

Madison Beltline Study

Planning and Environment Linkages (PEL)

November, 2014

Public Involvement Meetings



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Planning and Environment Linkages (PEL)

December, 2014

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Station - Process

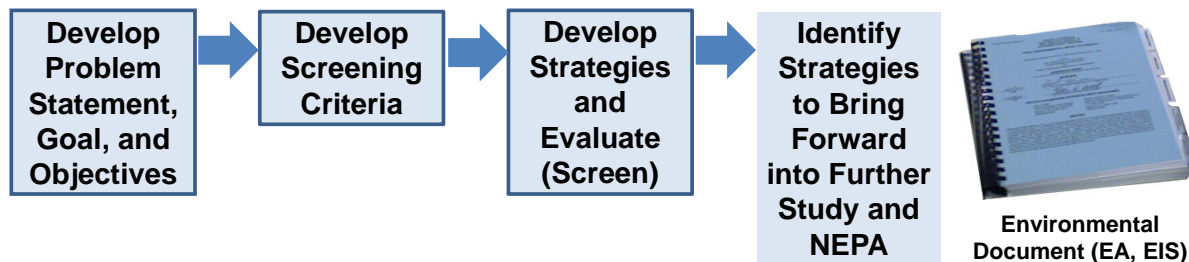


Planning and Environment Linkages (PEL) Process

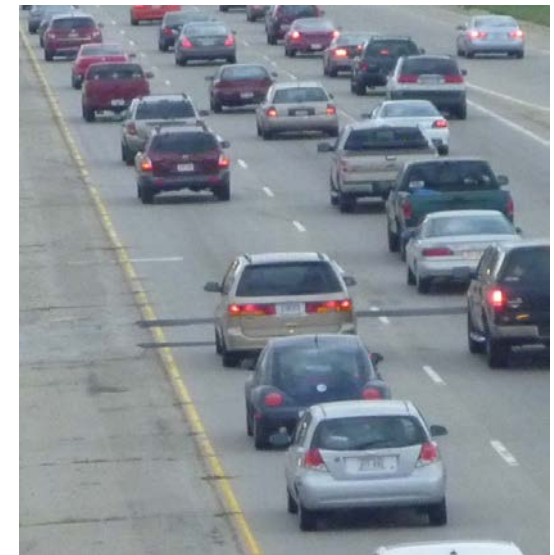
FHWA and WisDOT are using the PEL study to evaluate the Beltline. A PEL study is one of FHWA's "Every Day Counts" initiatives and is part of MAP-21 (Moving Ahead for Progress in the 21st Century) Act legislation. The PEL process is used as an effective and efficient way to integrate early planning into the highway development process and reduce delays in meeting transportation needs. The Beltline PEL study allows for early development, evaluation, and screening of broad regional solutions. Potential solutions that are determined to be unreasonable will be dismissed. Those that show promise for satisfying Beltline needs, along with other pertinent PEL study results, will form the foundation for the National Environmental Policy Act (NEPA) environmental analysis, such as environmental impact statements. The NEPA evaluation will start after the completion of the PEL study.



Planning and Environment Linkages Process



The graphic above summarizes the PEL process. It began with developing a Problem Statement, Goal, and Objectives, which occurred in the fall of 2013. Screening criteria and strategies were developed in early 2014. Screening involves eliminating strategies that do not solve the problem and are ineffective. Strategies that show promise in addressing Beltline issues will be brought forward into the future NEPA environmental study and documents.



PEL stakeholder outreach in 2013-2014

The PEL project team has met extensively with neighborhood groups, interest groups, and government committees to provide information regarding Beltline needs and receive information on the problem statement, goals, and objectives. The list below summarizes the group interaction as of September of 2014.

- Policy Advisory Committee (PAC)—8 meetings
- Technical Advisory Committee (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
- Madison West Rotary Club
- Dunn's Marsh Neighborhood Association
- Greater Madison Chamber of Commerce (GMCC)-Public Policy Committee
- Madison Region Economic Partnership (MADREP)
- John Muir Sierra Club
- Village of Waunakee



- City of Madison – Department 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

Why is the Beltline being studied?

The Madison Beltline links southwest Wisconsin to the nation and provides an important connection between neighborhoods, businesses, communities, and regions. The Beltline was initially constructed in the late 1950's as a ring road around Madison. As the City of Madison developed, it became the main east-west highway in the Madison.

Motorists use the Beltline to travel to work, school, shopping, and recreational destinations. Depending on location, the Beltline carries between 42,700 to 127,000 vehicles per day. Without the Beltline, a stronger system of local streets and arterials would be needed to shoulder this burden.

A 2008 Madison Beltline Safety and Operation Needs Assessment documented a number of deficiencies associated with this freeway corridor. In November of 2011 Wisconsin's Transportation Projects Commission authorized the study of long-term solutions for the Madison Beltline from US 14 in Middleton to County N in Cottage Grove. Solutions are needed to address the following Beltline issues:

- Roadway safety concerns.
- Increasing travel demand and congestion.
- Limited accommodations for and integration of alternate travel modes.

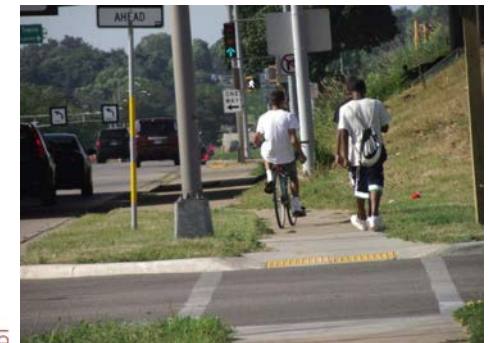
These issues lead to unreliable travel times, higher travel costs, and negative economic and environmental consequences for area residents, commuters, businesses, and freight movements.



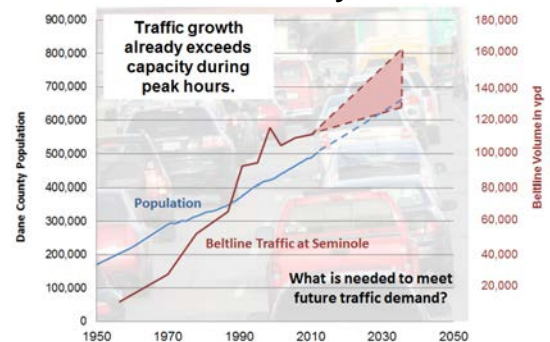
Congestion



Safety



Livability and Alternate Modes



Regional Growth

Station - Needs



Madison Beltline motor vehicle congestion

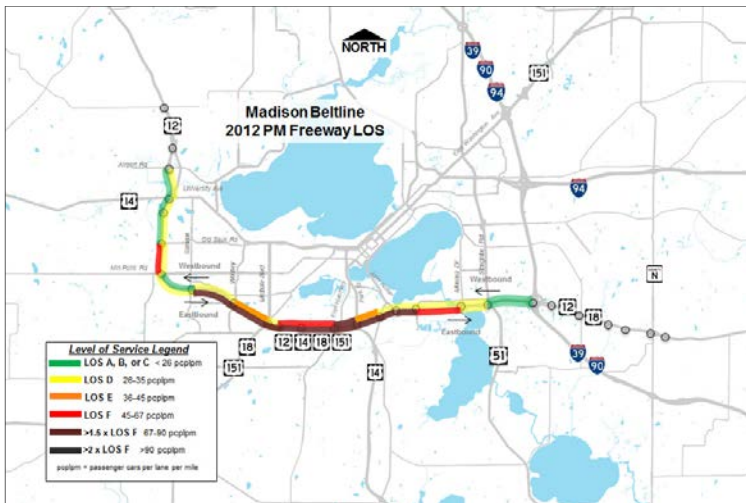


Congestion

Roadway congestion is described by Level of Service (LOS), which ranges from A (excellent) to F (poor). The lower the letter grade, the higher the number of vehicles driving in a mile of roadway at a given time of day. On freeways, poor LOS is characterized by slow speeds, longer trip times, and frequent backups.

- During the morning rush hour under normal conditions, the westbound Beltline experiences the most congestion, operating at LOS F from I 39/90 to Verona Road.
- During the evening rush hour under normal conditions, the worst congestion direction is reversed. The Beltline operates at LOS F in the eastbound direction from Verona Road to Monona Drive.
- Numerous Beltline interchanges are over capacity and experiencing queuing that extends to the Beltline through lanes.

The Madison Beltline PEL corridor study will develop solutions that address the growing congestion for the Madison Beltline through the year 2050.

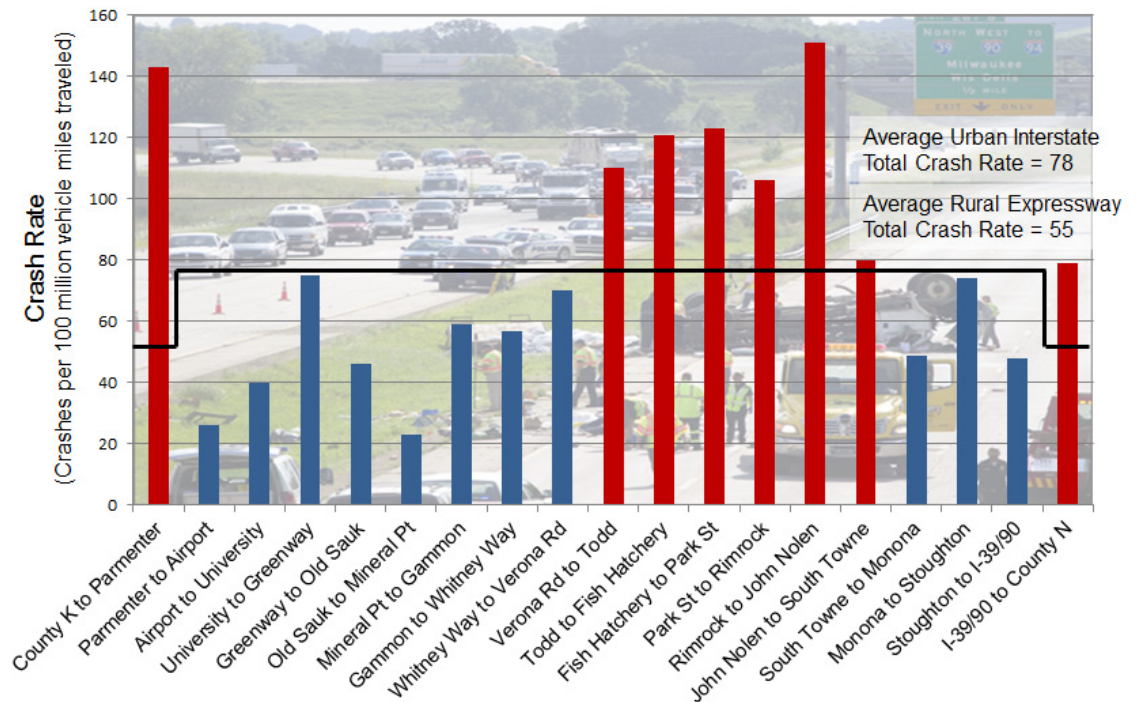
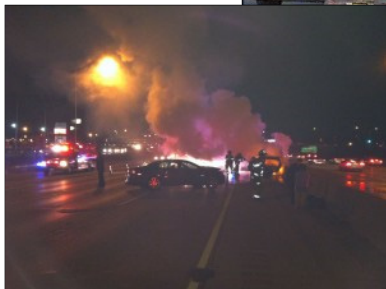


Safety

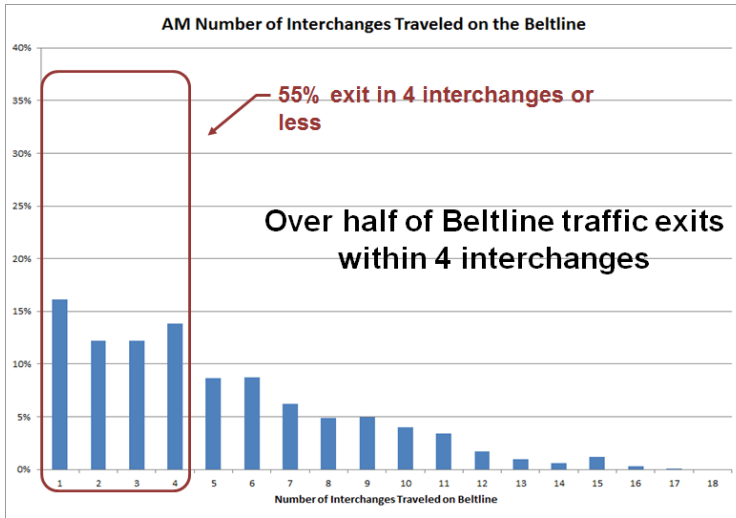
Highway safety is evaluated by comparing the highway's crash rate with other similar highways within the state. Crash rates are typically measured in crashes per 100 million vehicle miles traveled (MVMT).

Crashes for some sections of the Beltline are at or below the average for urban interstate freeways. There are several sections of the Beltline that experience substantially higher crash rates than the state average. These include:

- US 12 north of Airport Road
- The section between Verona Road and South Towne
- US 12/18 east of the interstate



Beltline origins and destinations

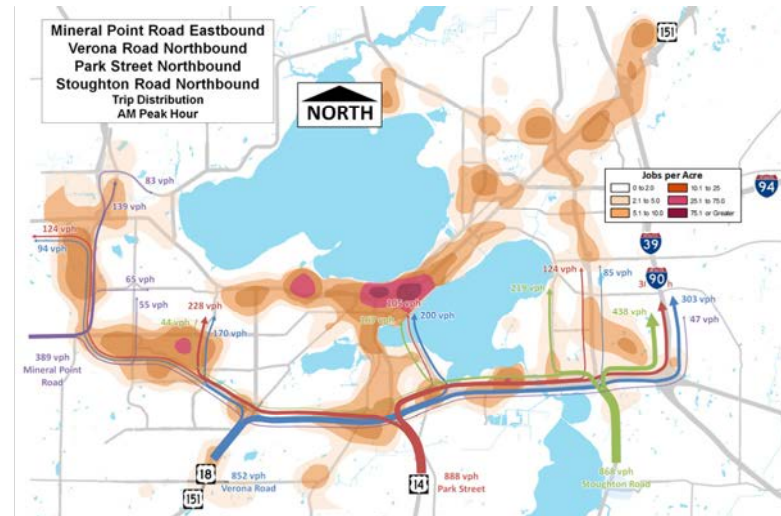
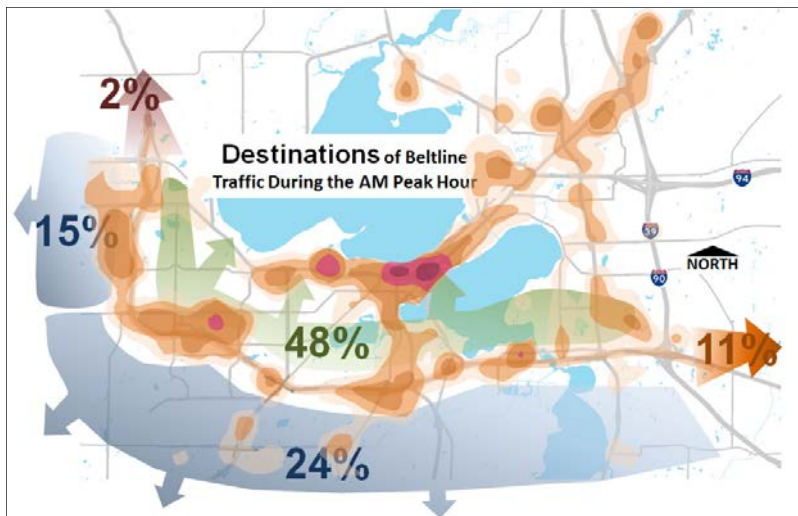


Beltline serves local traffic

WisDOT performed an origin-destination study of the Beltline using time-lapse aerial photography. The location where vehicles entered the Beltline and where these same vehicles exited the Beltline was catalogued to understand how travelers use the Beltline. This showed that much of the traffic is locally oriented rather than through traffic. Madison has a radial network of roadway arterials that serve the main employment centers downtown and on the west side. The Beltline distributes traffic to the desired arterial that leads to the different employment center.

Beltline serves employment centers

The bottom two graphics show the destinations of traffic that enters the Madison area on state or interstate highways during morning rush hour. The orange and red shading designates jobs per acre and shows employment centers in the Madison metropolitan area. Almost half of the morning rush hour traffic is destined for inside the Beltline, while only 11 percent of the traffic is destined for the interstate. Notable destinations for traffic entering the Beltline from state highways include Stoughton Road, John Nolen Drive, and Whitney Way. Very little Beltline traffic is through traffic traveling around the Madison metropolitan area.



Pedestrian and bicycle travel demand

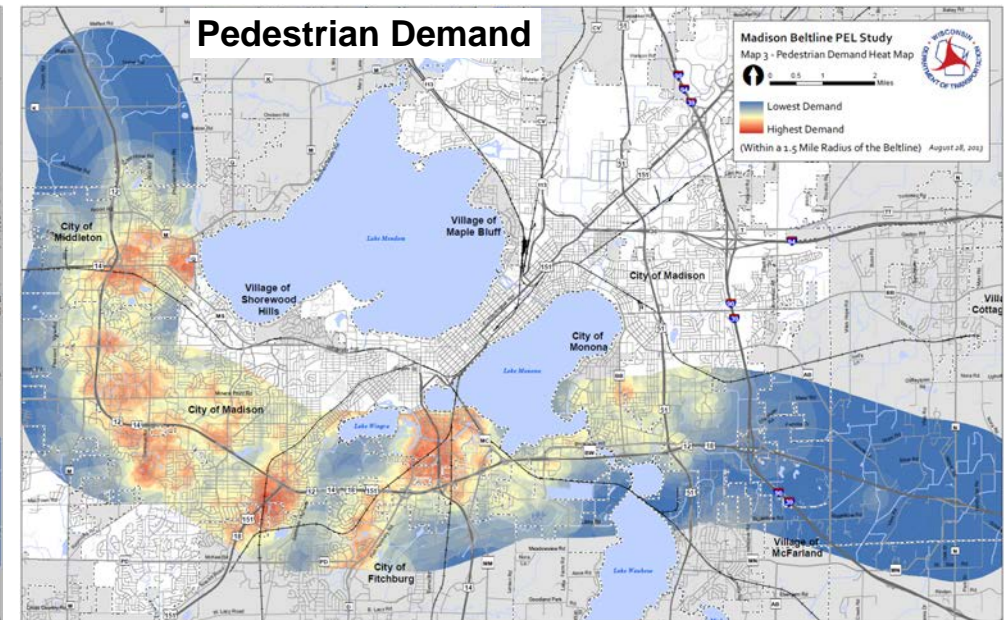
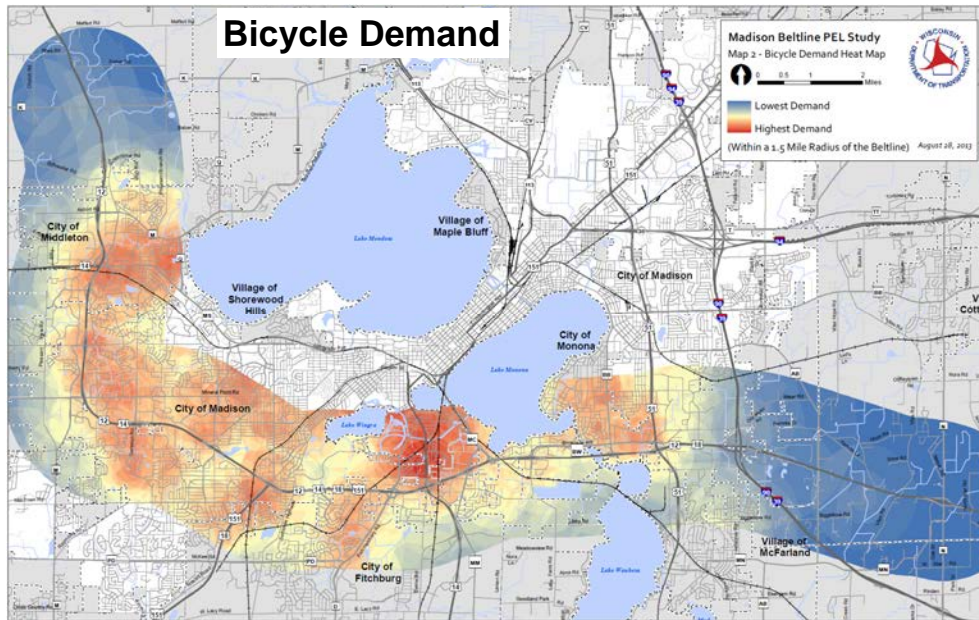
According to the League of American Bicyclists, using American Community Survey data, about 6 percent of Madison work trips are made by bicycle and Madison ranks 18th in the nation for bicycle commuting. Accommodating and encouraging pedestrian and bicycle travel is a priority of the FHWA and WisDOT. FHWA guidance on sustainable highways states that in addition to addressing environmental and natural resource needs, the development of a sustainable highway focuses on access (not just mobility), moving people and goods (not just vehicles), and providing people with transportation choices, such as safe and comfortable routes for walking, cycling, and transit.

Pedestrian and bicycle heat maps

The following bicycle and pedestrian heat maps illustrate the demand for bicycle and pedestrian facilities within 1.5 miles of the Beltline. Some of this demand is latent, meaning people not currently riding/walking to work who would if there were appropriate facilities. Demand is determined by the concentration and proximity of various trip generators and destinations such as employment centers, schools, and grocery stores. The red and orange hues illustrate the areas with high potential for bicycle and pedestrian trips near the Beltline.

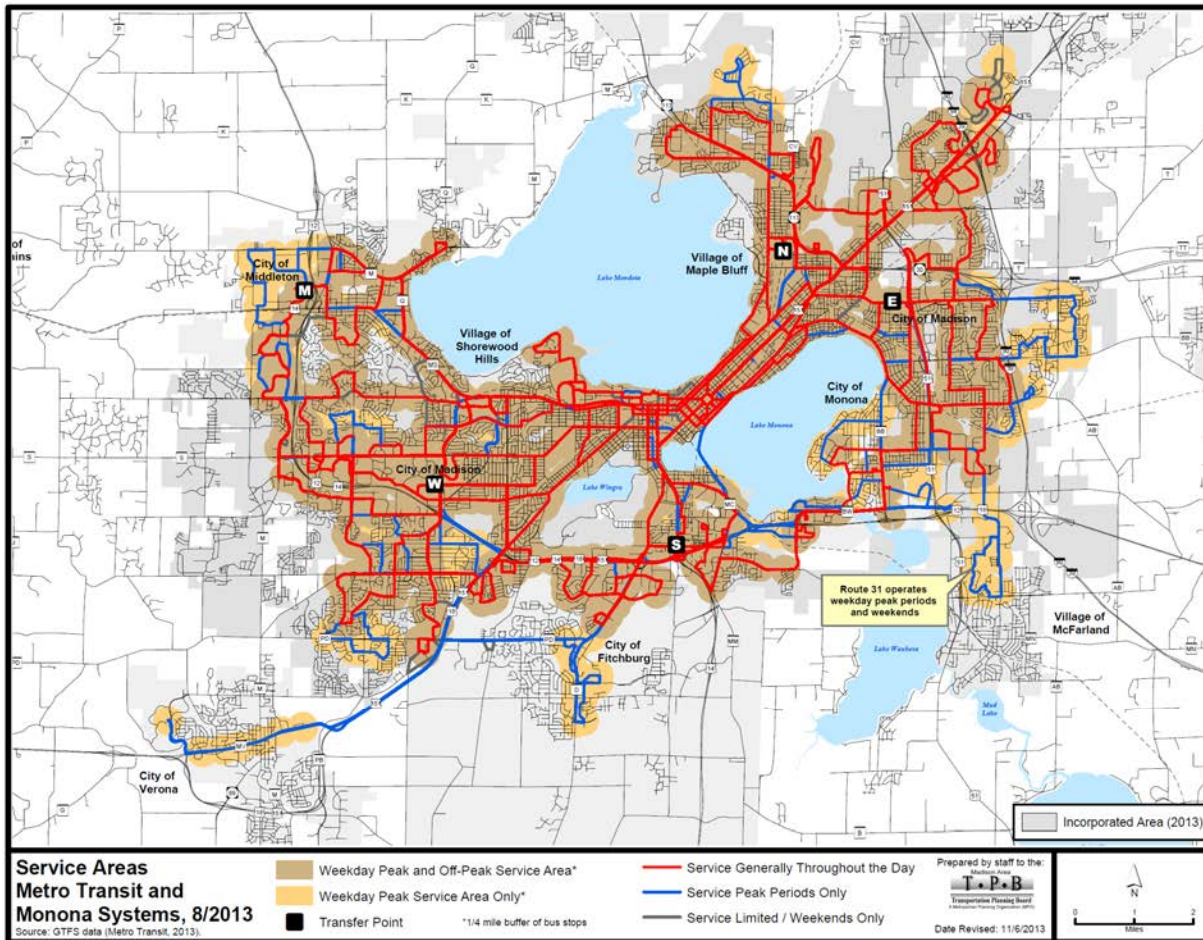
To determine the demand, weighted scores were assigned to each factor, based on distance, regardless of whether each individual feature is currently accessed by walking or biking with any regularity. For example, the areas within one-quarter mile of a school get a higher score than areas between 1 and 2 miles of the same school, even if the school is in an area that is currently not walkable or bikeable. This weighting indicates the latent or pent-up demand for improved bicycle and pedestrian conditions.

The primary differences between the bicycle and pedestrian maps include reduced buffer distances around traffic generators for the pedestrian map and the inclusion of standard bus stops as a factor in the walking map. In general, both maps show the greatest concentrations of demand along Park Street north of the Beltline, Verona Road south of the Beltline, and University Avenue east of the Beltline.



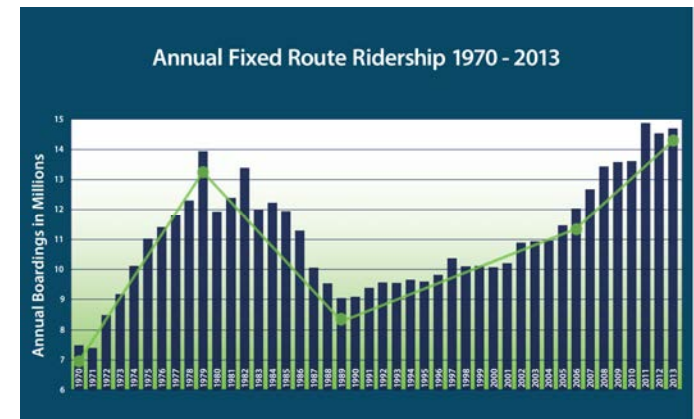
Madison Metro Transit

Existing Metro Transit Service Area



In 2013, more than 14.7 million rides were recorded on Metro Transit. This is slightly lower than Metro's all-time high of 14.9 million riders in 2011. In 2012 about 8.6 percent of work trips in Madison use transit, which ranks 44th in the nation. Five Madison Metro routes travel on the Beltline and 36 routes cross the Beltline through interchanges. Congestion on the Beltline and on Beltline interchanges affects route service times.

Increasing Ridership



Source: Metro Transit 2013 Annual Report

Problem Statement and Goal

The Problem Statement, Goal, and Objectives are the foundation for strategy development and evaluation. The degree to which alternatives and strategies satisfy the goal and objectives will determine whether they are brought forward for further study. The Final Problem Statement and Goal are provided below. We obtained valuable comments from officials, stakeholders and resource agencies that have been incorporated in the text.

Problem Statement

A 2008 Madison Beltline Needs Assessment Report documented a number of deficiencies associated with this freeway corridor. They have grown to a level that in November of 2011 Wisconsin's Transportation Projects Commission authorized the study of long-term solutions for the Madison Beltline from US 14 in Middleton to County N in Cottage Grove. Solutions are needed to address the following Beltline issues:

- Increasing travel demand and congestion.
- Roadway safety concerns.
- Limited or insufficient accommodations for alternate travel modes.

These issues lead to high crash rates, unreliable travel times, higher travel costs, and negative economic and environmental consequences for area residents, commuters, businesses, and freight movements.

Goal

Improve multimodal travel and safety along and across the Madison Beltline corridor in a way that supports economic development, acknowledges community plans, contributes positively to the area's quality of life, and limits adverse environmental and social effects to the extent practicable.

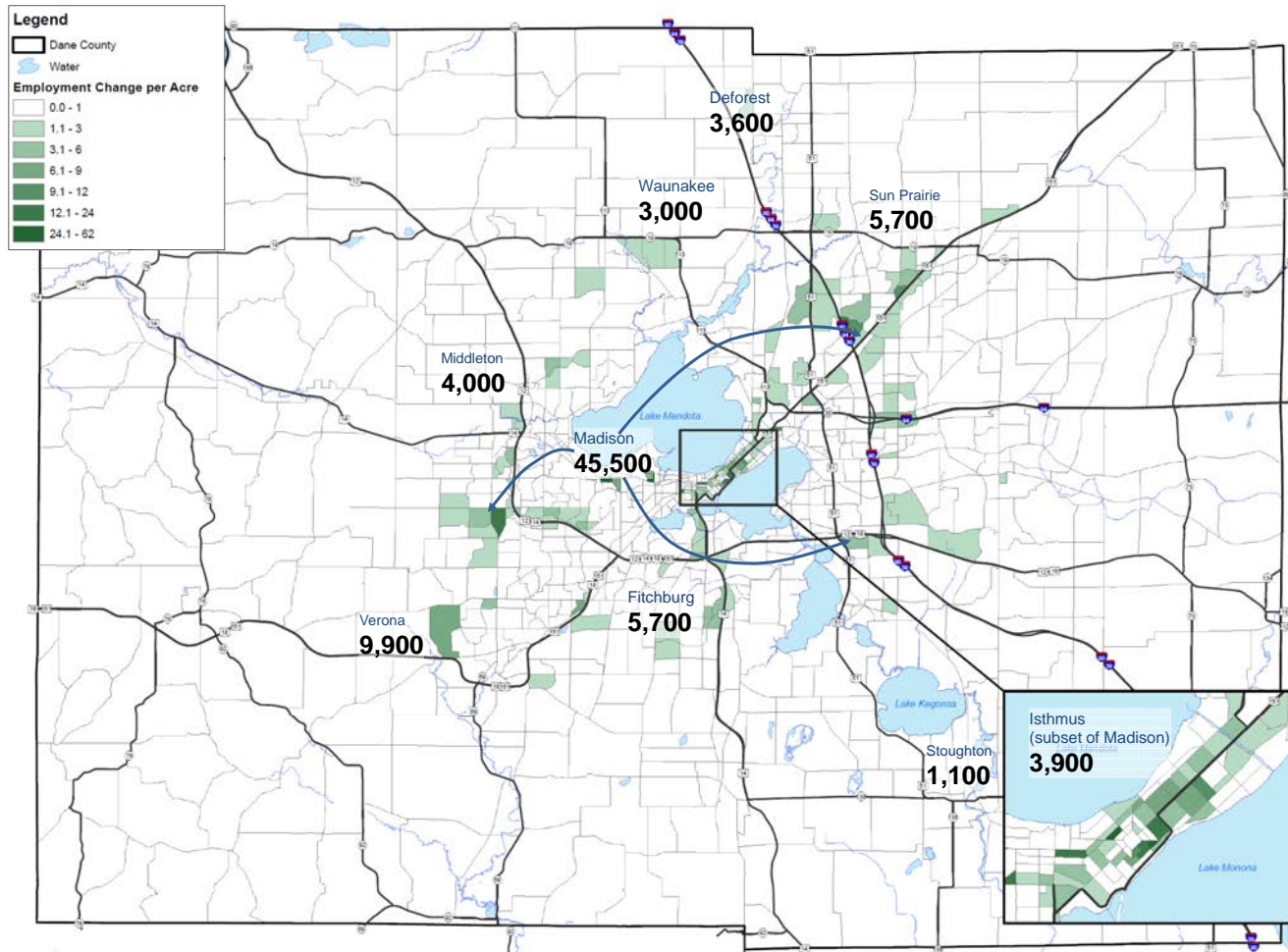
Beltline PEL Objectives

The study is investigating the ability of multiple strategies and corridors to satisfy the Beltline Problem Statement, Goal, and Objectives. Specific, measurable objectives for the Beltline include the following:

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

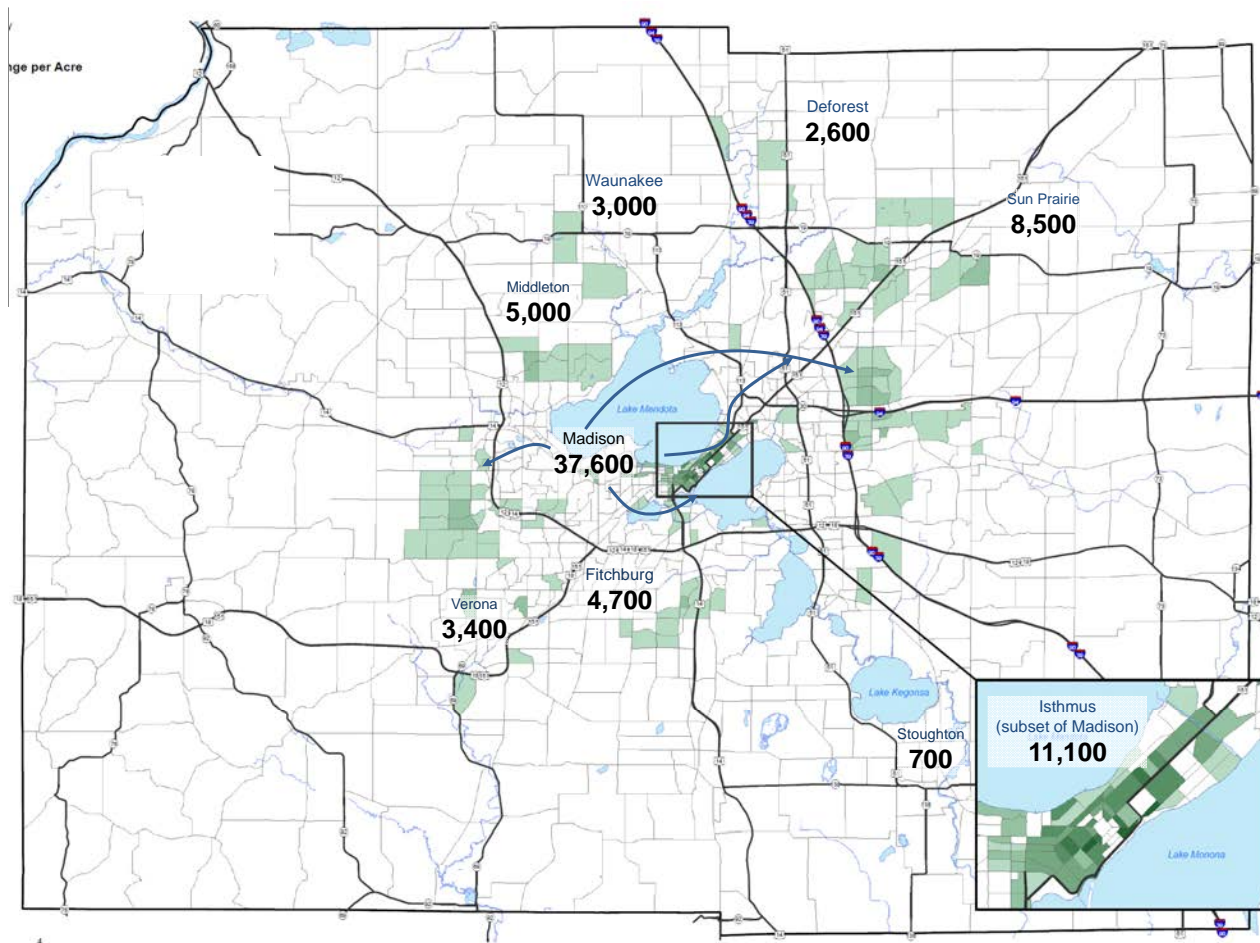
Projected Dane County 2050 employment growth

According to data from the Capital Area Regional Planning Commission (CARPC), which is based on a forecast of labor/worker supply in Dane and adjacent counties, Dane County is projected to add almost 87,000 new jobs between 2010 and 2050. This represents a 28 percent increase over the number of 2010 jobs. The following graphic shows where much of this job growth is anticipated to occur, in jobs per acre, based on existing land use plans and discussions with community planners.



Projected Dane County 2050 household growth

According to data obtained from Wisconsin's Department of Administration Dane county is projected to add almost 81,000 new households (over 150,000 residents) between 2010 and 2050. This represents a 40 percent increase over the number of households in 2010. Many factors influence the increase in households, including rising Dane County population and the gradual decrease in household size. The following graphic shows where much of this household growth is expected to occur, in households per acre, based on existing land use plans and discussions with community planners. The area growth forecasts were developed by staff members of the Madison Area Transportation Planning Board.



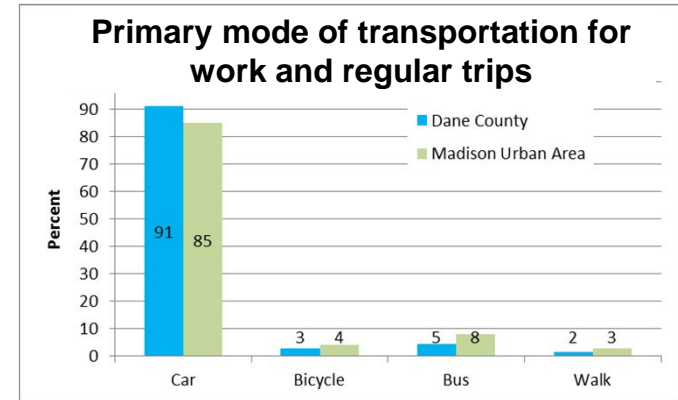
Dane County survey – overview

WisDOT enlisted the services of the UW Survey Center (UWSC) to conduct a transportation survey of Dane County residents. The purpose of the survey was to examine how Dane County residents travel to regular destinations and how they perceive incentives and obstacles to transit and bike/pedestrian travel, and the role of the Beltline on Dane County travel.

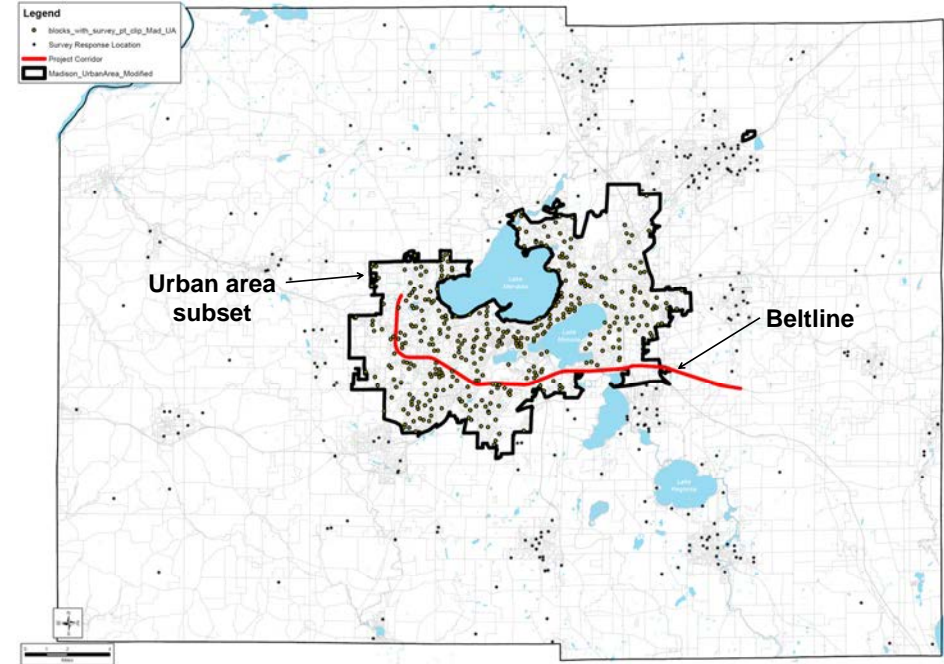
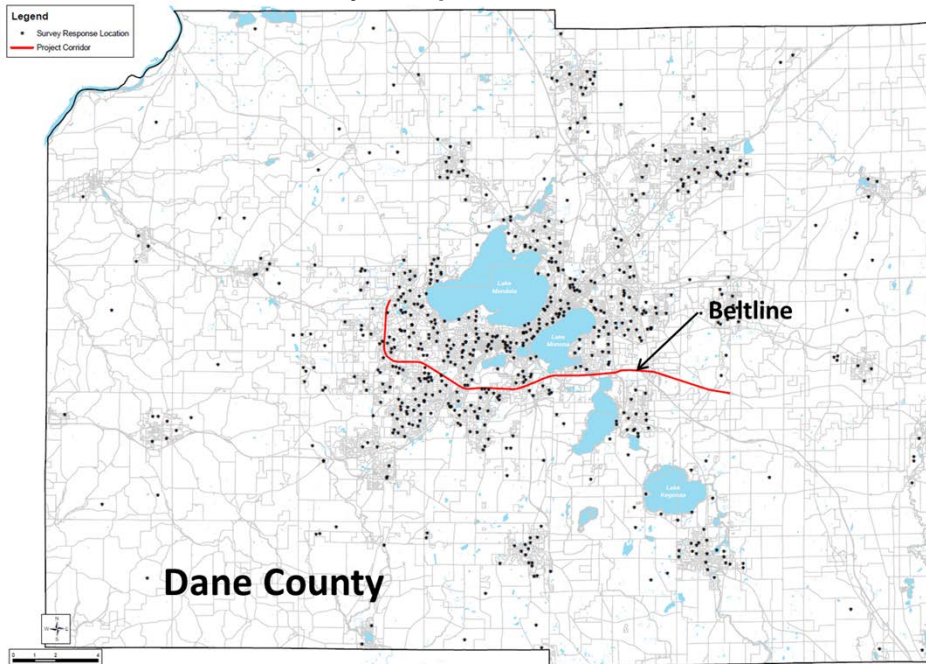
The survey was mailed to an address-based random, geographically representative sample of households in Dane County, Wisconsin. The sample was composed of 1,300 residential addresses in Dane County, Wisconsin. At the close of the data collection, 641 sample members had returned completed surveys.

The survey included 24 questions asking residents how they get to and from work, transit use, bike/pedestrian facility use, and perception of Beltline congestion.

The following graphics show the geographic distribution of the responses, the urban area subset area, and the response to the first question of the survey.



Survey response locations

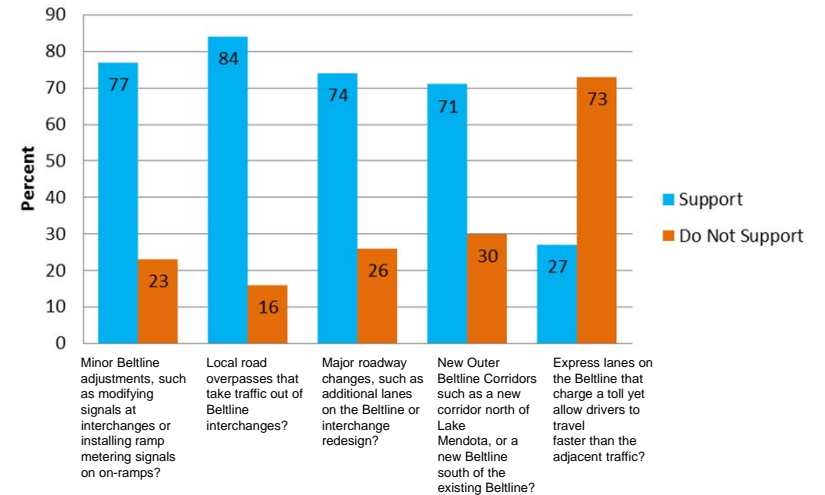


Dane County survey – views of Beltline congestion

Of the Dane County residents surveyed who drive the Beltline, 66 percent drive the Beltline during the rush hour. Of those driving the Beltline during the rush hour, just over 60 percent view the congestion as being unacceptable in both the eastbound and westbound directions during the morning and evening rush hours between Verona Road and I-39/90. Almost 70 percent of drivers sometimes chose an alternative route to avoid Beltline congestion.

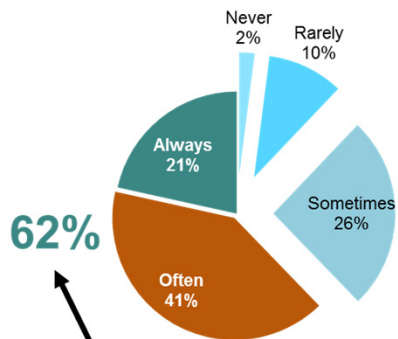
Of the Dane County residents surveyed, the majority, over 70 percent support various improvements to the Beltline except for express lanes with tolls as shown in the bar chart to the right.

Of all responses, support for Beltline improvements

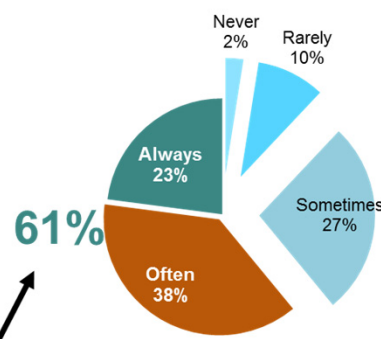


Of those driving on the Beltline during rush hour:

View eastbound congestion unacceptable* between Verona Road and I-39/90



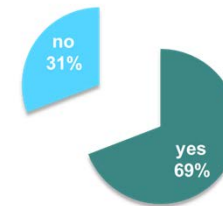
View westbound congestion unacceptable* between I-39/90 and Verona Road



Almost the same

*combination of those answering "always" or "often" to this question on the survey.

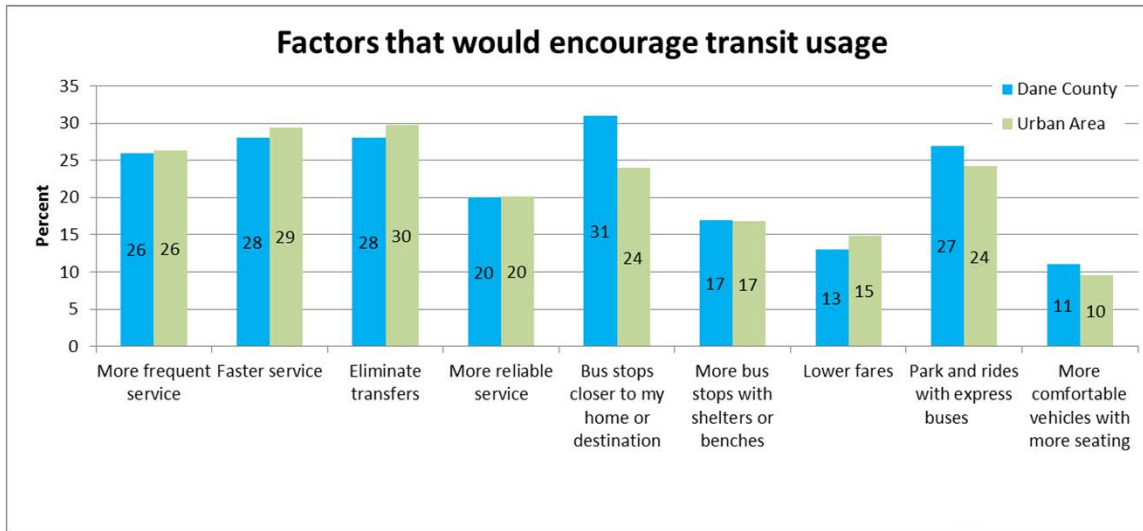
Of those driving on the Beltline during rush hour, percentage that sometimes use alternate routes



Common Routes Used

- Downtown
- County PD
- Broadway
- Local Streets
- Mineral Point Rd.
- Frontage Roads
- County M south
- County M north

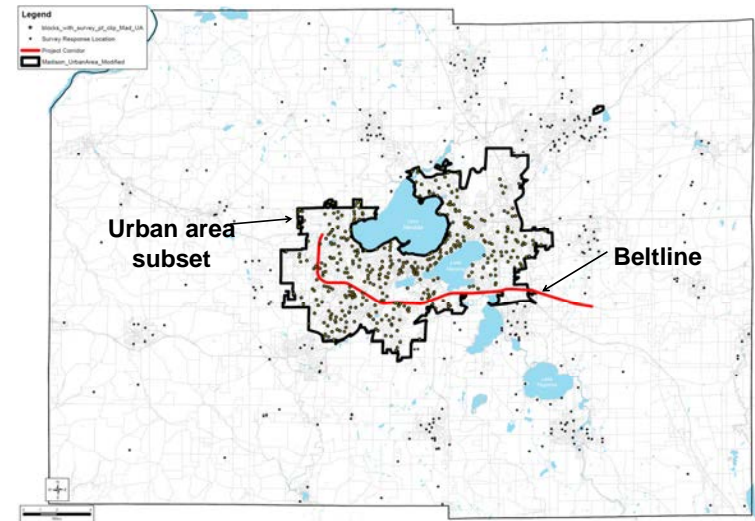
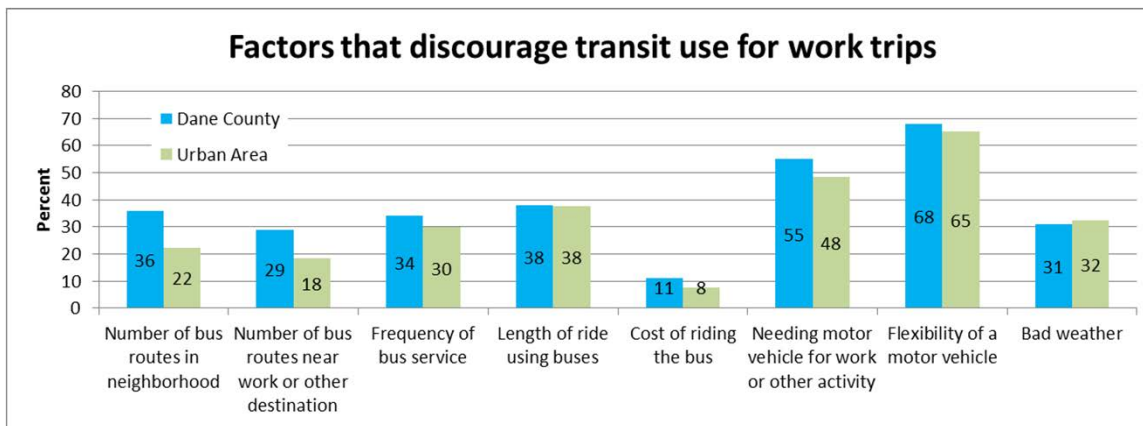
Dane County survey - transit incentives/disincentives



In the urban subset area, about 7.8 percent of the respondents stated that they use transit (buses) to get to and from work and other activities that they do regularly. The survey asked respondents factors that encourage and discourage transit usage. The adjacent graphics show the results of the survey for all of Dane County respondents and for those in the urban subset area.

Factors that had the greatest effect on encouraging transit use included eliminating transfers, closer bus stops, and park and rides with express buses.

Factors that had the greatest effect on discouraging transit use included needing a motor vehicle for work and the flexibility that a motor vehicle provides.



Dane County survey - alternate modes

According to the Dane County survey, 12 percent more people bike or walk to work in the urban subset area than more rural areas in Dane County.

Similar to transit, factors that most discourage people from biking or walking to work is the need for a motor vehicle for work or the flexibility that a motor vehicle provides. Distance and bad weather are also major factors.

A somewhat higher percentage of respondents within the urban subset area support funding for alternate transportation modes than those in Dane County as a whole. Measures with the greatest support include more sidewalks, paths, and bike/ped overpasses; park and ride lots with bus service and bike path connections; and Bus Rapid Transit.

