

Transport 2020

Environmental Impact Statement
and New Starts Application

Draft Purpose and Need Statement

December 2006



TABLE OF CONTENTS

1. Statement of purpose and need	1
1.1. Purpose and Need for Transit Improvements in Dane County and the Greater Madison Metropolitan Area	1
1.2. Introduction and Background	2
1.3. Study Area	3
1.4. Existing Transit Service	9
2. Purpose: A Vision for Dane County and the Greater Madison Metropolitan Area	17
2.1. A Vision for Dane County	17
2.2. Using Transit to Maintain the City’s Quality of Life	17
2.3. Dane County Communities Support Travel Improvements	19
2.4. Neighborhood Plans Call for Improved Transit	19
2.5. University of Wisconsin Plans for Improved Transit Connections.....	20
3. Need: Degraded Mobility, Geographical Constraints and Efficient Land Use.....	21
3.1. Traffic Congestion is Worsening	21
3.2. Opportunities for Roadway Expansion are Extremely Limited	23
3.3. Opportunities to Expand Parking Downtown are Constrained	24
3.4. Transportation Equity is Important	25
4. Goals and Objectives	28
5. Conclusion.....	30



TABLES AND FIGURES

Figure 1 – Study Area 4

Figure 2 – Percent of Workers Commuting from Outer Dane County to City of Madison: 2000 5

Figure 3 – Transit Market Area 6

Figure 4 – Major Employment / Activity Centers 8

Figure 5 – Metro Transit Bus Frequency – Weekday Peak Service Area 12

Figure 6 – Metro Transit Bus Frequency – Weekday Off-Peak Service Area 13

Figure 7 – Madison Metro Ridership Trends 14

Table 1 – Metro Transit Boarding and Alighting Activity 14

Figure 8 – Core Transit Stops 16

Figure 9 – Madison Area 2000 Roadway Congestion Levels 22

Figure 10 – Major Transportation Improvements and Studies and Unmet Needs in 2020 Study Area 26

Figure 11 – Median Household Income 27



1. STATEMENT OF PURPOSE AND NEED

1.1. Purpose and Need for Transit Improvements in Dane County and the Greater Madison Metropolitan Area

The unique geographical constraints of the Greater Madison Metropolitan Area and the primacy of the Isthmus as the region's employment, university, cultural and entertainment locus combine to make steadily decreasing mobility an issue affecting the region's quality of life and economic future. Area residents, workers, students and businesses encounter rising traffic congestion, increased travel times, downtown parking shortages and pedestrian safety issues. The Madison Metropolitan Area is experiencing the greatest population growth in Wisconsin, and difficulties in accommodating the commensurate increase in demand for travel will persist. Capacity improvements to the roadway network are too expensive and unpopular to be feasible and represent a potentially inequitable means of accommodating travel demand growth. These limitations add to increased demand on existing infrastructure, increased congestion in the primary transportation corridor, increased demand for parking in built out areas and increases in cut-through traffic in residential neighborhoods.

The primary purpose of an investment in transit in the Madison Metropolitan Area and Dane County is to provide regional, multimodal transit connections between residential and employment concentrations, to improve mobility and enhance transit access for all area residents and workers. Other project purposes include promoting desirable development of the city center and regional communities while preserving the city center's economic competitiveness with fringe areas that are able to provide greater parking capacity and supply.

1.2. Introduction and Background

The Transport 2020 Alternatives Analysis study, initiated in 2000, is entering a new phase of project development. The first phase of the study evaluated transportation system improvements for Dane County and the Greater Madison Metropolitan Area; it concluded with a long-term vision and Locally Preferred Alternative (or LPA) for a multi-modal transit system consisting of commuter rail, electric streetcars, express bus services, park-and-ride lots and improvements to local bus service. This “Full System” transit LPA will represent significant progress toward meeting the regional transportation, economic development and growth management goals established at the outset of the Transport 2020 project and is reflected in a number of regional and local plans. The City of Madison, Dane County and the Madison Area Metropolitan Planning Organization (MPO) have all adopted resolutions endorsing the recommendations contained in the Transport 2020 Final Report.

A major piece of the adopted LPA, or Start-Up System, is centered on a 13-mile commuter rail line operating within the existing railroad corridor connecting Greenway Center in the City of Middleton and East Towne Mall in Madison. The commuter rail line traverses central Madison and the University of Wisconsin-Madison campus. This Start-Up System will be re-evaluated as part of this current AA/DEIS process. As such, the specific termini may change as a result of further analysis in this study phase. Other corridors, alignments and technologies may be evaluated as they arise during the project scoping process. Rail transit service is expected to be supplemented by new express bus service, park-and-ride facilities and improved local bus services. All improvements will be considered in light of the full regional vision.

The current phase in the development and implementation of the Transport 2020 Start-Up System is the conceptual engineering phase and preparing the National Environmental Policy Act (NEPA) environmental documentation as an Environmental Impact Statement (EIS). This process entails more detailed analysis of alternative transportation improvements, further refinement of the operating plans for the recommended transportation system, an evaluation of the funding and management mechanisms under which the new system could operate, and a detailed analysis of how the recommended system will impact the community and environment.

1.3. Study Area

The study area has a unique land use pattern resulting from 19th century decisions that sited Madison on a narrow isthmus between two lakes with the State Capitol at the center. The orientation of the isthmus dictated urban growth in a concentrated land use pattern on an east/west axis. A mile west of the State Capitol, the state established the University of Wisconsin-Madison. Growth in the state government and the university, plus growth in other regional functions occurred in the context of the existing concentrated land use on this east/west axis. While the 19th century Madison Isthmus could easily accommodate such uses, the 21st century continues to present challenges to this historic and very efficient regional land use pattern.

With the Madison city center and the region's focus located on a three mile long isthmus that is one-half mile to one mile wide, the unique geography of the Madison area creates a corridor that is natural for transit, but one in which it is difficult to preserve mobility and access by expanding roadways. Figure 1 shows the study area for the NEPA phase of Transport 2020; it extends from US Highways 12/14 on the west to Madison City Limit on the east, and from the Beltline Highway (USH 12/14) on the south to Lake Mendota on the north. The study area includes portions of the Cities of Madison, Middleton and Monona and the Village of Shorewood Hills. It also includes the main campus of the UW-Madison, along with the Wisconsin State Capitol and downtown Madison, the region's employment, cultural and entertainment center.

While the study area focuses on the Isthmus, major employers and attractions on the Isthmus attract trips from surrounding Dane County communities. Workers from as far east as Marshall and as far west as Blue Mounds travel to jobs in Madison (See Figure 2). Thus, the regional travel patterns to the Isthmus from communities in Dane County must be considered in this study.

This trend is further confirmed in transit market analyses for the study¹. Figure 3 shows the primary and secondary transit market areas. The secondary market area comprises all of Dane County. The primary transit market area, on which the project study area is based, comprises nine superdistricts aggregating Traffic Analysis Zones²; it is located in the central portion of Dane County, extending from Sun Prairie on the east, through central Madison and the Isthmus between Lakes Mendota and Monona, and westward to the City of Middleton. These superdistricts have been used in previous modeling in the corridor.

Though the primary Transit Market Area comprises only 11% of Dane County's area, it is home to 270,121 people, representing 63% of county population. It is also the location of 80% of Dane County employment. Population density in portions the primary transit market area approaches 19,000 persons per square mile in the core, and averages around 2,000 per square mile when the outlying portions are included.³

¹ Cambridge Systematics, Draft Transit Market Analysis, February 2006.

² TAZs (Transportation Analysis Zones) are subareas of a region used to geographically summarize the land use, socioeconomics and travel data of the subarea.

³ Transit Market Analysis, draft, table 1.18.

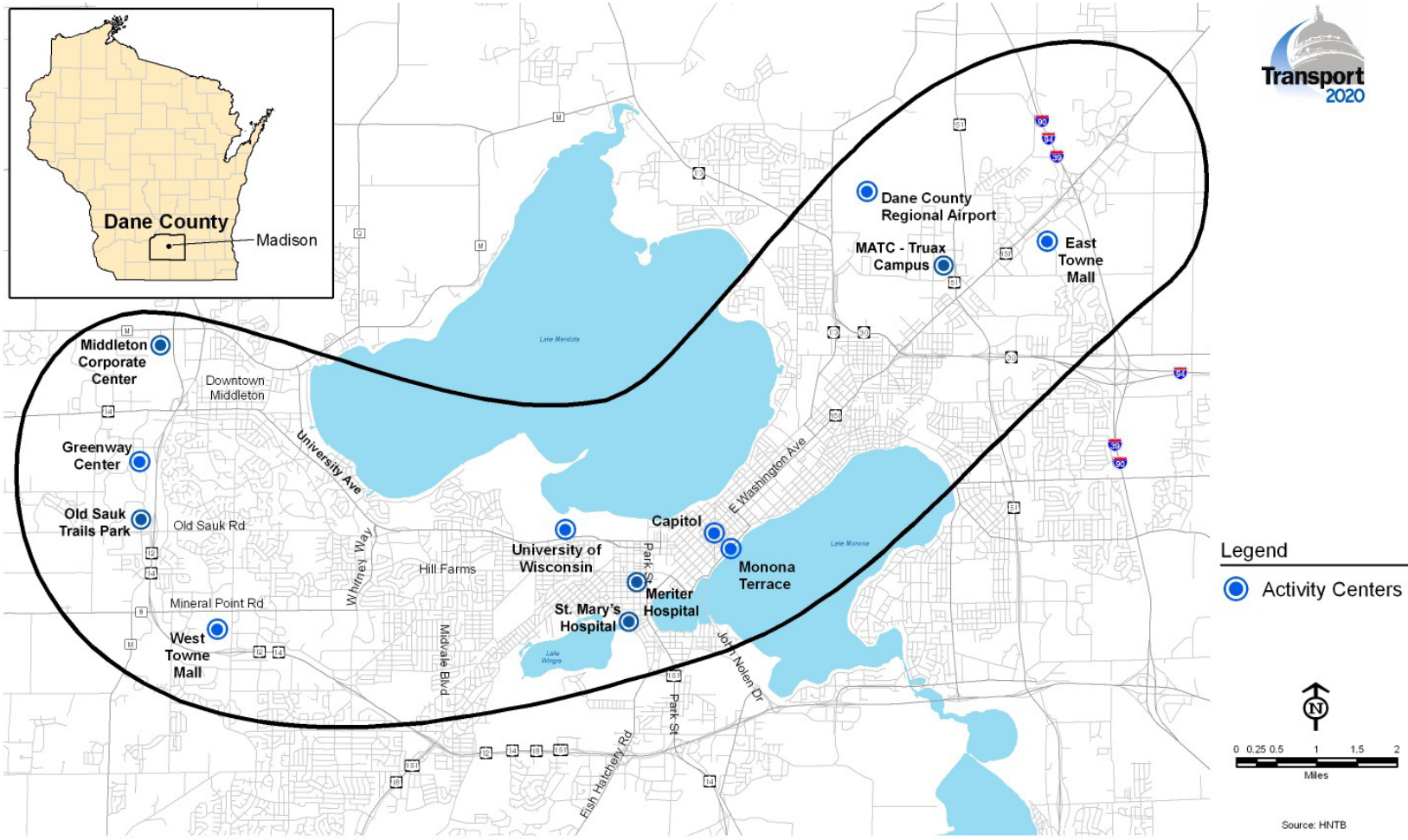


Figure 1 – Study Area

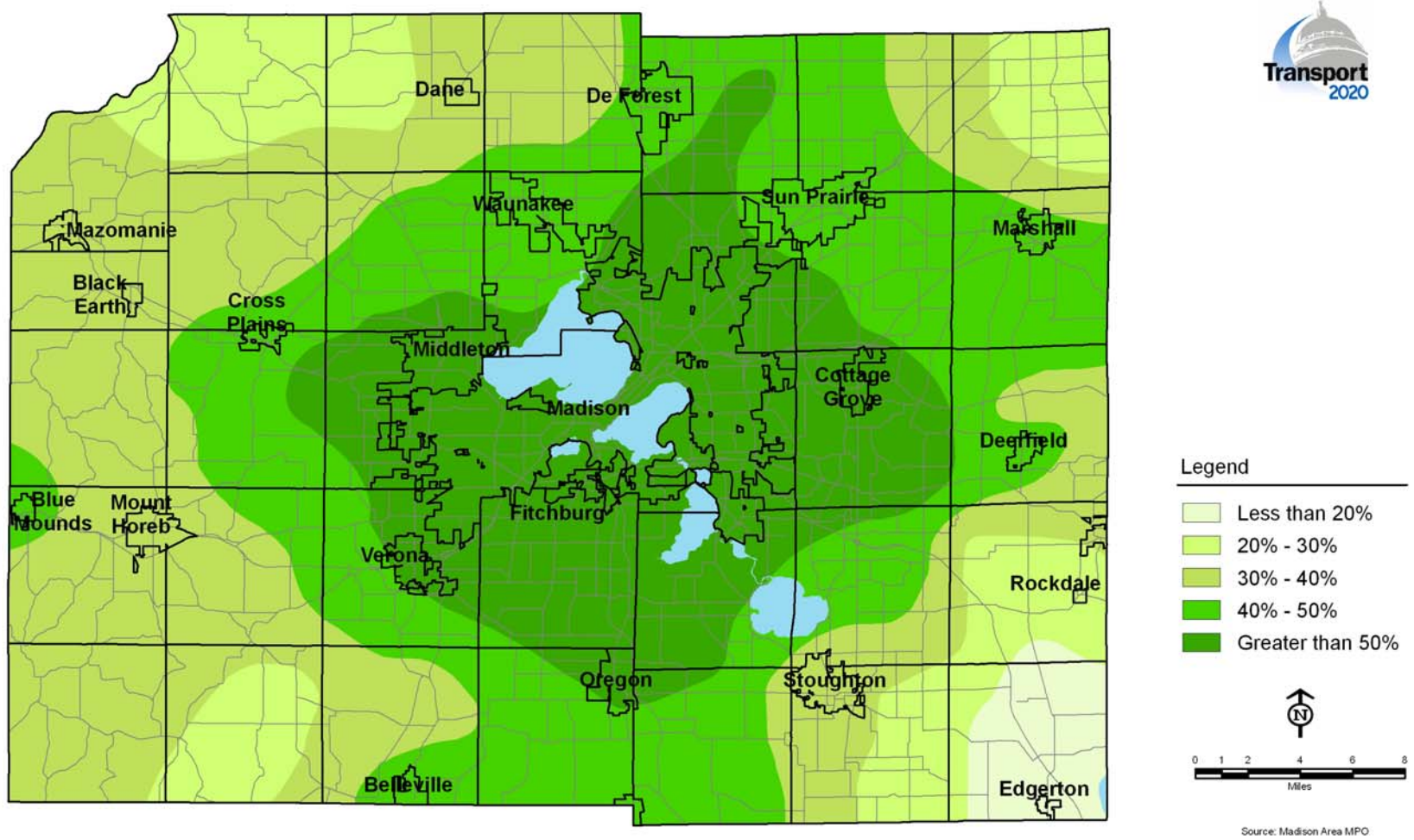


Figure 2 – Percent of Workers Commuting from Outer Dane County to City of Madison: 2000

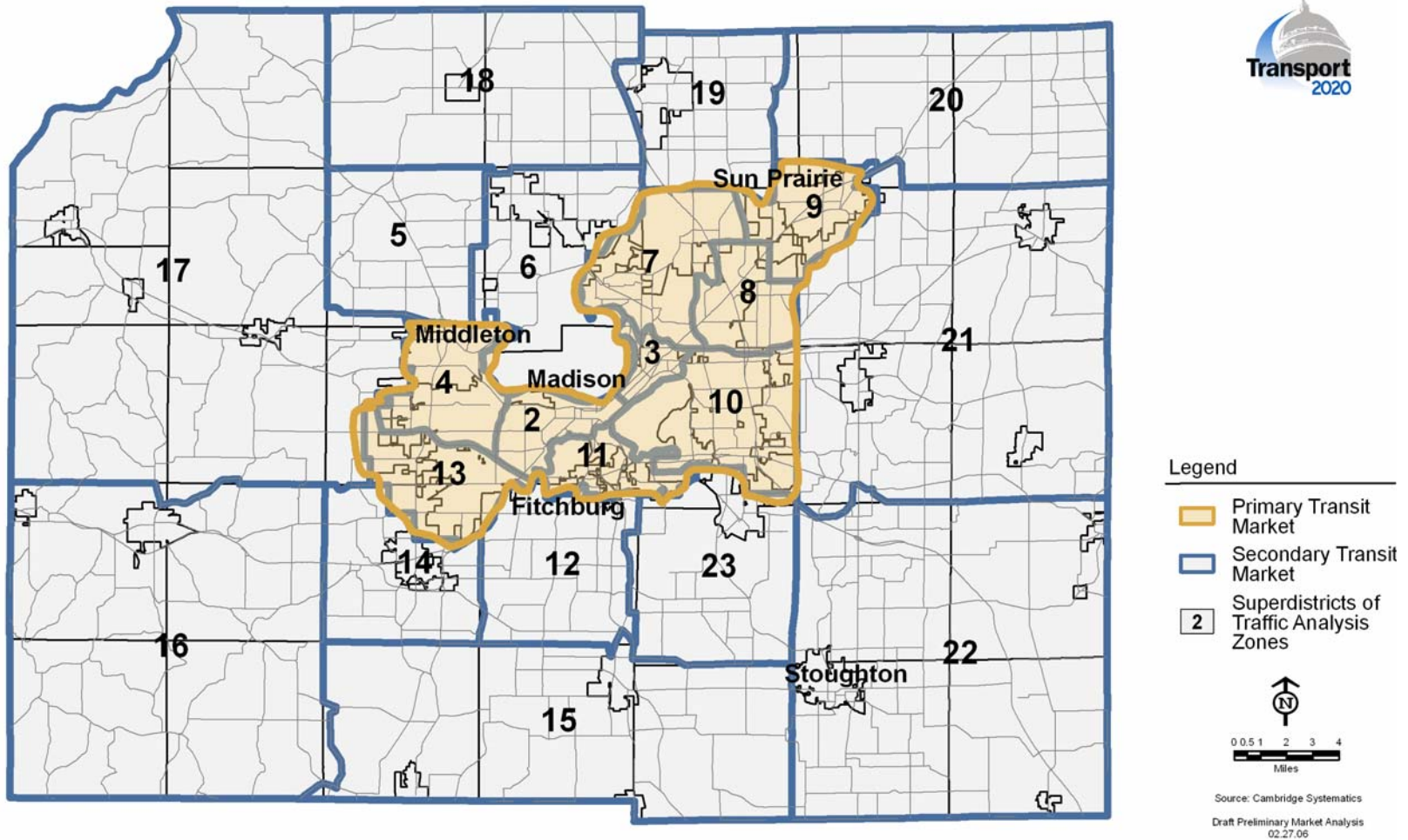


Figure 3 - Transit Market Area

1.3.1. Madison and Dane County is Wisconsin's Fastest Growing Metropolitan Area

The Madison Metropolitan Area has exhibited the greatest growth in population of any metropolitan area in Wisconsin in the last decades.⁴ Between 2000 and 2004 alone, the area grew by 30,000 people, a 6% increase, while the state of Wisconsin grew by less than 3% in that same period. Overall, Dane County population is forecast to increase 36% – adding over 150,000 people – between 2000 and 2030. Forty-seven percent of this growth is forecast to take place in the primary Transit Market Area.⁵

Employment in Dane County is also forecast to expand rapidly in the coming decades, increasing about 34% between 2000 and 2030; nearly 70% of the forecasted growth in jobs is expected to occur in the primary Transit Market Area, to a total of 291,000 jobs by 2030.⁶ As discussed in Section 3.1 below, the region will have difficulty accommodating the increases in demand for travel that will be commensurate with this growth; investments in transit improvements can both aid in containing the forecasted growth in desirable development patterns and prevent degraded mobility for the region's residents.

1.3.2. The Isthmus is the Region's Activity Hub

Though much of the region's population growth is likely to occur on the fringe of the urbanized area, the study area remains the activity hub for the Metropolitan area. The Isthmus includes a concentrated core of employment, entertainment, cultural and educational trip generators with government, UW-Madison, museums and theaters, many hospitals and clinics and other office and commercial uses. Figure 4 shows employment and activity centers in the study area. Both downtown and UW-Madison are adding infill development, increasing the density of activity. Meanwhile, long established neighborhoods are undergoing dramatic and visionary redevelopment. Between 1980 and 1999, just under 1,600 housing units were constructed in the central isthmus. In the six years between 2000 and 2005, nearly 2,000 units were constructed in the same area.⁷ In numerous plans, the residents of the Greater Madison Metropolitan area have articulated a vision in which the central Isthmus area continues as the region's activity focus. While the core of the City of Madison is expected to increase in density, the roadways continue to face increased congestion, with limited options for additional roadway capacity.

1.3.3. Travel Patterns are Conducive to Transit Use

The high density of population and employment in the geographically constrained Isthmus area of Dane County creates a condition that is conducive to higher transit use. Currently, 82% of all work trips are destined to the primary transit market

⁴ US Census Bureau, 2004 population estimates.

⁵ Transit Market Analysis, draft.

⁶ Transit Market Analysis, draft.

⁷ City of Madison



Figure 4 – Major Employment / Activity Centers

area.⁸ Figure 2 shows the proportion of workers residing in Dane County that commute to the City of Madison. In the Dane County communities immediately surrounding the City of Madison, more than 50% of all workers commute to the city. This includes the Cities of Middleton and Verona and the Village of Cottage Grove; 45% of City of Sun Prairie commuters are destined for the City of Madison.⁹

The University of Wisconsin-Madison and the Madison Area Technical College also generate substantial trips in the study area. Recent updates to the Madison area travel model illustrate that of an estimated 103,350 daily trips between home and school, university-based trips account for 68,500 daily trips, or 66% of all home-based school trips.

This travel pattern to and from the Isthmus is projected to continue into the future. The Madison Area Metropolitan Planning Organization (Madison Area MPO) projected that in 2030, 48 percent of the labor force will reside in the City of Madison, but that the City of Madison will account for 64 percent of the employment in the County. Thus, the pace of employment in the city will continue to outpace the labor force.¹⁰ Employment growth in the City of Middleton – on the western end of the study area – will also continue to outpace the growth in that city's labor force. This funneling of travel into and through the Isthmus creates a corridor that is attractive for improved transit.

1.4. Existing Transit Service

Metro Transit, owned by the City of Madison, operates local, commuter and university-centered fixed-route bus service in the corridor, using timed transfers at four transfer points. Capitol Square operates as a fifth major transfer point. Metro Transit currently operates 49 weekday and 20 weekend routes, along with four UW-Madison campus routes. As of 2004, ninety-four percent of the 2000 population of the cities of Madison, Middleton, and Monona and the urban Town of Madison were served by at least one transit route.^{11, 12}

The routes are divided into five functional categories:

- **Core Routes** operate through downtown Madison in high-volume travel corridors with 30 minute headways and long service hours.

⁸ Transit Market Analysis, draft. p. 23.

⁹ Madison Area MPO, 2000.

¹⁰ Madison Area Metropolitan Planning Organization, Regional Transportation Plan 2030, Madison Metropolitan Area and Dane County (Draft), September 2006, pages 18-19.

¹¹ City of Madison, 2004-2008 Transit Development Program for the Madison Urban Area, page 155.

¹² The only other city/village in the primary transit market area – the City of Sun Prairie – is served by a shared-ride taxi system, but does not currently have fixed-route bus service.

- **Commuter Routes** provide weekday peak service from residential areas to downtown, the university and peripheral employment centers; these routes feature limited-stop service along portions of their routes and offer 15 to 30 minute headways.
- **Peripheral Routes** connect outlying residential areas with transfer points with 30 minute peak headways and 60 minute off-peak headways.
- **Connecting Routes** operate between transfer points to provide cross-town service with 30 minute headways.
- **Circulator Routes** provide service in the confines of specific activity centers with headways as short as eight minutes, but generally offering two to four trips per hour.

Span of service for most routes is 17 to 19 hours on weekdays.¹³ In 2004, Core and Commuter Routes accounted for about 60% of all Metro Transit trips and 73% of total system revenue service hours.¹⁴ These routes serve an area generally congruent with the study area. Because of Madison's unique geography, many bus lines are routed to or through the Isthmus; 23 routes – or nearly 50% of all weekday routes – travel through Capitol Square in the heart of downtown Madison. The interlining of routes leads to relatively frequent service in the study area, particularly on the Isthmus. Figures 5 and 6 show bus frequencies by street segment for weekday peak and off-peak hours. As illustrated in the figures, the project study area, especially along East Washington Avenue and University Avenue, enjoys the highest service frequencies in Metro Transit's service area. Peak headways on the main arterials in the center of the study area – East Washington Avenue and the University Avenue/Johnson Street one-way pair through the UW campus – are less than five minutes; on Jenifer Street and the Johnson Street/Gorham Street one-way pair in the east Isthmus area, effective peak headways are between seven and nine minutes. Beyond this core part of the study area, effective headways of 15 to 30 minutes are typical.

Because the unique geography of the study area, travel to and from the Isthmus accounts for nearly 75% of weekday transit work trips.¹⁵ The Metro Transit system supplies a very high level of service compared to those of its peer cities, providing more than twice the revenue miles per capita than the average for its peer group.¹⁶ Consequently, transit ridership per capita is nearly four times the average for similarly sized urban areas.¹⁷

Ridership has increased 14% since 2000; in 2005, Metro Transit enjoyed its highest ridership in 20 years, with nearly 11.5 million riders. Figure 7 shows this trend. Before late 2005, precise ridership statistics by route or route category are unavailable, due to the complicated interlining of routes and lack of an automated passenger counting system.

¹³ City of Madison, 2004-2008 Transit Development Program for the Madison Urban Area, page 156.

¹⁴ City of Madison, 2004-2008 Transit Development Program for the Madison Urban Area, pages 70 and 155.

¹⁵ Madison Area MPO, "transportation Data and Trends: Public Transit", undated, page 1

(www.ci.madison.wi.us/mpo/Otheredoc_pdf/Public%20Transit.pdf).

¹⁶ Wisconsin Department of Transportation, Transit System Performance Audit of the Madison Metro Transit System, March 2004, p. 3.

¹⁷ City of Madison, 2004-2008 Transit Development Program for the Madison Urban Area, page 157.

Beginning in January 2006, Metro Transit outfitted a portion of its fleet with automatic passenger counting equipment to accurately

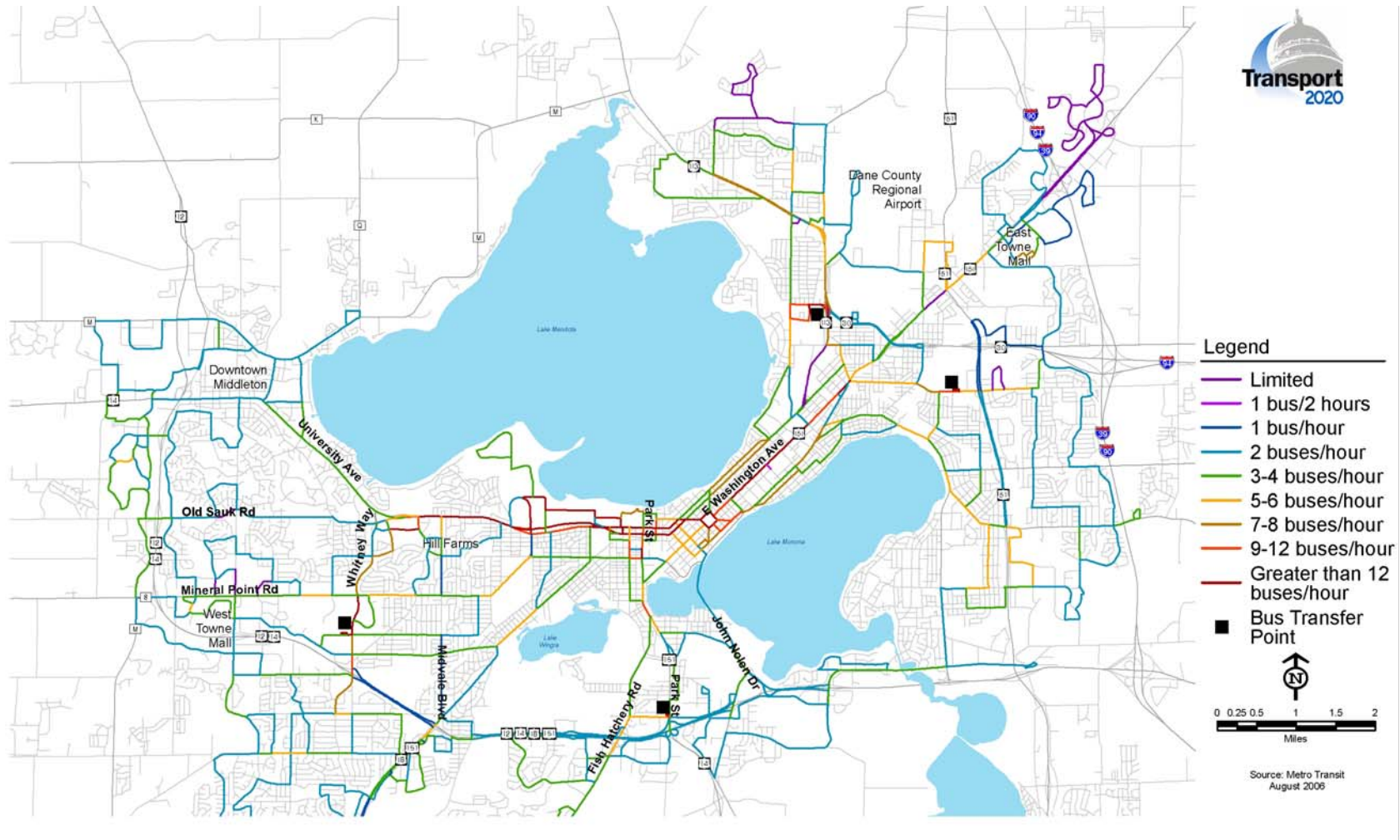


Figure 5 - Metro Transit Bus Frequency - Weekday Peak Service Area

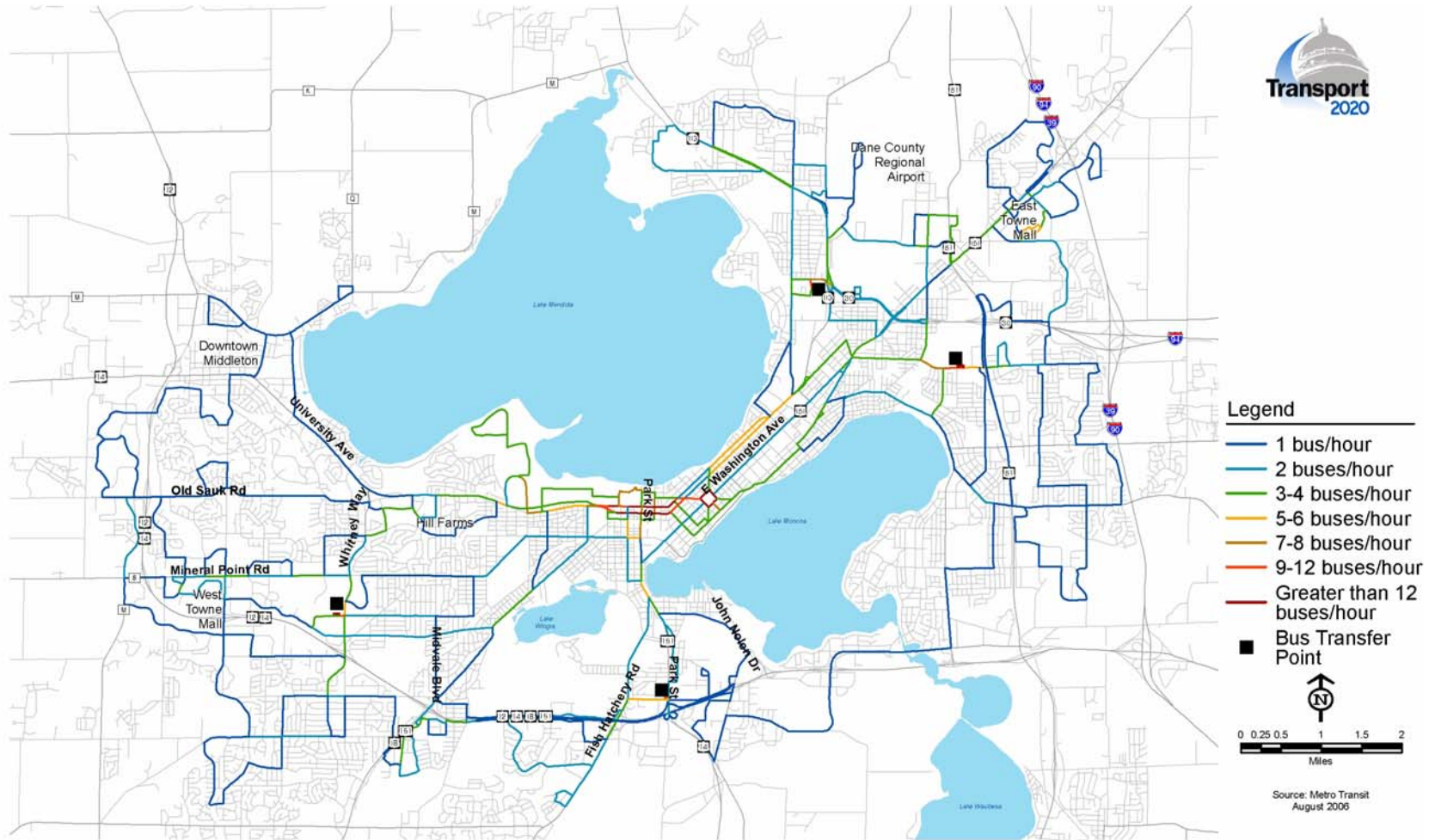


Figure 6 - Metro Transit Bus Frequency - Weekday Off-Peak Service Area

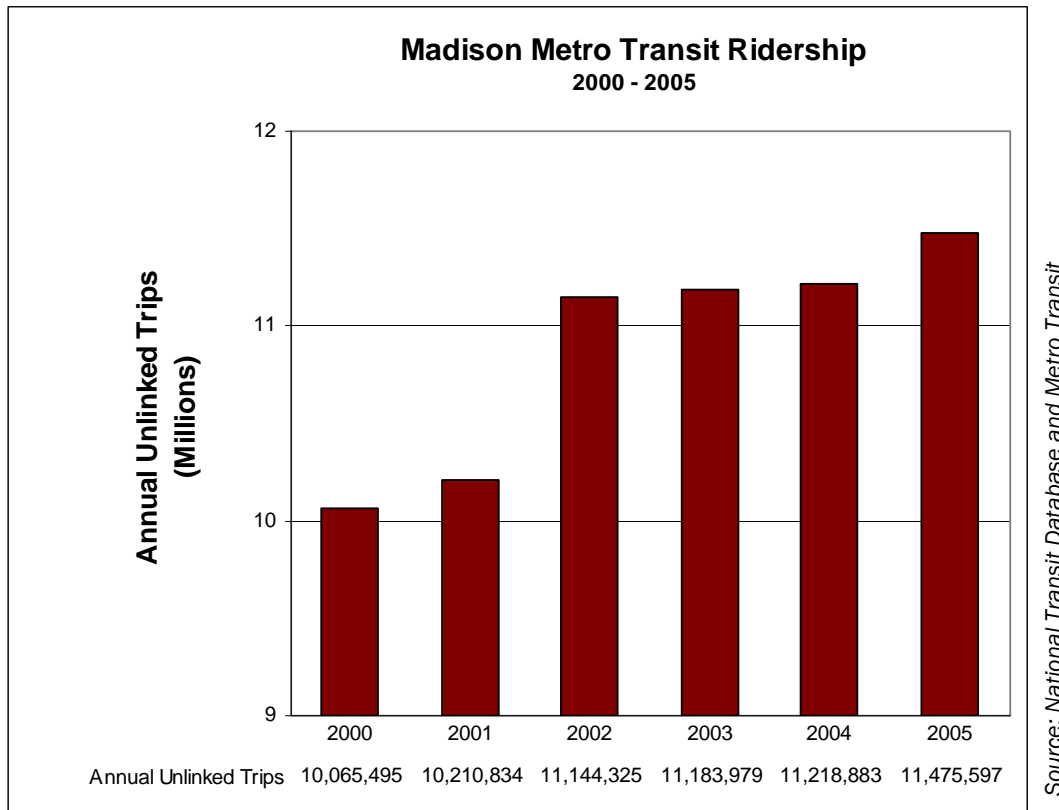


Figure 7 – Madison Metro Ridership Trends

monitor on-off activity at each transit stop. An analysis of data from the first six months of the year is summarized in Table 1.

Table 1 – Metro Transit Boarding and Alighting Activity

Madison Metro Average Weekday Activity January - June 2006				
	Transit stops	Boardings	Alightings	Total On/Off Activity
Entire System*	1,980	28,363	27,661	56,024
Core Transit Area	333	16,605	16,352	32,957
Proportion in Core	17%	59%	59%	59%

Source: Metro Transit.

* Totals do not include UW campus route or transfer point activity

Average weekday boardings and alightings were aggregated for all stops in the system, excluding the on-off activity at the four transfer points, which for the most part does not represent trip origins or destinations. The total system weekday average was compared to the activity at selected stops in the study area core, shown in Figure 8. These core stops represent about 17% of all transit stops served by Metro Transit, but they account for nearly 60% of all transit trip ends. This is the case because a large proportion of Dane County destinations – for employment, shopping and entertainment – are located in the study area, and many transit routes originating elsewhere converge on this area.

Metro Transit recently expanded service into Verona and is also considering expanding regional express service into Cross Plains, Sun Prairie, Oregon and other neighboring communities. Intercity bus service is provided by private operators. Badger Bus provides service between Madison and Milwaukee, Van Galder Bus Service operates between Madison and Chicago via Janesville and Beloit, and Greyhound Bus Lines operates to Milwaukee and La Crosse, Wisconsin, Minneapolis, Minnesota, and Rockford, Illinois.



Figure 8 – Core Transit Stops

2. PURPOSE: A VISION FOR DANE COUNTY AND THE GREATER MADISON METROPOLITAN AREA

Elected officials, planners and citizens from Dane County, Madison and other communities in the study area have completed numerous plans – land use and transportation plans, neighborhood redevelopment plans, campus plans and others – during the last decades. These plans outline a remarkably uniform vision for the future of Dane County and the Greater Madison Metropolitan Area, one that seeks to maintain the region’s high quality of life. Many of these plans recognize the relationship between transportation and land use, and a number of them focus on transit improvements as a means of addressing the major issues that face the growing region. The Madison area has envisioned a future in which an improved transit system is a catalyst for attaining citizens’ vision of their ideal community, preserving neighborhood character and maintaining the livability and economic viability of the central city while preserving the region’s unique environmental assets. This section highlights specific elements of regional and local planning efforts, which recognize the importance of transit in overall land use planning.

2.1. A Vision for Dane County

Dane County’s “Vision 2020” plan, completed in 1997, concludes that “an expanded public transit system in the east-west corridor [roughly the Transport 2020 study area] would have a positive impact on roadway congestion levels in the Isthmus.”¹⁸ The plan recommends implementing a “balanced” transportation system to “increase reliance on transit.... This is especially the case for work trips to central Madison during the peak hours and for school trips. This reduces the demand on the roadway network in terms of congestion and roadway capacity and provides mobility choices for those who wish to use other modes rather than an automobile or who do not have access to an automobile.”¹⁹

Along with recommendations for improving commuter transit service between outlying population centers and the Isthmus, establishing opportunities for park-and-ride transit services into the downtown area and developing alternatives to all-day commuter parking downtown and at the UW-Madison campus, Vision 2020’s main transportation recommendation was to initiate a Major Investment Study for transit improvements in the east-west corridor.

2.2. Using Transit to Maintain the City’s Quality of Life

Several transit and transportation issues noted in the City of Madison’s 2005 draft comprehensive plan have a direct bearing on the Transport 2020 NEPA study:

¹⁸ Dane County Regional Planning Commission, Vision 2020 Dane County Land Use and Transportation Plan Summary, 1997, p. 4.

¹⁹ Ibid, p. 42.

- “The unique geography of the Isthmus does not allow for easily increasing roadway capacity without major impacts to existing neighborhoods. Therefore, providing convenient transit...is particularly important in reducing congestion and providing a realistic option to driving in these areas.”²⁰
- “Many public comments noted the concern that significant increases in auto capacity destroy the very things that make the City a special place, and would reduce the quality of life for City residents.”²¹
- “One of the major challenges for the transit system continues to be how to effectively serve the developing activity/employment centers and neighborhoods on the urban fringe...[Transit] travel times from peripheral neighborhoods to the downtown/UW campus area are long relative to driving.”²²

The Madison Comprehensive Plan notes strong public support for improving transit in the study area as a means of controlling development, promoting desirable redevelopment, and preserving the city’s quality of life, and in consequence endorses the “full system” proposed in the first phase of Transport 2020.²³ To this end, the Madison Comprehensive Plan includes a major recommendation to pursue the implementation of the full system described in the Transport 2020 first phase report.²⁴

The Downtown Advisory Report (DAR) completed in 2004 as a component of the comprehensive planning process recognizes that ensuring the vitality, livability and economic viability of the downtown area is essential to the future of the Greater Madison Area. The DAR notes that increasing the number of transit options into and around Downtown Madison is strongly supported by stakeholders:

- “Ensure downtown is well connected by multi modal transportation networks, including public transit, to other regional centers, such as Hilldale, West Towne and East Towne Malls.
- Preserve locations for future commuter rail station(s) downtown at the Monona Terrace, Kohl Center or other suitable location(s). Encourage transit-oriented development with rail stations.
- Implement high density parking solutions on the edge of downtown with shuttle service to downtown destinations. Provide convenient connections to the future rail system in order to reduce automobile traffic in the downtown and reduce demand on downtown parking ramps.”²⁵

²⁰ Ibid, p. 3-8

²¹ Ibid, p. 3-7

²² Ibid, p. 3-10

²³ Ibid, p. 3-27

²⁴ City of Madison, Public Hearing Draft Comprehensive Plan, 2005, part 2, p. Intro-3. p. 3-16.

²⁵ City of Madison, Downtown Advisory Report, 2004, p. 27.

2.3. Dane County Communities Support Travel Improvements

The City of Middleton Comprehensive Plan specifically identifies the Transport 2020 process in its goals and objectives, specifically listing “support the region's Transport 2020 study that is evaluating the future of the existing rail corridor running through Middleton and other area communities” as one of its goals.²⁶

The Village of Shorewood Hills is currently drafting its Comprehensive Plan. Part of the rail corridor is within the village limits. Issues identified by Village staff include pedestrian safety in the business district, traffic congestion along University Avenue, and commute times to UW-Madison and the Isthmus.²⁷ A draft of the Village's comprehensive plan includes goals and policies to increase transit ridership, particularly among residents commuting to the UW-Madison campus. The draft plan acknowledges the possibility of improved fixed-guideway transit and includes recommendations to work with Transport 2020 planners to ensure that Shorewood Hills is well-served by any improvements.²⁸

Similarly, the City of Sun Prairie's Comprehensive Plan goals include incorporating “commuter rail service into the design of development and redevelopment projects along the Canadian Pacific Rail line” and providing “modes of transportation that meet the special needs of the elderly, children, disabled persons, and persons unable to provide their own transportation.”²⁹

2.4. Neighborhood Plans Call for Improved Transit

A number of the more recent plans specifically identify locations for commuter rail stations and connections and call for preserving railroad rights of way for eventual express transit improvements:

- “Develop a downtown commuter rail station at rear of 1 W. Wilson state office building to serve Monona Terrace, the capitol, employment centers, neighborhoods; design the station as a major visitor arrival point to downtown; consider enclosed walkway to capitol square.”³⁰
- “Land Use Objective: Minimize the use of private automobiles and encourage use of public transportation, particularly commuter travel.”³¹
- “Evaluate the location for a future commuter rail station between First Street and Second Street... Each site must accommodate a bus loop for transit connections and provide convenient pedestrian access to retail uses. Long-term transit parking is discouraged.”³²

²⁶ City of Middleton draft Comprehensive Plan (<http://www.ci.middleton.wi.us/plans/CompPlan/Draft20060121/>)

²⁷ Conversation with Village Administrator, 2006.

²⁸ Village of Shorewood Hills, Draft Comprehensive Plan, 2003, pp. 62-74.

²⁹ City of Sun Prairie, “Master Plan 2020,” 2000, p. 100.

³⁰ City of Madison, Basset Neighborhood Master Plan, 1997, p. 41.

³¹ City of Madison, Blackhawk Neighborhood Development Plan, 1994, p. 6.

- “Vision Statement: Walking and biking are safe and popular, and automobile traffic is slower and safer, thus increasing the quality of life in the neighborhood... Mass transportation such as rail transit, bus service, and other non-automobile alternatives contributes to the safe and efficient flow of persons through and within the neighborhood.”³³

2.5. University of Wisconsin Plans for Improved Transit Connections

Completed in 2005, the UW-Madison Campus Master Plan sets a course for the ongoing redevelopment of the university, with a particular focus on sustainability. The plan recognizes that transportation planning is essential to that redevelopment, and that the university drives a substantial portion of the transportation demand in the Greater Madison Metropolitan Area. The Campus Master Plan calls for supporting local and regional transportation planning, and specifically calls for:

- Improving connections across the east-west campus setting, particularly as the university increases the density of development on the western end of the campus;
- Gradually replacing surface parking with structured parking, with no net gain or loss of parking spaces;
- Providing attractive options to driving alone by developing express transit and park-and-ride facilities;
- Planning for the future development of commuter rail and streetcars, including identifying station locations;
- Improving intra-campus travel with increased transit service.

³² City of Madison, Shenk-Atwood Neighborhood Business District Master Plan, 2000, p. 29.

³³ City of Madison, Shenk-Atwood-Starkweather-Worthington Park Neighborhood Plan, 2000, p. 38.

3. NEED: DEGRADED MOBILITY, GEOGRAPHICAL CONSTRAINTS AND EFFICIENT LAND USE

The first phase of the Transport 2020 study crafted a problem statement based on the unique geographical constraints of the Madison metropolitan area combined with the region's rapid population and employment growth. Forecasted worsening mobility problems in Dane County's primary regional center – the central area of Madison that includes the city's commercial core, UW-Madison and major cultural, entertainment and special events destinations – threatens the region's high quality of life, its ongoing commitment to efficient land use decisions and the regional center's ability to absorb desirable residential, commercial, institutional and public space growth.

Within the last decade, regional institutions have made a strong commitment to the existing efficient Isthmus land use pattern. The \$70 million Monona Terrace Community and Convention Center, the \$200 million Overture Arts Center and a new \$40 million courthouse – all built within blocks of the State Capitol – show the continuing public/private investment in the efficient land use vision. City policies and cooperation have permitted existing regional institutions like Meriter Hospital, St. Mary's Hospital and Edgewood College to grow in place on the Isthmus. The continued development of the UW-Madison campus – especially in the sciences and health services – represents billions of dollars in planned concentrated urban growth.

The geography of the Isthmus, combined with its primacy as the region's employment, university, cultural and special event locus, makes it prone to steadily decreasing mobility as the region grows. Forecasts show degraded mobility, even as the city center will see growth in residential development, cultural centers, and employment over the next two decades. The geography makes it very difficult, expensive and unpopular to increase roadway capacity. However, these very features – constrained available land, high land values, and a dense, centralized regional employment and cultural center – may create a natural transit corridor in the study area.

3.1. Traffic Congestion is Worsening

The narrowness of the Isthmus dictates that there are only two primary arterial routes into and out of the central business district and university campus from the east – East Washington Avenue and Johnson / Gorham Streets – and only one primary arterial route (University Avenue) to the rapidly growing west side of the city. Those routes, and others through the center of the study area, have accommodated continuing increases in average daily traffic over the last 15 years.

The map in Figure 9 shows arterial streets already congested or very congested in 2000. The entire grid around the square is “congested” as is Williamson Street. East Washington Avenue, along with East Gorham and East Johnson Streets are indicated as experiencing “very congested” conditions. University Avenue is designated as very congested through campus, congested along the area adjacent to the Village of Shorewood Hills, and very congested west of that location where the roadway narrows to four lanes.

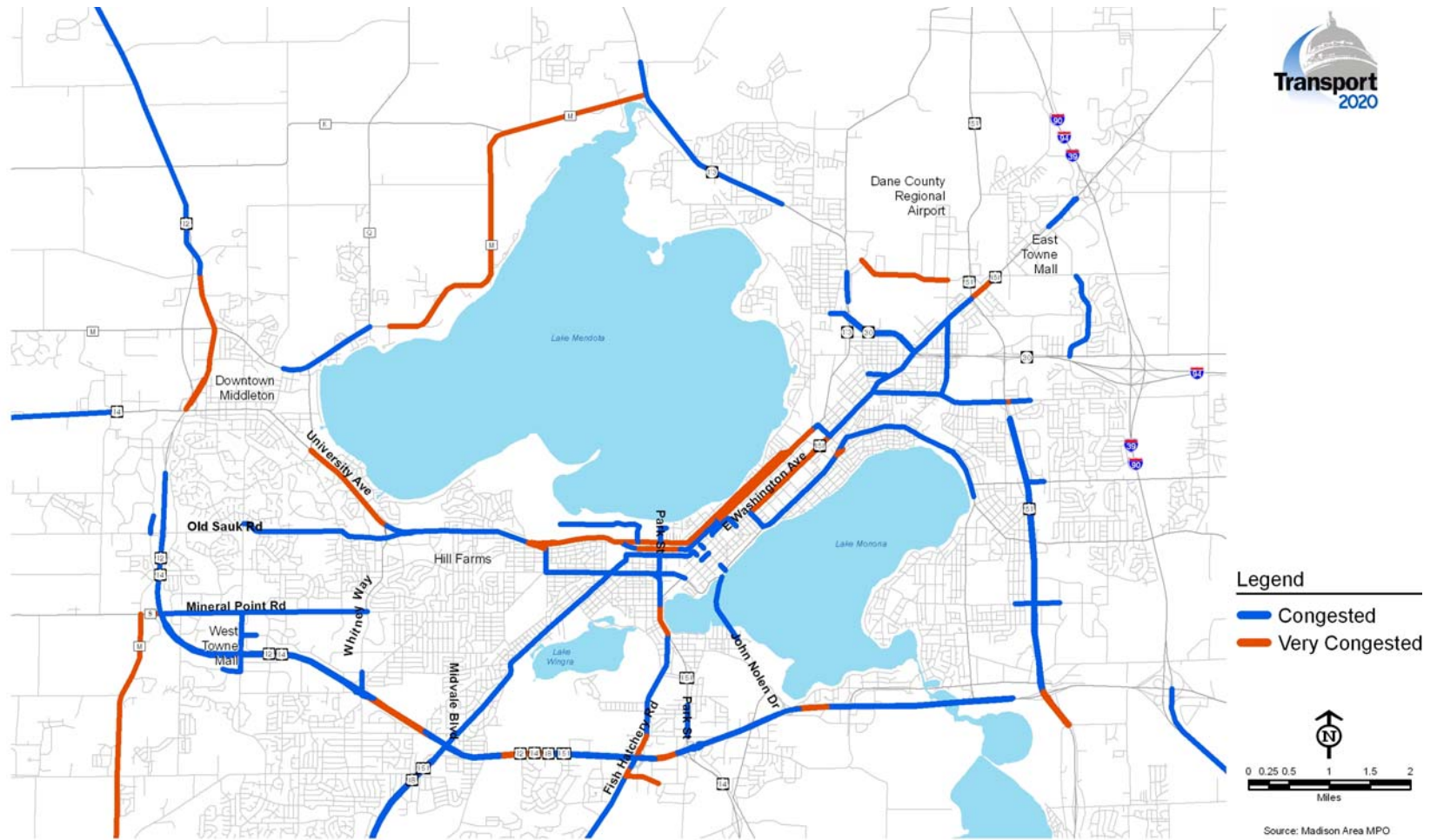


Figure 9 – Madison Area 2000 Roadway Congestion Levels

Furthermore, the population of Dane County is forecasted to grow another 36% by 2030, with more than half of the growth occurring outside of the Central Urban Service area that includes the study area.³⁴ As noted in Section 1.5, employment is forecasted to grow faster in the Central Urban Service Area, meaning that the resident labor force outside the Central Urban Service Area must commute to jobs that are largely located in the cities of Madison and Middleton.

Given the forecasted increase in population and employment, travel demand is also expected to increase by 2030. Figure 10 illustrates that even with the proposed transportation improvements in the 2030 Long Range Transportation Plan, streets in the Isthmus will continue to experience congestion. Without transit improvements, the mobility options will remain as they are today. Roadways will bear the lion's share of that increased demand, leading to increased congestion in the study area, along with increased demand for parking in built out areas, and increases in cut-through traffic in residential neighborhoods. Downtown Madison, meanwhile, is currently parking-stressed. While investments in improved transit in the study area can improve mobility and access for all area residents, such investments could have particular benefits for the downtown, allowing the city center to accommodate job growth while preserving its economic competitiveness with fringe areas that are able to provide a greater parking supply.

3.2. Opportunities for Roadway Expansion are Extremely Limited

The previous phase of Transport 2020 considered roadway expansion throughout the Dane County region, including in Madison's Isthmus and in areas on the periphery of the metropolitan area, but determined that the full costs of roadway expansion make such an alternative unreasonable. These costs include potential environmental impacts, cost to businesses from loss of on-street parking, loss of mixed business areas in established neighborhoods, degradation of the neighborhood fabric, potential opportunity costs, safety and quality of life concerns as well as construction and acquisition costs. As noted in Section 2.2 above, citizens of Madison have expressed a strong antipathy to roadway expansion in established neighborhoods.

In the previous phase, a Highway Build Alternative was evaluated and ultimately eliminated from consideration. A large number of potential roadway expansions were excluded from further consideration by the Transport 2020 Oversight Advisory Committee (OAC) and Technical Advisory Committee (TAC). The primary reason for excluding those capacity expansions was the belief of the OAC and TAC that such expansions would be too costly for the mobility benefits that would be provided. Costs typically necessary for such urban roadway expansions include costs of construction, land acquisition, relocation/provision of utilities, displacement of existing on street parking and the displacement of residential units and businesses. As an example, a 1998 Dane County Regional Planning Commission (DCRPC) evaluation estimated costs that might be associated with two additional travel lanes added to an arterial roadway in Madison's Isthmus. The evaluation report notes:

³⁴ Madison Area MPO, "Regional Transportation Plan 2030," p. 23.

“.... (The) costs of buying land for right-of-way for all of the roadway corridors currently experiencing traffic congestion in Madison’s Isthmus would be prohibitive and would be destructive to existing neighborhoods. For example, to expand Williamson Street just one mile from Blount Street to the Yahara River with two more travel lanes would cost over \$18.8 million. This includes approximately \$2.3 million for construction, \$9.0 million for land, and \$7.5 million for relocation costs (utility costs are not included). It would also displace 94 residential units and 59 businesses.”³⁵

In March 2006 dollars, that \$18.8 million per mile for expanding Williamson St. would cost about \$22.9 million per mile. Therefore, the evaluation of potential capacity improvements to the roadway network reached conclusions consistent with the results of previous studies: roadway widening is not feasible in the core of the Transport 2020 study area. Improvements to transit may, however, provide an alternative to improve mobility in the study area while contributing to desirable community development.

3.3. Opportunities to Expand Parking Downtown are Constrained

Due to high land costs in Downtown Madison and a lack of available land in general on the Isthmus, the provision of automobile parking in the Central Business District is an issue of great concern to business owners, employers, residents, shoppers and students. If downtown Madison is to remain an employment and cultural center for Dane County, it must remain economically competitive.

Because of the availability of inexpensive land at the fringe of the urbanized area, suburban development typically provides five to six parking spaces per 1,000 square feet of office space; the figure for the Central Business District is roughly two to three parking spaces per thousand feet of office space. Madison’s comprehensive plan focuses on maintaining a Central Business District with compact development and an aesthetically pleasing walking environment. Providing suburban parking supply levels in the Central Business District would:

- Be cost ineffective for developers, or require substantial public investment;
- Devote large areas of land to unproductive uses from the standpoint of income generation for developers and tax base for the City and County;
- Create a downtown landscape with more dispersed development and a less walkable character;
- Encourage levels of automobile travel that may not be able to be accommodated by the already congested downtown street grid; and

³⁵ Quoted in Transport 2020 Final Report, 2002, p. x

- Create commensurate undesirable environmental impacts.

But travel and mobility must be accommodated, and investments in transit can help “level the playing field” for promoting the continued desirable development of the Central Business District as an employment center for the region. By reducing the growth in automobile trips to downtown Madison and providing alternatives for travel along the length of the Isthmus, high-capacity transit can enable increased employment density downtown without necessitating the provision of higher rates of parking supply than the Isthmus currently enjoys. This means that downtown Madison can devote land to higher and more productive uses than parking.

3.4. Transportation Equity is Important

The first phase analysis of the Transport 2020 showed a particular concern for improving mobility in areas with higher concentrations of low-income households. The study area includes roughly half of the census tracts with median household incomes at or below 80% of Dane County’s median household income. These tracts include students attending UW-Madison and MATC. Because population density is greater on the Isthmus than elsewhere in the region, more than 70% of the Dane County population living in census tracts with low median incomes live in the study area. The study area includes all tracts with median incomes below 50% of the county median (See Figure 11).

Among other mobility concerns, the draft Transit Market Analysis shows the primary transit market area has a higher than-County-rate of households with no private vehicle available. The average proportion of households without vehicles in the study area is 12%, with rates approaching 40% in the central Isthmus. Overall, fully 88% of all Dane County households lacking access to a private vehicle are located in the in the transit market area.³⁶ Members of these households are likely to rely on transit services for access to jobs, shopping and entertainment.

From an environmental justice perspective – ensuring that the costs of transportation improvements do not fall disproportionately on any particular community – widening roads in areas with high concentrations of populations of concern to shorten commute times for growing suburbs may be considered an inequitable means of accommodating travel demand growth.

³⁶ Transit Market Analysis, draft, Table 1.34, p. 49

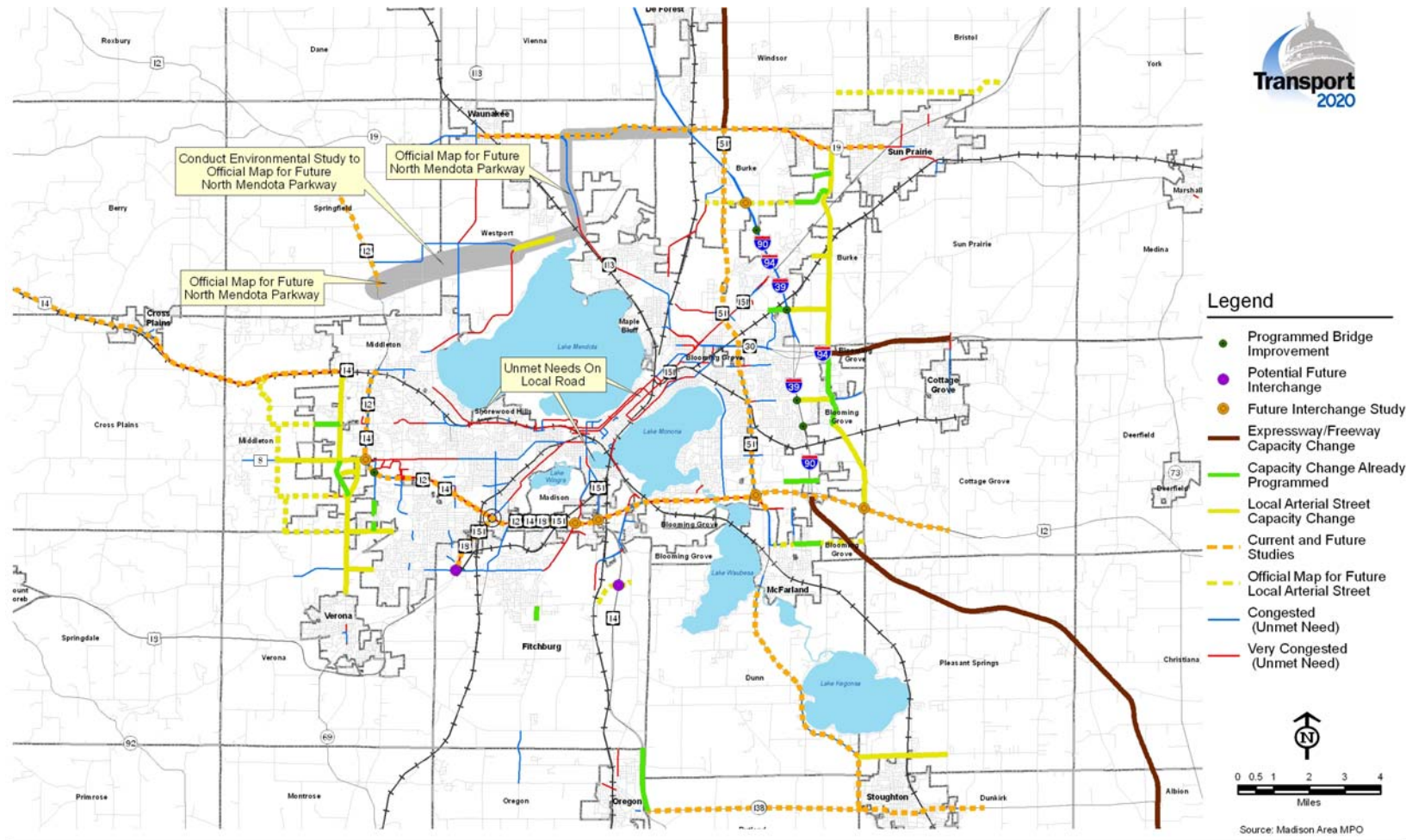


Figure 10 – Major Transportation Improvements and Studies and Unmet Needs in 2020 Study Area

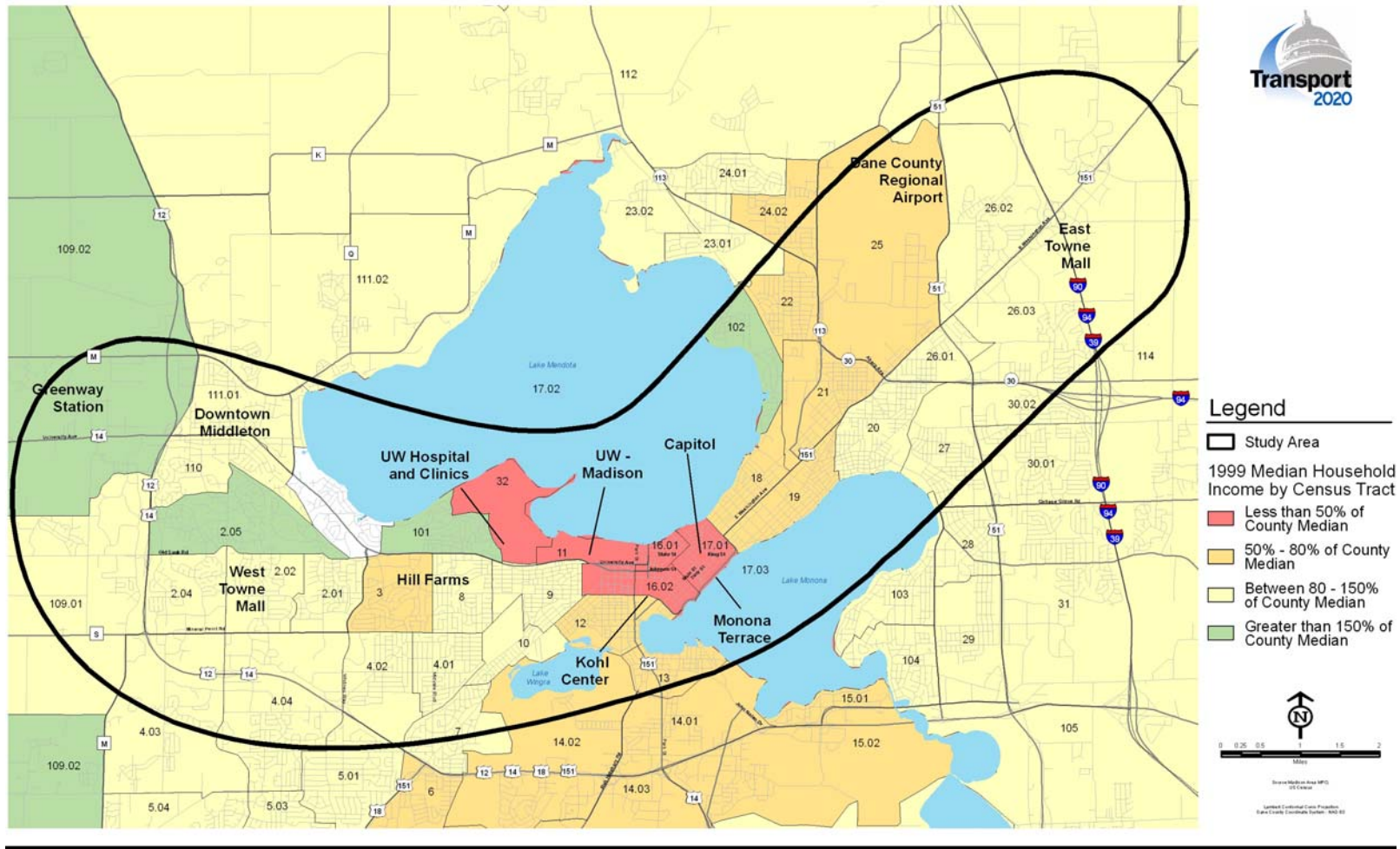


Figure 11 – Median Household Income

4. GOALS AND OBJECTIVES

Formulation of a system of goals and objectives evolves from the identified problems of the study area and the purpose and needs as described in this report. For each goal or objective, evaluation measures will be developed to quantify how well alternatives achieve each objective. This evaluation will ultimately establish the basis for selecting a Locally Preferred Alternative.

The previous phase of Transport 2020 established goals and objectives for the study area as part of the planning process. It is important that goals of this phase both build upon previous work, and be consistent with the overarching aims for the metropolitan area as a whole.

- **GOAL 1: Promote Efficient Land Use/Development Patterns in Madison and Dane County.**

Objectives:

- Promote relatively compact development in Madison and other established cities and villages in Dane County.
- Concentrate employment and other activity centers along existing and planned transit corridors (fully considering the relationship of transit and parking availability, as associated with such activity centers).
- Promote development that combines many activities, including commercial, retail, education, recreation, and housing.
- Promote development that reuses existing sites and buildings, and that uses existing services.
- Maintain and promote Madison, and especially the Isthmus, as the region's main activity center.

- **GOAL 2: Improve Mobility for People and Goods, and Provide/Enhance Transportation Choices.**

Objectives:

- Provide enhanced non-automobile access to home, jobs, services and other activity centers.
 - Provide transportation options that are competitive with the automobile in terms of trip times, convenience (in the context of specific time-of-day and day-of week trips), safety, cost (to the individual user) and comfort.
 - Increase the geographical market for transit in the study area.
 - Provide enhanced transportation options in the areas outside of central Madison.
 - Support increased bicycle and pedestrian activity.
-

- **GOAL 3: Improve and Enhance Economic Development and Employment Opportunities and Expand Access to Jobs.**

Objectives:

- Support strong, sustainable economic growth while also ensuring a high quality of life.
- Increase housing opportunities for all citizens.
- Increase employment opportunities for all citizens.
- Enhance reverse commute options.
- Provide greater access to special events, cultural resources/events, and other destinations in the study corridor.

- **GOAL 4: Enhance the Natural and Social Environment.**

Objectives:

- Improve air quality.
- Minimize transportation-related noise impacts.
- Protect, and, where possible, enhance environmentally sensitive areas.
- Minimize community and neighborhood disruption.
- Minimize negative aesthetic impacts of transportation investments and, where possible, design systems that add to the aesthetic environment.
- Provide transportation options that reduce stress.

- **GOAL 5: Develop a Cost-Effective Transportation System Improvement Strategy that Maximizes Community Consensus and Institutional Support.**

Objectives:

- Achieve public consensus and institutional support for the preferred transportation investment strategy.
 - Design a system that provides overall benefits, including those difficult to quantify, that warrant its overall cost.
 - Include an evaluation of all costs and benefits, both quantifiable and nonquantifiable.
 - Ensure that the costs and benefits are shared equitably among citizens and governmental entities.
 - Maximize the leverage of local funds.
-

5. CONCLUSION

Dane County and the greater Madison metropolitan area is a growing region whose residents enjoy a high quality of life. The citizens of the region have outlined their desired future in numerous plans and studies that focus on maintaining that quality of life while controlling growth, keeping an historic, vibrant and efficient land use pattern, improving mobility and maintaining the area's identity. Many of these planning processes have reached the conclusion that improving transit, particularly for travel into and through the Isthmus, is an essential component of achieving regional goals.

If the greater Madison area does not improve transit in the Transport 2020 study area, the region's forecasted growth can lead to degraded mobility, undesirable development patterns, and worsening prospects for economic development. Several factors inform this conclusion:

- The greater Madison metropolitan area is the fastest growing metropolitan area in Wisconsin.
- The highest concentration of employment – along with cultural activities, much of State Government and the University of Wisconsin-Madison campus – is located on the Isthmus. The densely populated central portion of Madison and Dane County, with its concentration of jobs and activities, creates a natural transit corridor.
- Continued growth and the unique geographical features of the Isthmus are leading to ever worsening traffic congestion in the region's center. The lack of available land, high costs and public opposition make expanding roadway capacity unfeasible.

Improvements to Madison's transit system provides an alternative to congested roadways in the study area and may contribute to the desired community development while improving mobility for all Dane County residents, including those that are transit dependent.
