

Executive Summary

Bicycle Transportation Plan

for the
Madison Metropolitan Area
and Dane County
2015

Prepared by Staff of the Madison Area Transportation Planning Board
A Metropolitan Planning Organization (MPO)
With assistance from Staff of other Agencies



Bicycle Plan Purpose, Scope, and Planning Process

The *Bicycle Transportation Plan for the Madison Metropolitan Area and Dane County* is a comprehensive bicycle plan intended to serve as a blueprint for continuing to improve bicycling conditions and safety and to increase bicycling levels throughout Dane County. It seeks to provide a framework for cooperation between state agencies, Dane County, and local governments in planning for and developing bicycle facilities and programs. It is intended to educate citizens and policy makers on bicycle transportation issues and the needs of bicyclists as well as present guidelines for planning, designing, and maintaining bicycle facilities.

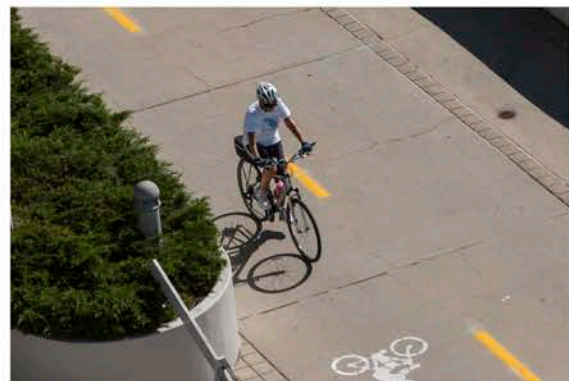
Bicycle facilities planning begins with identifying the core bikeway network, shown in the Bicycle Functional Classification maps. This network includes “primary” routes that serve higher volumes of bicyclists and connect major destinations as well as “secondary” routes that complete the grid. Next, analytical tools are available to identify the suitability of the roadway system for biking, identify bike crash and bike count locations, and analyze current commuting patterns. This analysis is used to identify gaps and barriers in the bicycle network, including urban and rural on-street bicycle facility needs.

Planned off-street shared-use paths are prioritized based on their function within the regional bicycle network. The bicycle plan does not prescribe specific on-street facilities, like bike lanes and paved shoulders, nor does it prioritize them, because these facilities are dependent on specific corridor needs and are typically incorporated into roadway reconstruction projects. The facility recommendations were developed in conjunction with other existing and ongoing plans and studies, including the City of Madison’s transportation plan *Madison in Motion*. In addition to the bicycle facilities network and route plans, the bicycle plan also identifies facility planning policy recommendations.

Along with facility improvements, education, encouragement, enforcement, and related programs are important elements in improving bicycling. These efforts can improve the skills and confidence of bicyclists to ride safely in traffic, which is critical for increasing their effective mobility. The plan makes recommendations for building upon current activities as well as emphasizing the importance of providing facilities and programs for all.

Plan Vision

People living in the Madison Metropolitan Area and Dane County will be connected by a safe, convenient, and enjoyable bicycle network that is accessible and comfortable for individuals of all ages, races, backgrounds, and abilities. This well-maintained network will link neighborhoods and communities to jobs, services, schools, shops, and parks, as well as transit for access to longer distance destinations. Bicycling will be fostered as an integral part of daily life through education and encouragement programs and supportive land development patterns, contributing to the health and quality of life for all residents. Newly developed areas will be planned and built as “complete neighborhoods” with these qualities deliberately included in them.



Plan Goals

Safety

Improve safety for bicyclists, reducing the number of bicycle crashes and eliminating all bicycle fatalities.

Ensure that bicycling is safe for individuals of all ages and skill levels, from age 8 to 80. Integrate bicycle safety into all jurisdictional agencies.

Usage

Increase bicycle usage and the mode share for bicycling for all trips.

Increasing bicycle use improves safety and health for commuters as well as for people making other trips.

Connectivity

Create a convenient and enjoyable bicycle transportation network that connects people with the places they need and want to go.

Increasing bicycle use requires that all neighborhoods and communities are connected by a safe, convenient, and comfortable bicycle network. Street and multi-use path networks in the Madison area and Dane County contain gaps for bicyclists that often force bicyclists to use high-volume and high-speed roadways, trespass, break traffic laws, or choose a different mode. These gaps need to be fixed.

Equity

Provide equitable access to the benefits of bicycling.

Every individual, regardless of age, gender, income, or race should have access to bicycle facilities that allow for safe and convenient transportation. Low-income neighborhoods that are isolated from high quality transportation facilities like shared-use paths need to be brought into the system.

Livability

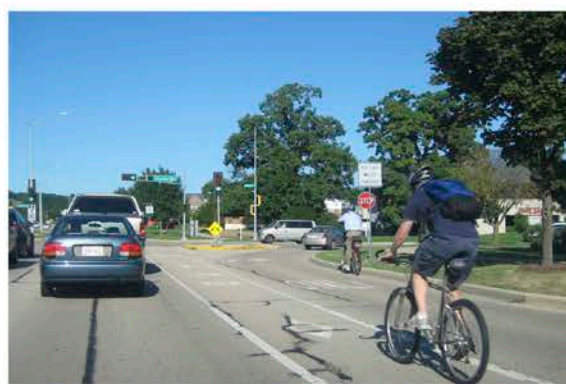
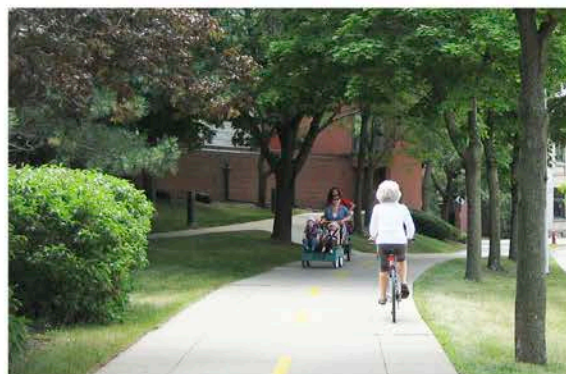
Enhance the quality of life for all Dane County residents through bicycle transportation investments and a welcoming environment that builds vibrant, healthy and prospering communities.

Focus bicycle infrastructure on dense, mixed use urban environments as well as scenic, useful routes between cities. Build inviting world-class bicycle ways that attract tourism and bolster the economy.

Longevity

Build a network of bicycle facilities that can be sustainably maintained with projected resources.

Consider the life cycle cost of bicycle infrastructure projects, and prioritize projects that demonstrate a need and will continue to provide value. Local municipalities should be able to justify using local funds and available equipment to maintain facilities through the winter.



Plan Strategies and Recommendations

This plan has adopted seven “E’s” to organize and identify strategies and specific recommended actions that work to attain the plan goals and support the vision of a safe, comfortable, and supportive bicycle network.

Education programs and materials give people the skills and confidence to ride.

Encouragement programs and materials foster a supportive community for bicycling.

Enforcement activities create a safe environment for riding by ensuring that road users follow traffic laws.

Engineering strategies create safe and comfortable places for people to ride.

Envisioning (Planning) strategies plan for future communities and facilities that are supportive of bicycling.

Evaluation tools allow analysis of the performance of bicycle networks and programs to identify the most important needs, determine the effectiveness of facilities and programs, and measure progress in attaining the plan goals.

End of Trip Facilities and Multi-Modal Connections provide bicycle parking and connect users to other modes.

Policy recommendations that relate to the plan strategies are discussed in Chapters 8 and 9 of the plan. Recommendations are starting points from which government agencies and private organizations can enact planning, policy, and program changes or reaffirm current policies that are consistent with this plan’s vision. The recommendations take the strategies into greater detail and apply them to the Madison area and Dane County.

Equity and Environmental Justice

The vision for the Bicycle Transportation Plan also states that “people living in the Madison Metropolitan Area and Dane County will be connected by a safe, convenient, and enjoyable bicycle network that is accessible and comfortable for individuals of all ages, races, backgrounds, and abilities.” For this to happen, it is necessary to address disparities in bicycle-related investments, representation, and resources. To best address these disparities, a good understanding of the current situation is important.

The issue of bicycle transportation equity cannot be considered apart from the larger issues of equity being discussed throughout Dane County. Since 2000, the Dane County population has become more racially and ethnically diverse. Racial and ethnic minorities now make up almost 20% of the county’s population, with the largest increase occurring in the Hispanic population (The Health of Dane County 2013 Health Status Overview Report, Madison and Dane County Public Health, 2013).



Source: Madison Metropolitan School District



Photo: Peter Gray

A number of planned projects will expand bicycle service to underserved areas. Major shared-use path projects that are expected to improve bike access for people in areas of equity concern are listed below.

- The completion of Cannonball Path between west Fitchburg and south Madison
- The Lower Yahara River Trail between south Madison and McFarland
- The planned Sherman Flyer Path and Hartmeyer Path in north Madison
- The Packers Avenue Path in north Madison
- The completion of the Goodman Path in northeast Madison and Sun Prairie
- The expansion of the West Beltline Path in west Madison
- The reconstruction of Buckeye Road in east Madison with bike lanes

A number of barriers remain to people living in areas of equity concern. System-wide gaps in the bikeway network are discussed in Chapter 4, and facility needs are addressed in Chapter 9.

Bicycle Facilities Toolbox

A variety of bicycle facilities work together to comprise the bikeway network. The appropriate facility depends on projected use, interaction with motor vehicle traffic, available right-of-way, opportunities presented with public works projects, and other factors.

Connected Low Volume Streets and Bicycle Priority Streets

Description: Low-speed (25 mph) and low-volume local and collector streets that most bicyclists find comfortable to bike on. Bicycle priority streets are distinguished from other local streets with the addition of bicycle wayfinding and other signage, traffic calming, sharrows, and other improvements for bicycling.

Typical Use: Secondary bikeways and primary bikeways where dedicated bike lanes or paths are not feasible or necessary.

Bike Lanes

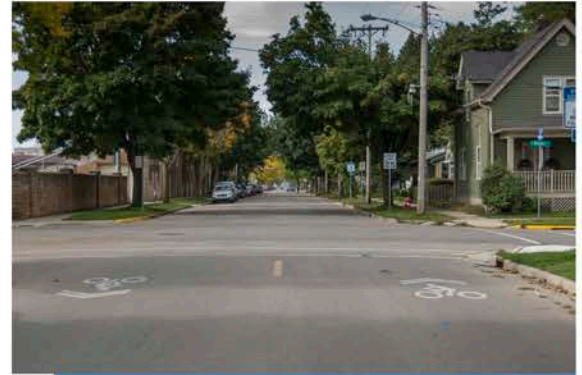
Description: Signed and marked lanes dedicated for bicycle use. Wider bike lanes may be warranted where traffic volumes and speeds are higher.

Typical Use: Moderate to high traffic streets

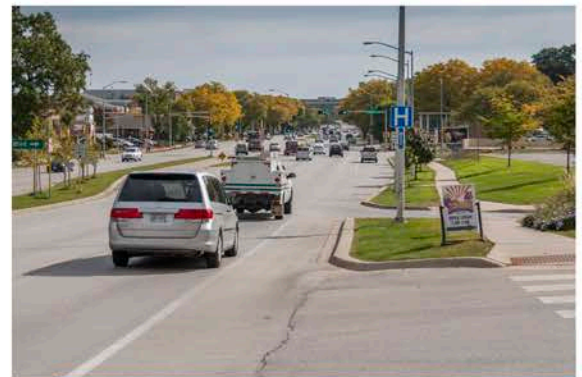
Buffered Bike Lanes

Description: Signed and marked lanes dedicated for bicycle use with marked space separating bicyclists and the general purpose travel lanes for motor vehicles.

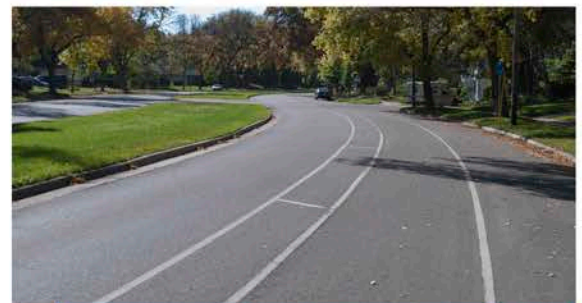
Typical Use: Moderate to high traffic streets with high bicycle volumes



Mifflin Street at Brearly Street, Madison



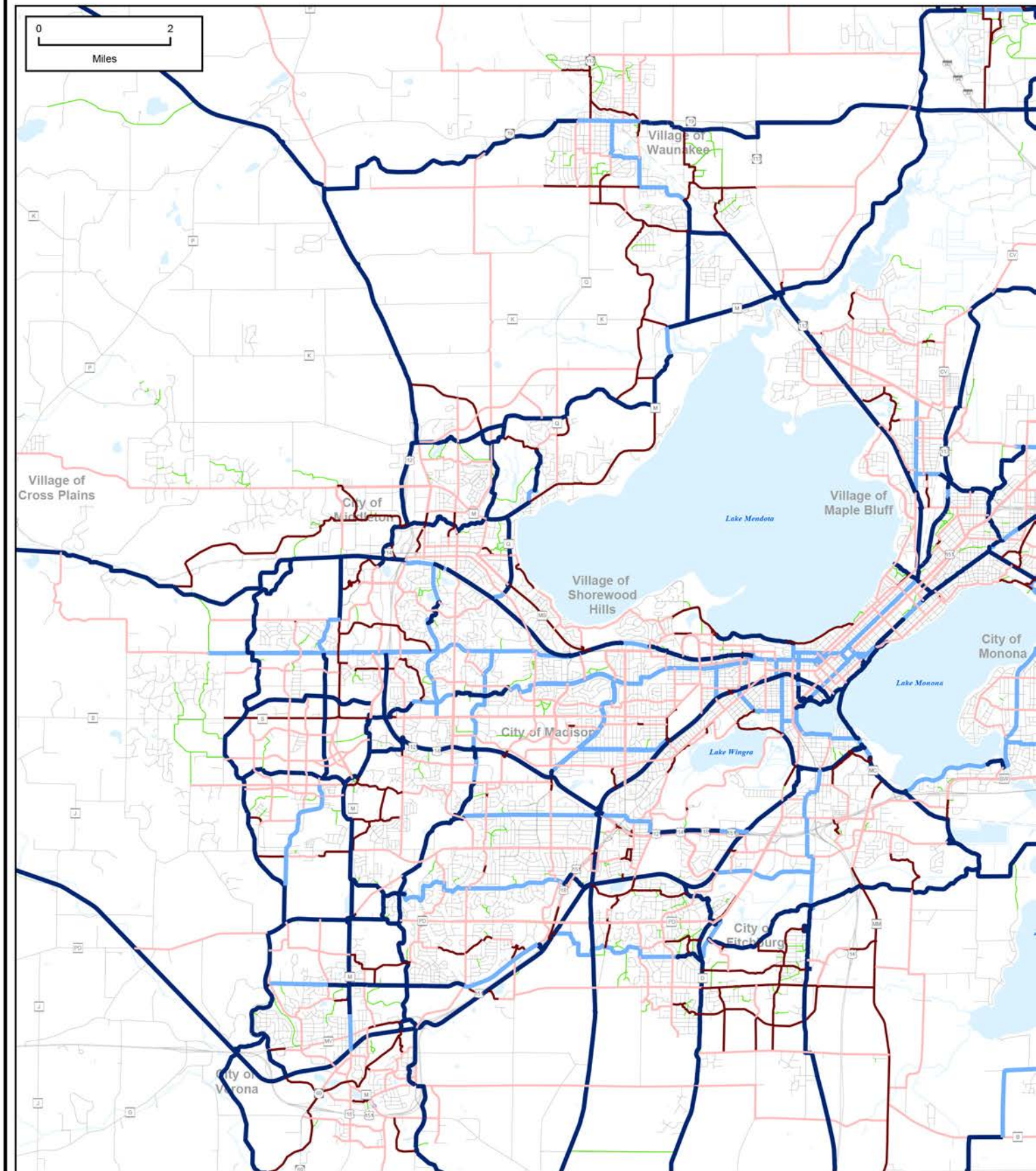
University Avenue at Hilldale Way, Madison



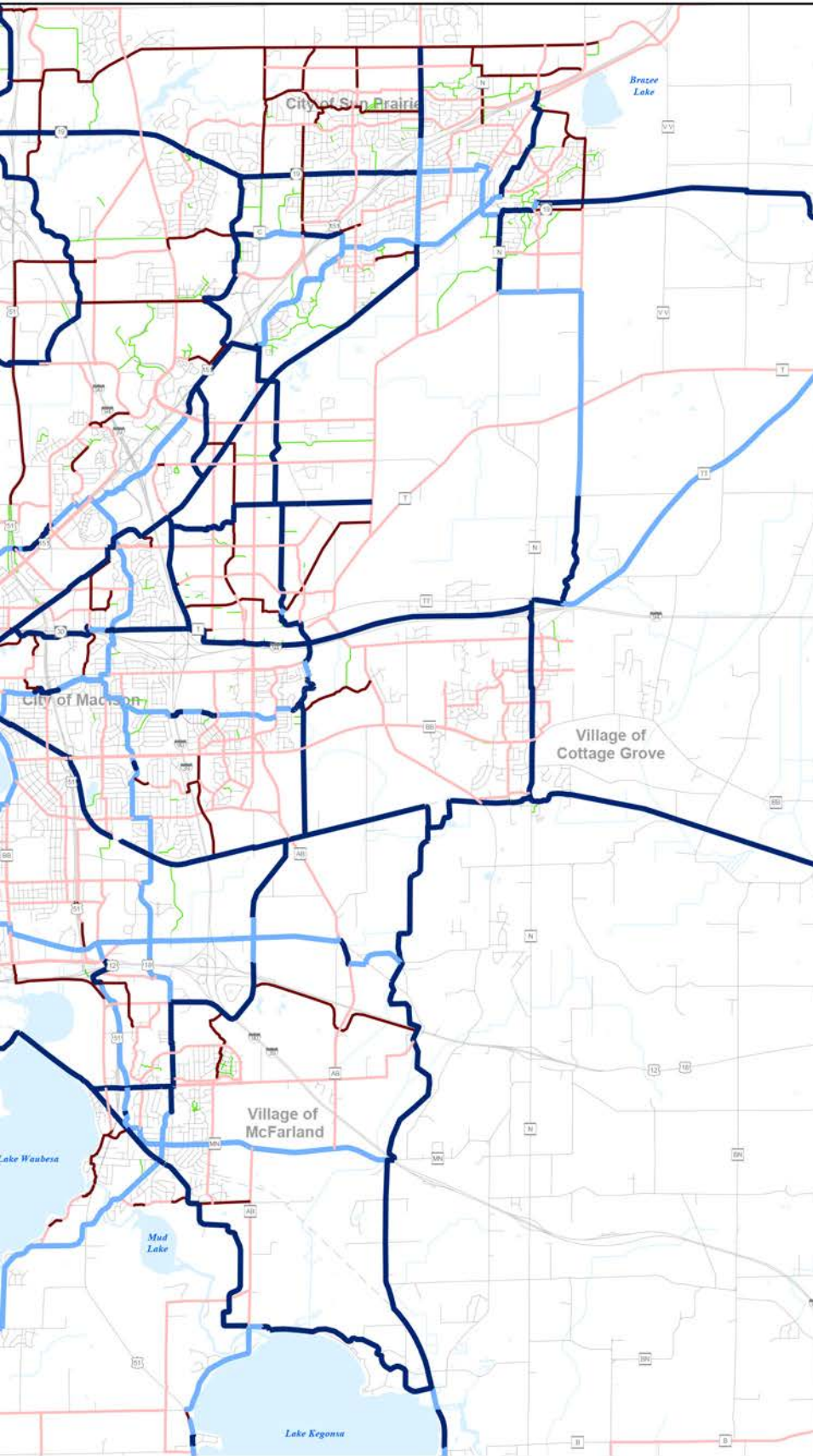
Segoe Road at Oconto Court, Madison

Bicycle Transportation Plan

Madison Metropolitan Area and Dane County



Future Bicycle Functional Class Madison Area



Primary Bicycle Network

- Primary (Shared-Use Path)
- Primary (On Street)

Secondary Bicycle Network

- Secondary (Shared-Use Path)
- Secondary (On Street)

Other Bicycle Facilities

- Other Existing or Planned Shared-Use Paths

Prepared by staff to the:



Source: MPO
Bicycle Paths and Routes: 2014 (MTPS)
Street Base: 2013, Orthophotos Derived (DCLD)
Functional Classifications: 2014 (MTPS, WSDOT)
Hydrography: 1000, 1:24,000 (ARC/INFO)
Civil Division Limits: 2014, Assessor's Records (DCLD)

Author: JLP
Date Printed: 9/21/2015
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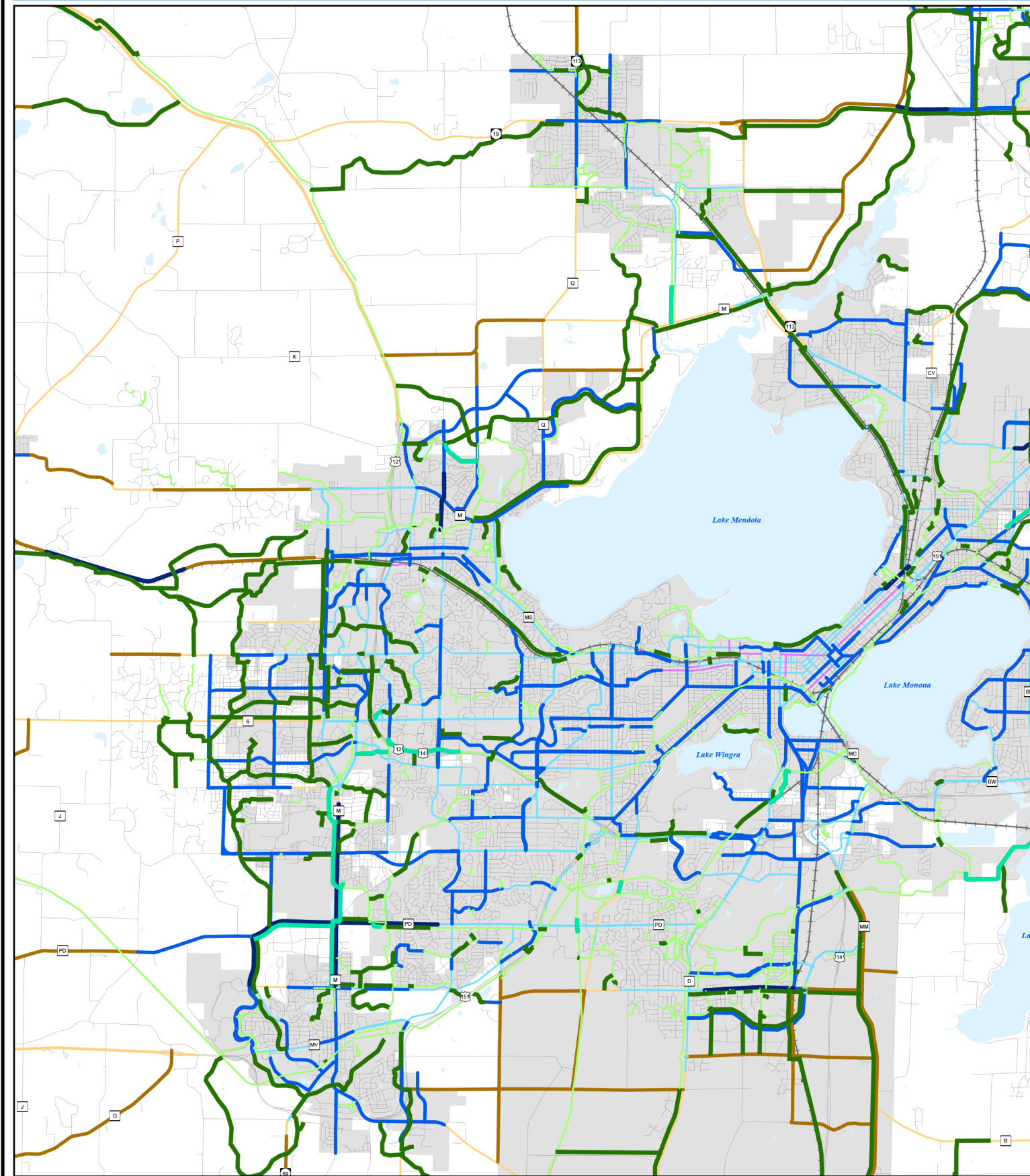


Date Revised: 9/21/2015

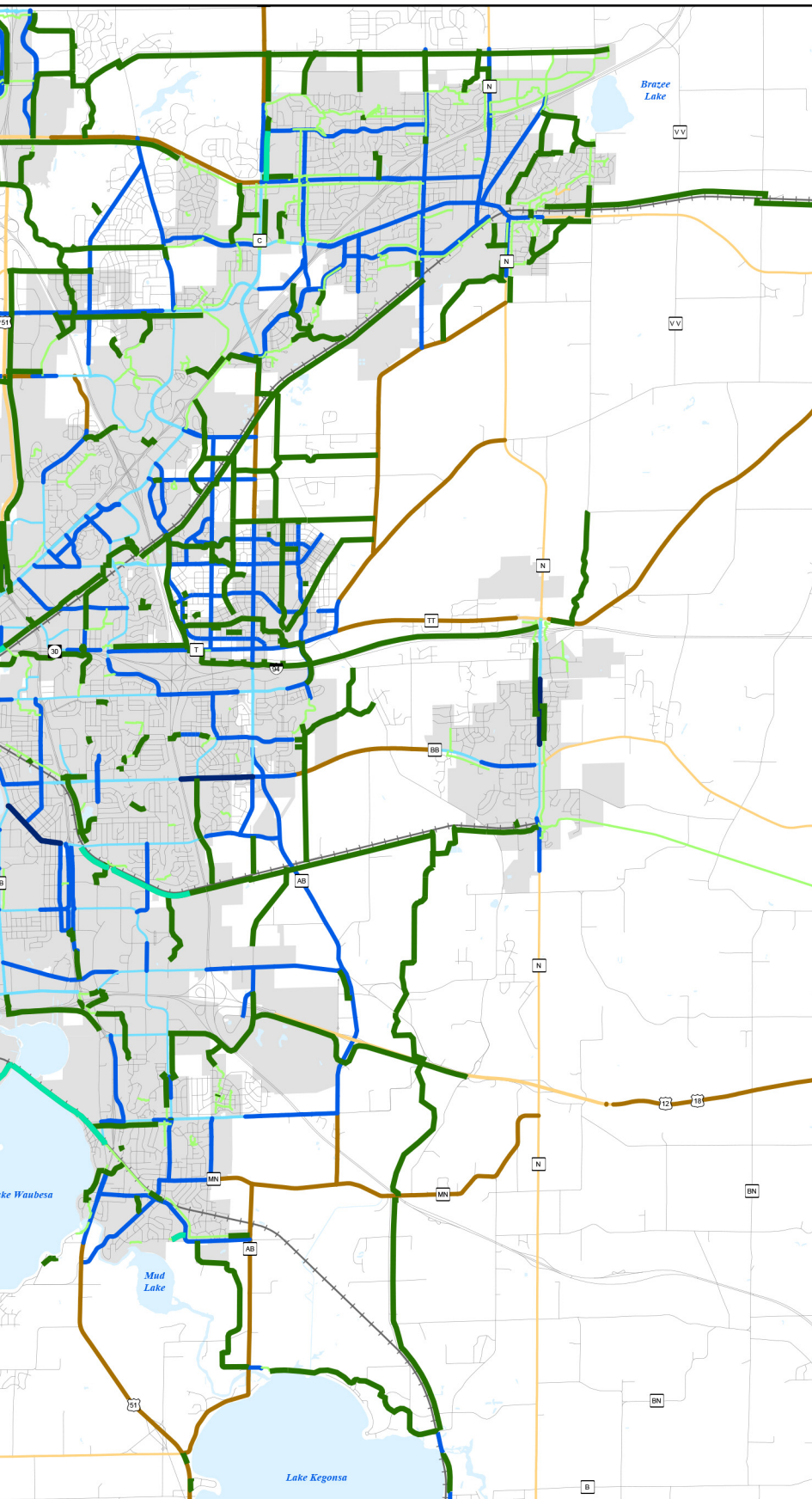
Lambert Conformal Conic Projection
WISCRS- Dane, NAD 83(91)

Bicycle Transportation Plan

Madison Metropolitan Area and Dane County



Bicycle Network Plan Madison Area



Urban On Street Facilities

- Existing Bike Priority Streets
- Existing Bike Lanes*
- Programmed On Street Facilities
- Need for New or Improved On Street Facilities**

Rural On Road Facilities

- Existing Shoulders 4 Feet or Greater
- Need for New or Improved Paved Shoulders**

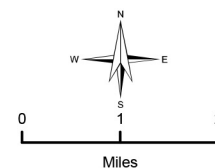
Off Street Facilities

- Existing Shared-Use Path
- Programmed Shared-Use Path
- Planned Shared-Use Path

Incorporated

* Includes Bus/Bike/Turn Lanes

** The need for new or improved on street facilities has been identified based on traffic volumes and speeds, roadway cross sections, and other characteristics. Bikeway improvements may not be feasible or practical due to competing needs for sidewalks, terraces, parking, and other right of way constraints.



Prepared by staff to the:
Madison Area
T.P.B.
Transportation Planning Board
A Metropolitan Planning Organization (MPO)

Source Info:
Street Base: 2013, Orthophoto Derived (DCLIO).
Hydrography: 10000, 1:24,000 (WDNR).
Civil Division Limits: 2014, Annexation Records (DCLIO).

Author: jgg
Date Printed: 9/22/2015
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Path: M:\MPO_GIS\GIS_Staff\jgg\Bike_Plan\Report_Map\Bike_NetworkPlan_Ukran.mxd

Date Revised: 9/22/2015

Lambert Conformal Conic Projection
WISCRS: Dane, NAD 83(91)

One-way Protected Bike Lanes

Description: Signed and marked lanes dedicated for bicycle use with a barrier separating bicyclists and the travel lanes. Protected bike lanes, sometimes called cycle tracks, provide a physical barrier such as curbs, parked cars, or delineators.

Typical Use: Streets with few turning conflicts and high bicycle volumes.

Two-way Protected Bike Lanes

Description: Signed and marked lanes dedicated for bicycle use with a barrier separating bicyclists from the other travel lanes. Two-way protected bike lanes operate in both directions side by side.

Typical Use: One-way streets and streets with few turning conflicts and high bicycle volumes.

Counter-flow Bike Lanes

Description: Signed and marked lanes dedicated for bicycle use on one-way streets that flow one way in the opposite direction of general purpose traffic.

Typical Use: One-way streets.

Bus, Bike, and Right Turn Lanes

Description: Signed and marked lanes dedicated to buses, turning traffic, and bicycle use.

Typical Use: Arterials streets with high transit volumes, bus rapid transit corridors.

Paved Shoulders

Description: Shoulders on rural highways that are wide enough for bicyclists to use.

Typical Use: Rural highways with moderate to high traffic speeds and volumes.

Shared-Use Paths

Description: Paths designed to accommodate bicycle traffic that are restricted to bicyclists, pedestrians, and other forms of non-motorized traffic.

Typical Use: Rail and utility corridors with available space, high-volume boulevards with limited driveway access, parks and other recreational areas.



Dearborn Street and Adams Street, Chicago



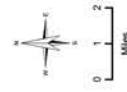
Charter Street at Dayton Street, Madison



Fish Hatchery Road, Fitchburg

Madison Metropolitan Area and Dane County

Existing Shared Use Path
Programmed Shared Use
Priority New or Improved Shared Use Paths
On Street Connect
Other Planned Shared Use
Incorporated



Prepared by staff to the
Massachusetts
T.P.B.
Transportation Planning Board
Metropolitan Planning Organization (MPO)

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Bicycle Network Plan

The bicycle network plan recommends a combination of on-street and off-street improvements to the bicycle network. These improvements aim to fulfill the goals of providing a safe, connected system of routes represented by the bicycle functional classification maps. The recommendations extend and enhance existing facilities and reinforce planning that is already taking place in many communities; they also propose new facilities, some of which are long-term projects to be completed in conjunction with future development. Many planned facilities were drawn from existing comprehensive plans, neighborhood plans, and other planning processes.

Urban on-street facilities in the bicycle network plan are identified based on needs for facilities or improvements of existing facilities. These street segments generally have moderate to high traffic volumes and speeds, and they typically do not have bicycle facilities incorporated into the roadway cross section. The bicycle network plan does not specify an on-street treatment for these roadway segments. The recommendation is for agencies with jurisdiction over these facilities to perform more detailed corridor planning when opportunities arise to incorporate facilities described in the bicycle facilities toolbox. Opportunities for incorporating bike facilities generally come with street reconstruction and resurfacing projects. However, in some cases reallocation of the existing street space may allow for the addition of bike lanes through restriping.

Rural on-street facility needs were similarly identified based on traffic volumes, the availability of a paved shoulder, and their function in the bicycle network. Unlike urban street corridors, rural highway treatments generally involve one facility type: paved shoulders. The plan recommends that agencies with jurisdiction over these facilities perform detailed corridor planning when opportunities arise to incorporate paved shoulders or to widen and improve the existing paved shoulders. These opportunities generally come with highway reconstruction projects.

Off-street facilities in the bicycle network plan are comprised of shared-use paths and bicycle/pedestrian over- or underpasses open to bicyclists as well as pedestrians and other users. Existing plans were used as the starting point for developing these facility recommendations. The bicycle network plan then takes a regional view connecting locally planned facilities between communities, adding planned paths where they are needed, and prioritizing paths based on their need and regional significance.



Education, Encouragement, Enforcement, and End-of-Trip Facilities

Increasing the number of bicyclists in Dane County involves more than just building infrastructure. To foster an active bicycling culture, increase safety, attract new riders and motivate current riders, education, encouragement, and enforcement programs are needed. Recommendations in the plan focus on ensuring safety, increasing opportunities for people of all ages and backgrounds to bicycle, and promoting policies that make Dane County one of the nation's top bicycling locations. The plan recommendations continue to build on the activities that are already taking place through the efforts of government agencies, advocacy groups, and other organizations. In addition, end-of-trip facilities are important to ensure that bicycling is an efficient and practical transportation choice. All of these activities are critical to achieving the bike plan vision of fostering bicycling as an integral part of daily life for all Dane County residents.

Education Recommendations Summary

- Support the development of education programs that promote safe bicycling and increase public awareness of bicycling facilities and resources.
- Provide and promote safety education programs taught by qualified instructors and that target both youth and adult bicyclists.
- Enhance and expand Safe Routes to School programming.
- Support the development of communication campaigns to improve the attitude and behavior of both motorists and bicyclists.
- Develop materials and instruction to educate motorists and bicyclists about traffic laws.
- Educate municipal leaders about bicycle issues and encourage them to bicycle or visit facilities.

Encouragement Recommendations Summary

- Encourage bicycle commuting as well as bicycling for other trips.
- Encourage bicycling promotion events such as bike week, commuter challenges, bike rodeos, bike valets, and open streets events.
- Provide and promote encouragement programs targeted at people who may be interested in bicycling.
- Support businesses and campuses in their transportation demand management activities.
- Support businesses, universities, and communities in applying for Bicycle Friendly status through the League of American Bicyclists program.
- Embrace new technology such as electronic mapping to help users find an appropriate route.
- Leverage promotional opportunities such as Ride the Drive.



Photo: Arthur Ross, City of Madison Traffic Engineering

Enforcement Recommendations Summary

- Educate law enforcement personnel on enforcement methods for bicyclist safety.
- Support enforcement of traffic laws relating to motor vehicles that increase bicyclist safety.
- Work with enforcement agencies to prioritize enforcement of bicycle-related traffic violations such as wrong-way riding and riding at night without a light.
- Work with Planners and design engineers to identify areas where traffic violations may be addressed through changes to infrastructure.

End-of Trip Facilities Recommendations Summary

- Enact policies and laws to ensure appropriate levels of bicycle parking are provided by private property owners.
- Provide ample, secure, well designed, well lit, attractive, and conveniently located bicycle parking facilities.
- Work with businesses and campuses to locate on-site bicycle parking.
- Support the provision of facilities such as showers and bicycle maintenance stations.
- Expand and improve bicycle sharing.
- Build, enhance, and promote multi-modal connections between bicycling and driving.
- Enhance multi-modal connections between bicycling and transit.



Photo: Arthur Ross, City of Madison Traffic Engineering

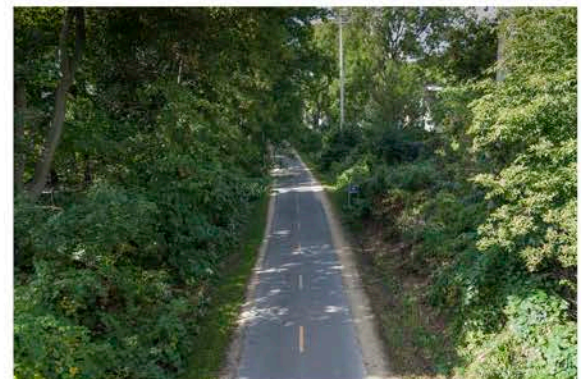
Bicycle Plan Implementation and Monitoring

The *Bicycle Transportation Plan* provides a long-term vision for the development of a metro area and countywide bicycle facility network. It also includes detailed recommendations for enhancement and expansion of current programs and activities to support and encourage bicycling. Implementation of the plan will take place incrementally over many years by multiple entities. Implementing agencies (local communities, Dane County, WisDOT, and the MPO) and organizations will need to communicate and work together to effectively implement the plan recommendations.

The MPO will monitor and regularly report on the status of implementation of the bicycle facility network and other plan recommendations and the performance measures laid out in the plan. The table below lists these measures and the current trends in performance, if known. This will require maintaining an up-to-date bicycle facility database and involve coordination with implementing entities.

Bicycle Performance Measures and Current Trends

Plan Goal	Performance Measures	Current Trend
Safety	Crashes	Little change
	Fatalities	Little change
	Crashes/Fatalities per 10,000 daily commuters	Down
Usage	Bicycle counts	Up
	Commute mode share	Up
Connectivity	Documented network gaps	N/A
	User satisfaction	Unknown
	Bicycle Level of Service (proportion of urban collector and arterial streets that are B or better)	Unknown
Equity	Population within ¼ mile of premium bikeway	Unknown
	Relative commute mode share of women and minorities	Unknown
Livability	Bicycle Friendly Community status	Improving
	Communities with dedicated funding for cyclists	Unknown
Longevity	Proportion of facilities that are plowed in winter	Little change
	Path pavement quality	Unknown



The Madison Area Transportation Planning Board (MPO) can assist by helping to coordinate the efforts of the primary implementing agencies and to support local community and county bicycle planning and encouragement program efforts. This includes providing information and conducting analyses of the benefits of bicycling facility infrastructure investments through tools such as the MPO’s new Active Living Places Index and a tool to be implemented to measure bicycle accessibility to key destinations and jobs.

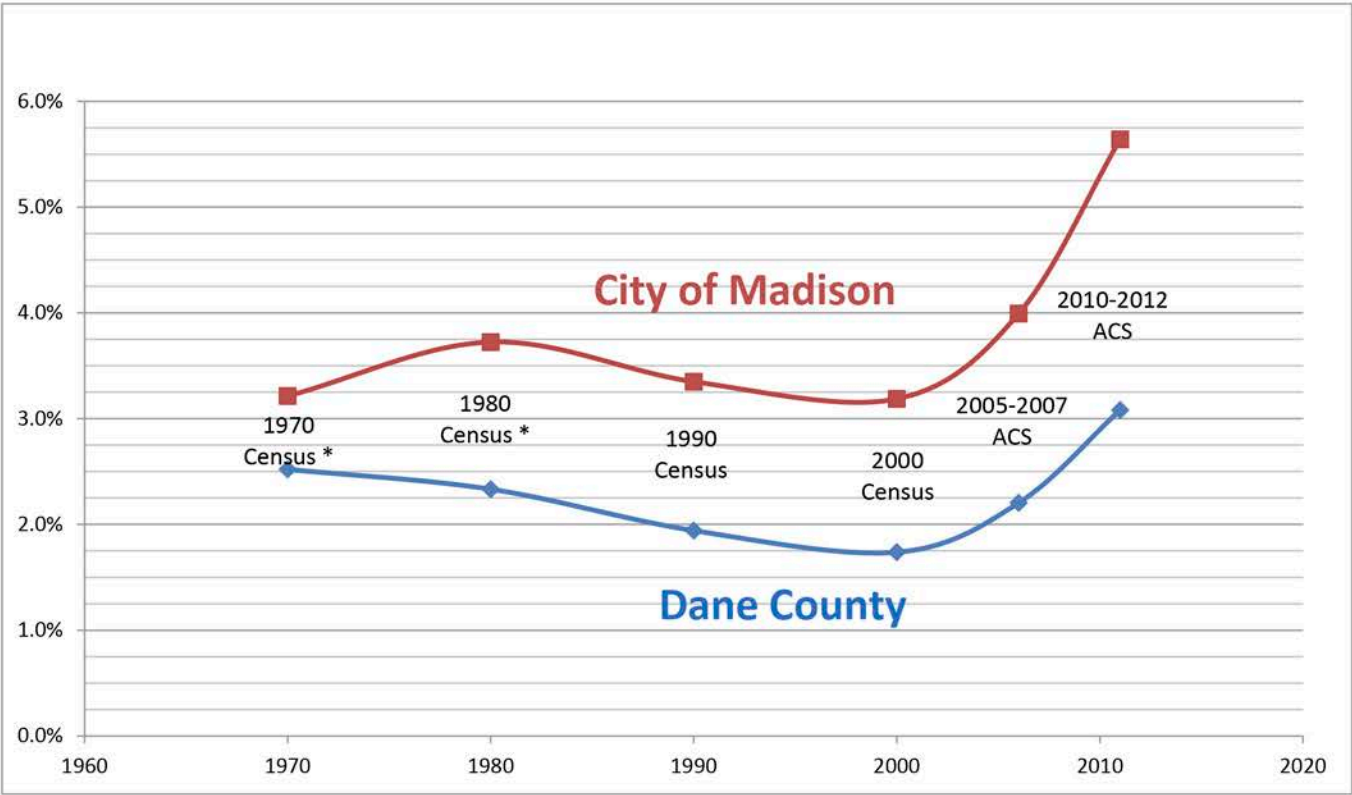
The MPO’s primary role in developing the regional bicycle facility network is providing funding for regional priority path projects and on-street facilities with the MPO’s allocation of federal Transportation Alternatives Program and Surface Transportation Program (STP) – Urban funding. The MPO uses project scoring criteria consistent with the regional transportation plan and bicycle plan goals to select projects for funding from applications submitted by local units of government and Dane County.

The *Bicycle Transportation Plan* will be revisited regularly to report on the status of implementation and to review and amend the bicycle network plan as necessary. Major reviews and updates will occur in conjunction with updates of the *Regional Transportation Plan*, which occur every five years. The next *Regional Transportation Plan* update is already underway and is expected to be completed by December 2016. The regional priority shared-use paths projects will also be reviewed and revised as necessary based on changed conditions as part of these major updates.

Municipalities are strongly encouraged to incorporate the *Bicycle Transportation Plan* recommendations into their local comprehensive plans and to preferably prepare their own local bicycle and pedestrian facility plans that tie into the regional bikeway network. In-depth local planning is important for making decisions in corridors and for laying out specific plans in both developed and undeveloped areas. Bicycle facility planning must be incorporated into detailed land use and street planning at the neighborhood level. Shared-use paths, for instance, are most effective when used to supplement, not replace, the local street system.

Bicycle facilities development needs to continue to actively engage the public and bicycle users. Bikeway network users represent a large source of information identifying maintenance problems and other hazardous conditions. Meaningful public engagement should also be used during the planning and design for bicycle facilities so that they can best serve the future users of the system.

Bicycle Mode Share Trends 1970 – 2012, Dane County and City of Madison



* In 1970 and 1980, the bike mode was combined with the “other” category that includes motorcycle and taxicab. Bike mode share for these years was estimated at 80% of the “other” category for Dane County and 90% for City of Madison. These proportions roughly equal today’s split between bike, motorcycle, and taxi.

Sources: See chart.

For more information and/or a copy of the complete bicycle plan, contact:
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