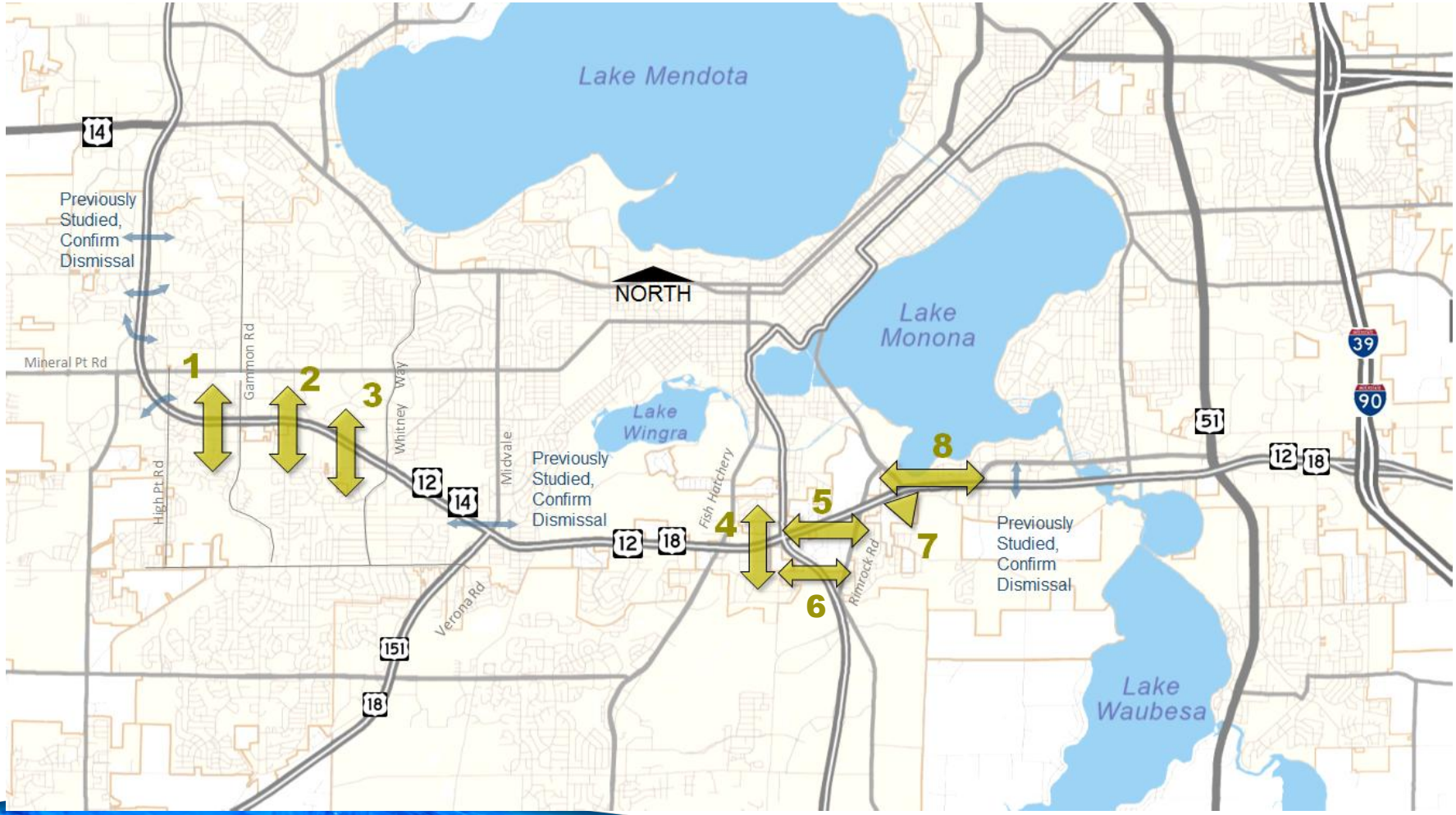
Example bike/ped components



Example bike/ped components

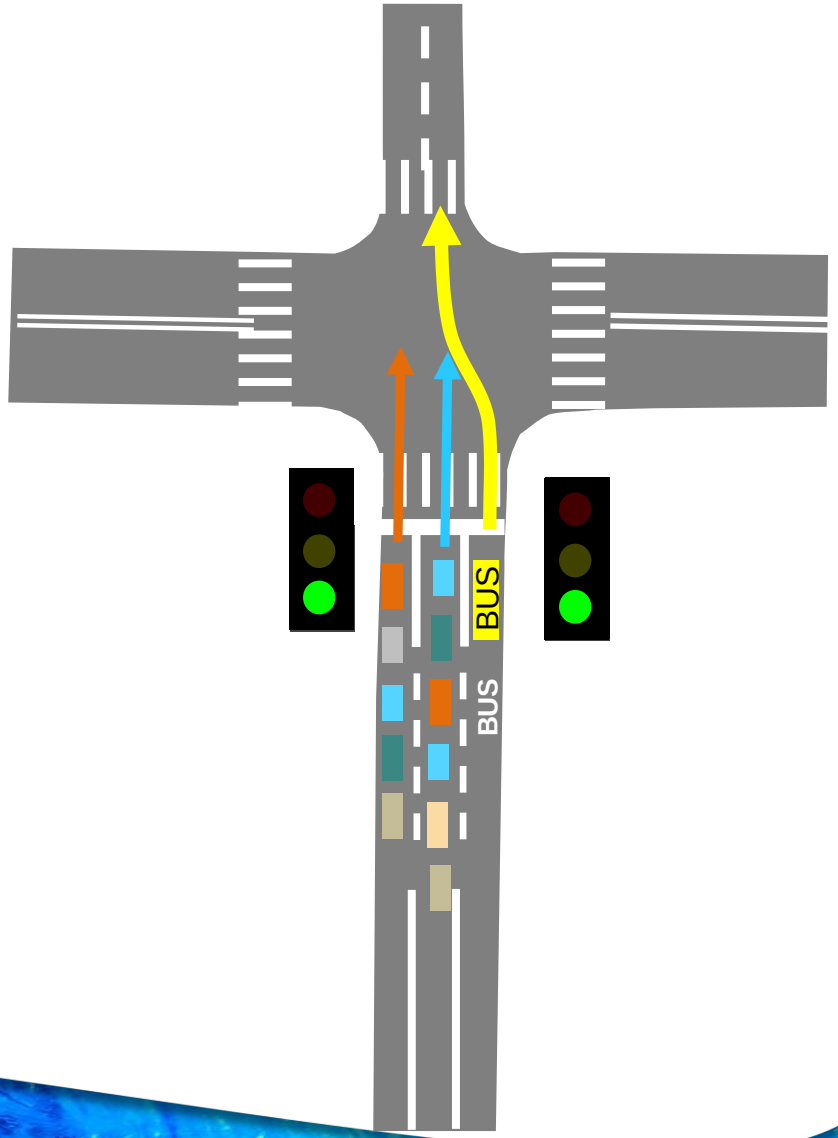


Example local connection components

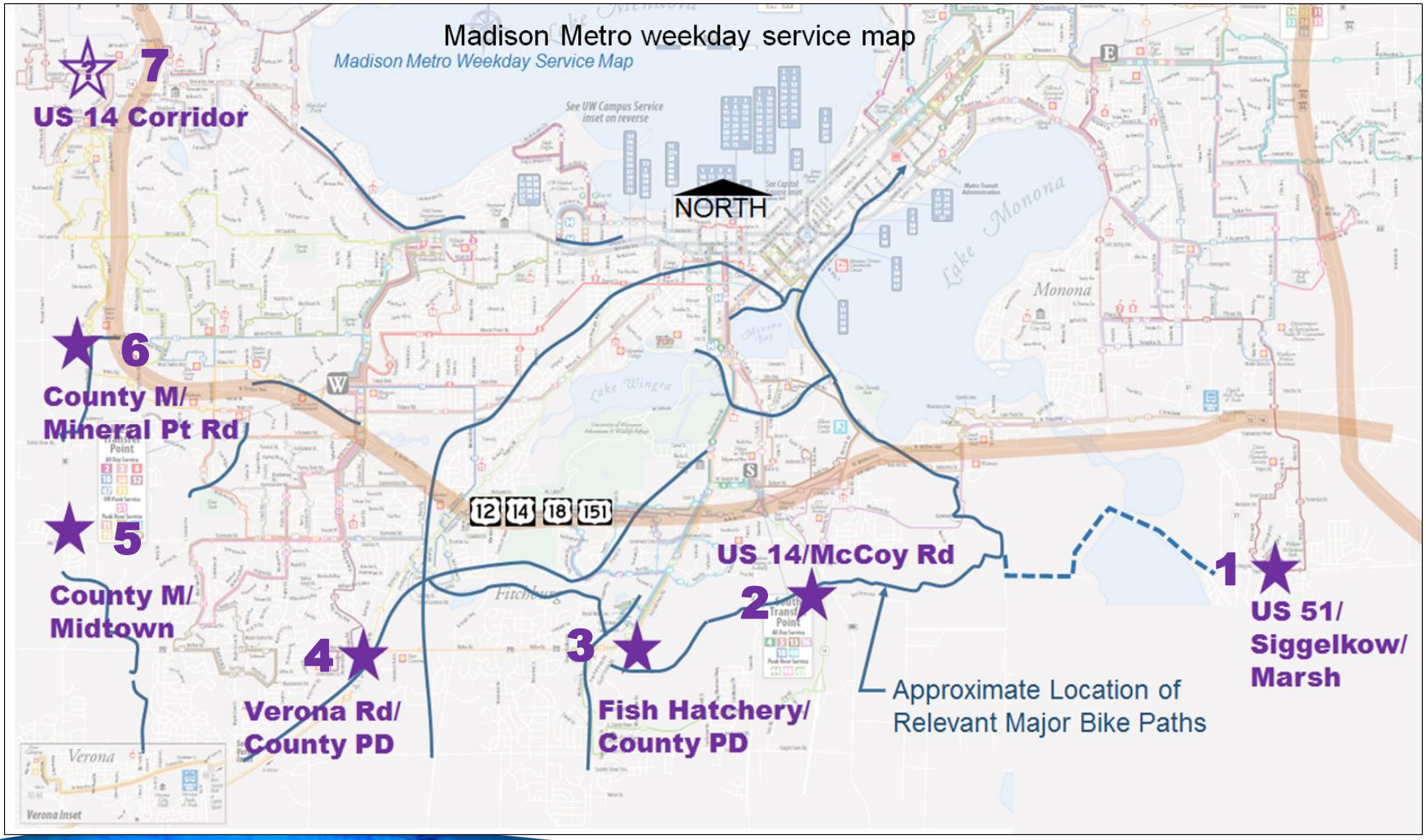


Example transit priority component

- Considers Transit Priority at service interchanges along the Beltline



Example park and ride locations



Strategy package development

- Component screening analysis will be defined and detailed
- Strategy Package screening analysis non-specific and less detailed

Component only Screening

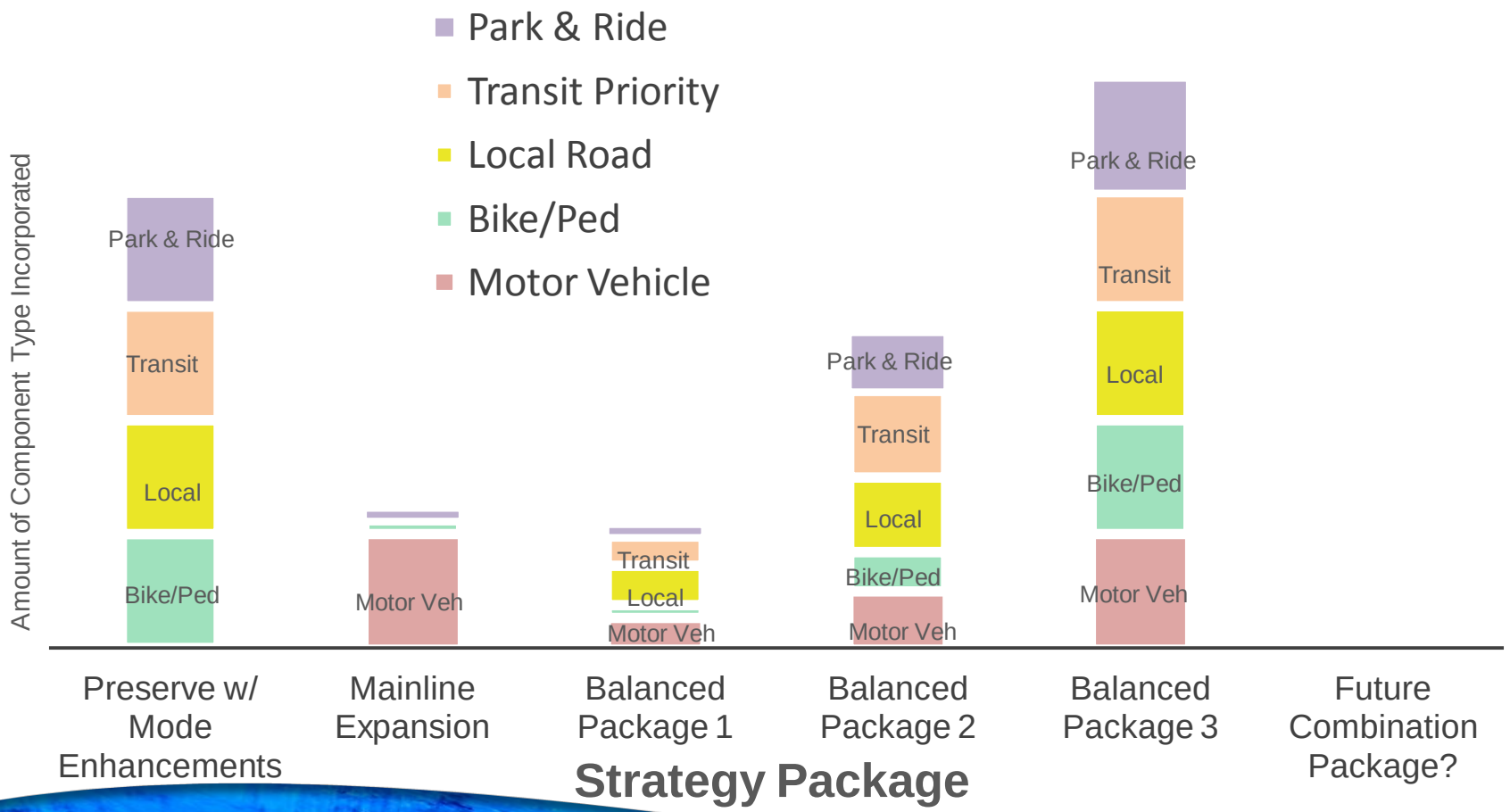
Strategy Packages w/ generic components

Detailed analysis eliminates ineffective components

Does not communicate commitment to components prematurely

Allows public vetting of different package combinations in next study phase

Strategy Package Assembly



US 51 Stoughton Road Study

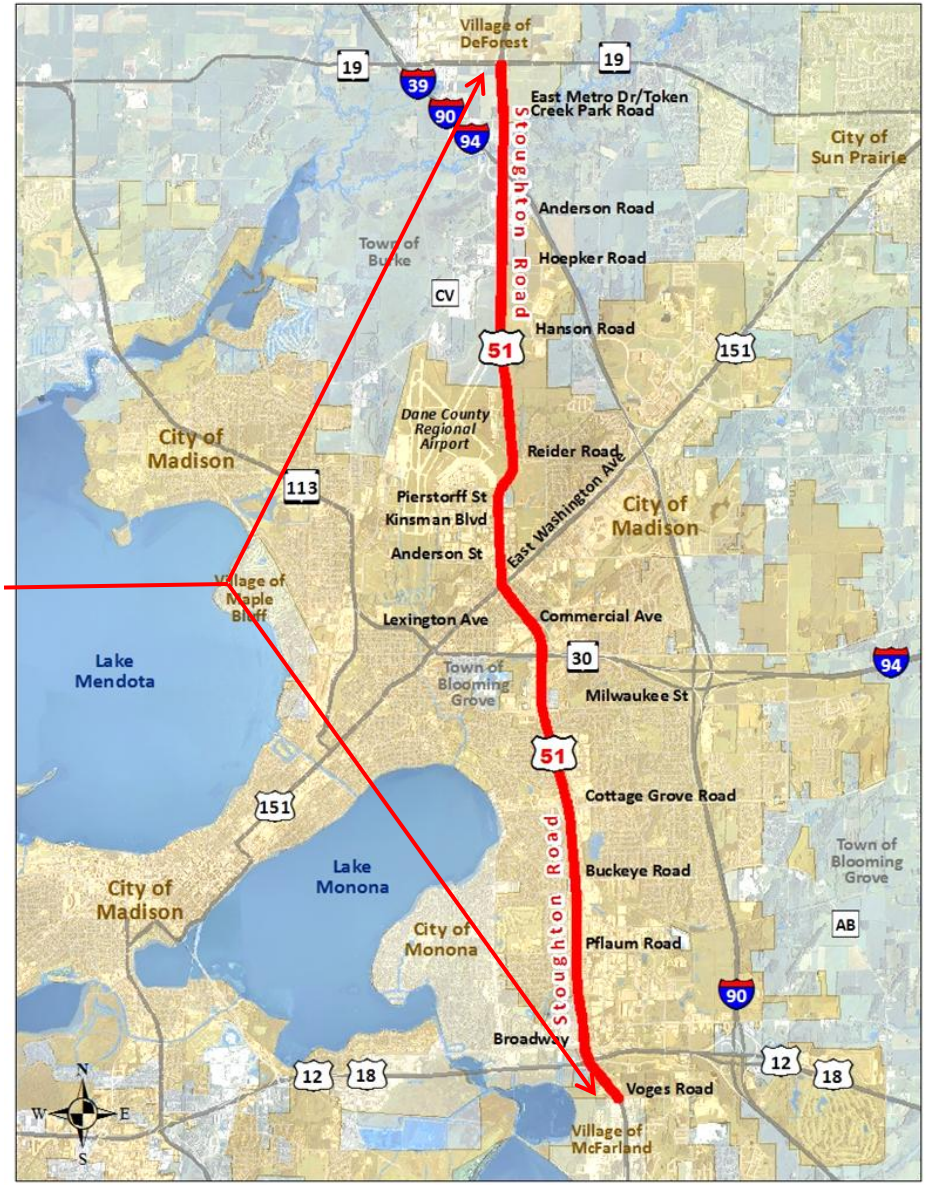
McFarland - DeForest

Voges Road to WIS 19

Dane County

US 51, Madison – DeForest, Voges Road – WIS 19
Dane County
Project ID 5410-05-00

STUDY LIMITS



Purpose and Need

- Improve safety
- Reduce congestion
- Improve bicycle, pedestrian, and transit facilities
- Reduce diversion to neighborhood streets
- Support economic development

Improvement Alternatives

- No Build
  - Maintenance of existing roadway without expansion or reconfiguration
- Alt A – Low Build w/ Capacity Expansion
  - Keeps most existing intersections at grade
- Alt B – Enhanced Expressway
  - Adds interchanges at intersections with high crash rates and major traffic delay
- Alt C – Freeway Conversion
  - Provides a free flow movement for traffic through the corridor

Preferred alternative could be a combination of alternatives

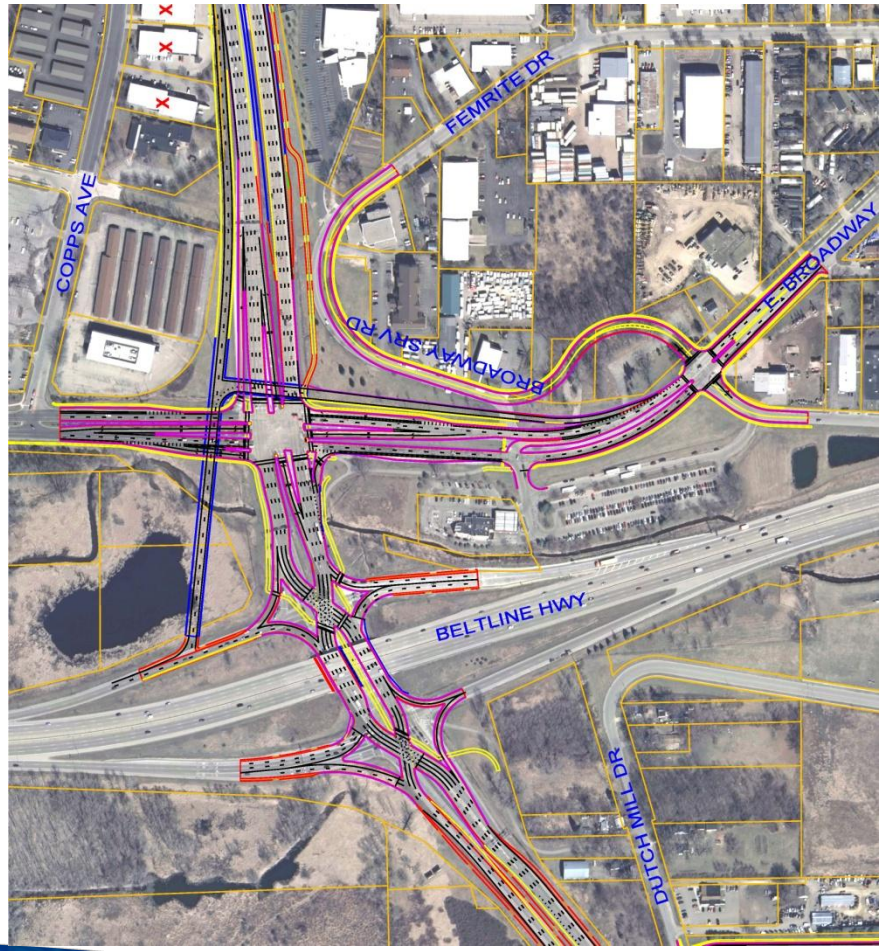
Recommended Alt Presented at 2013 PIM

- Combination of Alternatives A, B, & C
- Best addresses safety and congestion issues taking into account environmental impacts and projected cost
- May change based on input from the public, municipalities, and resource agencies

Recommended Alt Presented at 2013 PIM

Beltline to Broadway

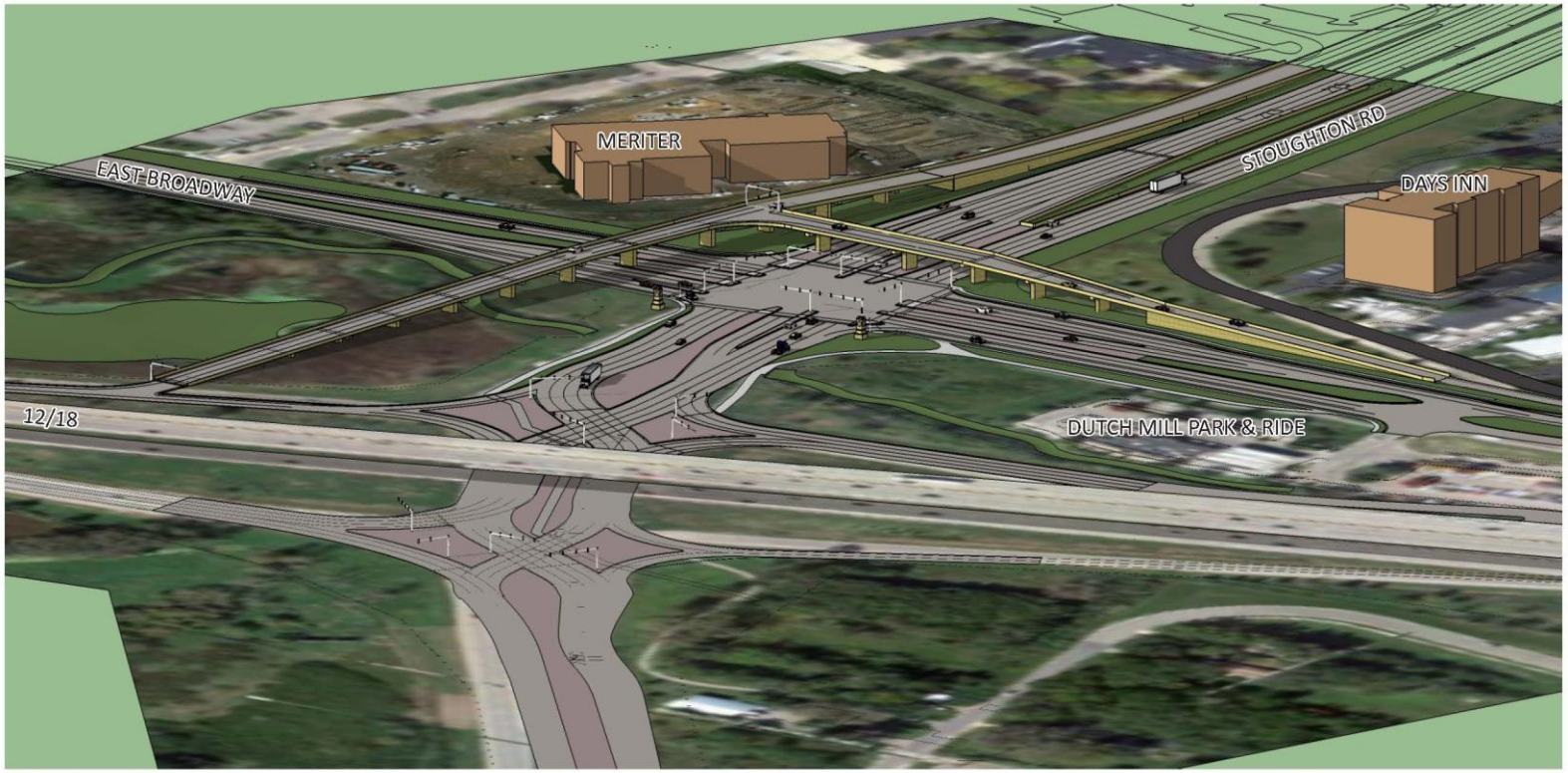
Beltline to Broadway – Alt A



WISCONSIN DEPARTMENT OF TRANSPORTATION

STOUGHTON ROAD
Environmental Study

Beltline to Broadway – Alt A

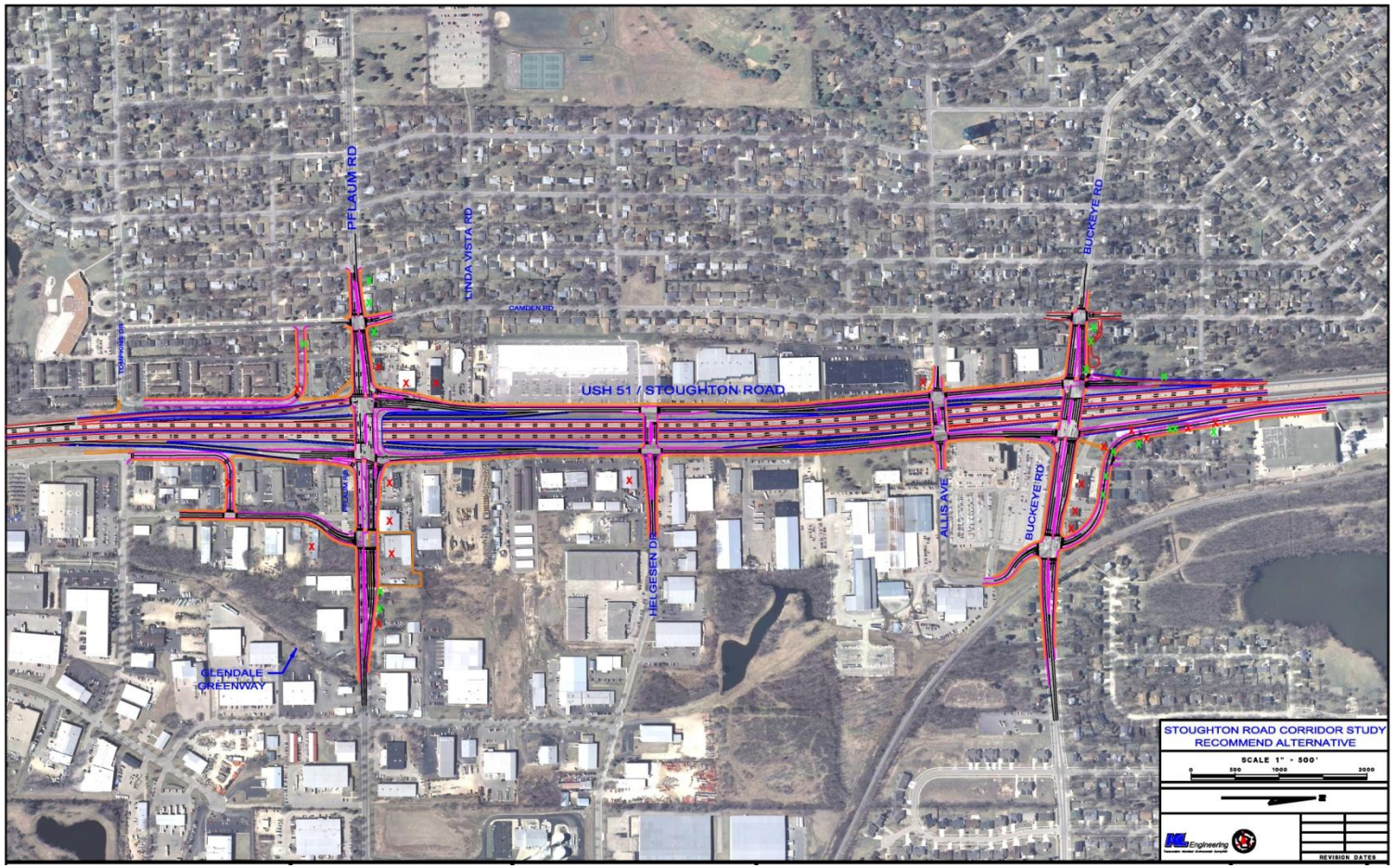


View Looking Northwest

Recommended Alt Presented at 2013 PIM

Pflaum to Buckeye

Pflaum to Buckeye – Alt B



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STOUGHTON ROAD
Environmental Study

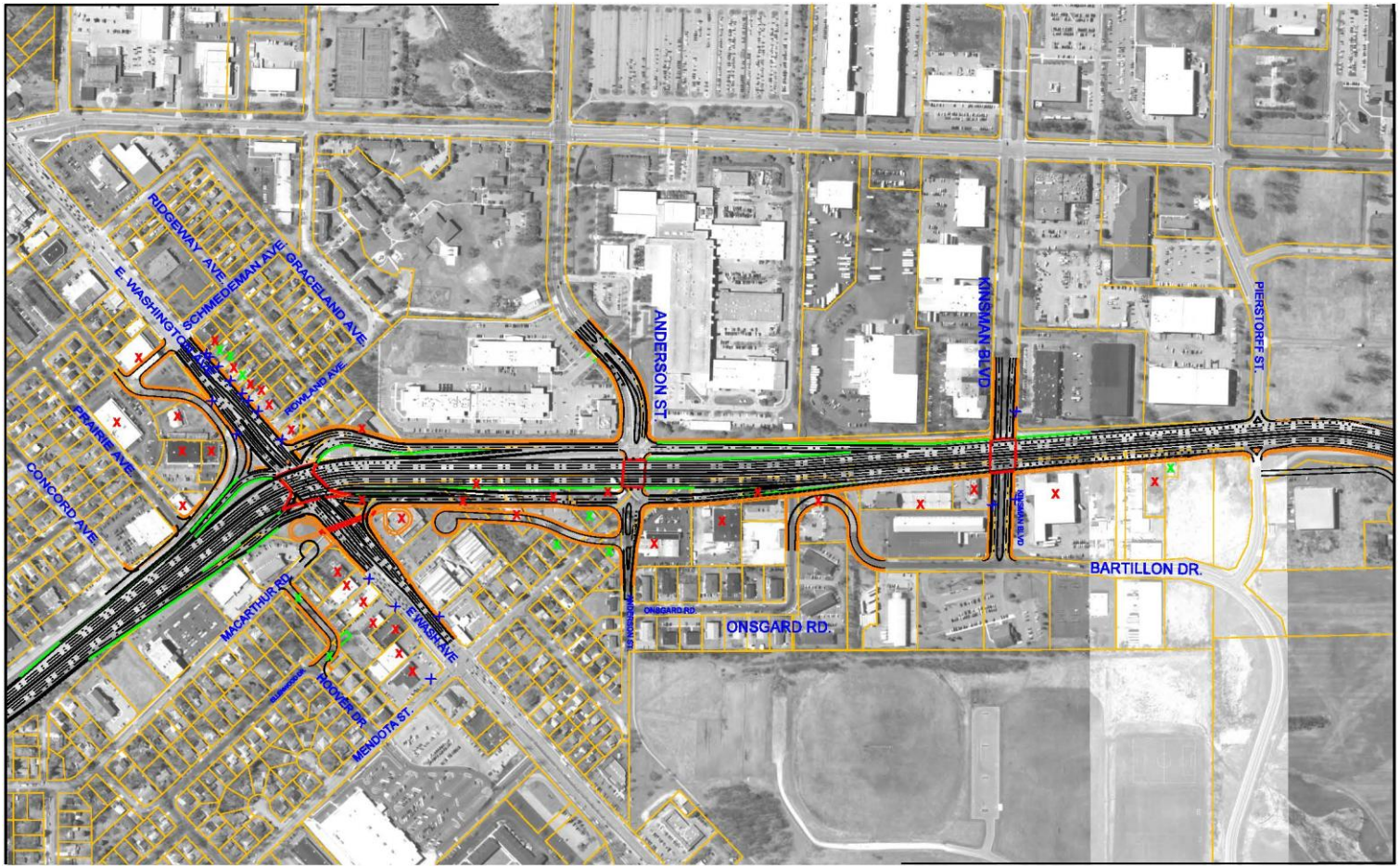
Pflaum to Buckeye – Alt B

View Looking Southeast

Recommended Alt Presented at 2013 PIM

East Washington
to Pierstorff

East Wash to Pierstorff – Alt B



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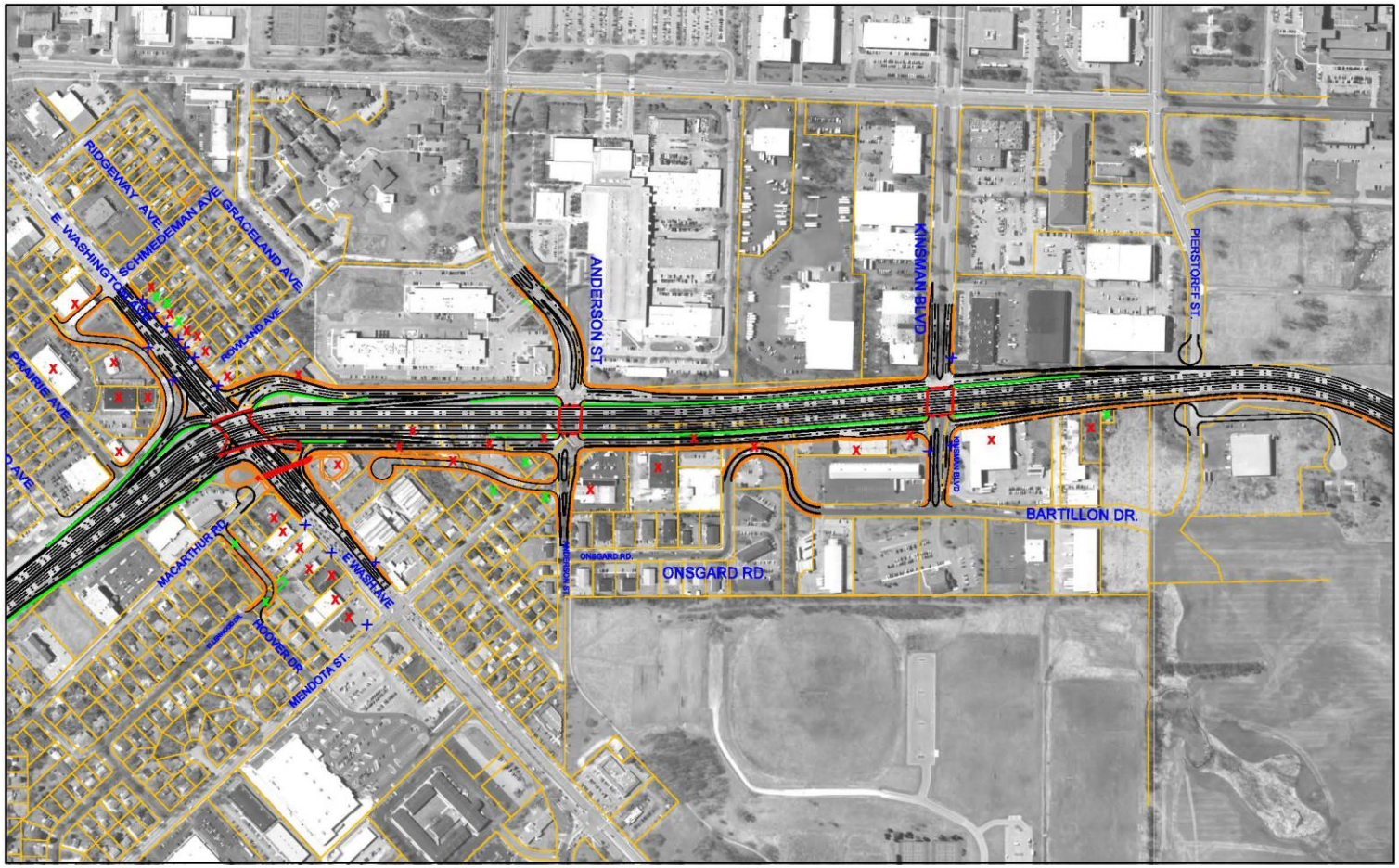
STOUGHTON ROAD
Environmental Study

East Wash to Pierstorff – Alt B

View Looking North

East Wash to Pierstorff – Alt C



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STOUGHTON ROAD
Environmental Study

East Wash to Pierstorff – Alt C

View Looking Southeast

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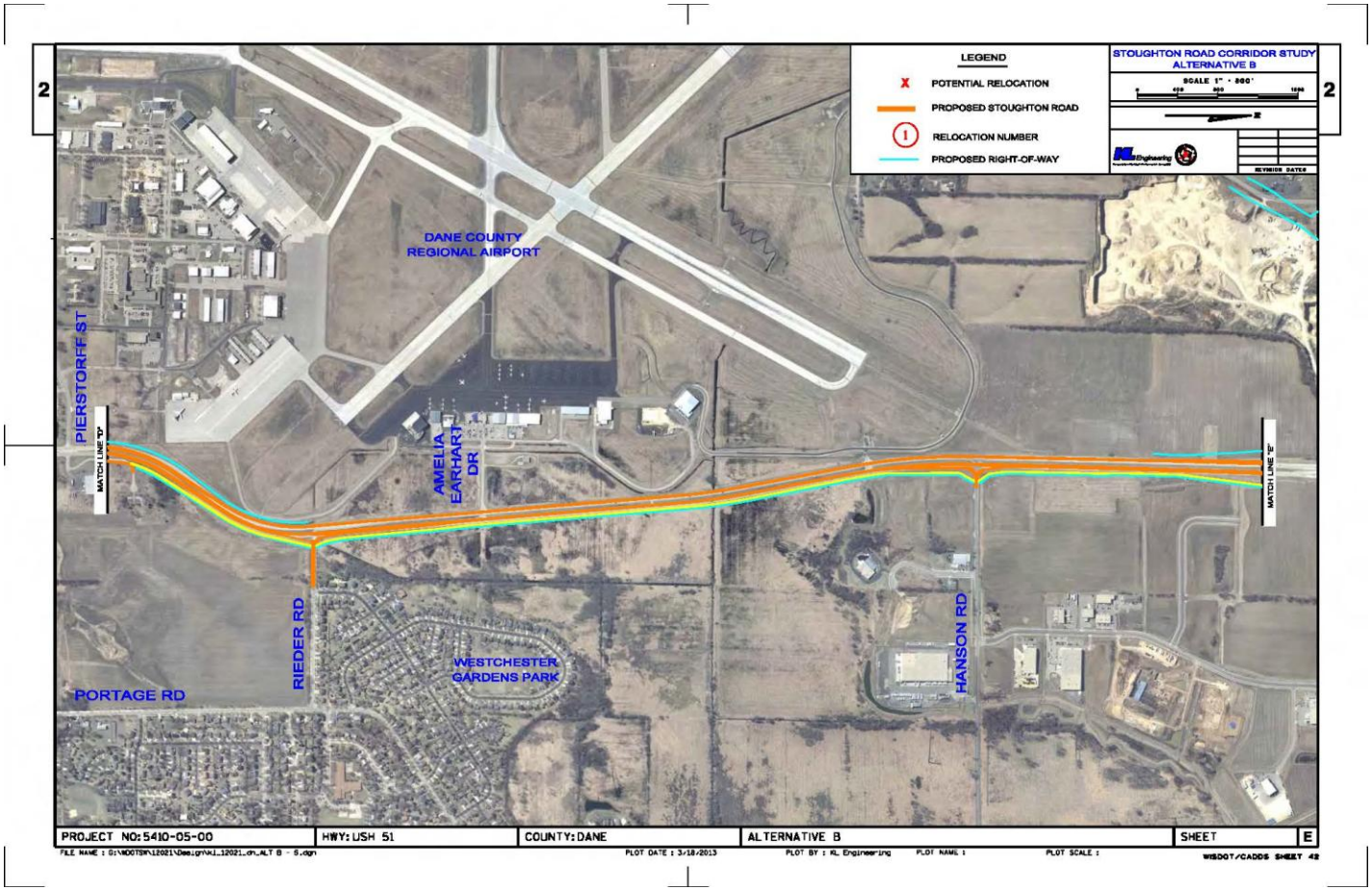
STOUGHTON ROAD
Environmental Study

Recommended Alt Presented at 2013 PIM

Pierstorff to

Hanson

Pierstorff to Hanson – Alt B



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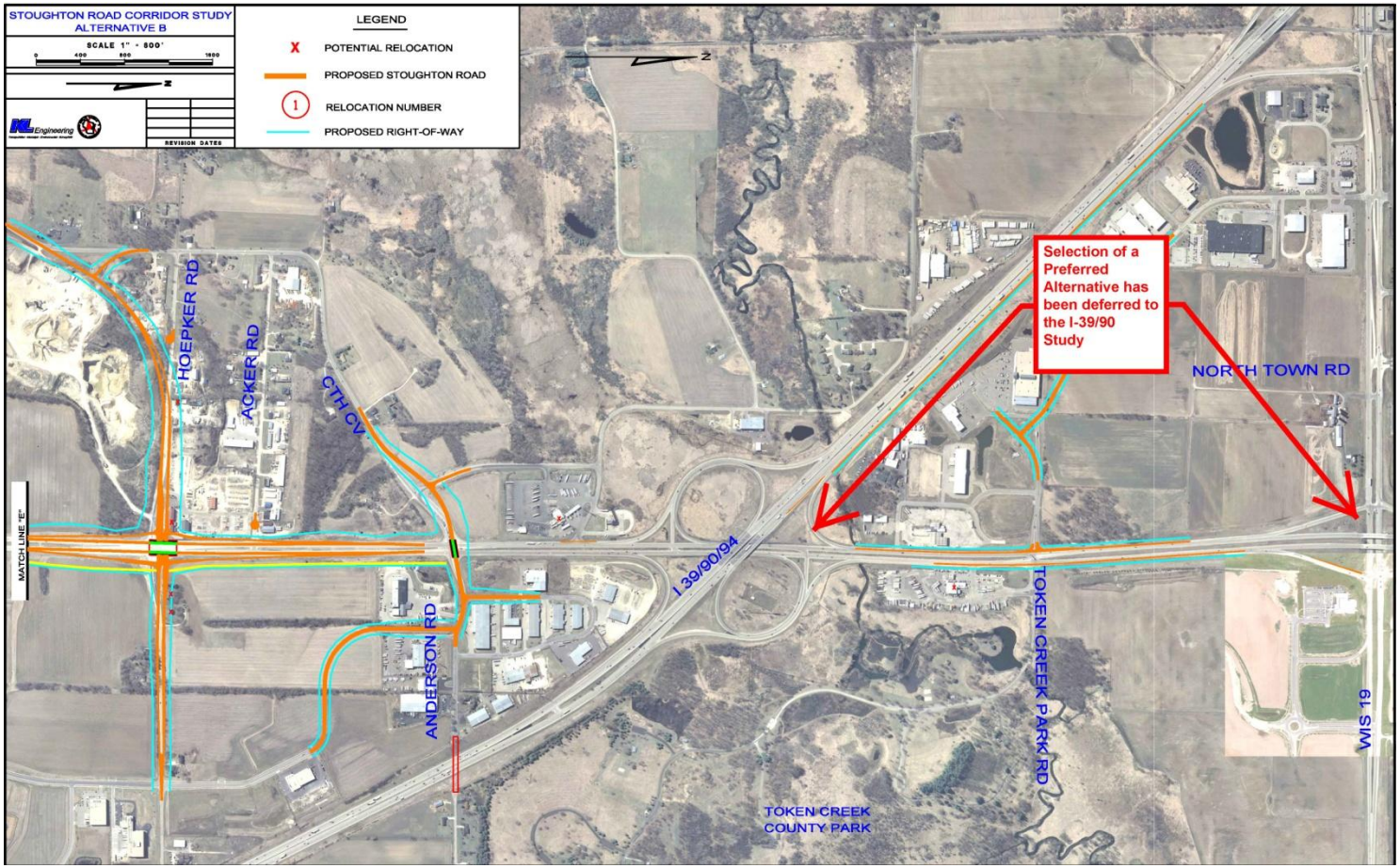
STOUGHTON ROAD
Environmental Study

Recommended Alt Presented at 2013 PIM

Hoepker to
I-39/90/94

Hoepker to WIS 19 – Alt B



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STOUGHTON ROAD
Environmental Study

Bicycle / Pedestrian Facilities

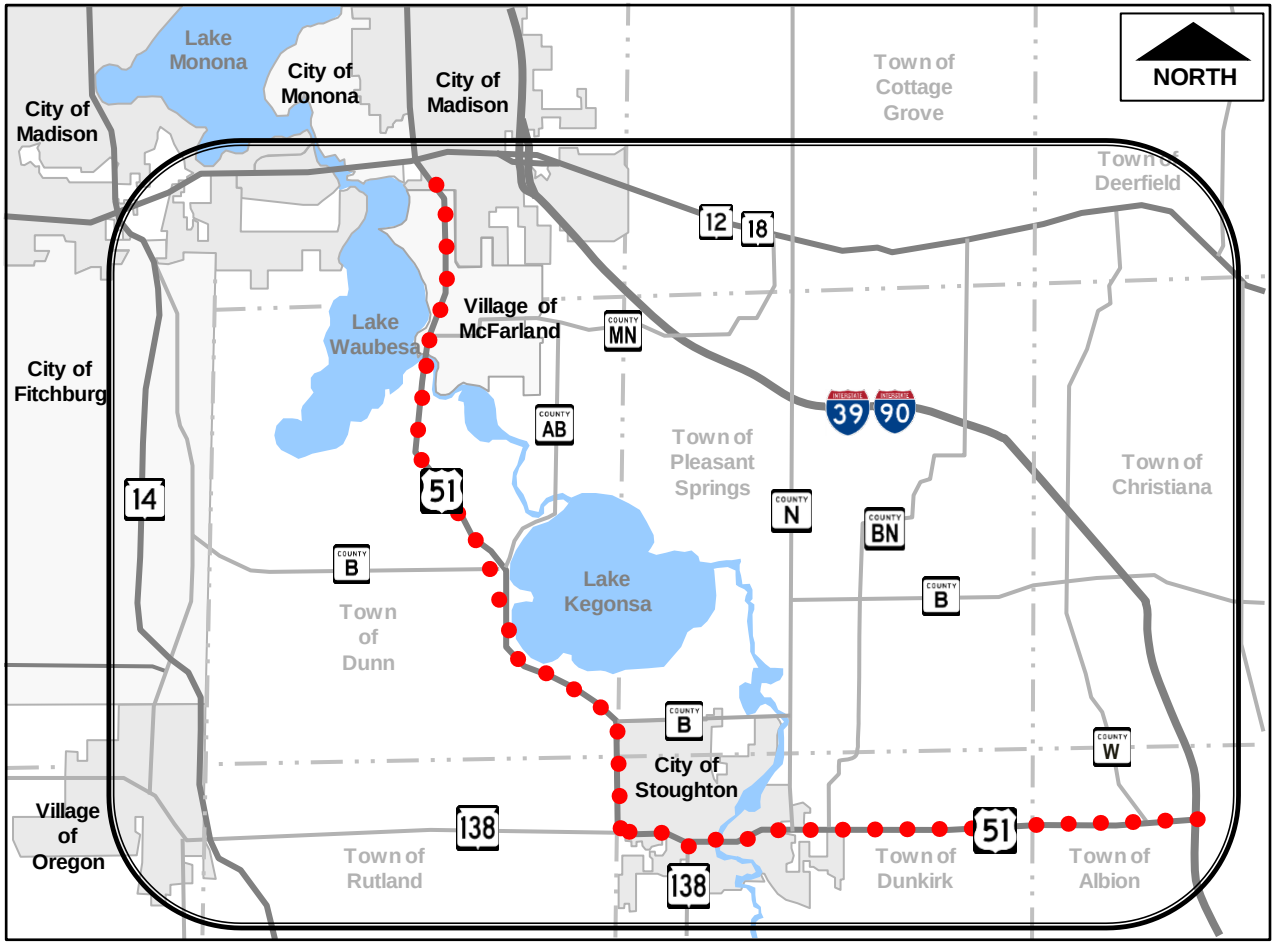
- On-road as appropriate
- Upgrade crossings and parallel roadways
- Off Road Multi-Use Paths
  - Broadway – Pflaum Road
  - Pflaum Road – Buckeye Road
  - East Washington – Kinsman Road
  - Pierstorff Street – Anderson Road
- Overpasses/Underpasses
  - Tompkins Drive
  - Portland Parkway (reconstruct)
  - Walsh Road* (over WIS 30)
  - Larson Court
  - East Washington Avenue
  - Anderson Road (over I-39/90/94)

*Later changed to Ziegler Road at the request of the City of Madison

US 51 Corridor Study

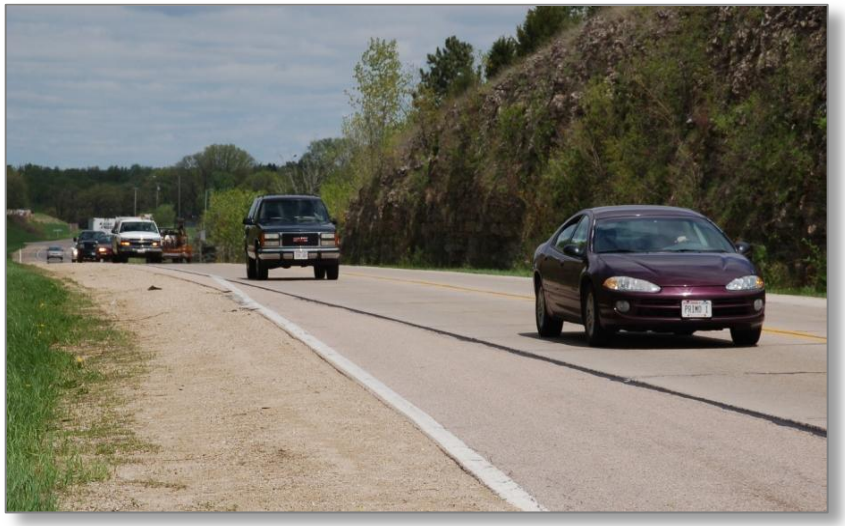
Stoughton-McFarland
I-39/90 to US 12/18
Dane County

US 51 Study Area



Project Purpose and Need

Provide a safe and efficient transportation system in the US 51 corridor to serve present and long-term travel demand while minimizing disturbance to the environment.



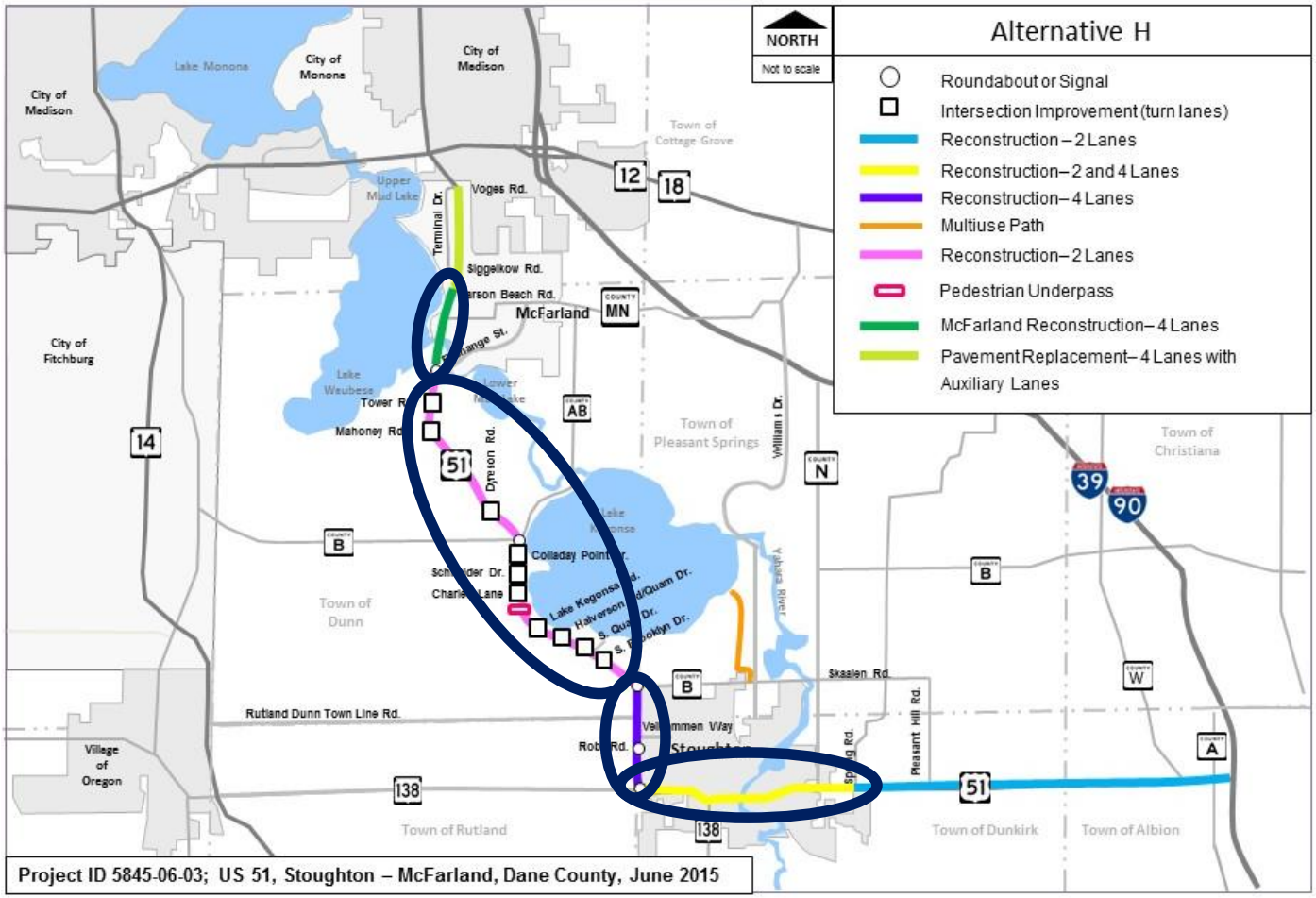
1. Address Existing Safety Conditions
2. Accommodate Travel Demand
3. Improve Deteriorated Pavement
4. Improve Bicycle and Pedestrian Accommodations
5. Corridor Preservation & Long-Term Planning

Improvement Alternatives

Alternatives	
A	Low build
B	4-lane
H	Hybrid

- Alternative H has been identified as the preferred alternative for the corridor

Alternative H - Hybrid



- Reconstruction in Stoughton and McFarland
- 4-lane on west side of Stoughton
- Pavement reconstruction w/intersection improvements between Stoughton and McFarland

I-39/90/94 Study

Madison - Portage

USH 12 to I-39/WIS 78

Dane & Columbia Counties

Background: Project History

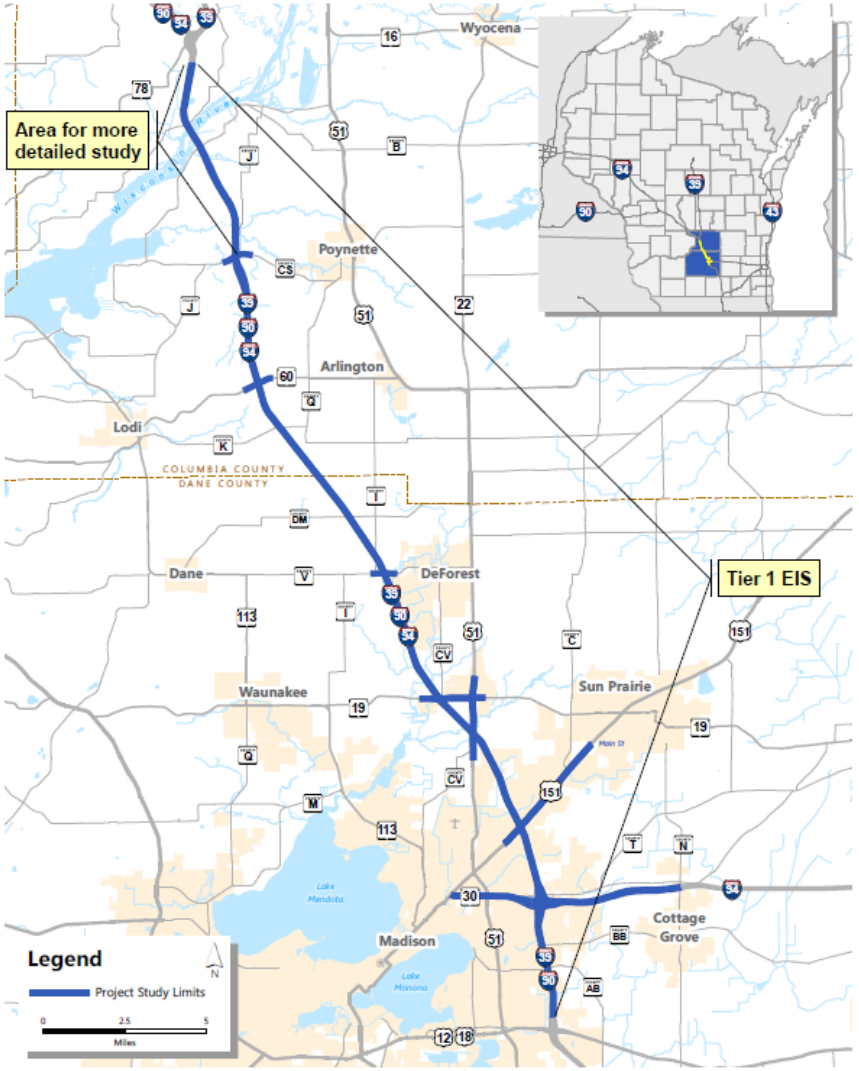
- **I-39/90/94 Traffic Impact Analysis**
  - 2012 to 2014
  - 39 miles of freeway
  - Evaluated potential new crossings and interchange access locations

WISCONSIN DEPARTMENT OF TRANSPORTATION

39 90 94 INTERSTATE STUDY

Study Scope

- **Tier 1 Environmental Impact Statement (EIS)**
  - Entire 34 miles
  - Broad, general analysis
  - Evaluating corridors
    - Existing and off-alignment highways
    - Transportation System Management, multi-modal, transit
  - Goals
    - Identify preferred corridor
    - Identify Tier 2 sections and appropriate environmental document type for each Tier 2 section.

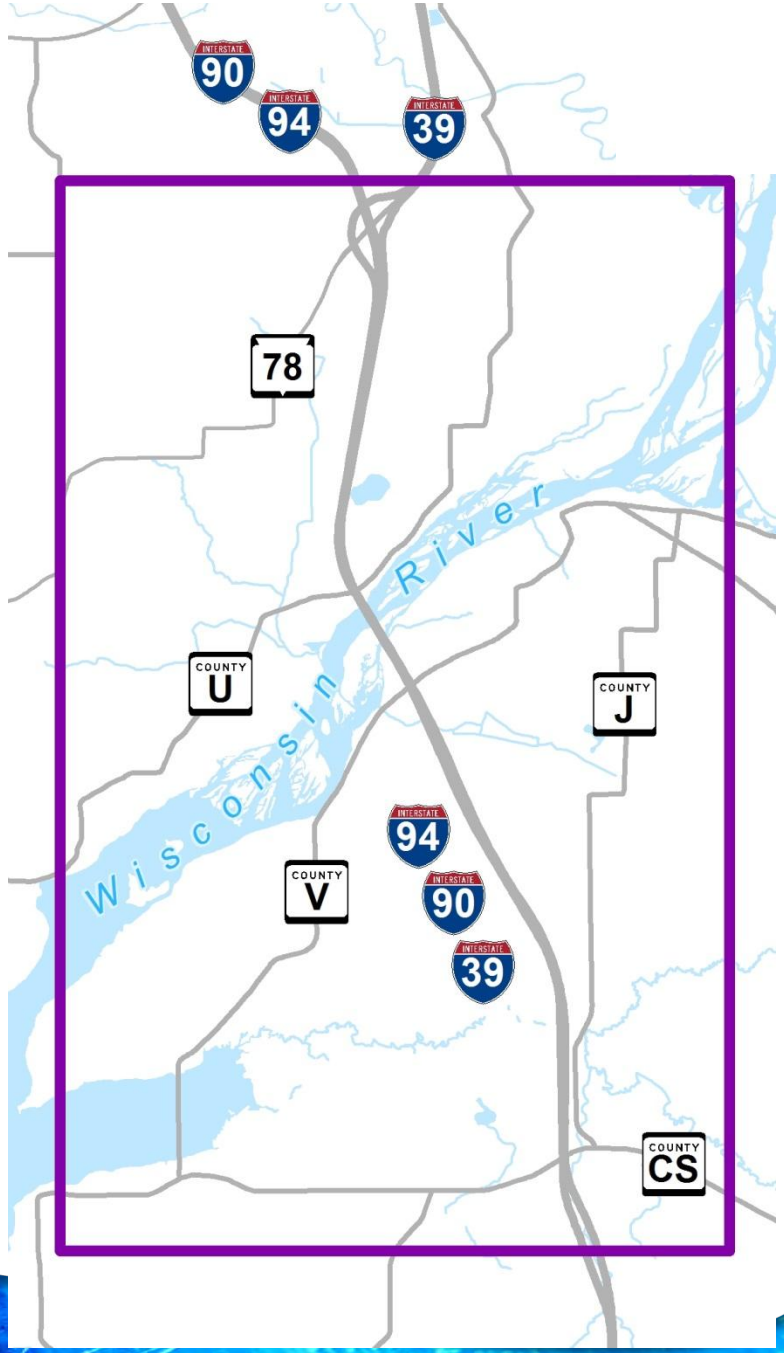


WISCONSIN DEPARTMENT OF TRANSPORTATION

39 90 94 INTERSTATE STUDY

Study Scope

- **The Tier 1 EIS will include a more detailed study from County CS to I-39/WIS 78**
  - Detailed analysis
  - Evaluating detailed alternatives
  - Goals
    - Identify Preferred Alternative
    - Complete environmental process
    - Allow construction of new bridge to be completed by 2025

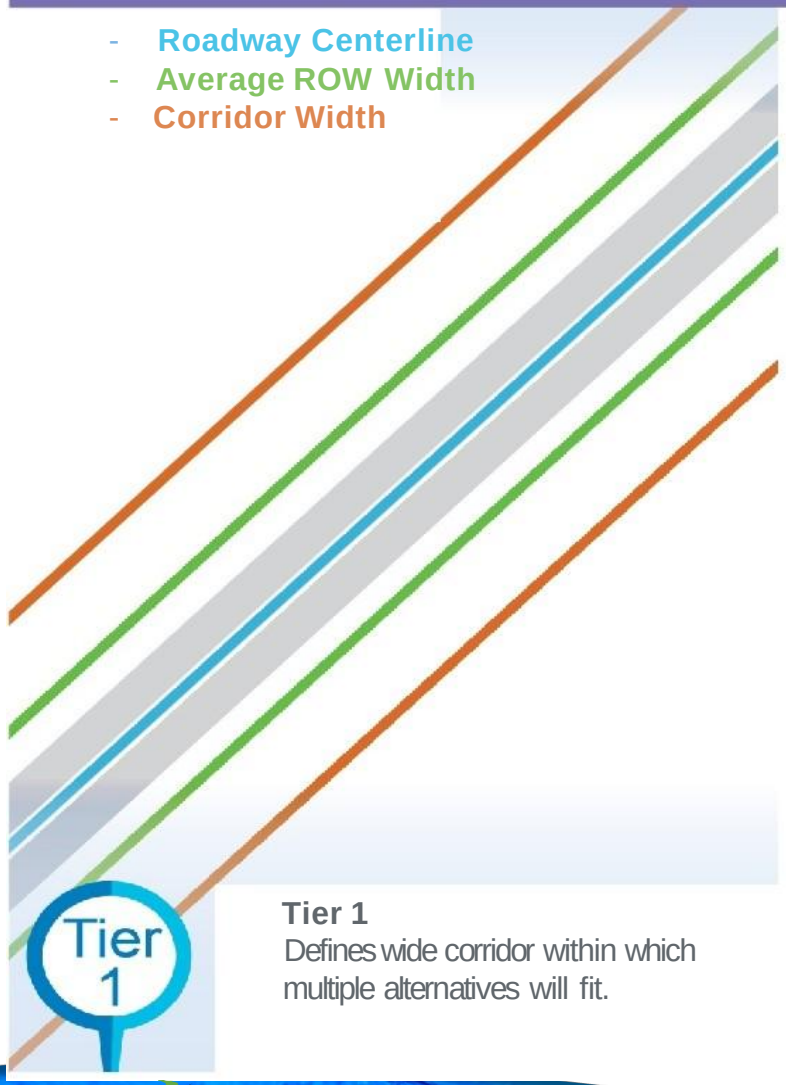


WISCONSIN DEPARTMENT OF TRANSPORTATION

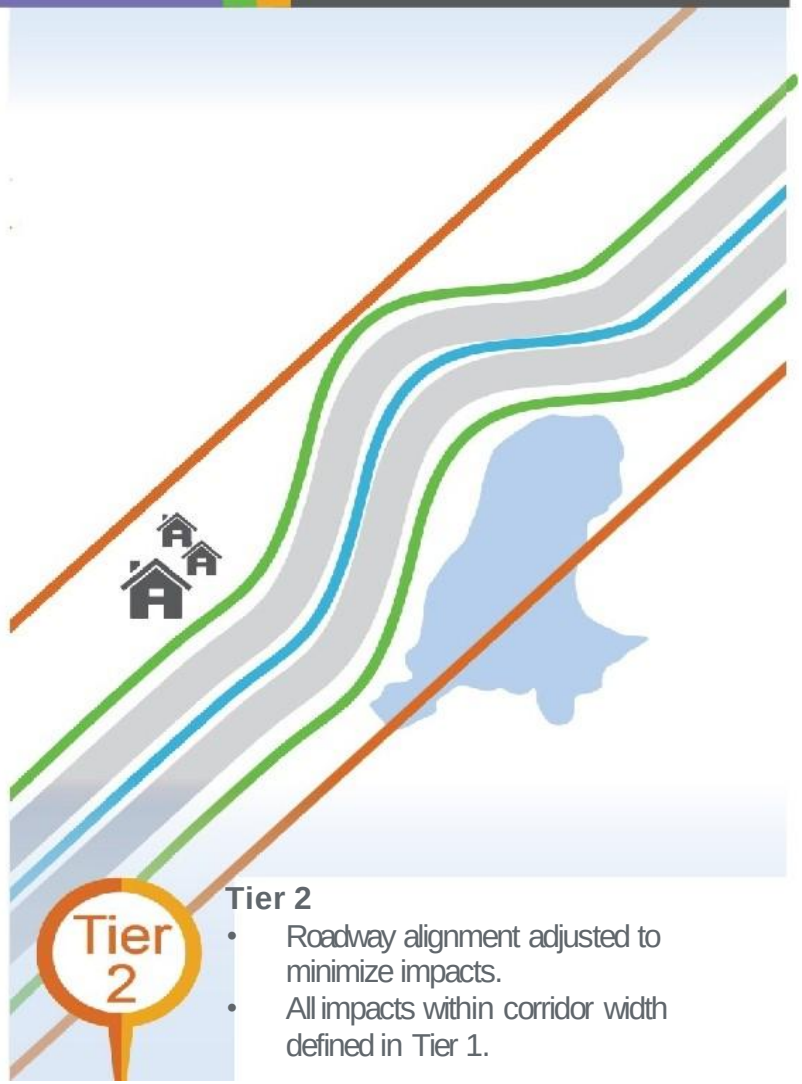
39 90 94 INTERSTATE STUDY

Tier 1 vs. Tier 2 Roadway Alignment

- Roadway Centerline
- Average ROW Width
- Corridor Width



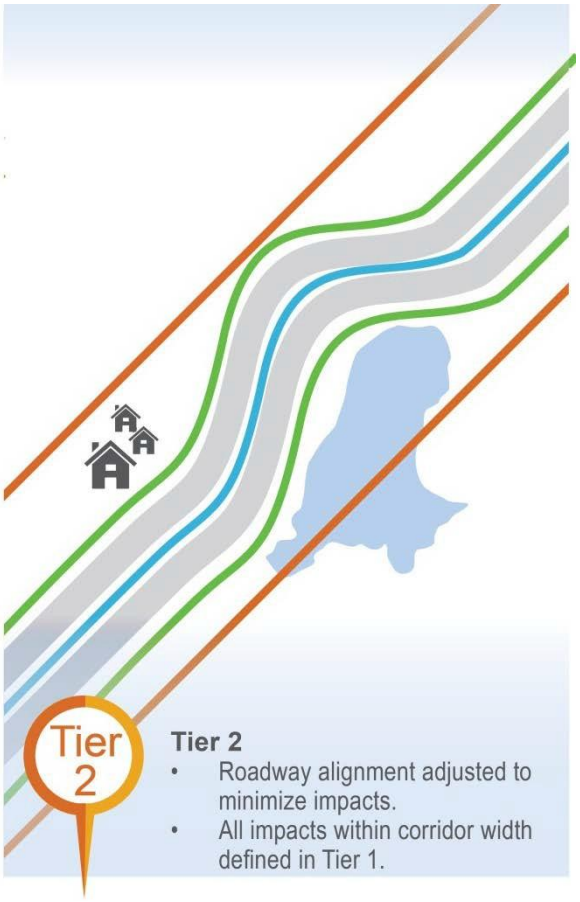
Tier 1
Defines wide corridor within which multiple alternatives will fit.



Tier 2
- Roadway alignment adjusted to minimize impacts.
- All impacts within corridor width defined in Tier 1.

Tier 2 EIS Overview

- Goal
  - Select Preferred Alternative
- Level of investigations
  - Field Investigations
- Smaller, More Detailed Segments
  - Several Environmental Documents
- Timeline
  - Flexible Timelines, No Dates Established



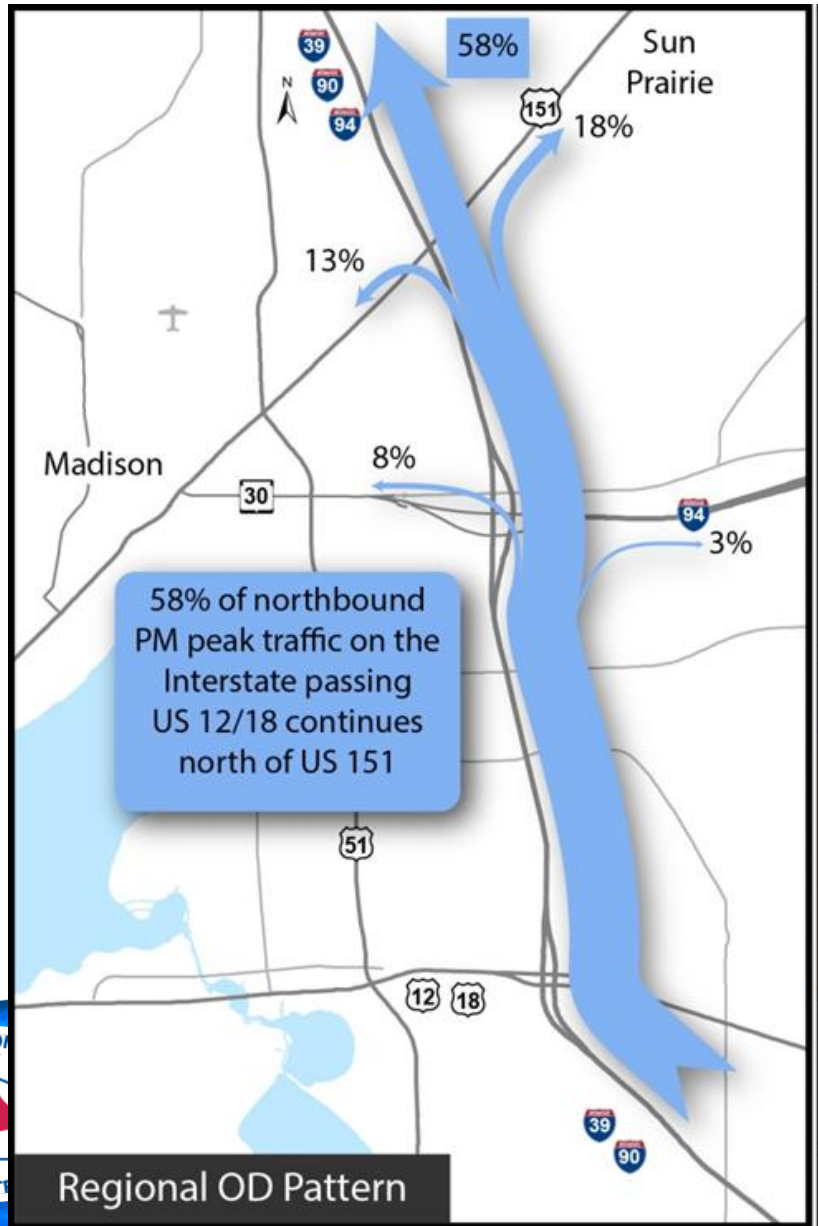
Identified Needs

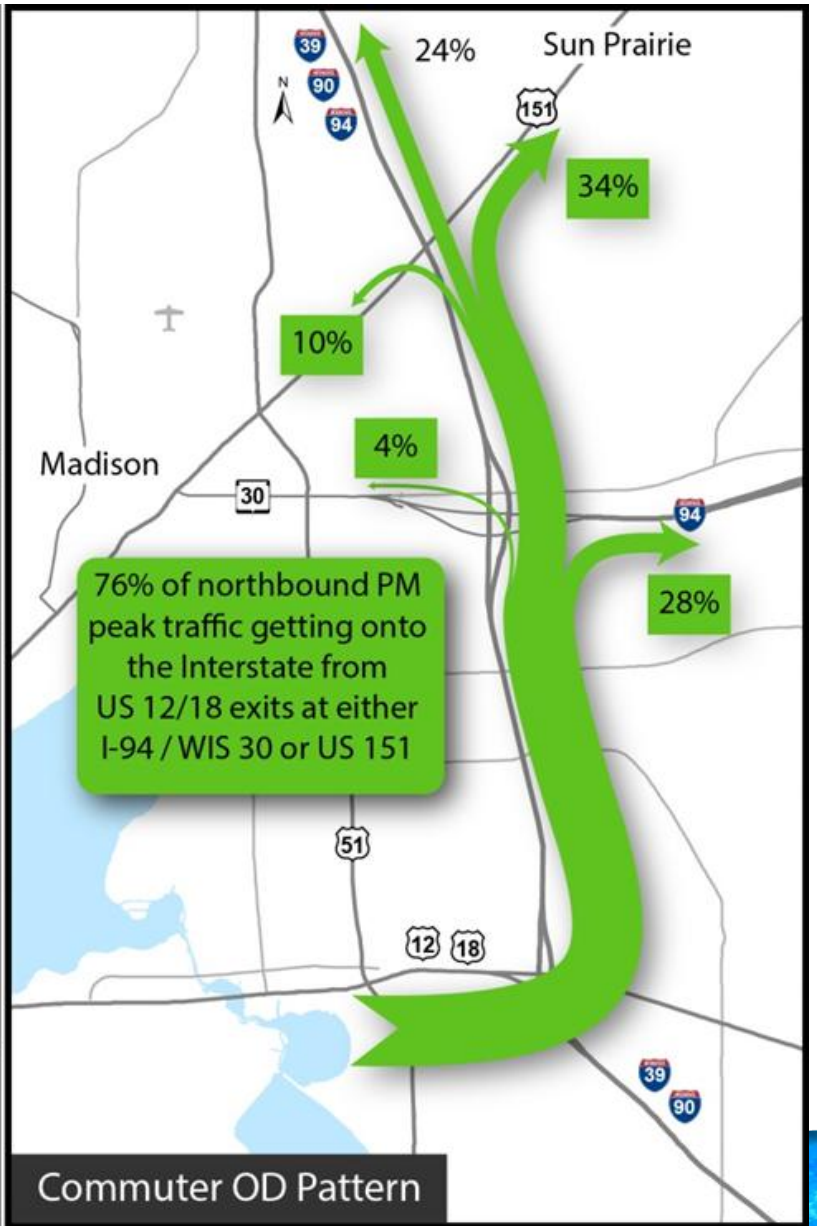
- **Travel Operations Issues**
  - On Freeway
  - Across Freeway
- **Safety Issues**
- **Substandard Geometrics**
  - Mainline
  - Interchange

- **Substandard bridges**
- **Aging pavement**
- **Economics**
  - Freight
  - Tourism

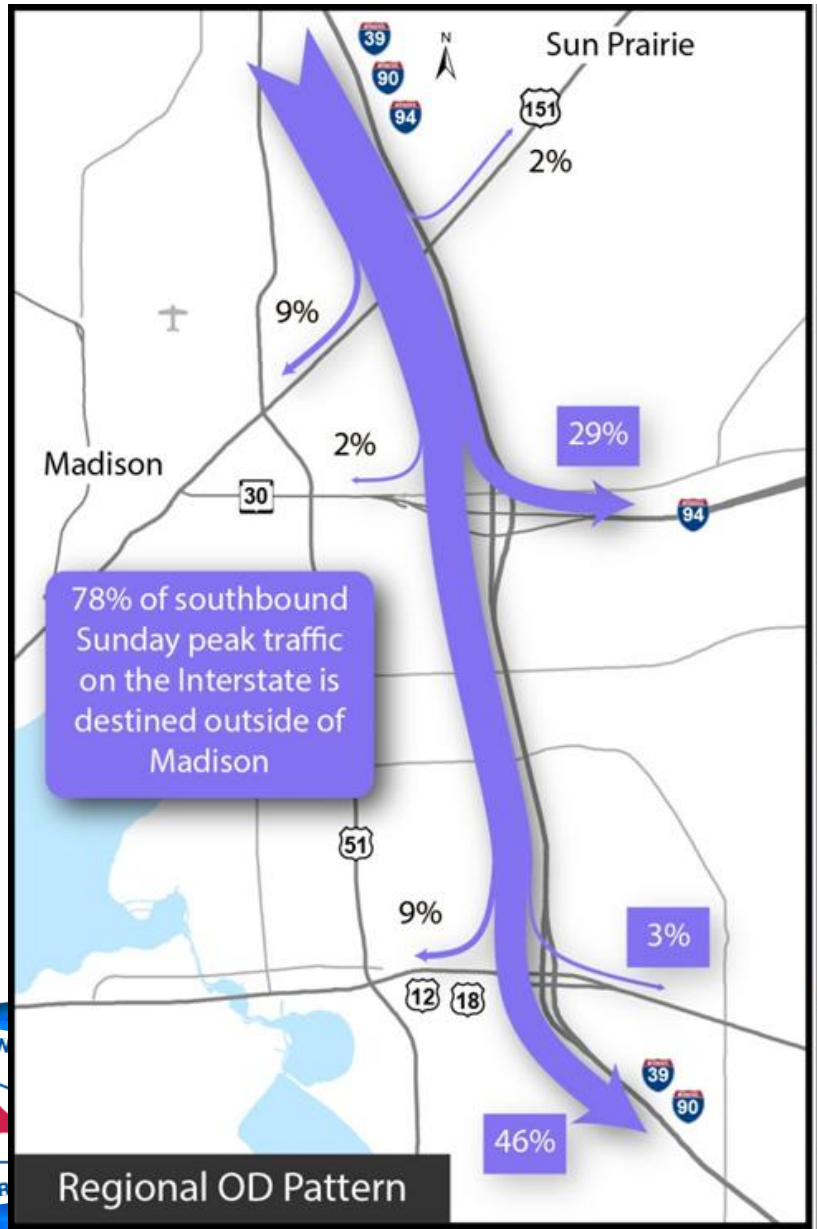
I-39/90 south of Badger Interchange (I-94/WIS 30), Dane County

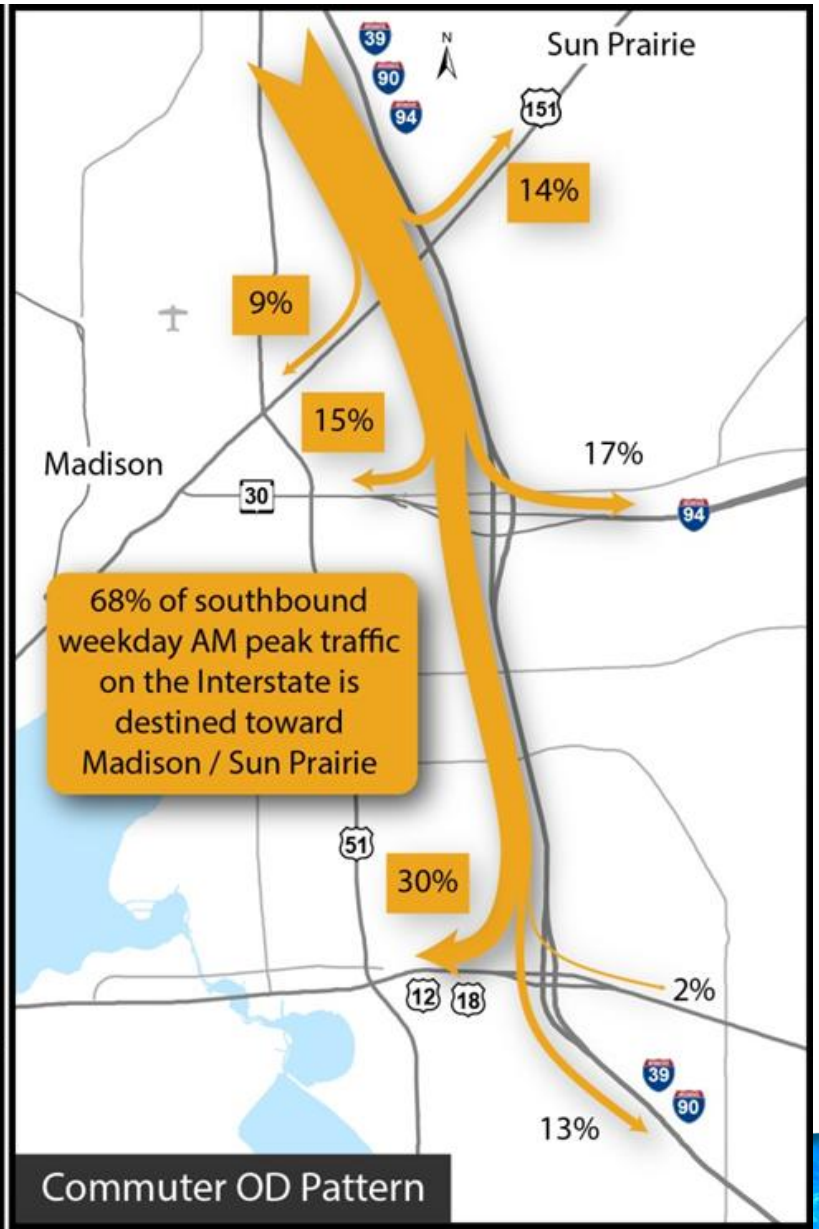
Traffic: NB I-39/90/94 O-D Patterns





Traffic: SB I-39/90/94 O-D Patterns





Safety: Crash Severity 2008 - 2012

Mainline Crashes I-39/90/94: US 12/18 to I-39 / WIS 78			Intersection Crashes Ramp Terminals Connecting to I-39/90/94		
Severity (KABCO Scale)	**Crashes**	**Percent**	**Severity** (KABCO Scale)	**Crashes**	**Percent**
Total	**1,513**	**100%**	**Total**	**248**	**100%**
Fatal (K)	5	0.3%	K	1	0.4%
Permanently Disabling Injury (A)	50	3%	A	3	1%
Non-Disabling Injury (B)	177	12%	B	21	8%
Minor Injury (C)	151	10%	C	25	10%
Property Damage Only (PDO)	1,131	75%	PDO	198	80%

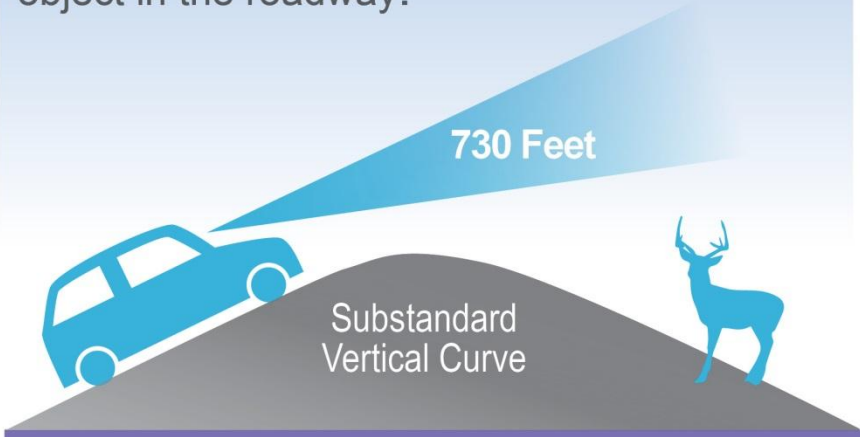
Days of the week were chosen randomly.
Tuesdays and Fridays are no less safe than any other day of the week to travel the corridor.

Geometrics: Sight Distance

Sight Distance

At least **730** feet is needed to stop completely when traveling 70 mph.

The driver can not see the object in the roadway.



When the curve is flatter, the driver can see the object in the roadway with enough time to stop.

4 Vertical curves do not meet stopping sight distance standards.

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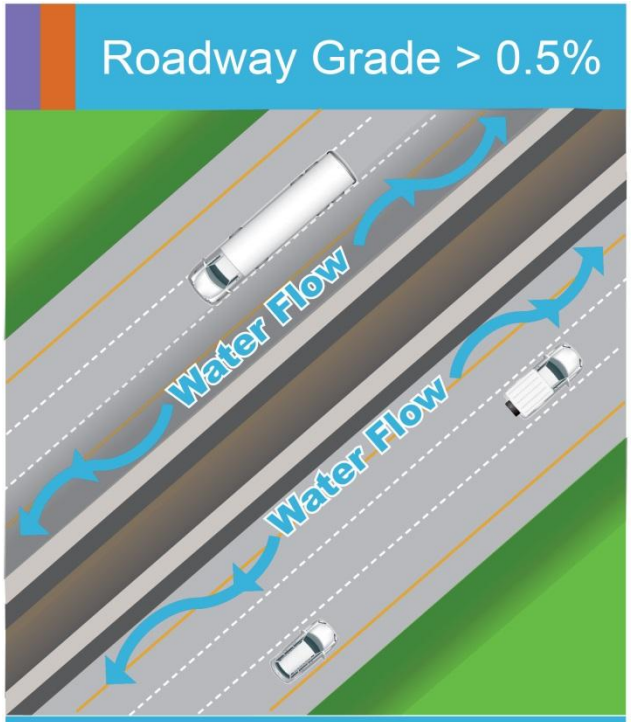
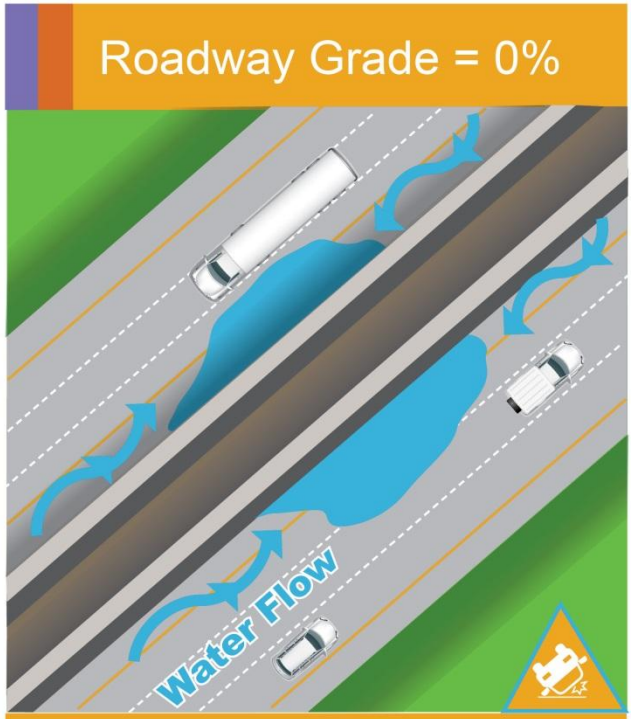
39 90 94 INTERSTATE STUDY

Geometrics: Substandard Vertical Grades



Good Drainage
Proper slopes on roadways allow water to flow downhill. Standing water is not a concern.



Poor Drainage
Flat roadways with little to no slope have poor drainage. During heavy rains, this can lead to standing water on the roadways - a potential safety hazard.

Geometrics: Clear Zone

Existing Clear Zone I-39/90/94

Steep slopes
can cause vehicles leaving the road to overturn and make it more difficult to regain control.

Current WisDOT Clear Zone Standard

A **wider, flatter** area free of obstructions makes the roadway safer.

Gentle slopes
make it easier to stop safely or regain control of the vehicle.

840 crashes on I-39/90/94 between US 12/18 and WIS 78 were run-off the road crashes from 2008-2012.

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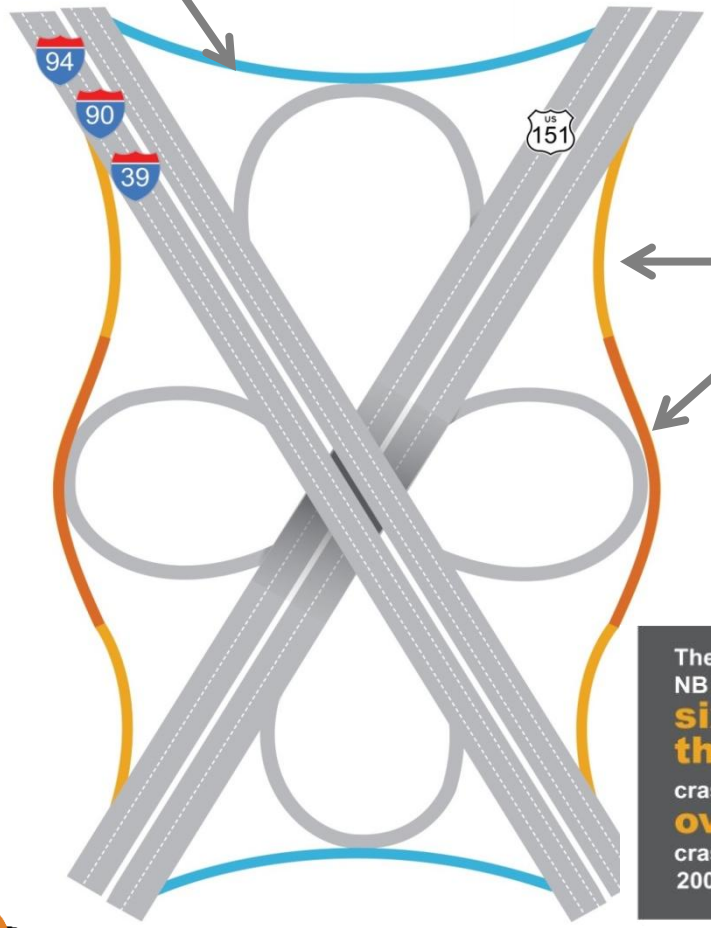
Geometrics: Interchange Horizontal Alignment

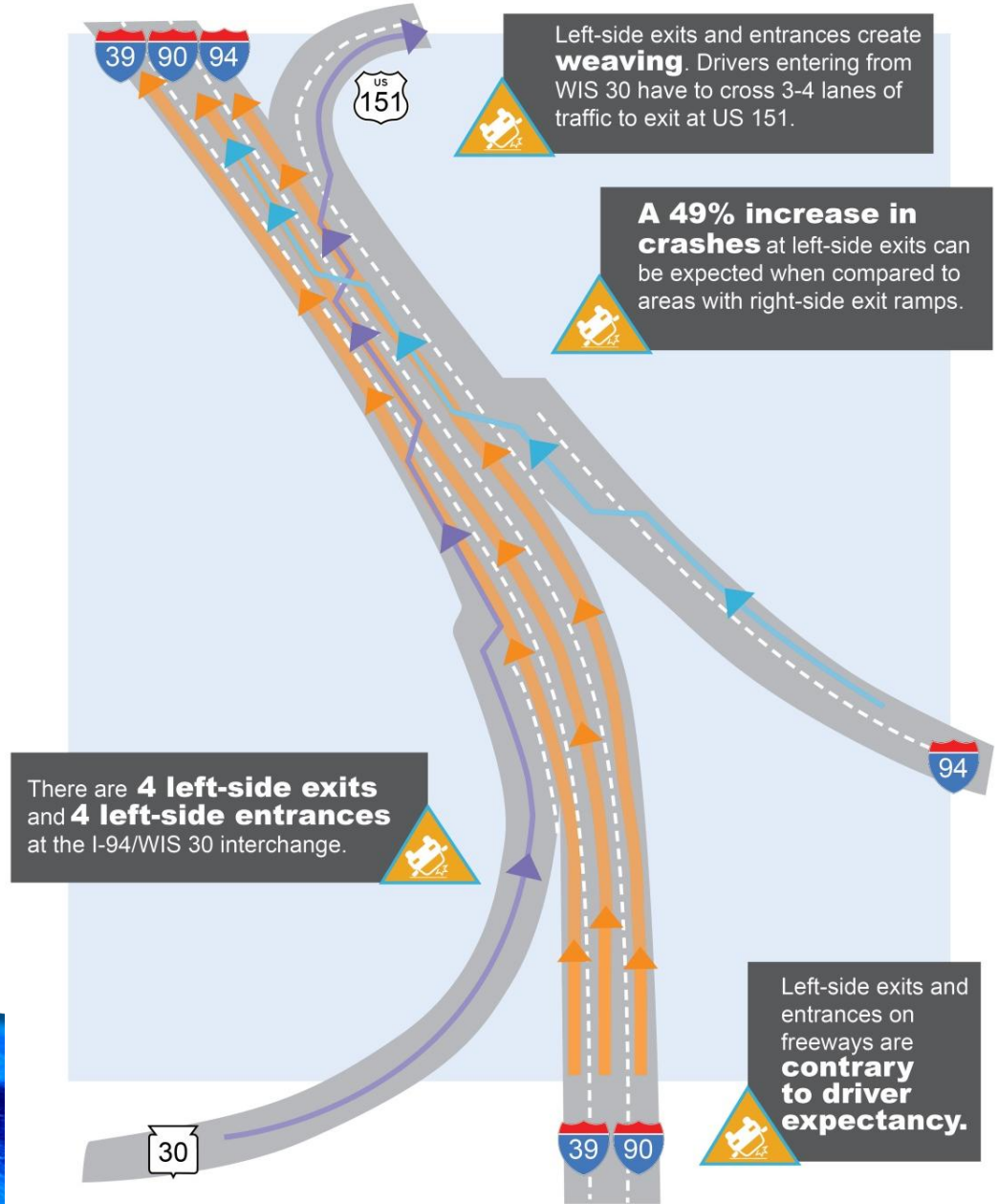
Drivers expect
Ramps to look like this, with little curvature.



Ramps with **reverse curves** can increase the number of run-off-the-road and overturn crashes.

The NB I-39/90/94 to NB US 151 ramp had **six run-off-the-road** crashes and **one overturn** crash between 2008-2012.

Geometrics: Left Exits and Entrances



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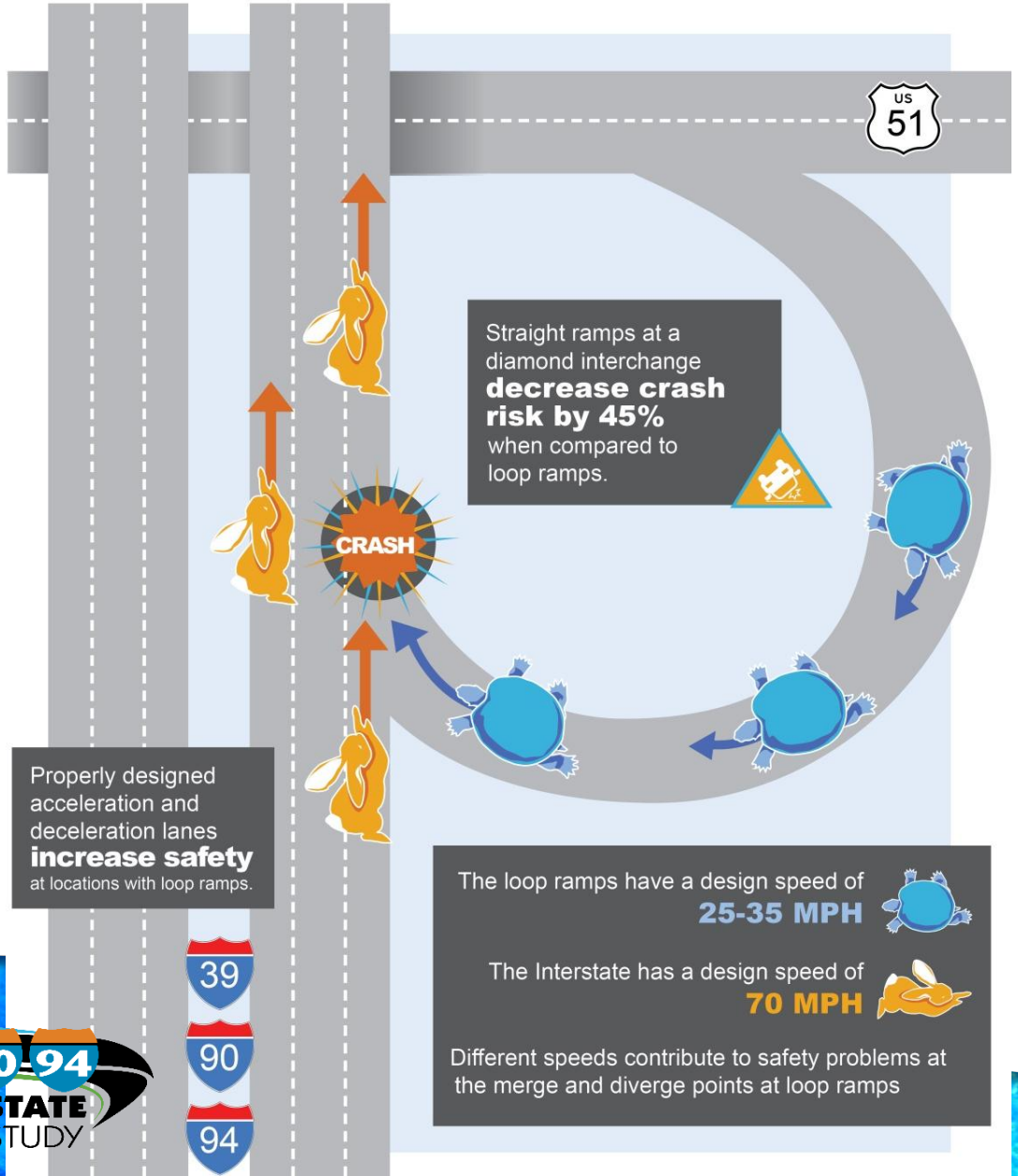
39 90 94 INTERSTATE STUDY

Geometrics: Loop Ramps



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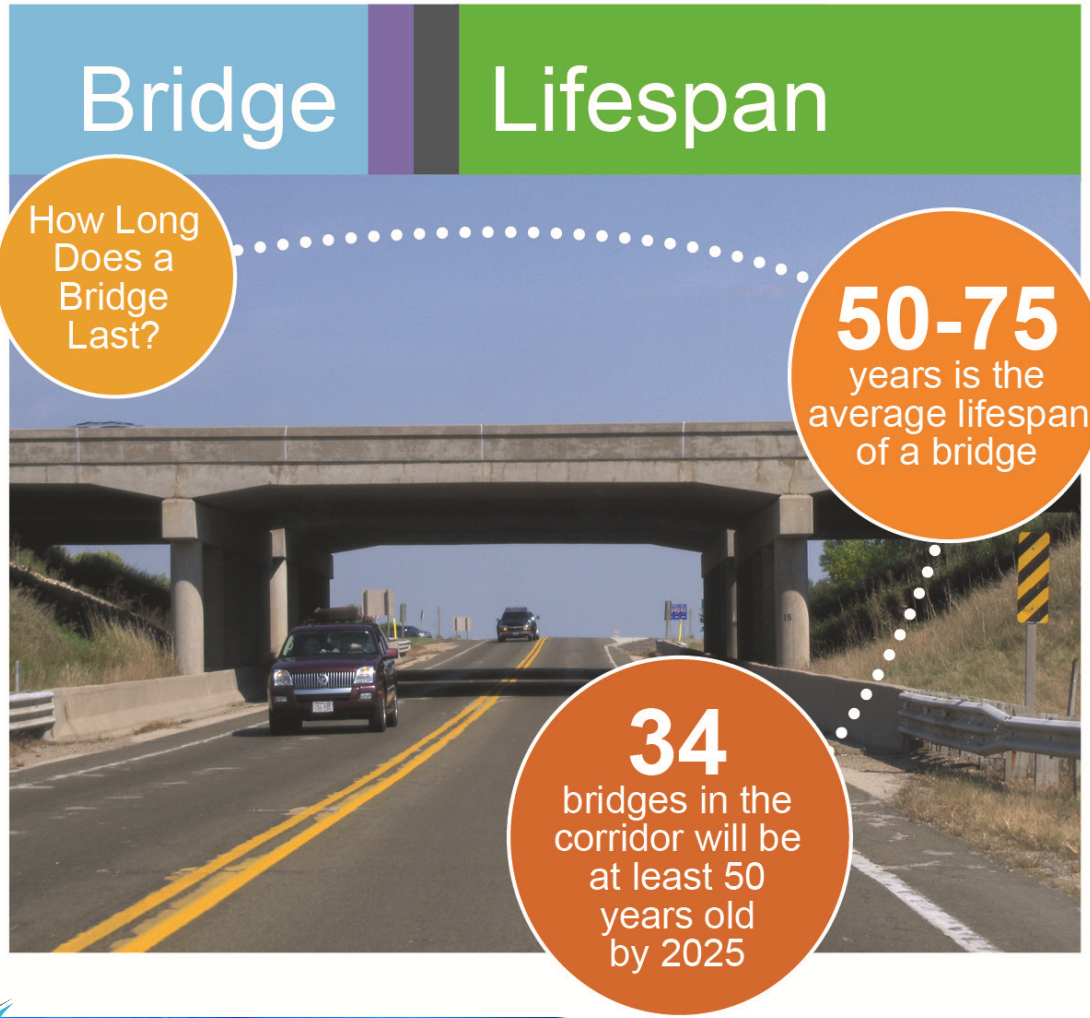
39-90-94 INTERSTATE STUDY

Bridges: Most are getting old



Wisconsin River Bridge

Facts

Length: 1,690 Feet
Height above water: 31 Feet
Year Built: 1961

JFK Became President
Bridge is Built
1961

Ronald Regan
Re-elected President
New Deck
Widen Bridge
1984

George W. Bush
is president
Girder Repair
2002

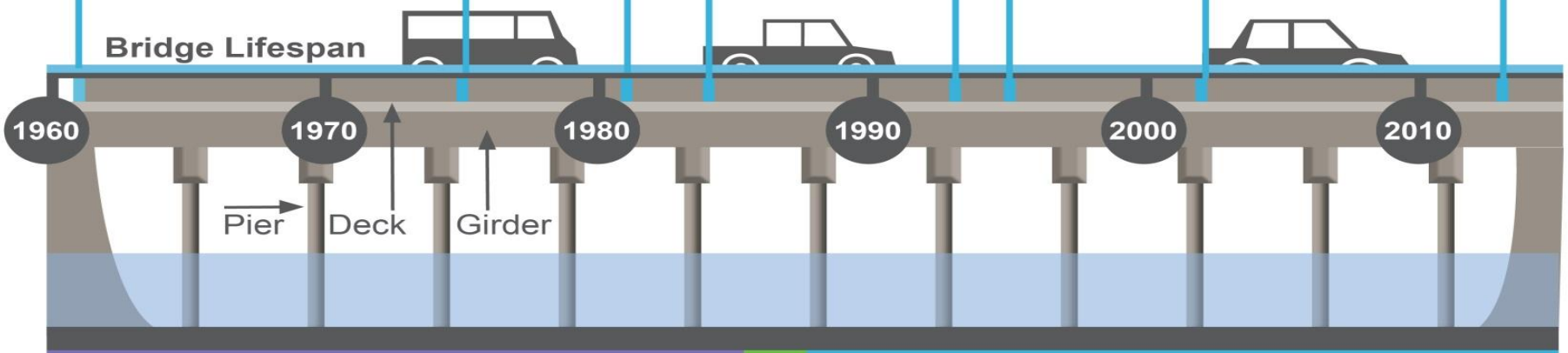
Girder Repair
1981

Deck Repair
1993

Girder Repair
1975

Girder Repair
1995

Deck Repair
Pier Repair
Girder Repair
2013



Repairs

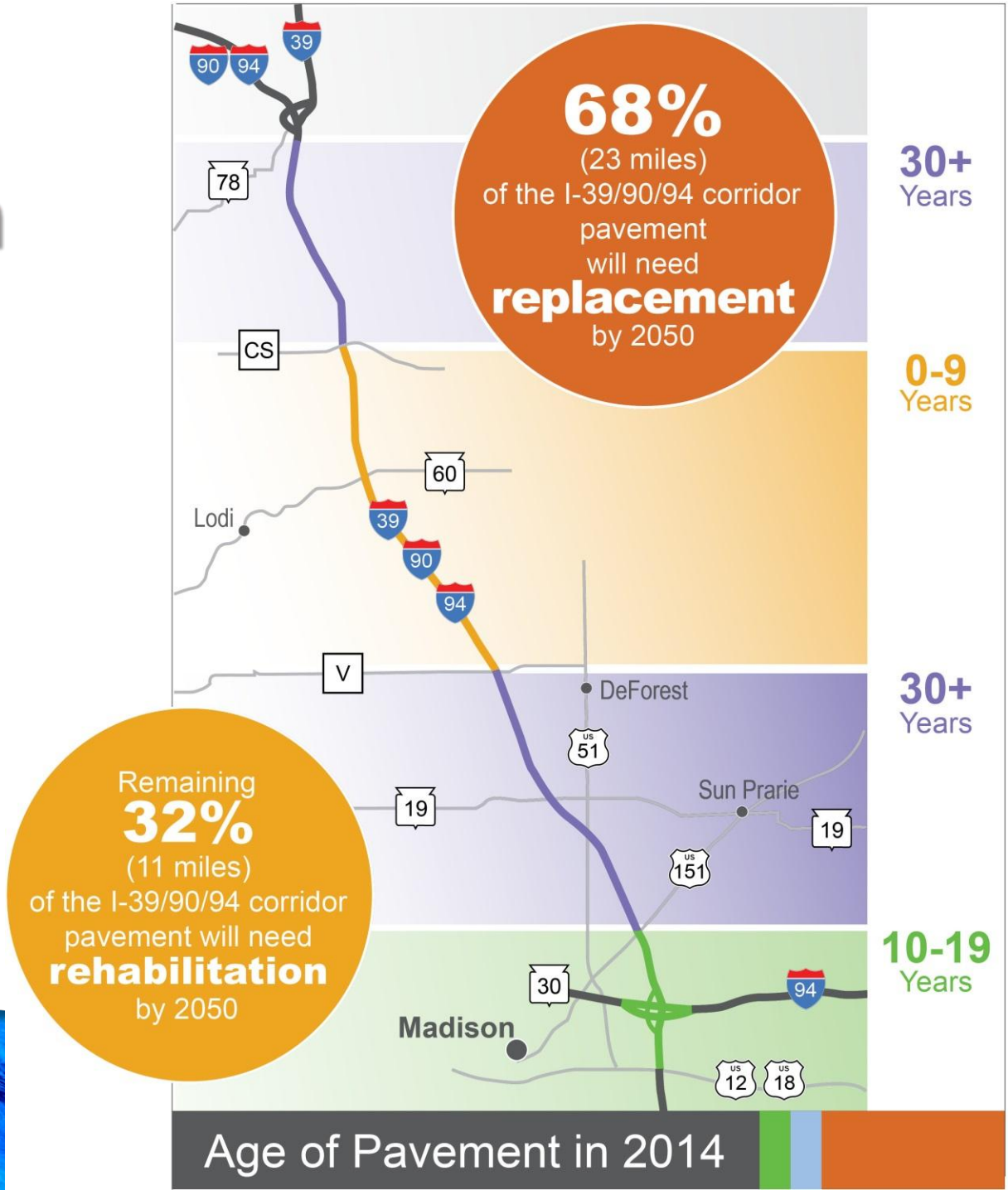
The I-39/90/94 bridges over the Wisconsin River have been repaired **seven** times.

Replacement

NEEDED

The bridge is **50+** years old. 50-75 years is the typical lifespan of a bridge.

Pavement: Replacemen and Rehab Needs



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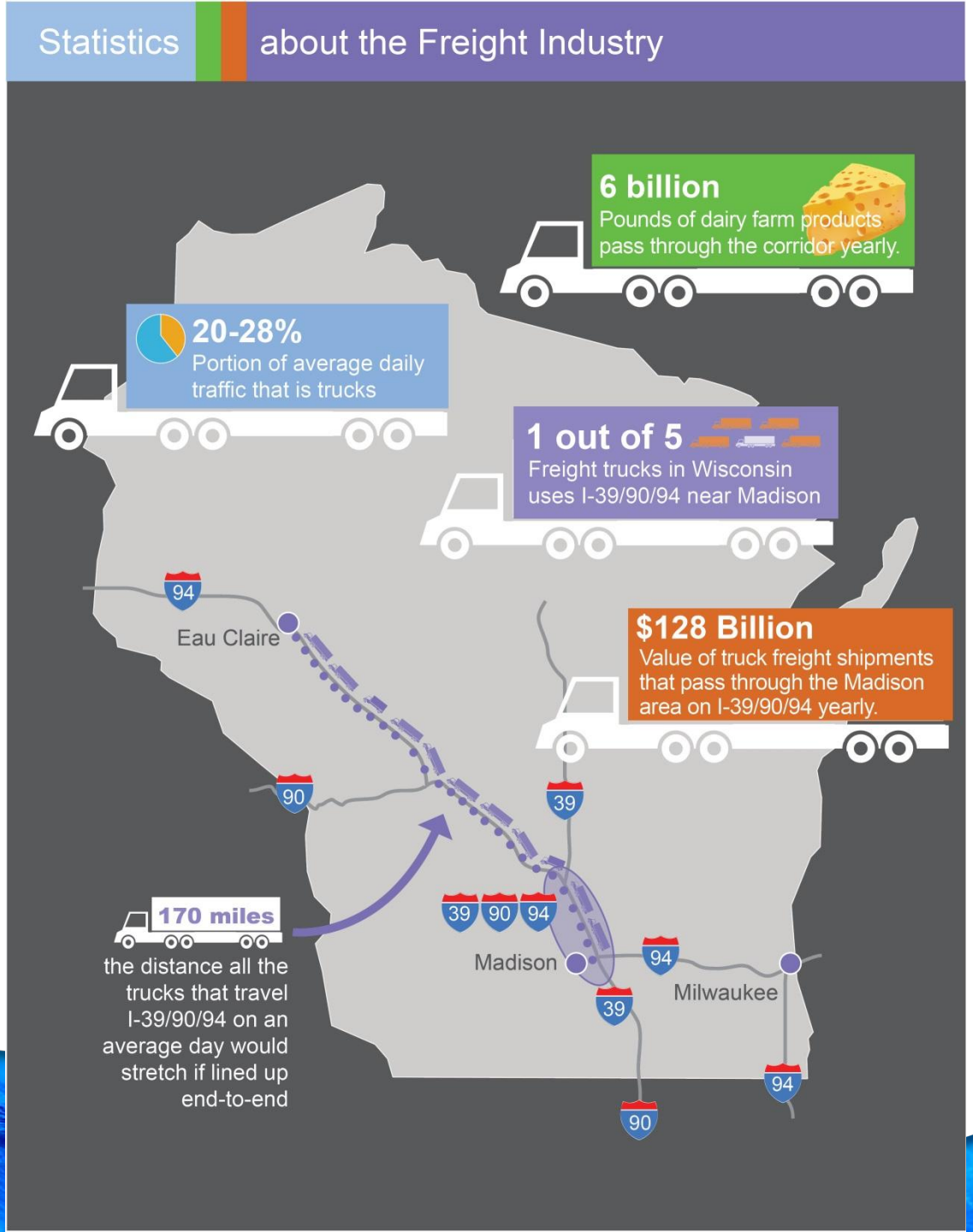
39 90 94 INTERSTATE STUDY

Economics: 2014 Freight Industry



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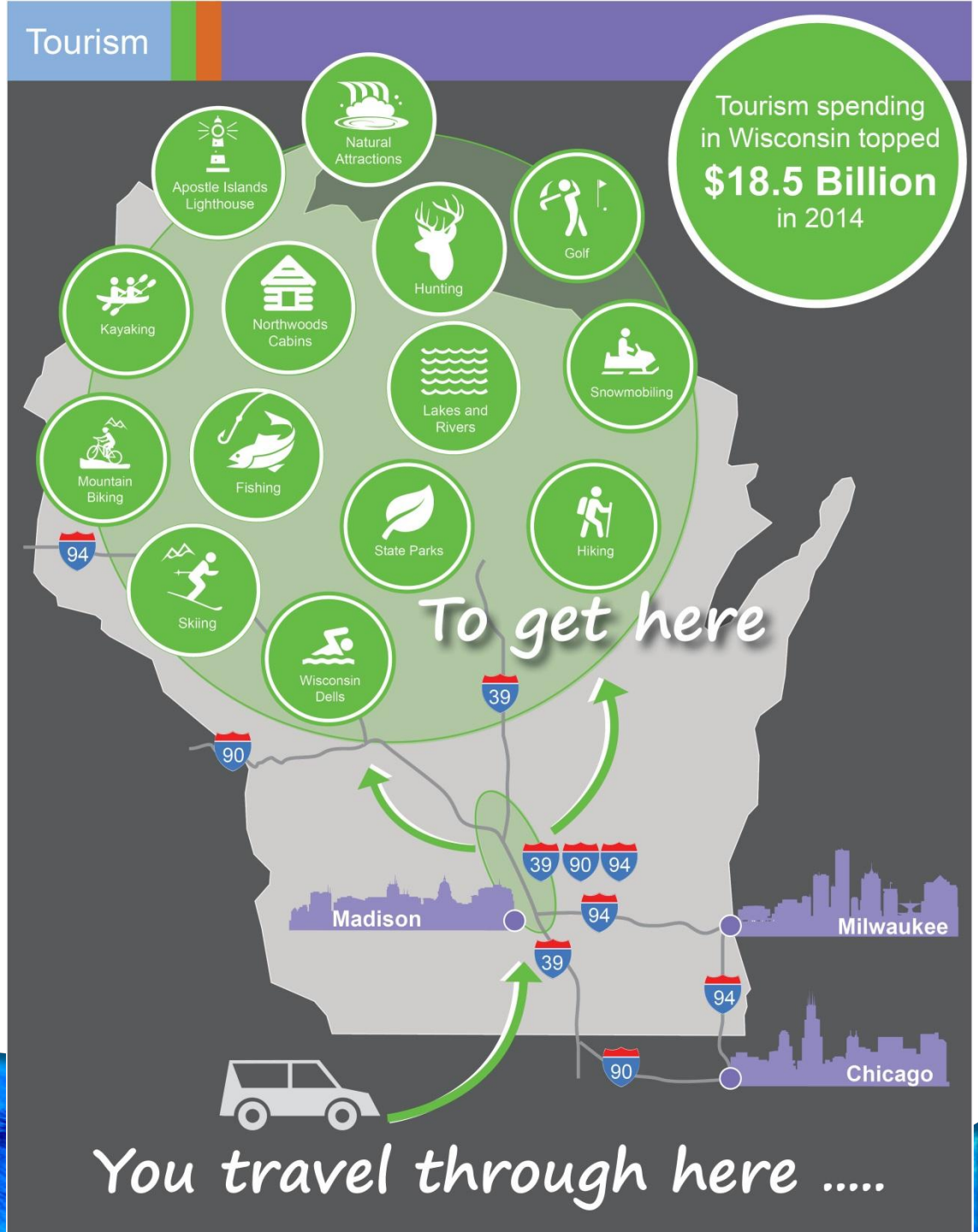
39-90-94 INTERSTATE STUDY

Economics: Tourism and I-39/90/94



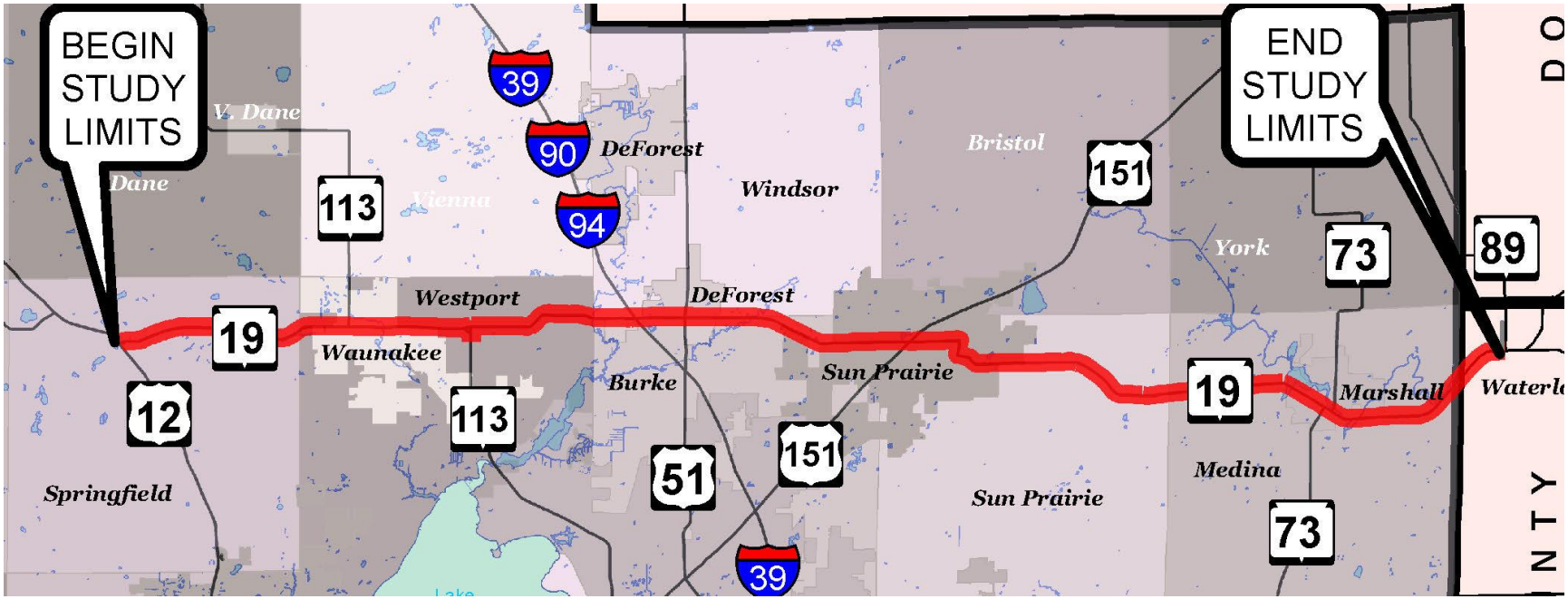
WISCONSIN DEPARTMENT OF TRANSPORTATION

39 90 94 INTERSTATE STUDY

WIS 19 Safety and Operations Study

WIS 19, Town of Springfield (US 12) to City of Waterloo (WIS 89)
Dane and Jefferson Counties
Project I.D. 5290-00-09

Study Area – US 12 to WIS 89 (30.5 miles)



Counties

- Dane
- Jefferson

Cities & Villages

- Waunakee
- DeForest
- Windsor
- Sun Prairie
- Marshall
- Waterloo

Towns

- Springfield
- Westport
- Burke
- Sun Prairie
- Medina

Background

This is a recently completed planning-level preservation study for the WIS 19 corridor. There are no allocated funds for design or construction projects tied to this study.

The study involved the following tasks:

- Evaluating existing roadway conditions
  - ✓ Access
  - ✓ Environmental resources
  - ✓ Infrastructure
  - ✓ Land-use
  - ✓ Safety
  - ✓ Traffic operations
  - ✓ Traffic volumes
- Identify operational deficiencies and future corridor needs
- Develop strategies and recommendations that will preserve the safety and efficiency of the existing highway corridor for years

Study outcomes

- Existing Condition Report
- Identify Key Safety and Operational Concerns
- Hear Local Official and Public Concerns
- Develop Conceptual Improvement Strategies
- Corridor Management Report

Questions?

Contact: WisDOT Southwest Region

- Brandon Lamers, WisDOT Major Studies Supervisor
  - (608) 246-3852
  - Brandon.Lamers@dot.wi.gov

City of Madison: LRTPC

WisDOT SWR Major Studies Update

September 29, 2016