City of Mequon

11333 N. Cedarburg Road
Mequon, WI 53092
Phone: 262-236-2934
Fax: 262-242-9655

www.ci.mequon.wi.us

Public Works Department

Joint Mequon-Thiensville Bike and Pedestrian Way Commission
Thursday, September 9, 2021
9:00 AM
North Conference Room

Agenda

1. Call to Order, Roll Call

2. Approval of Meeting Minutes

   Action requested: review and approve

   a. August 12, 2021 Minutes

3. Resident Communications

Citizens wishing to address the Commission on any matter not on the agenda may do so at this time. If you desire to be heard on agenda items, you may be heard when that item is considered on the agenda. The time limitation is FIVE minutes. Please state your name and address.

4. Discussion/Action Items
   Discussion and Possible Action

   a. 2021 Approval of 2010-2030 Bike and Pedestrian Way Commission Recommendations Prioritization
   b. OIT Crossing/Mequon Road Corridor Pedestrian and Bicycle Enhancements
   c. 2010-2030 Bikeway Plan Update and Potential Budget Request

5. Other Business

6. Adjourn

Dated: /s/ *T. Azinger*, Chair

Notice is hereby given that a majority of other governmental bodies may be in attendance at this meeting to gather information about a subject over which they have decision making responsibility, although they will not take any formal action relative thereto at this meeting. Persons with disabilities requiring accommodations for attendance at this meeting should contact the City Clerk's Office at 262-236-2914 twenty-four (24) hours in advance of the meeting.

Any questions regarding this agenda may be directed to the Engineering Office at 262-236-2934, Monday through Friday, 8:00 am – 4:30 pm.

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Joint Mequon-Thiensville Bike and Pedestrian Way Commission
Thursday, August 12, 2021
9:00 AM
North Conference Room

Minutes

1. Call to Order, Roll Call
   Chair Azinger called the meeting to order at 9:04 AM.

   Present:
   Chair T. Azinger
   Commissioner Jim Doornek
   Commissioner Ron Heinritz
   Commissioner Rob Holyoke
   Commissioner John Liegeois

   Absent:
   Commissioner Kathryn Beiser
   Commissioner Kristin Wade

   Also present were Director of Public Works/City Engineer Lundeen, and Administrative Assistant Deuster.

2. Approval of Meeting Minutes
   a. June 3, 2021 Minutes

RESULT:	**Approved [Unanimous]**
MOVED BY:	Commissioner Heinritz
SECONDED BY:	Holyoke

AYES:	Azinger, Doornek, Heinritz, Holyoke, Liegeois
NOT PRESENT:	Beiser, Wade

3. Resident Communications

Chair Azinger noted no one present for this item.

4. Discussion/Action Items
   a. Bike Safety Brochure

   Chair Azinger stated after approval from the City Attorney member Wade would print the brochure and funding assistance from chair Azinger. The brochures will be available at City

Hall, Police Department, and any other bike events. The commission has not done the Arbor Day festival in the past two years but anticipate it will be back this coming year. It will also be posted along the Ozaukee Interurban Bike Trail.

b. Annual Review of the 2010-2030 Bike and Pedestrian Way Commission Recommendations

a. Annual Review of 2010-2030 Bike and Pedestrian Way Commission Recommendations

The commission voted in the previous meeting to have priority #16, Connection 400-500 block Main St to OIT, to priority item #3.

5. Other Business

Director of Public Works/City Engineer Lundeen discussed the modified approval from WisDOT on the OIT that needs to go back to Common Council for approval. WisDOT rejected items the city had requested changed. The rejections were no flashing signals as this would cause issues with the lights at the railroad tracks, no reduction of lanes to 8ft and only to allow reduction to 3 ft. They are allowing for dynamic speed boards. If the city chooses to conform to WisDOT's changes, then it would be fine to move forward since there is a design approval. Once the packet is released for the meeting to discuss this, the commission could make a recommendation or individually make a recommendation at the meeting.

Director of Public Works/City Engineer Lundeen also informed the commission of a plan to monthly modify and update the 2010-2030 Bikeway Plan, dissecting sections at a time to create a newer version of the plan. Along with having a running agenda item on the road program and bike lanes, budget discussion.

The board also discussed concerns with the sidewalks on Buntrock Ave, sidewalks in subdivisions that do not get plowed creating issues for bikers, and a sidewalk plan for Wauwatosa Road from Solar Heights to Heron Pond.

6. Adjourn
   a. Motion to Adjourn at 9:57 PM.

RESULT:	**Approved by Voice Acclamation [Unanimous]**
MOVED BY:	Holyoke
SECONDED BY:	Commissioner Heinritz

AYES:	Azinger, Doornek, Heinritz, Holyoke, Liegeois

Respectfully Submitted,

Casey Deuster

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Fax: 262-242-9655

www.ci.mequon.wi.us **Office of Engineering**

TO: **Joint Mequon-Thiensville Bike and Pedestrian Way Commission**
FROM: **Kristen Lundeen, Director of Public Works/City Engineer**
DATE: **September 9, 2021**
SUBJECT: **2021 Approval of 2010-2030 Bike and Pedestrian Way Commission Recommendations Prioritization**

Background

At the August meeting, the Commission voted to move the item previously identified as #16 (Port Washington Road: Extend 4' Lanes and Sidewalks to hospital) to priority #3, and renumber the other projects accordingly.

Analysis

The basis for the list of projects is the 2010-2030 Bike and Pedestrian Way Commission Recommendations report. Annually, the Commission arranges the projects in a prioritized order to be able to focus on the highest prioritized projects and advocate for funding and implementation.

Fiscal Impact

Fiscal impact is typically at the time of construction/implementation.

Recommendation

Staff recommends that the Commission approval the final version of the 2021 list.

Attachments:
2010-2030 Bike and Pedestrian Way Commission Recommendations -2021 (PDF)

2010-2030 Bike and Pedestrian Way Commission Recommendations -2021

Priority	Location	Projects
1	Mequon/OIT	Grade Separation at Mequon Road & the OIT
2	Donges Bay Road	OIT - Flatten curve at substation
3	Port Washington Road	Off Road Bike Path East of Pt Washington Rd Between Fairy Chasm and Zelder
4	Thiensville	Connection 400-500 block Main St to OIT
5	Donges Bay Road	Continue 5' marked shoulders beyond Grasslyn Rd to River Rd
6	Various	Bike Path Ahead Signs
7	Mequon/Thiensville	Create a Grant Plan
8	Highland Road	4' Bike lane - OIT to Wasaukee Rd
9	River Road	4' Paved Shoulder, Heidel Rd - Freistadt Rd
10	Lake Shore Drive	Re-Striping - Glen Oaks to Mequon Rd
11	Lake Shore Drive	4' Bike Lanes (including Zedler Ln)
12	Donges Bay Road	2-way, off-road trail - Lemke Park to Wasaukee Rd (south side)
13	County Line Road	4' lanes - Rangeline Rd to River Rd
14	Range Line Road	4' lanes County Line Rd - Mequon Rd
15	Pioneer Road	4' Bike lane - Davis Rd to Wasaukee Rd
16	Port Washington Road	Extend 4' Lanes and Sidewalks to hospital

Completed Projects

Priority	Location	Projects
2015 1	Ozaukee Interurban Trail	Relocation around WE Energies Substation
2015 9	Donges Bay Road	4' lanes - Lake Shore Dr to Port Washington Rd
2015 1	County Line Road	4’ lanes – Cedarburg Rd to Swan Rd
2016 17	County Line Road	5' paved shoulder added to North side of County Line Rd
2016 2	Green Bay Road	4' lanes - From Lake Bluff Road to Highland Road
2016 2	Donges Bay Road	Add improved signage at intersection with OIT
2018 1	Donges Bay Road	5' marked lanes - Cedarburg Road to Wauwatosa Road
2018 5	Mequon/Thiensville	Develop a Bike Rack Plan

Deleted Projects

Priority	Location	Projects
2016 6	Swan Road	Sign directing east to Nature Center
2016 28	Green Bay Road	4’ lanes – From Highland Rd to Pioneer
2016 3	Freistadt Road	Signs routing bikes to Riverview Drive

State Projects

Priority	Location	Projects
2016 9	Wauwatosa Road	Stripe and Sign bike/ped lanes – South of Mequon
2016 14	Mequon Road	4' lanes - Swan Rd to Wasaukee Rd
2016 18	Port Washington Road	4' bike lane - Katherine Dr to County Line Rd
2016 21	Mequon Road	Continue Sidewalks to Meadowbrook Dr and Whilton Rd

Low Feasibility

Priority	Location	Projects
2016 8	Highland Road	Off-road Path - Rotary Park to Laurel Ln
2016 10	Swan Road	Hiking trail - Concord Dr. to Nature Center -Tied to Swan Rd Reconst
2016 11	Mequon Road	4' lanes - I-43 overpass to Lake Shore Dr
2016 19	River Road	Lac du Cours off-road bike/ped path
2016 22	River Road	Bike/Ped Bridge over Milwaukee River – Mequon to Mequon
2016 15	Donges Bay Road	Bike/Ped Bridge over Milwaukee River – Across Donges Bay

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TO: **Joint Mequon-Thiensville Bike and Pedestrian Way Commission**
FROM: **Kristen Lundeen, Director of Public Works/City Engineer**
DATE: **September 9, 2021**
SUBJECT: **OIT Crossing/Mequon Road Corridor Pedestrian and Bicycle Enhancements**

Background

At the Committee of the Whole meeting on September 9, the committee will review and discuss the Wisconsin Department of Transportation (WisDOT) approval of the design for the Ozaukee Interurban Trail (OIT) Crossing and Mequon Road Corridor. That packet and information can be found here: <http://mequoncitywi.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2703&Inline=True>.

The previous review of the concept plan can be found here (Item 3.a.1., starting on Packet Page 3): <http://mequoncitywi.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2353&Inline=True>.

The selection of the final concept can be found here (Item 8.a., starting on Packet Page 144): <http://mequoncitywi.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=2343&Inline=True>.

At the August meeting, the Commission expressed an interest in formally discussing and taking action on its support of the various policy decisions, which would be forwarded to the Committee of the Whole. If the Commission takes action at its meeting the morning of September 9th, staff will forward that recommendation to the members of the Committee of the Whole via email ahead of the meeting that evening.

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www.ci.mequon.wi.us **Office of Engineering**

TO: **Joint Mequon-Thiensville Bike and Pedestrian Way Commission**
FROM: **Kristen Lundeen, Director of Public Works/City Engineer**
DATE: **September 9, 2021**
SUBJECT: **2010-2030 Bikeway Plan Update and Potential Budget Request**

Background

At the August meeting, the Commission indicated a desire to update the Joint Mequon-Thiensville Bike & Pedestrian Way Commission 2010 to 2030 Recommendations. Both that document and a previous plan administered through the Engineering Division are attached.

Analysis

Engineering staff discussed this update with Community Development staff. Coupled with recent requests from both residents, property owners and elected officials for considerations of pedestrian and bicycle connections or expansion of existing facilities, staff recommends that the Commission consider a budget request for funding for a Bicycle and Pedestrian Comprehensive Plan.

The scope of services could include an inventory of existing public and private pedestrian and bicycle connections, recommendations for removal of, connection to, or expansion of existing facilities, and an evaluation of how the infrastructure should be planned for future growth.

Fiscal Impact

The Park and Open Space Board completed an update of its Comprehensive Plan in 2019 for $16,100. Staff recommends a budget request of $15,000.

Recommendation

Staff recommends that if the Commission is interested in a budget request, it call a special meeting. The Common Council will meet on September 21, and any budget requests should be made prior to that date. The Commission could outline at the September meeting its reasoning for the request, and a member could generate a letter to be included in the packet at the special meeting. The Commission could then vote on and sign the letter to be submitted ahead of budget considerations.

If the Commission is not interested in a budget request, it may continue with the work plan to update the document as outlined above.

Attachments:
2010-2030 MT Bike and Ped Recommendations - Meq Adopted Plan (PDF)
Bicycle & Pedestrian System Plan (PDF)

Joint Mequon-Thiensville Bike & Pedestrian Way Commission 2010 to 2030 Recommendations

Joint Mequon-Thiensville Bike & Pedestrian Way Commission 2010 to 2030 Recommendations TABLE OF CONTENTS

Map attached: Existing facilities and recommendations (2010-2030)
Note this map is available on MToutdoors.org

INTRODUCTION

The communities of Mequon and Thiensville are quality communities that seek to encourage mobility of all residents by creating a bike-pedestrian network throughout the communities. We envision a community in which walking and biking are as safe, available, and attractive as any other means of transportation including auto. Biking and walking promote healthy lifestyles. The Commission seeks to provide safe choices for bikers and pedestrians.

Bikers and pedestrians who seek leisure, exercise, and an opportunity for competition are served by the Commission. They may be residents of Mequon or Thiensville or visitors from other communities.

Bikers include:

A. Advanced Bikers – Experienced bikers who prefer on-road for the higher speed and minimum delays. They prefer paved shoulders either to ride in or use as a "safety zone". This group includes competitive on-road bikers.

B. Basic Bikers – these are casual adult or teen bikers. They prefer off-road trails eg. Ozaukee Interurban Trail (OIT), bikeable sidewalks, low-traffic residential streets, or wide paved shoulders on roads. They may have little on-road experience.

C. Children – these are pre-teen bikers, often accompanied by an adult. They prefer off-road trails, low-traffic streets in residential neighborhoods, and bikeable sidewalks. This group also includes novice teens and adults.

M. Mountain bikers – these are bikers of all ages, teen and above, who prefer to ride on off-road dirt trails. These trails are usually constructed specifically for this sport. They may be competitive or not.

Pedestrians include:

R. Runners – Their focus is exercise. Runners prefer paved or unpaved paths and sidewalks.

S. Skaters - These are users of in-line skates. They are interested in exercise and prefer very smooth, paved surfaces kept free of any debris.

W. Walkers – these are people who walk for pleasure or exercise. Many prefer paved surfaces. Hikers prefer natural surfaces such as dirt or grass. Hiking trails in parks and natural areas attract this group.

GOALS AND OBJECTIVES OF THE COMMISSION

In order to develop the communities, Mequon and Thiensville established the Joint Bike and Pedestrian Ways Commission ("Commission") whose goals are stated here.

Goal 1 **Provide safe travel for all modes of transportation on existing /proposed roadways.**

Objective:

- When reconstructing or repaving existing roadways paved shoulders or designated lanes shall be provided in accordance with the Wisconsin Bicycle Facility Design Handbook on those routes included in these recommendations and shown on the attached map.

Goal 2 **Make all City of Mequon and Village of Thiensville cultural and recreational amenities accessible by bikers and pedestrians.**

Objective:

- Provide marked bicycle routes to schools, parks, libraries, and historical sites as designated on the attached map.

- Provide on-site bike paths and bike racks at all schools, parks, libraries, and business areas.

Goal 3 **Ensure that all new development and re-development includes bicycles and pedestrian facilities.**

Objective:

- New development will incorporate continuous networks of bicycle and pedestrian facilities that connect to adjoining streets and networks, including sidewalks where appropriate and marked bike lanes on all local collector streets.

- All existing roads improved or reconstructed due to new development will include bike and pedestrian facilities as designated by the these recommendations.

Goal 4 **Establish a network of clearly marked bike and pedestrian routes.**

Objective:

- The City and Village will increase awareness and visibility of adopted bike routes by placing signs on major roadways that are designated as a route or intersect a route, and by proper road striping and marking of all designated bike routes where appropriate.

- Take the 20 year Bike and Pedestrian Recommendations into account when maintaining or improving any local bike or pedestrian routes.

Goal 5 **Work with law enforcement to improve the safety for pedestrians/bikers, especially at crosswalks.**

Goal 6 **Provide up-to-date maps of local bike/pedestrian routes and connections.**

Objective:

- Maintain and keep current the MToutdoors.org web page for use by the bike/pedestrian, Mequon-Thiensville community.

- Continue to create maps that would be available both on-line and printed for locally-marked routes. Include locations of bicycle-friendly businesses, restrooms, refreshments and sites of interest.

Goal 7 **Work with adjacent municipalities to provide safe bicycle and pedestrian travel between the City of Mequon and Village of Thiensville and the adjacent municipalities.**

Objective:

- The City and Village will coordinate with adjacent communities such as Milwaukee and Brown Deer in an effort to provide a continuous bike and pedestrian friendly road system.

- To allow for safe travel from Mequon/Thiensville to other municipalities the Mequon/Thiensville bike system will include as many connections as feasible to continuous bike routes (example: Oak Leaf Trail and Interurban Bike Trail).

GENERAL RECOMMENDATIONS

The Bike and Pedestrian Commission sponsored a study of biker & pedestrian needs in Mequon and Thiensville in May, 2009. Of more than 500 resident MT bikers and 500 walkers in the survey, over 40% expressed safety concerns, mostly concerns about motor vehicles. Visitors to MT (454 surveyed) expressed the same concern.

M-T residents supported:

- More bike lanes on roads (36%)
- More connections to the Ozaukee Interurban Trail (20%)
- More bike-pedestrian connections between subdivisions (26%)

M-T resident bikers wanted:

- More bike racks at destinations (26%)
- A mountain bike trail (13%)

SHARED-USE TRAILS – e.g. Ozaukee Interurban Trail

We recommend continuation of good maintenance of trails, especially surface cleaning, brush removal, sight-line clearance at intersections, snow plowing, and removal of safety hazards. In order to make this trail available to more residents, we suggest priority to improving safe connections to feeder streets and to various community amenities.

SHARED-USE PATHS - CONNECTORS

Mequon and Thiensville have over 200 subdivisions. Walking and biking between these subdivisions is very popular. Connector paths between these subdivisions encourage social cohesiveness of residents and healthier lifestyles. Require new subdivisions to provide these important biking-pedestrian connectors.

Properly located connectors will allow for long distance walking or bicycling in these communities without using high traffic, higher speed roads.

SIGNAGE PREFERRED

For those who are not familiar with these connectors, we recommend signage below the "Dead End" signs announcing a "bike/pedestrian" connector ahead. Bike routes could also be signed to direct those unfamiliar with these routes.

PAVED SHOULDERS

Paved shoulders provide many benefits to the entire community and its visitors. Not only do they allow safer bike and pedestrian use, they provide an emergency lane for motorist safety, and a longer life for our roadway investment by protecting road edges from deterioration.

BICYCLE PARKING

Safe transit is important but when we get there, a safe place to store our bicycles is also necessary. Safety throughout the biking trip will encourage residents to use bikes for shorter trips, reducing auto traffic on local streets. Local businesses benefit too, as residents do more shopping locally.

Biking to work also will reduce auto traffic. Employers may need to consider not only safe bicycle parking but also shower and locker facilities.

PARKS

The Commission is also an advocate for hikers. Mequon and Thiensville parks provide a wealth of opportunity for pleasant, quiet walks in natural surroundings. As nature preserves develop, we encourage addition and maintenance of hiking trails.

The Commission publishes hiking maps as well as biking and canoeing-kayaking maps on its web-site: MToutdoors.org.

In Thiensville, continue to work on extending the riverwalk path along the river from Thiensville dam to Green Bay Road and in Mequon, to continue extending the riverwalk path along the river from Mequon Road to Thiensville.

MOUNTAIN BIKING TRAIL

There is a need for mountain biking trails. The Commission is studying possible locations for a mountain bike trail system.

The Ozaukee Planning and Parks Department has identified Mountain Biking trails as a possible future recreational facility.

SPECIFIC RECOMMENDATIONS NORTH-SOUTH ROUTES

In developing specific recommendations, the Commission considered average daily traffic (ADT) counts and posted speed limits. This information has been used in conjunction with the recommendations of the **"Wisconsin Bicycle Facility Design Handbook"** to determine the requested facilities along roads.

Also, the bike routes requested reflect the need to connect residential areas with shopping and community facilities such as parks, and other destinations.

Specific recommendations are shown on the map entitled "Mequon-Thiensville 2010-2030 Bike and Pedestrian Facilities Recommendations", which is a part of this report.

Lake Shore Drive

Lake Shore Drive is a popular route for on-road bikers. It provides a route through Mequon from Bayside north to the town of Grafton. Sections have been improved recently by Mequon. The Commission's recommendation is to continue to provide safe, 4' bike lanes the entire length of Lake Shore Drive including Zedler Lane. The section of Lake Shore Drive from Glen Oaks Lane to Mequon Road, which was re-surfaced in 2009, should be re-striped to provide 4' bike lanes.

Port Washington Road

From Mequon Road to Glen Oaks Lane, Port Washington Road is being widened to 11' + 16' lanes, two ways, plus sidewalks. It is the Commission's understanding, that the 16' lane will not be striped for a 4' bike lane. Bikers and pedestrians will have to share the sidewalks.

When Port Washington Road is repaved further north, we recommend that 4' lanes and sidewalks be extended to

Columbia-St Mary's Hospital. Beyond the hospital consider lanes or sidewalks as those areas are developed.

Port Washington Rd from Katherine Drive south to County Line Road needs 4' bike lanes to complete this popular North-South route. A 6' wide gravel shoulder already exists.

Range Line Road

The Commission recommends minimum 4' lanes from County Line Road to Mequon Road.

River Road

In Thiensville, a short piece of River Road from Heidel Road south to Freistadt Road needs a 4' paved shoulder on the West side.

The commission recommends a bike-ped bridge over the Milwaukee River to connect the north with the south sides of Mequon. This would be attractive to the Town Center businesses and offer easy access to bike routes on both sides of the river. The recommended location would be from Villa Grove Park to Riverview Park connecting with the bike path in Riverview Park.

The Commission considered a bike route along River road from Donges Bay Road to County Line Road. A roadside lane on River Road appears to be impractical because of the narrow shoulder on the river side of this road. An alternative may be a series of off-road bike-ped paths connecting residential neighborhoods in Lac du Cours subdivision. This network could provide a low-traffic route from Donges Bay Road south to County Line Road. A grass trail already exists from Le Mont Blvd east to Hidden Lake Road. Paving of this path and a short extension south to Valley Hill Drive would complete this route.

Green Bay Road

This road is an important connection between residents of Thiensville/Mequon and MATC-North, Highland Woods, the Ozaukee Interurban Trail (OIT), Rotary Park and Mee-Kwon Park. For now, the addition of 4' "safety lanes" in Thiensville from Heidel Road north to Lake Bluff Road would be appropriate to serve bikers, pedestrians and serve as an emergency lane for motorists. When Mequon resurfaces Green Bay Road north of Thiensville, the commission recommends the continuation of 4' bike-pedestrian lanes north to Highland Road.

Cedarburg Road

Because of its proximity to the Ozaukee Interurban Trail (OIT) Cedarburg Road is not a focus for bike or pedestrian use. Consequently, no recommendation is made.

Ozaukee Interurban Trail (OIT)

This trail is heavily used by bikers of all types, walkers, runners and skaters. In summer months user trip counts in Thiensville exceed 300 per weekday and 500 on weekends. Since the trail is cleared in winter, it continues to be used by walkers and bikers throughout the year.

Safety is our prime concern. The trail is maintained by Mequon and Thiensville DPW. Besides mowing, the municipalities clear brush and line-of-sight at intersections, sweep the trail when needed, and control unwanted vegetation.

Two "S" curves are currently a problem. Mequon is studying ways to straighten them. Both are diversions around power stations. At the substation just south of Bonniwell Road an alternate route around the west side would minimize the curve and steep hill.

The other power station is just north of Donges Bay Rd. Two remedies to the sharp "S" blind curve are being considered.

1. Straighten the approach from the north, or 2. Split southbound traffic to the west side of the substation while dedicating the east trail for northbound traffic.

Bike and pedestrian access from the OIT to the M-T library and playground is over the grass and [often] muddy path. As this is a low "wetland" we recommend a paved access be added and the existing path elevated to avoid mud.

Additional access points should be considered between local businesses and the Trail.

Wauwatosa Road

This road recently was re-built with 5' bike lanes from Mequon Road north to Pioneer Road. The stretch south of Mequon Road to County Line Road has paved 15' lanes for bikers and pedestrians which should be striped and signed as bicycle-pedestrian lanes.

Swan Road

An off-road path leads south along Swan Road from Daventry Road to Donges Bay Road, but does not lead to the nature center. A sign placed on this path at Donges Bay Road, directing bikers east to the new Nature Center entrance on Donges Bay Road would be helpful.

Access to Mequon Nature Center south of Donges Bay Road has been made possible by the addition of a gravel path (thru the Nature Center) from Donges Bay Road south to County Line Road. Parking areas are available at both north and south ends of this path.

In the future, Mequon should consider a hiking trail along Swan Road from Concord Drive to the Nature Center. This trail could lead to the existing trails at the center.

Farmdale Road

No recommendation.

Granville Road

This road already has bike lanes 3’ to 4’, from County Line Road north to Freistadt Road. There are no further recommendations north of this.

Wasaukee Road

There is no recommendation at this time.

SPECIFIC RECOMMENDATIONS EAST-WEST ROUTES

Pioneer Road

The heaviest-traveled section of Pioneer Road, from Green Bay Road west to Wauwatosa Road, has an off-road paved trail on the south side and 4' paved shoulders from Wauwatosa Road West to Davis Road.

We recommend a 4' bike lane continuing from Davis Road to Wasaukee Road.

Continuing east from Green Bay Road there is a 4' bike lane to Port Washington Road. This leaves a gap just east of Port Washington Road to the popular Lake Shore Road. We recommend this section be given 4' bike lanes.

Bonniwell Road

No Recommendation. This road carries light traffic.

Highland Road

This road from Lake Shore Drive west to the OIT was repaved with a 4' bike lane in 2009. When the remaining stretch from the OIT west to Wasaukee Road is re-paved we recommend 4' bike lanes.

Rotary Park is a popular park for community events. It is well-connected to residents to the south, but not to the north. At least a hiking trail or off-road paved trail should be considered extending the east parking area in Rotary Park north to Laurel Lane where a route to subdivisions near Bonniwell Road would then be complete.

Freistadt Road

In Thiensville, Freistadt Road from River Road west to Green Bay Road is a narrow, busy street. Bike traffic on this stretch is routed south on Riverview Drive. The Commission recommends signage on that route.

A longer-term solution would be to put an off-road path or bikeable sidewalk along Freistadt Road.

Mequon Road

East of Port Washington Road, a sidewalk on the south side goes under the I-43 overpass but then comes to an abrupt stop at a ditch. We recommend the transition of the sidewalk to 4' bike lanes on both south and north sides of Mequon Road, over the railroad tracks and continuing to Lake Shore Drive. This also completes the popular North-South Lake Shore Drive route discussed earlier.

Going west from Cedarburg Road to Wauwatosa Road Mequon Road has a sidewalk on both sides. In 2010, the OIT crossing over Mequon Road was given a more secure "refuge" median.

West of Wauwatosa Road, Mequon Road now has a sidewalk on both sides of Mequon Road, but only to Solar Avenue on the north side, and Lincolnshire Drive on the south side. We recommend continuation of these sidewalks to Meadowbrook Drive and Whilton Road.

West of Swan Road, Mequon Road has 5' lanes to Wasaukee Road.

Donges Bay Road

Donges Bay Road from Lake Shore Drive west to Port Washington Road should have 4' minimum bike lanes.

From Port Washington Road, 5' bike lanes were added to Grasslyn Road in 2010. We recommend continuing these 5' lanes to River Road when this stretch is re-paved.

We recommend a bike/pedestrian bridge over the Milwaukee River. This bridge would serve as a vital link to connect East Mequon and West Mequon and provide easy access to the OIT and the Town Center.

Continuing west from Cedarburg Road to Wauwatosa Rd we recommend 5' bike lanes to connect with the existing off-road path

that goes from Wauwatosa Road to Mequon Nature Preserve and Lemke Park. For most of this stretch a roadbed already exists, but needs to be paved and/or striped to add bike lanes.

West of Lemke Park we recommend a two-way, off-road trail on the south side of Donges Bay Road west to Wasaukee Road.

County Line Road

From Port Washington Road west to River Road and from Cedarburg Road west to Swan Road minimum, 4' preferred, bike lanes are recommended. In part, this will provide a way for visitors to Mequon Nature Preserve to come and go from Wauwatosa Road.

Trinity Creek access is presently achieved on County Line Road as a "bike route" from the OIT. A "pinch point" exists just east of Riebs Road, where no paved shoulder provides a safe connection westbound. A 5' paved shoulder should be added to the north side of County Line Road.

REFERENCES

"Wisconsin Bicycle Facility Design Handbook" - January, 2004– by the Wisconsin Department of Transportation (WisDOT) –.

"Guide for the Development of Bicycle Facilities" - 1999, American Association of State Highway and Transportation Officials (AASHTO). http://www.transportation.org/?siteid=37&pageid=330

Bicycle Federation of Wisconsin: http://www.bfw.org/

"**Mequon 2010 Annual Road Program"** online at: http://www.ci.mequon.wi.us/index.asp?Type=B_BASIC&SEC={59E2F8FF-8F1F-4A26-95EA-9F51FCC374F4} Assisting us in interpreting this information was Nathan Check, P.E. Mequon Engineering Manager and Andy LaFond, Director of Public Works.

"Trails & Roadways Survey in Mequon & Thiensville" May, 2009 sponsored by the Commission.

"Mequon Engineering Department Bicycle & Pedestrian System Plan" December, 2008 was prepared under the direction of MSA Professional Services Inc.

IMPLEMENTATION

The City of Mequon and Village of Thiensville have authority to implement these recommendations. The Commission will advocate for improved choices for bikers and pedestrians.

The current members of the 2010 Bike & Pedestrian Commission are:
Tom Clark, Thiensville
Jim Heyer, Thiensville
John Jessel, Mequon
Terence Mooney, Mequon, Chairman
John Treffert, Thiensville
Kristin Wade, Mequon
John Ward, Mequon

City of Mequon
11333 N. Cedarburg Road, 60W
Mequon, Wisconsin 53092
(262) 242-3400

Engineering Department
Bicycle & Pedestrian System Plan

City of
Mequon, WI

December 2008

MSA PROFESSIONAL SERVICES
TRANSPORTATION • MUNICIPAL
DEVELOPMENT • ENVIRONMENTAL

I. Introduction

Overview

The *Bicycle & Pedestrian System Plan* will establish a community-wide network of on-street and off-street facilities that will efficiently link cultural and recreational amenities within the City of Mequon. These amentities are linked by routes that are designated based on cost, directness, safety, and accessibility that connect to nearby residential and employment areas.

The Plan is intended to provide facilities that serve all age groups and bicycle ability levels, including persons with disabilities and special transportation needs (*see Appendix A).* Therefore the facilities are designed using Americans with Disabilities Act (ADA) and American Association of State Highway and Transportation Officials (AASHTO) standards.

There are five types of bicycle facilities that a community can integrate into their street system: bike lane/marked shoulder, wide shoulder, exclusive (shared) path, shared lane, and wide curb lane. The facility chosen for each road is based on traffic volume, average vehicle operating speeds, traffic mix, sight distance, and number of intersections and entrances, as explained in the Federal Highway Adminstration's publication, *Selecting Roadway Design Treatments to Accommodate Bicycles (see Appendix B).* Using this information, maps were created denoting the minimum standards for each block of roadway based on the type of riders expected (*see Maps 1A & 1B*).

Ultimately the bicycle network will provide many social, economic, and environmental benefits to the City as well as its residents. For instance, as the city builds the network and people start using the system, it will encourage other people to stop using motor vehicles and instead bike or walk. This, in turn, will alleviate some of the vehicle congestion on the City's major roadways, which will decrease the need for future road expansion and/or reconstruction. Fewer vehicles on the road, especially for short trips, will help to decrease gasoline consumption and CO^2 emissions. The end result is healtheir residents and a healthier environment

Strategic Statement

The City of Mequon is a quality community that seeks to promote the health, safety and mobility of all residents by creating a network of bicycle and pedestrian linkages throughout the community. This will be accomplished through the planning and designation of key routes and by the use of standardized street and trail designs along those routes.

II. Goals & Objectives

The City of Mequon's vision is to create a pedestrian-friendly community that strives to provide a safe, effective, and accommodating roadway system. The adopted Bike/Pedestrian System Map will guide the following goals and objectives:

Goal 1: Provide safe travel for all modes of transportation on existing/proposed roadways.

Objective: When (re)constructing or repaving existing roadways, a minimum 4-foot paved shoulder or designated lane shall be provided in accordance to the standard cross sections provided by the City's Engineering Department.

Goal 2: Make all City of Mequon cultural and recreational amenities accessible by bicycle.

Objective: Provide marked bicycle routes to schools, parks, libraries, and museums as designated on the Bike/Pedestrian System Map.

Objective: Provide on-site bike paths and bike racks at all schools, parks, libraries, and museums.

Goal 3: Ensure that all new development includes bicycle and pedestrian facilities.

Objective: New development will incorporate continuous networks of bicycle and pedestrian facilities that connect to adjoining streets and networks, including sidewalks and marked bike lanes on all local collector streets.

Objective: All existing roads improved or reconstructed due to new development will include bike facilities as designated by the Bike/Pedestrian System Map.

Goal 4: Establish a network of clearly marked bike routes.

Objective: The City will increase awareness and visibility of the adopted bike routes by placing signs on major roadways that are designated as a route or intersect a route, and by proper road striping and marking of all designated bike routes.

Goal 5: Work with adjacent municipalities in order to provide safe bicycle travel to and from the City of Mequon.

Objective: The City of Mequon will coordinate with the Village of Thiensville in an effort to provide a continuous pedestrian-friendly road system.

Objective: To allow for safe travel from Mequon to other municipalities, Mequon's bike system will include as many connections as feasible to contiguous bike routes (Oak Leaf Trail and Interurban Bike Trail).

III. System Map

The Plan consists of two maps. Both maps provide almost the same amount of information, however the map that is meant for the general public is simplified to be user-friendly. The second map provides more detailed information for the City's Planning and Engineering Departments to use.

2008 Bikeway System Map (*Map 2*)
This map shows the community's destination spots and designates specific routes to reach each of these locations. The existing bicycle facilities and roadways that are suitable for biking are also shown on this map. It should be placed on the City's website and at other locations throughout the community in order to advertise the bicyle network. It is recommended that this map be updated at least every two years (if changes were made) in order to provide the public with a current system map. Designated routes should not be shown on this map unless the planned bicycle facility for that section of road is constructed (see the 2020 Bicycle/Pedestrian System Plan Map). Construction projects should be prioritized by connectivity to other completed portions of the bikeway system.

2020 Bicycle/Pedestrian System Plan Map (*Map 3*)
This map provides the City with a plan for upgrading the current system on all major roadways in order to provide a continuous network of bicycle facilities throughout the City of Mequon. Therefore this map illustrates proposed and completed facilities that meet or plan to meet the standards discussed in the *Selecting Roadway Design Treatments to Accommodate Bicycles* publication. It is to be used internally, however it should be accessible to the general public.

Other Maps
Maps showing each type of bicycle facility were created in order to help the City and the Engineering Department make budgetary decisions (see *Maps 4A-4E*). These maps were extracted from the 2020 Bicycle/Pedestrian System Plan Map and should be changed only in coordination wit hte Bicycle/Pedestrian System Plan Map.

IV. General Recommendations

SUBDIVISION PATHWAY CONNECTIONS

Generally residential streets are suitable for biking and walking because they carry minimal traffic and restrict vehicles from traveling at speeds greater than 35 mph. In some instances only minor improvements are needed to meet current standards, such as bicycle-safe drainage grates, proper sight distance at intersections, and smooth pavement. However many of the subdivisions in Mequon have a discontinuous street network, which limits connectivity. This creates conditions where bicyclists must use busier streets than otherwise would be needed, creating a safety issue. Over the last few years the City has been dealing with this issue by building pathways linking dead-ended streets with adjacent, continuous streets, as shown in the above image. It is recommended that the City continue to build these connections, wherever feasible, and Map 5 suggests other areas in the city that should be considered.

SIGNAGE/MARKINGS

There are many advantages to using signage and markings on roadways that allow bicycle traffic. The most significant advantage is it provides awareness of bicycists to passing motorists, while at the same time legitimizing their presence on the roadway. This is critical at intersections where a right-turn lane bisects the bicycle facility (see Appendix C), as shown by an example in Johnson Creek in the image to the right. Signage and street markings also help to advertise and promote system use. It is recommended that signage and markings be placed on all facilities, wherever feasible.

Any roadway that is designated as a bicycle route or any major roadway intersecting a route should have the appropriate signage. It is recommended that signs be placed every quarter-mile, at every turn, and at all signalized intersections.

Shared-use paths should also have signage. Currently the City does not post any signage that provides awareness to bicyclists of these connections at the dead-ended streets. In order to advertise these pathways it is recommended that a sign marked, "Ped Access", be placed beneath "Dead End" signs, as shown on the right.

Another sign should be placed near the pathway entrance in order to prohibit motor vehicle use on the path. Presently, Mequon has been providing signage that reads, "No Motor Vehicles", however it is recommended that the signs be replaced with signs that read, "Peds Only". This conveys the same message while reinforcing the intended use.

IV. General Recommendations

INTERSECTION CROSSINGS

It is important to increase awareness of pedestrian crossing at major intersections so drivers realize the potential conflict. Signs, extra-wide, painted crosswalks, a change of material/color within the crosswalk and/or a change of material in the intersection are all alternatives that have had positive results in other municipalities across Wisconsin.

BICYCLE-ACTUATED SIGNALS

Many traffic intersections use demand-actuated signals, meaning the signals change dependant upon traffic detection. These systems are not designed to detect bicyclists, which cannot trigger a signal change. More importantly, the minimum green time may not offer adequate time for bicyclists to make it through the intersection before the light turns red. National crash studies have shown that 3% of reported non-fatal car/bike crashes involve a bicyclist who was caught in a signalized intersection during a phase change. This is most significant on roads with multiple lane street crossings. The 2020 Bicycle/Pedestrian System Plan designates those intersections that should utilize bicycle-actuated signals (*see Map 3*).

BICYCLE PARKING

Providing areas to park bicycles is just as important as providing the means to travel from destination to destination. Therefore it is recommended that bicycle parking facilities be offered at the City's public areas such as parks and other recreational facilities, schools, libraries, and City Hall. It is also recommended that the City work with owners of employment centers, major commercial businesses, and shopping centers to provide adequate bicycle parking facilities. The above table provides guidelines for "adequate" bicycle parking.

Establishment	Min. Number of Parking Spaces*
Primary or Secondary School	10% of the number of students, plus 3% of the number of employees
College or University	6% of the number of students, plus 3% of the number of employees
Shopping Malls	5% of the number of automobile spaces
Office Building	10% of the number of automobile spaces
Governement Building	10% of the number of automobile spaces
Movie Theater or Restaurant	5% of the number of automobile spaces
Manufacturing Plant	4% of the number of automobile spaces
Multi-Family Residential Building	One space per two apartments
Other Land Uses	5-10% of the number of automobile spaces

*After the first 50 spaces are provided, the remaining requirement shall be reduced by half.

V. Specific Recommendations

MEQUON ROAD (Swan Rd. to San Marino Dr.)

This is a major arterial that runs east to west through the City of Mequon. There are four-foot concrete sidewalks on both sides of the street that handle pedestrian traffic. Type-A (experienced) bicyclists have been using the outer lane on Mequon Road and Type-B/C (recreational/ children) bicyclists have been using the sidewalks. This could be a good route for bicyclists to reach many of the amenities Mequon has to offer, but it does not meet AASHTO and WisDOT standards for bicycle facilities. The amount of traffic on this road (11,000-22,000 a day) and the rate at which the vehicles travel (40-50 mph) make the current facilities unsafe for all users. Therefore bicyle facilities that meet these standards must be provided in order to designate this as a route.

Bike Lane *(not recommended)*

A bike lane is a minimum of five feet in width marked on both sides of the street, allowing one-way traffic. It is not feasible to provide this type of facility since long stretches are only 24 feet wide and a bike lane would leave only 19 feet for the two drive lanes. The road was recently resurfaced and will not be reconstructed in the forseeable future. There are portions of the roadway that are 36 feet wide, however bicyclists, especially Type-A, will not follow a route that continually switches between on-street and off-street facilities.

Shared-Use Bike Path *(recommended)*

The bike path operates as a two-way traffic facility and is a minumum of ten feet wide. The advantage of using this facility is it is relatively cheaper than widening Mequon Road to accomodate bike lanes. It is recommended that the north side of Mequon Road be reconstructed into a bike path that allows for two-way traffic, and resurfacing the concrete with asphalt in order to provide a smoother surface without any cracks. Construction of an shared-use bike path along Mequon Road presents several design challenges. These are described below with recommended solutions.

Traffic Conflict at Driveways

Driveway crossings reduce the safety and convenience of a bike route. In order to mitigate some of these points of conflict, stop signs for vehicles and caution or yield signs for bicyclist should be provided at crossings that have the greatest potential for conflict (commercial driveways). There are twelve locations that should have such signage, including five driveways between Cedarburg Road and Buntrock Avenue. The rest of the crossings are driveways for single family homes that would have very little chance of vehicle conflict (thirty active driveways, including fourteen on the blocks between Justin/Riverland and Buntrock/ Concord Creek).

V. Specific Recommendations

Milwaukee River Bridge

Currently the bridge's sidewalk is less than ten feet wide, however there is space outside the drive lanes (twelve feet) that could allow for the sidewalk to be extended to allow for the two-way traffic bike path. The path can be eight feet wide, however 10-12 feet is recommended.

Awarness of Two-Way Exclusive Path

Current conditions warrant Type-A cyclists to use Mequon Road and Type-B/C bicyclists to use the traditional sidewalks, but once the exlusive path is built bicyclist should use the path. In order to "advertise" the dual path there needs to be signs directing them to the path.

Transition to a Bike Lane

It is important to create a safe transition from a two-way bike path on one side of the road to one-way bike lanes on both sides of the road. It is recommended that a crosswalk be added on the east side of Oriole Lane to take advantage of the larger boulevard section as refuge in crossing the street. Additionally, the crosswalk should be extra-wide and should be visually set apart from the street (such as using red paint or material change). Since this intersection does not have a signal it is important to provide signs (possible with a blinking yellow light) warning vehicles of the pedestrian crosswalk.

WAUWATOSA ROAD (south of Mequon Rd.)

This four-lane boulevard is a major arterial that runs north and south through the City of Mequon. It carries 12,000-13,400 vehicles a day south of Meqoun Road and 8,900-12,200 north of Mequon Road (based on WisDot 2001 traffic counts). The posted speed limit is 45 mph. There are no sidewalks on this roadway, however there is a twelve-foot emergency stopping lane on both sides which allow people to bike/walk. In order to make this a bike route it is recommended that this emergency lane be marked as an eight-foot bike lane with a four-foot rubble strip, buffering bicyclists from the drive lane. (note: *rumble strips are considered a hazard to bicyclist and should only be used if there is a clear riding area of four feet on roads without a curb and five feet on roads with curbs)*.

V. Specific Recommendations

OZAUKEE INTERURBAN TRAIL

This paved trail runs 30 miles across the entire county on a retired rail line. It begins near County Line and Cedarburg roads (City of Mequon border) and ends near CR-K and Termaat Road (Town of Belgium border). The off-street facility is safe for pedestrians, except when the trail crosses major intersections. For instance on Mequon Road there are no signs warning drivers of the crossing and the crossing is not visible due to longtime weathering (shown on the right). It is recommended that any roadway that intersects the trail should have pedestrian crossing signs and should differentiate the crossing from the roadway (red paint, wide painted crossing lines, and/or material change).

PEDESTRIAN BRIDGES

The Milwaukee River is a wonderful natural amenity but it also cuts off potential pedestrian routes through the City. In order to provide continuous routes that link the entire community, pedestrian bridges are recommended. There are two potential locations for pedestrain bridges: Donges Bay Road to Donges Bay Road and Riverview Park to Villa Grove Park. The Riverview Park to Villa Grove Park has the greateast benefit to the City residents for its views up and down the river, its connections to two City parks, and the ability to link the north side of Mequon to south side (shown in the picture on the right).

VI. Bibliography

1. Selecting Roadway Design Treatments to Accommodate Bicycles. U.S. Department of Transportation: Federal Highway Association. January 1994. #FHWA-RS-92-073.

2. Guide for the development of bicycle facilities. American Association of State Highway and Transportation Officials, 1999.

3. Wisconsin Bicycle Planning Guidance: Guidelines for Metropolitan Planning Organizations & Community in Planning Bicycle Facilities. Wisconsin Department of Transportation, June 2003.

Appendix A

TYPE OF BICYCLISTS

- Group A – **Advanced Bicyclists**: these are **experienced riders** who can operate under most traffic conditions. They comprise the **majority of the current users of collector and arterial streets** and are best served by the following:
  - Direct access to destinations usually via the existing street and highway system.
  - The opportunity to operate at maximum speed with minimum delays.
  - Sufficient operating space on the roadway or shoulder to reduce the need for either the bicyclist or the motor vehicle operator to change position when passing.
- Group B – **Basic Bicyclists***: these are **casual or new adult and teenage riders** who are less confident of their abilities to operate in traffic without special provisions for bicycles. They prefer:
  - Comfortable access to destinations, preferably by a direct route, using either low-speed, low traffic-volume streets or designated bicycle facilities.
  - Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths.
- Group C – **Children***: these are **pre-teen riders** whose roadway use is initially **monitored by parents**. Eventually they are accorded independent access to system. They and their parents prefer the following:
  - Access to key destinations surrounding residential areas, including schools, recreational facilities, shopping, or other residential areas.
  - Residential streets with low motor vehicle speed limits and volumes.
  - Well-defined separation of bicycles and motor vehicles on arterial and collector streets or separate bike paths.

*** Based on this list most roadways can be designed between two categories (group A and group B/C) in most cases.**

Source: FHWA "Selecting Roadway Design Treatments to Accommodate Bicycles

Appendix A

DESIGNING BIKE FACILITIES

Generally, **group A** bicyclists will be best served by designing all roadways to accommodate **shared use** (bicycles and motor vehicles). This can be accomplished by:

- Providing wide outside lanes on collector and arterial streets built with an "urban section" (i.e. with curb and gutter).
- Providing usable shoulders on highways built with a "rural section" (i.e. no curb and gutter).

Generally, **group B/C** bicyclists will be best served by a **network of neighborhood streets and designated bicycle facilities**, which can be provided by:

- Providing a network of designated bicycle facilities (e.g. bike lanes, separate bike paths, or side-street bicycle routes) through the key travel corridors typically served by arterial and collector streets.
- Providing usable roadway shoulders on rural highways.

**** Every street and highway on which bicycles are permitted to operate is a "bicycle street" and should be designed and maintained to accommodate shared use by bicycles and motor vehicles. Thus, all streets should minimally include the design treatments recommended for group "A" riders.***

Designing Factors

1. Traffic Volume *(AADT)*
    a. Low (under 2,000) , Medium (2,000 to 10,000), and Heavy (over 10,000)
2. Average Vehicle Operating Speeds *(not speed limit)*
    a. Less than 30, 30 to 40, 41 to 50, and over 50 mph
3. Traffic Mix
    a. Trucks, buses, and/or recreational vehicles
4. On-street Parking
5. Sight distance
6. Number of intersections and entrances

Source: FHWA "Selecting Roadway Design Treatments to Accommodate Bicycles

Appendix B

Types of Facilities

- **Bike Lane / Marked Shoulder**

  - A portion of the roadway (minimum of 5 feet; 6-8 feet recommended) designated by striping, signing, and/or pavement markings for preferential or exclusive use of bicycles.
    - Group A: not needed.
    - Group B/C: only on *heavily* traveled, *urban* roads with average speeds of *less than 30 mph* –**or-** any road with average speeds *above 30 mph*.

- **Wide Shoulder**

  - A paved portion of the roadway to the right of the edge stripe designed to serve bicyclists (minimum of 4 feet; 5-8 feet recommended).
    - Group A: on *rural* roads that have *heavy* traffic with average speeds *below 30 mph* –**or-** any *rural* road with average speeds *above 40 mph* – **or-** *urban* roads with speeds *above 50 mph*.
    - Group B/C: only on *rural* roads with *any volume* of traffic and *any average speed*.

- **Separate (exclusive) Bike Path**

  - A facility physically separated from the roadway and intended for bicycle use that is minimally 8 feet (10-12 feet preferred).
    - Group A: not needed.
    - Group B/C: Use whenever possible as long as the design of the facility demonstrates to all users that this is the preferred route (rather than continuing on the roadway).

Sources: FHWA "Selecting Roadway Design Treatments to Accommodate Bicycles
AASHTO "Guide for Development of Bicycle Facilities"

Appendix B

- **Shared Lane (Road Suitable for Biking)***

  - Shared motor vehicle/bicycle use of a "standard"-width travel lane. *This required measurement is "usable space" so it is measured to the edge of the gutter pan and not the curb (or if there is no gutter pan a minimum of 1ft. from curb).*

    - Group A: only on roads with *medium to low traffic* volumes that have average vehicle speeds of *less than 30 mph.*
    - Group B/C: not applicable.

- **Wide Curb Lane (Road Suitable for Biking)***

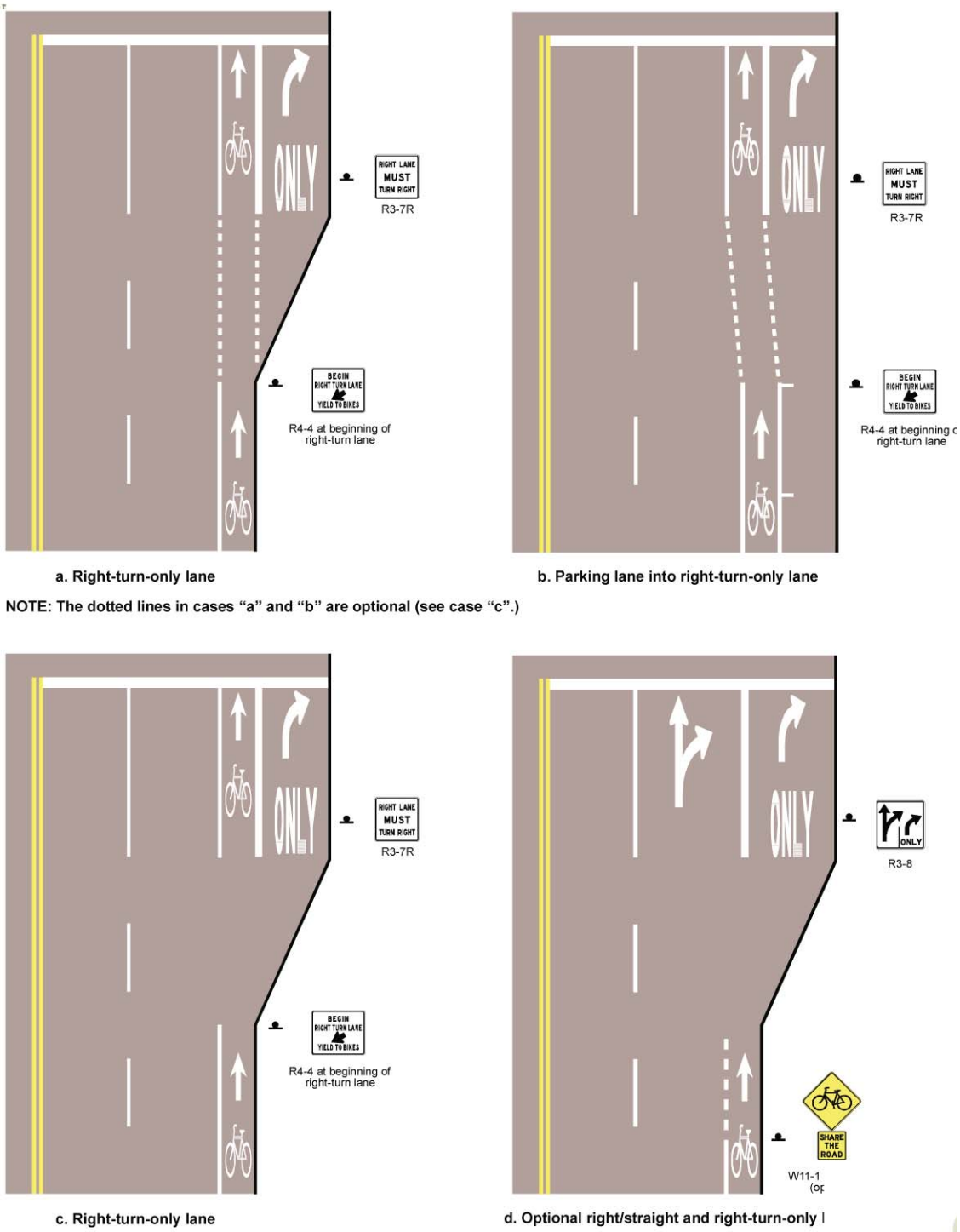
  - An outside travel lane with a width of at least 14 feet (15 ft. on busy, fast roads). *This required measurement is "usable space" so it is measured to the edge of the gutter pan and not the curb (or if there is no gutter pan a minimum of 1ft. from curb).*

    - Group A: on *rural* roads with *medium to low traffic* with average speeds *less than 41 mph* –**or-** on *urban* roads that have *medium to low traffic* with average speeds *less than 51 mph***.**
    - Group B/C: only on roads with *medium to low traffic* with averages speed of *less than 30 mph.*

*** "Shared Lane" & "Wide Curb Lane" is limited to residential roadways and are labeled "Road Suitable for Biking" within the Bike System Plan.**

Sources: FHWA "Selecting Roadway Design Treatments to Accommodate Bicycles
AASHTO "Guide for Development of Bicycle Facilities"

Appendix C



NOTE: The dotted lines in cases "a" and "b" are optional (see case "c".)

Figure 11. Bike Lanes Approaching Right-Turn-Only Lanes

Sources: AASHTO "Guide for Development of Bicycle Facilities"

Appendix C

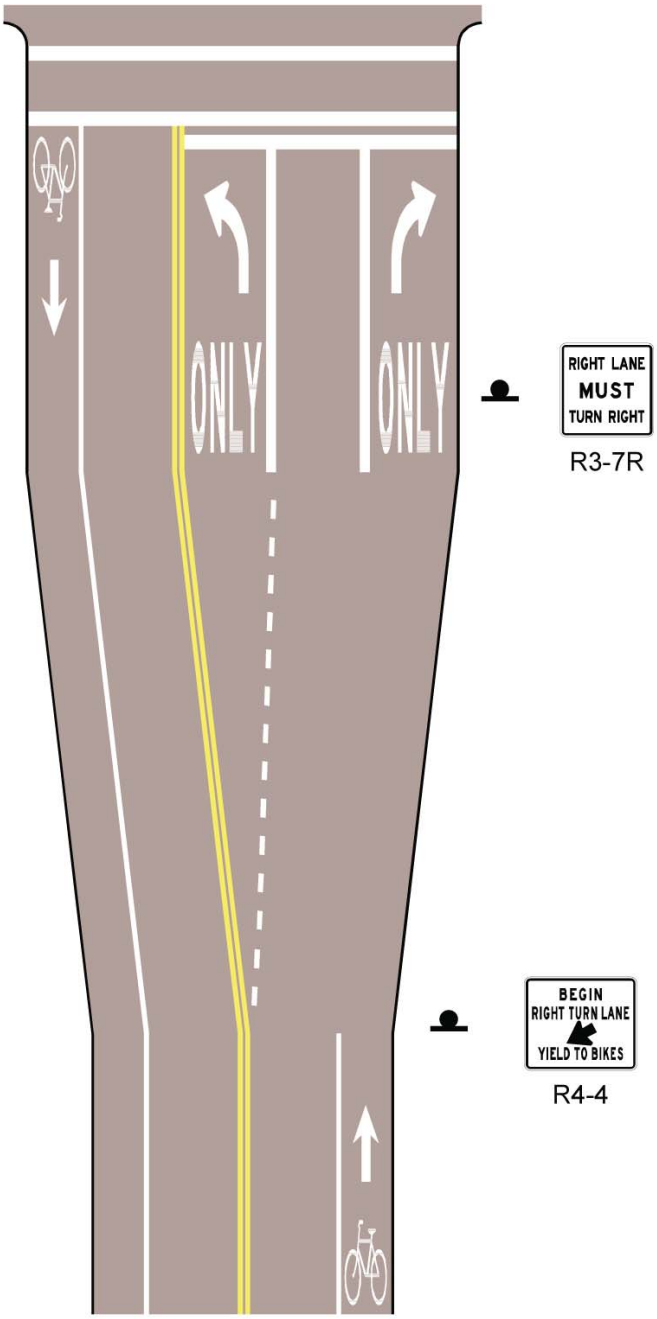


Figure 12. Bike Lane Approaching an Intersection with Throat Widening

Sources: AASHTO "Guide for Development of Bicycle Facilities"

Appendix C

A bike lane should be painted with standard pavement symbols to inform bicyclists and motorists of the presence of the bike lane. The standard pavement symbols are one of two bicycle symbols (or the words "BIKE LANE") and a directional arrow. (See Figure 13.) These symbols should be painted on the far side of each intersection. (See Figure 14.) Additional stencils may be placed on long, uninterrupted sections of roadway. All pavement markings are to be white and reflectorized.

The Preferential Lane Symbol ("diamond") previously used as a pavement marking and on signs to show preferential use by different classes of vehicles should no longer be used for bikeways, due to the confusion with the use of the diamond for High Occupant Vehicle (HOV) lanes, and the misinterpretation of the diamond as a two-way arrow. These symbols should be eliminated through normal maintenance practices.

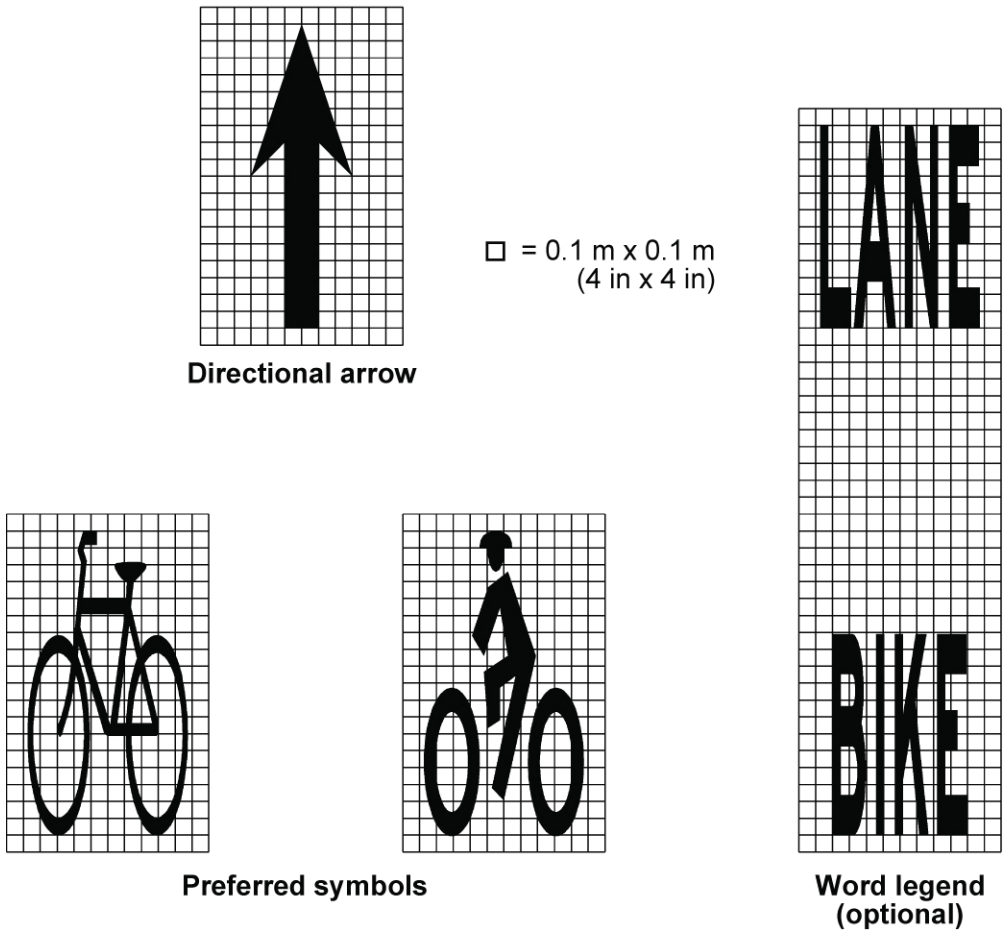
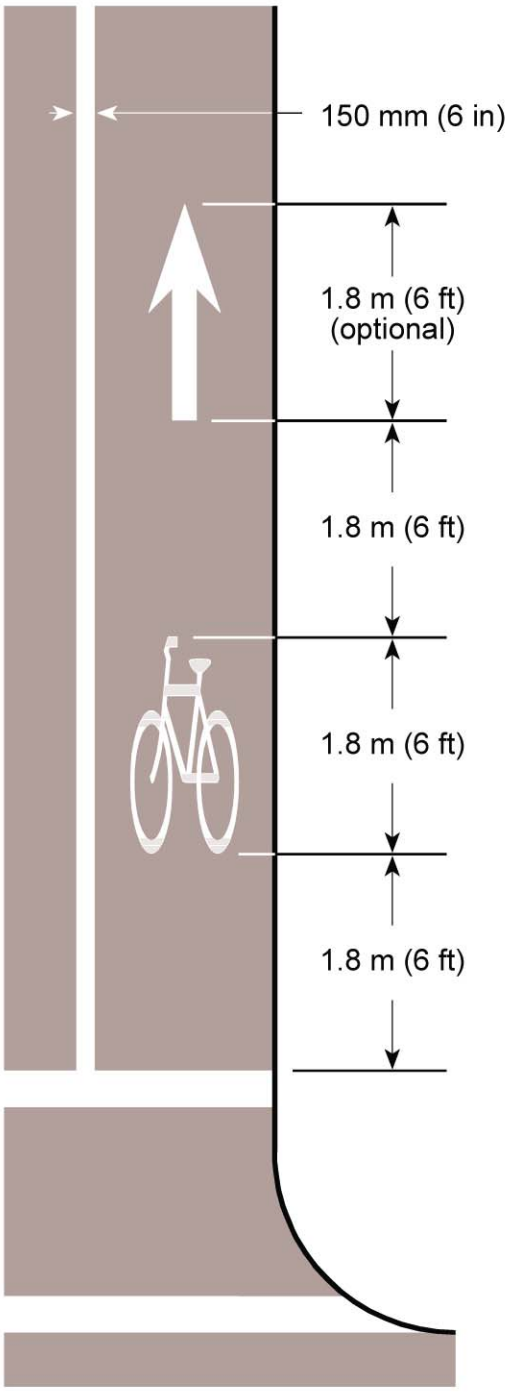


Figure 13. Typical Bike Lane Symbols

Sources: AASHTO "Guide for Development of Bicycle Facilities"

Appendix C



Notes:

1. The bicycle rider symbol or the word pavement marking "BIKE LANE" may be used instead of the bicycle-only symbol.
2. See Figures 7 and 13 for additional information.

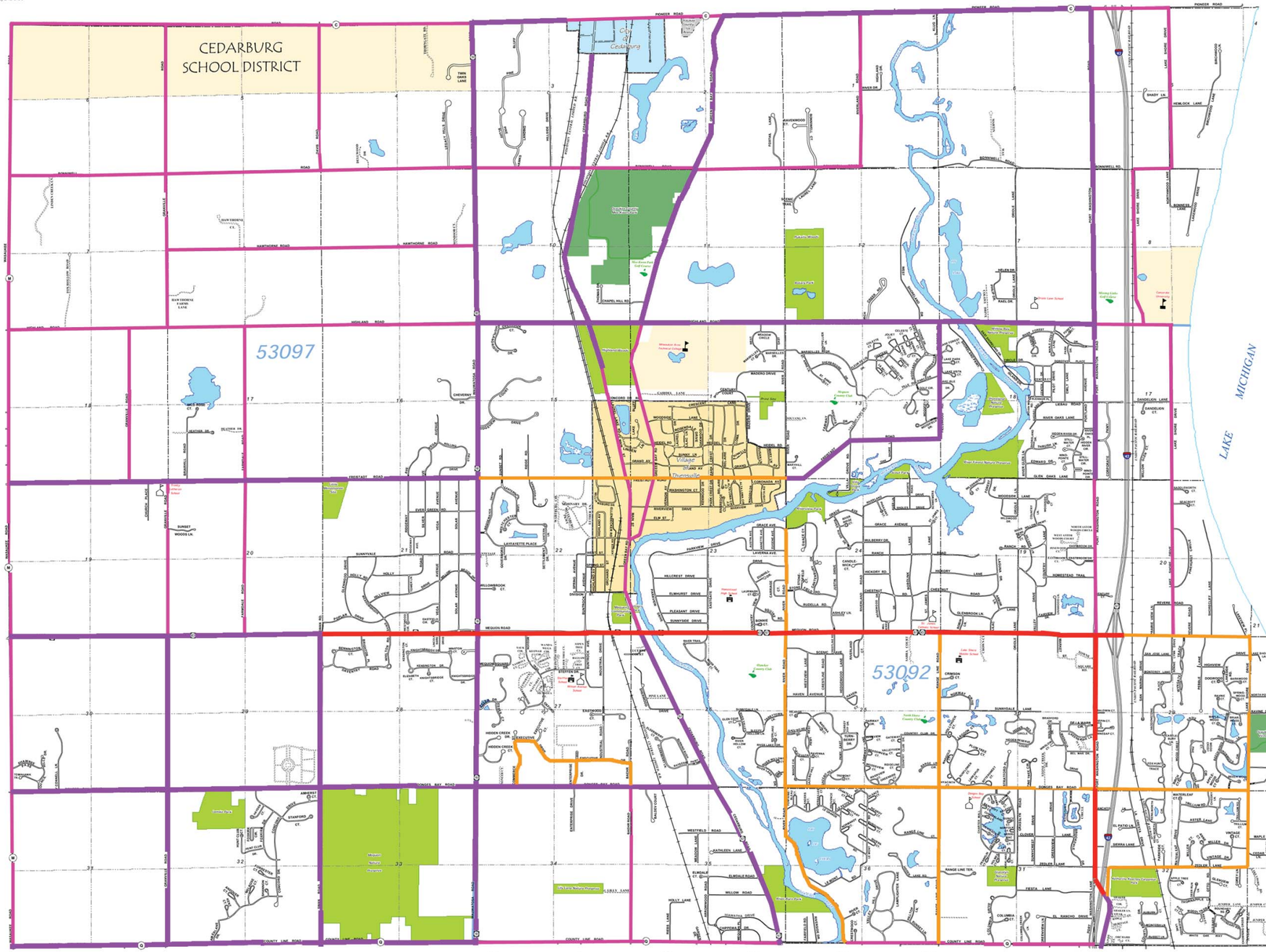
Figure 14. Typical Bike Lane Marking on Far Side of Intersection

Sources: AASHTO "Guide for Development of Bicycle Facilities"

Map 1-A

City of Mequon
11333 N. Cedarburg Road, 60W
Mequon, Wisconsin 53092
(262) 242-3100

MINIMUM BICYCLE STANDARDS FOR ADULT USERS (a)



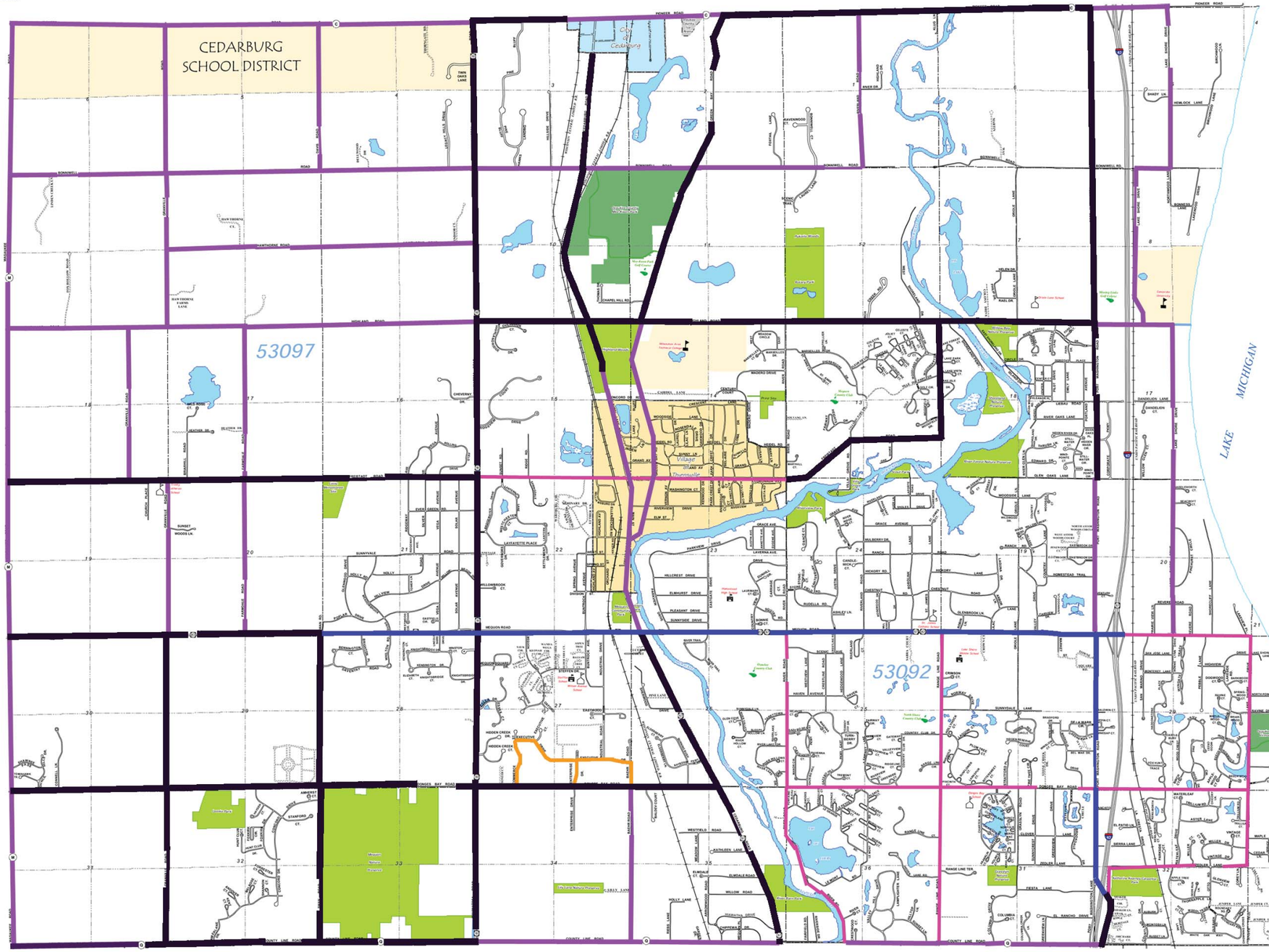
Paved Shoulder
- 6 feet
- 4 feet

Wide Curb Lane
- 15 feet
- 14 feet

Map 1-B

City of Mequon
11333 N. Cedarburg Road, 60W
Mequon, Wisconsin 53092
(262) 242-3100

MINIMUM BICYCLE STANDARDS FOR ALL USERS (a/b/c)



Map 2

MSA PROFESSIONAL SERVICES
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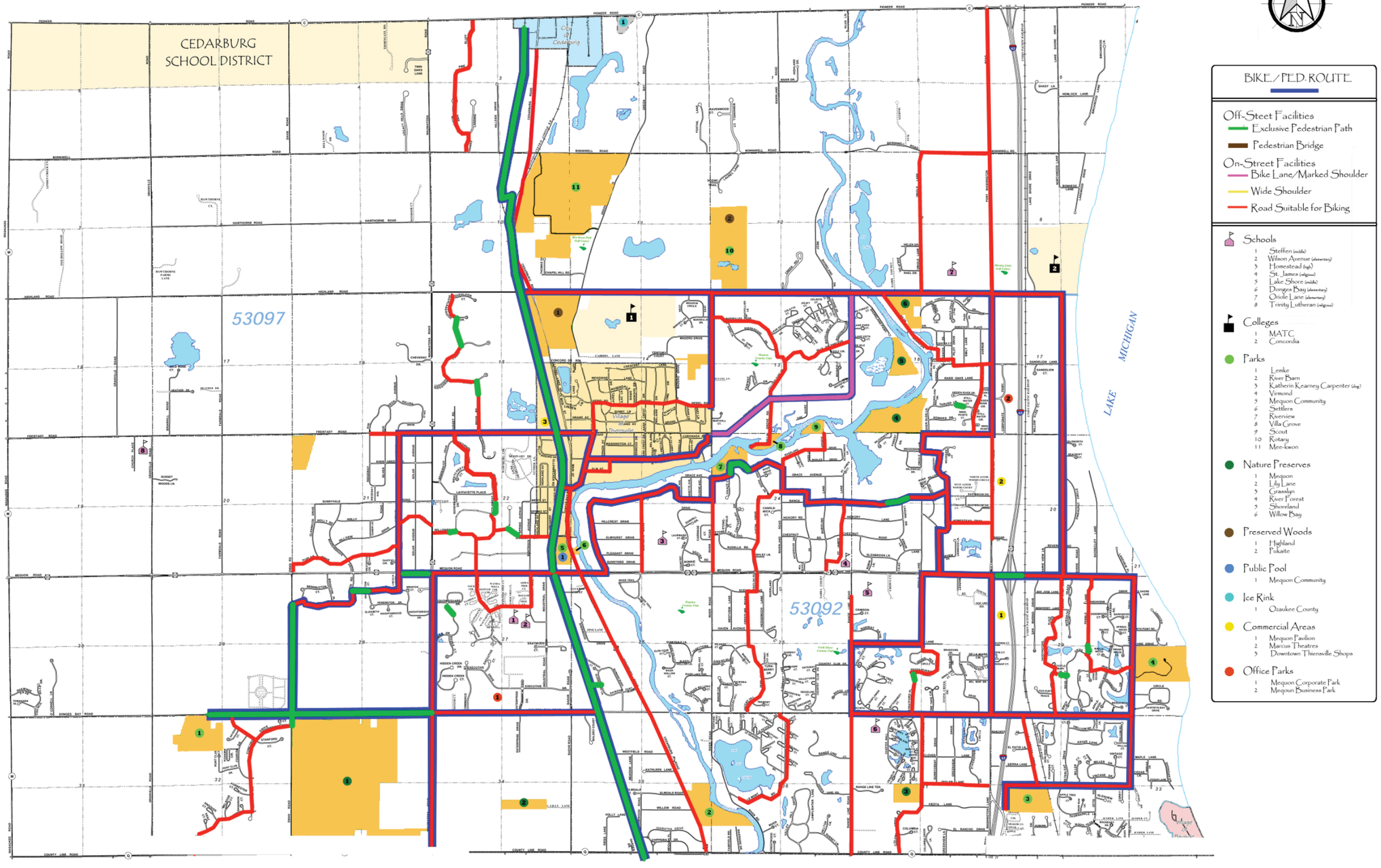
City of Mequon
11333 N. Cedarburg Road, 60W
Mequon, Wisconsin 53092
(262) 242-1900

CITY OF MEQUON
2008 BIKEWAY SYSTEM



BIKE/PED. ROUTE

Off-Steet Facilities
- Exclusive Pedestrian Path
- Pedestrian Bridge

On-Street Facilities
- Bike Lane/Marked Shoulder
- Wide Shoulder
- Road Suitable for Biking

Schools
1. Steffen (middle)
2. Wilson Avenue (elementary)
3. Homestead (high)
4. St. James (religious)
5. Lake Shore (middle)
6. Donges Bay (elementary)
7. Oriole Lane (elementary)
8. Trinity Lutheran (religious)

Colleges
1. MATC
2. Concordia

Parks
1. Lemke
2. River Barn
3. Katherin Kearney Carpenter (dog)
4. Virmond
5. Mequon Community
6. Settlers
7. Riverview
8. Villa Grove
9. Scout
10. Rotary
11. Mee-kwon

Nature Preserves
1. Mequon
2. Lily Lane
3. Grasslyn
4. River Forest
5. Shoreland
6. Willow Bay

Preserved Woods
1. Highland
2. Pukaite

Public Pool
1. Mequon Community

Ice Rink
1. Ozaukee County

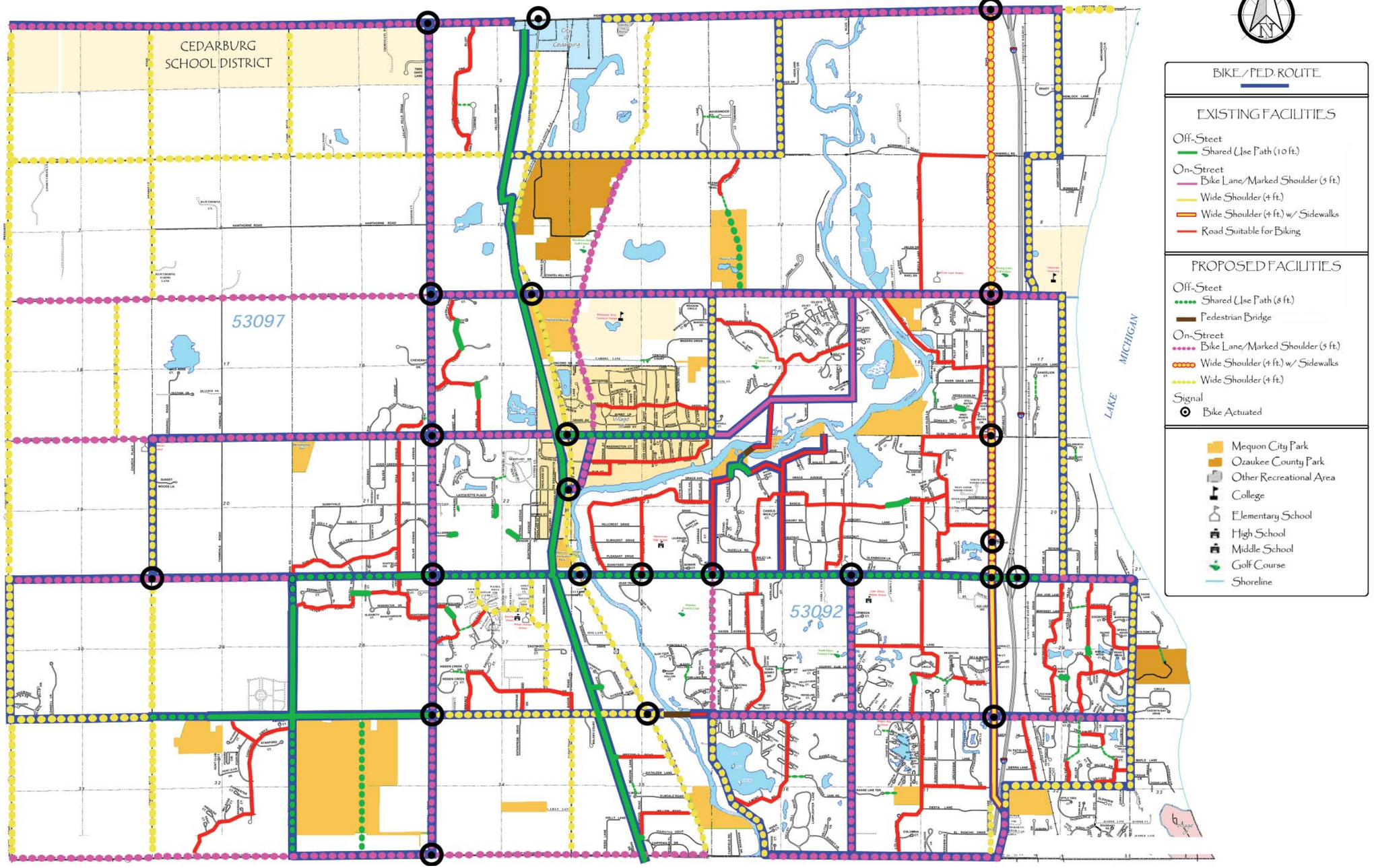
Commercial Areas
1. Mequon Pavilion
2. Marcus Theatres
3. Downtown Thiensville Shops

Office Parks
1. Mequon Corporate Park
2. Mequon Business Park

Map 3

City of Mequon
11330 N. Cedarburg Road, 63W
Mequon, Wisconsin 53092
(262) 242-1910

CITY OF MEQUON
2020 BICYCLE/PEDESTRIAN SYSTEM PLAN



BIKE/PED. ROUTE

EXISTING FACILITIES

Off-Steet
- Shared Use Path (10 ft.)

On-Street
- Bike Lane/Marked Shoulder (5 ft.)
- Wide Shoulder (4 ft.)
- Wide Shoulder (4 ft.) w/ Sidewalks
- Road Suitable for Biking

PROPOSED FACILITIES

Off-Steet
- Shared Use Path (8 ft.)
- Pedestrian Bridge

On-Street
- Bike Lane/Marked Shoulder (5 ft.)
- Wide Shoulder (4 ft.) w/ Sidewalks
- Wide Shoulder (4 ft.)

Signal
- Bike Actuated

- Mequon City Park
- Ozaukee County Park
- Other Recreational Area
- College
- Elementary School
- High School
- Middle School
- Golf Course
- Shoreline

Map 4-A

City of Mequon
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(262) 242-0100

MSA PROFESSIONAL SERVICES
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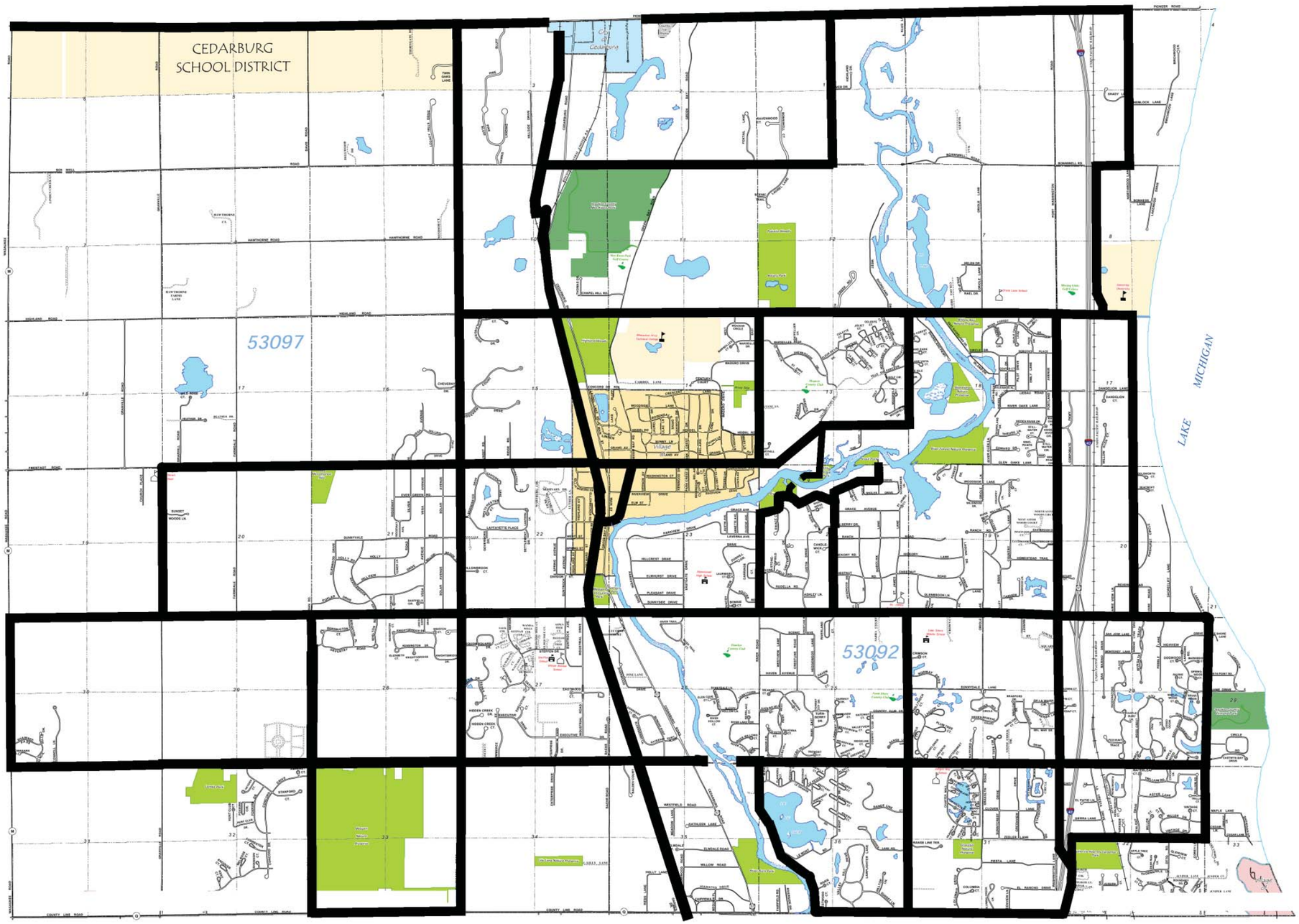
DEVELOPMENT • ENVIRONMENTAL

2020 BICYCLE/PEDESTRIAN SYSTEM
BIKE ROUTES



Map 4-B

City of Mequon
11333 N. Cedarburg Road, 63W
Mequon, Wisconsin 53092
(262) 242-1900

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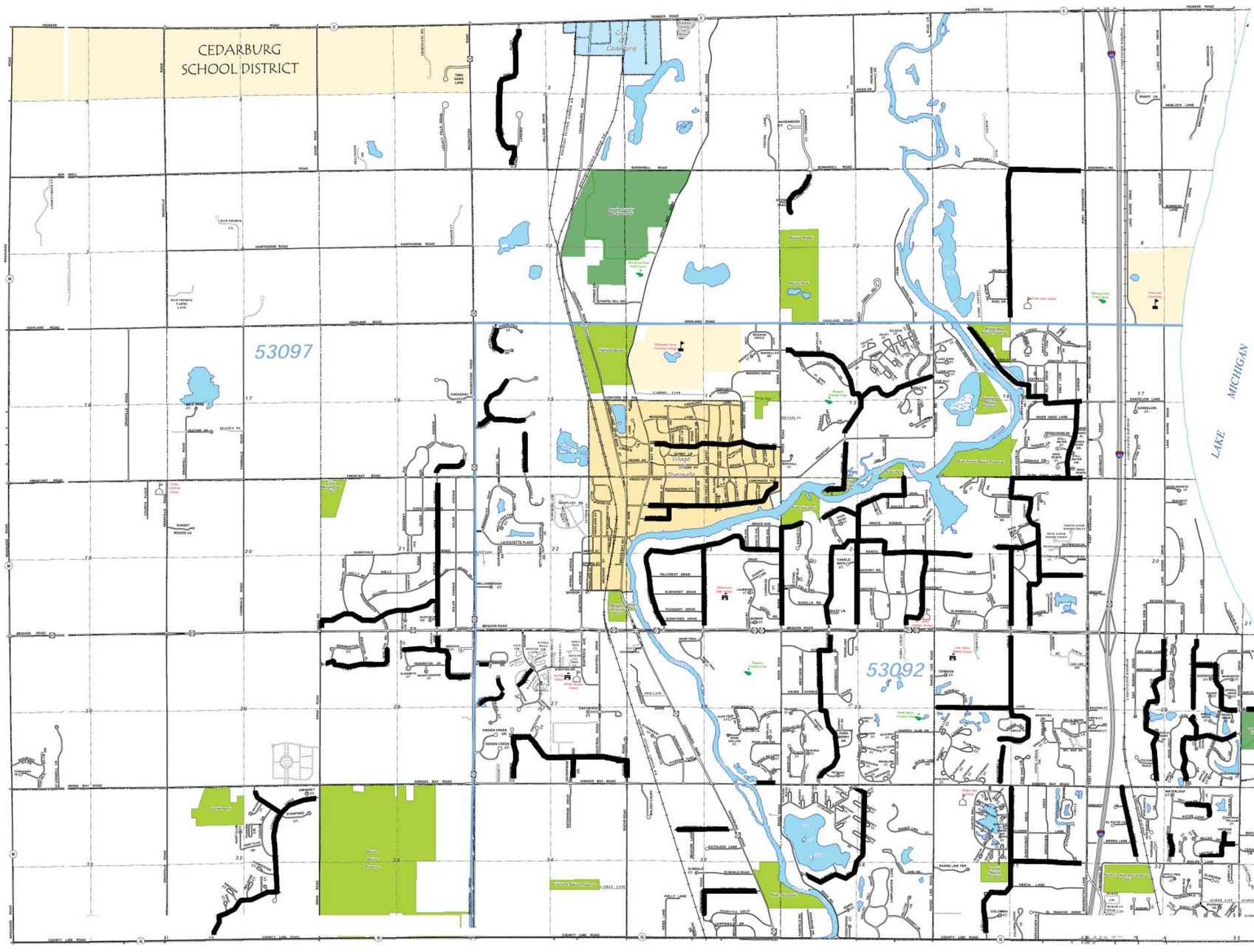
2020 BICYCLE/PEDESTRIAN SYSTEM PLAN IMPROVEMENTS:

for Roads "Suitable for Biking"

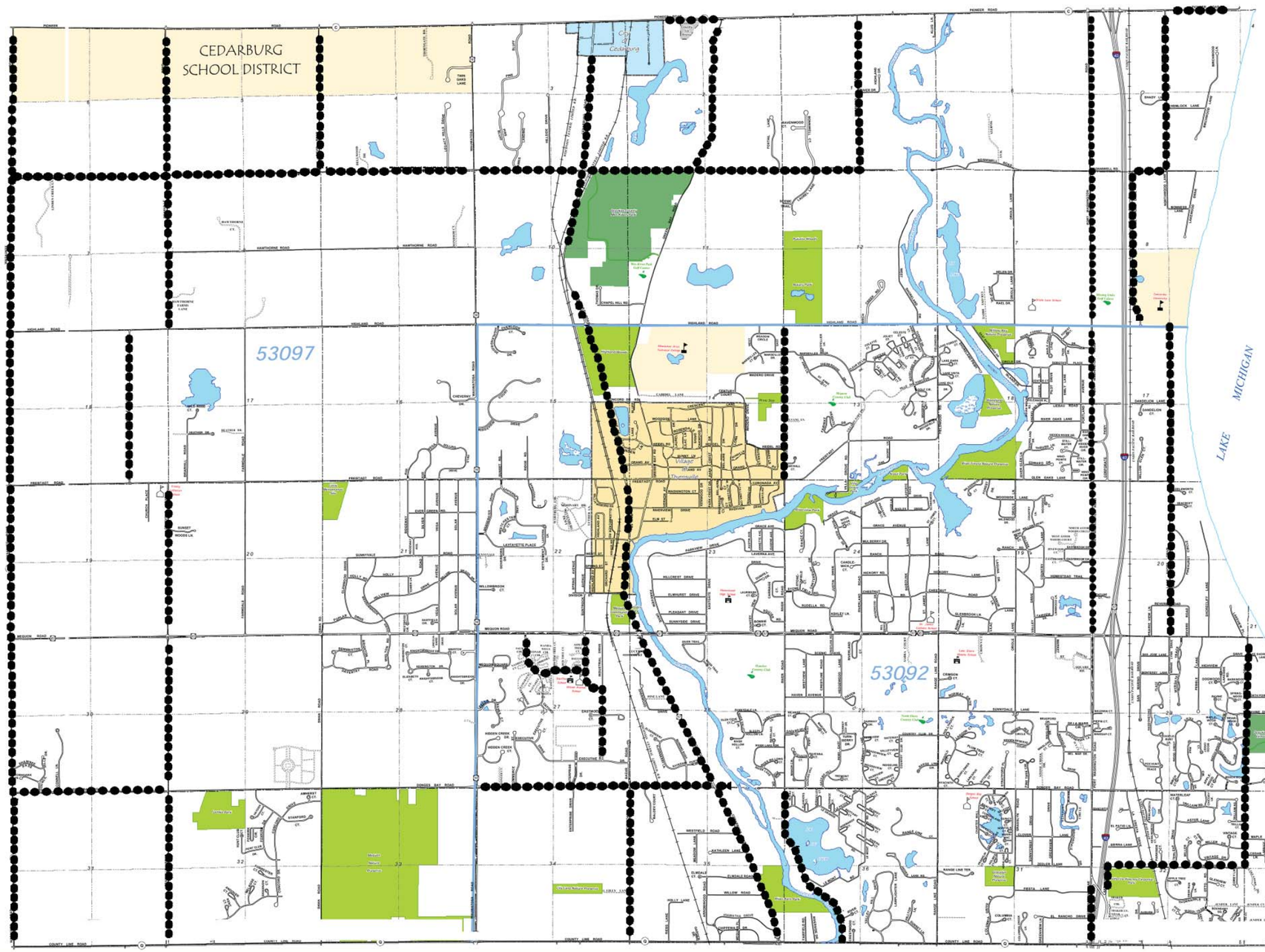


Map 4-C

City of Mequon
11333 N. Cedarburg Road, 6076
Mequon, Wisconsin 53092
(262) 242-5100

2020 BICYCLE/PEDESTRIAN SYSTEM PLAN IMPROVEMENTS:

for On-Road 4' Paved & Marked Shoulder

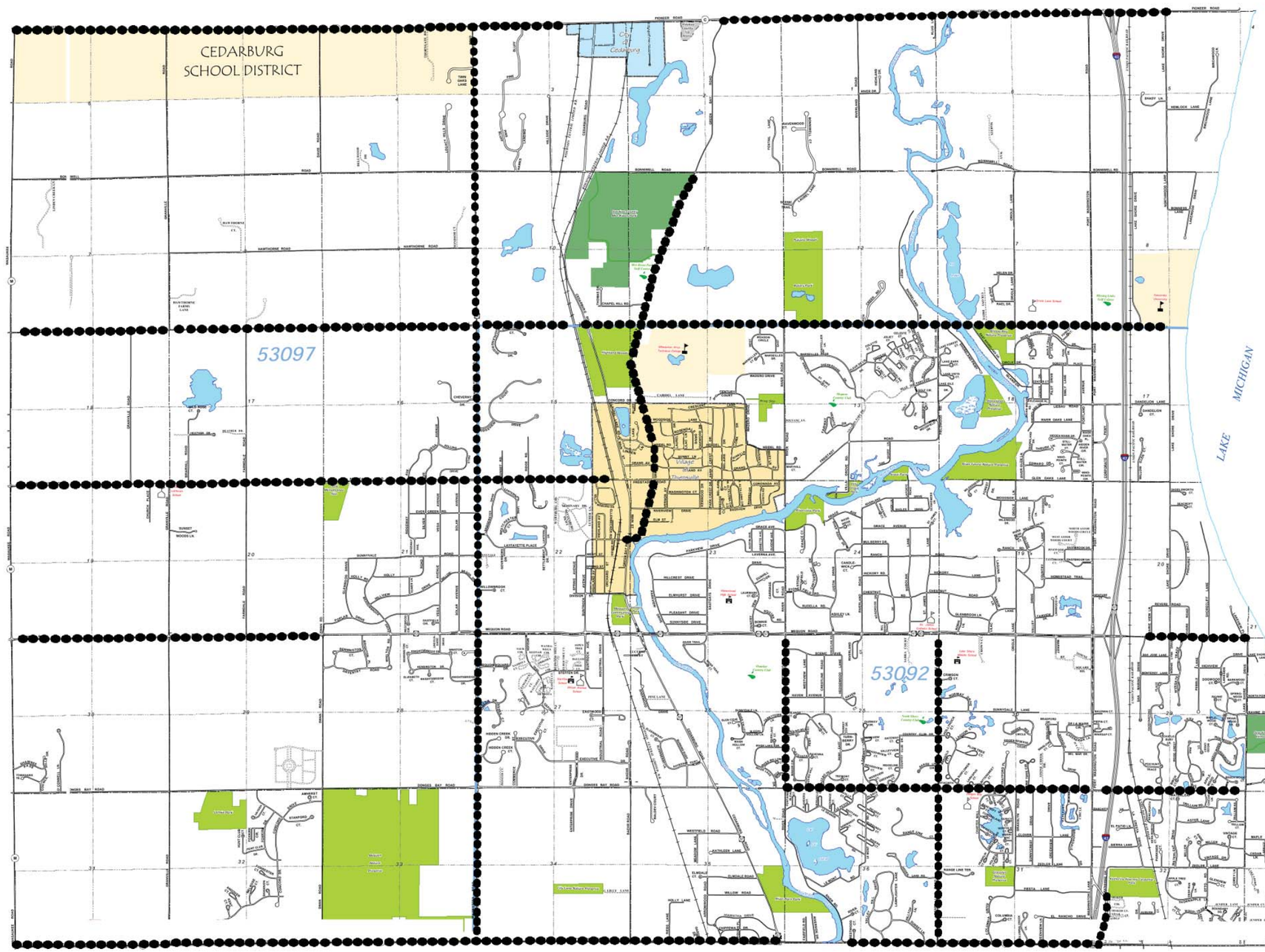


Map 4-D

City of Mequon
11333 N. Cedarburg Road, 60W
Mequon, Wisconsin 53092
(262) 242-3900

2020 BICYCLE/PEDESTRIAN SYSTEM PLAN IMPROVEMENTS:

for On-Road 5' Paved & Marked Shoulder

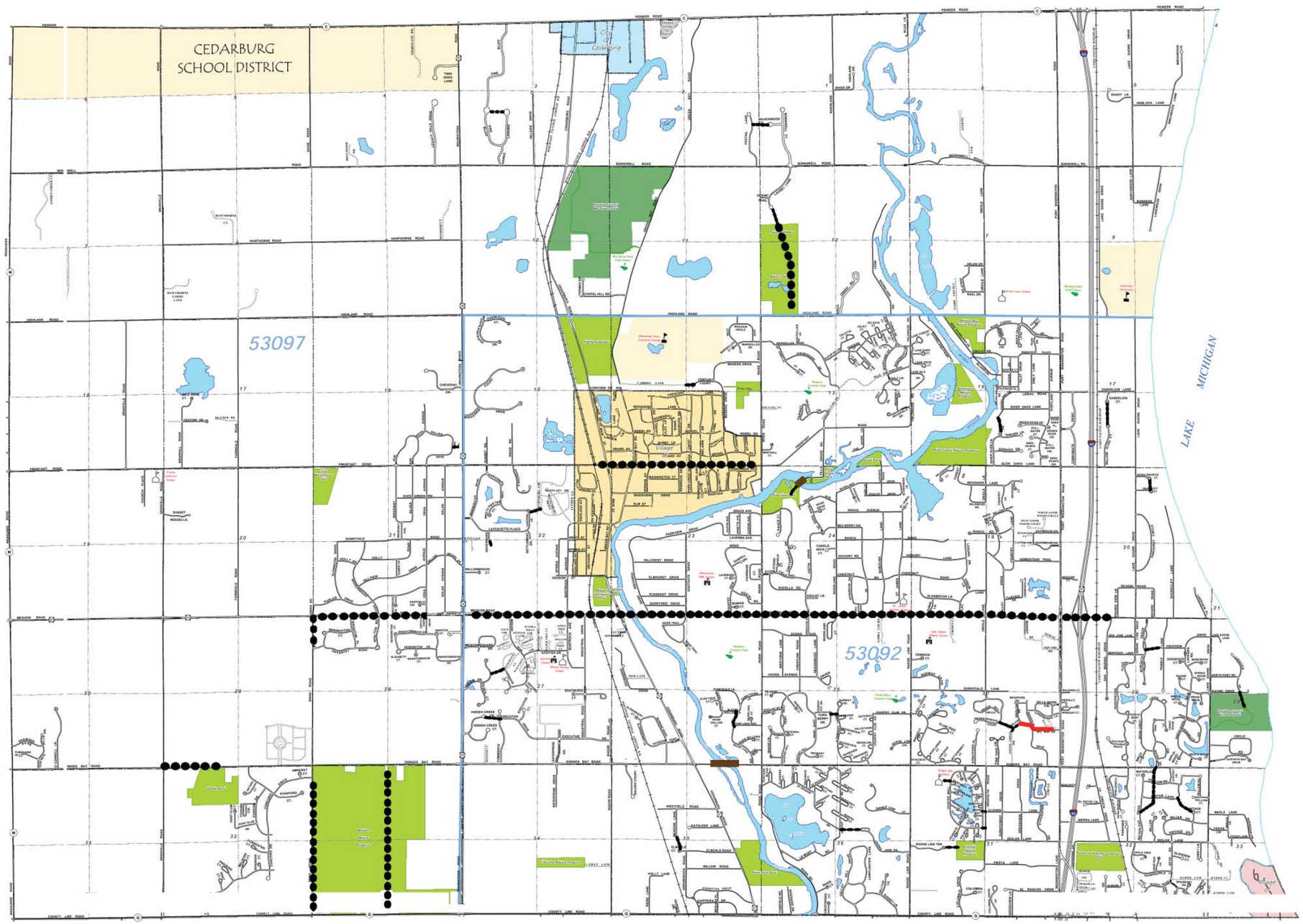


Map 4-E

City of Mequon
11330 N. Cedarburg Road, 60W
Mequon, Wisconsin 53092
(262) 242-5100

2020 BICYCLE/PEDESTRIAN SYSTEM PLAN IMPROVEMENTS:

for Off-Road 10' Shared Use Path



Map 5

Shared-Use Pathways:
Existing and Proposed Linkages