

Madison Beltline Planning and Environment Linkages (PEL) Study MPO Transportation Planning Board Presentation

January 7, 2015



Agenda

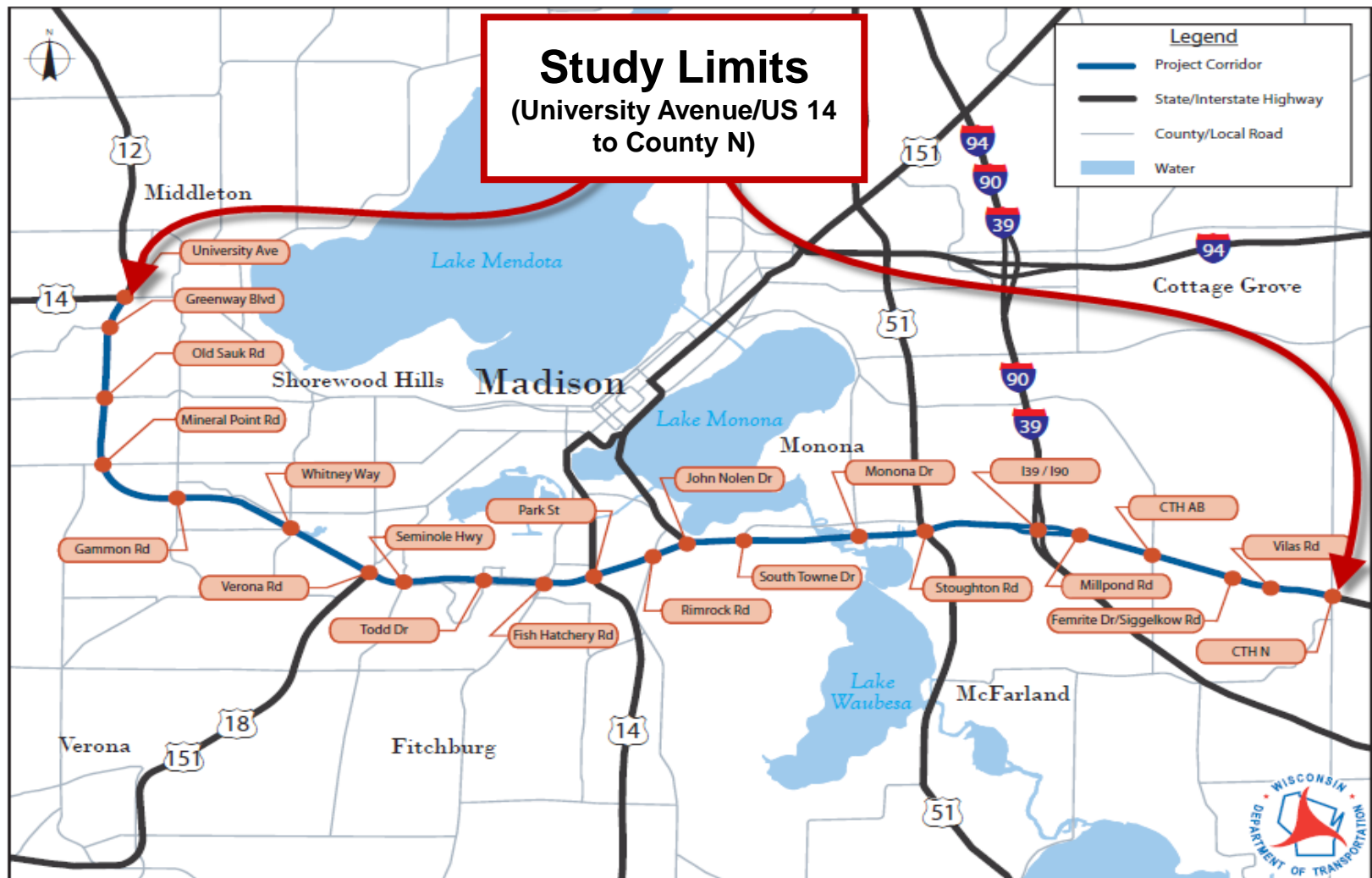
- ▶ Beltline Study Background
- ▶ UW Survey Results
- ▶ Strategy Development and Results
- ▶ PIM Feedback
- ▶ Next Steps



Beltline Study Background

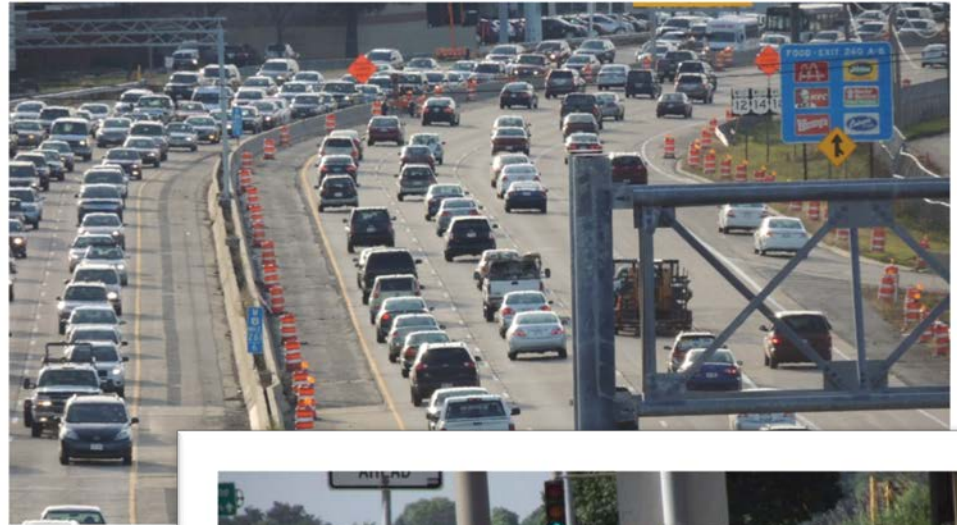


Study Corridor Limits

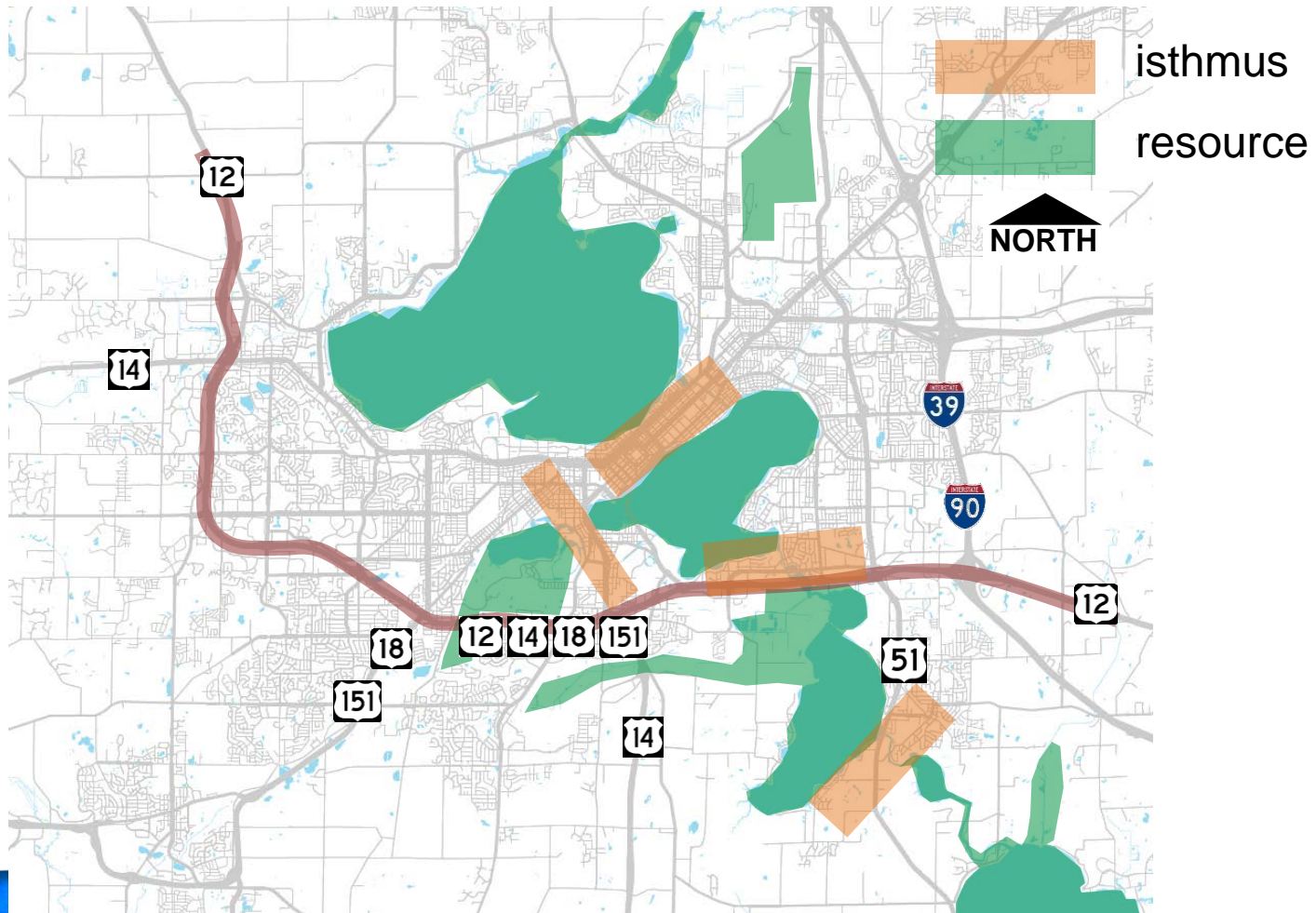


Why is the Beltline being studied?

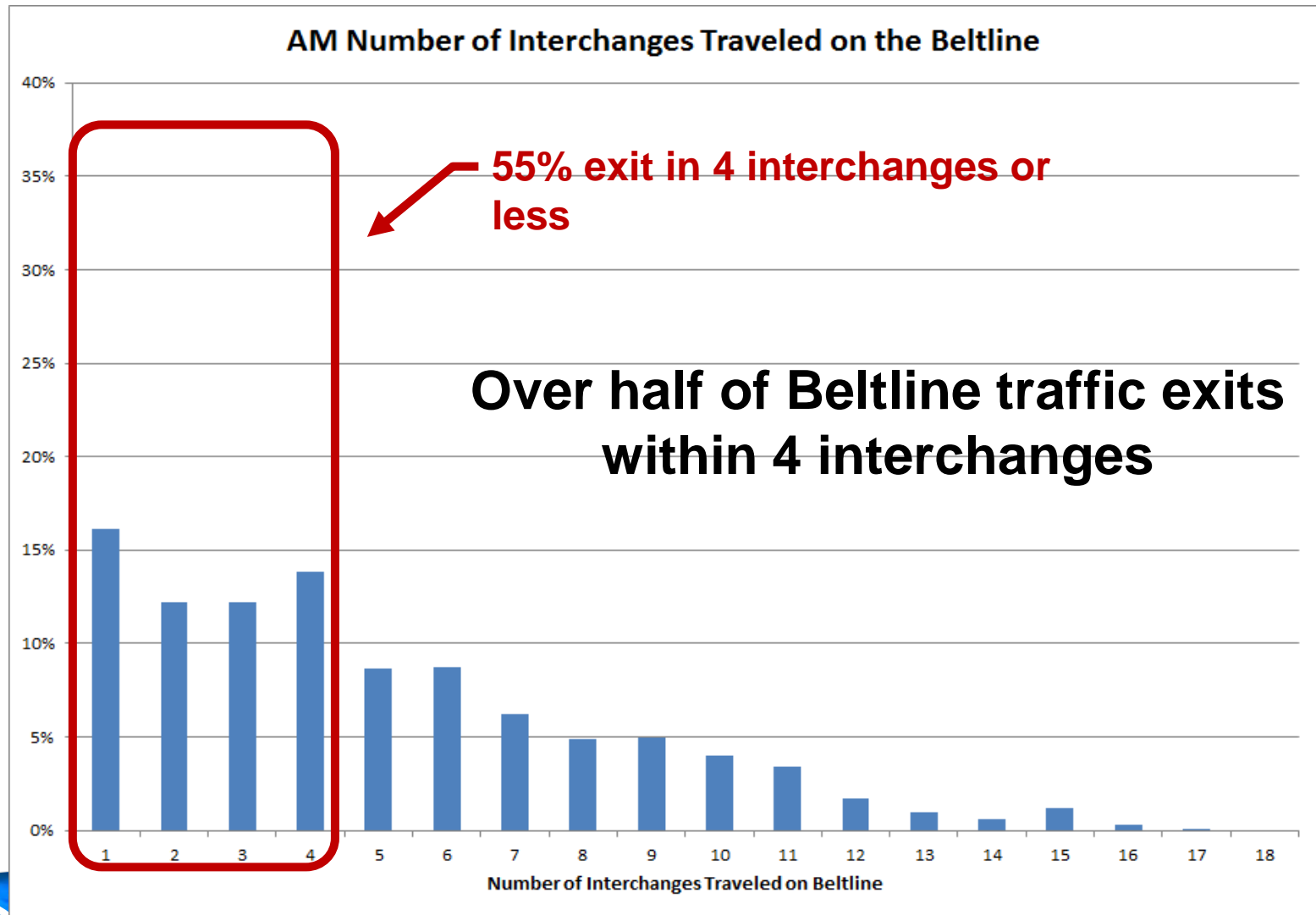
- ▶ Motor vehicle congestion
- ▶ Too many crashes
- ▶ Complex Regional traffic patterns
- ▶ Bike/ped accommodations needs
- ▶ Transit needs
- ▶ Few alternate routes
- ▶ Deteriorating physical conditions



People use the Beltline to get around resources and facilities



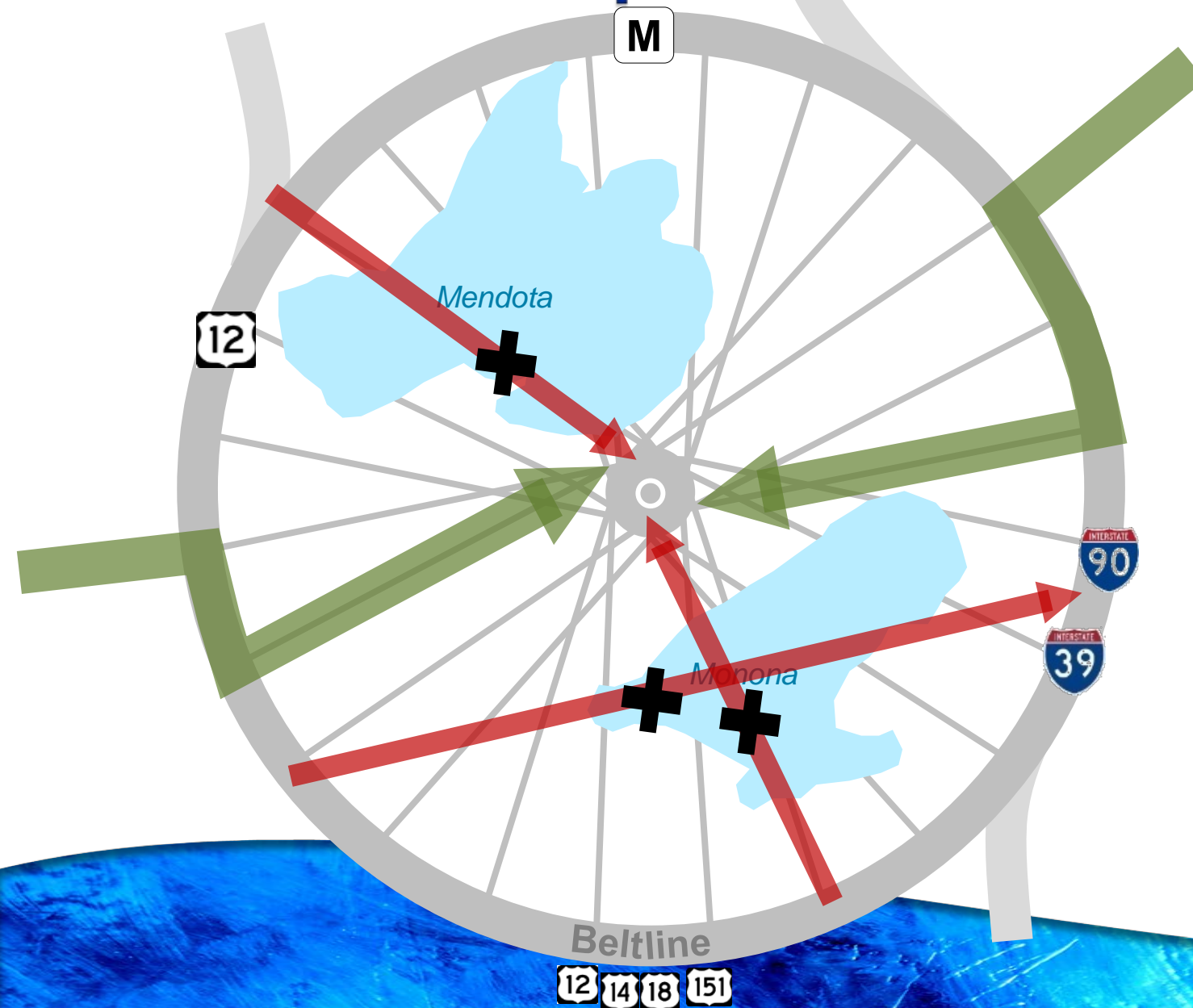
Much of the Beltline traffic is local



Madison transportation is different

Direct

Indirect



Three Study Parts

Part 1 : O/D Study

Data Collection = Summer/Fall 2012

Analysis = 2013/14

Completed Report = Fall 2014

Part 2: PEL Study

Work Plan = Fall 2012

Completion = Late 2015

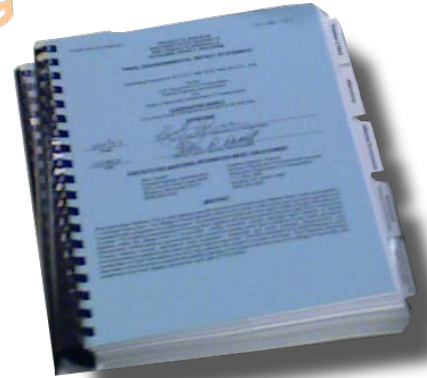
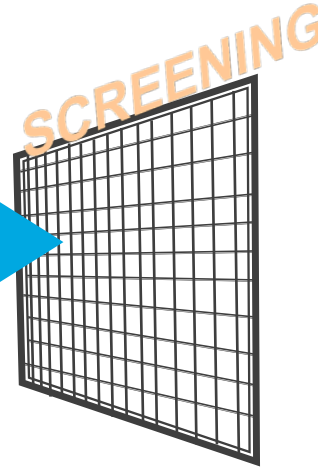
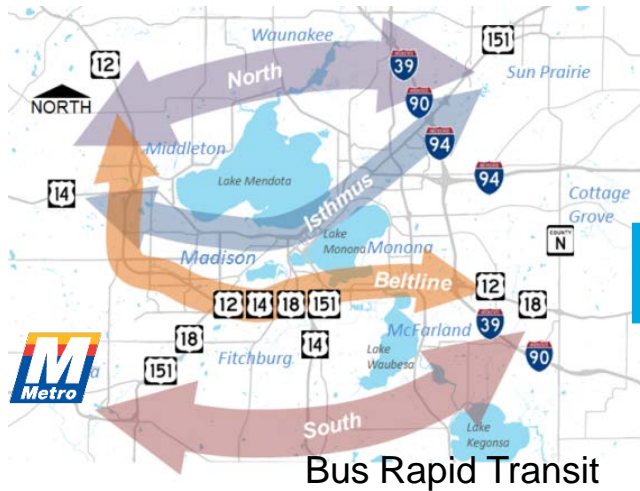
Part 3: Environmental Impact Statement

Begin = Winter 2016

ROD = 2020



PEL Process



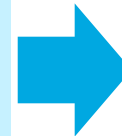
**Develop
Problem
Statement,
Goals, and
Objectives**



**Develop
Screening
Criteria**



**Develop
Strategies
and Evaluate
(Screen)**



**Identify
Strategies to
Bring
Forward into
NEPA**

Stakeholder meetings since start of PEL

- **City of Madison – Dept of Civil Rights**

- East Madison Monona Rotary Club
- Meadowood Neighborhood Association
- Village of Cottage Grove
- South Metropolitan Planning Council- Village of Oregon
- Waunakee Rotary Club
- Madison South Rotary
- Greater Madison Convention & Visitors Bureau- Community Relations Committee
- Allied Area Taskforce
- Greater Madison Convention & Visitors Bureau (GMCVB)

- **YWCA – Construct U Class**

- Arbor Hills Neighborhood
- Rotary Club of Madison – West Towne
- Town of Verona

- **Latino Academy**

- State Smart Transportation Initiative
- Orchard Ridge Neighborhood Association
- Madison West Rotary Club
- Dunn's Marsh Neighborhood Association
- Greater Madison Chamber of Commerce (GMCC)-Public Policy Committee
- Madison Region Economic Partnership (MADREP)

- **PAC – 8 meetings**

- **TAC – 7 meetings**

- Public Involvement Meetings (PIMs)–6 meetings
- Local Government Briefings–3 meetings
- Agency Meetings–3 meetings
- Bike/Pedestrian Focus Group–2 meetings
- Transit Focus group–2 meetings

- **Urban League of Greater Madison**

- **Centro Hispano**

- Madison Horizons Rotary
- Leopold Neighborhood Assoc.
- City of Stoughton
- Realtors Assoc. of South Central Wisconsin–Government Affairs Committee
- Downtown Madison Inc.- Trans. & Parking Committee- Bicycle subcommittee
- Village of DeForest
- UW Arboretum
- City of Middleton
- University Research Park
- Village of Maple Bluff
- City of Fitchburg
- Smart Growth Greater Madison
- John Muir Sierra Club
- Village of Waunakee



PEL Objectives

- 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.

PEL Is Long Range Planning

- ▶ Studying transportation strategies that will serve the metropolitan area for decades
- ▶ 2050 is the planning horizon year
 - Construction could start by mid-2020's



Where household growth will occur

2050

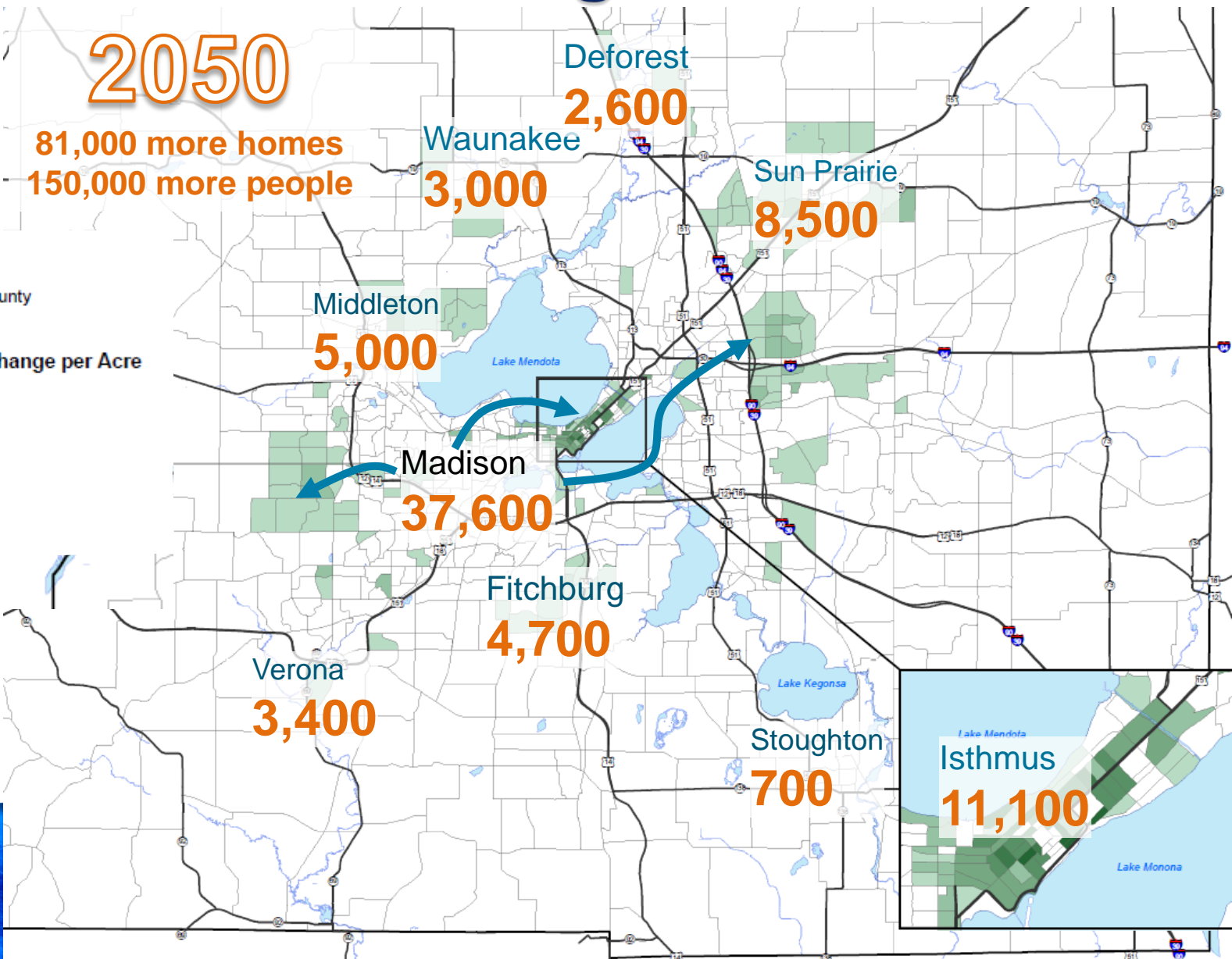
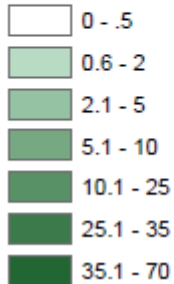
81,000 more homes
150,000 more people

Legend

Dane County


Water

Household Change per Acre




Where employment growth will occur


Legend


 Dane County


 Water


Employment Change per Acre


 0.0 - 1

 1.1 - 3

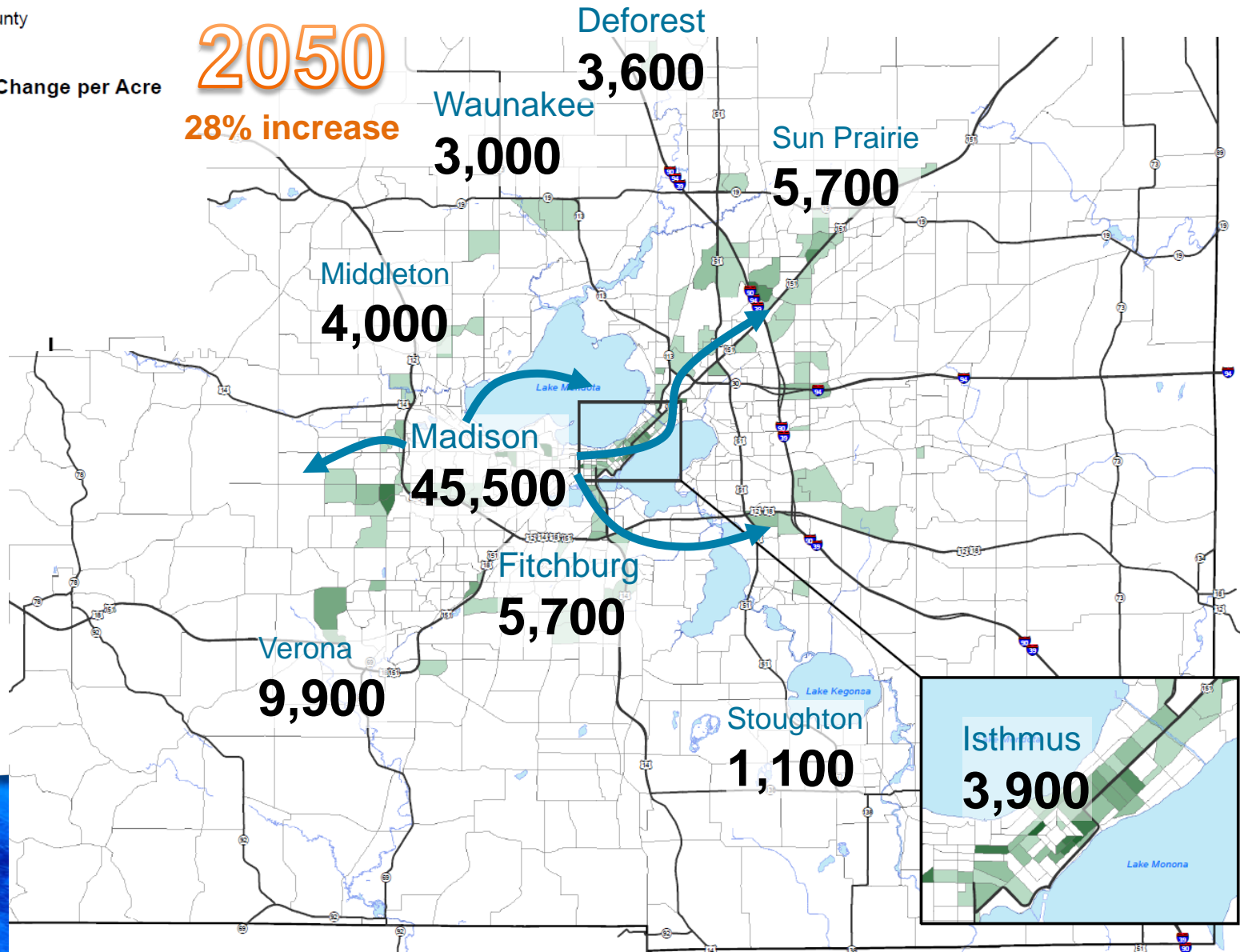
 3.1 - 6

 6.1 - 9

 9.1 - 12

 12.1 - 24

 24.1 - 62

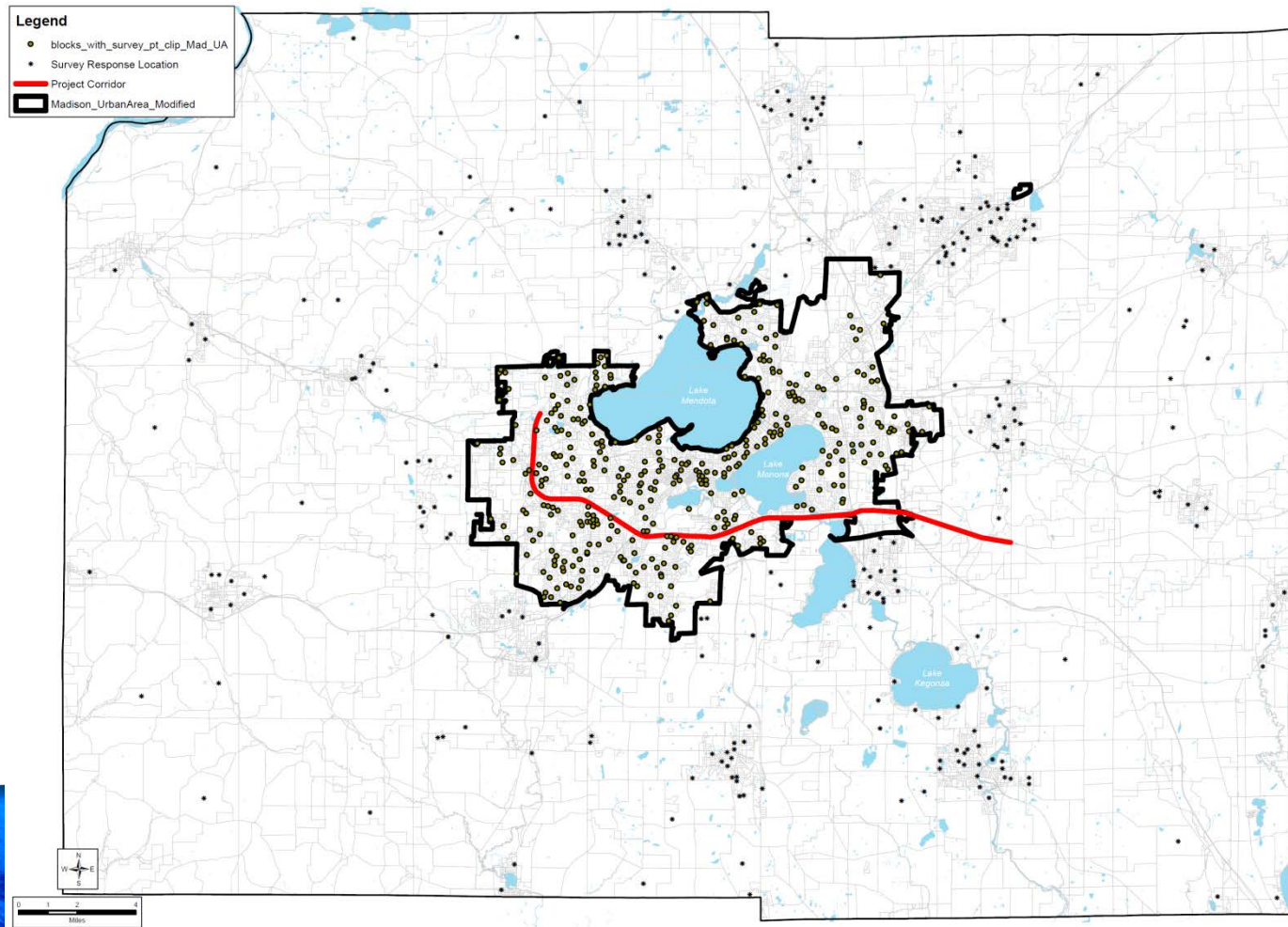


UW Survey Center Mailed Survey Selected Results

Stand-alone Strategies



UW Survey Center Responses w/ Urban Area subset



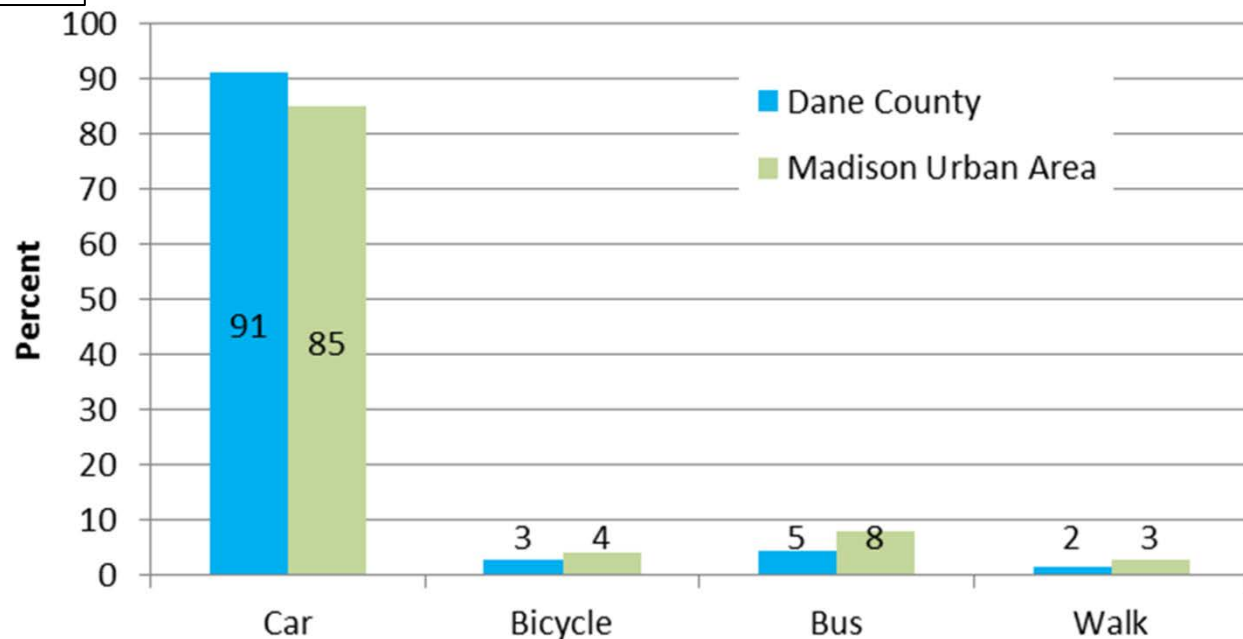
1. What is your primary mode of transportation for getting to and from work or to other activities you do regularly?

1. What is your primary mode of transportation for getting to and from work or to other activities you do regularly?

- ☐ Car
- ☐ Bicycle
- ☐ Bus
- ☐ Walk

Of all responses

Primary Mode of Transportation



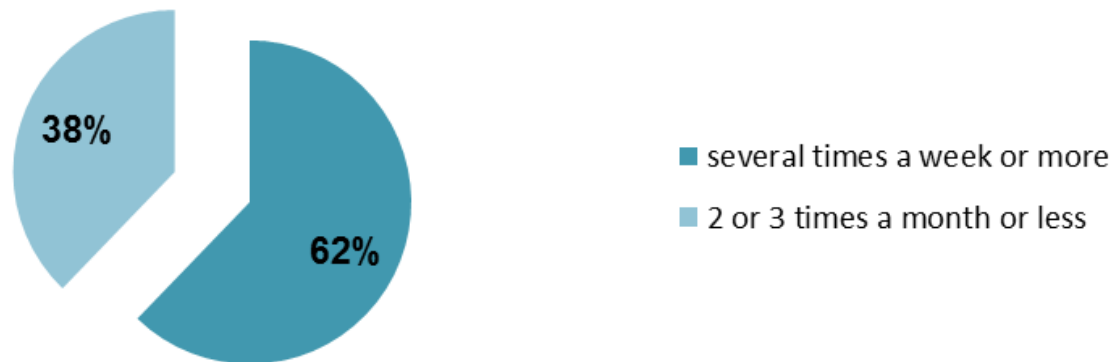
3. Which one of the following best describes how often you drive on the Beltline?

3. Which one of the following best describes how often you drive on the Beltline?

- ☐ Daily
- ☐ Several times a week
- ☐ 2 or 3 times a month
- ☐ Once a month or less

Of all responses

Dane County Residents Surveyed Percentage that use the Beltline

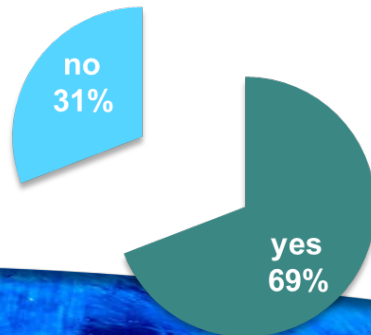


8. Do you ever use alternate routes to avoid Beltline congestion during rush hour?

9. Which alternate routes do you use to avoid Beltline congestion during rush hour?

Of those driving on the Beltline during rush hour, **percentage that sometimes use alternate routes**

Responses of those driving on the Beltline during rush hour



8. Do you ever use alternate routes to avoid Beltline congestion during rush hour?

☐ Yes

☐ No → Go to question 10 on the next page

9. Which alternate routes do you use to avoid Beltline congestion during rush hour?

Commonly listed routes:
Through downtown – 29
Broadway – 21
University Ave – 17
County PD – 29
Mineral Pt Rd – 12
Frontage Rds - 11



12. If changes were necessary to reduce future congestion on the Beltline, would you support each of the following types of road improvements?

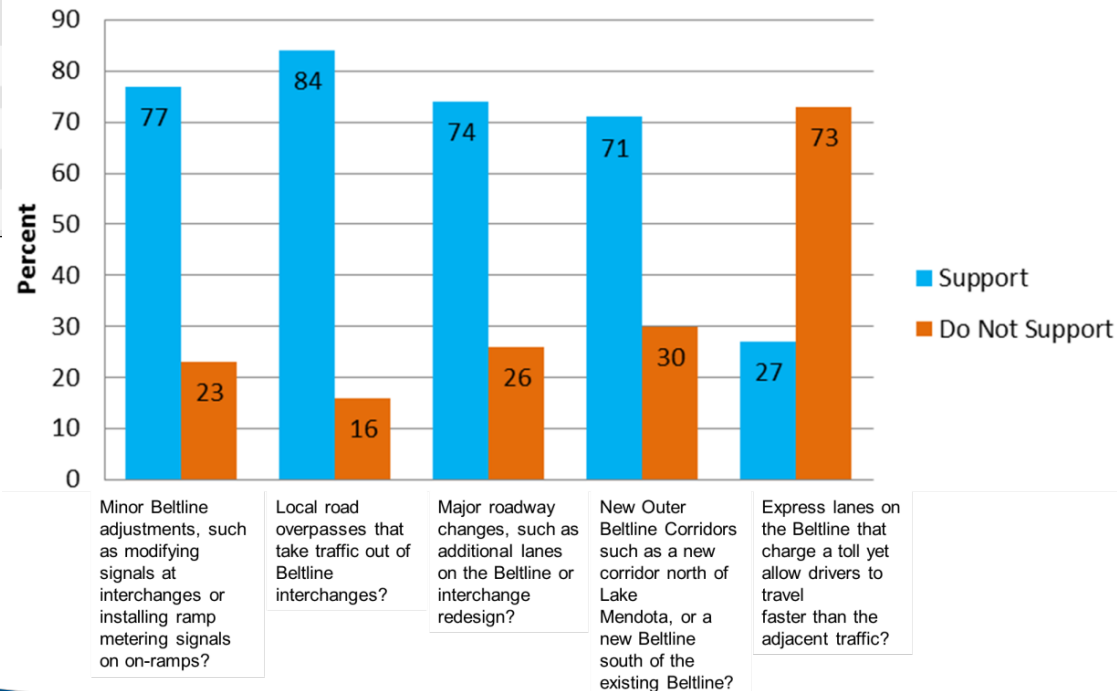
12. If changes were necessary to reduce future congestion on the Beltline, would you support each of the following types of road improvements?

Would you support...

	Yes	No
a. ...minor Beltline adjustments, such as modifying signals at interchanges or installing ramp metering signals on on-ramps?	<input type="radio"/>	<input type="radio"/>
b. ...local road overpasses that take traffic out of Beltline interchanges?	<input type="radio"/>	<input type="radio"/>
c. ...major roadway changes, such as additional lanes on the Beltline or interchange redesign?	<input type="radio"/>	<input type="radio"/>
d. ...new Outer Beltline Corridors such as a new corridor north of Lake Mendota, or a new Beltline south of the existing Beltline?	<input type="radio"/>	<input type="radio"/>
e. ...express lanes on the Beltline that charge a toll yet allow drivers to travel faster than the adjacent traffic?	<input type="radio"/>	<input type="radio"/>

Of all responses

Of all response, support for Beltline Improvements



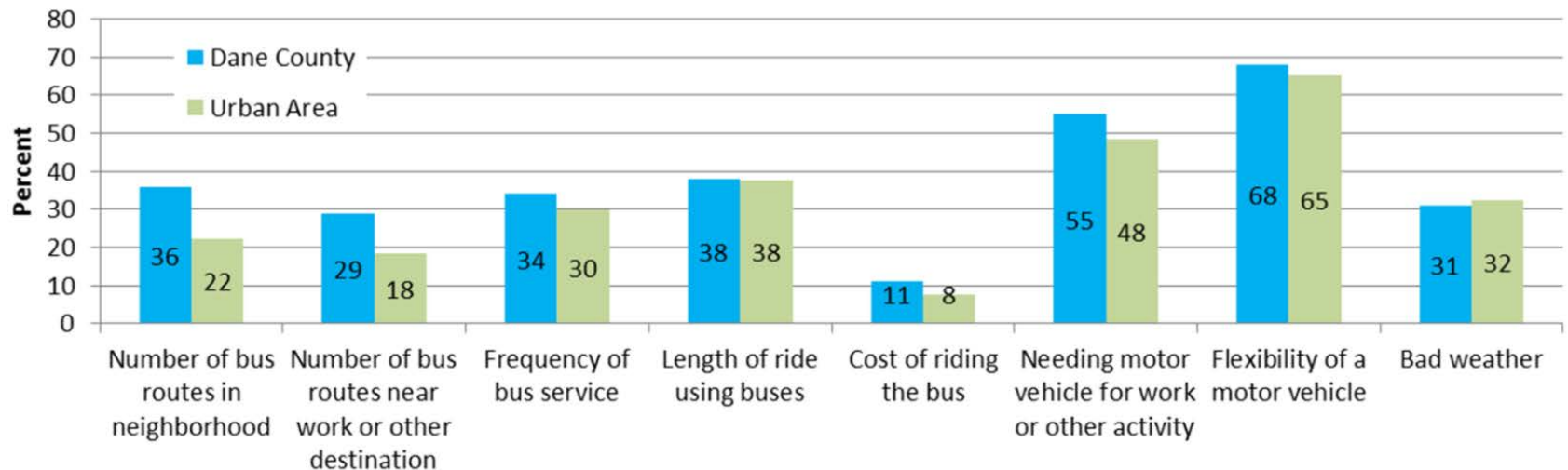
17. How much does each of the following factors prevent you or discourage you from using buses to get to work or to other activities you do regularly?

17. How much does each of the following factors prevent you or discourage you from using buses to get to work or to other activities you do regularly?

	Not at all	A Little	Some	Quite a Bit	A Great Deal
a. Number of bus routes in your neighborhood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Number of bus routes near your place of work or other destination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Frequency of bus service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Length of ride using buses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Cost of riding the bus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Needing your motor vehicle for your work or other activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Preference to use a motor vehicle for flexibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Bad weather	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Of all responses

Factors that discourage transit use for work trips



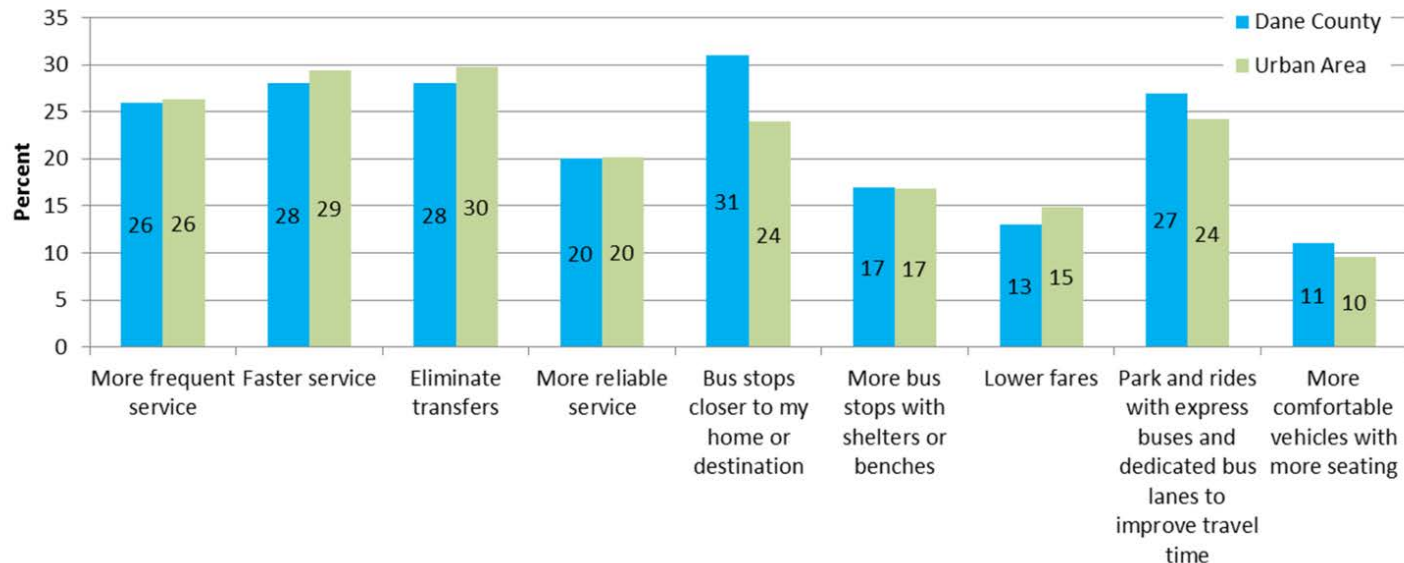
18. How much would each of the following changes encourage you to use the bus to get to work or other activities you do regularly?

18. How much would each of the following changes encourage you to use the bus to get to work or other activities you do regularly?

	Not at all	A Little	Some	Quite a Bit	A Great Deal
a. More frequent service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Faster service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Eliminate transfers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. More reliable service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Bus stops closer to my home or destination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. More bus stops with shelters or benches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Lower fares	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. Park and rides with express buses and dedicated bus lanes to improve travel time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. More comfortable vehicles with more seating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Of all responses

Factors that would encourage transit usage



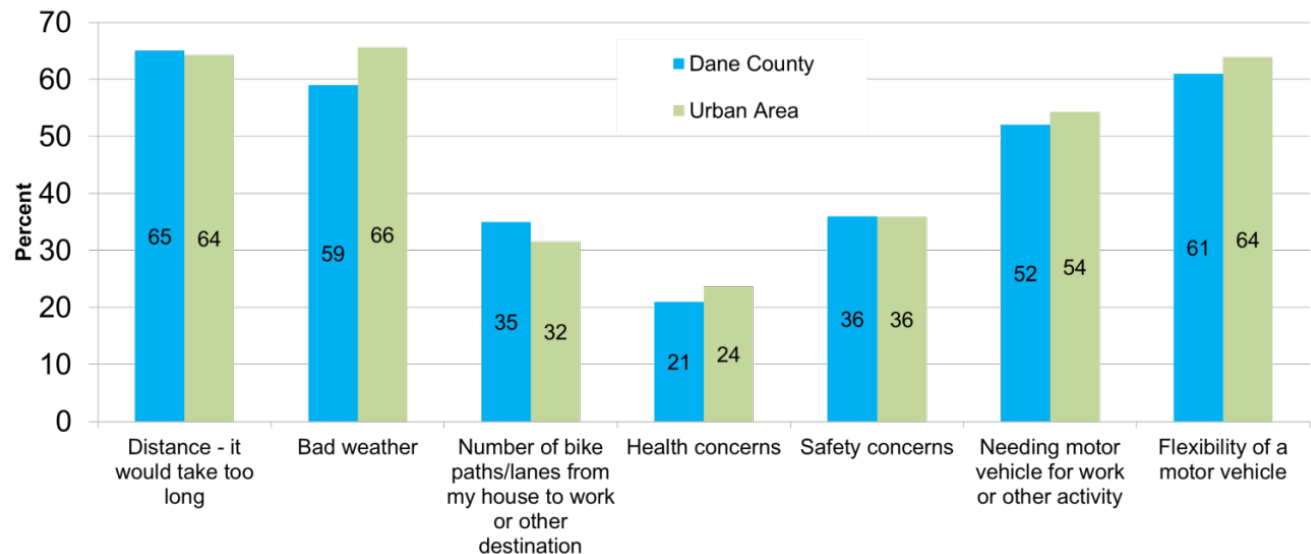
23. How much does each of the following factors prevent you or discourage you from biking or walking to work or to other activities you do regularly?

23. How much does each of the following factors prevent you or discourage you from biking or walking to work or to other activities you do regularly?

	Not at all	A Little	Some	Quite a Bit	A Great Deal
a. Distance - it would take too long	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Bad weather	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Number of bike paths/lanes from my house to work or other destination	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Health concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Safety concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Needing your motor vehicle for your work or other activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. Preference to use a motor vehicle for flexibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Of all responses

Factors that discourage biking or walking to work or other regular activities



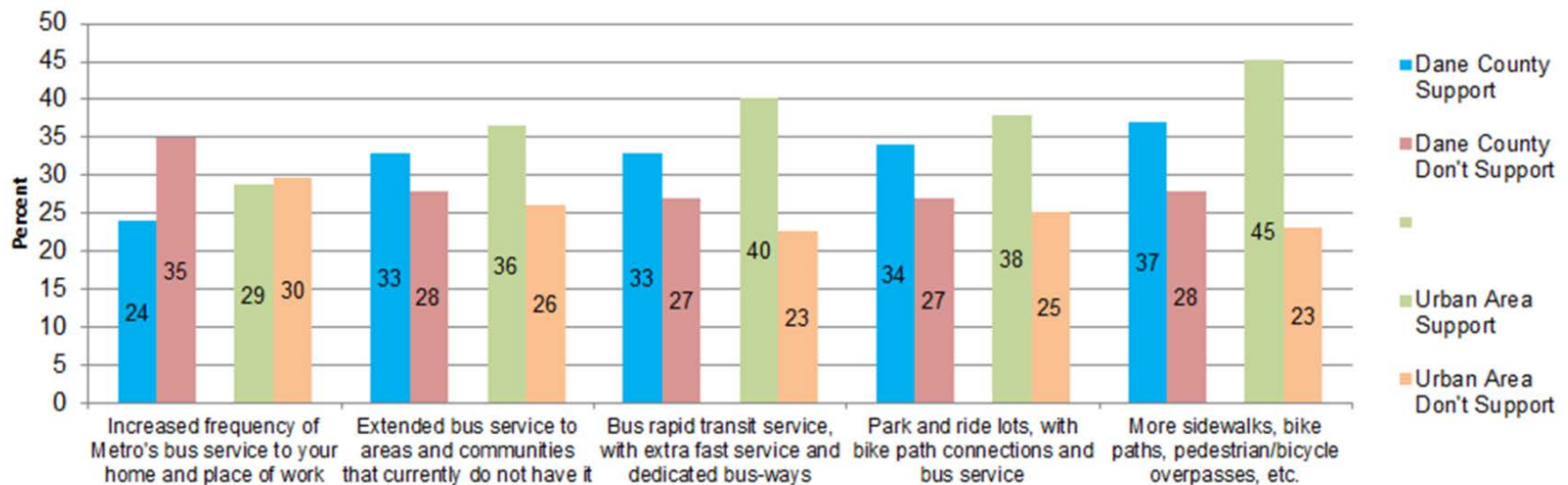
24. How much would you support additional funding for each of the following transportation alternatives to driving on the Beltline? How much would you support...

Of all responses

24. How much would you support additional funding for each of the following transportation alternatives to driving on the Beltline?
How much would you support...

	Not at all	A Little	Some	Quite a Bit	A Great Deal
a. ...increased frequency of Metro's bus service to your home and place of work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. ...extended bus service to areas and communities that currently do not have it?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. ...bus rapid transit service, with extra fast service and dedicated bus-ways?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. ...park and ride lots, with bike path connections and bus service?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. ...more sidewalks, bike paths, pedestrian/bicycle overpasses, etc.?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Support for funding for alternate transportation modes



Strategy Development and Evaluation

Stand-alone Strategies



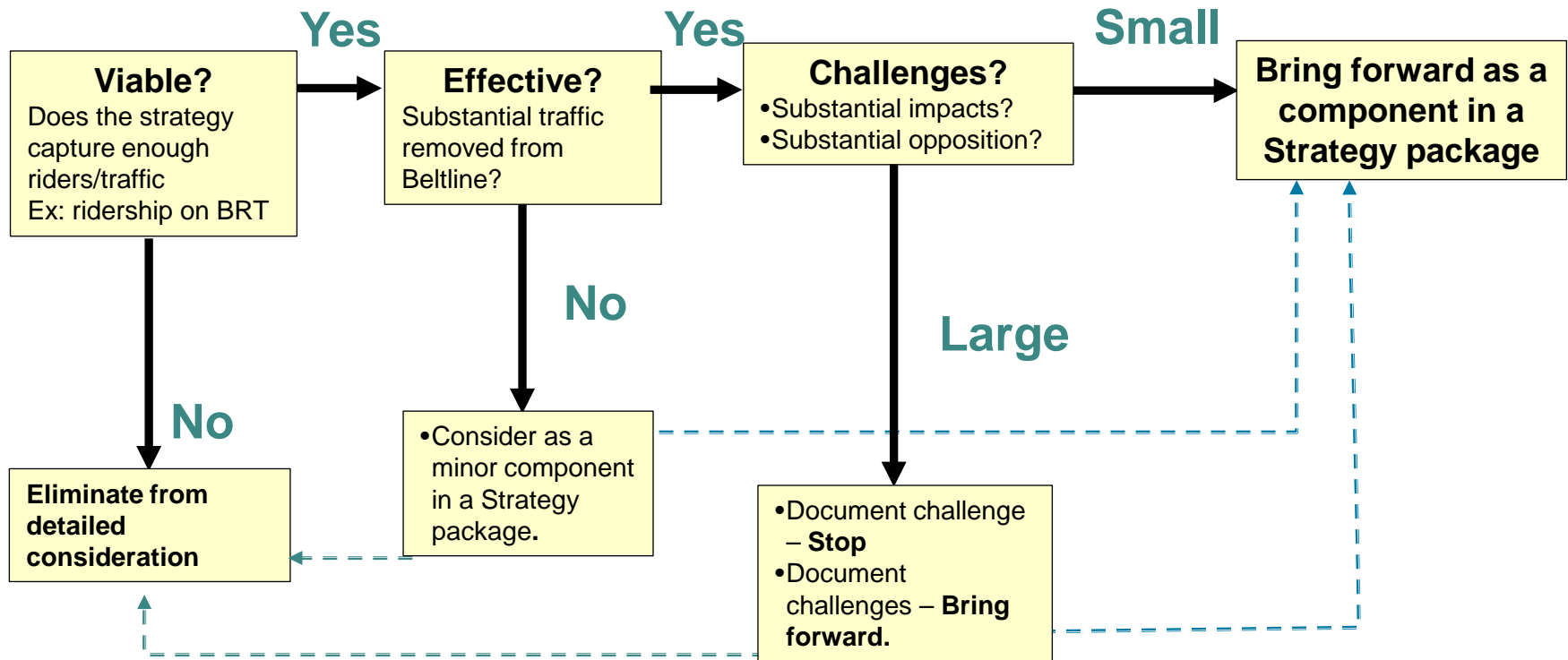
Strategy Component Categories

MOTOR VEHICLE	BIKE PEDESTRIAN	LOCAL SYSTEM	TRANSIT	TRANSPORTATION DEMAND MANAGEMENT
MV 1 BASE Reconstruction - no capacity increase This could reconstruct the Beltline with the existing capacity structure. Small modifications could be made at interchanges to improve safety/merging/diverging address deficiencies.	BP 1 BASE Standard Bike Ped Accommodations This would provide pedestrian and bicycle accommodations with proposed facility in accordance with Trans 75.	LS 1 BASE Under the Base Local System strategy, no additional connections across or perpendicular to the Beltline would be made.	T1 BASE Transit This would maintain current Madison metro and other transit activities as they currently operate.	TDM 1 BASE - Voluntary TDM This would create information and incentives for employees to encourage TDM measures, such as: <ul style="list-style-type: none"> • Ridesharing • Guaranteed Ride Home • Sponsored Bus Passes • Shifted work hours, etc.
MV 2 Beltline capacity expansion This could add one, two, or more lanes of capacity to the Beltline in both directions accompanied by appropriate interchange improvements and auxiliary lanes.	BP 2 Parallel path (new align only) This could provide an adjacent path to new-alignment highway alternatives.	LS 2 Parallel local system connections This could make parallel local system connections that are parallel to the Beltline.	T2 Bus Rapid Transit This could: <ul style="list-style-type: none"> • Implement the 2013 BRT report recommendation • Support the BRT system by providing modal transfer facilities • Implement planned transit extensions 	TDM 2 Government Policy TDM Local and state government policies that require employers to enact TDM measures. Examples could include: <ul style="list-style-type: none"> • TDM for PUD approvals • Parking pricing policies • Transit sponsorship • Etc.
MV 3 Beltline congestion management pricing This could add lane(s) of capacity to the Beltline and implement some form of congestion pricing or lane management.	BP 3 New connections This could create new dedicated path links in areas where bicycle/pedestrian connectivity limited. Examples could include new paths and/or grade separations.	LS 3 Perpendicular local system connections This could make perpendicular local system connections across the Beltline.	T3 Commuter Rail This could: <ul style="list-style-type: none"> • Implement the full system recommended under the Transport 2020 New Starts Application (2008) • Implement the feeder bus system recommended under the Transport 2020 study. 	TDM 3 ???
MV 4 South Corridor This could add a new four lane expressway or freeway between I 39 and I 49. The expressway option would have at-grade intersections and jug-handles. The freeway option would have interchanges.	BP 4 Intersection crossing treatments This could provide improved bicycle and pedestrian crossing of high traffic volume intersections adjacent to the Beltline. Examples could include special crossing treatments and/or grade separations.	LS 4 Interchange access modifications This could make interchange access modifications, including removing some interchange ramps or movements onto the Beltline.	T4 Dedicated Beltline Transit Lane This could implement a dedicated transit lane (shoulder) on the Beltline with four on/line or off/line stops:	
MV 5 North Mendota Corridor This could add a four-lane expressway or freeway between I 12 and County M/WIS 19. The expressway option would have at-grade intersections and jug handles. The freeway option would have interchanges.	BP 5 ????	LS 5 High Capacity Isthmus This could provide a higher capacity/speed corridor from the Isthmus to the east side that travels through the Isthmus.	T5 Transit Extensions This could implement the Express Bus recommendations in the MPO's 2013-2017 Transit Development Plan, which includes extensions to: <ul style="list-style-type: none"> o Oregon o McFarland/Stoughton o Cottage Grove o Sun Prairie o DeForest o Waunakee 	
MV 6 ???	BP 6 ????	LS 6 ???	T6 Modal centers (Park and Ride w/ Transit) This could provide modal transfer centers for a trip to be finished by transit or bike.	
MV 7 ???			T7 ???	



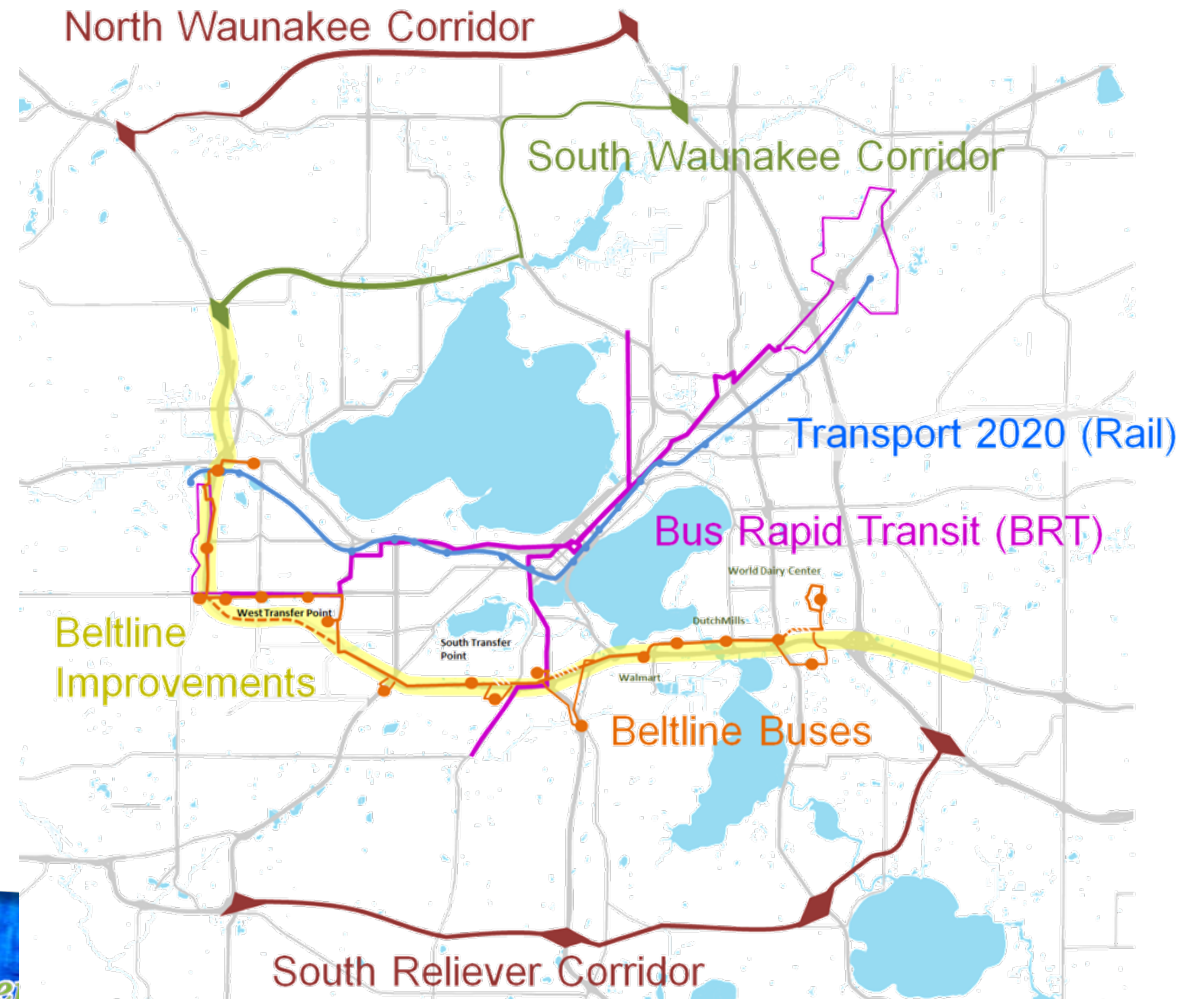
Evaluation of stand alone strategies

- Use Transportation Demand Model
- No other changes in the travel network



Stand-alone strategies investigated

- Largest people movers

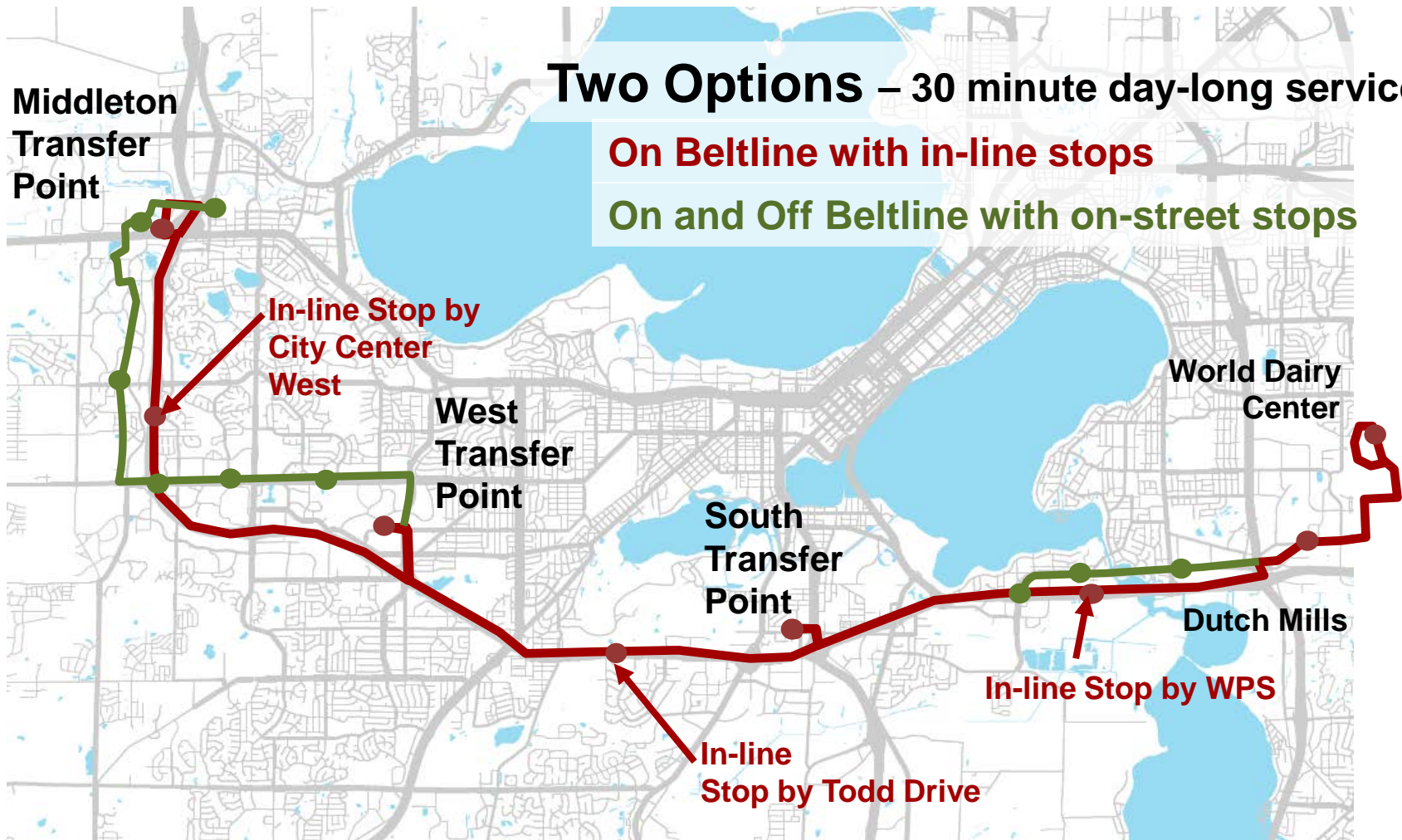


Express buses routed on Beltline

Two Options – 30 minute day-long service

On Beltline with in-line stops

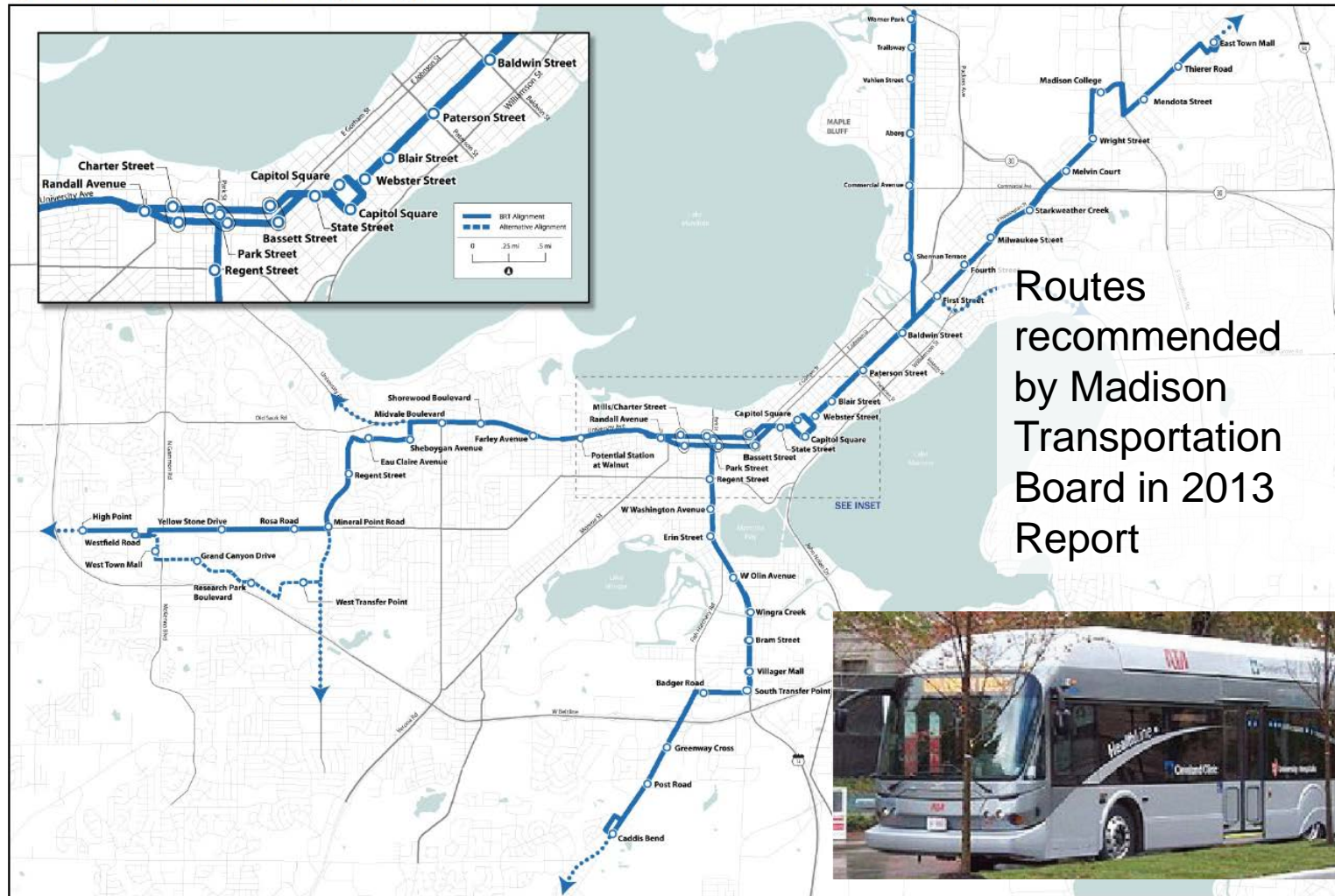
On and Off Beltline with on-street stops



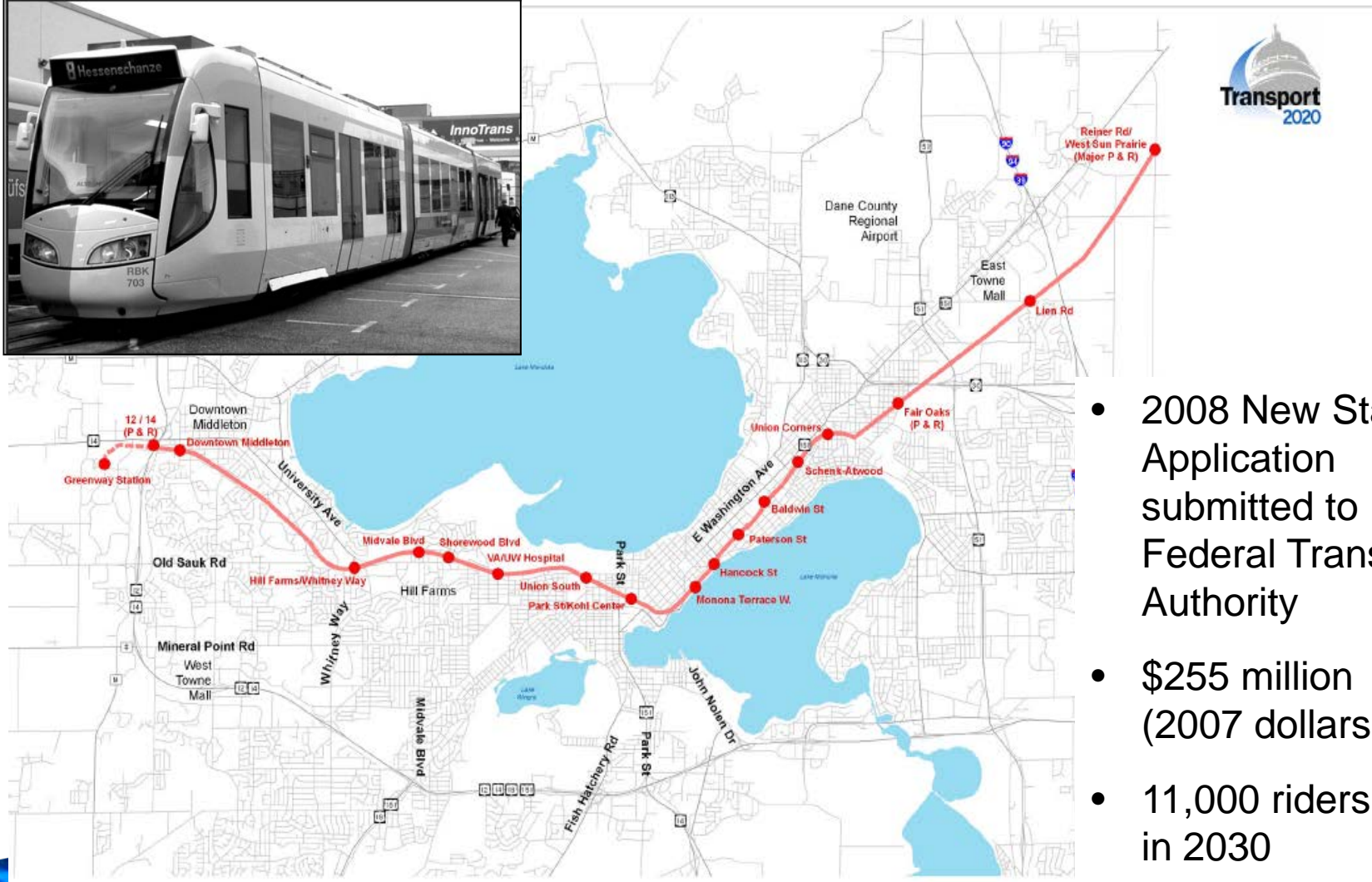
Bus Rapid Transit (BRT)

- compare ridership w/previous projection
- predict affect on Beltline Volume

Figure 20: Madison BRT System – Proposed System



Transport 2020 (Commuter Rail)



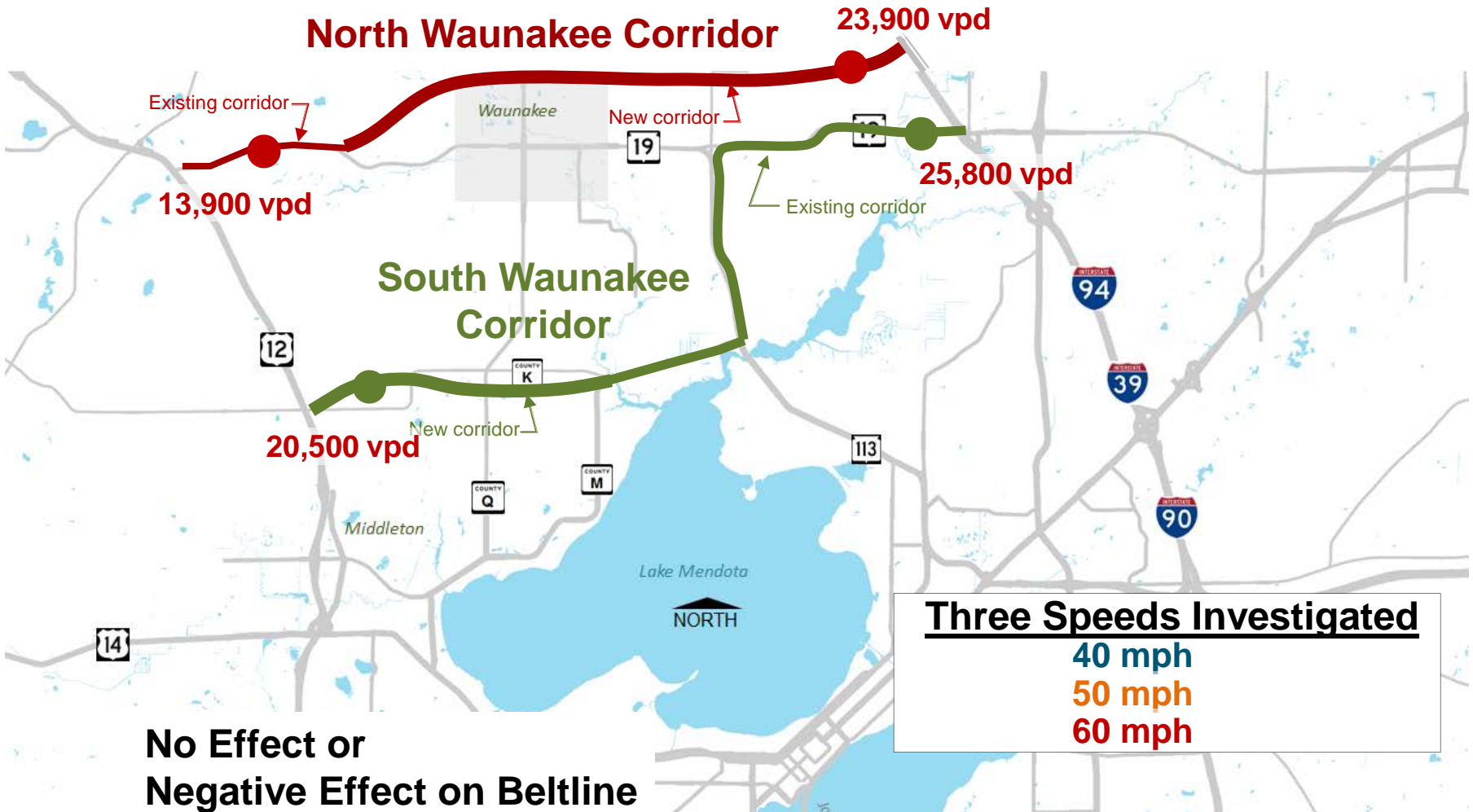
- 2008 New Starts Application submitted to Federal Transit Authority
- \$255 million (2007 dollars)
- 11,000 ridership in 2030



Transit Observations

- ▶ **Beltline Transit**
 - Draws up to 2000 riders in 2010, 4900 in 2050
 - No noticeable affect on Beltline volumes
- ▶ **BRT**
 - EW draws up to 20,000 riders in 2050
 - NS draws up to 12,200 riders in 2050
 - Almost no affect on Beltline volumes
 - Decreasing price has little effect on ridership
- ▶ **Transport 2020**
 - Draws up to 9,500 riders in 2050
 - No noticeable affect on Beltline volumes
- ▶ **New Systems don't reduce Beltline traffic. Enhancing existing transit system remains a study objective and is expected to be part of a solution studied in the EIS.**

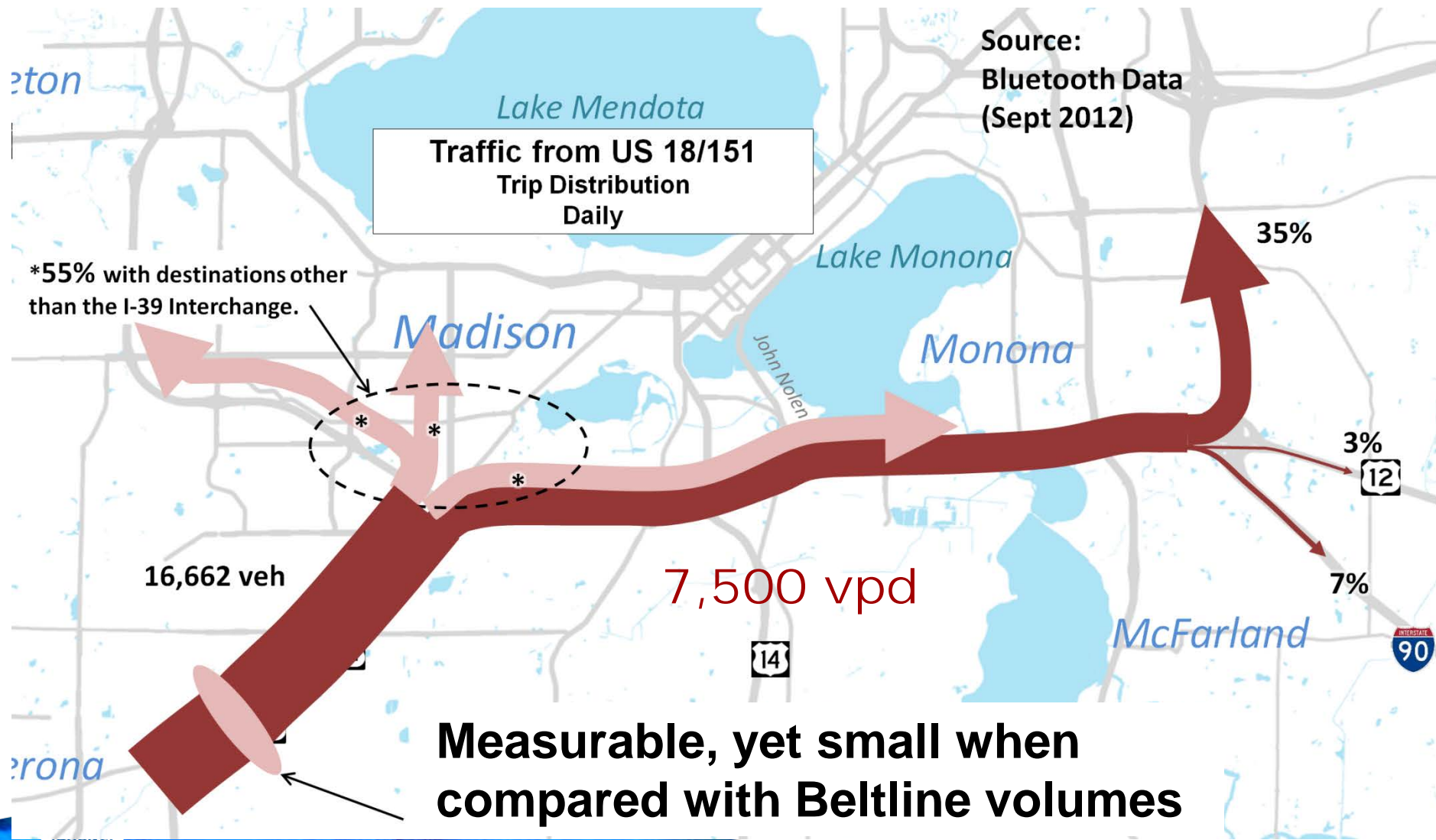
Two NMP corridors investigated



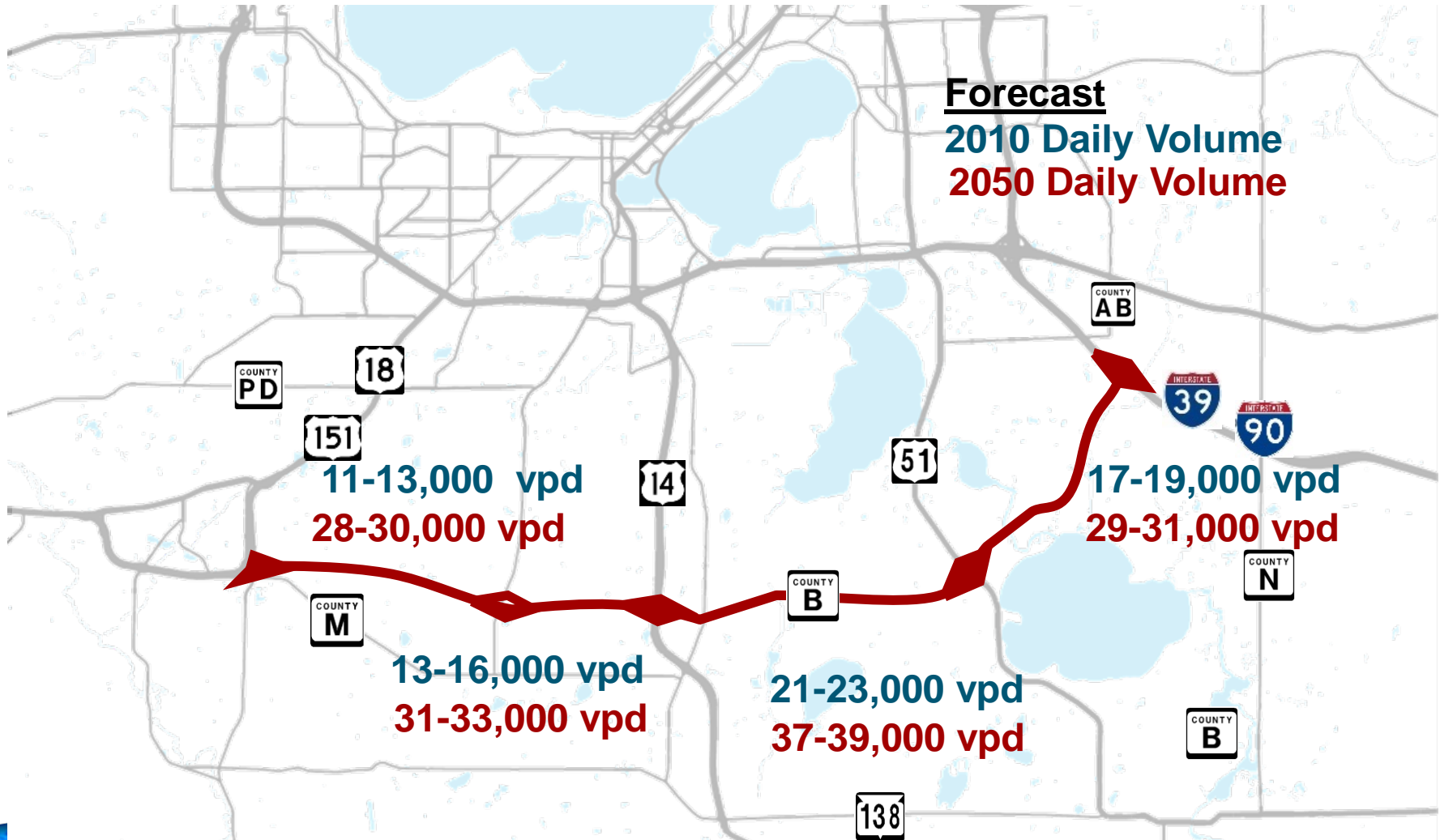
Overall Conclusions

- ▶ North Waunakee Corridor reduces traffic in downtown Waunakee
- ▶ South Waunakee Corridor reduces traffic on Century Avenue
- ▶ S Waunakee Corridor draws 6,000 to 25,800 vpd
(depending on speed)
- ▶ N Waunakee Corridor attracts 4,000 to 23,900 vpd
(depending on speed)
- ▶ Neither affects Isthmus traffic
- ▶ Neither reduces Beltline traffic
- ▶ S Waunakee Corridor adds traffic to west end of Beltline
- ▶ Neither address Beltline objectives

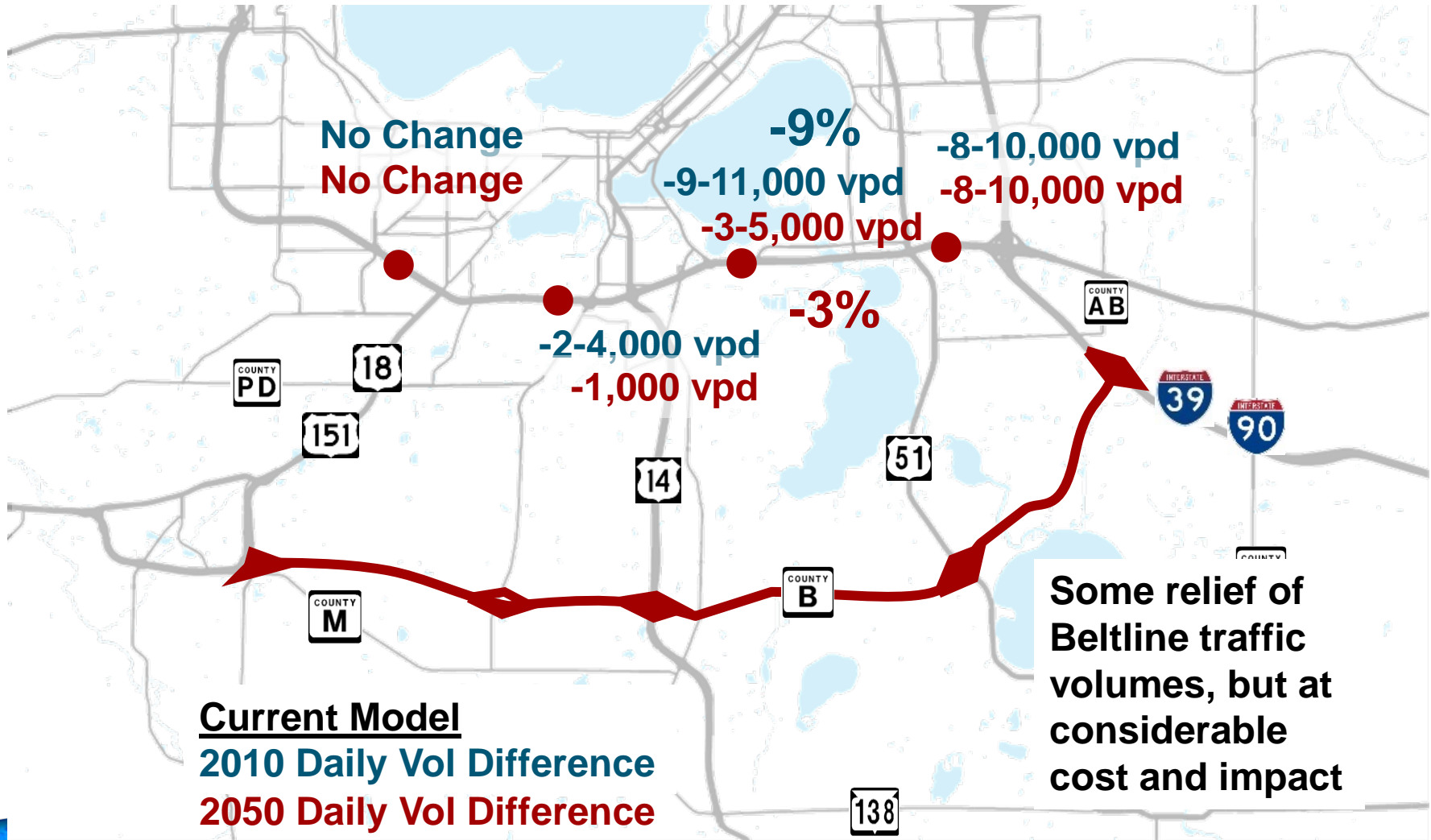
Beltline to I-39 Travel Patterns



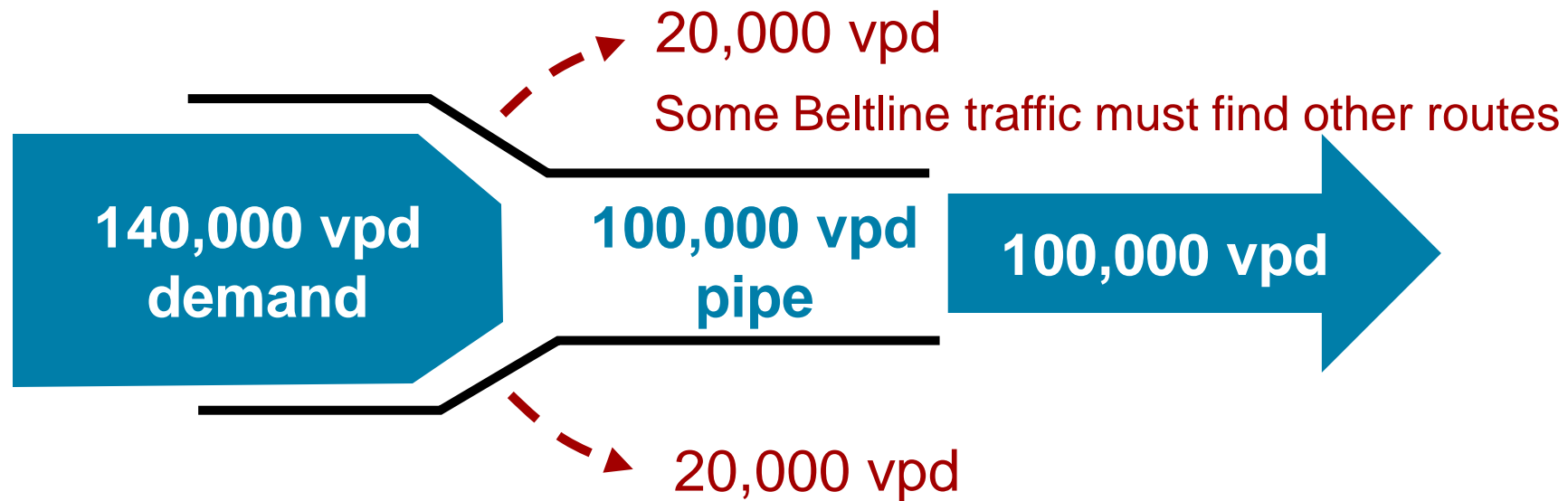
South Reliever traffic volumes



South Reliever traffic volumes



Beltline constraints



What would happen if the Beltline could carry all the traffic that wants to use it and no other changes to system occur.

Unconstrained Beltline 2010

Amount of new traffic that would use the Beltline in 2010 if there were no capacity constraints

Line weight represents relative volume increase

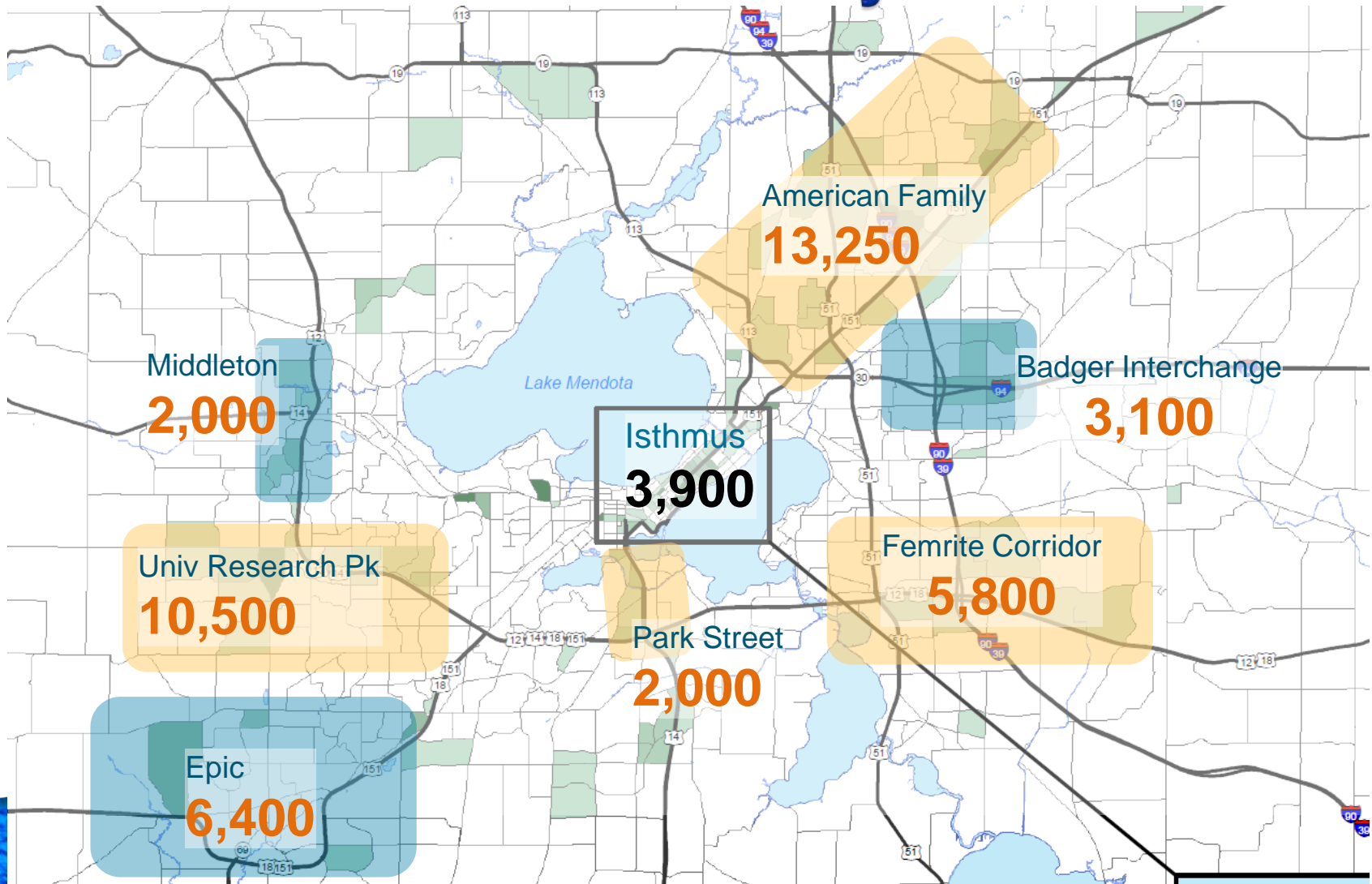
4,000 vpd or 5%

16,700 vpd or 12%

6,900 vpd or 5%



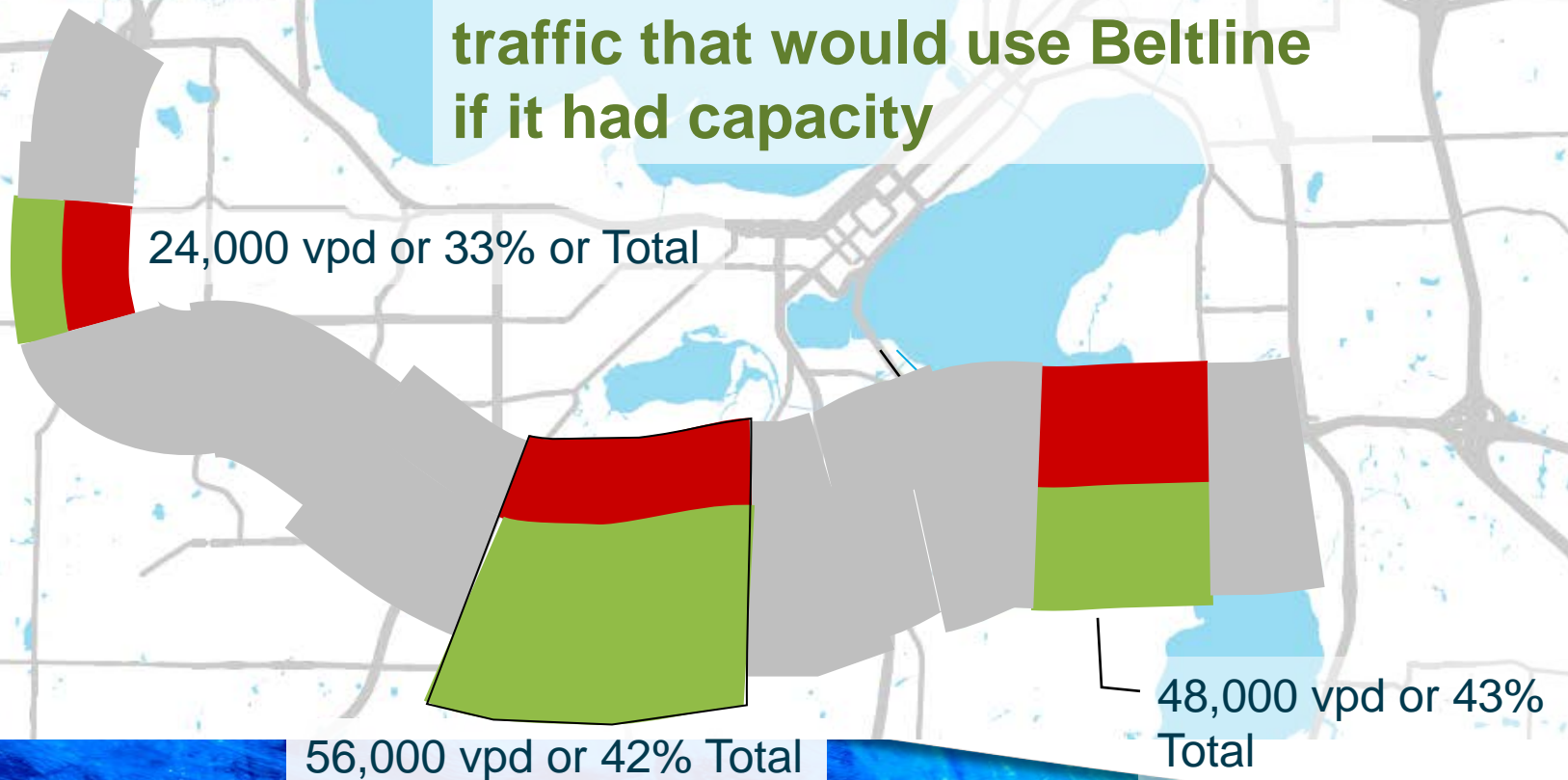
Much of 2050 employment growth likely to occur in areas served by Beltline



Unconstrained Beltline 2050

**Constrained - Beltline growth
2010 to 2050**

**Unconstrained - additional
traffic that would use Beltline
if it had capacity**



Possible Scenario Planning



Sustainable Madison
Transportation Master Plan

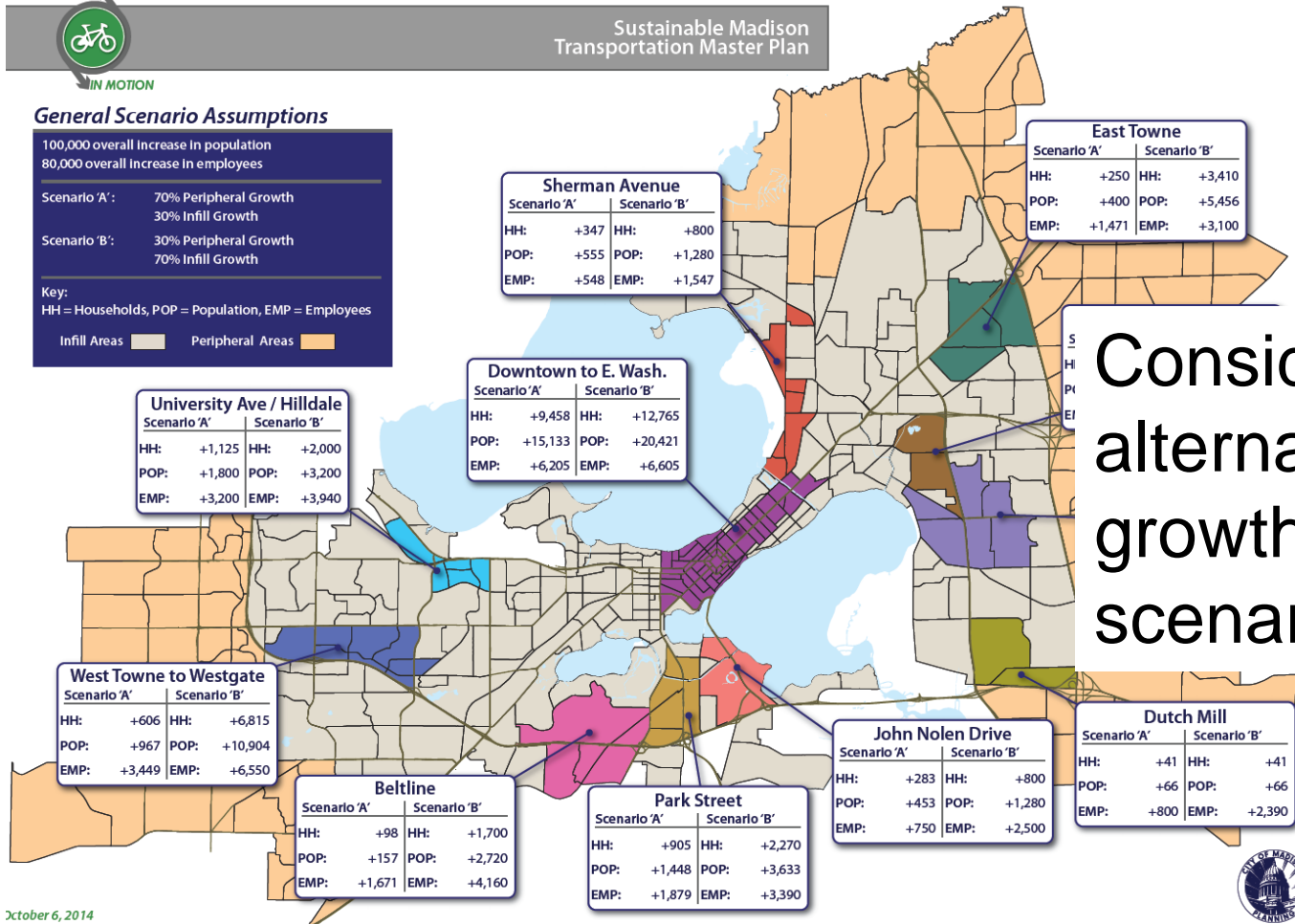
General Scenario Assumptions

100,000 overall Increase In population
80,000 overall Increase In employees

Scenario 'A': 70% Peripheral Growth
30% Infill Growth
Scenario 'B': 30% Peripheral Growth
70% Infill Growth

Key:
HH = Households, POP = Population, EMP = Employees

Infill Areas Peripheral Areas



Consider an
alternate
growth
scenario

October 6, 2014

Future Development Growth Scenarios



**A better
BELTLINE**
Studying Highways 12, 14, 13, 151

2014 PIM Comments Summary

12 Comment Sheets returned, similar number of verbal comments recorded during meetings

- 20 sheets returned in 2013 (five PIMs)
- Interest in improving other modes
- Beltline improvements, crossings
- Account for Smart Cars/New Technology
- New north or south routes
- Doubts about rising volume/need for more capacity
- Rebuild/make improvements sooner
- Opposition to each of the above too
- Enforce Speeding/traffic laws



Next steps

Fall 2014	Eight Public Involvement Meetings
Winter 2014/15	Assemble improvement components into multi-modal strategy packages
Spring 2015	Evaluate strategy packages
Fall 2015	Public Involvement Meetings
Winter 2015/16	Release report
2016 – 2020	NEPA Study

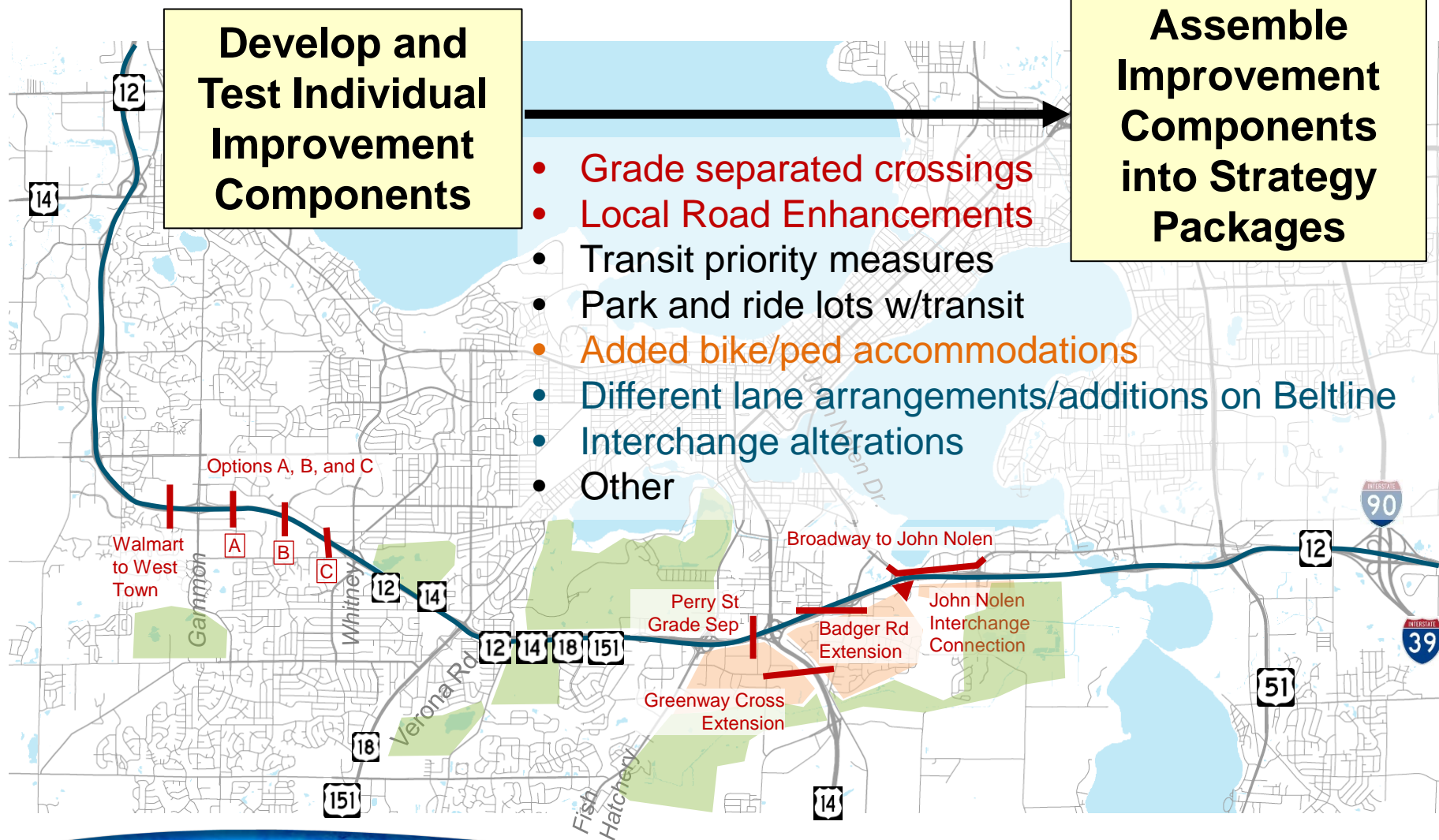


Examples of improvement components

Develop and Test Individual Improvement Components

- Grade separated crossings
- Local Road Enhancements
- Transit priority measures
- Park and ride lots w/transit
- Added bike/ped accommodations
- Different lane arrangements/additions on Beltline
- Interchange alterations
- Other

Assemble Improvement Components into Strategy Packages



Questions?

- ▶ www.madisonbeltline.dot.wi.gov
- ▶ www.facebook.com/WIMadisonBeltlineStudy



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