

Village of Shorewood

Pedestrian and Bicycle Master Plan



2015

Village of Shorewood, Wisconsin
3930 North Murray Avenue
Shorewood, WI 53211

Page Intentionally Left Blank

Table of Contents

1.0	Introduction	5
2.0	History	6
3.0	Purpose	6
4.0	Vision and Goals	7
	4.1-Vision	7
	4.2-Goals	8
5.0	Pedestrian and Bicycle Safety Committee	9
	5.1-Functions and Expectations	9
	5.2-Leadership	9

Pedestrian and Bicycle Master Plan

6.0	Infrastructure	10
	6.1 Overview	10
	6.2 Best Practices	11-37
	6.3 Maintenance	38-39
7.0	Legislation	40
	7.1 Overview	40
	7.2 Ordinance and Policy	40-41
	7.3 Funding Options and Programs	41-42
	7.4 Partnerships and Contacts	43
8.0	School District	44
	8.1 Overview	44
	8.2 Working with the School District	44-45
	8.3 School Resource Officer (Police Department)	45
	8.4 Crossing Guards	45
	8.5 Safe Routes to School	45-46
9.0	Education, Encouragement and Marketing	47
	9.1 Overview	47
	9.2 Opportunity Identification	47
	9.3 Sustainable Shorewood	48-49
	9.4 Senior Resource Center	50-51
	9.5 Business Improvement District (BID)	51-52
	9.6 University of Wisconsin-Milwaukee	52-53

	9.7 Recreation Center	54-55
	9.8 Special Events	55-56
	9.9 Materials and Message	56-57
10.0	Enforcement and Encouragement	58
	10.1 Overview	58
	10.2 Working with the Police Department	58-60
	10.3 Green Team	60-61
	10.4 Encouragement	61
11.0	Evaluation	62
	11.1 Overview	62
	11.2 Performance Measures and Benchmarking	62-64
	11.3 Program Evaluation: Process and Schedule	64

Appendix

i.	Table of Best Practices and Implementation Table	65-90
ii.	Pedestrian and Bicycle Safety Intersection Review (December, 2005)	90
iii.	Walking Audit of Capitol Drive (April, 2011)	90
iv.	Walking Audit of Oakland Avenue (April, 2011)	90
v.	Village of Shorewood Comprehensive Bicycle Study (March, 2011)	90
vi.	Walk Friendly Communities Report Card and Feedback (August, 2012)	90
vii.	Bike Friendly Community Application Feedback (Fall, 2011)	90
viii.	Village of Shorewood Bicycle Implementation Plan (October, 2012)	90
ix.	Village of Shorewood Vision 2025 Report (2014)	90

Bibliography and Helpful Links

A. Bibliography and Helpful Links	91-93
--	--------------



1.0 Introduction

Simple, accessible, inexpensive, and environmentally-friendly forms of transportation continue to be a pivotal component in the Village of Shorewood’s vision for an active citizenry, vibrant economy, and engaging street life. Every day, residents and visitors in Shorewood choose to walk or bike to manage errands, commute to work, visit friends and neighbors, maintain a healthy lifestyle, and have fun. It is vital to the future of the Village that residents are continuously provided increasing opportunities to walk, bike, or utilize public transportation as a cost-efficient, viable alternative to vehicular ownership or usage. An active pedestrian and bicycle culture has been a key factor in attracting residents and businesses on which the Village of Shorewood relies to succeed. Individuals and businesses are choosing to locate in areas where multi-modal transportation options are abundant, convenient and safe. As a cornerstone of the Milwaukee Region, the Village of Shorewood and its partner organizations work to provide these options to those who live, work, learn, shop, and visit within our region. The Village of Shorewood Pedestrian and Bicycle Master Plan provides a comprehensive, strategic pathway to fully incorporate pedestrians and bicyclists into an effective and sustainable multi-modal transportation network.

This plan outlines a commitment to work with local, regional and national partners to promote pedestrian and bicycle-related projects and programs that will lead to a more interconnected transportation network. Emphasis is placed on increased involvement by public, private and non-profit sectors in providing pedestrian and bicycle facilities, amenities and programs as part of a successful business model, marketing strategy, outreach initiative and wellness program. Together, public, private and non-profit entities can help lead the evolution into a more equitable, sustainable and alternative transportation-friendly network.



2.0 History

The Village of Shorewood has engaged in many methods of strategic planning in regards to pedestrian and bicycle safety. There are seven (7) documents which look specifically at bicycle and pedestrian accessibility. These are:

- Pedestrian and Bicycle Safety Intersection Review (December, 2005)
- Walking Audit of Capitol Drive (April, 2011)
- Walking Audit of Oakland Avenue (April, 2011)
- Village of Shorewood Comprehensive Bicycle Study (March, 2011)
- Walk Friendly Communities Report Card and Feedback (August, 2012)
- Bike Friendly Community Application Feedback (Fall, 2011)
- Village of Shorewood Bicycle Implementation Plan (October, 2012)

Additional strategic planning efforts such as the Central District Master Plan, Community Vision 2015 and Vision 2025 Plans, and Sustainability Plan include sections on pedestrian and bicycle infrastructure and multi-modal transportation. This document will serve to update and condense all Village bicycle and pedestrian materials into a single, actionable plan encompassing all aspects of pedestrian and bicycle safety, infrastructure and education. Pedestrians, cyclists and motorists have different but related roles in safety concerns and increasing safety for all transportation users. The information in this plan is compiled in order to facilitate a culture and structure in Shorewood in which all transportation users are active participants in education, safety and future planning.

3.0 Purpose:

The purpose of the Pedestrian and Bicycle Master Plan is to combine all current planning strategies concerning pedestrian and bicycle transportation within the Village into one accessible plan and include current national and regional best practices for pedestrian and bicycle safety, infrastructure, planning, enforcement and encouragement. The planning stage will identify current goals and strategies while outlining new objectives and tactics. Once combined, this plan will guide the implementation of a new and innovative pedestrian and bicycle program for the Village of Shorewood.



4.0 Vision and Goals:

4.1 Vision:

Successful multi-modal transportation within Shorewood is a fundamental component of the Village's identity. With a total area of little more than 1.6 square miles, Shorewood is a beautiful haven where walkability and bikeability are embraced and desired alternatives to automobile transportation. The Village's [Vision 2025 Plan](#)¹ outlines goals and strategies that will be utilized to ensure that in 2025 the Village has reached its objectives of having:

- ✦ ***"A Strong multi-modal transportation infrastructure that meets transportation needs."***
- ✦ ***"Safe friendly neighborhoods offering desirable housing options that attract diverse people of all ages and stages in life."***
- ✦ ***"Well governed community with leaders and citizens who value broad civic participation and maintain a long-range, disciplined view of the future."***
- ✦ ***"A Healthy community with clean air and water; access to excellent medical services; and businesses, facilities and programs that promote personal health and wellness."***
- ✦ ***"Opportunities to work in and grow successful profit and non-profit businesses in and near Shorewood."***
- ✦ ***"An ecologically responsible community with an appreciation for the lake, river, and other areas, and a commitment to sustainability."***
- ✦ ***"A financially strong community with suitable and well-maintained public buildings and infrastructure, strong property values, a competitive tax rate and a commitment to public service excellence."***
- ✦ ***"A welcoming community embracing new people and innovative ideas, engaging with others to continuously improve Shorewood and the Milwaukee Metro Area."***

It is with these vision statements in mind that this plan has been written and will be implemented.

¹ <http://www.villageofshorewood.org/DocumentCenter/Home/View/267>

4.2 Goals:

The Goals of the Pedestrian and Bicycle Master Plan are to ensure that the Village of Shorewood is easily and safely traversable by all residents and visitors by any means they desire. Shorewood is a vibrant and attractive community that strives to be accessible to all residents and visitors through many transportation options. Presented below are the goals of the Village of Shorewood's Pedestrian and Bicycle Master Plan:

- **Infrastructure- Improve** infrastructure and planning efforts to serve multi-modal transportation.
- **Maintenance- Provide** facilities at a high level and quality of maintenance.
- **Education- Create** a transportation culture where pedestrians, bicyclists, motorists and public transport users are all viewed as legitimate and respected users of the Village's roadway network.
- **Marketing- Promote** bicycling, walking and public transportation as affordable, reliable, convenient, environmentally-friendly, and health-conscious alternatives.
- **Enforcement- Ensure** all users of the transportation network respect and obey the rights of others and all traffic laws.

5.0 Pedestrian and Bicycle Safety Committee

5.1 Functions and Expectations:

The Pedestrian and Bicycle Safety Committee is composed of seven (7) members who are residents within the Village and who are appointed by the Village President with the approval of the Village Board. The Committee elects a Chairperson at its first meeting in June annually. The Committee keeps records of its deliberations and recommendations to the Village Board and may create and recommend implementation of pedestrian safety initiatives and educational programs in order to maintain and promote Shorewood’s status as a walkable and bikeable community.

In 2011 the Village of Shorewood received recognition as a Bike Friendly Community and in 2012 received recognition as a Walk-Friendly Community: both as a result of Pedestrian and Bicycle Safety Committee efforts. As previously noted, one of the goals of the committee is to increase awareness and achieve recognition for the Village so as to share success and communicate challenges.

5.2 Leadership:

At the time of this planning effort the Leadership of the Village Board of Trustees as well as the Pedestrian and Bicycle Safety Committee is as follows:

Village Board of Trustees

Guy Johnson-President
 Davida Amenta
 Tammy Bockhorst
 Michael Maher
 Ann McKaig
 Patrick Linnane-Liaison to Committee
 Paul Zovic

Pedestrian and Bicycle Safety Committee

Thomas Kuhlmann-Co-Chair
 Rachel Ellerman
 Don Natzke
 Gilbert Walter
 Alex Hill
 Jerry Lynn
 Dzidra Benish
 Tyler Burkart-Staff Liaison

Emeritus

William Meeker



Pedestrian and Bicycle Master Plan

6.0 Infrastructure

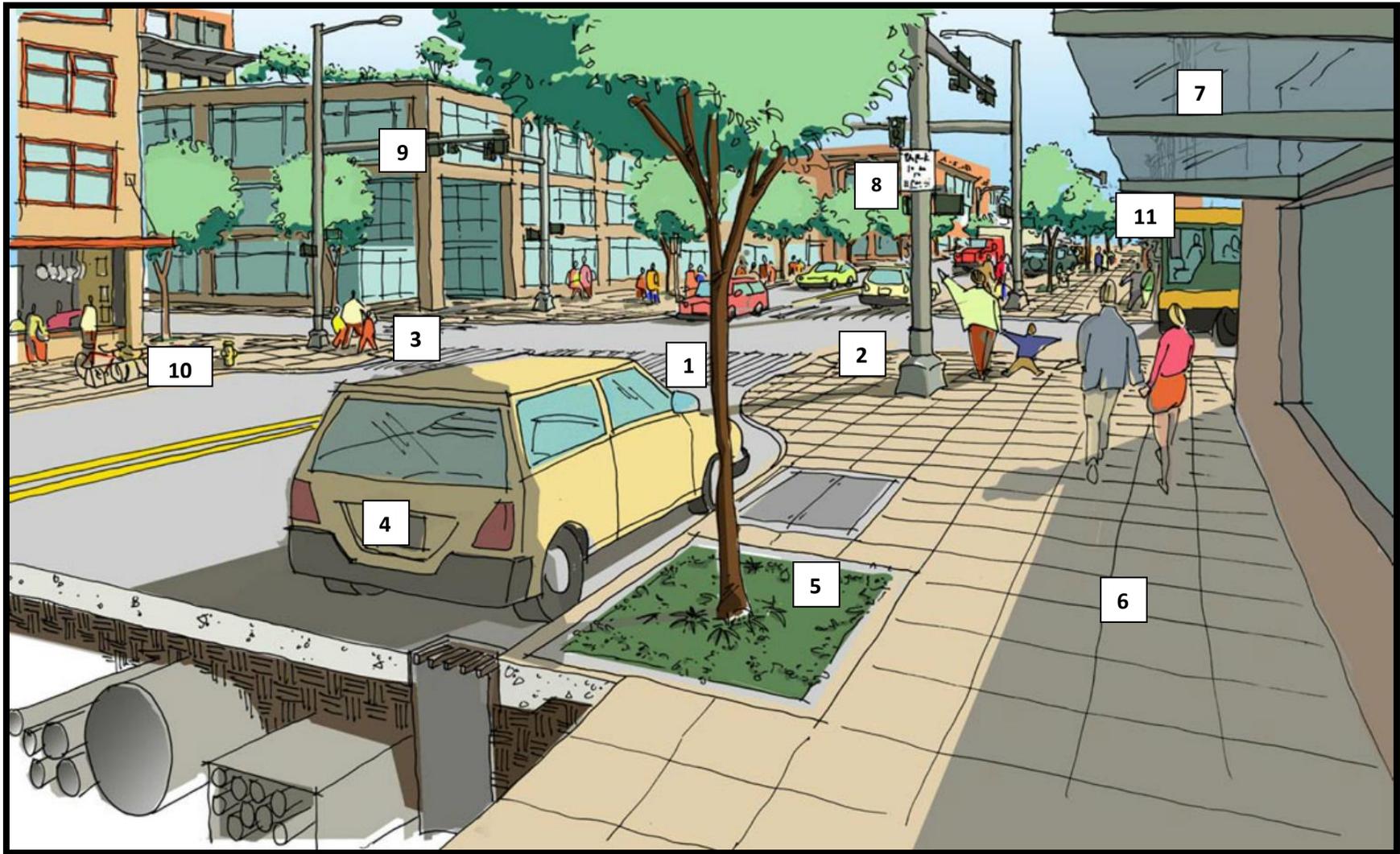
6.1 Overview:

Infrastructure as it relates to this plan includes all manner of governmental responsibilities such as public infrastructure maintenance, development and redevelopment, capital project planning and zoning which are all geared to provide streets and public right-of-way designed and maintained for the safe access and utilization of the community. By adopting this plan, the Village is directing its efforts to design and operate the entire right of way in order to enable safe access for all users regardless of age, ability, or mode of transportation.

There is no singular design prescription regarding how the Village of Shorewood should implement this plan as each street is unique and each project must be addressed in context. Improvements to infrastructure will be planned and implemented where possible and practical for the community. While the unique density and layout of Shorewood may prove the implementation of such plans as the Complete Streets Program impractical, planning efforts will seek to incorporate a “right fit” approach for each segment of roadway in the Village. Roadways that are designed and improved as a result of this plan may include portions of the Complete Streets Program, but will be affected by best practices found through innovation and research.

The Department of Public Works as well as the Planning and Development Department will have a large role to play in continuing Shorewood’s tradition of being a well-maintained, highly walkable and bikeable community. Dedicated staff, management and governance are required to affect this change through consistent and continued education, research and planning.

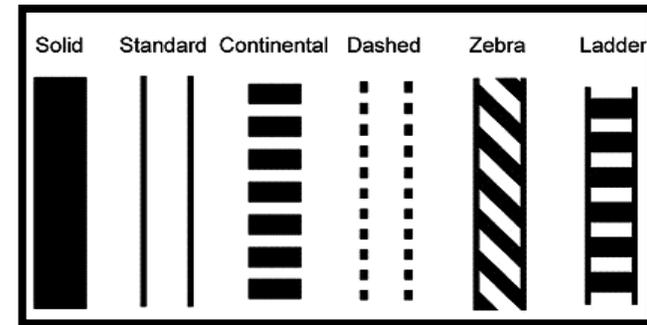
6.2 Best Practices:



Courtesy of the City of Seattle

1. Crosswalks

Marked crosswalks indicate preferred locations for pedestrians to cross and designate a right-of-way where motorists must yield to pedestrians. Crosswalks are often installed at signalized intersections and other selected locations with appropriate levels of pedestrian and vehicle traffic. Various crosswalk marking patterns are given in the [Manual on Uniform Traffic Control Devices \(MUTCD\)](#)² and include transverse lines, ladder, and continental markings. Marked crosswalks are desirable at some high pedestrian volume locations (in conjunction with other measures) to guide pedestrians along a preferred walking path. In some cases, they may be raised and should be installed in conjunction with other enhancements that physically reinforce crosswalks and reduce vehicle speeds. It is useful to supplement crosswalk markings with warning signs or beacons for motorists.



The Village presently utilizes several different styles of crosswalks, markings and signage for safe navigation of the transportation system. The Village employs painted crosswalks with “Standard” and “Continental” Markings. According to a Crosswalk Field Visibility Study completed in October, 2010, of three types of crosswalk marking tested (traverse, continental and standard), the continental markings were the most visible and have since become the recommended style of marking for the [Federal Department of Transportation](#).³ The diagram above illustrates several different crosswalk marking designs. These may be augmented by having the pavement notched or by using inlay tape (on new pavement) or thermoplastic (on old ones).

Pedestrians are sensitive to out-of-the-way travel, and reasonable accommodation should be made to make crossings both convenient and safe at locations with adequate visibility. At signalized intersections, this means that all four legs of the intersection should have crosswalks. If installing midblock crossings, the Village should make sure to accompany them with signs or markings that alert motorists of the upcoming crosswalk, because motorists generally do not expect midblock crossings. Many municipalities now use beacons such as the pedestrian hybrid beacon or the rectangular rapid flash beacon (RRFB) to alert motorists of pedestrians in the crosswalk.

² Federal Highway Administration, *Manual on Uniform Traffic Control Devices for Streets and Highways*, Federal Highway Administration, Washington, DC, 2009.

³ <https://www.fhwa.dot.gov/publications/research/safety/pedbike/10067/10067.pdf>

Recently there have been advancements with the development of products to help improve visibility at night. These include reflective tape, reflective paint additives, and installable crosswalk reflectors. While no study was readily available to gauge the effectiveness of these products, some form of mildly reflective material is helpful and widely utilized.



Estimated Budget Impact

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources Deviations
Crosswalk	High Visibility Crosswalk	\$3,070	\$2540	\$600	\$5,710	Each	4(4)
	Striped Crosswalk	\$340	\$770	\$110	\$2,090	Each	8(8)
	Striped Crosswalk	\$5.87	\$8.51	\$1.03	\$26	Lineal Foot	12(48)
	Striped Crosswalk	\$6.32	\$7.38	\$1.06	\$31	Lineal Foot	5(15)

Courtesy of www.pedbikesafe.org

Cost information for striped crosswalks of all varieties as well as for high visibility crosswalks is given in the table above. However, some of the bid prices for striped crosswalks may include some high visibility crosswalks, though it was not specified. For other crosswalk types, costs tend to vary by a large amount. For instance, for crosswalks using other materials such as brick or pavement scoring, costs range from \$7.25 to \$15 per square foot. Ladder crosswalks cost roughly \$350 each and patterned crosswalks cost \$3,470 each or \$9.68 per square foot on average. Since

street widths vary a large amount depending on the situation, it is difficult to estimate the cost to provide crosswalks at every intersection. However, if a high visibility crosswalk costs approximately \$600 per crossing, the cost for the entire intersection would be \$2,400 (\$600 X 4).

Recommendations

- ✓ Ensure all crosswalks in the business district and throughout the Village on preferred routes are marked and maintained using the “Continental” marking techniques where possible
- ✓ Evaluate crosswalk placement throughout the Village with all new infrastructure, development and redevelopment projects
- ✓ Explore the possibility of making Murray Avenue a preferred route with all applicable marking and signage considerations from Glendale Avenue to Edgewood Avenue
- ✓ Explore the possibility of an intersection reconstruction with the City of Milwaukee at the Oakland Avenue and Edgewood Avenue intersection
- ✓ Install in-road warning lights or equivalent measures at mid-block crosswalks for greater visibility
- ✓ Crosswalks should be used in conjunction with other measures such as curb extensions to improve the safety of a pedestrian crossing



2. Curb Ramps

Curb ramps provide access between the sidewalk and roadway for people using wheelchairs, strollers, walkers, crutches, handcars, bicycles, or who have mobility restrictions that make it difficult to step up and down high curbs. Properly placed and sloped, curb ramps allow pedestrians safe navigation through intersections. Curb ramps must be installed at all intersections and midblock locations where there are pedestrian crossings, as mandated by federal legislation (1973 Rehabilitation Act and ADA 1990). There are many design possibilities and requirements governing curb ramps set by the [Americans with Disabilities Act \(ADA\)](#).⁴ More information on the specifications for curb ramps can be found in the Proposed Guidelines for Accessible Public Rights of Way.⁵

Separate curb ramps for each crosswalk at an intersection should be provided rather than a single ramp at a corner for both crosswalks. The separate curb ramps improve orientation for visually

⁴ <http://www.ada.gov/pcatoolkit/app1curbramps.htm>

⁵ U.S. Access Board. *Accessibility Guidelines for Pedestrian Facilities in the Public Right-Of-Way, proposed guidelines*. Washington, D.C., 2011.

***Federal ADA Slope
Requirements***

Curb Ramp set on a 6” curb
must not exceed **10%**

Curb ramp set on a 3” curb may
not exceed **12.5%**

Minimum ramp width **36”**

impaired pedestrians by directing them toward the correct crosswalk. Similarly, tactile warnings alert pedestrians to the sidewalk and street edge. All newly constructed and altered roadway projects must include curb ramps. In addition, all existing facilities should be upgraded if they do not currently comply. One way to start this process is to conduct audits of the pedestrian facilities to make sure transit facilities, schools, public buildings, and parks are accessible to pedestrians who use wheelchairs or other forms of assistance.



The Village has installed tread plates at many of the curb ramps throughout the community and will continue to do so as they are to be incorporated in all new road construction projects. Treading helps pedestrian’s find their footing on the ramps, especially in inclement weather. Considerations for curb ramps include:

Estimated Budget Impact

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources (Observations)
Curb Ramp	Truncated Dome/Detectable Warning	\$37	\$42	\$6.18	\$260	Square Foot	9(15)
	Wheelchair Ramp	\$740	\$810	\$89	\$3,600	Each	16(31)
	Wheelchair Ramp	\$12	\$12	\$3.37	\$76	Square Foot	10(43)

Courtesy of www.pedbikesafe.org

Many municipalities have begun to include truncated domes/detectable warnings as a part of their curb ramp installations, combining the cost per square foot for detectable warnings and the wheelchair ramps in accordance with local Village standards and multiplying by eight will provide a per intersection cost for providing ADA-compliant curb ramps. For more information about curb ramp design, see Designing Sidewalks

and Trails for Access, Parts I and II, by the Federal Highway Administration, and Accessible Rights-of-Way: A Design Guide, by the U.S. Access Board and the Federal Highway Administration. The Access Board's right-of-way report can be found at www.access-board.gov.⁶

Recommendations

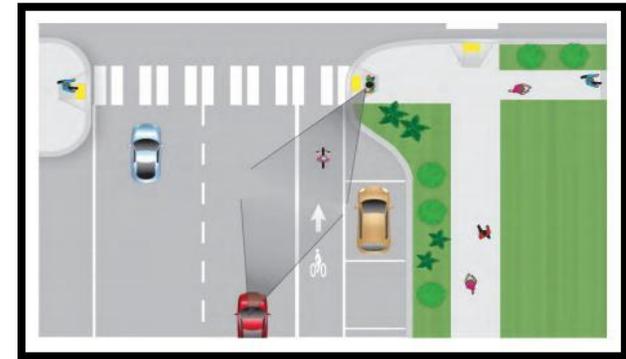
- ✓ Ensure that all curb ramps are compliant with ADA standards within any infrastructure, development or redevelopment projects
- ✓ Ensure that all curb ramps have tread plates installed which are well-maintained and painted

3. Curb Extensions

Curb extensions—also known as bump-outs—extend the sidewalk or curb line out into the parking lane, which reduces the effective street width. Curb extensions significantly improve pedestrian crossings by reducing the pedestrian crossing distance, visually and physically narrowing the roadway, improving the ability of pedestrians and motorists to see each other, reducing the time that pedestrians are in the street, and allowing space for the installation of a curb ramp.

Curb extensions placed at an intersection essentially prevent motorists from parking in or too close to a crosswalk and from blocking a curb ramp or crosswalk. Motor vehicles parked too close to corners present a threat to pedestrian safety, since they block sightlines, obscure visibility of pedestrians and other vehicles, and make turning particularly difficult for emergency vehicles and trucks. Motorists are encouraged to travel more slowly at intersections or midblock locations with curb extensions, as the restricted street width sends a visual cue to motorists. Turning speeds at intersections can be reduced with curb extensions (curb radii should be as tight as is practicable). Curb extensions also provide additional space for curb ramps and for level sidewalks where existing space is limited.

Curb extensions are only appropriate where there is an on-street parking lane. Curb extensions must not extend into travel lanes, bicycle lanes, or shoulders. The turning needs of larger vehicles, such as school buses, need to be considered in curb extension design.



⁶ U.S. Access Board. *Accessibility Guidelines for Pedestrian Facilities in the Public Right-Of-Way, proposed guidelines*. Washington, D.C., 2011.

Estimated Budget Impact

The cost of a curb extension can range from \$2,000 to \$20,000 depending on the design and site condition. An average cost is approximately \$12,000. Drainage is usually the most significant determinant of cost. Storm water management impacts or transit stops can increase the cost to \$20,000 or more. If the curb extension area is large and special pavement and street furnishings and planting are included, costs would also be higher. The cost to install a green/vegetated curb extension can vary from \$10,000 to \$40,000. Retrofitting an existing curb extension by adding vegetation can be relatively inexpensive.

Recommendations

- ✓ Evaluate the placement of curb extensions throughout the Village with all new infrastructure, development and redevelopment projects
- ✓ Utilize added space created by curb extensions with greenspace, bicycle parking, sidewalk furniture or any combination of these to maximize the positive effects of the space
- ✓ Redesign curb extension at the intersection of Oakland Avenue and Menlo Boulevard to a size usable by buses
- ✓ Ensure that curb extension design facilitates adequate drainage
- ✓ Ensure curb extensions are not placed in a way that would impede bicycle travel

4. On-Street Parking

On-street parking can be both a benefit and a detriment to pedestrians and bicyclists. On-street parking increases positive “friction” along a street and can narrow the effective crossing width, both of which encourage slower speeds. Parking can also provide a buffer between moving motor vehicle traffic and pedestrians along a sidewalk. In addition, businesses that rely on on-street parking as opposed to parking lots are more geared toward pedestrian access; they are more likely to orient their building to the sidewalk. This attention can foster a more vibrant pedestrian commercial environment. This is an outcome which Shorewood enjoys along many of its streets.

On the other hand, parking creates a visual barrier between motor vehicle traffic and crossing pedestrians, especially children and people using wheelchairs. Therefore, where there is parking, curb extensions (also called bump-outs) should be built where pedestrians are expected to cross the road. Also, parking should be restricted at least 20 feet on both approaches to a marked or unmarked crosswalk. While Wisconsin State Statutes restrict this area to 15 feet, national best practices have identified 20 feet as optimal for increased sight lines.



Diagonal on-street parking has been provided by some municipalities to provide additional parking and create "friction" for drivers (leading them to drive more slowly) that improves the pedestrian environment. Diagonal parking may require more attention to improve visibility at crossings and intersections, and it should not be used on high speed or busy streets. Back-in diagonal parking is preferred and has a number of advantages over pull-in parking, including: giving drivers access to their trunk from the curb rather than the street, protection of children as an open door directs them to the sidewalk, and giving the driver clear sight lines when pulling out of the parking space.

It is also important to consider the pricing of on-street parking. By charging the market-rate price for parking and ensuring that parking is not undervalued, people will be more likely to use alternate modes of transportation to reach their destinations. Free or undervalued parking creates an incentive to drive and encourages people to leave their cars for long periods of time. It is suggested that parking prices be set to achieve a 12.5 percent vacancy, which effectively curtails driving, but also ensures that convenient parking is available for short shopping trips.⁷ Considerations for on-street parking include:

Estimated Budget Impact

The cost of a curb extension can range from \$2,000 to \$20,000. Normal parking meters cost approximately \$600 to \$1200. Solar-paneled parking meters cost approximately \$7500, but typically only one solar meter is needed per block. Signs are approximately \$200. Striping/restriping costs and curb paint are an additional cost, and can vary widely. Some, if not all, of these costs may be offset over time by revenues generated from the implementation of metered on-street parking.

Recommendations

- ✓ Evaluate the possibility of diagonal back-in on-street parking in appropriate locations throughout the Village
- ✓ Ensure parking stalls do not infringe on the 20 ft. rule from marked crosswalks
- ✓ Evaluate the possibility of using parking meters in the business district
- ✓ Evaluate overall parking demand and space in light of Shorewood's specific needs



⁷ Shoup, D C. Cruising for Parking. Transport Policy, Volume 13, Issue 6, 2006, pp 479-486.

5. Buffers

The space between the sidewalk and closest lane of moving vehicles is the sidewalk buffer. The space between the sidewalk and street curb is referred to as the parkway or terrace. In general, there are four types of sidewalk buffers including;

- Planting strip of grass and trees: This is the preferred buffer as it provides a more pleasant, shaded environment to walk.
- Bicycle lane: If a planting strip is not possible, a bicycle lane can provide an acceptable buffer between pedestrians and motor vehicles.
- On-Street parking: Parked cars can provide a buffer between pedestrians and motor vehicles, but can also create a visual screen for pedestrians as they cross at midblock.
- Street furniture including benches, street lighting and public art.



If a sidewalk buffer does not exist, a wider sidewalk is needed. A wider sidewalk allows a pedestrian to avoid the splash zone (area adjacent to a motor vehicle travel lane into which water spray created by a motor vehicle traveling through water on the roadway enters) and provides a snow storage area and a more comfortable separation between moving vehicles and pedestrians. Guidelines for sidewalk buffers are available in the Federal Highway Administration website [Designing Sidewalks and Trails for Access \(Section 4.1.2\)](#) and AASHTO's Guide for the Planning, Design, and Operation of Pedestrian Facilities (Section 3.2.4). The most popular form of buffer is landscaping. Landscaping provides vibrant greenspaces as well as assistance with storm water runoff.

The careful use of landscaping along a street can provide separation between motorists and pedestrians, reduce the visual width of the roadway (which can help to reduce vehicle speeds), and provide a more pleasant street environment. This can include a variety of trees, bushes, and/or flowerpots, which can be planted in the buffer area between the sidewalk or walkway and the street.

The most significant issue with any landscaping scheme is ongoing maintenance. Some communities have managed effectively by creating homeowners associations to pay for landscape maintenance or through the volunteer efforts of neighbors. Others have found them to be unreliable and budget for public maintenance.



Choosing appropriate plants, providing adequate space for maturation, and preparing the ground can help ensure that they survive with minimal maintenance, and don't buckle the sidewalks as they mature. The following guidelines should be considered: plants should be adapted to the

local climate and fit the character of the surrounding area—they should survive without protection or intensive irrigation and plant’s growth patterns should not obscure signs or pedestrians’ and motorists’ views of each other.

Estimated Budget Impact

Opportunities for funding landscaping often are more flexible than for major street changes. For example, the cost of the actual landscaping may be paid for by the corresponding neighborhood or business groups. Often, municipalities will pay for the initial installation and homeowners associations, neighborhood residents, or businesses agree to maintain anything more elaborate than basic tree landscaping.

Recommendations

- ✓ Utilize buffer space with greenspace, bicycle parking, sidewalk furniture or any combination of these to maximize the positive effects of the space
- ✓ Ensure all plantings, bicycle parking, sidewalk furniture and/or any other potential impediments to pedestrian travel are moved safely out of the right-of-way
- ✓ Shrubs should be low-growing and trees should be trimmed up to at least 8 to 10 feet to ensure that sight distances and head room are maintained and personal security is not compromised
- ✓ Plants and trees should be chosen with care to match the character of the area, be easily maintained and not create other problems such as buckling sidewalks

6. Sidewalk

The widths of sidewalks affect pedestrian usability and determine the types of access and other pedestrian elements that can be installed. Both the FHWA and the Institute of Transportation Engineers (ITE) recommend a minimum width of 5 feet for a sidewalk or walkway, which allows two people to pass comfortably or to walk side-by-side.⁸ The preferred width for paved shoulders is at least 6 feet. Wider sidewalks should be installed near schools, at transit stops, in the business district, or anywhere high concentrations of pedestrians exist. Sidewalks should be continuous along both sides of a street and should be fully accessible to all pedestrians, including those in wheelchairs.⁹ Larger design widths can accommodate more pedestrians, improves ease of access and are necessary if including amenities such as street furniture. Design width is defined as the width specification the sidewalk was intended to meet; it extends from the curb or buffer to any buildings or landscaping that form the opposite borders of the sidewalk. Minimum clearance width is defined as the narrowest point on a sidewalk. An inaccessible minimum

⁸ ITE Traffic Engineering Council. Design and Safety of Pedestrian Facilities: A Recommended Practice of the Institute of Transportation Engineers. *ITE Journal*, Vol. RP-026A, Institute of Transportation Engineers, Washington, D.C., 1998.

⁹ Federal Highway Administration. *Design Guidelines: Accommodating Bicycle and Pedestrian Travel – A Recommended Approach. A US DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure*, 2002.

clearance width is created when obstacles such as utility poles protrude into the sidewalk and reduce the design width. A reduction in the design width could also create a minimum clearance width.

A buffer zone of 4 to 6 feet is desirable to separate pedestrians from the street. The buffer zone will vary according to the street type. In downtown or commercial districts, a street furniture zone is usually appropriate. Parked cars or bicycle lanes can provide an acceptable buffer zone. In more suburban or rural areas, a landscape strip is generally most suitable. Careful planning of sidewalks and walkways is important in a neighborhood or area in order to provide adequate safety and mobility.



New developments within the business district require buildings to be set back fifteen (15) feet from the curb line. Most segments along Oakland Avenue and Capitol Drive west of Oakland Avenue have fifteen (15) feet between buildings and the curb line. Segments on Capitol Drive east of Oakland Avenue are six (6) feet in width.

Recommendations

- ✓ Ensure that sidewalks are maintained, repaired and monitored for the safety of pedestrians
- ✓ Ensure that sidewalks are cleared of snow and ice in accordance with Village Code
- ✓ Evaluate sidewalk width and design to maximize pedestrian travel with all new infrastructure, development and redevelopment projects

7. Awnings

An awning is defined in the Village of Shorewood, Village Code as A roof-like structure, often made of canvas or plastic that serves as a shelter, as over a storefront, window, door or deck. It is the shelter portion of this definition which is most relevant to a Pedestrian and Bicycle Master Plan. Pedestrians and bicyclists utilize awnings during harsh weather conditions or to find respite from the sun. Stated specifically in the Village's Central District Master Plan is the community's commitment to "Retaining Shorewood's "Small Town," "Main Street", pedestrian-oriented context." As a design element, awnings bring a pedestrian scale to the street front, separating the pedestrian zone from the upper floors of taller and low-detailed commercial buildings. While awnings are encouraged throughout the Village among business and residential owners where applicable, it is generally not the duty of the Village to construct or maintain such structures with the exception of on publicly owned buildings

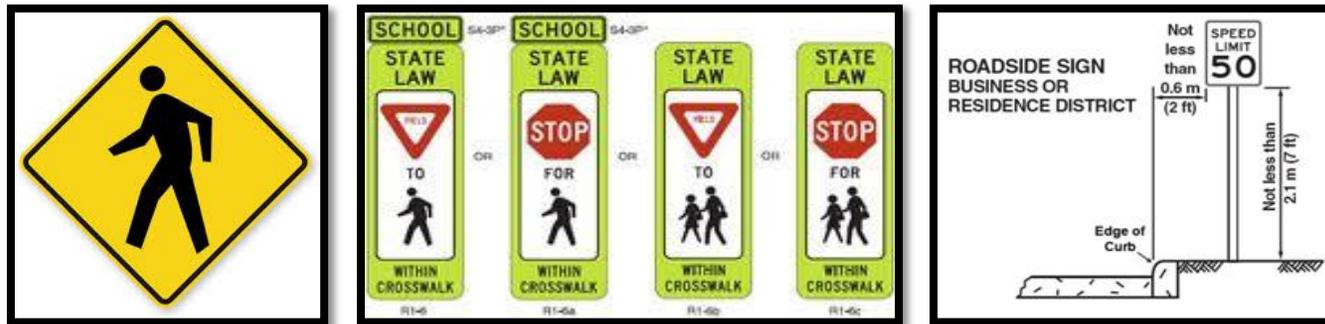
Recommendations

- ✓ Ensure that awnings present throughout the Village are maintained by property owners

- ✓ Promote the inclusion of awnings and/or overhangs in new development or redevelopment projects when practical and compatible with Village’s design guidelines.

8. Signage

Signs can provide important information that can improve road safety. By letting people know what to expect, there is a greater chance that they will react and behave appropriately. For example, giving motorists advance warning of an upcoming pedestrian crossing or that they are entering a speed zone will alert them to the potential of pedestrians crossing the street and modify their speed. Sign use and movement should be done judiciously, as overuse may breed noncompliance and disrespect. Too many signs may also create visual clutter where their conspicuity is diminished.



Advance pedestrian warning signs should be used where pedestrian crossings may not be expected by motorists, especially if there are many motorists who are unfamiliar with the area. A new fluorescent yellow/green color is recommended for pedestrian, bicycle, and school warning signs (Section 2A.11 of the MUTCD).¹⁰ This bright color attracts the attention of drivers because it is unique.

All signs should be periodically checked to make sure that they are in good condition, free from graffiti, retro-reflective at night, and continue to serve the intended purpose. In unusual cases, signs may be used to prohibit pedestrian crossings at an undesirable location and re-route them to a safer crossing location, or warn pedestrians of unexpected driver maneuvers. It is preferable to create safe crossings where there are clear pedestrian destinations. If unexpected driving maneuvers occur at what is an otherwise legal pedestrian crossing, an evaluation should be done to find ways to remedy or prevent the unsafe motorist maneuvers.

¹⁰ Federal Highway Administration, *Manual on Uniform Traffic Control Devices for Streets and Highways*, Washington, DC, 2009.

Estimated Budget Impact

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources (Observations)
Sign	Stop/Yield Sign	\$220	\$300	\$210	\$560	Each	4(4)

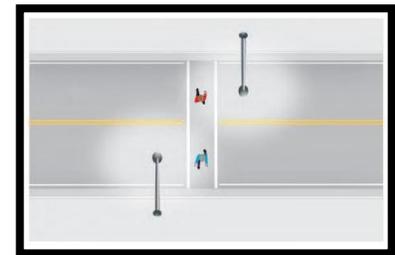
Courtesy of www.pedbikesafe.org

Recommendations

- ✓ Ensure signage complies with the Manual on Uniform Traffic Control Devices (MUTCD)
- ✓ Ensure signs are positioned high enough that they do not conflict with pedestrian travel unless necessary
- ✓ Purchase and place portable speed display signage as necessary
- ✓ Replace street signs with larger, more reflective signs or illuminated signage
- ✓ Replace Village-wide way finding signs to conform to new designs
- ✓ Ensure uniform symbols and signage with the City of Milwaukee on Edgewood Avenue from River Park to Lake Drive
- ✓ Install way finding signage from the Oak Leaf Trail to Oakland Avenue at River Park (3505 Oakland Avenue)
- ✓ Install bike lane signage in the northbound and southbound lanes of Wilson Drive
- ✓ Install permanent speed signage at the intersection of Oakland Avenue and Edgewood Avenue with driver speed display
- ✓ Add Safe Route to School (SRTS) signage on:
 - I. Lake Bluff Boulevard
 - II. Morris Boulevard between Menlo Boulevard and Kensington Avenue
 - III. Shorewood Boulevard between Lake Drive and Oakland Avenue
 - IV. Murray Avenue

9. Street Lights, Traffic Signals and Pedestrian Signals

Street Lights- Appropriate quality and placement of lighting can enhance an environment as well as increase comfort and safety. Without sufficient overhead lighting, motorists may not be able to see pedestrians in time to stop. In areas with nighttime pedestrian activity, streetlights and building lights can enhance the ambiance of the area and the visibility of pedestrians by motorists. It is best to place streetlights along both sides of arterial streets and to provide a consistent level of lighting along a roadway. In the business district, specialty pedestrian-level lighting may be placed over the sidewalks to improve pedestrian comfort, security, and safety.



Well-lit pedestrian areas make people walking through the area feel safer. It is with this objective in mind that the Village is in the process of converting all street lights to LED. Not only will this conversion assist with the Village’s sustainability efforts, the use of LED lights will also ensure well lit streets with less maintenance required.

Estimated Budget Impact

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources (Observations)
Lighting	In-Pavement Lighting	\$18,250	\$17,620	\$6,480	\$40,000	Total	4(4)
	Streetlight	\$3,602	\$4,882	\$310	\$13895	Each	12(17)

Courtesy of www.pedbikesafe.org

The cost range for in-pavement lights is very broad, based on manufacturer differences, roadway widths, and project-specific factors. Usually, in-pavement lights are installed as a system, which is the reason the total cost is included here, as opposed to an individual light cost. Also, though not included above, average approximate underpass lighting costs can range from \$350 to \$3,400 each, and crosswalk lighting can range from approximately \$10,750 to \$42,000 per crosswalk.

Recommendations

- ✓ Maintain street lighting and improve where and when practical
- ✓ Ensure that pedestrian walkways and crosswalks are well lit
- ✓ Implement the LED Conversion Plan



Traffic signals- Traffic signals create gaps in the traffic flow and allow pedestrians to cross the street at locations where pedestrians would otherwise experience excessive delay, difficulties crossing the street, or safety issues. However, judgment must also be used on a case-by-case basis. For example, pedestrian volume must exceed MUTCD thresholds as a requirement to install a traffic signal to address pedestrian activity. If a new facility is being built—the Metro Market, for example—there will be a new demand, and the signal could be installed in conjunction with the new facility based on projected crossing demand. There may also be latent demand if a destination is not currently accessible, but could become so with new facilities or redesign.

Signals should allow adequate crossing time for pedestrians and an adequate clearance interval based upon a maximum walking speed of 3.5 ft/s. In areas where there is a heavy concentration of the elderly or children, a lower speed (typically 3.0 ft/s) should be used in determining pedestrian clearance time. Centralized traffic signal control allows traffic operators to identify signal malfunctions or adjust signal operations to address pedestrian demand spikes in real time. When pedestrian traffic is significant throughout the day, fixed-time signals should be used to consistently allow crossing opportunities. Pedestrian actuation should only be used when pedestrian crossings are intermittent and should be made accessible to pedestrians of all abilities.

Traffic Signal Actuator System

When the DOT completed reconstruction of Capitol Drive in 2010, the project included installation of an actuator system, standard for DOT projects for heavy trafficked corridors. The system embeds magnetic sensors below the road surface at each intersection. The objective is to keep vehicles moving through the corridor with little disruption. The signal lights remain green along Capitol Drive until a vehicle along a cross street trigger’s the system or a pedestrian pushes the crossing button. The system is sensitive to how many vehicles are waiting in the cross street to lengthen the green light. The timing of all the signal lights and countdown pedestrian timers are controlled by the Public Works Department. As with all new systems, the system required modifications in the beginning, smoothing out timing of pedestrian crossings and turn lane triggers. Following the initial period, the system was disabled based on the Pedestrian Safety Committee’s recommendation. The main reason for disabling the system was because it did not sense bicycles. Another reason was the inconsistency along intersections of how the ‘walk’ signals were activated. The system and pedestrian walk signals are intact today but remain inactive.

Estimated Budget Impact

Signal costs range from \$35,000 to \$150,000. Annual maintenance costs are approximately \$2,000-4,000.

Pedestrian signals- should be used at traffic signals under a wide variety of conditions related to pedestrian activity or guidance, according to the MUTCD. Pedestrian signals provide positive guidance to pedestrians regarding the permitted signal interval to cross a street and prohibit pedestrian crossings when conflicting traffic may impact pedestrian safety. The use of WALK/DON’T WALK pedestrian signal indications at signal locations are important in many cases, including when vehicle signals are not visible to pedestrians, when signal phasing is complex (e.g., there is a dedicated left-turn signal for motorists), at established school zone crossings, when an exclusive pedestrian interval is provided, and for wide streets where pedestrian clearance information is considered helpful.



Pedestrian signals should be clearly visible to the pedestrian at all times when in the crosswalk or waiting on the far side of the street. Large pedestrian signals can be beneficial in some circumstances (e.g., where the streets are wide). Countdown pedestrian indications are required for all newly installed traffic signals where pedestrian signals are installed. They must be designed to begin counting down at the beginning of the clearance interval and can be on fixed-time or pushbutton operation.



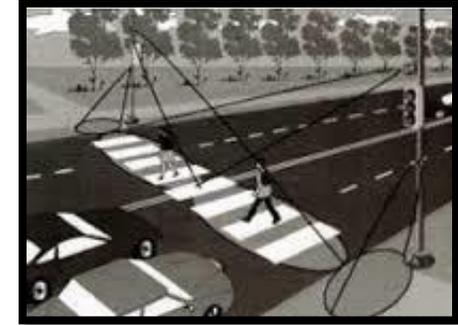
Estimated Budget Impact

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources (Observations)
Signal	Audible Pedestrian Signal	\$810	\$800	\$550	\$990	Each	4(4)
	Countdown Timer Module	\$600	\$740	\$190	\$1,930	Each	14(18)
	Pedestrian Signal	\$978	\$1,479	\$126	\$10,000	Each	22(33)
	Signal Face	\$490	\$430	\$130	\$800	Each	3(6)
	Signal Head	\$570	\$550	\$100	\$1,450	Each	12(26)
	Signal Pedestal	\$640	\$800	\$490	\$1,160	Each	3(5)
	Push Button	\$230	\$350	\$61	\$2,510	Each	22(34)

Courtesy of www.pedbikesafe.org

Many of the costs in the table above are representative of various components of a signal and are not representative of the complete cost of a signal.

Pedestrian detectors- Pushbutton or passive detection devices which register the presence of a pedestrian in a position indicative of a desire to cross, without requiring the pedestrian to push a button. Pedestrian pushbuttons should be well-designed and within reach and operable from a flat surface for pedestrians in wheelchairs and with visual disabilities. They should be conveniently placed in the area where pedestrians wait to cross and should clearly indicate which pedestrian signals will be activated. Quick response to the pushbutton or feedback to the pedestrian registering the signal's actuation should be programmed into the system. Section 4E.09 within the MUTCD provides detailed guidance for the placement of push buttons to ensure accessibility.¹¹ Some passive detection devices are capable of tracking the progress of a pedestrian as the pedestrian crosses the roadway for the purpose of extending or shortening the duration of certain pedestrian timing intervals. Accessible pedestrian signals that provide supplemental information in non-visual formats (such as audible tones, speech messages, and/or vibrating surfaces), as described in the MUTCD, may be provided.¹² Much more extensive information on the use of accessible pedestrian signals (APS) and the types of APS technologies now available is provided online at www.walkinginfo.org/aps.¹³



Traffic Signal Enhancements- These include automatic pedestrian detectors, larger traffic signals to improve visibility, signal placement designed to deter motorists from observing cross street signals, and countdown signals provide pedestrians with information about the amount of time remaining in a crossing interval. The Institute of Transportation Engineers (ITE) Alternative Treatments for At-Grade Pedestrians Crossings report describes numerous traffic signal enhancement measures in detail. During the 2010 Capitol Drive reconstruction, countdown timers were added to all signalized intersections.

Countdown signals may be designed to begin counting down at the beginning of the walk phase or at the beginning of the clearance (flashing DON'T WALK) interval. Countdown signals have been demonstrated to reduce pedestrian crossings when only a few seconds remain.¹⁴

Since pedestrian pushbutton devices are not activated by about one-half of pedestrians (even fewer activate them where there are sufficient motor vehicle gaps), new "intelligent" microwave or infrared pedestrian detectors are now being installed and tested in some U.S. cities. These automatically activate the red traffic and WALK signals when pedestrians are detected. Detectors can also be used to extend the crossing time for slower moving pedestrians in the crosswalk (often called a PUFFIN crossing). Automatic pedestrian detectors have been found to improve

¹¹ Ibid.

¹² Ibid.

¹³ Accessible Pedestrian Signals: A Guide for Best Practice. <http://www.apsguide.org/>

¹⁴ Leonard, J., M. Jukes, and B. Clement. *Behavioral Evaluation of Pedestrians and Motorists Toward Pedestrian Countdown Signals*. Laval, Quebec: Dessau-Soprin, Inc., March 1999.

pedestrian signal compliance and also reduce pedestrian conflicts with motor vehicles. However, they are still considered experimental and their reliability may vary under different environmental conditions.¹⁵

Pedestrian Signal Timing- Shorter cycle lengths (ideally less than 90 seconds) and longer walk intervals provide better service to pedestrians and encourage better signal compliance. For optimal pedestrian service, fixed-time signal operation works best because it provides an automatic pedestrian phase.

Pedestrians usually receive more frequent crossing opportunities and experience less delay with concurrent signal phasing than with exclusive signal phasing, which must service vehicle traffic and pedestrian volumes separately. When pedestrians are required to wait a long time for a pedestrian interval, many will simply choose to ignore the signal and cross during a gap in traffic, negating the potential safety benefits of the exclusive signal. Exclusive pedestrian phases, without accessible pedestrian signal technology, introduce a problem for pedestrians with visual restrictions, as the audible cues associated with parallel traffic streams will lead pedestrians to cross at inappropriate times.



To be useful to pedestrians with vision restrictions, an LPI needs to be accompanied by an audible signal to indicate the WALK interval. There are some situations where an exclusive pedestrian phase may be preferable to an LPI, such as when high-volume turning movements conflict with pedestrians crossing.

There are several types of signal phasing for pedestrian signals. Signal phasing options include the following:

Signal Coordination – This measure involves timing the phasing of adjacent traffic signals along a corridor to control the speeds of motor vehicles. For example, the sequence of green signal cycles can be timed to speeds of 20 or 25 mph.

Concurrent Phasing – Pedestrian signal phase activates simultaneously with the parallel vehicle phase, permitting motorists to turn left or right across pedestrians' paths after yielding to pedestrians.

Exclusive Pedestrian Phasing – Refers to a pedestrian phase that is active only when all conflicting vehicle movements are stopped across an approach to an intersection. When vehicles are stopped on all approaches to an intersection while pedestrians are given a WALK indication, the phasing is referred to as “exclusive” or as a “pedestrian scramble”. Intersections with pedestrian scramble phases often feature pedestrian crossing markings indicating pedestrians may walk diagonally across the intersection. Exclusive pedestrian timing has been shown to reduce pedestrian crashes by 50% in some downtown locations with heavy pedestrian volumes and low vehicle speeds and volumes.

¹⁵ Hughes, Ronald, H. Huang, C.V. Zegeer, and M. Cynecki, *Evaluation of Automated Pedestrian Detection at Signalized Intersections*, Report No. FHWA/RD-00/097, Federal Highway Administration, Washington, DC, August 2000.

Split Phasing – The vehicular green phase is split into two parts: (1) pedestrians receive protected walk time while vehicles travelling parallel are given a green signal to go straight but not turn, and (2) the pedestrian DON'T WALK is activated when vehicles are permitted to turn. A study in New York City suggests the split phasing significantly reduces pedestrian conflicts, crashes, and illegal pedestrian crossings.

Leading Pedestrian Interval (LPI) - An LPI gives pedestrians an advance walk signal before motorists get a green signal, giving the pedestrian several seconds to start walking in the crosswalk before a concurrent signal is provided to vehicles. This makes pedestrians more visible to motorists and motorists more likely to yield to them. Typical LPI settings provide 3 to 6 seconds of advance walk time. LPI has been used successfully in several places, such as New York City; for two decades and studies have demonstrated LPI reduces conflicts and crashes for pedestrians.

Hot Response – A hot response detector activates a pedestrian signal immediately upon actuation, subsequent to providing at least the minimum allowable green time for conflicting vehicles. Hot response signal phasing is desirable where pedestrian crossing volumes are significant or high pedestrian compliance is desirable.

Left turn phasing – Use of concurrent, protected/permissive, or protected left turn phasing provides different levels of conflict reduction with parallel pedestrian movements. These variations on left turn signal phasing provide increasing levels of conflict reduction between vehicles and pedestrians using a parallel crossing.

Hot response signals may be particularly appropriate at midblock crossing locations where the distance to other signalized crossings is significant. Hot response signals help reduce unnecessary delay for both pedestrians and vehicles at locations where pedestrians will typically use the pushbutton but cross before the pedestrian signal are active.



Estimated Budget Impact

Adjusting signal time can typically be relatively inexpensive, requiring a few hours of staff time, though in larger cities the cost and time may be more significant. Signal equipment costs can range from \$8,000 to \$150,000. Annual maintenance costs are approximately \$2,000 to \$4,000.

Recommendations

- ✓ Install a countdown timer at the intersection of Oakland Avenue and Menlo Boulevard
- ✓ Install call signal at each corner of the intersection of Oakland Avenue and Shorewood Boulevard
- ✓ Install working audible timer at the intersection of Oakland Avenue and Capitol Drive
- ✓ Ensure that signals are visible to pedestrians
- ✓ When possible, provide a walk interval for every cycle

- ✓ Provide supplemental non-visual guidance for pedestrians with sensory restrictions
- ✓ Pedestrian push buttons must be well positioned and within easy reach for all approaching pedestrians. Section 4E.09 within the MUTCD provides detailed guidance for the placement of push buttons to ensure accessibility¹⁶
- ✓ Every signalized intersection should have a pedestrian signal head
- ✓ Evaluate traffic signal timing on a regular basis to ensure smooth traffic flow with changing conditions
- ✓ Evaluate pedestrian signage and signal timing enhancements at all signalized intersections and mid-block crosswalks
- ✓ Signal timing needs to also consider the needs of trucks, buses, and other motor vehicles
- ✓ Illuminated “No Turn on Red” signs at heavy pedestrian crossings (Legislative Considerations)
- ✓ Ensure signalized intersections are safe and clear of debris or other potential safety issues to pedestrians and bicyclists

10. **Bicycles: Lanes, Parking and Sharing**

Making Shorewood’s streets safer and more accessible for bicyclists is an essential part of the Village’s objective of being a walkable and bicycle-friendly community. As 28% of all trips are less than a mile from home, Shorewood is uniquely positioned to entice more residents to make these trips by bicycle or by foot instead of car. Ensuring everyone knows their place within the transportation system, and has a place in the transportation system, is paramount in executing this plan. While bicyclists do currently enjoy many route options within Shorewood, the Village should endeavor to make every road bicycle friendly in some way. There are many different types of bike-ways the Village may utilize depending on the space available and bicycle ridership from street to street. These options are:

Bicycle Lane - Bike lanes indicate a preferential or exclusive space for bicycle travel along a street. Bike lanes are typically 4 to 6 ft wide and are designated by striping and symbols placed within the lane. Signage may also be used. Colored pavement or a contrasting paving material has also been used in certain situations to distinguish bike lanes from the motor vehicle lanes. Use of green colored bike lanes has interim approval from FHWA. Bike lanes are for one-way travel and are normally provided on both sides on two-way streets. Bike lanes may be placed against the curb where there is no parking and are usually designated to the left of parking or right turn lanes. Sometimes bike lanes are marked on the left side of a one-way street such as on streets where there are a high number of transit stops or vehicles on the right side, significantly more driveways, or where the majority of destinations are on the left side of the street.

Bike lanes have been found to provide more consistent separation between bicyclists and passing motorists than shared travel lanes. The presence of the bike lane stripe has also been shown from research to result in fewer erratic motor vehicle driver maneuvers, more predictable bicyclist riding behavior, and enhanced comfort levels for both motorists and bicyclists. Wider bike lanes (6 to 7 ft) and/or buffers provide additional operating space and lateral separation from moving and parked vehicles, thus increasing bicyclists sense of comfort and perceived safety (i.e., level of service) and reducing the risk of dooring from parked vehicles. Using buffers

¹⁶ Federal Highway Administration, *Manual on Uniform Traffic Control Devices for Streets and Highways*, Washington, DC, 2009.

between the bike and motor vehicle lanes can also be used to visually narrow a wide street and create a more attractive and comfortable bicycling environment.



Recommendations

- ✓ Add enhancements to bicycle lane on Oakland Avenue for greater visibility
- ✓ Identify opportunities for bike lanes throughout the Village

Bicycle Fog Line Accommodation - A painted white edge line that provides a physical marking to separate the traffic lane from the bicycle accommodation area when 3'-4' are available.



Recommendations

- ✓ Narrow Lake Drive to a single lane in each direction and install a fog line northbound and southbound
- ✓ Evaluate possible bicycle accommodations on Downer Avenue south of Capitol Drive to Edgewood Avenue
- ✓ Identify opportunities for bicycle accommodations throughout the Village

Bicycle Sharrow Lane - Standard pavement markings used on roads that are designated bike routes where there is not enough pavement to include a bike lane or accommodation. The sharrows provide guidance to the cyclists on where to ride on the road. These pavement markings also help to alert drivers that this is a designated bike route, and to be on the lookout for the presence of cyclists.



Recommendations

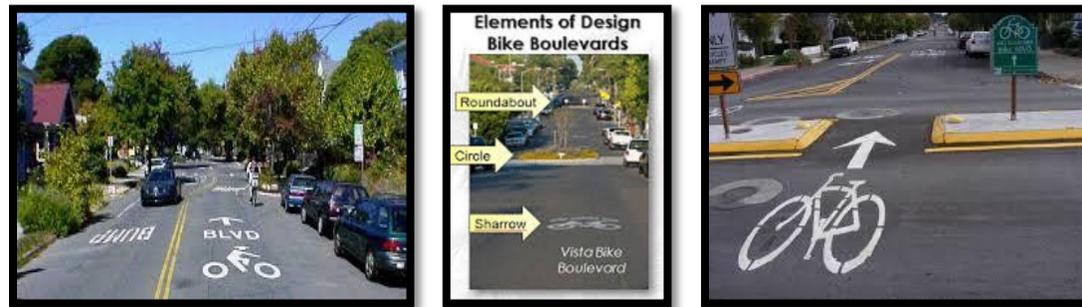
- ✓ Add sharrow symbols on Kensington Boulevard from Wilson Drive to Oakland Avenue
- ✓ Designate Kensington Boulevard as a bike route
- ✓ Identify opportunities for bicycle sharrow lanes throughout the Village

Contraflow Bike Lane -Bicyclists are expected to follow established rules-of-the-road. A particular example is riding in the same direction as motor vehicle traffic. However, there are certain situations where the placement of a bicycle lane counter to the normal flow of traffic may increase safety or improve access for bicyclists. Contraflow bike lanes, when designated on a street that has one-way motor vehicle traffic, even for a short segment, may enhance connectivity to the broader bicycle network and access to destinations, thereby reducing out-of-the-way detours and the desire for bicyclists to ride the wrong-way. The contraflow bike lane is a specialized bicycle facility that can be



used in particular situations and is intended to reduce the number of conflicts between bicycles and motor vehicles and improve access for bicyclists. Contraflow lanes may also alleviate riding on a high-speed, high-volume route. However, there are safety concerns associated with contraflow riding, as this places bicycles in a position where motorists do not expect to see them. Thus, a careful assessment should be made before installation. Contraflow bike lanes can be found in cities with large numbers of bicyclists, including Cambridge, MA; Boulder, CO; Madison, WI; and Eugene, OR.

Bicycle Boulevard- A lower-volume, lower-speed street that has been optimized for bicycle traffic. The purpose is to provide bicyclists a safer and more relaxing place to ride. While many residential streets are already favorable to most bicyclists, a bicycle boulevard goes the extra step to provide safe crossings at major streets and encourage motorists to travel at slow speeds, while reducing the frequency of stop signs.



Within these options are sub-designs which are amenable to fit the needs of nearly every situation. Making accommodations for bicycles within the roadway would diminish issues the Village has faced with bicyclists riding on the sidewalks impeding pedestrian travel and safety. There have been many instances where bicyclists have continued to ride on sidewalks even though a Village Ordinance has been adopted in order to curb the ridership of bicycles on sidewalks (Village Code § 207-5)¹⁷.

Recommendations

- ✓ Identify possible opportunities for bicycle boulevards throughout the Village
- ✓ Evaluate the following Village roads for use as bicycle boulevards:
 - I. Murray Avenue
 - II. Kensington Boulevard

¹⁷ <http://ecode360.com/7773261?highlight=bicycles,bicycle#7773261>

Estimated Budget Impact

The costs for bikeways shown below are assumed to include all costs including bikeway preparation, if applicable. However, costs were also identified for specific actions related to preparing a site for a separated bikeway, including excavation, grading, curb/gutter removal, and clearing and grubbing (removing vegetation and roots). Though cost information is limited, the following individual costs were obtained (all costs are approximate): excavation (\$55 per foot); grading (\$2,000 per acre); curb/gutter removal (\$5 per linear foot); and clearing and grubbing (\$2,000 to \$15,500 per acre, depending on the width of the road and whether it is done on one or both sides of the road).

Infrastructure	Description	Median	Average	Min. Low	Max. High	Cost Unit	# of Sources (Observations)
Bikeway	Audible Pedestrian Signal	\$810	\$800	\$550	\$990	Each	4(4)
	Countdown Timer Module	\$600	\$740	\$190	\$1,930	Each	14(18)
	Pedestrian Signal	\$978	\$1,479	\$126	\$10,000	Each	22(33)

Courtesy of www.pedbikesafe.org

Oak Leaf Trail- Oak Leaf Trail is the jewel in the crown of Milwaukee County's extensive trail system. The trail meanders more than 100 miles in and around the City of Milwaukee and through the Village of Shorewood. The trail is set on changing terrain of flat rural plains and hilly city streets running parallel to the Milwaukee River. The trail is mostly smooth asphalt, with easily accessed connections that take you just about anywhere in the Milwaukee Metro Area. Three miles of the trail follow the route of an old Chicago and North Western line that was part of the railroad company's long-distance passenger service to Denver, Colorado and the California coast. The balance of the trail is made up of parkways and city streets. The Trail has more than 22 access points in and around the Milwaukee Metro Area including the 2 in Shorewood.



Bicycle paths or shared-use paths offer opportunities for recreational cycling and commuting that differ qualitatively from on-street riding. Paths may be designed to flow through natural or scenic areas and allow pedestrians and bicyclists to travel through urban areas away from motorized traffic.¹⁸

Bicycle and shared-use paths also may tend to attract bicyclists with a wide range of skill levels, including young children. A path, even if designed primarily as a bike facility, also likely will attract a mix of other users including pedestrians, in-line skaters, and others depending on location and access. Special care must therefore be taken in the planning and design of such paths to provide a satisfactory experience for bicyclists, and safe sharing of the facility with a variety of users of differing speeds and abilities.¹⁹

Good planning and design of bicycle and shared-use paths is crucial to provide for safe use, to maximize long-term benefits, and reduce future maintenance problems (such as erosion, water or edge deterioration). While the Oak Leaf Trail is maintained (in large part) by Milwaukee County, there are opportunities for Shorewood to place shared-use paths where continued maintenance will need to be considered. Pathways will never replace the road network for connecting to destinations and some bicyclists will prefer the road network for most riding due to the more direct route and fewer conflicts with slower path users. Separate paths may also offer alternative routes for some bicyclists, provided they link origins and destinations or create shortcuts between other bicycle facilities or routes on the street network. Creating safe and accessible intersections between paths and the road network is one of the most challenging and critical aspects of design.

A good process that incorporates input from future users and property owners may be the most important element to realizing a path that will maximize recreational and travel benefits and minimize potential problems. Good initial design is also crucial for minimizing future maintenance



¹⁸ Oak Leaf Trail Review, Rail to Trail Conservancy, <http://www.trailink.com/trail/oak-leaf-trail.aspx>

¹⁹ Milwaukee County Website, Oak Leaf Trail, <http://county.milwaukee.gov/OakLeafTrail8289.htm>

costs and problems. The process should engage the community so that the facility that is ultimately designed fits with local needs and with the local cultural, natural, and built environments.

Recommendations

- ✓ Formalize bike path entry from Glendale Avenue with hard surface to allow for better winter maintenance
- ✓ Construct a southern path from the Oak Leaf Trail to Oakland Avenue
- ✓ Explore entrance to Oak Leaf Trail from the vicinity of the DPW Yard (Pinedale)
- ✓ Explore other opportunities for formalized bike entry points to the Oak Leaf Trail along Wilson Drive

Bicycle Parking- Bicycle parking should be provided at all public buildings and parks with ample bicycle parking available in the business district. There are many different bicycle parking configurations in use throughout Shorewood and even more available. Bicycle parking facilities are often easy to find space for in most areas. While utility still exists where needed, throughout the business district, one may see decorative and utilitarian options almost everywhere. The spread of bicycle parking is not only necessary for the future of transportation in the Village; it can also be a method of beautification.

Recommendations

- ✓ Provide bicycle parking in public areas upon requests from neighboring businesses and where appropriate
- ✓ Evaluate bicycle parking needs within the Village on a regular basis
- ✓ Identify potential sites for bike corals throughout the Village

Bike Share- In 2014 the City of Milwaukee implemented a bike share program. A bike share program allows people to pay a membership or usage fee to check-out bikes from stations ride them around and then return them to any other station in the system. In 2014, Shorewood was awarded funding for up to nine (9) bike share locations which are scheduled for initial implementation in 2017. These stations will be an extension of the City of Milwaukee’s system. Bike sharing has exploded throughout the United States within the last few years. Shorewood’s proximity to the City of Milwaukee has given it the unique opportunity to take part in this bike share partnership within the region. This program will make bicycles available to any resident or visitor who wishes to rent one.



Recommendations

- ✓ Track ridership and demand to ensure proper number and placement of bike sharing stations and bicycles
- ✓ Promote the use of the bicycle share system and the Bublr network in the Milwaukee Area

11. Public Transportation

The Village of Shorewood has an active public transportation system. The Milwaukee County Transit System (MCTS) operates three (3) bus lines through the Village, Route # 10 on Wilson Dr., the Red Line on Capitol Dr. and the Green Line on Oakland Ave. These three (3) lines see a yearly ridership of nearly 16,000. Each of these routes is equipped with a front loading bike rack which enables bicyclists to commute throughout the operating area of the MCTS during the year. In 2014 there were over 1,301 user of this service from Shorewood alone. This has enabled even more Shorewood residents and visitors to commute and/or travel car-free throughout the Greater Milwaukee Area.



Bus stops should be highly visible locations that pedestrians can reach easily by means of accessible travel routes. Access to the bus stop via sidewalk connections from an adjacent intersection, sidewalk, or nearest land use should be as direct as possible. To accommodate wheelchairs, sidewalk connections should be a minimum of 5 feet wide (preferably, 6 feet wide) and equipped with wheelchair ramps at all street crossings. Other crossing improvements within the vicinity of transit stops may include marked crosswalks and pedestrian signals at intersections.



Bus stops should be located at intervals that are convenient for passengers in order to minimize crossing of the street at unmarked mid-block locations. Bus stops should be located at intersections wherever possible because intersections are generally more convenient for passengers intercepting other transit connections, accessing crosswalks, and connecting to pedestrian routes. At intersections, far-side placement is generally preferred; however, location selection should be done on a site-by-site basis. Placing bus stops on the near side of intersections or crosswalks may block the pedestrians' view of approaching traffic, and approaching motorists may be unable to stop in time when a pedestrian steps from in front of a stopped bus to cross vehicle travel lanes. Advantages of locating stops on the far-side of an intersection include encouraging pedestrians to cross the street behind the bus where they are more visible to approaching traffic, reduced delay for buses, and minimizing conflicts between buses and right turning motor vehicles.

Recommendations

- ✓ Track MCTS's ridership and request information to ensure sufficient MCTS service within Shorewood
- ✓ Promote the use of public transportation and the MCTS network in the Milwaukee Area
- ✓ Work with MCTS to ensure proper number, placement and access of MCTS bus stops and shelters

6.3 Maintenance

Repetitive and short-term maintenance includes activities such as sweeping, snow and ice removal, landscape maintenance, pavement marking maintenance, drain systems clearance, and pothole repair that must be performed at a routine frequency. Such activities are crucial to maintaining safe riding and walking surfaces; adequate sight distances and clearance; and clear and visible markings. Activities such as landscape maintenance, sweeping, graffiti removal, and general trash pick-up also affect the aesthetic environment and promote bicycling through maintenance of a more secure and pleasing environment. Putting routine maintenance measures in place reduces hazards and the need for major maintenance. Regular inspections of structures and general surface conditions should also be performed to detect major maintenance needs. Maintenance activities related to the safe operation of a facility should always receive top priority. The American Association of State Highway and Transportation Officials (AASHTO) *Maintenance Manual* identifies seven maintenance activities that should be carried out on a routine basis:

Signs and Traffic Markings- Signs warning the motorist, bicyclist and pedestrian should be inspected regularly and kept in good condition; and striping should be kept at minimum conspicuity levels.

Sight Distance and Clearance- Sight distances on parallel roadways and trails should not be impaired leading up to crossings and curves. Trees, shrubs and tall grass should be inspected and either removed or trimmed if they can interfere. Adequate clearances on both sides and overhead should be checked regularly. Tree branches should be trimmed to allow enough room for seasonal growth without encroaching onto the street or trail.

Surface Repair- Streets and trails should be patched or graded on a regular basis. It is important that finished patches be flush with the existing surface. Skid resistance of the repaired area should be the same as the adjoining surface. Ruts should be removed by whatever measures are appropriate to give a satisfactory result and avoid recurrence. Shoulders should also be kept in good repair.

Drainage- Appropriate measures should be taken to prevent seasonal washout, silt, or gravel washing across a street or trail. It is also important to watch out for sinking. Installing culverts or building small bridges could be considered a maintenance function to achieve an immediate result and avoid the expense of contracting. Drainage grates should not have parallel openings that could catch narrow bicycle tires or cause a tripping hazard. Maintenance personnel should be instructed to ensure that grates are positioned so that openings are at angles toward the flow of traffic for that specific area and that they are flush with the pavement.

Sweeping and Cleaning- The tires of a bicycle can be easily damaged by broken glass and other sharp objects as pedestrians may also be seriously injured. Leaves and ice present a serious safety issue on walkways and driveways. Sand or loose gravel on an asphalt surface can cause a serious fall. Leaves can hide potholes and other hazards. When mechanically sweeping roadways, there should also be concern that material is not thrown onto a bike lane, shoulder, sidewalk or trail. Following snow events or icy conditions, additional sweeping may be required if there is

an excess of sand or gravel on the roadway. More and more communities are maintaining trails for year-round use. In part, this is recognition of their use as true transportation facilities. They must be plowed and kept ice-free to keep them safe for users. This strategy relies on a relatively quick response to clear trails before the snow hardens and/or freezes as ice on the trail surface.

Structural Deterioration- Structures should be inspected annually to ensure they are in good condition. Special attention should be given to wood foundations and posts to determine whether rot or termites are present.

Illumination- Once installed, lights should be maintained to not only ensure reliable operation, but also so they are kept clean and replaced as required to keep the desired luminescence.

A thorough assessment of all bicycle facilities should be performed to generate a list of repetitive and short-term required maintenance activities. Preferably such processes would occur at the design phase so maintenance activities will be budgeted and planned for in advance. Some maintenance activities may be incorporated under regular roadway and public facilities maintenance, although care should be taken to consider the special needs of bicyclists and provide appropriate standards. Sweeping may also need to occur more frequently for bicyclists and pedestrians than would be necessary for motorists. Transportation system users can also provide a valuable service by requesting services online through the Village's Website in real-time.

Recommendations

- ✓ Develop a program within the Public Works Department to ensure thorough assessments of all Village pedestrian and bicycle infrastructure and facilities are performed on a regular basis
- ✓ Maintain pedestrian and bicycle infrastructure and facilities based on assessments utilizing best practices
- ✓ Investigate any complaints and/or suggestions from residents, visitors, Committee members or staff and satisfy a solution if possible
- ✓ Maintain a regular schedule for street sweeping as weather allows
- ✓ Continue to clear streets effectively and efficiently during inclement weather



7.0 Legislation

7.1 Overview:

Legislation in the context of the Pedestrian and Bicycle Master Plan encompasses many areas. There are [Village](#)²⁰ Codes, Zonings, Ordinances, Policies and Funding, [State](#)²¹ Statutes, Programs and Funding and [Federal](#)²² Laws, Policies and Funding which guide best practices and have impacts on Shorewood’s walkability and bikeability. All of these legislative entities and programs come together to provide the best possible platform for multi-modal transportation on national, state and local levels. The Village of Shorewood is a unique community with distinctive conditions which must be considered with every project and piece of legislation. Each individual project and program within the Village must not only meet federal and state requirements set through policy and law, but also be the “right fit” for the community. There are several Village Codes directed at improving the use of the transportation system in Shorewood. This section will briefly touch on current codes, law, policy, funding programs and resource partnerships available in the ever-improving and changing world of transportation.

7.2 Ordinance and Policy:

There are currently [Village Codes](#) which are geared toward pedestrian and bicycle safety and the protection of these transportation users throughout the Village. These govern items such as the ability of drivers to turn in the presence of pedestrians at specific intersections, how and when a sidewalk must be cleared after inclement winter weather, etc. This is the enforceable arm of the Village’s government by which the Board of Trustees may use the law to direct desirable actions throughout the Village. Legislation steers the community toward the desired objectives and/or actions and makes it possible for the Police Department to correct negative behaviors to meet desired conclusions. The communication of Village Code, objectives and enforcement alternatives are key in reaching the results for which the legislation was adopted.

Recommendations

- ✓ Evaluate adoption of a “No Right Turn” when pedestrians are present ordinance for signal-controlled intersections within the Village
- ✓ Evaluate adoption of ordinance requiring local employers provide bicycle parking
- ✓ Evaluate adoption/implementation of a “Trip Reduction” Program or Ordinance
- ✓ Evaluate implementation of a “Ticket Diversion Program”, or traffic school for motorists as an alternative punitive measure for moving violations
- ✓ Evaluate pedestrian, bicycle and public transportation policy and legislation regularly

²⁰ <http://ecode360.com/SH2737?needHash=true>

²¹ http://safety.fhwa.dot.gov/ped_bike/ and <http://www.dot.state.wi.us/modes/pedestrian.htm>

²² http://safety.fhwa.dot.gov/ped_bike/

- ✓ Create a “Bicycle Ambassador” Program
- ✓ Designate a Pedestrian and Bicycle “Coordinator” within Village Staff
- ✓ Analyze the Pedestrian and Bicycle Master Plan on an annual basis within the Pedestrian and Bicycle Safety Committee making recommendations on an as-needed basis
- ✓ Evaluate integration of the Pedestrian and Bicycle Master Plan into the Village’s Comprehensive Planning documents and add considerations for improvements to the Capital Budget Plan as needed
- ✓ Conduct economic impact studies on bicycling and walking in the Village
- ✓ Make provision and place signage allowing bicycles to ride on the sidewalk on Shorewood Blvd. between Murray Ave. and Frederick Ave. to enhance safety on this Safe Route to School

7.3 Funding Options and Programs:

Bicycle and pedestrian projects are eligible for funding from most of the major state and federal-aid program initiatives. One of the most cost effective ways of accommodating bicycle and pedestrian needs is to incorporate them as part of larger reconstruction, new construction and some repaving projects. Generally, the same source of funding can be used for the bicycle and pedestrian accommodations as are used for larger highway improvement, if the bike/ped accommodation is “incidental” in scope and costs to the overall project. Through collaboration with other Village Committees and Commissions, it may be possible to secure funding for pedestrian and bicycle projects in conjunction with other Village projects.

Safety, Education and Enforcement - WisDOT invests about \$350,000 of federal and state funds each year on bike and pedestrian education, safety and enforcement.

Hazard Elimination Program - Bicycle and pedestrian projects are eligible for this program. The program focuses on projects intended for locations that have a documented history of previous crashes.

Safe Routes to School Program (SRTS) - The most recent federal transportation act, SAFETEA-LU, added a new bicycle and pedestrian program called Safe Routes to School (SRTS). The program addresses a long-term trend away from children bicycling and walking to school to being transported by car or bus. The trend has not only been part of the increasing levels of traffic congestion and air pollution, but also linked to child health and obesity problems. SRTS is an effort to reverse these trends by funding bicycle and pedestrian infrastructure, planning and promotional projects. Since 2006, \$14.4 million in federal funds have been committed to 131 SRTS projects.

Congestion Mitigation and Air Quality (CMAQ) Program - CMAQ was created in 1993 to encourage transportation alternatives that improve air quality. It includes efforts to enhance public transit, construct bicycle and pedestrian facilities, improve traffic flow and promote vehicle and fuel

technologies that decrease emissions. Since 1993, \$53.0 million in federal CMAQ awards have been invested in 78 bicycle-pedestrian facilities throughout the southeastern Wisconsin 11 county ozone non-attainment and maintenance area.

Bikes Belong Coalition - Provides awards of up to \$10,000 for projects to create bicycle facilities or to fund bicycle-related educational activities.

Community Development Block Grants - (Dept. of Housing and Urban Development) - Awards block grants to rural and urban communities for economic development, including infrastructure improvements. The Village of Shorewood partners with other Milwaukee County communities each year in order to utilize these grant funds.

Safe Kids Campaign - “Walk This Way” program awards grants of \$1,000 to coalition members for safety programs.

Funding programs may also be available through organizations such as:

The Wisconsin Department of Natural Resources
Shorewood Men’s Club
Shorewood Foundation

Federal and Advocacy Funding Groups
Shorewood Women’s Club
Shorewood SEED Foundation

Many groups provide funding and in no way is this list exhaustive. Information on these groups is searchable through the internet or provided by state and federal program contacts.

Recommendations

- ✓ Strive to secure funding to implement the Pedestrian and Bicycle Master Plan recommendations and future necessary infrastructure improvements.
- ✓ Designate staff member(s) to research possible funding alternatives for pedestrian, bicycle and public transportation infrastructure projects as a measure of performance.
- ✓ Submit required materials to all applicable and practical grant opportunities.



7.4 Partnerships and Contacts:

There are partnerships available through the State of Wisconsin Department of Transportation, the Federal Government Department of Transportation and other governmental and private entities. In order to facilitate communication between these entities, contact persons for both the federal and state entities are acknowledged below:

State of Wisconsin Contacts:

Jill Mrotek-Glenzinski

State Ped/Bike Coordinator

Fax: 608-267-0441

Jill.MrotekGlenzinski@dot.wi.gov

Wisconsin Department of Transportation
PO Box 7936 Madison, WI 53707-7936

Larry Corsi

Ped/Bike Safety Program Manager

Phone: 608-267-3154

larry.corsi@dot.state.wi.us

Wisconsin Department of Transportation
PO Box 7936 Madison, WI 53707-7936

Tressie Kamp

Multi-Modal Program Manager

Phone: 608-266-3973

Tressie.Kamp@dot.wi.gov

Bureau of Transit
4802 Sheboygan Ave. Room 951 Madison,
WI 53705

Federal Government Contacts:

Tracey Blankenship

FHWA Ped/Bike Coordinator

Phone: 608-829-7510

tracey.blankenship@dot.gov

FHWA WI Division
525 Junction Road Suite 8000 Madison, WI 53717

Bill Stark

FHWA TAP Contact

Phone: 608-829-7516 Fax: 608-829-7526

william.starkf@dot.gov

FHWA WI Division
525 Junction Road Suite 8000 Madison, WI 53717

Community partnerships can be a powerful way to effect change within the Village. Galvanizing multiple organizations within Shorewood to share their resources toward the common goal of a more walkable and bikeable community can help to realize these goals with greater speed. The Village government and staff will strive to enact changes to improve transportation within the Village through this plan and others, but the Shorewood School District, Business Improvement District, Civic Clubs and Organizations, and Recreation Center should also be approached as allies in the implementation of this plan. The more support and assistance received from within the community, the greater incidences of proactive education, implementation and enforcement. Identifying and cultivating partnership opportunities will be a key element to propel this plan forward.

8.0 School District

8.1 Overview:

[The Shorewood School District](http://www.shorewood.k12.wi.us/)²³ is a large and valuable member of the Village community. All community partnerships developed in connection with this plan are valuable, but maybe none as prized as a relationship with the School District. With an enrollment of over 2,000 students attending four (4) schools, the school district represents a major percentage of the Village's transportation system users. For necessary changes to occur throughout the Village in terms of infrastructure and education relating to this Pedestrian and Bicycle Master Plan, it is necessary to have a strong relationship with the School District on many levels. Issues relating to the education aspects of this plan will need to be disseminated to students, faculty, staff and parents. This is in order to ensure thorough and continued adherence to Village Code, policies and procedures which benefit all of these users by working to help them navigate the Village while ensuring the highest levels of safety.



8.2 Working with the School District:

Fostering innovation in educational options and providing materials and training within the Shorewood School District is a major component in the success of this partnership. This requires the administration, faculty and staff to use expertise in their fields to develop new ways to reach school-aged children and teach them how to interact with the community around them when it comes to the many transportation options. Providing marketing materials for parents, educational curriculum for students, as well as training and games for instruction are valuable to ensuring this success. The Pedestrian and Bicycle Safety Committee is the Village's advocacy group in these matters and with an objective to foster an open and proactive partnership with the School District ensuring that the student's and the community's needs are met and that safe operation of bicycles and safe pedestrian practices are communicated and adhered to.



A large amount of curriculum is available online for students and teachers regarding pedestrian and bicycle issues. Much of this curriculum could be formed to fit the Village's needs and used throughout the School District to promote desired outcomes from students, parents and staff. This curriculum, paired with Village educational and marketing materials, should be included with in-class, send-home and special assemblies at the school's discretion. Classes are and should be offered or expanded outside of regularly scheduled curriculum by the School District, Recreation Department or the Police Department. This would be useful in promoting continuity and clarity of message and give each child 1 on 1 time with

²³ <http://www.shorewood.k12.wi.us/>.

an instructor to ask questions and receive assistance. There are many ways in which a partnership between the Village and School District could be beneficial. An active relationship developed, sustained and facilitated by the Pedestrian and Bicycle Safety Committee and the Village and School District staff ensures the safety of children using the transportation system.

8.3 School Resource Officer (Police Department):

The Village of Shorewood has one (1) full-time School Resource Officer (SRO) which is a police officer with the Shorewood Police Department who is assigned to act as a liaison between the Village Police Department and the Shorewood School District. The main goal of the SRO is to prevent juvenile delinquency by promoting positive relations between youth and law enforcement. The SRO position encompasses three (3) major components which allow the SRO to achieve this goal: law enforcement, education and counseling. These three (3) components allow the SRO to take a proactive approach to law enforcement. SRO's are not just "cops", they counsel and educate both students and parents on various topics. The SRO becomes involved in the students' lives as a positive role model. The intent is that the positive experiences students have with the SRO will bridge the gap between juveniles and law enforcement, and in doing so, help prevent juvenile crime. A portion of the SRO's time will be dedicated to instructing students on bicycle, pedestrian and motor vehicle safety. It is in this role that the SRO will inevitably become a facilitator in the implementation of this Master Plan and a member of the Village and School District's partnership.

8.4 Crossing Guards:



Crossing guards are utilized by the Village to help ensure the safe travel of children to-and-from schools within Shorewood. Currently, the Village has contracted these services out to a security contractor pursuant to Wisconsin Statute 349.215. The contractor is responsible for providing training to all guards along with the necessary equipment to carry out their duties. The Village Police Department has been delegated the responsibility of administering this contract. The guards are on duty throughout the school year weekdays from 7:30- 8:30 a.m. and again from 2:30-3:30 p.m. While not able to issue citations to enforce while on duty, these guards can be utilized in reporting incidents with training provided through their employer (the contractor) if coordinated by the Police Department.

8.5 Safe Routes to School:

The Safe Routes to School (SRTS) program addresses a long-term trend away from children bicycling and walking to school to being transported by car or bus. The trend has not only been part of the increasing levels of traffic congestion and air pollution, but also linked to child health and obesity problems. SRTS is an effort to reverse these trends by funding bicycle and pedestrian infrastructure, planning and promotional projects.



Projects must be within two miles of a kindergarten to 8th Grade school. Unlike most federal programs above, SRTS are 100% federally funded. This program has created an excellent opportunity for Shorewood as the Village is very densely populated making schools even more easily accessible.

National Walk/Bike to School Day- International Walk to School Day²⁴ is a global event that involves communities from more than 40 countries walking and biking to school on the same day. It began in 1997 as a one-day event. Over time, this event has become part of a movement for year-round safe routes to school and a celebration with record breaking participation each October. Today, thousands of schools across America from all 50 states, including the Shorewood School District, participate every October.

The first National Bike to School Day took place on May 9, 2012, in coordination with the League of American Bicyclists' **National Bike Month**. Almost 1,000 local events in 49 states and the District of Columbia joined together to encourage children to safely bicycle or walk to school. The event builds on the popularity of Walk to School Day. Many communities and schools have been holding spring walk and bicycle to school events for years.



These two events are promoted by the Safe Routes to School Program and are federally funded. The website for this program provides many resources to teachers and schools as well as an abundance of free-downloadable marketing materials. The Village of Shorewood has, and will continue to promote these events through Village marketing outlets, but it is recommended that awareness campaigns be increased in conjunction with School District Pedestrian and Bicycle Educational Campaigns.

Recommendations

- ✓ Develop and maintain relationship between the Pedestrian and Bicycle Safety Committee and the School District
- ✓ Use educational opportunities and marketing materials to inform parents and students about pedestrian and bicycle safety and options
- ✓ Promote Walk and Bike to School Events through Village website, social media and marketing materials
- ✓ Utilize the School Resource Officer in an educational role to help teach students how to use the transportation system responsibly and safely
- ✓ Ensure well trained, equipped and placed crossing guards through contract administration
- ✓ Promote Safe Routes to School Program by having well defined and communicated routes and educating students to use them
- ✓ Work with the Shorewood recreation department through the School District to ensure educational programming for pedestrians and bicyclists
- ✓ Develop encouragement programs to motivate students to walk or bike year-round

²⁴ <http://www.walkbiketoschool.org/>.

9.0 Education, Encouragement and Marketing

9.1 Overview:

Educating the community will require a concerted effort from various Village entities such as the Village's Conservation Committee, Pedestrian and Bicycle Safety Committee, Parks Commission, School District, Police Department, North Shore Health Department and many more. In order for education to be truly successful and to reach the goals of this plan, the culture of the Village toward multi-modal transportation must evolve to meet the demands of the community. Education efforts relating to this plan and the recommended actions within should be easily disseminated to the public in numerous innovative ways as well as ways in which are personal and relatable to everyday life. There will be a transfer of knowledge through the Shorewood School District, but it is equally important that this knowledge be passed to all community partners and residents in an effort to be as inclusive and informed as possible. One consistent, positive, repeated message will be necessary to reach this Plan's education goals.

9.2 Opportunity Identification:

How, when and where to educate can affect the transfer of information regarding the information in this plan. There are many potential partners to educate school-aged children along with the School District in the community. Village programs such as Shorewood Connects, Welcome New Neighbors and the Recreation Center are also ideal partners. It will fall to Village staff and volunteers to identify innovative methods to bring entities together for the improvement of Shorewood's walkability, bikeability and safety.

After identifying possible partners for the education effort of residents and visitors, the Village must identify how best to deliver the information. Shorewood has had great success in using multi-media and social media outlets in the past and would likely use these methods again in the future. Through outlets such as the *Shorewood Today Magazine*, Village of Shorewood Website, Weekly Manager's Memo, the Village Facebook Page, Twitter, etc., the Village can be successful informing members of the public who regularly follow news from the Village, but other methods will likely be necessary to reach a greater audience. Marketing methods designated to broaden the scope in which information is being distributed in the hopes of reaching as many residents and visitors as possible will be utilized. There are numerous ways in which local businesses and organizations may be recruited to help with this education effort. The higher the level of engagement that exists within businesses and groups throughout the Village, the higher the number of people in Shorewood who will be informed.



9.3 Sustainable Shorewood:

[Sustainable Shorewood](http://www.villageofshorewood.org/459/Sustainable-Shorewood)²⁵ is a joint effort of Village staff and volunteers to develop policies and programs that implement sustainability into the long-range planning and daily operations of the Village of Shorewood. It includes the efforts of the Village's Conservation Committee in informing and engaging the public in sustainable practices. The walkability and bikeability of Shorewood along with efforts to ensure increased use of public transportation are an all important part in realizing the goals set forth through the Conservation Committee's efforts.



Sustainability- Sustainability is the ability to meet the current needs of our natural and economic environment and all the people within it without compromising the ability of future generations to do the same. In other words, a sustainable community connects people with the planet and prosperity.

On November 2, 2009, the Village of Shorewood Board of Trustees adopted an eco-municipality resolution that supported sustainability principles and identified The Natural Step as the preferred model for achieving greater sustainability in local government and the larger community. The Natural Step (or "TNS") is a scientifically based, socially-just model with a proven track record. Many other Wisconsin communities are implementing the principles and methods of The Natural Step, affording us the opportunity to share strategies and successes with nearby, similar communities.

The Natural Step- The Natural Step's system conditions define the framework through which Village programs and practices can be reviewed and modified in order to become a more sustainable community. The 4 system conditions are expressed here as defined by the American Planning Association's Planning for Sustainability Policy Guide:

- Eliminate our community's contribution to fossil fuel dependence and to wasteful use of scarce metals and minerals
- Eliminate our community's contribution to dependence upon persistent chemicals and wasteful use of synthetic substances
- Eliminate our community's contribution to encroachment upon nature (e.g., land, water, forests, soil, and ecosystems)
- Eliminate conditions that undermine the capacity for people to meet basic needs

Increased utilization of pedestrian and bicycle alternatives would greatly assist in the elimination of all of the factors identified in the Natural Step system by creating less need for motor vehicle infrastructure, less use of fossil fuels and chemicals and would greatly increase healthy and safe alternatives to fill basic transportation needs.

²⁵ <http://www.villageofshorewood.org/459/Sustainable-Shorewood>.

The Green Leaf Award- was developed by the Village of Shorewood Conservation Committee to encourage local businesses to take concrete steps toward a more sustainable way of operating their business. Greening your business helps attract new customers, develop a loyal customer base, and create a healthier work environment for employees. Businesses can also improve their bottom line and consumers receive more environmentally responsible product and service options. Volunteers collaborate with business owners and managers to conduct green business assessments. Topics covered in the assessment include:

- | | |
|--------------------------|---------------------------|
| ○ Food | ○ Transportation |
| ○ Energy | ○ Education |
| ○ Waste Reduction | ○ Water and Air Quality |
| ○ Responsible Purchasing | ○ Building and Remodeling |



When a Shorewood business meets specified criteria it receives a Green Leaf Award. A Green Leaf decal is available for posting on a storefront window, and notice of the award can be posted online on a business website. Making a business and/or rental property more pedestrian and bicycle friendly would alleviate the need for some users to own or operate motor vehicles. Thus, besides assisting in a positive transportation change, the awardee would also be assisting in nearly every other area as well.

Recommendations

- ✓ Promote alternative transportation options such as walking, biking, bike share, public transportation and car share programs as more sustainable and responsible options.
- ✓ Promote the health benefits to being active through walking and/or biking
- ✓ Promote the greenspaces, trails and neighborhoods in the Village as destinations for leisure and urban exploration
- ✓ Develop and maintain a relationship with the Urban Ecology Center in the hopes of promoting future programs geared towards walkability and bikeability.
- ✓ Maintain a presence at Conservation Committee events annually
- ✓ Request that Conservation Committee members consider Green Leaf Award Recognition for businesses who have made positive strides in sustainable transportation

9.4 Senior Resource Center:

The [Senior Resource Center \(SRC\)](#)²⁶ promotes safe, healthy and enriching lifestyles for Shorewood residents age 60 and older. The SRC has numerous programs for older adults throughout the Village and is widely utilized. In order to continue the Village's efforts to remain multi-generational friendly, it should be the policy of the Village to utilize this center for the education of senior residents and possible programs to assist these residents' ability to better use the transportation system. One recommendation that has been identified as a result of this plan is that of meetings between seniors and school-aged children to communicate their concerns, their lifestyles, and how they use the transportation system. This could be a catalyst in improving communications between seniors and newer generations of residents in which they could trade experiences toward a better understanding and relationship.



Shorewood Connects- Shorewood Connects Neighbors²⁷ is a Village-sponsored program which helps to enhance the ability of older residents to remain in their homes and neighborhoods and continue to contribute to the Village. Shorewood Connects Neighborhoods is a specific initiative promoting the development of organized neighborhood groups, connecting residents of all ages to improve the quality of life block-by-block. This program is active in hosting and planning events bringing multi-generational residents together improving community involvement and quality of life within the Village. Channeling information through this program should be utilized in education efforts and may also be utilized in concurrence with encouragement programs.



Welcome New Neighbors Program- The [Welcome New Neighbors](#)²⁸ program is designed to connect new and existing residents to Village services, businesses, schools, recreation options and volunteer opportunities. The goal of this program is to introduce new and existing members of the community to all that Shorewood has to offer which includes promoting the walkability of Shorewood. The program holds regular gatherings bringing new neighbors together as well as providing long-standing members of the community as resources for questions and tours. The program has gathered information about the Village and compiled it into Walking Kits which are available to all who may benefit. These kits provide maps and information which help to guide new community members. Walking tours of Shorewood are made available by appointment with information readily available to all who request it through the program itself or the Village's Customer Service Department at Village Hall. Marketing and distributing these materials, or variations thereof, should be a priority in the education efforts of this plan.

²⁶ <http://www.villageofshorewood.org/168/Senior-Resource-Center>.

²⁷ <http://www.shorewoodtoday.com/pdfs/shorewood-connects-brochure.pdf>.

²⁸ <http://www.villageofshorewood.org/339/New-Neighbor-Guide>.

Recommendations

- ✓ Facilitate communication between students and members of the Senior Center regarding safe transportation
- ✓ Work to identify ways to improve mobility in Shorewood's senior community
- ✓ Utilize the Shorewood Connects program to help the senior community by providing education and assistance related to the use of the transportation system and transportation options
- ✓ Promote Shorewood's walkability and bikeability through the Welcome New Neighbors Program by providing maps and other promotional materials

9.5 Business Improvement District (BID):

The [Shorewood Business Improvement District \(BID\)](#)²⁹ was established by commercial property owners and the Village of Shorewood in 1999 to promote the neighborhood as a premier destination for retail and service businesses to locate and thrive.

The mission of the BID is to:

- promote and leverage dining and entertainment
- develop and solicit high-quality businesses
- focus, promote and enhance the brand image of the business district
- monitor infrastructure

The Shorewood BID has been instrumental in education, beautification, development and redevelopment efforts within the Village and should be utilized to assist the Village with education initiatives that result from this plan. With numerous business relationships throughout the Village's Business District, the Shorewood BID is in an opportune position to liaison with businesses helping to produce the best possible product as a result of these planning efforts. The BID has become a very strong voice in the Village with the means to assist greatly in improving the quality of life within Shorewood. This trend would in no doubt continue as the BID has proven it is a strong reference and referral for:

- Economic development
- Advocacy
- Addressing quality-of-life issues
- Business retention and recruiting
- Liaison with Village on behalf of stakeholders
- Communication with businesses and property owners



²⁹ <http://www.shorewoodwi.com/>.

Recommendations

- ✓ Develop and maintain relationships with local businesses geared toward running and bicycle customers
- ✓ Promote the vibrancy of the Shorewood Business District through walking and biking maps and other marketing materials
- ✓ Work with local businesses to ensure ample bicycle parking for customers and employees throughout the Village
- ✓ Work with local businesses to ensure optimal pedestrian safety and access
- ✓ Maintain a presence at Business Improvement District events

9.6 University of Wisconsin-Milwaukee:



Having the University of Wisconsin-Milwaukee Campus as a neighbor to the south is very fortunate for the Village. The Village houses many students and staff of the University on both a temporary and permanent basis. This adds to the age diversity in Shorewood as well as its vitality. This is also very positive for the Village in pedestrian and bicycle efforts as it makes it so easy for residents who have business with the University to bus, bike or walk to campus. Also, visitors to Shorewood from the University can enjoy these same options for a quick, safe and easy visit. There are many bicycle facilities on campus such as bicycle lockers, air-filling stations and even showers. UWM's Bicycle Advisory Task Force, or BAT Force, was assembled as cross-campus collaboration in the summer of 2012 in order to address making UWM a bicycle friendly campus. The efforts of the BAT Force recommendations have informed campus transportation planning, addressed UWM as a best place to work, as well as simply making our existing and near future efforts more intentional and well communicated. A copy of their report can be found [here](#).³⁰

The University also offers a safe ride service through their Be On the Safe Side (B.O.S.S.) program. B.O.S.S. is a non-emergency service designed to provide a safe rides around the UW-Milwaukee campus. B.O.S.S. runs seven days a week when school is in session and there is no cost at the point of use for currently enrolled UWM students. B.O.S.S. provides van transportation to UWM students as a core component of UWM's commitment to campus safety. B.O.S.S. functions to promote a safe environment for members of the UWM community to live, work and study.



³⁰ University of Wisconsin-Milwaukee Bicycle Advisory Task Force Report, 2012, https://www4.uwm.edu/bicycle/upload/UWM-Recommendation-for-a-Bike-Friendly-Campus_FINAL.pdf

B.O.S.S. Administration: The B.O.S.S. Administration is available during regular daytime hours to answer any questions that may arise.

UWM Union Room 322

8 a.m. – 4 p.m., Monday – Friday

414-229-6469

The University of Wisconsin-Milwaukee Police Department also has a Safety Awareness for Everyone (SAFE) program providing walking escorts throughout the main UWM campus area. SAFE walkers also keep an eye out for suspicious activity and are able to assist with safety related questions. All SAFE walkers undergo training with UWM Police and are able to assist in a variety of situations. Each team carries a two-way radio and are in direct contact with UWM Police.

How to Request Service

Call 229-4627 or approach a SAFE walker team.

Depending upon your location and destination, the dispatcher/SAFE team will determine whether you are eligible for SAFE services.

Tell the dispatcher the phone number you are calling from and be available to answer calls.

Dispatcher will send a SAFE walker team to your location.

These are wonderful examples of programs geared toward pedestrian safety and bikeability which are successfully being carried out right next-door to Shorewood. A partnership with UWM could mean the expansion of these programs or the propagation of even more successful programs which would not only assist residents of Shorewood who are directly involved with the University, but all residents and visitors to Shorewood.

Recommendations

- ✓ Develop and maintain a relationship with the University of Wisconsin-Milwaukee and their advocacy groups
- ✓ Research joint program and event opportunities on campus and in the Village
- ✓ Identify opportunities or pedestrian and bicycle safety initiatives in high traffic areas between the Village and campus
- ✓ Share knowledge regarding data and programs in the region and how they affect each entity
- ✓ Develop and maintain a relationship with faculty in the Urban Studies Department to help each other with studies and information

9.7 Recreation Department:

[The School District Recreation Center](https://www.shorewoodrecreation.org/)³¹ employs a mass of equipment and programs to increase the health and wellness of the community as a whole. This department is administered by the Shorewood School District, but encompasses many programs for residents and non-residents of all ages. This includes workout facilities and equipment for community use. The Recreation Department works diligently to entice community members to engage in healthy, community-driven activities that benefit the individual health of a participant and strengthen community bonds.

Home Base and Kids Club Programs- The Home Base Program facilitated by the Recreation Department allows school-aged children the opportunity to take part in a wide selection of morning instructional programs such as swimming, baseball, art, dance, etc. with their meeting and departure from a predesignated “Home Base”. Throughout the morning, students walk with program staff back and forth through the Village to their individual programs. When the programs are completed, the staff walks with the students back to their “Home Base”. While not immediately focused on the pedestrian safety aspects of the program, there is definite room for an educational “plug-in” dealing with pedestrian safety.

First Ride- is a program facilitated by the Recreation Department in conjunction with the Shorewood Police Department and local businesses. Its purpose is to assist children in learning bicycle safety with the help of experts from the Police Department and local bicycle based businesses. This course was created in 2013 and held in conjunction with the Tour of America’s Dairyland bicycle race each year in early summer. Attendance is growing as the course has already assisted more than 50 children within the community.



Recommendations

- ✓ Develop and maintain a relationship with the Shorewood Recreation Department

³¹ <https://www.shorewoodrecreation.org/>.

- ✓ Provide marketing materials for distribution through the Recreation Department
- ✓ Promote Recreation Department programs geared toward walkability and bikeability
- ✓ Help to promote and expand the First Ride program

9.7 Special Events:

National Bike Month- May is [National Bike Month](#)³², sponsored by the League of American Bicyclists and celebrated in communities such as Shorewood throughout the United States. Established in 1956, National Bike Month is a chance to showcase the many benefits of bicycling and encourage more residents, visitors and commuters to give biking a try. National Bike Month is an opportunity to celebrate the unique power of the bicycle and the many benefits as a viable form of transportation. The League of American Bicyclists provides resources to help plan events and each year the number and diversity of Bike Month celebrations continues to grow, accelerating the momentum around bicycling nationwide. Bike Month is an opportunity for the Village to reach out to bicycle advocacy groups and businesses in the hopes of further raising awareness of the benefits of bicycling and bikeability which would ultimately lead to greater ridership and knowledge of the best safety practices.



Bike to Work Day- National Bike Month includes an ever-expanding variety of events in communities nationwide but the biggest day of the month is Bike to Work Day. More than half of the U.S. population lives within five (5) miles of their workplace, making bicycling a feasible and fun way to get to work. With increased interest in healthy, sustainable and economically viable transportation options it's not surprising that, from 2000 to 2011, the number of bicycle commuters in the U.S. grew by more than 47 percent. Hundreds of American communities have been successful in increasing bicycle commuting by providing Bike to Work Week and Bike to Work Day events. Dates for these events vary, but are usually held during National Bike Month in May of each year. Utilizing events such as this could be an effective way to remind the public of the many benefits to bike riding and the decision to commute by bicycle.



Tour of America's Dairyland Bike Race- [Tour of America's Dairyland](#)³³ is the largest competitive cycling event in the U.S. The race takes place in multiple locations during 10 days throughout Wisconsin including the Village of Shorewood. This is very large and popular biking event with national and international recognition sponsored by the American Milk Marketing Board. Thousands of racers and fans attend every year as the event is marketed by all major American bicycling advocates including USA Cycling. The fact that Shorewood is an honored host to this event brings with it excellent opportunities to share education, awareness and the bikeability and walkability of Shorewood. There are many prospects

³² <http://www.bikeleague.org/bikemonth>.

³³ <http://www.tourofamericasdairyland.com/>.

to expand knowledge of not only safe bicycling techniques, but also the Village's dedication to walkability, bikeability and healthy lifestyles. Developing strategies through marketing, education and communication in conjunction with this event will inevitably advance the Village's pedestrian and bicycle agenda.



Recommendations

- ✓ Promote National Bike to Work Month/Day through all Village marketing outlets and materials
- ✓ Develop encouragement system for gathering data and encouraging participation
- ✓ Maintain a highly visible presence during the Tour of America's Dairyland event making sure to hand out maps and marketing materials to promote Shorewood as a highly walkable and bikeable community

9.8 Materials and Message:

Possibly the largest concern in the marketing of any desired message is the planning, implementation and use of effective marketing materials and outlets with a consistent message. There are many different forms these materials may take both electronically and printed. Devising a message to educate and make the public more aware regarding portions of this plan will require concise planning and execution. There are different materials and programs aimed at increasing walkability and bikeability currently existing throughout the community, but are undertaken separately and remain uncoordinated by a central entity with the ability to foster continuity. Formulating and disseminating a concise and consistent message for use in marketing and communications should be sought after in the execution of this plan.

Marketing materials should be available in a variety of formats i.e. flyers, posters, stickers, giveaways, etc. Businesses and organizations within the community who have public spaces and are willing to post materials should be given multiple options in formatting to make their effort

more attractive within their décor/location. It is possible and preferred to have customizable print materials wherever possible to help facilitate messaging for broad and differing audiences throughout the Village. There is no portion of Village operations that are not touched by transportation. Each department, committee and group will have a role to play in education, sustainability, infrastructure, etc. Marketing messages could be created to deal with a multitude of differing instances, or could be fashioned into a single clear voice, but in either instance should be tailored for Shorewood and its residents.

Recommendations

- ✓ Update Village webpage with pedestrian and bicycle information helpful to residents and visitors as needed
- ✓ Create, publish and distribute bicycling and walking maps of the Village
- ✓ Utilize social media outlets to promote events, distribute information and educate the public
- ✓ Identify improvements to marketing efforts to ensure maximum reach of information
- ✓ Utilize relationships with local businesses to implement training sessions with local running and bicycle businesses
- ✓ Use educational messages in the forms of flyers, utility bill inserts, direct mail marketing, social media, etc. to ensure maximum effect of marketing campaigns

10.0 Enforcement and Encouragement

10.1 Overview:

Traffic laws that regulate pedestrians, bicyclists, motorists, and other transportation system users are integral in ensuring a safe and healthy environment. Enforcement programs should be used as a form of education for transportation users regarding the traffic laws that govern them; serve as periodic reminders to obey traffic rules; encourage safer behaviors; and monitor and protect public spaces. These also help to reinforce and support other educational efforts and messages. It is critical that effective procedures are in place for handling violators and for training law enforcement officers.

The term "enforcement" is not limited to police officers issuing citations. Enforcement activities can involve a variety of "carrots and sticks" to encourage certain behaviors and deter others. Enforcement activities can be carried out by many different community groups, from parents and employers to neighborhood associations to law enforcement agencies. Working with Police Department is a key component of a successful and lasting enforcement program.



10.2 Working with the Police Department:

Police officers receive substantial training regarding laws and how to effectively enforce those laws. Driver education programs provide little instruction on bicycle and pedestrian issues. The result is a large number of motorists who are unaware of the laws and safety concerns surrounding pedestrians and bicyclists. Additional training for officers can help close that gap.

A method of enforcement which is regarded by many organizations as a best practice is the implementation of a "Ticket Diversion Program". This program would give the option of paying a citation which has been issued for a minor code violation or making the decision to attend a course which would instruct violators on traffic safety. A program such as this could be done in collaboration with local driver's education businesses and would represent a substantial benefit to both community and driver. Implementation of a successful "Ticket Diversion Program" would require the active involvement of the Village Attorney, Municipal Judge and the Police Department.

The police department regularly provides information regarding pedestrian and bicycle citations and accidents to the Pedestrian and Bicycle Safety Committee as well as information on sidewalk snow removal compliance during the winter months. Members of the Police Department regularly attend meetings of the Pedestrian and Bicycle Safety Committee and help to simplify communication between these two entities.

Providing Additional Training for Law Enforcement Officers- Police officers who have received quality pedestrian and bicycle training know how pedestrian and bicycle crashes happen. They know the role engineering, education, and enforcement can and should play in improving pedestrian and bicycle safety. They know which laws to enforce for pedestrians, bicyclists, and motorists to improve pedestrian and bicycle safety and they are willing to enforce these laws.

Having an effective training program in place ensures that law enforcement officers are knowledgeable of the state laws and Village Codes that apply to pedestrians and bicyclists. Wisconsin has a pedestrian and bicycle law enforcement training course, called [Enforcement for Bicycle Safety \(EBS\)](http://www.dot.wisconsin.gov/safety/vehicle/bicycle/education.htm)³⁴. This course teaches police officers various aspects of bicycle safety, which laws to emphasize with child and adult bicyclists and with motorists to reduce crashes, how to begin bicycle crash cause identification, and the importance of officers as front line, on-traffic-duty educators. Specialized police training should be given before implementing a pedestrian safety enforcement campaign, so officers know their role in helping to facilitate the achievement of the goals and objectives of the campaign.



Many police officers enjoy discussing safety with residents of all ages, and may be happy to take part in pedestrian or bicycle safety speaking engagements at schools, offices, or other locations. However, these brief, one-time lectures or events are usually not enough to generate permanent changes in people's attitudes or behaviors related to pedestrian or bicycle safety, and they are no substitute for concentrated and sustained enforcement. Those involved in an enforcement program must be aware of the importance of long-term commitment in order for the enforcement to be effective and successful.

Procedures to Handle Violations- In addition to having laws and regulations that support safe pedestrian and bicycle activity, the Police Department should have an appropriate procedure for handling violators, especially young violators. Young pedestrians, bicyclists and drivers are particularly impressionable. A law enforcement campaign with a good set of procedures for handling young law violators can be an ideal opportunity for educating this population and creating safer behaviors for life. At the same time, studies have shown that giving citations to pedestrians can be counter-productive and can lead to a long-term resentment of enforcement officials, and the community.



Foot and Bicycle Patrols- The Village of Shorewood Police Department actively seeks opportunities to approach community policing through alternative modes of transportation. While the police cruiser is an integral tool used to respond to incidents faster and more effectively in situations, bike and foot patrols are utilized with increasing regularity. This is an important tool which allows officers the opportunity to experience the transportation network

³⁴ <http://www.dot.wisconsin.gov/safety/vehicle/bicycle/education.htm>.

in Shorewood as a bicycle or pedestrian user including the ability to effectively police the bike path. Foot patrols are very effective in engaging with the community as the officers are no longer separated by a police cruiser, but are now walking among residents and visitors. While foot patrols were the primary method for police officers to navigate their communities prior to the burst of the use of automobiles, they are increasing in popularity due to the unique benefits they provide in reconnecting and interacting with the community in a positive way. Each year the Village of Shorewood Police Department spends in excess of 280 hours on bike and 120 hours on foot patrols.

Recommendations

- ✓ Attend Pedestrian and Bicycle Safety Committee meetings as requested and available
- ✓ Discuss with Pedestrian and Bicycle Safety Committee enforcement actions taken
- ✓ Provide Pedestrian and Bicycle Safety Committee with citation and accident reports and any additional data as necessary
- ✓ Facilitate partnerships with local bicycle advocates, the Police Department and the Pedestrian and Bicycle Safety Committee
- ✓ Educate officers in current pedestrian and bicycle safety legislation and best practices
- ✓ Ask officers to educate residents and visitors including the handing-out of marketing and promotional items
- ✓ Hold bicycle and pedestrian training session or build upon the Recreation Department's First Ride program
- ✓ Identify and utilize positive enforcement methods to encourage safe pedestrian and bicycle travel
- ✓ Research and identify possible encouragement programs through School Resource Officer and Patrol Officers
- ✓ Efficiently use foot and bike patrols throughout the Village

10.3 Safe Sidewalks:

When the Village experiences a measurable snow fall the Department of Public Works notifies the designated Village contractor and directs them to inspect the sidewalks on Village streets to ensure compliance with Village Ordinance 466-27. This ordinance requires that every Shorewood property owner keep the sidewalks adjacent to their property clear of snow and ice to ensure pedestrian safety.



If sidewalks are not cleared, the contractor issues notices by placing them on the door of the property. Addresses that have received notices are dropped off with the Police Department following inspection. Within 12 to 18 hours after the notices are issued, police officers recheck the homes warned. If the sidewalks are cleared, no further action is taken. If the sidewalks are not cleared, a picture of the property will be taken and a citation will be issued along with a request to the contractor to clear the walk. The contractor returns to clear the sidewalks and the property owner is billed an hourly fee for labor which is added to their tax bill.

This has proven to be an effective deterrent to Village property owners who would otherwise leave their sidewalks untouched after inclement weather. In turn, the majority of sidewalks throughout the Village are well cleared and safe for pedestrian travel during the winter months.

Recommendations

- ✓ Continue to administer contract for sidewalk clearing services
- ✓ Provide data to the Pedestrian and Bicycle Safety Committee on warnings and citations which arise through this program
- ✓ Regularly use Village marketing materials and outlets to educate the public regarding the clearing of sidewalks and its direct impact on pedestrian safety
- ✓ Work with Shorewood Connects to ensure that the Village's senior community is given the proper assistance after inclement weather either by offering volunteer services or a list of local contractors

10.5 Encouragement:

Encouragement campaigns and programs would go far in improving the culture of walkability and bikeability throughout the Village. Encouragement would be the “carrot” while enforcement would represent the “stick”. The Police Department currently employs good customer service tactics when approaching the public. The obvious first duty to a Police Officer is to public safety, but the second role an officer takes on is that of community advocate. Closer relationships between Shorewood residents and the members of the Police Department provide benefits in many aspects of daily communication. Encouragement programs through the Police Department would help to advance the aspects of transportation within the Village and solidify relationships which are mutually beneficial in crime prevention.



Recommendations

- ✓ Cycling and walking events and activities, particularly on trails and cycling routes. These allow a free and friendly way to promote desired behavior while making the process fun and community based.
- ✓ Bicycle parking and clothes changing facilities at worksites, transportation terminals and other destinations. Leading the way in pedestrian and bicycle friendly facilities, the Village staff would be promoting these values to local businesses.
- ✓ Bicycles provided by employers and community organizations to rent or loan. This would be accomplished through the Bublr bicycle rentals which are coming to the Village in 2016.
- ✓ Reimbursement of employee cycling mileage expenses. Provide mileage reimbursement (monetary or otherwise) to Village employees for working hard to lead by example.
- ✓ Get local employers on board with programs to reward positive transportation alternatives such as the Green Leaf Award.
- ✓ Programs to encourage use of bicycles for freight deliveries and other commercial uses. Encourage local businesses to deliver by bicycle or to share delivery services.

11.0 Evaluation

11.1 Overview:

The evaluation processes for this plan and the programs recommended within it, when implemented, will gauge how effective these programs and the plan as a whole are reaching its objectives. Finding the Village's baseline as it pertains to desirable metrics will produce the internal benchmark used to measure performance. Benchmarking the performance of comparable communities to know where the Village has the most room for improvement will be the second. Designing evaluation processes and procedures and implementing them to measure the effect of this plan and devising simple and effective ways for transportation users to give feedback will be the third.

The metrics used to gauge the Village's baseline are determined by the Village staff and the Pedestrian and Bicycle Safety Committee and are gathered in numerous ways. Village departments are perpetually gathering information on a large number of measurable to gauge service delivery and efficiency. Many of the metrics utilized by staff can be utilized to track the performance of pedestrian and bicycle programs. Other metrics may require input from the community in the form of survey results or from Village partners as programs expand.

Data collecting throughout Village departments, partners and other entities will yield invaluable information and allow for the quantitative measurement of all pedestrian and bicycle programs. To gauge how these programs are affecting the residents of and visitors to the community, the Village must devise a simple and effective way for people to give their feedback. This will likely need to take the form of periodic surveys among residents, but there should be a marketed alternative which anyone could utilize to rate their experiences and give quality feedback. This could prove rewarding for residents, visitors, businesses, the Village and the Master Plan.

11.2 Performance Measures and Benchmarking:

Performance measurements will be a key component in determining trends in data from the Village. Identifying and collecting this data over time will allow Village Staff and volunteers the opportunity to gauge progress and recognize potential issues within programs. Categorizing data and finding metrics which will give insights into program effectiveness is a challenge in itself. Gathering the required data once it has been identified will be the second challenge. In order for the tracking of performance measurements to truly be effective, data must be correct and constant over the determined time intervals.

Benchmarking would require that performance measures be identified and collected and then matched to performance measures of comparable communities. The difficulty with benchmarking is twofold. First, comparable communities must be identified. This can be difficult due to the uniqueness of the Village of Shorewood within the region. Different metrics would need to be developed in order to identify these

comparable communities such as population, population density, equalized value, average income, average commute, proximity to large urban area, etc.

Secondly, the communities identified as comparable would need to have data on identified performance measurements available. Many communities track performance measurements, but there is no universal method or set of metrics used. Even if comparable communities were identified and they had metric data available, it is still difficult to determine how their data is compiled, what data is compiled and how it relates to the data collected by the Village of Shorewood. The best method for benchmarking performance measures with other communities may be to identify many possible comparable communities and reach out to them not only to gather data, but to agree to gather the same metrics in the same fashion and commit to share information. This would basically be forming a collective of municipal governments establishing a best practice which would apply to their group and could be effective for many other programs.

Types of Possible Metrics

Ln/Ft of Sidewalks in the Village		Number of Marked Crosswalks	
Number of Unmarked Crosswalks		Number of Crosswalks Repainted (Annual)	
Ln/Ft of Sidewalks Closed Due to Construction		Average Duration of Sidewalk Closure	
Ln/Ft of Sidewalks Constructed		Ln/Ft of Sidewalks Re-Constructed	
Number of Sidewalks Not Properly Cleared on Time During Winter		Citations Issued to Residents for Not Clearing Sidewalks	
Bike Lanes (in Miles)		Bicycle Accommodations (in Miles)	
Bike Lanes as a % of Total Roads		Bicycle Accommodations as a % of Total Roads	
Designated Bike Route(s) (in Miles)		Designated Safe Route To School (in Miles)	
Ln/Ft of Bike Path		Number of Entrances to Oak Leaf Trail	
Number of Controlled Intersections		Number of Uncontrolled Intersections	
Roads Closed Due to Construction (in Miles)		Number of Pedestrian Accidents	
Number of Bus Stops		Bus Ridership (Annual)	
Number of Bus Routes		Bus Ridership/Bike Rack Usage (Annual)	
Bus Ridership/Bike Rack Usage (Annual)		Number of Bicycle “Racks”	

Total Estimated Number of Bicycle Parking Stalls		Number of Businesses Requesting Bike Parking	
Number of Bicycle Accidents		Number of Violations for Failure to Yield	
Number of “Other” Moving Violations		Hours Spent by Police Department on Bike/Foot Patrol	
Number of Children Participating in Walk to School Day(s)		Police Department Hours Spent Promoting Ped/Bike Safety	
Number of Ped/Bike Focused Marketing Campaigns		Number of Special Events Featuring Ped/Bike Safety or Training	

Recommendations

- ✓ Identify a list of metrics to track to measure performance that is unique to the Village and has value to pedestrian and bicycle planning and program tracking efforts
- ✓ Track and compile data on a regular basis and provide to the Pedestrian and Bicycle Safety Committee for evaluation
- ✓ Identify trends in data and what can be done to tweak programs to promote desired outcomes.
- ✓ Research and identify comparable communities to contact and solicit comparable data
- ✓ Form relationships and data sharing agreements with comparable communities to achieve mutually desirable effect
- ✓ Compare benchmarking data annually or biannually and identify trends from community to community.
- ✓ Use data compiled to communicate with other communities and develop programs which may benefit the Village and its partner communities.

11.3 Program Evaluation: Process and Schedule:

Recommendations

- ✓ Complete bicycle audit of the Village transportation system every five (5) years
- ✓ Measure change in total sidewalks and bikeways throughout the Village on an annual basis
- ✓ Measure changes in pedestrian and bicycle incidents annually
- ✓ Inventory changes in bicycle parking throughout the Village annually
- ✓ Perform pedestrian safety and walking audits focusing on different areas of the Village each year as necessary
- ✓ Perform pedestrian and bicycle counts to establish baseline walking and biking rates throughout the Village every five (5) years
- ✓ Perform traffic impact analysis studies with all new developments as needed

Appendices

Table of Best Practices:

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure	DPW Staff	Ensure All Crosswalks in the Business District and Throughout the Village on Preferred Routes are Marked and Maintained Using “Continental” marking Techniques		2005	Ongoing	
	Planning	Evaluate Crosswalk Placement Throughout the Village with All New Infrastructure , Development and Re-Development Projects		2005	Ongoing	
	Planning/ DPW Staff/ Contractor/ Board of Trustees/Budget	Install In-Road Warning Lights or Equivalent Measures at All Mid-Block Crosswalks for Greater Visibility		2005		As budget allows
	Planning	Crosswalks Should be Used in Conjunction with Other Measures such as Curb Extensions		2015	Ongoing	
	Planning	Ensure that All Curb Ramps are Compliant with ADA Standards Within any Infrastructure, Development or Re-Development Projects		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure	DPW Staff	Ensure that all Curb Ramps have Tread Plates Installed which are Well-Maintained and painted		2015	Ongoing	
	Planning	Evaluate Placement of Curb Extensions Throughout the Village with All New Infrastructure, Development or Re-Development Projects		2005	Ongoing	
	Planning/ DPW Staff	Utilize Added Space Created by Curb Extensions with Greenspace, Bicycle Parking, Sidewalk Furniture or any Combination of These to Maximize the Positive Effects of the Space		2015	Ongoing	
	Planning	Redesign Curb Extension Design Facilities Adequate Drainage		2015	Ongoing	
	Planning	Ensure Curb Extensions are not Placed in a Way that would Impede Bicycle Travel		2015	Ongoing	
	Police/ Planning/ Manager/ Board of Trustees	Evaluate the Possibility of Diagonal Back-In On-Street Parking in Key Locations		2015		
	Planning/ DPW Staff	Ensure Parking Stalls Do Not Infringe on the 20 ft. Rule of Distance from Marked Crosswalks		2015		
	Police/ Planning/ Manager/ Board of Trustees	Evaluate the Use of Parking Meters in the Business District		2015		

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure	Planning	Evaluate Overall Parking Demand and Space in light of Shorewood's Specific Needs		2015		
	Planning/ DPW Staff	Utilize Buffer Space with Greenspace, Bicycle Parking, Sidewalk Furniture or Any Combination of These to Maximize the Positive Effects of the Space		2015	Ongoing	
	DPW Staff	Ensure All Plantings, Bicycle Parking, Sidewalk Furniture and/or Any Other Impediments to Pedestrian Travel are Moved Safely Out of the Right-Of-Way		2012	Ongoing	
	DPW Staff	Shrubs Should be Low-Growing and Trees Should be Trimmed at Least 8-10 ft. to Ensure Sight Distances and Head Room are Maintained and Personal Security is not Compromised		2015	Ongoing	
	DPW Staff	Plants and Trees Should be Chosen with Care to Match the Character of the Area, be Easily Maintained and Not Create Problems Such as Buckling Walks		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure	DPW Staff/ Contractor	Ensure that Sidewalks are Maintained, Repaired and Monitored for the Safety of Pedestrians		2005	Ongoing	
	DPW Staff/ Contractor	Ensure that Sidewalks are Cleared of Snow and Ice in Accordance with Village Ordinance		2005	Ongoing	
	Planning	Evaluate Sidewalk Width and Design to Maximize Pedestrian Travel with All New Infrastructure, Development and Re-Development Projects		2015	Ongoing	
	Planning	Ensure that Awnings and Overhangs Present Throughout the Village are Maintained by Property Owners		2015	Ongoing	
	Planning	Promote the Inclusion of Awnings and/or Overhangs in New Development or Re-Development Projects when Practical		2015	Ongoing	
	Planning/DPW Staff	Ensure Signage Complies with the Manual on Uniform Traffic Control Devices (MUTCD)		2015	Ongoing	
	DPW Staff	Ensure Signs are Positioned High Enough that they Do Not Conflict with Pedestrian Travel Unless Necessary		2012	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure	Police/ DPW Staff	Purchase and Place Portable Speed Display Signage		2005	Ongoing	
	DPW Staff	Replace Street Signs with Larger, More Reflective Signs or Illuminated Signage		2005		As Budget Allows
	Village Management/ Contractor	Replace Village-Wide Way-Finding Signs to Conform to New Designs		2015		As Budget Allows
	DPW Staff	Maintain Street Lighting and Improve Where Practical		2015	Ongoing	
	Planning/DPW Staff	Ensure that Pedestrian Walkways and Crosswalks are Well Lit.		2015	Ongoing	
	DPW Staff	Implement the LED Conversion Plan		2014		As Budget Allows
	Police/ Planning/ Board of Trustees	Evaluate Traffic Signal Timing on a Regular Basis to Ensure Smooth Traffic Flow in Changing Conditions		2005		
	DPW Staff	Ensure that Signals are Visible to Pedestrians		2015	Ongoing	
	Planning/DPW Staff	When Possible, Provide a Walk Interval for Every Bicycle		2015	Ongoing	
	DPW Staff	Provide Supplemental Non-Visual Guidance for Pedestrians with Sensory Restrictions		2015	Ongoing	
	DPW Staff	Pedestrian Buttons Must be Well Positioned and Within Easy Reach for All Approaching Pedestrians		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure	DPW Staff	Ensure Signalized Intersections are Safe and Clear of Debris or Other Potential Safety Issues to Pedestrians or Bicyclists		2015	Ongoing	
	DPW Staff	Every Signalized Intersection Should Have a Pedestrian Signal Head		2015	Ongoing	
	DPW Staff	Install Illuminated “No Turn on Red” Signs at Heavy Pedestrian Crossings		2015		Legislative Considerations
	Planning	Identify Opportunities for Bike Lanes Throughout the Village		2015		
	Planning	Identify Opportunities for Bicycle Accommodations Throughout the Village		2015		
	Planning	Identify Opportunities for Bicycle Sharrow Lanes Throughout the Village		2015		
	Planning	Identify Opportunities for Bicycle Boulevards Throughout the Village		2015		
	DPW Staff	Provide Bicycle Parking for Businesses Upon Request		2011	Ongoing	As budget allows
	Planning	Identify Bicycle Parking Needs Throughout the Village on a Regular Basis		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure	Planning	Identify Potential Sites for Bicycle Corals Throughout the Village		2015	Ongoing	
	Planning/ Bublr Staff	Track Ridership and Demand to Ensure Proper Number and Placement of Bike Sharing Stations and Bicycles		2015	Ongoing	
	Planning/ Marketing/ Bublr Staff	Promote the Use of the Bicycle Share System and the Bublr Network in the Milwaukee Area		2015	Ongoing	
	Planning/ MCTS Staff	Track Ridership and Demand to Ensure Sufficient MCTS Service within Shorewood		2015	Ongoing	
	Planning/ MCTS Staff/ Marketing	Promote the Use of Public Transportation and the MCTS Network		2015	Ongoing	
	Planning/ MCTS Staff	Work with MCTS to Ensure Proper Number, Placement and Access of MCTS Bus Stops and Shelters		2015	Ongoing	
	DPW Staff	Develop Program to ensure thorough assessments of All Village Ped/Bike Infrastructure and Facilities are Performed Regularly		2015	Ongoing	
	DPW Staff	Maintain Ped/Bike Infrastructure and Facilities Based on Assessment on a Regular Basis Utilizing Best Practices		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure	DPW Staff	Investigate Any Complaints and/or Suggestions from Residents, Visitors, Committee Members or Staff and Satisfy a Solution if Possible		2015	Ongoing	
	DPW Staff	Maintain a Regular Schedule for Street Sweeping as Weather Allows		2015	Ongoing	
	DPW Staff	Continue to Clear Streets Effectively and Efficiently During Inclement Weather		2015	Ongoing	
Lake Dr.	North of Capitol Dr. to Glendale Ave.	Narrow to Single Lane Road and Add a Fog Lines		2012		WisDOT Input Required, Budgetary and Board Considerations
Downer Ave.	South of Capitol Dr. to Edgewood Ave.	Evaluate Bicycle Accommodations		2012		Bike Accommodation Board or Manager Consideration
Murray Ave.	Murray Avenue	Explore as a Bicycle Boulevard		2011		Budget and Board Considerations, Study May Be Required
	Glendale Ave. to Edgewood Ave.	Designate as a Preferred Route with All Applicable Marking and Signage		2011		Budget Considerations for Signage, Map Required
Oakland Ave	Edgewood Ave. Intersection	Explore Possibility of Intersection Reconstruction with the City of Milwaukee		2015		
	Capitol Dr. Intersection	Install Audible Timer		2005		
	Menlo Blvd. Intersection	Install Countdown Timer		2005		

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Infrastructure		Redesign Curb Extension to a Size Usable by Buses		2012		Traffic Engineer Input Required
	Shorewood Blvd. Intersection	Install Call Signal at Each Corner of Intersection		2012		Timing Study Required, Budget and Board Considerations
	North and Southbound Lanes	Add Enhancements to Bike Lane for Greater Visibility		2005		Board or Manager Considerations
Wilson Drive	North and Southbound Lanes	Add Bike Lane Signage		2015		
Kensington Blvd.		Add Bike Sharrow Symbols		2012		
		Explore Kensington Blvd. as a Bicycle Boulevard		2012		
Edgewood Ave	River Park (3505 Oakland Ave.)	Add Way finding Signs from the Trail to the Business District		2012		Parks Commission Reviewing Signage
	River Park to Lake Dr.	Coordinate with Milwaukee for Uniform Symbols and Signage		2012		Parks Commission-Budget Considerations
Oak Leaf Trail	Glendale Ave.	Formalize Bike Path Entries with Hard Surface to Allow for Winter Maintenance and Safer User Conditions		2012		
	Pindale Ct.	Explore Entrance from Trail to Morris through Pinedale Ct.		2015		
		Construct Southern Path from Trail to Oakland Ave.		2012		Parks Commission Consideration

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Legislation	BID/ Village Management/ Board of Trustees	Evaluate adoption of Ordinance Requiring Local Employers to Provide Bicycle Parking		2011		Board consideration would be required
	Village Management/ Board of Trustees	Evaluate adoption/ Implementation of a "Trip Reduction" Program or Ordinance		2011		Board consideration would be required
	Village Management/ Board of Trustees / Village Attorney / Municipal Judge	Evaluate implementation of a "Ticket Diversion Program" for Motorists as an Alternative Measure for Moving Violations		2015		Police Department, Village Attorney and Municipal Judge consideration would be required
	PBSC/ Village Management/ Board of Trustees	Evaluate Ped, Bike and Public Transport Policy Regularly		2015	Ongoing	
	PBSC/ Village Management	Create a "Bicycle Ambassador" Program		2011		
	Village Management	Designate a Ped and Bicycle Coordinator		2011		
	PBSC/ Staff Liaison	Analyze the Ped and Bicycle Master Plan Annually and Make Recommendations		2015	Ongoing	
	Planning/ Village Management/ Board of Trustees/ Various Boards and Commissions	Integrate the Pedestrian and Bicycle Master Plan into the Village's Comprehensive Plan, Land Use Plans, Zoning Ordinances and Larger Development Projects		2015	Ongoing	Planning Commission and Village Board consideration may be required
	Planning/ Village Management	Conduct an Economic Impact Study on Bicycling and Walking in the Village		2011		

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Legislation	Planning/ Village Management/ Staff Liaison	Ensure Funding to Implement the Ped/ Bike Master Plan Recommendations and Future Infrastructure Improvements		2015	Ongoing	Board consideration of possible funding required
	Village Management	Designate Staff Member(s) to Research Funding Alternatives for Ped, Bike and Public Transport Infrastructure Projects as a Measure of Performance		2015	Ongoing	
	Staff Liaison/ Management Designee	Submit Required Materials to All Applicable and Practical Grant Opportunities		2015	Ongoing	
School District	PBSC/ Staff Liaison/ School District	Develop and Maintain Relationship Between the PBSC and the School District		2012	Ongoing	
	PBSC/School District	Utilize Marketing and Educational Materials to Inform Parents and Students About Ped/Bike Safety and Options		2015	Ongoing	
	PBSC/ Marketing/ Staff Liaison	Promote Walk and Bike to School Events		2015	Ongoing	
	PBSC/ School District/ Police	Utilize the SRO in an Educational Role to Help Teach Students How to Use the Transportation System Responsibly and Safely		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
School District	PBSC/ School District/ Police/ Contractor	Ensure Well Trained, Equipped and Placed Crossing Guards Through Contract Administration		2015	Ongoing	
	PBSC/ School District/ Rec Department	Work with the Shorewood Recreation Department Through the School District to Ensure Educational Programming for Ped/Bike		2015	Ongoing	
	PBSC/ School District	Develop Encouragement Programs to Motivate Students to Walk or Bike Year-Round		2015	Ongoing	
	PBSC/ Planning/ School District/ Marketing	Promote SRTS Program by Having Well Defined and Communicated Routes and Educating Students		2015	Ongoing	
SRTS	Lake Bluff Blvd.	Add SRTS Signage		2012		Budget and Manager Considerations
	Morris Blvd.: Menlo Blvd. to Kensington Ave.	Add SRTS Signage		2012		Budget and Manager Considerations
	Shorewood Blvd.: Lake Dr. to Oakland Ave.	Add SRTS Signage		2012		Budget and Manager Considerations
	Murray Ave.	Add SRTS Signage		2012		Budget and Manager Considerations
	Shorewood Blvd.: Murray Ave. to Frederick Ave.	Make Provisions and Place Signage Allowing Bicycles to Ride on the Sidewalk to Allow for SRTS		2015		Board consideration of ordinance change may be required

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Sustainable Shorewood	PBSC/ Conservation/ Marketing	Promote Alternative Transportation Options Such as Walking, Biking, Bike Share, Public Transport and car share program as More Sustainable and Responsible		2015	Ongoing	
	PBSC/ Conservation/ Health	Promote the Health Benefits to Being Active Through Biking/Walking		2015	Ongoing	
	PBSC/ Conservation/ Parks/ Marketing	Promote the Greenspaces, Trails and Neighborhoods in the Village as Destinations for Leisure and Urban Exploration		2015	Ongoing	
	PBSC/ UEC/ Shorewood Waters/Parks/ Conservation/ Marketing	Develop and Maintain a Relationship with the Urban Ecology Center in Hopes of Promoting Future Programs geared Towards Bike/Ped		2015	Ongoing	
	PBSC/ Conservation	Maintain a Presence at Conservation Events Annually		2015	Ongoing	
	PBSC/ Conservation/ BID	Consider Green Leaf Award Recognition for Businesses Who Have Made Progress in Sustainable Transportation		2015	Ongoing	
Senior Resource Center	PBSC/ SRC/School District/ Shorewood Connects	Facilitate Communication Between Student and Members of the Senior Center regarding Safe Transportation		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Senior Resource Center	PBSC/ SRC	Work to Identify Ways to Improve Mobility in Shorewood’s Senior Community		2015	Ongoing	
	PBSC/ SRC/ Shorewood Connects	Utilize Shorewood Connects Program to Help the Senior Community by Providing Education and Assistance Related to the Use of the Transportation System and Transportation Options		2015	Ongoing	
	PBSC/ Welcome New Neighbors	Promote Shorewood’s Walkability and Bikeability Through the Welcome New Neighbors Program by Providing Maps and Other Promotional Materials		2015	Ongoing	
Business Improvement District (BID)	PBSC/BID	Develop and Maintain Relationships with Local Businesses Geared Toward Running and Biking		2015	Ongoing	
	PBSC/ BID/ Marketing	Promote the Vibrancy of Shorewood Business District Through Walking and Biking Maps and Other Marketing Materials		2015	Ongoing	
	PBSC/ BID/ Planning	Work with Local Businesses to Ensure Ample Bicycle Parking for Customers and Employees		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
UW-Milwaukee	PBSC/ BID/ Planning	Work with Local Businesses to Ensure Pedestrian Safety and Access		2015	Ongoing	
	PBSC/ BID	Maintain a Presence at Business Improvement District Events		2015	Ongoing	
	PBSC/ UWM	Develop and Maintain a Relationship with Partners within UWM		2015	Ongoing	
	PBSC/ UWM	Research Joint Program and Event Opportunities On-Campus and in the Village		2015	Ongoing	
	PBSC/ UWM	Share Knowledge Regarding Data and Programs in the Region and How They Effect Each Entity		2015	Ongoing	
	PBSC/ UWM	Develop and Maintain a Relationship with Faculty in the Urban Studies Department to share Information		2015	Ongoing	
Recreation Department	PBSC/Recreation	Develop and Maintain a relationship with the Shorewood Recreation Department		2015	Ongoing	
	PBSC/Recreation/ Marketing	Provide Marketing Materials for Distribution Through the Recreation Department		2015	Ongoing	
	PBSC/Recreation/ Marketing	Promote Recreation Department Programs Geared toward Walkability and Bikeability		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Recreation Department	PBSC/Recreation/ Staff Liaison/ Marketing	Help to Promote and Expand the First Ride Program		2015	Ongoing	
Special Events	PBSC/BID/ Marketing	Promote National Bike-to-Work Month/Day Through All Village Marketing Outlets		2012	Ongoing	
	PBSC/BID/ Marketing/ Planning	Develop Encouragement System for Gathering Data and Encouraging Participation		2015	Ongoing	
	PBSC/BID/ Marketing	Maintain a Highly Visible Presence During the Tour of America's Dairyland Event Distributing Maps and Marketing Materials to Promote Shorewood as Walkable and Bikeable Community		2015	Ongoing	
Materials and Message	PBSC/ Staff Liaison/ Marketing	Update Webpage with Pedestrian and Bicycle Info Helpful to Residents		2012	Ongoing	
	PBSC/ Planning/ Marketing/ Staff Liaison	Create, Publish and Distribute Bicycle and Walking Maps of the Village		2012		
	PBSC/ Staff Liaison/ Marketing	Utilize Social Media Outlets to Promote Events, Distribute Information and Educate the Public		2015	Ongoing	
	PBSC/ Marketing	Identify Improvements to Marketing Efforts to Ensure Maximum Reach of Message		2011	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Materials and Message	PBSC/ BID/ Marketing	Utilize Relationships with Local Businesses to Implement Training Sessions with Running and Bicycle Businesses		2015	Ongoing	
	PBSC/ Staff Liaison/ Marketing	Use Educational Messages in the Forms of Flyers, Utility Bill Inserts, Direct Mail, Social Media, etc. to Ensure Maximum Effect of Marketing Campaigns		2015	Ongoing	
Enforcement	Police/PBSC	Attend Pedestrian and Bicycle Safety Committee Meetings as Requested		2005	Ongoing	
	Police/PBSC	Provide Pedestrian and Bicycle Safety Committee with Citation and Accident Reports and Any Additional Data as Necessary		2005	Ongoing	
	Police/PBSC	Facilitate Partnerships with Local Bicycle Advocates, the Police Department and the Pedestrian and Bicycle Safety Commission		2015	Ongoing	
	Police/PBSC	Educate Officers in Current Pedestrian and Bicycle Safety		2011	Ongoing	
	Police/PBSC/ BID/ Marketing	Ask Officers to Educate Residents and Visitors Including the Handing-Out of Marketing and Promotional Items		2011	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Enforcement	Police/ PBSC/ Recreation/ Marketing/ BID	Hold Bicycle and Pedestrian Training Sessions or Help to Build Upon the Recreation Department's First Ride Program		2015	Ongoing	
	Police/ PBSC/ Marketing/ BID	Identify and Utilize Positive Enforcement Methods to Encourage Safe Pedestrian and Bicycle Travel		2011	Ongoing	
	Police	Research and Identify Possible Encouragement Programs Through the School Resource and Patrol Officers		2011	Ongoing	
	Police	Increase Total Hours Spent on Foot and Bike Patrols Throughout the Village		2015	Ongoing	
	Police/ Marketing	Promote the utilization of Bicycle Licenses		2015	Ongoing	
Safe Sidewalks	PBSC/ DPW/ Police/ Contractor	Continue to Administer Contract for Sidewalk Clearing and Monitoring Services		2015	Ongoing	As budget allows
	Police/ Contractor	Provide Data to the Pedestrian and Bicycle Safety Committee on Warnings and Citations		2015	Ongoing	
	PBSC/ Staff Liaison/ Marketing	Use Marketing Materials and Outlets to Educate Regarding the Clearing of Sidewalks and its Direct Impact on Pedestrian Safety		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Safe Sidewalks	PBSC/ Shorewood Connects/ Contractor/ SRC/ Staff Liaison/ Marketing	Work with Shorewood Connects to Ensure that the Village’s Senior Community is Given Proper Assistance After Inclement Weather Either by Offering Volunteer Services or a List of Local Contractors		2015	Ongoing	
Encouragement	PBSC/ Parks/ Marketing/ UEC/ Milwaukee County/ BID	Cycling and Walking Events and Activities, Particularly on Trails and Cycling Routes.		2015	Ongoing	
	PBSC/ Marketing/ Police/ Bid	Cycling, Walking and Public Transit Commuting Campaigns		2015	Ongoing	
	PBSC/ Police/ Marketing/ BID	Positive Citation Campaigns. Police Officers Issue Citations for Positive Behaviors Where Citizens Can Enter for Prizes, etc.		2015	Ongoing	
	PBSC/ School District/ SRO/ Marketing	School-Based Campaigns Promoting Biking and Walking to School		2015	Ongoing	
	PBSC/ BID/ Planning	Bicycle Parking and Clothes Changing Facilities at Worksites, Transportation Terminals, etc.		2015	Ongoing	
	PBSC/ BID/ Marketing	Bicycles Provided by Employers and Community Organizations to Rent or Loan Above and Beyond Publir		2015	Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Encouragement	PBSC/ BID/ Marketing/ Village Management	Reimbursement of Employee Cycling Mileage Expenses.		2015	Ongoing	
	PBSC/ BID/ Marketing	Get Local Employers On-Board with Programs to Reward Positive Transportation Alternatives		2015	Ongoing	
	PBSC/ BID/ Marketing	Programs to Encourage the use of Bicycles for Freight Deliveries and Other Commercial Uses		2015	Ongoing	
	PBSC/ BID/ Marketing/ Planning	Tourist Promotional Materials Highlighting a Walkable Bikeable Shorewood		2015	Ongoing	
	PBSC/ BID/ Marketing/ Planning/ Village Management	Provide Way Finding and Multi-Modal Navigation Tools such as Maps, Kiosks, etc.		2015	Ongoing	
Evaluation	PBSC/ Staff Liaison/ Village Management/ Planning	Identify a List of Metrics to Measure Performance that is Unique to the Village and has Value to Pedestrian and Bicycle Planning and Program Tracking Efforts		2015	Ongoing	
	PBSC/ Staff Liaison	Track and Compile Data on a Regular Basis and Provide to the Pedestrian and Bicycle Safety Committee for Evaluation			Ongoing	

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Evaluation	PBSC/ Staff Liaison/ Village Management/ Planning	Identify Trends in Data and what Can Be Done to Tweak Programs to Promote Desired Outcomes			Ongoing	
	PBSC/ Staff Liaison/ Village Management	Research and Identify Comparable Communities to Contact and Solicit Comparable Data			Ongoing	
	PBSC/ Staff Liaison/ Village Management	Form Relationships and Data Sharing Agreements with Comparable Communities to Achieve Mutually Desired Effects		2015	Ongoing	
	PBSC/ Staff Liaison/ Village Management/ Planning/ Municipal Partners	Compare Benchmarking Data Annually or Bi-Annually and Identify Trends from Community to Community		2015	Ongoing	
	PBSC/ Staff Liaison/ Village Management/ Planning/ Municipal Partners	Use Data Compiled to Communicate with Other Communities and Develop Programs Which May Benefit the Village and its Partner Communities		2015	Ongoing	
Process and Schedule	PBSC	Complete Bicycle Audit of the Village Transportation System Every Five (5) Years		2015	2015	2015-2020-2025
	PBSC/ Staff Liaison/ DPW/ Planning	Measure Change in Total Sidewalks and Bikeways Throughout the Village on an Annual Basis		2015	Ongoing	To be completed once a year-each year

Specific	Responsible	Potential Action Item	Importance	Date Recommended	Date To-Be Completed	Notes
Process and Schedule	PBSC/ Police/ Staff Liaison	Measure Changes in Pedestrian and Bicycle Accidents Monthly		2015	Ongoing	Monthly
	PBSC	Perform Pedestrian Safety and Walking Audits focusing on Different Areas of the Village Each Year as Necessary		2015	Ongoing	Develop "Sectors" and monitor annually on a revolving basis
	PBSC/ Staff Liaison/ Village Management/ Planning/ Contractor	Perform Pedestrian and Bicycle Counts to Establish Baseline Walking and Biking Rates Throughout the Village Every Five (5) Years		2015	Ongoing	Budget Considerations- Possible 2016 start?
	PBSC/ Staff Liaison/ Village Management/ Planning/ Contractor	Perform Traffic Impact Analysis Studies with all New Developments as Needed		2015	Ongoing	

Pedestrian & Bicycle Safety Committee Implementation Table - 2015 Master Plan							
Location	Improvement	Enhancement Focus	Priority			Status	Comment
			Short Term 0-2 Yrs	Mid Term 2-5 yrs	Long Term 5+ Yrs		
Engineering/Infrastructure Recommendations							
Lake Drive							
1 Capitol Dr to Glendale Ave	Reduce to single lane each direction, add bicycle fog line accomodation to match facilities in Whitefish Bay, Fox Point and Bayside. Maintain	Ped & Bike	x				Rated highest priority by Ped & Bike Safety.
2 Jarvis	Add Cross Walk	Ped	x				
Downer Avenue							
1 Capitol Drive to Edgewood Ave	Create bicycle lane to match City of Milwaukee facilities on Downer.	Bike		x			Evaluate full bicycle lane vs fog line accomodation during Wilson Drive reconstruction planning process.
Murray Avenue							
1 Murray Ave	Explore as Bicycle Boulevard (includes limiting parking to one side all year).	Bike			x		
2 Glendale Ave to Edgewood Ave	Designate as preferred route	Bike	x				
Oakland Avenue							
1 Capitol Dr to Glendale Ave	Add bicycle lanes or fog lines in 2016.	Bike	x				
2 Capitol Dr to Glendale Ave	When bicycle accomodations completed, add 'Walk Bicycle on Sidewalk' signs along sidewalk on		x				
3 Capitol Dr to Glendale Ave	Promote in-street bicycle parking/corrals.	Bike	x			Pilot in progress	
4 Capitol Dr to Elmdale Ct	East side of street add 'Walk Bicycle on Sidewalk' signs.	Ped	x				Consider other blocks along N. Oakland where bicycling is not appropriate for 12 and under.
5 Shorewood Blvd to Capitol Dr.	Extend bike fog line into this block. Update signage to permit buses & bicyclists traveling north to permit going straight in right-turn only lane. Consider creating on-street accomodation (green bike box like Humbolt & Locust).	Bike		x			
6 Menlo	Extend on-street bicycle lines through intersection.	Bike	x				
7 Edgewood	Bump outs extended into NW and NE corners to cross Oakland.	Ped			x		
Wilson Drive							
1	Create bike lanes	Bike		x		Partial	Evaluate full bicycle lane vs fog line accomodation at next resurface.
2	Add cross walks at every street that has a bus stop on west side of Wilson.	Ped		x			

Pedestrian & Bicycle Safety Committee Implementation Table - 2015 Master Plan							
Location	Improvement	Enhancement Focus	Priority			Status	Comment
			Short Term 0-2 Yrs	Mid Term 2-5 yrs	Long Term 5+ Yrs		
Kensington Boulevard							
1 Wilson Dr to Oakland Ave	Designate as preferred bicycle route	Bike	x				
	Add road sharrow signs	Bike			x		
	Explore Kensington as Bicycle boulevard (includes limiting parking to one side of street all year)	Bike			x		
2 Ardmore	create pedestrian bumpouts across Ardmore due to widened intersection.	Ped			x		Coincide with next intersection reconstruction.
Capitol Drive							
1 Morris Blvd.	Evaluate bump outs for pedestrian crossing.	Ped			x		
2 Oakland (SE Corner)	No turn on red when pedestrians present.	Ped	x				
3 Oakland to Murray	North sidewalk add 'Walk Bicycle on Sidewalk' signs.	Ped		x			Coincide with Wilson resurface.
4 Maryland (SE corner)	Consider replacing 'No Turn on Red When Pedestrians Present' to Illuminated Sign 'No Turn on Red' that is active during peak pedestrian hours.	Ped		x			Pilot program - identical to UWM (Downer & Hartford Ave)
Edgewood Avenue							
1 River Park (3505 Oakland)	Add wayfinding signs from trail to business district	Bike	x				
	Add bike symbols in parking lot of shared space	Bike	x				
	Construct path from trail to Oakland Ave & Edgewood intersection separated from auto traffic/parking lot.	Bike			x		
2 Maryland	Enhance cross walk to Continental style.	Ped		x			
	Add cross walk across Edgewood (coordinate with City of Milwaukee).	Ped		x			
Oak Leaf Trail							
1 Kensington Blvd	formalize bike path entries	Bike		x		Partial	Completed in 2014; upgrade to asphalt surface and winter plowing.
	Add wayfinding signs from path to business district	Bike		x			
2 Capitol Dr	add rest area with kiosk	Bike			x		Coordinate with Shorewood Parks Commission and Milwaukee County Parks
3 Pinedale Ct.	construct new entrance with ramp.	Bike			x		

Pedestrian & Bicycle Safety Committee Implementation Table - 2015 Master Plan							
Location	Improvement	Enhancement Focus	Priority			Status	Comment
			Short Term 0-2 Yrs	Mid Term 2-5 yrs	Long Term 5+ Yrs		
Business District							
1	Oakland Ave & Capitol	provide bike racks to businesses along Oakland that request them.		x		Ongoing.	
Safer Routes to School							
Primary bike routes to school							
1	Village streets	Designate preferred routes.	Bike	x			
2	Lake Bluff Blvd, east of Oakland	Add bike route signs	Bike		x		
3	Morris Blvd, Menlo Bv to Kensington Ave	Add bike route signs	Bike		x		
4	Shorewood Blvd, Downer to Morris	Add bike route signs	Bike		x		
5	Murray Ave	Explore as Bicycle Boulevard (see Murray Ave above).	Bike			x	
6	Shorewood Blvd & Oakland Ave	Add School Zone Signs - consider flashing during start and end of school.	Ped			x	
7	Shorewood Blvd & Oakland Ave	Install actuator call signal for school children to cross Oakland.	Ped		x		
Shorewood Boulevard							
1	between Murray Ave and Frederick Ave	Provide two-way bike route	Bike		x		
Educational & Encouragement							
1	National Night Out	Create a display and staff a table at National Night Out about courteous bike behavior	Bike	x			
2	Business District	Purchase and use moveable signs on the sidewalks in the business district labeled "Walk your Bike"	Bike		x		
3	General Enforcement	Institute periodic days of enforcement where police issue warnings to violaters	Bike	x			
4	Bike Safety Clinic	Institute an annual Bike Safety Clinic at the Shorewood Farmer's Market and install bells on children's bikes 12 years and younger. Involve Men's Club, Senior Resource Center, Shorewood Foundation, Recreation Department, Rainbow Jersey, North Shore Health Department and the Bike Federation	Bike		x		

Pedestrian & Bicycle Safety Committee Implementation Table - 2015 Master Plan							
Location	Improvement	Enhancement Focus	Priority			Status	Comment
			Short Term 0-2 Yrs	Mid Term 2-5 yrs	Long Term 5+ Yrs		
5 Village Communications	Public bike etiquette messages periodically in the Village Manager's Memo, Shorewood Today and post on Police and Village's Facebook	Bike	x				
	Engage other community groups to help address safety concern of bicycles on sidewalks	Bike		x			
	Recruit citizen volunteers for a sidewalk safety patrol through Village Manager's Memo and Village social media (Facebook)	Bike			x		
6 Crossing Guards	Consider employing crossing guards throughout the year	Ped			x		
	Educate crossing guards on the ordinances enforcing bicycle regulations in the community and help encourage bicyclists follow the rules	Bike	x				
	Provide crossing guards with stickers, gift cards or "good tickets" to reward bicyclists to follow the rules.	Bike		x			
7 School District	Ensure that the Shorewood Schools are teaching bike safety classes	Bike	x				
	Meet with the school administrators and seek their help in resolving the safety issues relating to bicycle etiquette	Bike	x				
	Include Bicycle Laws and Safety Tips trifold in the school packets to go out to the parents and emphasized by the School Resource Officer	Bike		x			

Studies, Reports and Plans:

- a. [Pedestrian and Bicycle Safety Intersection Review \(December, 2005\)](#)
- b. [Walking Audit of Capitol Drive \(April, 2011\)](#)
- c. [Walking Audit of Oakland Avenue \(April, 2011\)](#)
- d. [Village of Shorewood Comprehensive Bicycle Study \(March, 2011\)](#)
- e. [Walk Friendly Communities Report Card and Feedback \(August, 2012\)](#)
- f. [Bike Friendly Community Application Feedback \(Fall, 2011\)](#)
- g. [Village of Shorewood Bicycle Implementation Plan \(October, 2012\)](#)
- h. [Village of Shorewood Vision 2025 Report \(2014\)](#)

Bibliography and Helpful Links

References, Studies and Plans:

1. Accessible Pedestrian Signals: A Guide for Best Practice. <http://www.apsguide.org/>
2. Anderson, Kothari, Merkey, Rueda, Sauer, Pedestrian Planning: Best Practice Case Studies for Milwaukee's Pedestrian Projects, Programs and Policies, University of Wisconsin-Milwaukee, Spring 2011, https://www4.uwm.edu/sarup/program/planning/upload/milwaukeepedestrianplanning_apw-2013.pdf
3. City of Buffalo, City Bicycle Program, Go Bike Buffalo Website, <http://gobikebuffalo.org/programs/complete-streets/>
4. City of Madison, Bicycle Transportation Plan, <http://www.cityofmadison.com/trafficEngineering/documents/BikeTranspPlan/bikeplan00.pdf>
5. City of Madison, Pedestrian Transportation Plan, Traffic Engineering Website, <http://www.cityofmadison.com/trafficEngineering/programsPlanTransportation.cfm>
6. City of Milwaukee Bicycle Maps, <http://city.milwaukee.gov/maps4460.htm#.VRxMsvzF9nE>
7. City of Rochester, Bicycle Master Plan, [file:///C:/Users/IHaas/Downloads/Final ROC Bike Master Plan%20\(2\).pdf](file:///C:/Users/IHaas/Downloads/Final%20ROC%20Bike%20Master%20Plan%20(2).pdf)
8. City of Seattle, Pedestrian Master Plan, September 2009, http://www.seattle.gov/transportation/pedestrian_masterplan/docs/PMP%20Summary_Low%20Res.pdf
9. City of West Allis, Bicycle and Pedestrian Master Plan. November 2008, <http://www.westalliswi.gov/DocumentCenter/View/638>
10. Hughes, Ronald, H. Huang, C.V. Zegeer, and M. Cynecki, *Evaluation of Automated Pedestrian Detection at Signalized Intersections*, Report No. FHWA/RD-00/097, Federal Highway Administration, Washington, DC, August 2000.
11. ITE Traffic Engineering Council. Design and Safety of Pedestrian Facilities: A Recommended Practice of the Institute of Transportation Engineers. *ITE Journal*, Vol. RP-026A, Institute of Transportation Engineers, Washington, D.C., 1998.
12. Leonard, J., M. Juckes, and B. Clement. *Behavioral Evaluation of Pedestrians and Motorists Toward Pedestrian Countdown Signals*. Laval, Quebec: Dessau-Soprin, Inc., March 1999.
13. Shoup, D C. Cruising for Parking. *Transport Policy*, Volume 13, Issue 6, 2006, pp 479-486.
14. University of Wisconsin-Milwaukee Bicycle Advisory Task Force Report, 2012, https://www4.uwm.edu/bicycle/upload/UWM-Recommendation-for-a-Bike-Friendly-Campus_FINAL.pdf

Legislation:

15. Americans with Disabilities Act (ADA), ADA Accessibility Instructions: Curb Ramps, July 2007, <http://www.ada.gov/pcatoolkit/app1curbramps.htm>
16. Shorewood Village Code, <http://ecode360.com/SH2737?needHash=true>

Shorewood Links:

17. Shorewood Business Improvement District, <http://www.shorewoodwi.com/>
18. Shorewood Connects Neighbors, <http://www.shorewoodtoday.com/pdfs/shorewood-connects-brochure.pdf>
19. Shorewood Foundation, <http://www.shorewoodfoundation.org/>
20. Shorewood Recreation Department, <https://www.shorewoodrecreation.org/>
21. Shorewood School District, <http://www.shorewood.k12.wi.us/>
22. Shorewood Senior Resource Center, <http://www.villageofshorewood.org/168/Senior-Resource-Center>
23. Shorewood Welcome New Neighbors, <http://www.villageofshorewood.org/339/New-Neighbor-Guide>
24. Sustainable Shorewood, <http://www.villageofshorewood.org/459/Sustainable-Shorewood>

County Government:

25. Milwaukee County Government, <http://county.milwaukee.gov/MilwaukeeCounty7699.htm>
26. Milwaukee County Parks, <http://county.milwaukee.gov/Parks>
27. Milwaukee County Transit System, <http://www.ridemcts.com/>

State of Wisconsin:

28. State of Wisconsin Department of Transportation (WISDOT) Bicycle Transportation, <http://www.dot.state.wi.us/projects/state/docs/bike2020-plan.pdf>
29. State of Wisconsin Department of Transportation (WISDOT) Pedestrian Transportation, <http://www.dot.state.wi.us/projects/state/docs/ped2020-plan.pdf>
30. Wisconsin DOT Enforcement for Bicycle Safety Program (EBS), <http://www.dot.wisconsin.gov/safety/vehicle/bicycle/education.htm>
31. Wisconsin Department of Natural Resources (DNR), <http://dnr.wi.gov/>

Federal Government Links:

32. Federal Highway Administration (FHWA), BIKESAFE Information, <http://pedbikesafe.org/BIKESAFE/index.cfm>
33. Federal Highway Administration (FHWA) Report, *Crosswalk Marking Field Visibility Study*, United States Department of Transportation, October 2010, <https://www.fhwa.dot.gov/publications/research/safety/pedbike/10067/10067.pdf>
34. Federal Highway Administration. *Design Guidelines: Accommodating Bicycle and Pedestrian Travel – A Recommended Approach. A US DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure*, 2002.
35. Federal Highway Administration (FHWA), *Designing Sidewalks and Trails for Access*, February 2014, http://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/sidewalks/chap4a.cfm
36. Federal Highway Administration, *Manual on Uniform Traffic Control Devices for Streets and Highways*, <http://mutcd.fhwa.dot.gov/index.htm>

37. Federal Highway Administration (FHWA), PEDSAFE Information, <http://pedbikesafe.org/PEDSAFE/index.cfm>
38. Federal Highway Administration (FHWA), Research List of Online Reports and Technical Publications, <http://www.fhwa.dot.gov/research/publications/technical/>
39. Federal Highway Administration (FHWA), State Resources-Wisconsin, <http://www.pedbikeinfo.org/data/state.cfm?ID=50#state>
40. U.S. Access Board. *Accessibility Guidelines for Pedestrian Facilities in the Public Right-Of-Way, proposed guidelines*. Washington, D.C., 2011.

Programs, Advocacy and Events:

41. Bublr Bike Sharing Program, <http://bublrbikes.com/>
42. League of American Bicyclists, <http://bikeleague.org/>
43. National Bike Month, <http://www.bikeleague.org/bikemonth>
44. Oak Leaf Trail Review, Rail to Trail Conservancy, <http://www.trailink.com/trail/oak-leaf-trail.aspx>
45. Safe Routes to School Walk/Bike Day, <http://www.walkbiketoschool.org/>
46. Smart Growth America (Complete Streets) Website, <http://www.smartgrowthamerica.org/complete-streets>
47. Tour of America's Dairyland, <http://www.tourofamericasdairyland.com/>
48. Wisconsin Bicycle Federation, <http://bfw.org/>