CITY OF MIDDLETON
BICYCLE & PEDESTRIAN PLAN 2009

ADOPTED
NOVEMBER 17, 2009

With assistance from
MSA PROFESSIONAL SERVICES, INC

ACKNOWLEDGEMENTS

The City of Middleton would like to thank and acknowledge the many residents who have participated in this planning process as well as the various people who reviewed and commented on the draft plan. In particular, we also wish to acknowledge the contributions of the following individuals:

COMMON COUNCIL

Kurt Sonnentag, Mayor
Gurdip Brar
Jon DiPiazza
Hans Hilbert
Paul Kinne
Steve Leo
Howard Teal
Susan West
James Wexler

PLAN COMMISSION

Duane Barmore
Ed Elskamp
Derek Hungness
Leif Hubbard, Parks Board representative
Kurt Sonnentag, Mayor
James Wexler, Council representative
Cindy Zellers

CITY OF MIDDLETON STAFF

Mike Davis, City Administrator
Eileen Kelley, City Planning Director
Mark Opitz, Assistant Planning Director and Project Manager
Abby Attoun, Associate Planner
Michael Centinario, Planning Intern
Patrick Fuchs, Planning Intern
Michael Winer, Planning Intern
Toby Ginder, Public Works Director
Shawn Stauske, City Engineer
Gary Huth, Assistant City Engineer
Penni Klein, Public Lands Manager
Shawn Ulsrud, Engineering Technician
David Kasdorf, Community Awareness Officer
Drew Montour, Information Services

PLANNING AND DESIGN ASSISTANCE BY:

MSA Professional Services, Inc.
- Jason Valerius, AICP
- David Holden, AICP
- Stephen Tremlett
- Sarah Elliott

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The 2009 Bicycle & Pedestrian Plan is intended to represent the City of Middleton's vision for making these transportation modes an integral part of the community. The plan recommends specific projects, programs and policies to encourage residents and visitors to travel around the City by bicycle or on foot. A summary of the Plan's recommendations is provided in the Plan Map.

Much has changed since the City of Middleton adopted its first comprehensive bicycle and pedestrian plan in 1999. Over the past decade, the City has made significant investments in its bicycle and pedestrian network, including the expansion of the Pheasant Branch Trail to the west and east, the addition of bicycle lanes along several arterial and collector roads, and the construction of sidewalks alongside roads serving new developments. During this time, the City's population has continued to grow and the use of City trails and streets by both residents and visitors has substantially increased. The expansion of the City's urban footprint has provided opportunities for further bicycle and pedestrian facility expansion to the north, east, and west. As the City continues to grow, it is imperative that bicycling and walking remain viable and safe transportation options.

The 2009 Bicycle and Pedestrian Plan builds on the 1999 Plan, creating a broader network of multi-modal routes that more effectively accommodate bicyclists and pedestrians through the City's neighborhoods, business areas and projected growth areas. Toward that end, this planning process has focused on the especially challenging areas within the network—areas where multiple transportation modes are competing within limited public right of way, thereby raising safety concerns.

The plan identifies actions that should be taken to improve conditions along four key Bicycle and Pedestrian corridors (see Concept Map). These measures can be summarized as follows:

1. Continue to make improvements to the Pheasant Branch Trail so that it serves as the east-west spine and centerpiece of the City's bikeway and pedestrian network while at the same time assessing and addressing concerns about reducing user conflicts.

2. Develop a path along the WisDOT / Wisconsin & Southern railroad corridor to connect Middleton with the existing bike network in Madison (east of Whitney Way) and to the proposed Good Neighbor Trail along Black Earth Creek to Mazomanie.

3. Establish bike lanes along the High/Park/Gammon street corridor to develop a north-south route through the heart of Middleton and to facilitate access to the Rail Corridor, Pheasant Branch, and North Mendota trails.

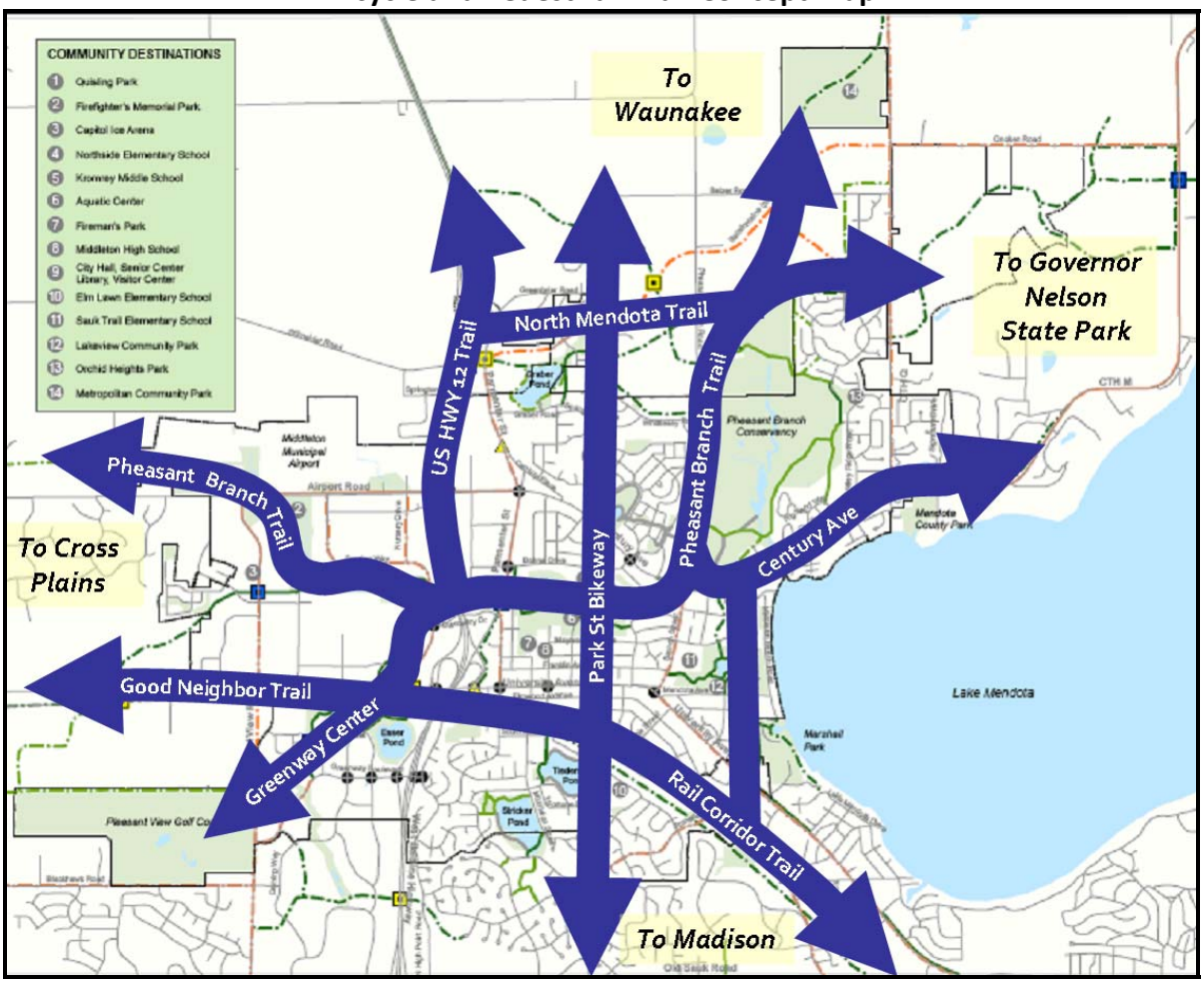
4. Develop an integrated side path and bike lane network on the north side of Century Ave. between Allen Blvd. and the eastern city limits.

Improvements to these four areas as well as other trails and streets will significantly improve and enhance the bicycle and pedestrian system, providing enhanced access to schools, government centers, major employers, shopping centers, recreation areas, and adjacent communities.

Following a public hearing on the final draft of the plan, it should be adopted by the City's Plan Commission and Common Council as an element of the City of Middleton's Comprehensive Plan to provide a legal justification for implementing the recommendations contained herein. Full implementation of these recommendations will be a long-term effort that will require coordinated actions of the City of Middleton, Dane County, Wisconsin Department of Transportation, other public agencies (including neighboring communities), and the private sector.

City officials are grateful for all the input that was provided during this planning process. Hopefully, this document represents the collective will of the community with respect to its desire for future improvements and investments in its bicycle and pedestrian infrastructure.

Bicycle and Pedestrian Plan Concept Map



PLAN ORGANIZATION

This plan is organized into the following Chapters:

- **Chapter 1: Introduction** – describes the intent of the plan, previous bicycle and pedestrian planning efforts, facility improvements completed since adoption of the 1999 Plan, as well as the planning process undertaken in the development of the 2009 Plan.

- **Chapter 2: Goals, Policies and Actions** – describes the overall goals and policies for the City as well as specific actions related to Planning; Design, Construction & Maintenance; and Education, Enforcement and Encouragement.

- **Chapter 3: System Plan** – identifies specific bicycle and pedestrian facility improvements around Middleton and in its growth area, with particular attention devoted to four key bicycle and pedestrian corridors.

- **Chapter 4: Implementation** – provides a table outlining specific facility improvements by roadway or road segment, the estimated costs for these improvements, and a timeframe for completion.

The appendix of this plan provides additional standards to support the implementation of components of this Plan.

1 INTRODUCTION

1.1 INTENT OF THIS PLAN

This document is an update to the 1999 Bicycle and Pedestrian System Plan and is part of an effort to maintain planning documents that are current and meaningful to the Middleton community. Like its predecessor, the 2009 Bicycle & Pedestrian Plan is intended to serve as a blueprint for developing and implementing a safe, ADA accessible, convenient, and comprehensive bicycle and pedestrian circulation network in order to encourage City residents and visitors to bike or walk as a means of transportation and recreation.

The plan builds on the City's recent infrastructure investments by enhancing opportunities to access a comprehensive bikeway and pedestrian network linking major destinations throughout Middleton and its surrounding communities. Most of the recommendations are devoted to reducing existing barriers (e.g., congested streets and intersections) and filling in key gaps in the network, thereby making it safer and more convenient for residents and visitors to bike or walk around the community, particularly for short trips. Benefits of increased bicycling and walking include:

- Reducing traffic congestion and automobile emissions, thereby contributing to cleaner air
- Conserving limited energy resources, thereby reducing reliance on foreign supply sources
- Integrating healthy, physical activity into everyday travel, thereby fostering more active lifestyles and improved personal fitness
- Lowering transportation costs and the need for automobile parking, thereby making more efficient use of the land and increasing community sustainability; and
- Investing in infrastructure that attracts visitors of all abilities to Middleton.

1.2 PREVIOUS PLANNING ACTIVITIES

On April 20, 1999, the City of Middleton adopted its first comprehensive bicycle and pedestrian plan. The Bicycle and Pedestrian System Plan (1999) was the City's first effort to develop a comprehensive policy for these transportation modes. The plan identified goals and opportunities to make walking and biking viable transportation options in Middleton. The plan aimed to make biking and walking both safe and convenient throughout the City so that short trips could be made without the use of a car. It contained numerous recommendations for improving streets and developing trails within the community.

The 1999 Plan was reinforced by the 2000 Dane County Bicycle Transportation Plan, which brought more focus to connecting the City's existing and planned bicycle network with various regional facilities and amenities. In particular, it called for connecting the Pheasant Branch Trail with trails extending into the Black Earth Creek watershed and to Governor Nelson State Park. The County's 2006-2011 Parks & Open Space Plan advocates for the creation of the North Mendota Regional Trail, a route that is envisioned to link Middleton with Governor Nelson State Park and the Schumacher Farm near Waunakee. (Middleton and Waunakee have already constructed segments of trail that could potentially be incorporated into this system, and the Dane County Highway and Transportation Department constructed a bicycle/pedestrian underpass beneath CTH M in 2005 in anticipation of future construction of this trail.) Other pertinent planning activities by the City since the 1999 Plan include adopting a new comprehensive plan in 2006, updating its own Parks & Open Space Plan (2007-2012) and Conservancy Lands Plan (2005), developing a Transportation Network Plan (adopted in 2006), and launching an initiative to make Middleton a more sustainable

community. These plans, the subsequent implementation of a number of their recommendations, and community input greatly influence the content of this updated planning document.

1.3 IMPROVEMENTS SINCE THE 1999 PLAN

Substantial improvements have been made to the City's bicycle and pedestrian infrastructure since the adoption of the 1999 Bicycle and Pedestrian Plan. In fact, over 80% of the bicycle and pedestrian trails (excluding sidewalks) that exist within Middleton today were built just within the past decade. In 1999, the only portion of the Pheasant Branch Trail network that existed was an unimproved, non-accessible, hiking-only segment between Parmenter Street (Old Highway 12) and Century Avenue, as well as a 2,000 ft. long segment extending northward into the Pheasant Branch Conservancy from the intersection of Century and Branch St. This short segment essentially ended at a footbridge crossing Pheasant Branch Creek because the dirt trail beyond the bridge had become rutted from erosion and overgrown with shrubs to the point where it no longer provided a passable connection with Pheasant Branch Road and the parking lot overlooking the Conservancy. Ten years ago, short trail segments also existed in Greenway Center, Lakeview Park, along University Ave. east of Allen Blvd., and portions at Tiedeman and Stricker Ponds (except for the trail around Stricker Pond, all of these segments were paved). Short, inter-block walks also existed in several neighborhoods as shown in Map 1 of the 1999 Plan.

Today, the Pheasant Branch Trail forms the backbone of the City's off-street trail network, as envisioned in the 1999 Plan. This east-west path connects the business parks and the developing Hidden Oaks neighborhood near the western edge of the City with the Pheasant Branch Conservancy and residential neighborhoods in northeast Middleton. It is only interrupted by three at-grade street crossings—Century Avenue, Park Street, and Evergreen Road. All other streets (Parmenter Street, Highway 12, Deming Way, and Airport Road) can be traversed via underpasses. The Capitol Ice Arena, the athletic fields at Firefighters Memorial Park and Quisling Park, the City's aquatic center, and the middle and high schools are all connected to one another via one continuous trail, uninterrupted by any at-grade street crossing. This same multi-use trail network is able to serve over 2,000 people whose jobs are located within only 1,000 feet of this important off-street route, thereby facilitating both commuting and lunchtime exercise and recreational activities. Some of the City's trails are maintained only for pedestrian use and passive recreation, including segments in the Pheasant Branch Conservancy and around Tiedeman and Stricker Ponds. The entire trail system has garnered state and national recognition in recent years, beginning with the 2004 National Trails Award for Design & Layout. In 2008, the City received the 2007 Wisconsin Parks & Recreation Association Award of Merit for its Pheasant Branch Trail System.

In terms of on-street bicycle facilities, in 1999, the only marked bike lanes that existed in the City were short segments along Deming Way near Esser Pond, on Park Street near Kromrey Middle School, on Park

Lawn Place near the aquatic center, and on Allen Blvd. Most signalized intersections had pedestrian-activated walk signals, but few (if any) had well-functioning, in-street, bicycle-activated sensors. Over the past decade, the City added bike lanes and sidewalks along the new or reconstructed sections of Airport Road, Parmenter Street (Old Highway 12), and Pleasant View Road; Dane County added a wide shoulder to accommodate bicyclists along Highway M from the Middleton city limits east to Highway 113; and WisDOT developed the 9-mile bike path alongside Highway 12.

Since 1999, the City has also installed traffic calming devices along various residential streets, including constructing medians (pedestrian refuges) at two Park Street crosswalks and installing speed humps along N. High Point and Valley Ridge Roads. In addition, the City collaborated with the school district, other agencies and the private sector to pursue various enforcement and education initiatives, such as utilizing a portable speed feedback display. Over the past ten years, the City has enjoyed strong success in securing grants for trail development and various safety-related initiatives, including a Safe Routes To School grant award of $44,000 in 2007.

1.4 Planning Process: The Development of This Plan

Preparation of this plan began during the summer of 2008 when the City of Middleton engaged MSA Professional Services, Inc. to help develop the document. In particular, MSA was retained to assess and provide expert advice on improvements to identified problem and opportunity areas throughout the bicycle and pedestrian system.

On July 16, City planning staff held a kick-off meeting to identify and obtain input on the issues facing bicyclists and walkers in the community. This meeting was attended by approximately 40 community residents and visitors. In total, the City received about four dozen comments and inquiries as a result of publicity generated by this meeting.

During the remainder of 2008, planning and MSA staff worked on various components of this document. In particular, MSA staff analyzed key policies and issues and created the maps in close consultation with City staff, who periodically provided the Plan Commission with progress reports. The first draft of the plan was completed in December, 2008 and presented at a public informational meeting on January 6, 2009. A formal public hearing was held on January 13, 2009, to obtain input on the key plan recommendations and to guide staff in the preparation of a final draft of the plan. On January 27, Plan Commission members expressed general support for the draft plan recommendations, but requested that staff develop alternatives to paving the north and west trail segments in the Pheasant Branch Conservancy to address perceived issues with potential user conflicts, aesthetics, and environmental impacts.

Over the next several months, staff discussed the draft plan with the following groups: Conservancy Lands Commission (Feb. 4), Public Works Committee (Feb. 23), Parks, Recreation & Forestry Commission (March 16), Water Resources Management Commission (April 15), a joint meeting of the City Council, the Plan Commission, and Community Development Authority (April 25), and a monthly educational seminar sponsored by the Ad Hoc Sustainability Committee (May 14). In addition, the City received correspondence in opposition to trail paving from two Middleton

High School groups (the Cross-Country Team and Ecology Club) and the Friends of Pheasant Branch. Conversely, a national trail consultant, Mike Riter of Trail Design Specialists, endorsed porous paving the spine (main link) of the City's trail network after leading an on-site trail design workshop in March. Others with wetlands and trail development expertise also provided statements in support of the use of asphalt on certain trails. As the draft plan was being prepared, staff also obtained feedback from WisDOT, the Metropolitan Planning Organization, and Dane County (both Parks and Transportation planners).

On July 14, a public hearing was held on the second draft of the plan. Nearly all of the comments at the hearing pertained to the concept of developing both a paved and unpaved route along the existing western and northern segments of the trail that encircles the Pheasant Branch Conservancy. (There appeared to be general consensus on the remainder of the recommendations in the draft plan.) Based on this input and a petition submitted in opposition to this concept, in August the Plan Commission voted to revise the draft plan so that no paving is planned along any of the existing trails in the Conservancy north of Century Avenue.[1] In September, after reviewing input stemming from a mailing to adjacent property owners, the Plan Commission decided to retain in the plan on-street bicycle lanes along Branch St., Parmenter St., and the High/Park/Gammon Road corridor.

The Plan Commission held a public hearing on the final draft of the plan on November 10, 2009. No speaker expressed opposition to the plan, although a couple people stated that the plan does not adequately address the needs of pedestrians and neighborhood safety. The Plan Commission recommended approval of the plan with the understanding that minor editing would continue prior to consideration by the Common Council.

On November 17, 2009, the Middleton Common Council adopted this Bicycle & Pedestrian Plan as an element of the City's Comprehensive Plan.

[1] The 1.2 mile trail segment between Parmenter St. and Century Ave. had already been authorized for paving as part of a Federal Transportation Enhancements grant that was awarded in 2006. The City installed three bridges and a trail consisting of porous asphalt and a parallel unpaved surface in this "creek corridor" during Fall 2009.

2 GOALS, POLICIES & ACTIONS

2.1 INTRODUCTION

The City's 1999 Bicycle and Pedestrian System Plan adopted a mission statement to guide the planning and development of a comprehensive pedestrian and bicycle system for the City of Middleton. Still relevant today, the mission statement reads as follows:

> **Mission Statement:**
> Integrate land use options and transportation opportunities, particularly for bicyclists and pedestrians, to allow people the opportunity to reduce their need for motorized vehicular trips, for conservation of energy and protection of air quality, and to provide a safe and convenient integration of bicycle and pedestrian movement within the community.

Stated another way, the central purpose of the 2009 Bicycle & Pedestrian Plan is to establish a pedestrian and bikeway network that is an integral part of the region' s multimodal transportation system while at the same time serving all Middleton residents and neighborhoods. "Bikeways" are portions of streets and/or trails specifically designed for bicyclists. City officials should ensure that pedestrian and bicycle circulation is incorporated into the community's design so that sidewalks, pedestrian paths, bike lanes, shared use (multi-use) trails, and other signed bike routes form an integrated network that is accessible to all residents and visitors.

The 1999 Plan listed numerous goals, objectives, and policies to help carry out this mission statement. The goals and objectives were intended to express the basic values and aspirations of the community with respect to its bicycle and pedestrian infrastructure. The policies were written to provide specific guidance and standards for planning, constructing, maintaining, and utilizing pedestrian and bicycle facilities within the City of Middleton. The policies "expressed the City's position with regard to various factors that in some way influence bicycle and pedestrian facilities."

The goals, objectives and policies of the 1999 plan have been revised and updated as Goals, Policies and Actions for the 2009 Plan. The goals, policies and actions included in this chapter are organized as follows:

- Planning
- Design, Construction, and Maintenance
- Education, Enforcement and Encouragement

This chapter should be read in conjunction with the proposed detailed bicycle and pedestrian improvements listed in Chapter 3 and outlined in the Plan Map. Pursuing these goals, policies and actions will help infuse the needs of bicyclists and pedestrians into all aspects of planning for Middleton's future.

2.2 PLANNING

Bicyclists and pedestrians could be considered an indicator species for a healthy community – the more of them one sees, the more vibrant and "livable" that community is. Increased bicycling and walking lead to reduced traffic, improved air quality, and greater physical fitness within a community. Accommodating bicyclists and pedestrians benefits all of Middleton, and it begins with the City's efforts in community planning and development.

GOAL: Plan for the needs of bicyclists and pedestrians—including people with disabilities—in all new developments and as part of redevelopment and reconstruction projects.

Policy: Link major activity centers and trip generators such as schools, libraries, parks, employment centers, and shopping areas through a comprehensive bikeway and sidewalk network.

Actions:

- Officially map existing and planned bicycle and pedestrian facility rights-of-way.
- Expand the use of bike lanes on streets with high traffic volumes, including those classified as arterial and collector routes, or at a minimum designate and sign suitable parallel routes.
- Consider providing bike lanes along low volume streets where the street serves as a major link between other parts of the bikeway network.
- Designate and maintain official bicycle routes through a combination of way-finding signage and pavement markings in order to guide bicyclists to key activity centers and destinations.
- Investigate various funding alternatives for constructing sidewalks where none exist along streets serving business areas (e.g., Middleton Business Park) and along collector and arterial routes that are under the City's jurisdiction. It may be appropriate to allow for cost-sharing with adjacent property owners for facilities that meet regional needs.

Policy: Continue planning for a land use pattern in Middleton that is supportive of bicycle and pedestrian system usage and allows residents to live, work, shop and engage in recreational and civic opportunities within a 15 minute walk (half a mile) of their homes.

Actions:

- Modify the City's Comprehensive Plan and Zoning subdivision ordinance to incorporate bicycle and pedestrian system design principles, including ADA design standards.
- Modify zoning standards to require multi-family residential, commercial, industrial and institutional land uses to include design elements which meet the special needs of pedestrians and bicyclists. This includes requiring a direct pedestrian path from the sidewalk to the major building entrance(s) of all properties other than single or two family residential dwellings.
- Follow access control regulations in order to reduce the number of access drives along streets. This will make on-street bicycle lanes safer by reducing potential bicycle/motor vehicle conflict points.
- Consult this Plan when reviewing development proposals.

Policy: Promote intermodal transportation and reduce motorized vehicle dependency.

Actions:

- Plan for the development of a regional intermodal facility that integrates travel by foot, bicycle, wheelchair, scooter, Segway, in-line skates, automobile, bus, and potentially commuter rail.
- Monitor regional initiatives pertaining to passenger rail and Metro Transit bus service, particularly as they relate to improving opportunities for walking and biking to work.

Policy: Coordinate with neighboring communities, regional and state entities to create a continuous and interconnected pedestrian and bikeway network.

Actions:

- Monitor the strategies and recommendations of the evolving bicycle and pedestrian plans of local, regional and state planning agencies.
- Identify weak links and discontinuities in the existing network (beyond those listed in this plan), and develop a plan for prioritizing and funding solutions.
- Continue active participation by City staff in regional bicycle and pedestrian planning activities such as those undertaken by the Madison Area Transportation Planning Board, Dane County, WisDOT, and WisDNR.

Policy: Provide adequate bicycle parking opportunities and promote the availability of bike lockers in high volume bike parking areas.

Action:

- Adopt by ordinance bicycle parking requirements for new development. Suggested requirements are provided as an appendix to this Plan.

Policy: Locate off-street bicycle and pedestrian facilities in unique and aesthetically pleasing locations in order to attract a wide variety of residents and visitors.

Actions:

- Work with land owners, developers, and other jurisdictions to establish shared-use trails as integral components of new greenways and along environmental corridors to complete, complement, and expand the existing bikeway and pedestrian system.
- Retain designated hiking trails that are limited to pedestrian use to minimize user conflicts and enhance opportunities for more passive recreation and enjoyment of the natural environment. In areas where a hard surface trail is desired (e.g., to provide regional route continuity, improved ADA access, safer routes to school, or connections between neighborhoods), consider designs that provide hard surface and soft surface options for use.

Policy: Identify potential funding sources to support implementation of the Plan.

Actions:

- Pursue bicycle and pedestrian related grants, including Federal Transportation Enhancement Grants, Safe Routes to School, and various trail development grants (e.g., WisDNR, county).
- Ensure adequate funding is available in the City's annual operating and capital budgets to support design, implementation and maintenance activities for bike / pedestrian facilities.

2.3 Design, Construction and Maintenance

For numerous decades in the 20th century, major streets and highways were designed and built primarily to address the mobility needs of private motor vehicles. This trend created communities where roads create barriers between neighborhoods, resulting in pedestrians and bicyclists finding it unsafe and/or inconvenient to reach nearby destinations. Over the past decade in particular, the City of Middleton has begun taking steps to modify its practices and shift toward more of a multimodal, "complete streets" focus when designing and constructing new or reconstructed roadways. In addition, the City has begun developing an extensive, multi-use trail network that complements on-street bikeways and sidewalks. Proper development and maintenance of bikeways and sidewalks are not only key factors for promoting safety—they are also an important consideration in people's decision to use their bicycles and feet for transportation and recreation.

GOAL: Ensure that Middleton's public rights-of-way (including streets and trails) are safe and convenient for bicycling and walking.

Policy: Design streets as "Complete Streets" that safely accommodate users of all ages and abilities, including pedestrians, bicyclists, transit riders, and motorists.

Action:

- Adopt by Common Council resolution a policy statement in accordance with Complete Streets (see http://www.completestreets.org/policies.html). Through this policy, the City of Middleton would commit to routinely plan, fund, design, construct, operate, and maintain its streets in a manner that creates an attractive, connected, multimodal network that balances the needs of all users, except where there are demonstrated exceptional circumstances.

Policy: Develop safe bikeway and pedestrian facilities based on current standards.

Actions:

- Continue to revise City roadway policies and design standards, including lane widths, design speeds, corner turning radii, the placement and design of crosswalks, the use of countdown timers and lead pedestrian intervals in traffic signal installations, bike lanes, and the inclusions of on-street parking, as necessary to balance competing interests of all users.
- Design all new street construction and reconstruction to meet AASHTO and ADA guidelines and other related, applicable, Federal and State design standards.
- Post and maintain in-street "Yield to Pedestrian in Crosswalk" signs in accordance with City policy.
- Modify traffic signals to include a lead pedestrian interval to give bicyclists and pedestrians a "head start" at intersections where there are a lot of pedestrian/vehicle conflicts.

- Consider the use of countdown timers and accessible pedestrian signals at intersections where bicyclists and pedestrians may have difficulty crossing the street.
- Continue to apply appropriate traffic calming techniques in locations where they would benefit bicyclists and pedestrians.
- Address and mitigate existing safety hazards resulting from outdated design standards. Examples of this include identifying and replacing inlet grates that trap bicycle wheels, and using lane markings at skewed railroad crossings to give bicyclists more space to approach tracks as close to perpendicular as possible.

Policy: Design and construct off-street bikeway and pedestrian facilities that accommodate the wide variety of users of the City's trail network.

Actions:

- Refine as necessary design standards for the shared use of off-street routes that accommodate bicyclists, pedestrians, skaters, skiers, and persons with disabilities (see Conservancy Lands Plan). To help reduce user conflicts, mark the centerline of paved trails and post signage in key locations to remind all trail users of safety precautions and proper trail etiquette.
- Provide off-street bicycle and pedestrian facilities adjacent to arterial and collector streets only in situations where it would be unsafe to locate such facilities on the street, with full consideration of the potential safety problems that such "side paths" can create (see Appendix B).

Policy: Develop or improve on-street bicycle and pedestrian facilities in conjunction with the redevelopment and reconstruction of existing roads.

Actions:

- Incorporate marked bike lanes along all arterial and collector streets to the extent practicable, particularly where no suitable parallel route exists. Bike lanes can oftentimes be established by realigning travel lanes, removing a lane, and/or narrowing a median. The City should develop roadway planning procedures to ensure that bikeways are routinely established as part of roadway construction projects.
- Make new and reconstructed intersections bicycle-friendly wherever possible, to reduce the higher incidence of bicycle crashes at or near intersections. Bicycle-friendly intersections should have appropriate lane widths, pavement markings, and adequate signal time for bicyclists to cross safely. Where appropriate, the City should include bike lanes and/or new actuated traffic signals that detect bicycles.

- Ensure that new and refurbished bridges and underpasses are safe for bicycling. Bridges and underpasses provide critical links for bicycling. It is therefore especially important that they are well designed, with safe surfaces and adequate accommodation for bicycling.

- Ensure that traffic calming projects do not compromise a bicyclist's ability to travel safely. Measures to redirect or reduce vehicular traffic and speeds should not discourage bicycling.
- Consider the use of "pedestrian refuge" crossing islands. These are raised islands placed in the center of a street at intersections or midblock to help protect crossing pedestrians from motor vehicles. Center crossing islands allow pedestrians to deal with only one direction of traffic at a time, enabling them to stop partway across the street and wait for an adequate gap in traffic before crossing the second half of the street.
- Examine potential conflicts related to diagonal parking and intersection alignments. City staff should periodically review Middleton Police Department data to identify locations where there are collisions and near-collisions between vehicles and bicyclists or pedestrians. In addition, they should investigate the feasibility of creating "reverse diagonal" parking spaces that require drivers to back their motor vehicles into on-street, diagonal parking stalls. (This maneuver would be similar to backing a vehicle into a parallel parking stall.) This could provide a better opportunity for a driver pulling out of a stall to see an approaching bicyclist as well as other motorized vehicles.

Policy: Regularly maintain bikeways and sidewalks so that they provide safe and comfortable conditions for bicyclists and pedestrians.

Actions:

- Continue the established practice of assessing sidewalks every eight years (one-eighth of the City each year) to identify and mitigate safety hazards such as heaving squares and broken edges.
- Regularly trim vegetation over sidewalks so as to provide at least eight feet of vertical clearance.
- Develop a procedure for routine inspection and maintenance of all bicycle lanes and paved trails. This includes keeping bikeway surfaces free of encroaching vegetation, sand, mud, broken glass, and other debris. (At a minimum, bike lanes and trails should be inspected on an annual basis. Ideally, this would be done using a bicycle as opposed to doing a "vehicle survey.")
- Repair potholes, repave streets and trails, and replace worn pavement markings, bike symbols, and damaged street signs as necessary.
- Adopt a policy to remove snow from all paved trail surfaces within 24 hours after the end of a snowfall.
- Review the City's 5-year street improvement program to integrate trail repair/reconstruction, or develop a separate bike path resurfacing program that is consulted during annual budget deliberations and capital improvement programming. The North Fork Trail west of Deming warrants short-term attention.

Trails must be regularly monitored to ensure hazards such as this wash-out are properly addressed.

Cracked pavement poses a danger to bicyclists in the street because it may cause them to fall or to swerve into traffic to avoid the hazard.

Policy: Avoid practices that accelerate the deterioration of bikeway surfaces.

Actions:

- Only allow the operation of heavy motor vehicles on bikeways when necessary.
- Ensure prompt repair of pavement cuts into bike lanes and trails. Pavement cuts can cause bicyclists to lose control, resulting in accidents and injuries.
- Require private contractors and utility companies that damage bikeways to promptly repair them to a specified standard.
- Use porous asphalt when possible to decrease maintenance costs and issues.

2.4 Education, Enforcement and Encouragement

If the City's bikeways and sidewalks are considered safe, convenient, and accessible, more people will feel encouraged to travel around the community by bicycle or on foot. Physical design greatly influences safety, ADA access, and convenience, but adherence to "rules of the road" and "trail etiquette" are just as vital to shaping how well Middleton is perceived to be bicycle- and pedestrian-friendly.

Bicycle and pedestrian collisions with motorists typically result from improper actions on the part of pedestrians, bicyclists, motorists, or some combination thereof. Therefore, crash reduction efforts need to include educational and enforcement programs geared to all three groups. There were 13 collisions involving bicyclists and 10 collisions involving pedestrians reported to the Middleton Police Department between 2005 and 2008. The growth of the metropolitan area and the increasing popularity of walking and bicycling make it likely that more incidents will occur without an on-going campaign to promote bicycle and pedestrian safety. Focusing educational and enforcement efforts on behaviors that most frequently endanger bicyclists and pedestrians should reduce the frequency and severity of these collisions and make more effective use of limited resources.

GOAL: Improve the skills, knowledge, and road-sharing behavior of bicyclists, pedestrians and motorists, and promote safety and convenience throughout Middleton so that residents and visitors feel encouraged to travel around the community by bicycle or on foot.

Policy: Integrate the promotion of bicycle and pedestrian safety and mobility throughout City government and its community partners.

Actions:

- Establish a committee (e.g., a Bicycle & Pedestrian Advisory Committee) to advise the City on matters pertaining to bicyclists, pedestrians (which include transit riders), and people with disabilities. Membership could include a combination of city and school officials, design experts, as well as citizens interested in working on ways to enhance bicycling and walking in Middleton.
- Familiarize key City officials with the exemplary bicycle and pedestrian safety initiatives adopted by the City of Madison and other leading communities.
- Provide periodic training for the City's transportation planners and engineers so that they can incorporate appropriate bicycle and pedestrian accommodations into City projects and their review of private sector projects, as well as monitor opportunities for grants to help fund various safety initiatives.
- Support and fund National Trails Day events to help provide trail etiquette education.

- Provide training to Police Department personnel on bicycle/pedestrian issues and laws, including the "rules of the road" for bicyclists, types of dangerous or illegal motorist behaviors that endanger bicyclists and pedestrians (and vice versa), most common causes of bicycle/pedestrian crashes, and the importance of reporting such crashes.
- Consider designating a "Middleton Bicycling Ambassador" who helps educate and encourage the public to bike and walk more, and to do so safely. This would build on the safety and encouragement programming already being done by the Middleton Police Department. An Ambassador could help give face-to-face demonstrations to kids, teens and adults and could work with community partners to identify and address safety concerns.
- Apply for grants that will help fund projects or programs that promote safety of the bicycling and pedestrian network. For example, the City received $44,000 from the 2007 Federal Safe Routes to School (SRTS) program to erect various signs, install two pedestrian refuges, and undertake an air quality study in a school drop-off zone. The purpose of SRTS is to increase the number of children who walk or bicycle to school by funding projects that remove the barriers that currently prevent them from doing so. The City should continue to actively monitor such grant opportunities.
- Challenge employers and organizations throughout Middleton to participate in Dane County's annual "Bike to Work Week" activities, a "Car-Free Day" event, or some form of incentive program.
- Work with community partners, including the Chamber of Commerce and Tourism Office, to establish a "Shop by Bike" program. Such a program encourages residents to shop locally by using their bikes for short errands, which in turn adds physical activity to their day, helps relieve parking issues, and supports local businesses.

Policy: Support and enhance existing programs that promote safe vehicle and bicycle operation, and make safety information available through schools, work sites, and general publicity efforts.

Actions:

- Work with the City of Middleton Police Department (MiPD), Middleton-Cross Plains Area School District, private schools, and various local clubs and organizations, to investigate and, as appropriate, implement other safety programs that should be taught to school-aged children as well as adults. Ideally, traditional driver's education courses should be broadened into "mobility education" courses so that people learn more about sharing the road with others, regardless of their mode of transportation.
- Support and build on existing Police Department initiatives to promote the use of bicycle helmets.
- Continue to maintain pedestrian crossing flags in high use areas, and consider expanding this Police Department-

administered program to other locations.

- Install a "911 trail marker system" to help coordinate emergency response.
- Expand bike/pedestrian safety programs as part of the MiPD's annual National Night Out in early August.
- Acquire literature promoting bicycle laws, safety tips, bike commuting, etc., for dissemination to the general public, and provide links to this information on the City's website.
- Educate property owners about keeping debris (including yard waste) off of sidewalks and out of bike lanes.
- Use signs as needed to educate motorists about sharing the road with bicyclists and pedestrians.
- Install "trail etiquette" signs to reduce user conflicts along multi-use trails.
- Expand the use of portable message centers and speed feedback displays along key routes, particularly near schools, midblock crosswalks and trail/street intersections. (The City of Middleton installed speed feedback signs in the vicinity of most schools in 2009.)
- Publicize a City Hall phone number and e-mail address for people to report maintenance needs, suggest locations for bike racks, etc.

Policy: Enforce bicycle and pedestrian rules and regulations to reduce violations and crashes, and improve reporting initiatives.

Actions:

- Analyze bicycle, pedestrian and vehicle crash records and focus enforcement efforts on specific problem areas. If resources are limited, focus these efforts on traffic violations that are most likely to lead to personal injury.
- Utilize community volunteers, such as through the Police Department's Volunteers in Policing (VIP) program or the Volunteer Trail Stewards (VTS), to help monitor areas where violations are known or have been reported to occur.
- Investigate new approaches for reporting bicycle and pedestrian crashes. Emphasize to the public that it is important to report all incidents so that problem areas can be identified before a serious injury occurs.
- Conduct and analyze trail surveys and user counter data.

Policy: Make bicycle parking as convenient as possible.

Actions:

- Install and maintain modern bicycle racks designed for short-term parking in highly visible locations, including near business entrances. The City installed about half a dozen red bike racks on public land in the downtown area during the spring of 2009. Additional locations should be identified around the community where bicyclists are likely to congregate, although business and schools should also be encouraged to provide (or upgrade) bike racks on their own properties.
- Work with larger employers and owners of multi-unit residential buildings to establish long-term bicycle parking areas that offer a higher level of security, including lockers or indoor

parking. Bike lockers provide an added level of security and convenience, protecting the bicycles from theft, vandalism and weather.

- Add bicycle parking requirements to the zoning ordinance. Requiring developers to include bicycle parking with new or renovated buildings is a cost-effective way to increase bicycle parking throughout the City. This in turn would allow the City to spread its resources to other areas. (See Appendix A for more information on bicycle parking standards.)
- Develop and maintain guidelines for bicycle rack installation and make them available to business owners and developers.
- Remove abandoned bicycles that are blocking the public right-of-way, and work with the private sector to ensure that abandoned bicycles are not taking up bike rack space at businesses and multi-family complexes. Abandoned bicycles tend to rust or get pilfered for parts, which in turn deters others from using the bike parking area. They also can take up valuable parking space.

Policy: Promote programs that reduce the incidence of theft and other crimes against bicyclists.

Actions:

- Continue the City's existing bicycle-licensing system.
- Periodically patrol the City's off-street trail system, focusing in particular on bridge underpasses, remote trail segments, and routes near schools.
- Follow good land management practices to remove not only invasive species, but also to reduce the number of shrubs which could be used for hiding.

Policy: Improve public awareness of the City's bicycle & pedestrian system and initiatives.

Actions:

- Provide a comprehensive bicycle and pedestrian system map and wayfinding signage system along trails and place at other strategic locations throughout the City.
- Place bicycle and pedestrian system maps in public buildings (including schools), the Middleton Chamber of Commerce, large employers, bike shops, and fitness centers.
- Encourage public participation at appropriate committee meetings and forums.
- Publish an annual report summarizing activities and accomplishments pertaining to walking and bicycling in Middleton.
- Report on key bicycling and pedestrian issues using the City's spring and fall newsletters, the City's website, and its free E-government subscription service. Information could also be posted in kiosks and in public buildings. Examples of information that could be communicated include the availability of new or improved bikeways, information about the benefits of walking and bicycling and its relationship to zoning and land use.
- Write a periodic "bicycle/pedestrian column" for the *Middleton Times-Tribune*.
- Encourage businesses to accommodate the needs of employees who choose to bike or walk to work (for example, by making available showers and changing areas).
- Investigate City co-sponsorship of events that promote walking and bicycling.
- Collaborate with other area communities and their conventions and visitors bureaus to promote Middleton and the greater Madison area has a destination for bicycle tourism.
- Encourage local bike shops and hotels to make bicycles available for rent.

3 SYSTEM PLAN: BUILDING MIDDLETON'S BICYCLE AND PEDESTRIAN NETWORK

3.1 CITY-WIDE SYSTEM PLAN

The City of Middleton's Bicycle and Pedestrian System Plan is illustrated in the fold-out Plan Map. This map is intended to provide an overall view of existing and proposed bicycle and pedestrian facilities, whereas the text in this chapter conveys more of the details. Collectively, the map and text represent the City's vision for making these two transportation modes an integral part of the community.

Because of their importance to the network (both in terms of location and route continuity), the recommendations of this plan center on the four key bicycle and pedestrian corridors:

- The **Pheasant Branch Trail**, which is the east-west spine (main link) and centerpiece of the City's off-street bikeway network. (Section 3.2.1)
- The **Railroad Corridor**, which is planned to connect Middleton with Madison as well as communities to the west along the future "Good Neighbor Trail". (Section 3.2.2)
- **Century Avenue**, the only direct route that connects Middleton northeastern neighborhoods with the rest of the community. (Section 3.3.6)
- The **Park Street Corridor**, the City's new, on-street, north-south route through the heart of Middleton. (Section 3.3.14)

Section 3.2 and 3.3 describe existing conditions and planned improvements for each of these four corridors **as well as for numerous other streets and trails within the city.** Section 3.4 focuses on sidewalks.

If all the components shown in the System Plan are implemented, then nearly every Middleton bicyclist will be able to reach at least one of the four main bikeways within a short five minute ride of his or her residence or place of employment. Pedestrians would also realize substantial benefit to their ability to walk safely around the community, including to neighborhood schools and shopping areas. Priorities and estimated costs for the development of the comprehensive bicycle and pedestrian system illustrated in the Plan Map are outlined in Chapter 4, Implementation.

3.2 OFF-STREET TRAIL NETWORK

This section provides detailed bicycle and pedestrian facility improvements for **multi-use segments** of the City's trail network. Some of the City's unpaved trails are restricted to pedestrians only and have a surface or width that is intended to discourage other users---for example, portions of the loops around Stricker and Tiedeman Ponds, certain Conservancy trails, and most of the trail network through Middleton Hills. Multi-use trails consist of either paved or unpaved surfaces and accommodate bicyclists and pedestrians engaged in a range of activities. They are not intended for motor vehicle use, although a police or maintenance vehicle may periodically travel on them. Bicyclists who use trails for transportation / commuting proposes should recognize that these routes are designed for slower speeds than streets.

The improvements identified below (and depicted on the Plan Map) are intended to help establish and improve the network of on- and off-street facilities so that bicyclists and pedestrians have convenient connections to major destinations, recreational trails, and neighboring communities.

The City considers most of its shared-use trails to be regionally-significant trails that serve the needs of a wide range of users, including bicycle commuters. Regional trails provide intra-urban and inter-urban links for pedestrians and bicyclists. For example, the Pheasant Branch Trail will connect the Good Neighbor Trail that is planned to link the communities along Black Earth Creek to the west with the North Mendota Trail that is planned by Dane County to link the Pheasant Branch Conservancy with Governor Nelson State Park to the east. Between Deming Way and the Beltline, the Pheasant Branch Trail also provides access to the Highway 12 Trail, which extends northward toward Springfield Hill. In the future, the City envisions an overpass across Highway 14 to connect the Pheasant Branch and Highway 12 Trails with Downtown Middleton and a path extending along the rail corridor eastward into Madison.

Trail Surface:

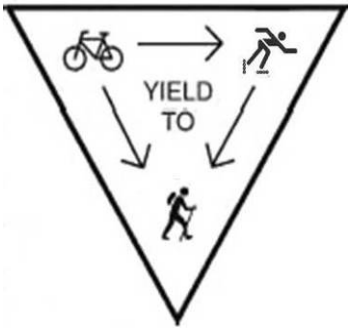
The surfacing material on shared-use paths significantly affects which user groups will be capable of negotiating the terrain. Shared-use paths that have been built using crushed aggregate (stone) generally are unusable by inline skaters and tend to slow down the speed of bicyclists. While they are generally more suited to seasonal (6 to 8 month) use, they require more frequent maintenance to address erosion or loose gravel issues. Paved surfaces, which are generally used where bicyclists or inline skaters are common users, provide better all-weather conditions and require less frequent maintenance. Trails paved with porous asphalt are less dense than regular asphalt and, when properly designed, enable water infiltration. Safety along such trails is enhanced year-round because there are no puddles in the summer and less snow and ice accumulation in the winter. Porous asphalt also provides a softer surface for runners compared to traditional asphalt.

Ruts and washouts result from water runoff across a gravel trail. This tends to lead to frequent maintenance needs.

Transition from porous asphalt to gravel along West Trail. Because of its absorptive quality, porous asphalt dries more quickly following rain or snow.

Reducing user conflict:

While trail surface materials and design can mitigate user conflicts on shared use trails, these conflicts can be a result of many other factors and can be managed in a variety of other ways. To reduce user conflicts along trails, the City should undertake various facility improvements.



Actions pertaining to all shared-use trails:

- Install 11”x17” signs indicating trail etiquette at all trail heads and at key intersections, to help reduce conflicts among different user groups (see example and photo to the right).

- Apply lane markings, including a yellow centerline along paved trails and center markers along gravel trails, to help guide users.

- Pursue the development of an off-road site or trail designed specifically for off-road recreational bikers to provide for a more "fast paced" recreational facility for bicycle users. This could be either an "adventure bike trail" or a more constrained recreational area. The development of a "Pump Track" facility (for example, see www.leelikesbikes.com) was raised during the initial public meeting as a means of creating space for recreational mountain biking. The location of this facility should be accessible to the existing or proposed bicycle trail network to ensure safe access to and from the facility. One possibility is a portion of the Pleasant View Golf Course property. The location should be coordinated with the Parks, Recreation and Forestry Commission.

- Install gates at trail entrances to discourage motor vehicle trespassing while retaining ADA access and bicyclists with trailers to travel safely through the opening. Gates must be designed so that drivers of maintenance and emergency vehicles can easily maneuver through them. Some existing gates have too narrow of an opening. In other locations, gates or bollards are lacking altogether (for example, at access points to trails at Firefighters' Park, Capitol Ice Arena, and Deming Way). The Public Lands Department is in the process of addressing these issues.

Examples of trail etiquette signs.
(Source: Washington Area Bicycle Association)

City staff have applied these markings along trails in various locations around Middleton.

Without a gate, it is easy to drive a vehicle from this parking lot onto the North Fork Trail.

3.2.1 Pheasant Branch Trail

Continue to make improvements to the Pheasant Branch Trail so that it serves as the east-west spine and centerpiece of the City's bikeway network while designating other areas for more passive use.

As was identified in the 1999 Bicycle & Pedestrian Plan, and consistent with the Open Space Plans adopted by the City for its Parks and Conservancy Lands systems, the backbone of the City of Middleton's bicycle and pedestrian trail system is the Pheasant Branch Trail network. The east-west, multi-use route consisting of the North Fork, Creek Corridor, and Conservancy Loop trails connects the Capitol Ice Arena, Quisling Park, and Firefighters Memorial Park on the far west of the City with the northeastern neighborhoods of Northlake and Orchid Heights. This distance spans nearly six miles and is interrupted by only two at-grade street crossings (Century Avenue and Park Street). The South Fork trail connects this east-west route with Greenway Center via Discovery Springs.

Many of the City's activity and employment centers are located along or within a few blocks of the Pheasant Branch Trail network, including the middle and high schools, the aquatic center, several community parks, and numerous large employers and service centers. Several segments of the trail play a key role in facilitating circulation within the community. The west segment of the Conservancy Loop provides the most direct and level route between the Century Ave./Branch St. intersection and Whittlesey Road (the Pheasant Branch Ridge neighborhood); the east and north branches of the trail loop provide residents of northeast Middleton with direct connections to the rest of the city, including the schools that serve their neighborhoods; the trail segment extending west from the Century/Branch intersection provides a direct and comparatively level way to reach Park Street (versus using Century Avenue).

Because of its continuous route through the heart of the community, the Pheasant Branch Trail network provides shared recreational use for pedestrians, bicyclists, birders, joggers, dog-walkers, skiers, and in-line skaters of all ages and skill levels while at the same time accommodating a growing number of bicycle commuters seeking an alternative to traveling along higher-speed roadways. Utilization is heavy along most segments of the trail network, particularly east of Parmenter Street and along the loop that encircles the conservancy. (In 2009, the City installed counters in key locations to begin automatically tracking trail usage.)

To facilitate all-weather use, a 10 ft. wide paved surface exists west of the Century Ave. / Branch St. intersection. The segment between Parmenter and Century consists of porous asphalt and a gravel shoulder so as to better accommodate bicyclists, runners, and skiers. Aside from a few sections of asphalt and boardwalk (including an 800 ft. segment, one of the longest in Dane County), the multi-use routes north of Century Avenue consist of a crushed stone surface ranging in width from 8 feet to 10 feet.

While acknowledging the regional nature of the Pheasant Branch Trail and its use by a range of users, the City wishes to remain sensitive to concerns raised about perceived ecological impacts, potential user conflicts, and changes to the ambiance of the Conservancy. There have also been numerous requests from trail users who desire more passive recreational opportunities. **As a result, this plan calls for leaving all existing Conservancy trails north of Century Avenue unpaved.** Bicyclists who live in northeastern neighborhoods will continue to be allowed to use multi-use trails in the conservancy, but they will need to find alternate routes during snowy or very wet conditions. In the short-term, Century Avenue and Balzer Road (a narrow township road located half mile north of Middleton) will continue to serve as the only two paved connections with the rest of city. (Section 3.3 describes actions that should be taken immediately to improve bicycling conditions in the Century corridor). Looking long-term, the completion of Belle Fontaine Blvd. and a paved North Mendota Trail will provide additional connections for all-weather bicyclists traveling between northeastern neighborhoods and the rest of the city. However, it could be at least a decade before these alternate routes are fully constructed.

To develop the trails as they exist today, the City spent approximately $680,000 over the past decade on the Pheasant Branch and North Fork trail networks. State grants covered the remainder

of the approximate $915,000 total.[2] Several minor projects (linkages) are still planned in order to enhance bicycle and pedestrian access to these two trails.

Actions:

- Where space permits along paved trails, add a 2- to 3-foot-wide, level, unpaved shoulder with a compacted surface (consisting of native limestone screenings) on at least one side to accommodate joggers and others who prefer it. To minimize user conflicts between bicyclists travelling in different directions and with slower moving trail users, a 4" yellow centerline should be added to delineate separate lanes.

- When paving trails, utilize a "green product" and sustainable porous asphalt surface to mitigate water run-off and erosion. Middleton's Public Lands Manager has determined that, based on late-winter field experiments and consultation with paving specialists, there is faster snow melt and less ice build-up on porous asphalt paths. When trails erode, become muddy, or have loose materials on them, they become less safe. This in turn encourages users to go off-path, causing damage to natural resources and further increasing maintenance costs. Porous asphalt also can provide a more desirable running surface because it contains more air voids, is less dense, and has been scientifically found to be softer than hard packed gravel paths or regular asphalt paths. Examples of where porous asphalt has already been used include the recently completed Pheasant Branch Trail segment between Parmenter and Century, paths at Parisi Park and Firefighters Memorial Park, the path connection with Dahlia Court, and the parking lots at Metropolitan Community Park Dog Park and the Pheasant Branch Conservancy west overlook.

- Retain gravel paths (ideally 10' wide) on the existing Pheasant Branch Conservancy Loop Trail to provide for a more serene environment for passive recreation and runners. While bicyclists will continue to be able to use this loop (except during wet or snowy conditions), their speeds are likely to be reduced by the trail surface type, width, additional trail markings, and signage. An unpaved surface likely reduces the number of people who use the trail loop.

- Consider the needs of users with mobility impairments, including wheelchair users. Paths must have flat enough slopes (grades) so that they do not present a hazard. They should also have a firm and stable surface. Asphalt (including porous) and concrete are firm and stable in all conditions. Other shared use path materials, such as crushed limestone, are firm and stable for much of the year, but they tend to be less firm and stable after a heavy rainfall or during the spring thaw. Existing trails that have improper slopes (either vertical or horizontal) should be reconstructed to at least minimum design standards. This includes a short section of the North Fork Trail west of the Deming bridge, where there is an unsafe cross-slope. Nearby trail surface has also deteriorated.

[2] This total does not include the cost to construct bridges in conjunction with road projects, nor does it include development of the South Fork Trail (including the links through Discovery Springs, Greenway Center, and near Esser Pond).

New or improved connections to the existing trail network:

The Pheasant Branch Trail can be accessed at every street crossing and, of course, from connecting trails. A good example is the side path along the east side of Parmenter Street, which connects the trail with Donna Drive. The planning process identified several additional desirable sublinks.

Actions:

- Construct a short but critical 10' paved trail along the west side of Deming Way, between Highway 14 and the Esser Place development. This is a glaring gap in the South Fork Trail network because there are no bike lanes or sidewalks in this block of Deming and the west leg of the Deming & Highway 14 intersection lacks a suitable crosswalk nor does it have pedestrian-activated signals. City staff have obtained official permission to modify the railroad crossing, but design and coordination work needs to be completed with the two property owners to the west from whom right-of-way or an easement must be obtained. This "missing link" should be constructed as soon as possible, either as a "stand-alone" project or in conjunction with a Federally funded project to construct a nearby transit center and reconstruct Deming Way so that it travels beneath the railroad corridor.

- Construct "Cayuga Connection" along the east side of the Highway 12 ramps to connect the Parmenter/Discovery roundabout with Downtown Middleton. This 10' paved trail link will provide trail users with a way to reach downtown without traveling along Parmenter Street. It will also provide access to vacant land that could potentially be used for a mini-park serving the residences west of Parmenter Street. Care must be taken to coordinate trail design and construction with WisDOT and adjacent property owners, including the Middleton Fire District. This project also requires design modifications to the University / Cayuga intersection.

- Replace the sidewalk with a 10' wide paved side path along the west side of Park Street to connect the trail with Kromrey Middle School and the Aquatic Center and Middleton High School. The existing sidewalk is narrow and heavily used, particularly by groups associated with both Kromrey and MHS. Grading, tree removal, and a retaining wall would likely be necessary to expand the sidewalk to the west, but this would have the benefit of improving sightlines between the western trail approach to Park Street and drivers approaching from the south via Park Lawn Place.

- Establish a new 10' wide shared-use trail connecting the southern end of the overlook parking lot near the Pheasant Branch Road / Gaylord Nelson Road intersection with the west segment of the Conservancy Loop trail. The existing pedestrian-only trail is only 6' wide, has steep sections that limit access to the conservancy, and is subject to frequent erosion. A properly designed

trail will accommodate ADA and bicycle access while blending better with the natural topographical features just east of Pheasant Branch Road. The City will attempt to minimize potential erosion without the use of porous asphalt.

- Construct a new, 10' wide shared-use trail segment (with boardwalk section) connecting Marina Court and Allen Court with the southeast segment of the Conservancy Loop. This would enhance access to the Conservancy and its trail system by residents of the multi-family communities near the Century and Allen intersection. At the same time, it would provide residents of northeastern neighborhoods with a more direct connection to the Middleton Springs commercial area. This project would also likely reduce trail access/egress at Harbor Village Condominiums by non-residents.

3.2.2 Rail Corridor Trail ("Good Neighbor Trail")

Develop a path along the WisDOT / Wisconsin & Southern (WSOR) railroad corridor to connect Middleton with the existing bike network east of Whitney Way as well as the future "Good Neighbor Trail" extending westerly through communities along Black Earth Creek.

The rail corridor runs east-west through southern Middleton, connecting downtown Madison, the University of Wisconsin campus, and the Hilldale area with communities to the west of the City along Highway 14 (see the Plan Map). In 2007, the City of Madison conducted a study and design of a trail adjacent to the rail corridor along Campus Drive. This trail was constructed in 2008 and, for now, connects rather indirectly with the Blackhawk Path extending farther west to near Whitney Way. In the next few years, Madison plans to extend the Blackhawk Path across Whitney Way and northwest to the City of Middleton. The rail corridor has been identified by both cities and Dane County as a key regional trail corridor connecting Madison with communities to the west. In fact, representatives from Middleton, Mazomanie, and the communities in between have been meeting regularly for over a year to discuss the creation of a shared-use "Good Neighbor Trail" along the rail corridor.

Developing a "rail with trail" facility requires adhering to facility design standards or guidelines related to shared use paths, pedestrian facilities, railroad facilities, and/or roadway crossings of railroad rights-of-way. In addition, rail operators can set requirements for setbacks or buffers between active rail lines and trail facilities. The WSOR/WisDOT mainline to mainline offset distance minimum is 18 feet, and the shared use path setback is 11 feet minimum (measured from the centerline of the rail to the edge of path). It is expected that the WSOR will require the same offset distance for a trail within the City of Middleton. The City has had preliminary discussions with railroad officials.

The planning and implementation of a shared use trail along the existing rail corridor will need to address a variety of issues related to future track enhancements and the potential implementation of commuter rail. These issues include roadway crossings; the need for trestles, bridges, or tunnels (if required); environmental constraints; trailheads and parking areas; landscaping; drainage; signs and marking; possibly fencing and lighting; and liability.

Estimates costs for the development of the Rail Corridor Trail are included in Chapter 4 and in an appendix to this plan. In order to begin the planning and design work for this trail, the City should:

Actions:

- Undertake a topographic study of the corridor, collecting and collating necessary data on existing structures and utilities. This will provide a base map allowing for the general layout planning, including the identification of obstacles to be considered through the design process.

- Coordinate additional meetings with representatives of the Wisconsin Southern Railroad (WSOR) and the Wisconsin Department of Transportation to explain the project and to verify the design standards they would require for the path to co-exist with the active rail line on their property.

- Work with City of Madison policymakers, street engineers, and the Madison Area Transportation Planning Board to ensure that trail planning, design and funding is well coordinated.

- Integrate the trail with adjacent Park & Ride facilities. In particular, the southwest quadrant of the Highway 14 and West Beltline interchange has been identified as an ideal location for a multimodal Transit Center. In addition to being at the junction of two major highways and well suited to support regional transit operations, this site could serve as the junction for the future rail corridor trail (Good Neighbor Trail) and an extension of the Highway 12 trail, which currently ends at the Pheasant Branch Trail just north of Discovery Drive. For this reason, the City is planning for a bridge for pedestrians and bicyclists across Highway 14 just west of the Beltline. Very few locations in the region have such a high potential for integrating autos, transit, bicycle and pedestrian facilities in a way that enables people to transfer seamlessly between different modes of transportation.

3.2.3 Lakeview Park Trail Connections

Develop a path linking the Pheasant Branch Conservancy with community parks to the south.

For the first time, Middleton's Bicycle and Pedestrian Plan envisions connecting the Pheasant Branch Conservancy with Lakeview Community Park and Madison's Marshall Park. Lakeview Park is already bisected by paved trails that connect the park with the streets that encircle it to the north, south, east and west. Redevelopment of various properties in the Middleton Springs neighborhood may present an opportunity to establish a trail that connects the Lakeview trailhead at Maywood Avenue with Century Avenue, which is across the street from the Conservancy. Such a trail, particularly if it's constructed with a vegetative buffer, could help spur interest and activity in the Middleton Springs area. While crossing Century would present a challenge, it would be easier to do so where the boulevard (median) exists along Century at Middleton Springs Drive. At a minimum, well-marked crosswalks and signage would be necessary near this intersection. A pedestrian-activated signal system may also be desirable here because, at the same time as providing trail continuity, an improved

crossing in this location would improve the ability of residents who live south of Century to access the commercial area on the northwest quadrant of the Century / Allen Blvd. intersection.

South of Lakeview Park, this Plan proposes routing trail users across Allen Blvd. at an improved intersection with Mendota Avenue in order to reach Marshall Park and a multi-use trail leading into Madison. The Allen/Maywood intersection should be considered for installation of traffic signals or, at a minimum, a pedestrian-activated (e.g., HAWK) signal system. The trail would skirt the soccer field and lead into Marshall Park, from which it would be ideal if it could connect with Lake Mendota Drive, a low-volume street that leads through Shorewood Hills to the UW campus. This direct route would require traversing private property in Madison. Nevertheless, Middleton should welcome any efforts by Madison and affected property owners to make such a route a reality. Alternately (or in addition), the two cities could work with property owners to establish a trail linking Marshall Park with Overlook Pass, which would lead to the path along University Avenue.

Though not shown on the Plan Map at this time, another off-street trail could extend along the east side of Allen Blvd., connecting Marshall Park with the commercial area just south of Harbor Athletic Club. Nearly all of this street frontage is publicly owned. Extending such a trail even farther north might be possible as well, but then path users would need to cross the busy east leg of the Century/Allen intersection in order to access the Pheasant Branch Conservancy.

Actions:

- Improve access points (ADA ramps) serving Lakeview Park trails, particularly at Branch St. and Maywood Ave.

- Ensure that redevelopment discussions for the Middleton Springs area include consideration for developing a trail and "greenway corridor" connecting Lakeview Park with the Pheasant Branch Conservancy.

- Pursue improvements at the Allen / Mendota intersection so that trail users can more safely cross Allen Blvd. (See Allen Blvd. in Sec. 3.3 for more details.)

- Encourage Madison officials to identify opportunities to extend a trail from Marshall Park southeast to Lake Mendota Drive, and/or possibly south to Overlook Pass.

3.2.4 Future Trails in Middleton's Growth Areas

Develop paths in conjunction with land development and conservation north, east, and west of the City to connect with existing trails, proposed developments, and regional destinations.

As the City of Middleton grows northward in conformance with intergovernmental agreements with the Towns of Springfield and Westport, the City is planning for the development of trails to serve new development and environmental corridors. The Misty Valley subdivision west of High Road provides a good example of how Middleton expects developers to construct planned trails at the time the rest of the neighborhood's infrastructure is installed, before residents begin occupying new homes. This approach enables prospective lot or home buyers to have a better understanding of the bicycle and pedestrian facilities that serve their area, and it eliminates the potential for future residents to oppose trail improvements after they have moved into the neighborhood.

The Plan Map shows anticipated trail connections in the City's growth area, but their exact locations will be determined as adjoining neighborhoods are designed. The following is a description of the shared use, paved trails that have been identified in this plan.

On the north side of Middleton, the tentatively named "**Misty Valley Trail"** will connect the existing Highway 12 Trail with the west segment of the trail encircling the Pheasant Branch Conservancy. This segment was first identified in the city's 1999 Bicycle & Pedestrian Plan. The portion through the Misty Valley subdivision was constructed in 2008. This 10' wide paved trail currently terminates at High Road at its intersection with Caneel. A paved sublink of the trail is anticipated to encircle Graber Pond, and a paved sublink of this trail needs to extend south toward the Graber Road/Lynn Street intersection so that residents of this developing neighborhood have a safer connection with the rest of the city. (Such a link would provide pedestrians and bicyclists with an alternative to the gap in sidewalk that currently exists along High Road where the adjoining land is not within Middleton's corporate limits. Misty Valley residents requested a better connection with the rest of the city during the planning process.)

To the west of the Misty Valley subdivision, the trail will serve a planned mixed-use development and travel along the south side of Belle Fontaine Blvd. as it approaches Parmenter Street and the Highway 12 Trail. Due to anticipated growth in traffic volumes at this intersection and the raised elevation of Parmenter, this plan recommends that the trail travel through a box culvert beneath the south leg of the Parmenter/Belle Fontaine intersection. East of High Road, a paved trail could connect the neighborhood with the Pheasant Branch Conservancy by either running along a berm just north of residences along Whittlesey Road in the Pheasant Branch Ridge subdivision or by running along the north side of an existing tree line which partially demarcates an area with wetter soil conditions. This latter location is currently outside of the city limits and would likely be better received by homeowners along Whittlesey, but it may not be as easy to construct.

As envisioned in Dane County's 2006-2011 Parks & Open Space Plan, the **"North Mendota Trail"** will link Middleton's trail system with Governor Nelson State Park and the Schumacher Farm near Waunakee. From its connections with the Misty Valley Trail at High Road and the north segment of the Conservancy Loop west of Frederick's Hill, the North Mendota Trail will extend east along the northern edge of the Northlake subdivision[3] before crossing Highway Q (ideally via an overpass due to traffic volumes and topography) and heading into the planned Community of Bishops Bay development. Ideally, the trail will be constructed within a wide natural corridor to buffer trail users and adjacent residents from one another. For the most part, the plan map depicts the route that is preferred by the developer as of July 2009. However, near the eastern end of the Bishops Bay development, the map identifies a more direct route to the CTH M underpass that was constructed by Dane County in 2005 in anticipation of future construction of the North Mendota Trail.

[3] A 10 ft. wide bike path easement exists across the northern border of the northernmost tier of lots in the Northlake subdivision. This easement was put in place in 1995 at the time of subdivision approval to help convey to lot buyers that an east-west path would some day be located in this area. Additional land should be set aside from the adjacent farmstead in order to preserve a wider corridor to accommodate a paved multi-use trail of at least 10 ft. in width.

Based on public feedback provided during the planning process, this plan calls for the North Mendota Trail to extend farther west than previously planned in order to connect with the Misty Valley Trail at the High/Caneel intersection. The purpose for this connection is to maintain a continuously paved trail connecting western Middleton with Governor Nelson State Park. From a regional perspective, the North Mendota Trail will function similarly as the Capital City Trail does on the south side of the Madison metropolitan area. Trail users desiring a paved surface would be able to use the North Mendota, Misty Valley, and Highway 12 Trails in order to travel between the state park and the "trailhead junction" near the confluence of the north and south forks of the Pheasant Branch Creek (between Deming Way and the Beltline). The Pheasant Branch Trail also provides a connection for people traveling between these locations, but about half of that route is envisioned to remain unpaved.

Farther north, the tentatively named **"Quarry Trail"** is intended to connect the northwestern corner of the Pheasant Branch Conservancy with the ridge abutting the east side of the Yahara quarry before dropping in elevation to link with the Highway 12 Trail just south of Highway K. Due to anticipated traffic volumes, this plan recommends a grade-separated crossing in the location where the trail crosses the future extension of Belle Fontaine Blvd. It will likely be at least five years before any portion of the Quarry Trail is developed. As was stated for the North Mendota Trail, ideally developers will make the paved trail a centerpiece of their neighborhoods by locating it within a natural corridor at least 200 feet in width and providing sublinks with hilltops, parks, and any other public attractions that develop in this area.

To the north of the Pheasant Branch Conservancy, this plan identifies a paved trail connecting **Metropolitan Community Park** (also known as the Metropolitan Refuse District site) and points beyond (including potentially Waunakee) with the north segment of the Pheasant Branch Conservancy Loop. The trail could follow in part the ridgeline extending north of Frederick's Hill before dropping in elevation west of the hill, where it would intersect with the North Mendota Trail extending east to Governor Nelson State Park. As with the Quarry Trail, the "MCP Trail" could have a grade-separated crossing where it intersects with future Belle Fontaine Blvd. and a planned road that connects with the Northlake subdivision (this latter road will carry less traffic, which makes having a grade-separated less necessary). Here again, the ideal trail design would be to locate it within a wide natural corridor, consistent with planning that has taken place as part of the North Mendota Parkway discussions with Dane County.

The plan map also shows a trail branching northward across Oncken Road to connect with Dorn Creek and points beyond, as well as links extending southward to provide better connections with existing and proposed neighborhoods. The only other shared use trail that is specifically proposed in City's northern growth area is the partial loop around the **Larwood Hills** subdivision in the Town of Westport, just south of Balzer Road. This loop was found in one of the plans consulted during preparation of this plan.

As they review developer plans, the City and Town of Westport should consult with the Dane County Parks Division on the design of these trails and work to ensure that the number of street crossings are minimized, particularly if the trails are located as a side path along any of the roadways. Side paths can create safety issues at intersections with streets and driveways. (See Appendix B for more information about side paths.)

West of Middleton, this Plan anticipates the extension of four trails. The paved portion of the **North Fork Trail** currently terminates at the Tallard Conservancy west of Middleton Municipal Airport.

During Fall 2009, the Town of Middleton constructed an unpaved extension of this trail west to Capitol View Road. This plan anticipates that this trail will eventually extend farther west to several Town subdivisions and possibly Sunset Ridge Elementary School.

To the south, a trail currently ends on the southern edge of the developing **Hidden Oaks** subdivision. This trail is envisioned to extend southwesterly across undeveloped Dane County parkland to connect with the proposed Good Neighbor Trail and the Erdman property. This would create a direct, nearly uninterrupted connection between Park Street in Middleton and the Black Earth Creek watershed. However, this trail extension will require a grade-separated crossing of Highway 14.

The "**Good Neighbor Trail"** itself is planned to extend generally along the rail corridor, connecting Middleton with Cross Plains, Black Earth, and Mazomanie. A group of residents and officials of these communities has been meeting for over a year to begin planning for the development of this shared use trail. The present design concept is to construct a 10 ft. paved trail alongside a 12' gravel surface to accommodate a wide range of users including equestrians, snowmobilers, bicyclists and pedestrians.

Finally, the City of Middleton is planning to extend the **South Fork / Greenway Center Trail** westward across Pleasant View Road and along the northern edge of the Pleasant View Golf Course. (This could be done in conjunction with development of a 10-acre parcel on the east side of the road.) The trail would also connect with the Erdman property and other lands in the Town of Middleton. A few contours will be necessary for the trail to traverse the hill between the south fork and Pleasant View Road. A less desirable alternative would be to route the trail westward along Greenway Blvd. and then north along Pleasant View Road to the driveway serving the golf course.

Actions:

- Work with land owners and prospective developers to identify opportunities for reserving trail corridors that provide access to natural amenities (such as vistas, woods, and prairies) while at the same time establishing routes that help trail users circulate safely and conveniently around the community.
- Consult with the Dane County Parks Division on the design of trails and work to ensure that the number of street crossings is minimized, particularly if the trails are located as a side path along any of the roadways.

3.3 On-Street Bicycle and Pedestrian Network

This section details planned bicycle and pedestrian facility improvements for the City's major street corridors. Most people who use their bicycle for commuting or errands will travel on city streets as long as they feel safe and adequately separated from motor vehicles. Streets enable bicyclists to travel at a higher speed than on trails, and they usually provide a more direct route between origin and destination.

Since the adoption of the 1999 Bicycle and Pedestrian Plan, the City has made significant strides toward developing suitable bicycle facilities along arterials and collectors—generally in the form of marked bike lanes. However, several key routes lack adequate bicycle and pedestrian

accommodations and therefore fall short of a "Complete Street" (see Sec. 2-3). Nearly all of the streets listed below (and depicted on the Plan Map) are arterial or collector streets that carry a higher volume of traffic than local, neighborhood streets. Routes not listed in this section can be assumed to be suitable for bicycling due to their low traffic volumes or because they already have adequate facilities (e.g., marked bike lanes). Carrying out the actions identified in this section will give bicyclists and pedestrians safer and more convenient connections to major destinations, shared use trails, and neighboring communities.

3.3.1 Allen Boulevard / CTH Q

This four-lane boulevard, which carries over 20,000 vehicles on an average weekday, is a key route for bicyclists who are traveling around Lake Mendota. As is the case with Century Avenue east of Allen, there is enough room to mark 4 ft. bike lanes in each travel direction. A continuous sidewalk and path system (connecting Century and University) is currently limited to the west side of Allen.

To mitigate the barrier presented by this relatively high volume corridor, this Plan identifies two intersections—Maywood and Mendota—where, at a minimum, some sort of pedestrian-activated signal system would be useful. Alternately, the installation of traditional traffic signals could also help drivers, bicyclists and pedestrians maneuver onto or across Allen at these intersections.

KEY INTERSECTIONS ALONG ALLEN BLVD. CORRIDOR

Allen Blvd. and Century Ave.: See Century Ave. section.

Allen Blvd. and Maywood Ave.

Action:

- Plan for the installation of a traffic signal in conjunction with redevelopment of the former Sentry grocery store and other properties in the Middleton Springs area. This will help pedestrians and bicyclists travel between residences and commercial establishments on both sides of Allen.

Allen Blvd. and Mendota Ave.

Actions:

- Review and update (if necessary) existing engineering studies (including a warrants analysis) to determine whether a traditional signalized intersection might be justifiable.
- At a minimum, install a pedestrian-activated (HAWK) signal system to help pedestrians and bicyclists travel between Lakeview Park west of Allen and Marshall Park and the soccer fields east of Allen. This intersection is also the key linkage between trails on both sides of Allen Blvd.

3.3.2 Belle Fontaine Boulevard and Other Streets in Northern Growth Area

The City of Middleton has incorporated bicycle lanes into the ultimate design for the entire length of Belle Fontaine Blvd., which is being built in conjunction with adjacent development. Upon its completion, which probably won't happen for over a decade, Belle Fontaine will connect Parmenter Street (at the Schneider intersection) with CTH Q. This route will help relieve (or at least reduce the increase in) traffic along Century Avenue and Balzer Roads. In the short-term, only one side of Belle

Fontaine is being constructed, meaning bicyclists will not have marked bike lanes until the street is fully built out. The only section built to date is in the Misty Valley subdivision west of High Road.

Another major (collector) street is planned to connect Belle Fontaine with the Northlake neighborhood and CTH Q south of the Larwood Hills subdivision. This street could also directly serve the planned Bishops Bay development. For these reasons, the street should be designed with bike lanes to facilitate circulation north of the Pheasant Branch Conservancy.

Actions:

- Plan for the construction of the other half of Belle Fontaine Blvd. as traffic volumes warrant, but before the route becomes hazardous to bicyclists.
- Capitalize on opportunities where natural topography could facilitate grade-separated trail crossings to accommodate the planned "Quarry Trail" and "MRD Trail" (see Section 3.2.4). At a minimum, any on-street trail crossings need to be carefully designed so that they are as safe as possible with minimal disruption to trail continuity.
- Plan for bike lanes along the collector street that is planned to connect Belle Fontaine with the Northlake subdivision and CTH Q.

3.3.3 Blackhawk Road

Blackhawk Road is a popular "urban escape route" for bicyclists because it carries lower traffic volumes than the adjacent parallel routes of Old Sauk Road to the south and U.S. Highway 14 to the north. A portion of Blackhawk forms a boundary between the cities of Madison and Middleton. In June 2009, the City of Madison (with Middleton's consent) authorized the reconstruction of Blackhawk Road with bicycle lanes from its intersection with Pleasant View Road west to Rose Court. This work should be completed by Fall 2010. The Town of Middleton's portion farther to the west was recently rebuilt without designated bike lanes, but they may consider adding lanes as a nearby school site develops. For the foreseeable future, the City of Middleton does not need to take any action to ensure that the needs of bicyclists and pedestrians are addressed along its portion of this route.

3.3.4 Branch Street

Portions of Branch Street carry between 7,000 and 9,000 motor vehicles on an average weekday, as well as numerous bicyclists and pedestrians, because it is one of Middleton's few direct north-south routes and because it serves Sauk Trail Elementary School. This street is also a key southern gateway to the Pheasant Branch Conservancy trail network. The City's current Five-Year Street Improvement Plan calls for Branch Street to be reconstructed in 2013. However, this Bicycle and Pedestrian Plan recommends that the City reconstruct the street sooner because its surface is already quite deteriorated and is particularly hazardous to bicyclists. If the entire street cannot be rebuilt sooner, then the City should consider temporary repairs. Because of the relatively high traffic volumes, bike lanes should be added along Branch Street at the time of reconstruction. This will require the removal of parking from one side of the road. During the planning process, some adjacent residents expressed concern about the potential removal of on-street parking.

Actions:

- Consider accelerating the schedule for reconstructing Branch Street. If the street cannot be rebuilt in the near future, the City should pursue spot repairs as needed to improve safety for bicyclists.

- Install bike lanes in conjunction with street reconstruction.

- Install a pedestrian refuge(s) at the intersection with Franklin Ave. to make it easier and safer for pedestrians and bicyclists to cross the street, thereby enhancing neighborhood connectivity. It would be desirable to re-align the Lakeview Park trail access and ADA ramp to one of the crosswalks. (ADA ramps should align with crosswalks and be perpendicular to the street when possible.)

- Consider the installation of a pedestrian refuge(s) at the intersection with Columbus to make it easier and safer for pedestrians to cross the street, thereby enhancing neighborhood connectivity. (It should be noted, however, that neither side of Columbus currently has a sidewalk.)

- Consult closely with the Sauk Trail Elementary School community on measures to improve pedestrian safety around the school. The addition of bike lanes along Branch would likely affect school-related parking as well as student drop-off and pick-up procedures.

3.3.5 Cayuga Street

Because of its short length and placement of mailboxes in the median, Cayuga has slower traffic than most streets. Although motor vehicles frequently are turning into midblock driveways, this one block long street is relatively safe for bicycling. The importance of this route to bicyclists and pedestrians will increase if the "Cayuga Connection" trail link is constructed and the University/Cayuga intersection is improved to better accommodate those modes. The street will become even more important as a bicycle route if a connection is constructed between the Elmwood/Cayuga intersection and the planned trail along the rail corridor.

Action:

- Study how best to accommodate bicyclists along Cayuga in conjunction with efforts to implement the "Cayuga Connection" trail link and/or a link to the rail corridor.

3.3.6 Century Avenue / County Trunk Highway M

EAST OF ALLEN BLVD.

Existing conditions:
Century Avenue (CTH M) east of Allen Blvd. is a principal arterial road that provides a vital route around Lake Mendota. In addition to being a county trunk highway carrying over 25,000 vehicles per day (between Allen Blvd. and CTH Q/Hedden Rd.), this corridor is the most direct route for bicyclists traveling around the lake, and it is the only direct road connection between Middleton's northeastern neighborhoods and the rest of the community. Although wide shoulders currently exist along CTH M east of the city limits, there currently are no designated bicycle facilities along Century Avenue. Bicyclists are allowed to use the roadway and narrow sidewalks on either side of the road, but neither facility provides an adequately safe or comfortable ride, and there isn't room for a bicyclist to pass a pedestrian on the sidewalk.[4] This illustrates the hazard of bicycling along a

[4] In 2008, a bicyclist traveling eastbound on the southern sidewalk was struck by a vehicle and seriously injured in part due to a different vehicle blocking his path in the crosswalk. This illustrates the hazard of bicycling along a sidewalk or a poorly designed side path. Also see Appendix B.

sidewalk or a poorly designed side path.) The 1999 Bicycle and Pedestrian Plan identified the need for improved bicycle accommodations along this corridor, but until this plan there had not been a good solution researched and recommended for this corridor.

Bicyclists and pedestrians traveling west on Century Ave

The difficulty in constructing bicycle facilities along Century Avenue east of Allen Blvd. is due to:

- Vehicle volumes and speeds along Century Ave (the posted speed limit is 35 mph)
- The sidewalks are located at the outer edges of the street right-of-way, which itself is quite narrow
- The terraces are narrow, and the northern terrace contains utility poles and pedestals
- The bridge over Pheasant Branch Creek is narrow and lacks separation between the street and the two sidewalks
- Driveway conflicts, particularly on the south side of Century.

Alternatives:

The only potential parallel route is the southeast portion of the Pheasant Branch Conservancy trail loop, but that gravel trail segment is planned to remain unimproved and it does not adequately serve the needs of most bicyclists who wish to travel along the Century Avenue corridor. For example, bicyclists who are heading west around Lake Mendota would not want to travel along several streets in the Orchid Heights neighborhood just to reach a trail access point and then have to exit the trail at Branch Street, west of their Allen Blvd. destination. Discouraging such higher-speed bicyclists from using conservancy trails was also a desire frequently mentioned as part of the public input guiding the development of this plan.

Actions:

- Establish a marked bicycle lane in each direction on the roadway to accommodate Class A (highly confident) bicyclists. The existing lane markings will be shifted "inward" toward the median to convert the existing 12' lanes to two 10' travel lanes and one 4' bicycle lane (not counting curb and gutter). The Dane County Highway Commissioner's office has indicated it can support this change in lane configuration given the 35 mph posted speed limit. The primary purpose of establishing these lanes (in addition to the side-path described below) is to accommodate commuters and touring bicyclists, including those who already travel around Lake Mendota along Highway M's wide shoulders. These shoulders currently only exist outside of the city limits, just east of Mendota County Park. The bike lanes would end at Allen Blvd., at which point bicyclists would need to share a lane. (Just west of Allen, near Middleton Springs Drive, the median ends and the roadway narrows enough to make it impossible to safely include bike lanes and existing travel lanes while maintaining the existing curbs.)

- Replace the existing narrow sidewalk with an off-street, 10 foot side-path on the north side of the roadway to better accommodate Class B & C bicyclists and pedestrians. This will require acquiring up to 6 feet of right-of-way from adjacent properties. (Expansion toward the terrace is not a viable option due to its narrow width and the presence of utility poles.) The north side of Century is the better location for a side-path because it has fewer intersections with side streets and driveways, meaning fewer potential conflicts between bicyclists and motor vehicles.

Developing a 10 foot side-path on the north side of Century would not be easy to accomplish in all locations, however. The segment between the two Highway Way intersections would necessitate grading, installation of retaining walls, and relocation of fences. If this becomes a desirable course of action, the City should consider assuming responsibility for maintaining this portion of the shared use path.[5] (It is presently very impractical for adjacent property owners to clear snow from the existing sidewalk.) As a short-term option, or in lieu of constructing this segment altogether, bicyclists using the shared path to the west and east could be routed along the Highland Way loop or along Cedar Ridge Road.

It would be impossible to maintain an 8-to-10 foot side-path atop the existing bridge over Pheasant Branch Creek east of Marina Drive. The best option here might be to add a new span cantilevered out from the existing bridge structure, adjacent to the railing, to provide some separation from motor vehicles. Most other locations along the shared path would require relatively minor grading and landscaping.

It should be noted that developing side paths is generally discouraged because of the potential for bicycle conflicts with vehicles at intersections (including driveways). However, a well-designed side path incorporating ample signage oriented to both vehicles and path users (e.g., stop signs and marked crosswalks at driveways) and unobstructed sight lines would be an improvement over existing conditions. The City should also consider the use of different pavement color within crosswalks utilized by the side path. For more information about side-paths, see Appendix B.

WEST OF ALLEN BLVD.

Existing Conditions:

Century Avenue (CTH M) west of Allen Blvd. is classified as a principle arterial road and carries 15,000 to 20,000 vehicles per day. Although traffic volumes are not quite as heavy as the eastern segment, this stretch of Century is nevertheless not very conducive to on-street bicycling for much of the day. Unfortunately, the sidewalks on both sides are narrow, and the northern sidewalk between Old Creek Road and Branch Street is oftentimes encroached upon by vehicles parked in short driveways. This makes it rather unpleasant—if not an outright challenge—for pedestrians and bicyclists to travel along this part of the corridor in order to get to and from Branch Street and the Pheasant Branch Trail. Because the right-of-way and street width are narrower than east of Allen and there is no center median, it is not possible to reduce the four travel lane widths enough to make room for a bike lane in each direction.

Alternatives:

The only alternate route for bicyclists who wish to travel between Branch Street and Pheasant Branch Road is the west leg of the Pheasant Branch Conservancy trail loop, which is planned to remain unpaved. However, this route would not adequately serve the needs of bicyclists during wet

[5] The City has committed to maintaining short segments of "regional" shared use paths along Deming Way and Parmenter Street, so this would not be setting a precedent.

or snowy conditions, and it wouldn't accommodate bicyclists who wish to travel west toward the Middleton Hills commercial area.

Actions:

- Continue the planned 10' wide side path along the north side of Century from Allen Blvd. west to Old Creek Road. (From this point, pedestrians and bicyclists are able to follow Old Creek Road to the Middleton Hills street network.) This will necessitate the acquisition of up to 6' of land from adjacent properties, except for in the vicinity of the CVS property where an easement exists to accommodate a wider side path. Acquiring land may be especially difficult in front of the four homes between Old Creek Rd. and the Pheasant Branch Creek bridge because of their extraordinarily narrow front yards. Any redevelopment of these lots should result in a greater building setback and, ideally, shared driveways to reduce conflict points with the side path. As is the case with the bridge in the eastern segment, a cantilevered bridge would be desirable to hang off the north side of Century at the creek crossing west of Branch St. There also needs to be ample cautionary signage installed along this side path because of several intersecting driveways.

KEY INTERSECTIONS ALONG CENTURY AVENUE CORRIDOR

Century Avenue and CTH Q / Hedden Road:

The intersection of Century Ave and Highway Q has been identified as a problem intersection for both bicyclists and pedestrians. There has been at least one pedestrian fatality (and several close calls) in the vicinity of this intersection. The fatality occurred on Century Avenue near the west crosswalk as a vehicle turned right from Highway Q west onto Century Avenue. Currently, no designated bicycle facilities exist at this intersection. Unless they are very confident riders, bicyclists tend to use crosswalks to traverse this intersection.

At many arterial street intersections, pedestrians have difficulty crossing due to right-turn movements and wide crossing distances. The large curb radii at the northeast and northwest corners of this intersection allows for faster moving right-turn vehicle movements, creating unsafe conditions for pedestrians and bicyclists. The right turn "slip-lane" at the northeast corner of the intersection also requires cyclists and pedestrians to cross in two stages. Improvements to bicycle and pedestrian safety at the intersection of Century Ave and Highway Q will need to address these issues as well as sight lines of right-turning vehicles and wide crossing distances for pedestrians. City staff should work with Dane County highway engineers to identify and implement improvements.

Actions:

- Evaluate potential modifications to intersection geometry to reduce pedestrian, bicycle and motor vehicle conflicts. This should include a consideration of ways to reduce the crossing distance for pedestrians and cyclists using the proposed side-path by allocating more space to median islands. Median islands should be at least 6 feet wide to be used as bicycle refuges.
- Consider the installation of curbside pedestrian/bicycle detection systems, as well as the impact on maintenance costs and pedestrian expectations. Curbside detection of pedestrians at a

signalized intersection can be used to automatically place a call to the traffic signal controller for a pedestrian WALK indication. Curbside detection is commonly used in conjunction with the standard pedestrian push button. The automatic detection can be added to increase the safety of children who may not always use the push button.

- Improve sight lines between turning vehicles and pedestrians. This may involve relocating crosswalks.

Century Avenue and Baskerville Avenue / Highway Way:

The City of Middleton recently installed a traffic signal here in part to help accommodate pedestrians in their attempt to cross Century Avenue to travel between the Highland neighborhood (which provides access to the conservancy) and Baskerville neighborhood (which features the neighborhood park).

Action:

- No changes at this intersection are recommended at this time other than accommodating the bike lanes on the west and east approaches and replacing the sidewalk with a wider, shared path on the north side of Century. (See beginning of this section.)

Century Avenue and Allen Boulevard:

This signalized intersection experiences significant congestion during the morning and afternoon peak travel periods. Traffic volumes are heavy and, even though there are pedestrian-activated signals, pedestrians crossing the western, southern, and eastern legs must cross multiple lanes of traffic and a median. For the foreseeable future, bicyclists approaching from the east and wishing to turn south onto Allen will need to merge into the center lane (which is a shared left-turn and straight-through lane) or use the crosswalk at the west leg. The City's 2006 Transportation Network Plan recommended further study of developing a potential roundabout at this intersection.

Action:

- Consider the use of countdown timers at this intersection, particularly on the west and southern legs, and accommodate bike lanes on the west, east and south approaches (also Allen Blvd. corridor). Otherwise, no other changes are recommended at this time. The needs of bicyclists and pedestrians will need to be taken into account whenever the City decides to reconstruct this intersection.

Century Avenue and Middleton Springs Drive (or some nearby location):

If a trail is constructed to connect the Pheasant Branch Conservancy with Lakeview Park, there will likely be a need to install a pedestrian-activated signal somewhere between Middleton Springs Drive and Amherst Rd. Such a signal would also help overcome the barrier that Century creates between residents who live south of Century and the shopping area on the north side. (Currently, pedestrians desiring to cross at a signal need to walk west to Branch St. or east to Allen Blvd.)

Action:

- Evaluate the ramifications of installing a crosswalk with pedestrian-activated signals in conjunction with redevelopment south of Century.

Century Avenue and Branch Street:

This intersection has some of the highest pedestrian and bicyclist activity in the City because the Pheasant Branch Trail crosses Century on the west side of Branch St. Unfortunately, there is not enough vertical and horizontal clearance for the trail to cross Century beneath the existing bridge over Pheasant Branch Creek. Until such time as the bridge is reconstructed, bicyclists and

pedestrians using the trail need to be able to cross safely the west leg of this intersection. Given the high number of pedestrians and bicyclists, the City should pursue short-term measures to improve crosswalk visibility, trail approaches, and signage, as well as modify the traffic signals so that they can be more easily utilized by both groups. In particular, this plan recommends making this location the first in Middleton to have a pedestrian-activated countdown timer.

Actions:

- Widen and make more prominent the crosswalks across the west and south legs of this intersection.
- Re-align ramps and trail approaches as necessary (some utility pole relocation may be necessary on the north side of the intersection).
- Install countdown signal timers that can be easily accessed by both pedestrians and bicyclists.
- Widen the sidewalk on the south side of Century from Branch Street west to the bridge because this is part of the Pheasant Branch Trail route. This may require some minor property acquisition.

3.3.7 County Trunk Highway (CTH) Q

This county route carries nearly 10,000 vehicles on the average weekday. Traffic volumes will likely increase quite a bit in the coming years as development occurs in Middleton's northern growth area and other communities. Although CTH Q has wide, paved shoulders north of the city limits, there are no marked bicycle lanes along the urban (curbed) section with Middleton. In addition, this isn't a "pedestrian-friendly" route because the only sidewalk that exists is one that immediately abuts the curb along the west side of the road. Fortunately, there is ample room to mark bicycle lanes within the city limits while maintaining one travel lane in each direction.

Narrow sidewalk and no terrace on west side of CTH Q.

Actions:

- Mark bicycle lanes within the urban cross-section located with the city limits. This should be done at the same time as the reconfiguration of lanes along Century Ave.

- Plan for a sidewalk along the east side of CTH Q. Some easements will need to be obtained in order to avoid tree impacts, and significant landscaping work will be necessary.

- Ensure that traffic impact analyses prepared for proposed developments to the north consider the likely impact to pedestrian and bicycle circulation along this corridor.

A short section of sidewalk was installed on the east side of CTH Q in conjunction with the development of the Frisco Court Condominiums. However, several obstacles to the south will make it challenging to extend the sidewalk to Century Avenue.

3.3.8 Deming Way

Traffic along Deming Way has increased significantly in the past few years, particularly near Highway 14 in conjunction with development in Discovery Springs. Between University and Discovery Drive in early 2009, the City implemented a center-lane TWLTL (two-way-left-turn-lane) with a narrow travel lane in each direction alongside a shared on-street bicycle and parking lane. This street configuration appears to be working well. On-street parking is permitted after 6:00 p.m. to help accommodate periodic overflow parking from nearby restaurants. As traffic volumes increase in conjunction with nearby land development, bike lanes and possibly one or more parking lanes should be delineated along Deming within the Airport Road Business Park.

South of University Avenue, the first block of Deming is hilly and lacks any bicycle lanes or sidewalks, a situation which is one of the greatest obstacles to bicycle and pedestrian circulation in Middleton. This block is the only gap in the South Fork Trail, which currently terminates on the south side of the tracks and on the northwest quadrant of the Deming/University intersection. In 2008, the City approached the property owners on the west side of Deming about the need to acquire some land to construct a side path. In addition, it received approval from railroad authorities to construct the path cross the tracks. In 2009, plans were developed to lower Deming so that it would pass under the railroad tracks. This work was included as part of a City grant application to develop a nearby transit center and parking structure. The City and WisDOT also began studying the Deming/University intersection in order to improve traffic flow. Pedestrians are currently accommodated very poorly (lack of crosswalks and traffic signal walk displays). The decision on how to proceed with accommodating bicyclists and pedestrians is tied to the outcome of the grant application and the decision by WisDOT over how to improve the intersection.

Bike lanes and side paths exist along Deming between Terrace Avenue and the roundabout at John Q. Hammons Drive. No changes are necessary in this block. Bicycle and pedestrian accommodations are also adequate farther south, where Deming runs through the Greenway Station shopping center.

Actions:

- Construct a shared sidewalk and bike path along the west side of Deming between USH 14 and Esser Place. Aside from providing necessary pedestrian accommodations alongside a busy road, a 10' wide path would complete the "missing link" in the South Fork Trail.
- Accommodate pedestrians and bicycles as part of any redesign of the intersection with Highway 14.
- Extend bike lanes and a TWLTL northward along Deming from Discovery Drive as traffic volumes increase in conjunction with adjacent development.

3.3.9 Greenway Boulevard

Greenway Boulevard is not well suited for bicycling because it has four 12' travel lanes and closely-spaced, signalized intersections (including the Beltline on- and off-ramps). Due to space constraints, particularly beneath the Beltline bridge, it would be difficult to modify the road to accommodate

bicyclists, although it would be possible to establish a 4' wide bike lane if the travel lanes were reduced to 10 ft. Greenway Blvd. does have at least 5' wide sidewalks on both sides that are used by both bicyclists and pedestrians. Though not ideal, the sidewalks seem to be the best way to accommodate the less confident Class B and C bicyclists who don't wish to cross the Beltline at the Terrace Avenue underpass about 2,000 feet to the north.

It is easier to bike along Greenway Blvd. west of Deming Way because of lower traffic volumes. This plan recommends adding bike lanes along Greenway between its intersection with South Fork Trail and Pleasant View Road because this route is used by bicyclists who wish to head into the countryside along Blackhawk Road.

Actions:

- Add bike lanes along Greenway, between Pleasant View Road and the South Fork bike path (just west of Aspen Commons). Alternately, investigate the potential use of "sharrows" in the outside lane once they become an accepted MUTCD standard.
- Promote the development of a grade-separated crossing of the Beltline south of Greenway Blvd. so that pedestrians and bicyclists can travel between residential neighborhoods and the Old Sauk Trails and Greenway Center office parks. Based on preliminary planning by Madison, one potential location for such a crossing is near where the South Fork of Pheasant Branch Creek crosses the Beltline.
- Study the remainder of the Greenway Blvd. corridor to identify potential improvements for bicyclists.

3.3.10 Nursery Drive

Nursery Drive is the most direct route for drivers traveling between Discovery Drive and the Beltline ramps at Airport Road. Traffic levels are currently relatively light, but they will significantly increase as adjacent land development occurs. The road width (40 ft.) is the same as Deming Way to the south. As traffic volumes increase, bike lanes and possibly one or more parking lanes should be delineated along Nursery. The City should also ensure that adjacent developments have adequate off-street parking to meet their needs.

Action:

- Mark 5' bicycle lanes along the length of Nursery Drive as traffic increases in conjunction with adjacent development.

3.3.11 Old Middleton Road

The City of Madison is planning to reconstruct Old Middleton Road with bicycle lanes and sidewalk in 2010. This project will significantly improve bicycle and pedestrian connections between Middleton and Madison. This will particularly benefit pedestrians who currently walk along the shoulder to travel between Countryside Drive and Cypress Trail. Middleton's city engineer has been actively working with Madison staff to coordinate Middleton's involvement in this project.

Action:

- Continue coordination with Madison to implement bike lanes and a sidewalk along Old Middleton Road in 2010.

3.3.12 Park Street / Gammon Road / High Road

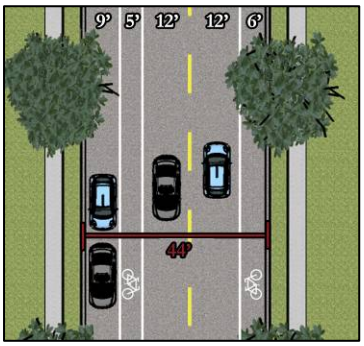
Establish bike lanes along the Park/Gammon/High street corridor so as to develop a north-south route through the heart of Middleton and to facilitate access to the Pheasant Branch and Rail Corridor trails.

The City of Middleton currently lacks an uninterrupted, north-south bicycle facility. This planning process identified the High Road – Park Street – Gammon Road corridor as an appropriate route for connecting Middleton's growing north side (e.g., the Misty Valley neighborhood) with its southern neighborhoods straddling Gammon Road. Until 2009, the only bicycle facilities that existed along the corridor were a short bike lane south of Kromrey Middle School and a narrow path running along a never-constructed section of Park Street between Maywood Ave and Parisi Park. In the summer of 2009, the three-block segment of Park Street between Maywood and University was reconstructed with two bike lanes and on-street parking on the west side of the street. No bicycle accommodations exist south of University, and it is often difficult for pedestrians to cross that part of the corridor due to traffic volumes ranging from about 11,000 to 13,000 vehicles on an average weekday.

The purpose of upgrading bicycle facilities along the High/Park/Gammon corridor is to provide a safer passage for bicyclists traveling north-south through Middleton. This route provides the best, most direct option for linking the two trail networks east of the Beltline (the Pheasant Branch Trail and the planned trail along the rail corridor). The roadway configurations below are designed to provide bicycle facilities as well as calm (slow down) traffic along the entire length of the corridor. To accommodate varying roadway characteristics, bicycle facilities and street cross-sections are planned to vary as shown for each of the following segments.

Actions:

- Mark bicycle lanes and adjust parking and travel lanes along the corridor as follows:

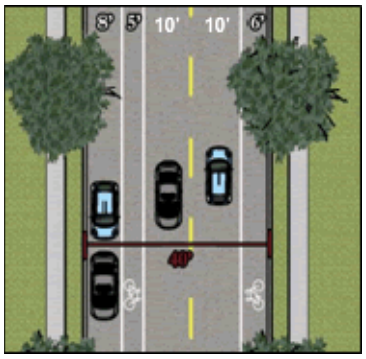


High Road north of Century Avenue (44 feet face to face of curb)

- 12-foot travel lanes
- On-street parking: Removed on eastern side, 9-foot parking lane remains on western side
- Bicycle lanes to be marked with bicycle symbol in the curb lane on the eastern side and between the parking and travel lanes on the western side. (A parking lane is planned to remain on the west side to serve adjacent residences and Northside School.)

Century Ave. to south of Pheasant Branch Trail intersection (44 feet face to face)

- 12-foot travel lanes
- On-street parking: Removed on the western side, 9-foot parking lane remains on eastern side
- Bicycle lanes to be marked with bicycle symbol in the curb lane on the western side and between the parking and travel lanes on the eastern side.

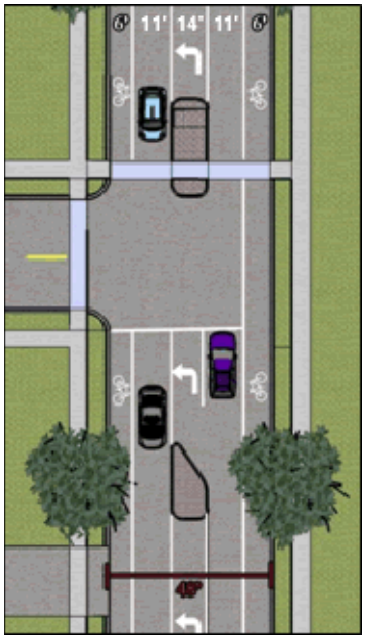


Maywood Ave. to University Ave. (40 feet face to face)

- Note: This cross-section was constructed in Summer 2009
- 10-foot travel lanes
- On-street parking: Removed on the eastern side, 6-foot (plus gutter) parking lane remains on western side
- Bicycle lanes are marked with bicycle symbol in the curb lane on the eastern side and between the parking and travel lanes on the western side.
- See Pages 41-44 for facility improvement options for the Park / University intersection and the University-to-Elmwood block.

Elmwood Ave to the Railroad tracks (36 feet face to face)

- 12-foot travel lanes
- On-street parking: Removed on both sides of the street
- Resurface the street to reduce noise and provide safer surface for bicycling.
- Bicycle lanes (6') are provided adjacent to curb and marked with bicycle symbols for bicycle use on both sides of the street
- See Pages 41-44 for facility improvement options for the Park / University intersection and the University-to-Elmwood block.



Gammon Rd. to southern City limits (48 feet face to face)

- 11-foot travel lanes (one in each direction)
- Median refuges at intersection crosswalks (at Railroad crossing, Gammon/Fortune and—depending on the distance this section extends southward into Madison—possibly at Gammon/Middleton, Gammon/Stone Glen, and Gammon/ Stonefield)
- A two-way left-turn lane (14-foot) interspersed between the median refuges.
- No on-street parking on either side of the road (same as current conditions)
- Bicycle lanes (6') to be provided adjacent to curb and marked with bicycle symbols for bicycle use on both sides of the street

The provision of on-street bicycle facilities along the Park Street Corridor will also need to address:

- Conflicts with on-street parking (see below);
- Safe intersection crossings, particularly at the intersection of University Ave. and Park St.; and
- Where bicycle facilities are adjacent to the curb, the replacement of existing inlet drainage grates to bicycle-safe grates.

Parking:

The proposed bicycle facilities described above will remove existing on-street parking along a portion of Park St. As part of this planning process, the City notified adjacent residents about this prospect. Response was mixed, ranging from outright opposition to removing on-street parking to seeing this as an opportunity to calm traffic and improve driveway sight lines. Various alternatives to enable both on-street bicycle facilities while retaining on-street parking, such as time of day restrictions, could be investigated along Park St. Some cities, for example, have experimented with "time-of-day" bicycle lanes (for example, a parking lane becomes a bicycle lane during school hours and then reverts to on-street parking for evening and overnight). One disadvantage to this concept is that overnight parking may block the bicycle lane during the start of the bicycle lane hours. Allowing off-peak parking would also hinder bicycle access to the planned rail corridor trail during non-peak hours, thereby reducing the use of Park Street as a backbone route as intended by this plan. In all cases, on-street parking will remain available on nearby cross-streets.

KEY INTERSECTIONS ALONG HIGH / PARK / GAMMON CORRIDOR

High Road / Park Street and Century Avenue:

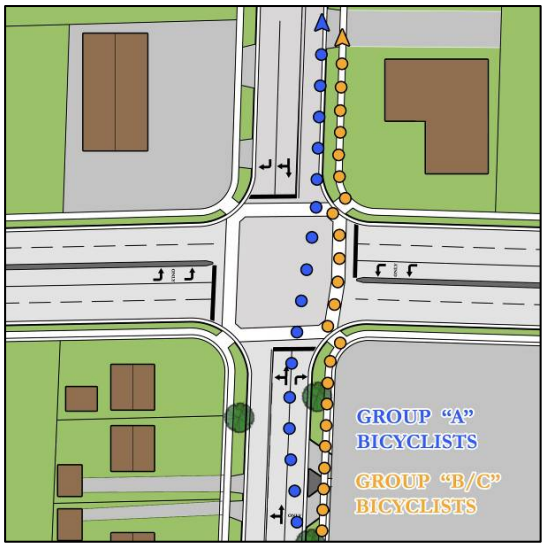
The west leg of this intersection is used quite heavily by middle school-aged school children as well as some elementary students. The school district does offer bus transportation to students who need to cross Century to access either Northside or Kromrey.

Actions:

- Consider changes to increase safety of pedestrian crossings, such as through enhanced pavement markings and a countdown timer.
- Evaluate the potential to widen the street toward the east in order to carry bike lanes through the intersection.

Park Street and University Avenue:

The intersection of Park St. and University Ave. is a challenging intersection for pedestrians, bicyclists, and motorists. The City's Traffic Management Plan proposed the construction of a roundabout in this location, but that is unlikely to happen in the foreseeable future due to the need for right-of-way acquisition. The success of the Park Street bike lanes (discussed above) relies on the safe movement of bicycles, as well as vehicles, across University Ave. There are currently no designated bicycle facilities through the intersection, and the northbound travel lane is not properly aligned. In preparation of this plan, the movement of bicyclists travelling along Park St. north and south through the intersection was noted and categorized into two user groups (see figure right).



The first user group, largely defined as Group A bicyclists[6], approach the intersection in the parking

[6] **Group A - Advanced Bicyclists:** Consists of experienced riders who can operate under most traffic conditions, and compose the majority of users of collector and arterial highway systems.
Group B - Basic Bicyclists: Consists of new or casual adult or teenage riders who are less confident and/or less competent (than Group A riders) to operate in traffic without special provisions for bicyclists. Group B riders prefer comfortable access to destinations, by a direct route or bicycle facility, which they perceive as safe.
Group C - Child Bicyclists: This group consists of pre-teen riders whose roadway use is initially monitored by their parents.

lane or shoulder. To travel northbound through the intersection, this group would move to the center right of the through lane to avoid vehicles turning right at the intersection.

The second user group, largely defined as Group B and Group C bicyclists, would approach the intersection in the parking lane or shoulder and before reaching the intersection would move onto the sidewalk in order to cross the intersection at the pedestrian crossing. A diagram of these northbound movements is highlighted in the figure above. Southbound movements are much the same.

To improve the safety of bicyclists and pedestrians crossing University Ave, Middleton can pursue the short-term and long-term actions as follows:

Actions:

- Implement a short-term solution, Option 1, consisting of:
  - South of University Ave: A 5 foot bicycle lane on the west side; one 10 ft. southbound travel lane; one 10 ft. northbound straight and left-turn lane; and an 11 foot northbound shared bicycle and right turn lane on the east side. The northbound bicycle lane approaching from the south would end just north of the Elmwood intersection. (Note: The two 10 ft. travel lanes are 1 foot less than the minor arterial cross-section standard approved by the City Council in 2006, but this helps avoid expanding the roadway.)
  - North of University Ave: An 11 foot shared bicycle and right turn lane on the west side and a 5-foot bicycle lane on the east side of Park Street. (Bike lanes were added to this leg of Park Street during the 2009 reconstruction project.)

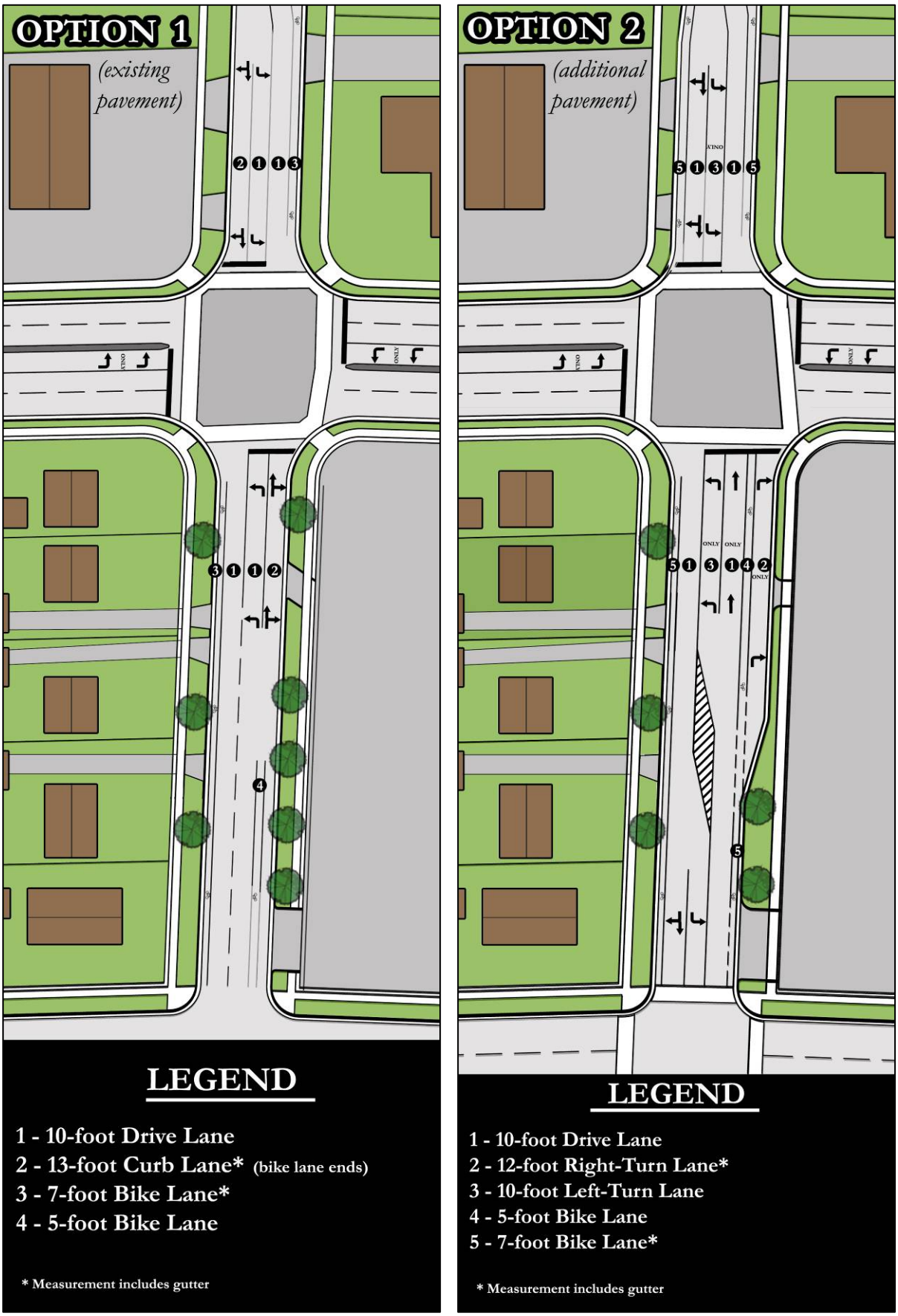
- Evaluate and refine a preferred longer-term solution, Option 2, consisting of:
  - South of University Ave: 3 separate lanes for left, straight and right northbound traffic movements, with a 4-foot bicycle lane between the straight and right turn lane on the east side of Park Street and a 5 foot bicycle lane on the west side of Park Street. This will require the acquisition of an approximately 12-foot-wide strip of land from the adjacent commercial center for the additional traffic lane. This would likely result in the loss of 16 parking spaces. In addition, five relatively mature terrace trees would have to be replaced. It will have to be determined whether this impact is worth the anticipated benefits of improved safety and reduced congestion. This lane configuration is one potential course of action; it does not supplant the need for more detailed analysis and design work.
  - North of University Ave: Similar to Option 1 except for the addition of bike lanes up to the intersection.

- Investigate bicycle detection devices to improve the safe movement of bicycles through the intersection.

- Upgrade to ADA-compliant pedestrian push buttons. Investigate pedestrian detection devices to automatically detect pedestrian presence. This increases the safety of the crossing by allowing extra walk time for pedestrians who may need more time to make the crossing. The crossing's efficiency is also improved by truncating the walk phase if the crossing has cleared.

- Replace drainage grates with bicycle-safe drainage grates (see examples in previous section).

Proposed configuration options for bicycle facilities at the intersection of Park Street and University Avenue



It should be noted that pursuing the long-term safety measure is not guaranteed to solve all safety issues at a congested intersection like Park & University, where there are a lot of turning movements. Indeed, at least some of the pedestrian/vehicle collisions in recent years are due to pedestrians deciding to cross against a red light. Nevertheless, educational and enforcement initiatives combined with the pursuit of short- and long-term safety measures will benefit all street users, not just the bicyclists who use the newly established bike lanes along the Park Street corridor.

Park Street's Intersections with Elmwood, Hubbard, and South:

Aside from serving as a barrier between adjoining residential neighborhoods, the high traffic volumes along Park Street impede residents' access to basic community resources such as Elm Lawn Elementary School, nearby businesses, and parks and conservancy areas. This planning process elicited public comments that the street has a "toxic combination of traffic speed and volume" that make it "virtually impenetrable to children, elderly, and other physically impaired pedestrians." This plan proposes specific steps at these three intersections to help overcome this barrier. These improvements should be considered in concert with the corridor improvements described above.

Actions:

- Clearly mark and maintain all pedestrian crosswalks.

- Investigate potential improvements to facilitate use of crosswalks. One option to consider is the addition of an in-pavement flashing warning light system, particularly at South Ave. because it is a designated school crosswalk.

- Regularly enforce the posted speed limit (25 mph, except for 15 mph within the school zone when children are present). A speed feedback sign installed by the City near South Avenue in 2009 indicates that vehicles routinely travel over the speed limit, and some vehicles have been observed to travel more than 20 mph over the limit.

Park Street and Railroad Tracks:

The planned construction of a shared use path along the rail corridor will create demand for bicyclists and pedestrians to cross Park Street at a location where few people currently cross. The installation of median refuges will help channelize traffic (particularly northbound vehicles) and would enable bicyclists and pedestrians to cross one direction of travel at a time. Developing a trail crossing at the railroad tracks would also have the added benefit of improving access to the Tiedeman Pond trail loop for people who live east of Park St. There should be adequate pavement width to maintain bike lanes across the tracks.

Actions:

- Coordinate with railroad officials to site pedestrian refuges (minimally 6' wide) at the center of both the north and south approaches to the railroad tracks.
- Develop an enhanced crosswalk.

Gammon Road and Fortune Drive

Giving Gammon a "road diet" will provide space to install a pedestrian refuge on the north leg of this three-legged intersection. Drivers approaching from the south will be able to use the center lane to turn left into Fortune Drive, but no complementary turning maneuver is possible for southbound traffic. The installation of a pedestrian refuge will enable bicyclists and pedestrians to cross one direction of travel at a time, making it easier for people to travel between residential neighborhoods and to and from Elm Lawn Elementary School.

Action:

- Install a pedestrian refuge within the TWLTL on the north leg of the intersection in conjunction with converting Gammon from a 4-lane to a 2-lane-with-a-TWLTL cross-section.

3.3.13 Parmenter Street

The Highway 12 bypass enabled the City of Middleton to convert this corridor into a bicycle- and pedestrian-friendly route intended to serve an area that is planned to redevelop with greater density as an extension of downtown Middleton. The segment of Parmenter between Century Avenue and the roundabout at Discovery Drive now consists of a boulevard with bike lanes and sidewalks on both sides of the street. It carries approximately 6,500 vehicles on an average weekday. The section of Parmenter north of Century is planned to be reconstructed with bike lanes and sidewalks in conjunction with the planned Tribeca development.

South of the roundabout, Parmenter is 36 feet wide with sidewalks and relatively narrow (5.5 ft.) terraces on both sides. Due in part to changing traffic patterns prompted by the Highway 12 bypass, this segment of Parmenter now carries around 5,000 vehicles on an average weekday. In order to extend the bike lanes from the new section of Parmenter south to downtown Middleton without widening the road (something which would require expensive right-of-way acquisition), it will be necessary to remove the parking lane from one side of the street.

KEY INTERSECTIONS ALONG PARMENTER STREET CORRIDOR

Parmenter and Schneider Road / Belle Fontaine Blvd.:

Although currently a lightly used three-legged intersection, the extension of Belle Fontaine Blvd. westward from the Misty Valley subdivision will introduce a fourth leg to this intersection and help spur a steady increase in traffic. The planned Misty Valley Trail will also approach this intersection from the east along the south side of Belle Fontaine. This plan recommends that the trail take advantage of existing topography and cross beneath the south leg of Parmenter so as to give regional trail users an alternative to crossing what is likely to become a pretty congested corridor. It is likely that the future four-legged intersection will be a strong candidate for a roundabout.

Action:

- Ensure that regional bicycle and pedestrian circulation is factored in to the design of this future intersection. Both an at-grade and grade-separated crossing may be desirable.

Parmenter and Century Place:

A gate has long separated the end of Century Place from Parmenter Street (dating back to when this corridor functioned as Highway 12). Now that nearly all regional traffic has been rerouted to a bypass, the City may want to consider reconnecting this street to facilitate access and circulation in the area (this would provide an alternative to using the Century Avenue and Century Place

intersection). Even if Parmenter and Century Place remain disconnected for motor vehicle circulation, it would be desirable to restore a connection for bicyclists and pedestrians.

Action:

- Construct a 10' paved path connecting Parmenter with Century Place (absent a decision to connect the two streets for motor vehicle circulation).

Parmenter and University Avenue:

This intersection is significantly constrained by development, particularly on the west side of Parmenter. Vehicle congestion has steadily increased as Middleton's business parks have grown, its downtown has rejuvenated, and traffic patterns have shifted due to the Highway 12 Bypass. As the City evaluates ways to improve traffic flow through this intersection, it is imperative that the needs of bicyclists and pedestrians be taken into consideration. Facilitating the ability to travel by bike or on foot will enhance the connection between downtown Middleton and the mix of residential, commercial, and institutional land uses that are already found along Parmenter north of University.

Action:

- Install pedestrian countdown signals on all four legs of the intersection.
- Monitor opportunities for potentially acquiring adjacent property so as to widen the two Parmenter approaches for the purpose of carrying bike lanes through the intersection.

3.3.14 Pleasant View Road

The City of Madison and Dane County are planning to extend Pleasant View Road from its junction with Mineral Point Road south to CTH M, which leads to Verona. While that project is located in Madison, it will accelerate the growth in traffic along Pleasant View Road in Middleton because it provides area residents with an alternative to a congested Beltline. Already, approximately 7,500 vehicles travel on the south leg of the Pleasant View / Highway 14 intersection on a typical weekday. This plan reinforces regional interest in having bike lanes included with any Pleasant View Road redesign, both south and north of Highway 14. When the City of Middleton extended the road north from Fairway Place in the early 2000s, Pleasant View Road was constructed wide enough to accommodate a bike lane along two travel lanes in each direction.

Actions:

- Add bike lanes on Pleasant View Road and University Green from Evergreen Road south to the city limits.
- Support WisDOT efforts to improve the USH 14 intersection, possibly even with a new interchange. Ensure that bicycles and pedestrians are accommodated during any design process.

3.3.15 Stonefield Road

Although officially designated a collector street, Stonefield Road carries on average just over 2,000 vehicles per day. It connects the St. Dunstan's Drive bike path on the east with the Wexford Village neighborhood across Gammon Road to the west. The relatively low traffic volume and limited on-street parking already make this a fairly safe route for bicyclists. However, it would still be appropriate to enhance bicycle accommodations along Stonefield Road because it offers the most direct route through the Stonefield neighborhood. The addition of bike lanes would likely require the removal of parking on one side of the street.

Action:

- Add bike lanes along the length of Stonefield Road. Alternately, consider the use of signage designating this area as a key bicycle route.

3.3.16 University Avenue

Like Century Avenue, University Avenue is one of two arterials that run east-west through Middleton. Average weekday traffic volumes exceed 20,000 vehicles throughout the corridor, and approach 30,000 vehicles east of the Allen Blvd. intersection. Sidewalks exist along both sides of University east of the Beltline. To help make it easier for pedestrians (and bicyclists) to cross University, the City installed a traffic signal at Bristol Street during Fall 2009. Pedestrian-activated signals also exist at the Parmenter, Park, Branch, and Allen Blvd. intersections. Due to narrow right-of-way (66 feet in some places), short building setbacks, and numerous driveway conflicts, it is unfeasible to add bicycle lanes along University Avenue west of Branch Street. Fortunately, the local streets that parallel this section of University (Franklin Avenue to the north and Elmwood Avenue to the south) provide suitable bicycle accommodations, although bicyclists need to use caution to cross the Park Street corridor, particularly at Elmwood Ave.

East of Branch Street, a parallel street does not exist on the north side of University, and bicyclists who wish to travel from Franklin Avenue to Elmwood Avenue must follow a convoluted route through a public alley or along the sidewalk in order to reach Maple Street and get to Elmwood. This segment of University has fewer driveways, wider terraces, and greater building setbacks. Therefore, this plan recommends establishing bike lanes along University east of Branch. These would connect with the bicycle lanes that are planned to be added when University Avenue is reconstructed east of Allen Blvd.

Actions:

- Install bike lanes between Allen Blvd. and Branch Street, to extend the section that will have bike lanes upon completion of the University Avenue reconstruction project in 2012.
- Install “Bike Route” signs to direct bicyclists to parallel streets (Franklin and Elmwood).

KEY INTERSECTIONS ALONG UNIVERSITY AVENUE CORRIDOR

University and Allen Boulevard:

This intersection carries some of the highest traffic volumes in the City and has substantial turning movements between the north and east legs. Crosswalks exist across the north, west, and south legs, but it is particularly hazardous for pedestrians to cross Allen Blvd. due to a near constant flow of westbound drivers turning right onto northbound Allen. Drivers sometimes do not stop even when pedestrians have activated the walk signal and triggered a red light for turning vehicles. Madison is investigating alternatives for addressing this situation. This intersection needs to be analyzed further for safety improvements as part of the University Avenue reconstruction project.

Action:

- Analyze methods for improving pedestrian and bicyclist safety, particular for those traveling across the north (Allen Blvd.) leg of this intersection.

University and Branch Street:

Because of adjacent commercial land uses and because Branch serves as a gateway to the Pheasant Branch Conservancy, quite a few pedestrians and bicyclists travel through this intersection. The City could enhance pedestrian safety at this intersection with a very modest investment.

Action:

- Install enhanced crosswalk markings and a countdown timer.

University and Park Street: See Park Street corridor.

University and Bristol Street:

A traffic signal was installed during Fall 2009 in response to concerns about the safety of pedestrians (oftentimes teenagers) who are traveling to and from Middleton High School.

Action:

- Monitor the conditions caused by the introduction of this traffic signal and make adjustments as necessary.

University and Parmenter Street:

This intersection is crowded by commercial activities in the northwest and southwest quadrants, thereby severely limiting options for widening the approaches for the purpose of improving traffic flow. On the other hand, narrower street approaches mean that pedestrians have a shorter distance to cross the street. In the short-term, the City could enhance pedestrian safety at this intersection with a fairly modest investment. Looking long-term, pedestrian safety and convenience may be compromised as traffic increases and the intersection becomes even more congested. It may be necessary at some point for the city to look at ways to widen the intersection.

Actions:

- Install enhanced crosswalk markings and countdown timers on all four legs of the intersection.
- Monitor opportunities for potentially widening the intersection.

University and Cayuga Boulevard / Beltline ramps:

If the "Cayuga Connection" trail link is built, the east leg of this intersection will require modification.

Action:

- Install enhanced crosswalk markings and a countdown timer on the east leg of the intersection, in conjunction with construction of the "Cayuga Connector" (a trail extending north to the Parmenter/Discovery roundabout).

University / Highway 14 and Deming Way: See Deming Way section.

University / Highway 14 and Pleasant View Road:

This intersection currently lacks pedestrian and bicycle accommodations. This situation will need to be remedied in conjunction with any plans to construct a new intersection (or possibly an interchange) in this area. Accommodating pedestrians across Highway 14 is not a high priority until there are such accommodations along the Pleasant View Road corridor.

Action:

- Monitor and support regional efforts to plan and design a new intersection or interchange in this area.

3.4 SIDEWALKS

While sidewalks exist along most Middleton streets, there are a few residential and commercial areas where sidewalks are lacking. In general, where sidewalks are missing from residential neighborhoods (such as Baskerville and Saks Woods), residents appear to be content with present conditions. No changes are recommended in these areas because sidewalks are located along all collector and arterial streets, enabling neighborhoods to be connected with one another. However, in commercial areas such as the Middleton Business Park, the lack of sidewalks is a more serious issue because pedestrians must walk in the street (particularly during snowy conditions) in order to access businesses or obtain exercise. It is quite common to see employees walk in these streets during work breaks. Many delivery vehicles (including semi-trailers) use these streets. Installing sidewalks in these areas will require extensive coordination with adjacent property owners so as to minimize impact to vegetation and utilities.

Particular care should be given to the condition of sidewalks in the vicinity of Middleton's three elementary schools, Kromrey Middle School, and Middleton High School. The City should step up efforts to work with school administrators, teachers, parents, and students to identify hazards and conditions that inhibit walking or bicycling to school. The national Safe Routes To School Program provides an excellent guide for steps that can be taken to address safety concerns around schools.

Actions:

- Plan for the installation of sidewalks in conjunction with street reconstruction projects along the following corridors:
  - Donna Drive (west of Parmenter)
  - Graber Road
  - Laura Lane
  - Lisa Lane
  - East side of CTH Q
  - East side of High Rd. (between Frank Lloyd Wright Ave. and Century)
  - Along Old Middleton Road east of Countryside Dr. (planned for 2010).

  Note: Donna, Laura, and Lisa could potentially be reconfigured as part of a TIF-assisted redevelopment project.

- Initiate a dialogue with businesses in the Middleton Business Park (west of Discovery Springs, north of Highway 14). None of these streets currently have sidewalks, yet quite a few employees and visitors walk in the streets for travel or exercise.

- Work more proactively with school officials to identify and mitigate potential safety hazards that inhibit walking or bicycling to school.

- Work with the Public Works Department and neighborhood groups to install pedestrian refuges at midblock crosswalks to promote safety and traffic calming. This may necessitate the removal of on-street parking for a short distance around the crosswalk so as to leave

room for on-street bicyclists. Pedestrian refuges should be considered where the midblock path connecting Franklin Avenue with Parisi Park crosses North Avenue and Maywood Avenue. Midblock paths also exist in several other neighborhoods, including Foxridge, Stonefield, Northlake and the area around Northside School.

4 IMPLEMENTATION

The implementation chapter provides a compilation of local actions necessary to achieve the vision, goals and policies of this plan. The section provides a compilation of actions outlined in Chapter 2 and a description of bicycle and pedestrian improvements outlined in the City's system plan as illustrated in the Plan Map and described in Chapter 3. This chapter includes a timeline for each action or improvement and identifies potential funding strategies. The goal of the City is to complete a majority of the bicycle and pedestrian improvements listed in this plan by 2015.

PLANNING ACTIONS (see Sec. 2.2)

ACTION	RESPONSIBLE PARTY	TIMEFRAME
1. Officially map existing and planned bicycle and pedestrian facility rights-of-way.	Planning, PW staff Plan Cmsn, Council	Continual
2. Expand the use of bike lanes along streets with high traffic volumes, including those classified as arterial and collector routes or at a minimum designate and sign suitable parallel routes.	Planning, PW	Continual
3. Consider providing bike lanes along low volume streets where necessary or where the street serves as a major link between other parts of the bikeway network.	Planning, PW	Continual
4. Designate and maintain official bicycle routes through way-finding signage and pavement markings.	PW	Short term (<1 year)
5. In business areas, along collector and arterial routes where no sidewalks currently exist, investigate funding alternatives. Explore cost-sharing potential with adjacent property owners.	Planning, PW	Medium term (2-5 yrs)
6. Modify the City's Comprehensive Plan and Zoning subdivision ordinance to incorporate bicycle and pedestrian system design principles.	Plan Cmsn, Council	Short term (2 years)
7. Modify the City's zoning standards for multi-family residential, commercial, and industrial land uses to incorporate elements to meet the needs of pedestrians and bicyclists.	Plan Cmsn, Council	Short term (2 years)
8. Follow access control regulations in order to reduce the number of access drives along streets.	PW	Continual
9. Consult this Plan when reviewing development proposals.	Planning	Continual
10. Plan for the development of a regional intermodal facility.	Planning	Short-term (<2 years)
11. Monitor regional initiatives pertaining to commuter rail and Metro Transit bus service.	Planning	Continual
12. Monitor the strategies and recommendations of the bicycle and pedestrian plans of local, regional and state planning agencies.	Planning	Continual
13. Identify weak links and discontinuities in the existing network.	Planning, PW	Short term (<1 year)
14. Continue participation in regional bicycle and pedestrian planning activities.	Planning	Continual
15. Adopt by ordinance bicycle parking requirements for new development. Suggested requirements are provided as an appendix to this Plan.	Plan Cmsn, Council	Short term (<1 year)
16. Work with land owners, developers, and other jurisdictions to establish shared-use trails as integral components of new greenways and along environmental corridors.	Planning, PW	Continual
17. Retain designated hiking trails that remain unpaved and are limited to pedestrian use to enhance passive recreation opportunities.	Public Lands	Continual
18. Establish shared-use trails as integral components of new greenways and along environmental corridors.	Planning, Pub Lands, Developers	Continual
19. Pursue bicycle and pedestrian related grants, including Enhancement Grants, Safe Routes to School, and various trail development grants.	Planning	Continual
20. Ensure adequate funding is available in the City's annual operating and capital budgets to support planning and implementation activities.	Council (with input from Planning, PW and Public Lands)	Continual

DESIGN, CONSTRUCTION, AND MAINTENANCE ACTIONS (see Sec. 2.3)

ACTION	RESPONSIBLE PARTY	TIMEFRAME
1. Adopt by Common Council resolution a "Complete Streets "policy statement.	PW Cmte, Plan Cmsn, Council	Short term (< 1 year)
2. Continue to revise City roadway policies and design standards as necessary to accommodate all users.	PW staff & Cmsn	Continual
3. Design all new construction and reconstruction to meet AASHTO and ADA guidelines and all other related, applicable, Federal and State design standards.	PW, Public Lands staff and city consultants	Continual
4. Post and maintain additional "Yield to Pedestrian in Crosswalk" signs in accordance with City Policy	PW staff	Short-term (< 2 yrs)
5. Modify traffic signals to include a lead pedestrian interval where there are a high number of pedestrian/vehicle conflicts.	PW	Continual
6. Consider the use of countdown timers and pedestrian signals at intersections.	PW	Continual
7. Continue to apply appropriate traffic calming techniques in locations where they would benefit bicyclists and pedestrians.	PW	Continual
8. Address safety hazards from outdated design standards, such as unsafe inlet grates	PW	Short-term (<2 yrs)
9. Refine as necessary design standards for the shared use of off-street routes that accommodate all users. (See Conservancy Lands Plan)	PW, Public Lands	Short-term (<2 yrs)
10. Provide off-street bicycle and pedestrian facilities when it would be unsafe to locate such facilities on the street.	Planning, PW, Public Lands	Continual
11. Construct sidewalks in the Middleton Business Park.	PW	Medium-term (2-5 yrs)
12. Incorporate marked bike lanes along all arterial and collector streets to the extent possible.	PW	Continual
13. Make new and reconstructed intersections bicycle-friendly wherever possible.	PW	Continual
14. Ensure that new and refurbished bridges and underpasses are safe for bicycling.	PW	Continual
15. Ensure that traffic calming measures do not hinder bicycle travel.	PW	Continual
16. Consider the use of "pedestrian refuge" crossing islands.	PW	Continual; as needed
17. Examine potential conflicts related to diagonal parking and intersection alignments. Investigate feasibility of creating "reverse diagonal spaces."	Planning, PW	Short-term (2 years)
18. Assess all sidewalks every eight years to identify and mitigate safety hazards.	PW	Continual
19. Regularly trim vegetation over sidewalks	Public Lands, homeowners	Continual
20. Develop a procedure for routine inspection and maintenance of bicycle facilities.	Planning, PW, Public Lands	Short-term (2 years)
21. Repair potholes, repave streets and trails, and replace worn pavement markings, bike symbols, and damaged street signs as necessary.	PW	Continual
22. Adopt a policy to remove snow from all paved trail surfaces within 24 hours after the end of a snowfall.	Public Lands	Short-term (2 years)
23. Review the City's 5-year street improvement program to integrate trail resurfacing or reconstruction, or develop a separate bike path resurfacing program that is consulted during annual budget deliberations and capital improvement programming.	PW	Continual
24. Only allow the operation of heavy motor vehicles on bikeways when necessary.	PW, Public Lands	Continual
25. Ensure prompt repair of pavement cuts into bike lanes and trails.	PW	Continual
26. Require private contractors and utility companies that damage bikeways to repair them immediately to a specified standard.	PW	Continual

EDUCATION, ENFORCEMENT, AND ENCOURAGEMENT ACTIONS (see Sec. 2.4)

ACTION	RESPONSIBLE PARTY	TIMEFRAME
1. Establish a committee to advise the City on matters pertaining to bicyclists and pedestrians.	Council (upon staff guidance)	Short term (< 1 year)
2. Familiarize key City officials with the exemplary bicycle and pedestrian safety initiatives adopted by the City of Madison and other leading communities.	Planning, PW	Short-term (<2 years)
3. Provide periodic training for the City's transportation planners and engineers in order to incorporate bicycle and pedestrian accommodations, review projects, and monitor grant opportunities.	Planning, Administration	Continual
4. Provide training to Police Department personnel on bicycle/pedestrian issues and laws.	MiPD	Continual
5. Consider designating a "Middleton Bicycling Ambassador."	Planning, MiPD	Short term (< 1 year)
6. Apply for grants that will help fund projects or programs which promote safety of the bicycling and pedestrian network.	Planning, MiPD	Continual
7. Challenge employers and organizers throughout Middleton to participate in a bicycle incentive programs, such as Dane County's "Bike to Work Week."	Planning	Annually
8. Work with community partners, including the Chamber of Commerce and Tourism Office, to establish a "Shop by Bike" program.	Planning, Cmty Devel	Short-term (<2 years)
9. Work with various organizations to investigate and, as appropriate, implement other safety programs that should be taught to school-aged children as well as adults.	Planning, MiPD, MCPASD	Continual
10. Support and build on existing Middleton Police Department initiatives to promote the use of bicycle helmets.	MiPD	Continual
11. Continue to maintain pedestrian crossing flags in high use areas, and consider expanding the program to other locations.	PW	Continual
12. Expand bike/pedestrian safety programs as part of the Police Department's annual National Night Out.	MiPD	Annually
13. Acquire and disseminate literature that promotes appropriate bicycle laws, safety tips, and bike commuting for the general public. Provide links to this information on the City's website.	MiPD, Planning, IT	Continual
14. Educate property owners about keeping debris (including yard waste) off of sidewalks and out of bike lanes.	PW	Continual
15. Use signs to educate motorists to share the road with bicyclists and pedestrians.	PW	Continual
16. Install "trail etiquette" signs to reduce use conflicts along multi-use trails.	Public Lands	Short term (< 1 year)
17. Expand the use of portable message centers and speed feedback displays along key routes, particularly near schools, midblock crosswalks, and trail intersections.	MiPD, Community Services Manager	Continual
18. Publicize a City Hall phone number and e-mail address for people to report maintenance needs, suggest bike rack locations, etc.	Administration, IT (with guidance from others)	Continual
19. Analyze bicycle, pedestrian and vehicle crash records and develop a focused enforcement effort as necessary	MiPD, PW	Continual
20. Utilize community volunteers to help monitor areas where violations are known or have been reported to occur.	MiPD, Public Lands	Continual; as needed
21. Investigate new approaches for reporting bicycle and pedestrian crashes.	MiPD	Continual
22. Continue the City's existing bicycle-licensing system.	MiPD	Continual

ACTION	RESPONSIBLE PARTY	TIMEFRAME
23. Periodically patrol the City's off-street trail system, focusing in particular on bridge underpasses and remote trail segments.	MiPD	Continual
24. Install and maintain modern bicycle racks designed for short-term parking in highly visible locations, including near business entrances.	Cmty Devel, PW, private sector	Short-term (2 years)
25. Work with larger employers and owners of multi-unit residential buildings to establish long-term parking areas that offer a higher level of security, including lockers and indoor parking.	MiPD, Planning, private sector	Continual
26. Add bicycle parking requirements to the zoning ordinance.	Plan Cmsn, Council	Short-term (2 years)
27. Develop, maintain, and make available guidelines for bicycle rack installation.	Planning staff	Short-term (2 years)
28. Remove abandoned bicycles that are blocking the public right-of-way. Work with private sector to ensure that abandoned bicycles are not taking up bike rack space.	PW, MiPD, private sector	Continual
29. Provide a comprehensive bicycle and pedestrian system map and signage system and place at strategic locations throughout the City.	Public Lands, Planning, PW	Short-term (2 years)
30. Distribute a bicycle and pedestrian system map to public buildings (including schools), the Middleton Chamber of Commerce, large employers, bike shops, and fitness centers.	Public Lands, Planning	Annually
31. Encourage public participation at appropriate committee meetings and forums.	Everyone	Continual
32. Publish an annual report summarizing activities and accomplishments pertaining to walking and bicycling.	Planning	Annually
33. Report on key bicycling and pedestrian issues in the City's spring and fall newsletters, the City's website, and its free E-government subscription service. Post information in appropriate venues, including public buildings and kiosks.	Planning, PW, Public Lands	Continual
34. Write a periodic "bicycle/pedestrian column" for the *Middleton Times-Tribune*.	Planning	Continual
35. Encourage businesses to accommodate the needs of employees who choose to bike or walk to work.	Planning, private sector	Continual
36. Investigate City co-sponsorship of events that promote these modes of transportation.	Planning, Cmty Devel	Continual
37. Collaborate with other area communities to promote Middleton and the greater Madison area as a destination for bicycle tourism.	Planning, Cmty Devel	Continual
38. Encourage local bike shops and hotels to make bicycles available for rent.	Planning, Cmty Devel	Continual

FACILITY IMPROVEMENTS: OFF-STREET TRAIL NETWORK (see Sec. 3.2)

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
GENERAL / ALL SEGMENTS	All segments	Install trail etiquette signs (20)	$2000	CLC Capital	2010
	All segments	Apply lane markings where necessary to help guide users	$2,000	CLC Capital	2010
	General	Consider the development of "fast paced" recreation facility for mountain biking and similar activities	T.B.D.	PRFC Capital, private sponsors, grant(s)	Short-term (<2 years)
	All segments	Install gates/bollards to discourage vehicles from trespassing onto trails.	$500	CLC Capital	2010
	Total Cost		**$4,500 +**		

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
PHEASANT BRANCH TRAIL	All paved segments (where space permits)	Add unpaved shoulder on one side to accommodate users who prefer not to travel on pavement.	T.B.D.	CLC Capital	Dependent on user requests
	Segments that are planned for paving or reconstruction.	Utilize porous asphalt surface.	$1.25 / sf (same as reg. asphalt)	CLC Capital	---
	Conservancy Loop Trail	Retain unpaved surface along existing loop trail.	$0 (not counting maintenance)	---	---
	All segments	Accommodate users with mobility impairments.	Varies	T.B.D.	As needed
	North Fork trail just west of Deming bridge	Correct horizontal cross-slope and reconstruct deteriorated section.	$10,000	CLC Capital	2010
	South Fork Trail, between Highway 14 and Esser Place.	Construct 10' paved shared-use trail west side of Deming Way (if Deming underpass is not built)	$100,000	TIF #3	Short-term (<2 yrs)
	Cayuga Connection (along east side of Highway 12 ramps)	Construct 10' paved trail (approx. 2,500')	$50,000	CLC Capital, possibly TIF	Medium term (2-5 yrs)
	Kromrey Middle School & Aquatic Center connections	Replace sidewalk with 10' wide paved trail along west side of Park Street (safety, capacity).	$40,000	Capital (CLC, PW)	Short-term (<2 yrs)
	Link between overlook parking lot and West Trail	Replace existing eroded, ped-only trail with 10' wide shared-use trail	$2,000	CLC Capital	2010
	Link between Allen Ct. and Southeast Trail	Construct 10' wide shared-use trail w/ boardwalk to enhance access and reduce trespassing.	$80,000	CLC Capital	Complete in 2010
	Total Cost		**$282,000 +**		

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
R AILROAD CORRIDOR	Within City municipal boundary	Meet with w/ WSOR, WisDOT, Madison to coordinate project	$0	Grants, Madison and Middleton capital project	Continual
		Study & Preliminary Design	$197,000		Short-term (<2 yrs)
		Final Plans & Preparation	$146,000		
		Path Construction (with lighting if desired)	$2,245,000		Medium-term (2-5 yrs)
	West of Beltline	Integrate trail with Park & Ride facility and transit center.	T.B.D.	Fed. TIGER grant	Medium-term (2-5 yrs)
	Total Cost	**(See Appendix C)**	**$2,588,000**		

LAKEVIEW PARK TRAIL CONNECTIONS	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
	Lakeview Park	Improve trail access points with ADA ramps. (2)	$1,000	PW Capital	Short-term (<2 yrs.)
	Middleton Springs neighborhood	Plan for developing a trail and greenway corridor in conjunction with any redevelopment.	T.B.D.	Developer, possibly TIF assistance	Ongoing & as opportunities arise
	Allen/Mendota intersection	See ALLEN BLVD CORRIDOR	---	---	---
	Southern extension into Madison	Work with Madison officials to extend a trail to Lake Mendota Drive and/or Overlook Pass	T.B.D.	Capital; possible grant	Medium-term (2-5 yrs.)
	Total Cost		**$0**		

FUTURE TRAIL EXTENSIONS	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
	Urban growth areas	Identify opportunities for reserving key, natural, trail and greenway corridors.	---	---	Continual
		Consult with Dane County Parks on trail design issues.	---	---	As needed
	"Misty Valley Trail" (Hwy 12 to West Conservancy Trail)	10' wide off-street paved trail (grading & construction est.)	T.B.D. (depending on route)	Developer, CLC Capital	Medium-term (2-5 yrs)
	"Graber South" link (Misty Valley to Graber Road.)	10' wide off-street paved trail	$30,000	CLC Capital	2010
	"North Mendota Trail" (High Rd. to Gov. Nelson State Park)	10' wide off-street paved trail	T.B.D.	Developer, County, Grants	Medium-term (5-8 yrs)
		Overpass at Highway Q	T.B.D. (>$1 million)	Grants, Fed $ thru MPO, County, City assistance	Long-term (8+ years)
		Connecting links to north and into development(s)	T.B.D.	Developer	In conjunction with devel.
	"Quarry Trail" (Hwy 12 from north of quarry to PB Conserv)	10' wide off-street paved trail	T.B.D.	Developer	In conjunction with devel.
	Metropolitan Community Park	10' wide off-street paved trail	T.B.D.	CLC Capital, Developer, possibly County	Long-term, in conjunction with devel.
	Larwood Hills loop	Trail (surface & width T.B.D.)	T.B.D.	Developer	In conjunction with devel.
	North Fork Trail – westward extension	10' wide shared-used trail (surface T.B.D.)	T.B.D.	Town of Middleton	Up to Town
	Hidden Oaks Trail – southwest extension	10' wide off-street paved trail	T.B.D.	County	Up to County
	"Good Neighbor Trail" (Middleton to Mazomanie)	10' wide off-street paved trail alongside unpaved trail	T.B.D. (cost estimates currently being developed)	Multi-jurisdiction capital, Grants, possibly National Park Service, private funding (user groups)	Long-term
	South Fork / Greenway Center Trail (westward extension across Pleasant View Road)	10' wide off-street paved trail; surface along golf course T.B.D.	T.B.D.	CLC Capital	Medium-term (2-5 yrs)
	Total Cost		**$0**		

FACILITY IMPROVEMENTS: ON-STREET NETWORK (see Sec. 3.3)

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
ALLEN BLVD.	Maywood Ave. intersection / Middleton Springs area	Plan for traffic signal in conjunction with Sentry site redevelopment (also consider enhancements at Lake St.)	T.B.D.	TIF #5 and/or developer	Short term (<2 yrs)
	Mendota Ave.	Review/update engineering studies; install HAWK signal system at minimum	T.B.D.	PW Capital	Medium-term (2-5 yrs)
	Total Cost		**T.B.D.**		

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
BELLEFONTAINE BLVD.	Southern side of street, from west to east	Construct southern lane and add bike lanes when traffic volumes warrant.	Part of street expansion project	City, developer	Long-term (as volumes warrant)
	Between High Rd. and CTH Q	Investigate opportunities for grade-separated trail crossings in conjunction with road design	T.B.D. (Box culverts much cheaper than bridges)	City, developer (Incorporate into road design & construction costs)	In conjunction with development planning
	Collector street extension to Northlake	Construct street with bike lanes	T.B.D.	Developer	As area develops
	Total Cost		**T.B.D.**		

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
BRANCH ST.	Entire length	Consider accelerating reconstruction schedule; at minimum, make spot repairs where bikes travel	$10,000	PW Operating	Medium-term (2-5 yrs)
		Mark 5' bike lanes to improve access to school, conservancy, Lakeview Park, and future bike lanes on University	$4,000	PW Operating	After spot repairs are completed
	Franklin intersection	Install pedestrian refuge and re-align trail access.	$4,000	PW Capital	Medium-term (2-5 yrs)
	Columbus intersection	Consider pedestrian refuge.	$4,000	PW Capital	Medium-term (2-5 yrs)
	Total Cost		**$22,000**		

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
CAYUGA ST.	Entire length (University to rail corridor)	Study how best to accommodate bikes as part of Cayuga Trail connection	T.B.D.	PW Capital, possibly TIF	At time of trail construction
	Total Cost		**$0**		

CENTURY AVE CORRIDOR

SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
Allen Blvd. to East city limits.	Shift existing travel lanes to make room for 4' bike lane in each direction	$5,500	PW Operating	Short-term (<2 yrs)
Old Creek Road to East city limits	Acquire strip of land wide enough to replace sidewalk with an 8-to-10' side path .	$250,000 (to be refined with Sales studies)	PW Capital, Fed $ thru MPO (County likely would not participate)	Medium-term (2-5 yrs.)
CTH Q / Hedden intersection	Evaluate potential modifications to intersection geometry to reduce ped/bike/veh. conflicts	(staff work)	---	Short-term (<2 yrs)
	Consider installation of curbside ped/bike detection systems	$2,000 - $10,000	PW Capital	Medium-term (<2 yrs)
	Improve sight lines between turning vehicles and peds.	T.B.D.	Depends on nature of work	Short-term (<2 yrs)
Allen Blvd.	Consider installation of countdown timers (10) (assuming no short-term intersection reconstruction)	$5,000	PW Capital, possibly TIF	Short-term (<2 yrs)
Near Middleton Springs Drive intersection	Evaluate ramifications of installing signalized crosswalk to accommodate Lakeview Park trail connection	T.B.D.	T.B.D.	Short-term (in conjunction w/ redevelopment planning)
Branch St. intersection	Widen / accentuate crosswalks on west and south legs.	$2,000	PW Capital	Short-term (<2 yrs)
	Re-align ramps / trail approaches	$3,000	CLC Capital	Short-term (<2 yrs)
	Replace southern sidewalk with an 8-to-10' side path to connect with P.B. Trail	$3,000 (not counting new bridge crossing)	CLC Capital	Short-term (<2 yrs)
Total Cost		**$280,000 +**		

COUNTY TRUNK HWY Q

SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
Century north to city limits	Mark bike lanes	$1,000	PW Operating (County assistance unlikely)	Short-term (<2 yrs)
CTH Q Intersection to north city limits	Plan for sidewalk along east side	T.B.D. (numerous obstructions, incl. trees; may require easements to reduce impacts)	Assessment (City policy is 100%; though some PW Capital may be justified due to conditions; County does not assist with sidewalk construction)	Medium-term (2-5 yrs.)
Park Intersection	Ensure TIAs consider potential impacts to ped/bike circulation	(staff time)	----	Continual
Total Cost		**$0**		

DEMING WAY

SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
USH 14 – Esser Place (one block)	Construct shared-use trail along west side (unless full reconstruction is planned in short term)	$100,000	PW Capital, possibly TIF #3	Short-term (<2 yrs) unless full reconst.
Discovery Dr. – Airport Road	Extend bike lanes and TWLTL as traffic volumes increase	$6,000	PW Operating	As volumes increase
Total Cost		**$106,000**		

GREENWAY BLVD CORRIDOR	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
	South Fork (Greenway Center) Trail west to Pleasant View Rd.	Mark bike lanes or investigate use of "sharrows"	$1,000	PW Operating	Short-term (<2 yrs.)
	South of Greenway	Promote development of grade-separated trail crossing of Beltline	(staff time)	----	Continual
	East of South Fork Trail access point	Study to identify potential improvements for bicyclists	(staff time)	---	Short-term (<2 yrs.)
	Total Cost		**$1,000+**		

NURSERY DRIVE	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
	Entire length	Mark 5' bike lanes as traffic volumes increase	$1,500	PW Operating	As volumes increase
	Total Cost		**$1,500**		

OLD MID. RD.	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
	Countryside to East city limits	Continue coordination with Madison to implement bike lanes and sidewalk	Part of City's $300,000 share of project	PW Capital (sidewalk to be assessed)	2010
	Total Cost				

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
PARK ST. / HIGH RD. / GAMMON RD. CORRIDOR	Entire length	Mark bike lanes and adjust parking and travel lanes as indicated in plan	$10,000	PW Capital	Short-term (<2 yrs)
	Century Ave. intersection	Consider crosswalk enhancements such as improved pavement markings and countdown timers	$4,000	PW Capital	Short-term (<2 yrs)
		Evaluate potential to widen High/Park to the east to accommodate bike lanes	T.B.D.	PW Capital	Short-term (<2 yrs.)
	University Ave. intersection	Implement "Short-term solution" to improve ped/bike circulation through intersection	$2,500 (est.)	PW Capital	Short-term (<2 yrs)
		Evaluate / refine "Longer-term solution" to improve ped/bike/motor vehicle circulation through intersection	T.B.D.	PW Capital	Medium-term (5-8 yrs. or beyond)
		Investigate use of bike detection devices	(staff time)	---	Short-term (<2 yrs)
		Upgrade to ADA-compliant ped push buttons & other related improvements	$5,000	PW Capital	Short-term (<2 yrs)
		Install bike-safe drainage grates	$300 each	PW Capital	Short-term (<2 yrs)
	Elmwood, Hubbard, South intersections	Clearly mark & maintain crosswalks	Part of annual maintenance	PW Operating	Continual
		Investigate potential crosswalk improvements (e.g., in-pavement flashing warning light system)	(staff time; costs of improvements T.B.D.)	PW Capital	Short-term (<2 yrs)
		Regularly enforce speed limits	---	MiPD Operating	Continual
	Railroad crossing	Install ped refuges and enhanced crosswalk in conjunction with trail development	$6,000	PW Capital	At time of trail development
	Fortune Drive	Install ped refuge within the TWLTL on north leg	$5,000	PW Capital	Short-term (<2 yrs)
	Total Cost		**$35,000 +**		

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
PARMENTER ST	University – Discovery Dr. AND Parmenter to north city limits	Add 5' bike lanes (will require removal of one parking lane)	South: $1,000 North: Part of reconstruction	South: PW Operating North: TIF	South: Short-term (<2 yrs)
	Schneider / Belle Fontaine intersection	Accommodate future "Misty Valley Trail" crossing and other bike/ped circulation	T.B.D.	T.B.D.	Medium-term (2-5 yrs.)
	Century Place "intersection"	Construct 10' paved connection (absent decision to connect the two streets for vehicles)	$2,000	PW Capital	Short-term (<2 yrs.)
	University Ave. intersection	Install ped countdown signals on all four legs	$4,000	PW Capital	Short-term (<2 yrs.)
		Monitor property acquisition options to enable intersection widening for bike lanes	(staff time)	---	Continual
	Total Cost		**$0**		

PLEASANT VIEW ROAD CORRIDOR	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
	From Evergreen Rd. to southern City Limits, including along future alignment straddling Highway 14	Add 5' bike lanes	North of Hwy: $1,000 South: w/ road reconstruction	North: PW Capital South: Regional project (Fed $)	Medium-term (2-5 yrs)
	USH 14 / University Ave. intersection	Support WisDOT / regional efforts to improve or re-align intersection, or to construct possible interchange	(staff time)	---	Continual
	Total Cost		**$1,000 +**		

STONEFIELD RD	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
	Entire length	Mark 5' bike lanes OR consider use of bike route signage	$2,000	PW Operating	Medium-term (2-5 yrs.)
	Total Cost		**$2,000**		

UNIVERSITY AVENUE	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
	Branch St. to east city limits	Support Madison and County Plans to reconstruct University with bike lanes east of Allen, and carry bike lanes west to Branch.	$4,000	PW Operating (may be able to combine with reconst. project to the east)	2011
	Allen Boulevard Intersection	Analyze methods for improving ped/bike safety	(staff time)	---	2010
	Branch St. & Maple St. intersections	Install "Bike Route" signs to direct bicyclists to parallel streets	$500	PW Operating	At time of marking bike lanes
	Branch St. intersection	Install enhanced crosswalk markings and countdown timers	$4,000	PW Capital	Short-term (<2 yrs)
	Park St. Intersection	See Park Street corridor above	---	---	---
	Bristol St. Intersection	Monitor conditions resulting from installation of traffic signal	(staff time)	---	2010 and beyond
	Parmenter St. intersection	See Parmenter St. above.	---	---	---
	US-12 Ramp / Cayuga St. Intersection	Install enhanced crosswalk markings & countdown timer on east leg of intersection in conjunction with development of the "Cayuga Connection" trail	$3,000	PW Capital	At time of Cayuga trail construction
	Deming Way Intersection	See Deming Way above	---	---	---
	Pleasant View Rd. intersection	See Pleasant View above.	---	---	---
	Total Cost		**$11,500+**		

FACILITY IMPROVEMENTS: SIDEWALKS (see Sec. 3.4)

	SEGMENT	IMPROVEMENTS	COST	FUNDING	TIMEFRAME
SIDEWALKS	Donna (west of Parmenter) Graber Rd. Laura Ln. Lisa Ln. East side of CTH Q East side of High Rd. (part) Old Middleton Rd.	Plan for installation of sidewalks in conjunction with street reconstruction projects	$30 per sq. ft.	City assessment	In conjunction with street reconstruction projects
	Middleton Business Park	Engage business community to discuss pedestrian needs due to absence of sidewalks.	(staff time)	City policy is to assess 100%	Short-term (<2 yrs)
	Around schools	Work proactively with school officials and other stakeholders to identify / mitigate potential safety hazards.	(staff time)	---	Continual
	Midblock crosswalks (e.g., Maywood Avenue)	Consider the installation of pedestrian refuges at midblock crosswalks to promote safety and traffic calming	$5,000 (each)	PW Capital	Short-term (<2 yrs)
	Total Cost		**T.B.D.**		

APPENDIX A: BICYCLE PARKING STANDARDS

Bicycle parking is required for all new structures within ¼ mile of existing or proposed bicycle facilities (on-street paths or off-street trails) and are highly encouraged for all other new structures.

The number of bicycle parking spaces shall be determined by the following standards:

- Minimum for all structures – 2 spaces
- Multi-family Residential Dwellings – 1 per dwelling unit
- Hotels/lodging houses - 1 per 20 employees
- All other uses - 1 per 10 auto spaces

Bicycle Parking Space Size, Access Aisles, and Vertical Clearance:

- Required bicycle parking spaces shall be at least 2 feet by 6 feet.
- An access aisle of at least 5 feet shall be provided in each bicycle parking facility.
- Such space shall have a vertical clearance of at least 6 feet.

Bicycle parking shall include a bicycle rack designed to allow the use of a U-shaped lock that secures the frame to the rack. The City of Middleton requires that bicycle racks be designed as follows:

1) Bicycle Rack Design:

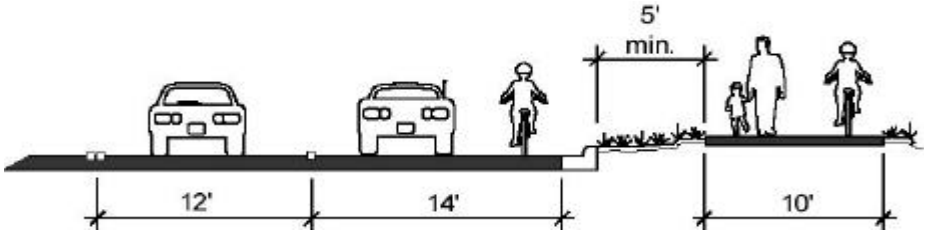
    a. Structures that require a user-supplied locking device shall be designed to accommodate U-shaped locking devices.
    b. All lockers and racks must be securely anchored to the ground or the building structure to prevent the racks and lockers from being removed from the location.
    c. The surfacing of such facilities shall be designed and maintained to be mud and dust free.

2) Bicycle Rack Location:

    a. Bicycle parking facilities shall be located in a clearly designated safe and convenient location.
    b. The design and location of such facility shall be harmonious with the surrounding environment.
    c. The facility location shall be at least as convenient as the majority of auto parking spaces provided.

APPENDIX B: DESIGN STANDARDS AND USE OF SIDE PATHS[7]

Side paths are trails running immediately parallel to a roadway. Side paths are not recommended in most applications due to conflicts with motor vehicles at intersections. However, careful facility design can be incorporated to minimize conflicts. Where present, bicycle accommodation on adjacent roadway via wide curb lanes should also be provided.



Source: Kane County Bicycle and Pedestrian Plan

Many bicyclists who are uncomfortable cycling in traffic consider side paths a safe alternative because of the perceived safety of being removed from the traffic stream. However, safety professionals and experienced bicyclists tend to disagree because crash statistics indicate that side path riders are more frequently involved in bicycle/motor vehicle collisions at intersections. This, coupled with travel delays, causes many bicyclists to continue to use the roadway.

Only when it has been determined that on-road improvements are not feasible along arterial streets, should a side path be considered as a bicycle route. Then, additional criteria must be met to ensure user safety:

Available Right-of-Way
To accommodate the minimum standard for bicycle/shared use paths, there should be 18 feet of available right-of-way. This is necessary to provide for a 3-foot clear zone from obstructions, a 10-foot wide trail, and a 5-foot buffer/open space that separates the path from the road. If there is less than a 5-foot buffer width, a 4.5-foot high physical barrier is required.

Number of Street and Driveway Intersections
Side paths should not be considered when there are more than 12 residential driveways, 6 commercial drives/minor streets, or 3 major street intersections per mile. Beyond this, a cyclist would face more than 1 driveway every 30 seconds, or 1 street every minute, whereby the safety and utility of the path deteriorates dramatically. Commercial strips and other areas with heavy vehicular turning movements are particularly dangerous.

Other Design Considerations
When the side path moves into the design and construction phase, additional problems will need to be resolved, including providing access to destinations located on the opposite side of the street from the side path, modifying signal timing to permit non-motorized users to move through an intersection, removing obstructions from sight triangles, locating crosswalks a proper distance from the parallel roadway, and providing curb cuts and transition areas so that bicyclists may access the path from both the parallel and intersecting streets. In no instance should development of a side path preclude bicyclist use of the adjacent roadway.

[7] Source: Kane County Bicycle and Pedestrian Plan, Illinois: http://www.co.kane.il.us/

APPENDIX C: RAILROAD CORRIDOR TRAIL PRELIMINARY COST ESTIMATES

The City of Middleton is planning for the design and construction of a bicycle/pedestrian path along the existing rail system throughout the City limits. The path is anticipated to be 13,500 lineal feet in length and 10 feet wide pavement with 2 feet of shoulder on each side. The path is anticipated to be lighted and fenced between the path and railroad. The preliminary costs following are based on the Campus Drive bike path planned in 2006/2007 and constructed in 2007/2008. This path occupies the same railroad corridor that exists through the City of Middleton.

The proposed path is anticipated not to have any structural design including bridges or major retaining walls. The path will cross seven roadways in which improvements may be necessary and costs are included for these improvements. The main crossings will include Pleasant View Road, Deming Way, High Point Road, Parmenter Street, South Avenue, Park Street, and Stonefield Road. Signals are not anticipated at all intersections, although each intersection shall be analyzed for bicycle/pedestrian crossing safety.

Preliminary Engineering Cost Estimate:

Site Evaluation	
Topographic/Boundary Survey	$ 17,500.00
Environmental, Archeological, and Historical Site Assessment	$ 12,000.00
Soil Borings	$ 7,500.00
Preliminary Design (Includes Route Alternatives)	$160,000.00
Gather Existing Information	
Meetings	
Preliminary Plan Preparation	
Presentation Preparation	
Traffic Counts	
Final Plans and Specifications	$125,000.00
Bidding	$ 5,000.00
Construction Site Visits (Not Full-Time Inspection)	$ 10,000.00
Easement Preparation	$ 6,000.00
TOTAL	**$343,000.00**

Preliminary Construction Cost Estimate:

General Requirements	$ 50,000.00
Erosion Control	$ 55,000.00
Removals	$ 50,000.00
Grading	$340,000.00
Asphalt Path	$420,000.00
Storm Sewer	$ 50,000.00
Intersection Improvements	$ 55,000.00
Lighting (Includes Code Blue Stations)	$800,000.00
Landscaping (Fencing and Seeding)	$400,000.00
Railroad Flagging	$ 25,000.00
TOTAL	**$2,245,000.00**

Note: Aside from being expensive, lighting the trail would likely be unpopular with adjoining residents. It may be preferable to rely on the use of flashlights or strong headlights.