CITY OF ANN ARBOR

2013 NON-MOTORIZED TRANSPORTATION PLAN UPDATE DRAFT

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Acknowledgements

Contents

Introduction

The 2007 Non-motorized Transportation Plan (NTP) envisioned a physical and cultural environment that supports and encourages safe, comfortable, and convenient ways for pedestrians and bicyclists to travel throughout the City and into the surrounding communities.

Since 2007, the City of Ann Arbor has made significant progress in building this physical and cultural environment. Figure 1 shows the miles for four types of non-motorized facilities in 2007, the NTP recommendations for each facility, and what has been added since the Plan was adopted. Bike lanes are presented as lane miles: a lane mile is calculated by measuring the length of roadway with bike lanes and multiplying it by the number of bike lanes. For example, one mile of road with a bike lane on one side of the road measures as one mile. A mile of road with bike lanes in both directions measures as two miles. The City has added nearly half of the 73.9 bike lane miles recommended in 2007, bringing the total length of bike lanes to 70.4 lane miles.

Figure 1 – Bike facility progress since 2007, in miles

	Bike Lanes	Shared-use Arrow	Shared-use Path	Bike Route
Existing in 2007	34.8	0.0	55.0	5.2
Added since 2007	35.6	5.7	1.9	0.1
Total in 2013	70.4	5.7	56.9	5.3
Recommended in 2007	73.9	5.8	2.4	25.4
Progress in 2013	48.2%	98.2%	79.9%	0.2%

Figure 2 shows progress made in pedestrian facilities. Over a quarter of the 2007 NTP recommended midblock crossings have been implemented, and many of these have received facilities like flashing beacons and/or pedestrian crossing islands. The 2007 NTP sidewalk recommendations focused on major facilities and those that served pedestrian access to schools, so this inventory illustrates the progress made in those areas only.

Figure 2 – Pedestrian facility progress since 2007

	Major Crossings	Minor Crossings	Sidewalks (miles)
Existing in 2007	59	14	-
Added since 2007	29	7	3.4
Total in 2013	88	21	-
Recommended in 2007	104	25	25.0
Progress in 2013	27.9%	28.0%	13.6%

The NTP Plan used mode-share to describe non-motorized use rates in 2007 and to set goals for the City. Mode-share is the percentage of trips made by one mode, e.g. bicycling, relative to all trips. The most common mode-share statistic is commuter mode-share, which measures trips to work. The NTP cited

Census data, but in recent years, the American Community Survey (ACS) has replaced the traditional decennial Census. The ACS surveys a small percentage of citizens each year, and averages the annual results into consolidated reports. From 2006 to 2010, the ACS sampled residents of Ann Arbor and produced the 2006-2010 five-year ACS reports.

The NTP anticipated that bicycling would make the largest mode-share gains, which has proven true in the past six years. Figure 3 shows the progress made in commuter mode-share from ACS data for bicycling, walking, and public transit. The NTP does not include direct recommendations for transit, but each transit rider is a pedestrian at the beginning and end of each trip, so an increase in transit mode-share is an important trend to consider in the NTP Update. The total mode-share of alternative transportation has increased from 25.8% in 2000 to 28.0% in 2006-2010.

Figure 3 – Commuter mode-share changes since 2007

	Bicycling	**Walking**	**Public transit**
Mode-share in 2000	2.4%	16.5%	6.9%
NTP Recommendation	6.0%	20.0%	-
Mode-share in 2006-2010	3.5%	15.6%	8.9%
Change since 2000	45.8%	-5.5%	29.0%

This ACS measures work trips only; it may be true that recreational, utilitarian, or other trips have different mode-shares. Additionally, the survey data does not accurately measure the annual trends for statistics like bicycle commuter mode-share because it aggregates five years of data into one report. Therefore, a major physical or policy improvement may not be reflected in ACS mode-share reports until several years have passed.

Determining annual mode-share increases for recent years can also be measured by observer counts. Instead of a mailed survey, the following count data is compiled using direct observation of actual trips. The non-motorized program has been able to complete counts at important intersections before and after facility upgrades to measure the direct result of investment. Figure 4 shows the results for two intersections, before and after the addition of bike lanes. A marked increase in total bicyclists and comfort using the road is evident.

Figure 4 – Bicycle counts for intersection of Liberty & 7th, before and after bike lanes on 7th.

	Bicyclists Observed	**Bicyclists in the road**
Liberty & 7th – 2007	354	53%
Liberty & 7th – 2011	488	65%
Change	38%	22%

Figure 5 – Bicycle counts for intersection of Miller & 1st, before and after bike lanes on Miller.

	Bicyclists Observed	**Bicyclists in the road**
Miller & 1st – 2006*	311	-
Miller & 1st – 2011	405	72%
Change	30%	-

** in-road statistics not collected in 2006 at Miller & 1st*

2013 Non-motorized Plan Update

Many of the recommendations in the 2007 Plan remain valid and relevant today. Innovations in non-motorized facility design and implementation since 2007 have created new opportunities. In November 2011, the City began a review of the 2007 Plan to evaluate the non-motorized transportation program's achievements, describe implementation challenges, identify policy and program areas for improvement, and address new best practices for incorporation into the City's non-motorized transportation program. Public input, staff research and review, and advisory committee guidance have shaped the recommendations listed in this document. The result is a Plan Update to append to the 2007 City of Ann Arbor Non-Motorized Transportation Plan.

The document is divided into three main segments:

Planning and Policy Updates

2007 Plan: Chapters 2 & 3, Pages 11-138

This section evaluates new types of bicycle and pedestrian facilities and programs that have emerged since 2007 as proven strategies for building a non-motorized system. While the 2007 Plan identified some of these facilities and programs, the Plan Update builds on the Plan to further explore the opportunity to use these innovative solutions. This section also provides recommendations that address implementation challenges that staff has experienced since 2007.

Near-term Recommendation Updates

2007 Plan: Chapter 5, Pages 160-176

The 2007 Plan included near-term and long-term recommendations for the following facilities throughout Ann Arbor:

- Signalized Crossings and Roundabouts
- Midblock Crossings
- Bike Lanes
- Bike Routes
- Shared-use Arrows
- Sidewalks
- Shared-use Paths
- Foot Trails

Near-term recommendations included cost-effective and easily implemented minor changes that do not require road reconstruction. Two examples of near-term changes include re-striping the road surface to install bike lanes and add crossing islands. The 2007 Near-term Opportunities Map illustrated the Plan's near-term recommendations. The NTP also included select detailed views to provide an additional level of analysis in specific areas of the city.

The Plan Update adopts this approach and revisits near-term recommendations in several areas that have proved non-implementable. This section includes a description of the original Plan

recommendation, a discussion of the revised recommendation for the area, and a detail map of the new recommendation.

Long-term Recommendation Update

2007 Plan: Chapter 5, Pages 177-184

Long-term solutions represent the ideal implementation for a given corridor, often requiring significant physical adjustments to the cross section of a roadway. Long-term recommendations do not have an implementation timetable. Due to the significant costs or construction required, they are typically completed as an independent improvement or as an element of other projects. For example, East Stadium was recently reconstructed, and the project incorporated all of the recommendations for that segment, including two major midblock crossings and new bike lanes. These improvements were identified in the 2007 NTP as long-term recommendations.

Most of the 2007 Non-motorized Transportation Plan's Long-term recommendations remain relevant and appropriate in the 2013. However, there are three long-term areas discussed in the NTP Update Report to reemphasize the Plan's recommendation.

The Non-motorized Planning Framework

In an initial phase of the review process, several technical reports were drafted to review and evaluate the City's non-motorized transportation program's progress. The reports were modeled after the League of American Bicyclists' evaluation categories – called the "Five Es" – of Engineering, Education, Encouragement, Evaluation, and Enforcement. Reports were also produced for two additional topics: Funding and Prioritization. These reports were created from field surveys, research, public input, and staff experience of implementation since 2007.

Engineering

2007 Plan – Chapter 2

Engineering addresses the physical implementation of the Plan's recommendations for biking for walking. It considers all bike and pedestrian facilities included in the near-term recommendations, as well as signs, bike parking, and the design guidance used by staff to plan system expansion.

The Plan Update recommends an expansion of the non-motorized system through a broader array of non-motorized elements.

Education

2007 Plan – Chapter 3

Education is integral to implementation of non-motorized transportation. It is the avenue by which City staff can inform drivers, cyclists, and pedestrians of the rules and expectations that exist for each of them. With a constantly changing non-motorized infrastructure, culture, and legal context, effective education techniques are critical for successful systems.

Encouragement

2007 Plan – Chapter 3

Encouragement relates to a community's strategies to promote bicycling and increase the number of cyclists. Separate from education, encouragement deals with the programming, maps, signage, and other unique means to advocate for increased use of non-motorized transportation.

Evaluation

2007 Plan – Chapter 3

Evaluation allows a community to measure the effectiveness of infrastructure, policies, programs, and the legal framework in place for non-motorized use. The evaluation process not only quantifies the progress made in a non-motorized program, it helps provide direction for future action. It can provide leverage for a shift in priorities, when appropriate, to ensure that implementation is consistent with the adopted planning documents in place. Evaluation processes demonstrate a commitment to measuring results and planning for the future.

Enforcement

2007 Plan – Chapter 4

Enforcement addresses the legal framework surrounding the non-motorized system. It describes how the non-motorized transportation program should operate within the framework of codes and regulations within the City, and it evaluates non-motorized use within the framework of important changes to City Code. Enforcement strategies promote safe interaction between all users of shared roads and sidewalks. Enforcement includes City Code, police actions, and policies and programs. Cycling and pedestrian ordinances, police actions, and policies and programs that guide non-motorized use all contribute to effective enforcement in Ann Arbor.

Speed limits are one example of an element of the legal framework directly related to enforcement. In Ann Arbor, the maximum speed limit on city-owned roads is 35 mph. The intuitive understanding that pedestrian risk rises with vehicle speeds has been established by many studies in the past 20 years. The conclusions of two studies are shown in Figure 3. The non-motorized program focuses on enforcement techniques to ensure the safety of all users along and across the roadway.

	Source 1	Source 2
Vehicle Speed	Odds of Ped. Death	Odds of Ped. Death
20 mph	5%	5%
30 mph	45%	37%
40 mph	85%	83%

Figure 3 – Odds of pedestrian death increase dramatically with elevated vehicle speeds.[1] [2]

Funding

2007 Plan – Chapter 6

Funding for non-motorized infrastructure and programs comes from many sources, including:

· Moving Ahead for Progress in the 21st Century (MAP-21), the most recent federal transportation bill.

· The Michigan Transportation Fund (MTF), the state's vehicle revenue distribution fund created through Act 51 of 1963.

· City policies like resolutions R-176-5-03 and R-217-5-04 that direct funding to the non-motorized program and promote bike lane installation.

Non-motorized progress has been accomplished through direct investments and by piggybacking on road and other infrastructure projects. This cost-effective approach has led to many new miles of bike lanes and other facilities since 2007 that would not have been implemented as standalone projects. However, this funding mechanism highlights the challenge of funding facilities that cannot often be included with other infrastructure projects.

[1] Australian Federal Office of Road Safety, *Vehicle Speeds and the Incidence of Fatal Pedestrian Collisions,* Report CR 146, 1994.
[2] U.K. Department of Transportation, *Killing Speed and Saving Lives*, London, 1987.

Prioritization

2007 Plan – Chapter 5

An early look at the 2007 NTP's near-term opportunities revealed that definition of near-term included substantially more projects than could be completed with available resources. The non-motorized program established a priority ranking system to identify the most impactful projects available for implementation. The review process saw a review and a reapplication of the ranking system. The prioritization issue paper examines this process in detail.

Bike Boulevard - Engineering

2007 Plan: Pages 18-26

In the 2007 Plan, bicycle travel along road corridors was planned with bike lanes, shared roadways, and shared-use paths (pg. 18). These three options represented the primary facilities used for on and off-road bike travel at the time of plan writing. The Plan described the advantages and disadvantages of each facility under various roadway cross sections, developing a preferred facility option based on the level of service to cyclists under each scenario. Since that time, alternatives to in-road facilities have become popular. These alternatives can provide a higher level of service for cyclists than bike lanes, shared roadways, or shared-use paths, when implemented correctly. One of these alternatives is the Bike Boulevard.

A Bike Boulevard is a low-traffic, low-speed road where bicycle interests are prioritized. Typically, Bike boulevards are designated on streets that parallel to a major roadway not suitable for accommodating bicycling. Bike Boulevards are created by deploying a system of signs, pavement markings, low speed limits, and intersection treatments facilitating an environment that welcomes cyclists and discourages automobile through traffic. To maximize their impact, Bike Boulevards should be implemented over lengthy stretches of roadway to serve as significant facility features (NACTO Urban Bikeway Design Guide).

In addition to serving as a priority bicycle facility, Bike Boulevards contribute to traffic calming. The City is dedicated to providing "more livable neighborhoods" through traffic calming measures, and provides a guidebook to help residents understand how these measures can improve their neighborhoods. Many of the physical interventions used by the traffic calming program are also used to implement Bike Boulevards; therefore, a unique opportunity exists to accomplish both goals with one project in strategic locations.

Washington Street is a candidate for conversion to a Bike Boulevard to serve the east-west bicycle traffic between the western suburbs and the downtown and central campus areas. Washington St is 1.5 miles long, making it a significant route. It has lower traffic levels than Huron St to the north. However, the Washington Street corridor is busy at select locations, including the segment in front of the Ann Arbor YMCA, between 1st St and Chapin St, and staff will need to consider these factors in the Bike Boulevard planning process.

The Plan Update recommends developing a Bike Boulevard design process to shape specific design treatments with substantial community engagement. There is no standard treatment, but rather a variety of options for local application of a bicycle boulevard. This plan update recommends Bike Boulevard corridors based on general characteristics. When implementing a Bike Boulevard, staff should maximize community engagement by utilizing steering committees and public meetings to ensure citizen support in addition to appropriate engineering and design potential.

Bike Share – Engineering & Encouragement

2007 Plan: NA

Like Bike Boulevards, the 2007 Plan did not reference bike sharing, as it was not a widespread technique in the United States when the Plan was written. However, in recent years, several cities have started or expanded bike share systems successfully, illustrating the possibility for Ann Arbor to do the same.

The Clean Energy Coalition (CEC) in Ann Arbor has started exploring a bike sharing program for Ann Arbor. A bike sharing program would enable residents, visitors, and students to access a system of bicycles available throughout town. Under the program, users are able to pick up a bike from one bike parking station, use it to accommodate a trip, and then drop it off at any of the system's stations. There are a number of issues that the CEC needs to explore through the planning process prior to initiating a local bike share program. The placement of bike share facilities in downtown locations where space is limited will require careful planning. Additionally, Michigan weather dictates that protecting bike share bikes from the elements is a concern.

In addition to the independent benefits of bike sharing, it also works well together with transit; bus riders can use bikes to go farther after their transit stop than they would be willing to walk. This extends the effective reach of transit service. Bike share also provides excellent opportunities for visitors to get around town, and it enables everyone to try cycling without the hassle of bike maintenance or a large upfront cost. Washington, DC's Capital Bike share provides a good example of a successful bike share program.

A bike share program is listed as a recommendation under both engineering and encouragement for its two-fold impact. While the structures and bicycles clearly expand the physical system, providing this opportunity also serves to significantly increase ridership throughout the city by creating the opportunity for anyone without a bike to become a bicyclist.

Bike Lane Color Treatment - Engineering

2007 Plan: Page 58

There are locations in Ann Arbor where conflict arises between bikes and automobiles due to the configuration of bike lanes, travel lanes, and turning lanes. Often, these problem segments are located where a right-turn-only lane is added to the travel lanes at the intersection. The bike lane continues straight through the intersection, splitting the right-most travel lane and the right-turn lane. Merging traffic not only presents a hazard for cyclists, but also for other motorists when confusion over proper behavior prevents successful merging. Alternatively, if the bike lane remains on the outside of all automobile lanes, the right-turning traffic presents a hazard to through bicycle traffic.

Adding color to the bike lane helps to increase visibility of the bike lane. It reaffirms the cyclists place is in the road and encourages drivers to yield. Clarifying the proper behavior will improve vehicle flow and safety for all users.

“Colored pavement within a bicycle lane increases the visibility of the facility, identifies potential areas of conflict, and reinforces priority to bicyclists in conflict areas…” (NACTO Urban Bikeway Design Guide).

Figure 1 – Green Lane Marking Illustration at S Fifth Ave and E Liberty St – Source: Google Maps

The Plan referenced blue bike lanes within the facility design chapter, but as it mentions, color treatments were experimental when the Plan was written, and application to the Federal Highway Administration (FHWA) would have been required to set up a test site for blue lanes.

The goal of green pavement for bikes is to create a safe and unique lane that sends a clear message to all road users. Since 2007, the primary color used in this application is green as prescribed in the Manual of Uniform Traffic Control Devices (MUTCD) to avoid confusion with handicapped pavement markings. The implementation of green lanes for bikes continues to increase awareness and knowledge. To create a safe surface, the material application must be non-stick, visible, and durable. Current best practice uses an epoxy resin that is skid resistant and can be mixed with retroreflective beads. Retroreflectivity creates a high level of nighttime visibility for the lane.

City staff has identified two potential locations for color application:

- WB Catherine St from Fourth Ave to Main St
- SB Fifth Ave @ the underground parking structure entrance

Bike Station – Engineering & Encouragement

2007 Plan: Pages 134-138

The 2007 Plan addressed bike stations largely as bike parking facilities. Describing the importance of secure and plentiful parking options for commuters and U of M students alike, the Plan recommended bike stations to provide both security and capacity.

Since 2000, bike stations in the US have grown to include amenities beyond bike parking security and capacity to facilitate a more complete commuting experience. These stations provide a combination of the following facilities:

Showers and lockers
Bike repair
Bike rental
Refreshment
Bike maps and information
Parts, accessories, and other bike retail

Bike stations encourage more residents to ride because they offer safe bike parking together with the other important amenities listed above. Combining these amenities significantly improves the cycling experience. Chicago, St. Louis, and Washington DC are among the US cities that have installed bike stations in the past decade.

Since plan adoption, the University has significantly increased bike parking capacity on campus. In 2010, a significant area with covered bike parking was added along Rackham Green with the construction of the North Quad Academic and Residential Complex between E Huron and Washington St. The University also built an enclosed bike parking facility since 2007 in the Thompson Street Structure with fifty bike parking spaces, an air compressor and secured card entry. In 2012, the University added two air compressor stations and a fix-it stand near popular bike parking locations. These amenities offer the benefits of a bike station in separate locations, but they signal an important step towards a more complete biking experience.

The Plan Update reinforces the 2007 Plan recommendation by identifying a near-term bike station opportunity and framing a long-term bike station strategy. It is not readily apparent that the City has an immediate opportunity for a standalone bike station; however, there are resources in the community that combine a number of the amenities described above. The YMCA on Washington St and City Hall on Huron St both have locker rooms and showers and may offer a first step towards a bike station concept. It is recommended that the non-motorized program explore willingness of these community resources to expand access to bike support facilities.

In the long-term, as the City advances planning for the Ann Arbor Station project, it is exploring ways to ensure that the station is truly multi-modal. A bike station at a train station or transit center would

provide secure overnight bike parking, showers and locker rooms, and bike repair services for commuters and residents of Ann Arbor. Providing this service could encourage more people to commute to Ann Arbor via transit or bike. It would also serve as a recognizable center of biking activity, strengthening the culture of non-motorized access and priority in the City.

Updated Design Guidelines - Engineering

2007 Plan: Pages 4, 11-94

The bulk of the 2007 Plan covered the planning and design guidelines for bicycle and pedestrian facilities. As noted in the introduction, the intent of the Plan was to synthesize the available guidelines into one comprehensive document, interpreted for applicability to Ann Arbor. The documents included in or referenced in the 2007 Plan include:

· American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities
· AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities
· AASHTO Guide for Achieving Flexibility in Highway Design
· US Department of Transportation's Designing Sidewalks and Trails for Access – Part II
· Best Practices Design Guide
· Guidelines for Accessible Public Rights-of-Way,
· National Manual of Uniform Traffic Control Devices (MUTCD)
· Michigan Manual of Uniform Traffic Control Devices (MMUTCD)

The Plan drew its design recommendations and illustrations from these documents; it also recognized that the guidelines were subject to change in such an evolving field, and recommended that users of the Plan identify and adopt updates periodically.

City staff uses several sets of guidelines updated as recently as 2012 in designing bike and pedestrian facilities. These include the AASHTO Bike Guide, MMUTCD, the Americans with Disabilities Act (ADA), and the Plan itself. A new organization, the National Association of City Transportation Officials (NACTO), has recently published its Urban Bikeway Design Guide, a set of design guidelines which staff may choose to utilize. During and following the review process, NACTO guidelines will be scrutinized to determine whether they comply with Michigan law and whether the proposed designs are feasible in Ann Arbor.

Additionally, AASHTO and MMUTCD have been updated in recent years. Staff should establish updated guidelines based on all available resources to standardize implementation of traditional and new facilities like flashing signals, 3D signs, and pavement markings.

Cycle Tracks - Engineering

2007 Plan: Pages 18-26

Similar to bike boulevards, cycle tracks are not directly mentioned in the 2007 Plan. Since that time, they have become more widely used in American cities. A cycle track is a buffered bike lane which uses pavement markings or physical separators like bollards, wheel stops, or Jersey barriers to protect the bike lane from traffic. Cycle tracks may be one-way or two-way. Some cycle tracks are elevated from the road by a few inches to further separate bikes from traffic. Pedestrians are not allowed to use cycle tracks. Cycle tracks, like bike boulevards, prioritize cyclists over motorists. However, where bike boulevards may serve bikes and autos, cycle tracks are completely separated facilities.

Figure 2 – NACTO Urban Bikeway Design Guide Two-Way Cycle Track Illustration

Where on street parking is allowed, cycle tracks are generally located opposite parked cars, and are separated by buffers, grades and/or pavement color. As a result, there is a positive effect on comfort for travel along the road.

Cycle tracks produce more conflicts than bike lanes or bike boulevards at intersections and driveways. Separated lanes can lead to less awareness from drivers of moving bicycles when turning into driveways or cross streets. Similarly, drivers looking to pull onto the street from a driveway may pull into the cycle track and wait until it is safe to make the turn.

Additionally, drivers, used to checking for bikes with the flow of traffic, may not see contra-flow bicycles coming in a two-way bike facility. At intersections, the separated track prevents cyclists from merging with traffic to make left turns as they may do from a bike lane. Instead, bike boxes or two-stage turns should be used to avoid conflicts.

The Plan Update recommends considering cycle tracks as appropriate facility use where context factors like vehicle speed or volume require additional bicycle separation and the road width exists to

accommodate them. A small segment of Catherine St and Zina Pitcher Pl may provide a setting for Ann Arbor's first cycle track. However, further consideration is required to determine the appropriate way and place to install this facility.

Snow Clearance – Engineering

2007 Plan: Pages 126-127, 189

Ann Arbor, as a northern city, has inclement weather during winter months. Nonetheless, many people rely on alternative transportation year-round. The 2007 Plan recognized the need to have non-motorized facilities cleared of snow with the same priority as the city's roads. The Plan identified areas of special concern for snow clearance (Pg. 127, 189):

- Curb ramps at intersections
- Pedestrian crossing islands
- Bus stops

Although the Plan did not focus on travel by transit, it acknowledged the often multimodal nature of non-motorized transportation. Because every transit rider is a pedestrian at the beginning and end of every trip, it is imperative that bus stops are cleared well for safe access on and off of the bus. However, many Ann Arbor Transportation Authority (AATA) bus stops are not cleared of snow.

Section 4.60 of Chapter 49 of the Ann Arbor City Code places the responsibility for snow removal on property owners. All private property owners must "remove the accumulation from the adjacent public sidewalk" within a specified timeframe. The Code identifies curb ramps and crosswalk leads, but there is no language that specifically mentions bus stops. The Code does distinguish between residential and non-residential property, allowing more time to clear to residential properties.

The Community Standards Unit of the Ann Arbor Police Department enforces the City Code. Regarding snow clearance, Community Standards requires private property owners to remove all snow from the sidewalk, including paved or concrete segments that serve as bus stops.

Beyond the current provisions of Ann Arbor City Code, other communities extend the area for snow removal to include the gutter area at crosswalks. From the City of Minneapolis:

> "If you have a corner property, clear curb cuts at corners and crosswalks to the street gutter. You are not required to clear snow ridges or piles left by the plows *beyond* the gutter…" (ci.minneapolis.mn.us).

Requiring snow clearance to the gutter would ensure that the curb ramp and bus stop area adjacent to the standard sidewalk is completely clear and accessible to everyone.

The 2013 Plan Update recommends a review of Code language to ensure clarity and specificity regarding the issue of snow clearance at curb ramps and bus stops. Staff should seek AATA's input on the specific snow clearance needed at the bus stop surface to maintain accessible stops. Staff should ascertain if there is a need to differentiate between treatment of the gutter area in residential and non-residential areas. This effort will support the steps needed to achieve full accessibility during all times of the year.

Facility Maintenance – Engineering & Encouragement

2007 Plan: Pages 126-130, 185-189

Consistent and complete maintenance of non-motorized facilities is important for safe travel. Inadequate maintenance of sidewalks, midblock crossings, paths, bike lanes, signs, signals, and other features is dangerous and inconvenient for pedestrians, especially those who are elderly or have mobility impairments; further, it also discourages non-motorized users from riding or walking.

Each type of non-motorized facility requires a unique maintenance approach and funding source. Since November 2011, sidewalk repair is the responsibility of the City, funded by a special millage. Bike lanes require cleaning and snow clearance. Fixing potholes in a bike lane by overfilling the hole with asphalt as in the roadway is not appropriate; bikes do not flatten the asphalt like cars do. If potholes were filled in this manner, dangerous bumps of asphalt would replace the potholes. Clearing snow from midblock crossings is challenging with existing equipment and requires more effort. As result, some crossings collect snow or other debris over time.

The Plan Update recommends that Systems Planning staff work with Field Services to develop a full understanding of the maintenance needs of the current system and ensure that sufficient resources are in place for operations and capital maintenance activities. Additionally, the Plan Update recommends continued use and expansion of the Online Citizen Request System[3] to keep the community engaged, informed and helpful to maintenance activities.

[3] http://www.a2gov.org/government/publicservices/customerservice/Pages/OnlineCustomerServiceRequest.aspx

Non-motorized System Signage – Engineering & Encouragement

2007 Plan: Page 38

The 2007 Plan referred to directional information signs as Directional Signage, noting "The key aspect of a bicycle route is the destination sign that should call out points of interest along the route such as schools, shopping centers or parks" (Pg. 38). Adding distance to the sign expands the utility and usefulness of these proposed signs.

Figure 3 – 3D Sign example modeled after Portland, OR

Staff made great strides since 2007 in replacing and adding several hundred new official Bike Lane signs to meet the requirements of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD). However, the Directional Signage called for in the NTP was not installed. Public feedback received through the review process acknowledged the intended use of existing "Bike Lane" and "Share the Road" signs to establish cyclists' place in the road. Residents reacted positively to the idea of adding informational directional signage to provide more information to cyclists and encourage others to use a bicycle to satisfy their travel needs.

Signs displaying the destination, direction, and distance (3D) information to popular locations in a city can serve to both introduce the system to first-time users and establish a common brand for the non-motorized system. By illustrating how the non-motorized system offers alternative routes to popular destinations, these signs offer citizens the opportunity to reach key locations within their ability by walking or bicycling. The Plan Update recommends installing 3D signage for popular destinations throughout the city.

Online Way-finding - Encouragement

2007 Plan: Page 125

Bicycle system expansion since NTP adoption makes the City's 2000 bike map an incomplete resource for cyclists. The Plan recommended an update to the map, which was completed with the updated Bikeway System Map. However, due to the nature of a growing and working non-motorized program, the Bikeway System Map quickly became obsolete as a representation of the bike facilities in Ann Arbor.

Bike maps are an important encouragement tool because they help people to know where they can rely on non-motorized transportation. The Plan recommended increased bike map distribution to reach more residents and maximize the value of the map. Various City facilities, as well as public and private partners, have carried and distributed the maps over the years. As part of the review process, staff inventoried the remaining 2005 maps and found the supply nearly exhausted.

The bike map is the primary resource for new and veteran cyclists looking for a specific bike route or the complete system of bike facilities. To accurately reflect the progress made, the map should be updated. In recent years, the City has embraced an online Geographic Information System (GIS) to serve other mapping needs. This "central spatial data resource serving all citywide applications and customer service needs" (City of Ann Arbor) allows users to access such data as street trees and parcel lines from any computer with an internet connection. The online maps also show the road network – adding bike facilities is a natural fit for this system. Benefits of the online venue include:

· The map may be updated at any time, so it is always an accurate representation.

· The City avoids printing costs; therefore, information is provided for free.

· Users can decide whether they want to access the map on a device or print it out at their convenience.

The non-motorized program should make use of this system to provide a current representation of the biking and walking facilities in the city, which is easily updated as new infrastructure is installed.

Education Programs & Campaigns - Education

2007 Plan: Page 123

The 2007 Plan categorized the desired outcomes of the non-motorized program into three main areas:

- · Policy and planning integration
- · Physical network completion
- · Education

Although education is a major component of the Plan's overall goals, only a small portion of the plan text discusses specific recommendations related to educational programming. The Plan tied education to enforcement, and recommended that they be administered together in the context of bicycle and pedestrian laws for cyclists, pedestrians, and drivers. However, education and enforcement are distinct from each other.

Education is meant to:

> "Increase awareness of the opportunities, for, and benefits of, non-motorized transportation, as well as provide information to all users on safe ways to integrate motorized and non-motorized modes of transportation" (Pg. 7).

The corresponding objectives called for professional education for the staff, education around bicycle and pedestrian laws, and ongoing education to highlight new facilities as they are installed.

The professional staff education process was completed, and continues to be addressed internally as new guidelines are available.

An Ann Arbor Safe Streets and Sidewalks (A2S3) Committee was shaped to guide development of outreach and communication activities. The A2S3 Committee is composed of key stakeholders, including staff from the City, the University of Michigan, AATA, the Downtown Development Authority (DDA), the Washtenaw Area Transportation Study (WATS), and a representative from the Washtenaw Biking and Walking Coalition (WBWC). The Committee has administered an education campaign about several aspects of Non-motorized travel, with the most recent emphasis on revised pedestrian rights in the crosswalk from 2010-2012. Other educational initiatives have responded to recommendations listed in the NTP in order to meet the goal set on Page 7 of the Plan.

Moving forward, an ongoing effort is required to make sure key educational messages are reinforced continuously. To assist in focusing on key messages, evaluation techniques should be developed to gauge the effectiveness of previous and current education campaign strategies, and recommend new outreach ideas. Identifying similar communities' successful efforts and applying them to Ann Arbor's non-motorized program may suggest new campaign tools to use.

Bike Parking – Engineering & Evaluation

2007 Plan: Pages 124, 136

One of the most crucial parts of bike travel is safe and secure bike parking. The 2007 Plan addressed bike parking in a number of contexts:

- · Site plan checklists for developers
- · University bike parking capacity
- · City Code requirements for covered or locker parking

Bike parking has to be considered at every location where a bike trip might end. Ann Arbor City Code describes bike parking design and quantity requirements for private development (Chapter 59, Section 5:168.1). It includes three classes of bicycle parking:

- · Enclosed bicycle storage – individual bike lockers or enclosed areas for multiple bikes.
- · Covered bicycle racks – exterior bike parking with an overhang or self-standing cover.
- · Fixed bicycle racks – inverted U-hoop racks and other fixed rack styles.

The plan recommended guidelines to further clarify the requirements for new site development, and city staff produced the Bike Parking Guide in 2008. The guide describes design requirements for illumination, the connection between the driveway or sidewalk and the parking area, and the size, spacing, and location of bike parking spots. It also explains the three classes of bike parking that are approved for use in Ann Arbor. The bike parking guide is an effective tool to inform and help developers to provide appropriate bike parking at new developments.

However, Code revision is needed to address the different bike parking needs of development inside and outside of the downtown area. Specifically, city staff is looking to address long-term bicycle storage for multi-family residential and commercial buildings within DDA boundaries. Several recent multi-family developments installed bike storage rooms, and the DDA is planning to install a “bike house” in a parking structure in 2013 that provides 37 bike parking spaces and only uses the space of two car parking spots. The Plan recommends adding new language to Chapter 59 to respond to the growing number of bike parking options that accomplish the non-motorized program’s goals for bike parking in private development.

Public bike parking evaluation, a related issue, allows staff to direct efforts to the appropriate areas. The DDA began evaluating public bike parking in the downtown in 2010. Evaluations in 2010 and 2011 measured the amount and types of bike parking weekly through the summer months. The walking surveys allowed the DDA to determine where bike parking should be relocated or added, and in 2013 the DDA will use evaluation results to install additional bike parking on priority city blocks. The Plan Update recommends working with the DDA to develop a public bike parking evaluation program for the rest of the city and to collaborate on evaluating future installation priorities.

Abandoned bikes can clog bike racks, preventing active users from using existing bike parking. Bike parking evaluation allows the DDA and city staff to identify abandoned bikes and prioritize the highest

need for bike removal. Removing abandoned bikes involves a complex process that includes tagging, removal, transport, and storage. Further consideration is necessary to enhance the current abandoned bike removal program. The Plan Update recommends working with the DDA, Ann Arbor Police, and Field Services to create an abandoned bike removal protocol to more actively manage bike parking availability and remove abandoned bikes from the public right-of-way.

New Sidewalks - Funding

2007 Plan: Pages 187-189

The Plan proposed approximately 25 miles of new sidewalk from the analysis of existing system gaps at the time of Plan adoption. This near-term recommendation could "…be implemented as soon as funding is available…" (Pg. 160). In 2007, City policy required that road projects included non-motorized improvements, and the Plan cited the West Stadium Blvd reconstruction that implemented bike lanes, crossing islands, and sidewalks in addition to street reconstruction. However, the Plan did not identify funding for sidewalks beyond coincidental projects.

One additional funding mechanism for new sidewalks is a special assessment. New sidewalk construction is not authorized for projects funded by the street millage. The sidewalk repair millage that took effect in 2012 cannot be used to install new segments:

> "Installing a new sidewalk for the first time would be considered an initial improvement, which would mean that the adjacent property owners would be charged for the work. A special assessment is typically applied to the properties" (Fact Sheet for Sidewalk Repair Millage, City of Ann Arbor).

Adjacent property owners, faced with the significant cost of installation, are often opposed to funding new sidewalk construction. As a result, many gaps identified in the 2007 Plan remain unaddressed, and new gaps have been identified by City staff and residents since Plan adoption.

The non-motorized program does not define all areas where sidewalks are not present as sidewalk gaps. The NTP focused on sidewalk deficiencies on major facilities and those providing pedestrian access to schools. These are included in the Plan as defined gaps. It is recognized that there are areas within the city where sidewalks are not available; they have not been included in the NTP as "gaps." Additionally, there are locations along major roadways, i.e., west side of N. Main Street, without a sidewalk, where the provision of a sidewalk segment is not feasible due to the need for substantial construction to remedy topographic conditions. In such an instance, the cost of addressing the existing topography results in a very costly improvement, compared to a typical sidewalk segment. In March 2010, the Federal Highway Administration (FHWA) released a new US Department of Transportation (DOT) Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations. The statement says that transportation projects should incorporate safe and convenient walking and bicycling facilities, unless:

> "The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. …" (FHWA).

To address the sidewalk gaps in the city, a wide-scale funding program is needed. The Plan Update maintains the 2007 Plan recommendation to estimate the total cost of filling gaps, and it expands the recommendation to include prioritizing the search for sidewalk funding programs in the near-term.

Off-road shared-use paths do not provide the same function as sidewalks because they do not provide access along corridors, but they do provide connections to popular destinations like the many parks in the city. Some non-motorized users prefer shared-use paths because the separation from the road gives a feeling of safety. Installing additional paths can compensate for sidewalk gaps in some instances. There is an opportunity for different city services to coordinate to create connections between park paths and the non-motorized system. The Plan Update recommends that Transportation Program staff and Parks and Recreation staff meet annually to coordinate activities and look for cooperation opportunities.

New Midblock Crosswalks - Funding

2007 Plan: Page 189

Midblock crossings are a crosswalk where motorized vehicles are not controlled by a traffic signal or stop sign. They facilitate more frequent crossings in places with heavy pedestrian traffic or near major pedestrian destinations like schools or high density housing. Midblock crossings may be implemented where people often cross at unmarked locations along the road.

The NTP identified 135 crossings identified as near-term opportunities, but without dedicated funding for implementation.

Since 2007, the City has installed 38 crossings. Some midblock crossings are enhanced with pedestrian islands in the median or pedestrian-activated signals. In 2010, a High-intensity Activated crossWalK (HAWK) signal was installed on W Huron St at 3rd and Chapin streets. A HAWK is an overhead signal that flashes yellow and red to direct drivers to stop. Since 2012, the City has installed seven Rectangular Rapid Flashing Beacons (RRFB) on Plymouth Rd, Seventh St, and E Stadium Blvd. The beacons flash yellow from a rectangular light bar attached to a pedestrian crossing sign, directing drivers to stop for pedestrians. Initial reports indicate a much safer environment for pedestrian crossing than the marked crosswalks alone. High rates of use reveal the popularity of the beacons: in October 2012, the beacon at Plymouth and Bishop was activated 9,764 times, which averages to 315 calls/day.

Despite these significant efforts, 70% of the recommended crossings remain incomplete. A funding source needs to be identified for installing, improving, and maintaining midblock crossings, a highly prioritized facility in 2007.

City staff has identified criteria for appropriate placement of additional flashing beacons. Roads with the following characteristics should be further evaluated for beacon installation:

- Three or more lanes
- A speed limit at or above 35 mph
- Average daily traffic at or above 12,000 vehicles

These criteria allow staff to identify potential RRFB locations calculate the total cost of remaining projects. In all, 24 locations fit for potential beacons, as shown in figure 4. At an average cost of $12,500, the total cost to implement every recommended location is approximately $300,000. The Plan update recommends continued efforts to install the remaining beacons and find additional funding sources.

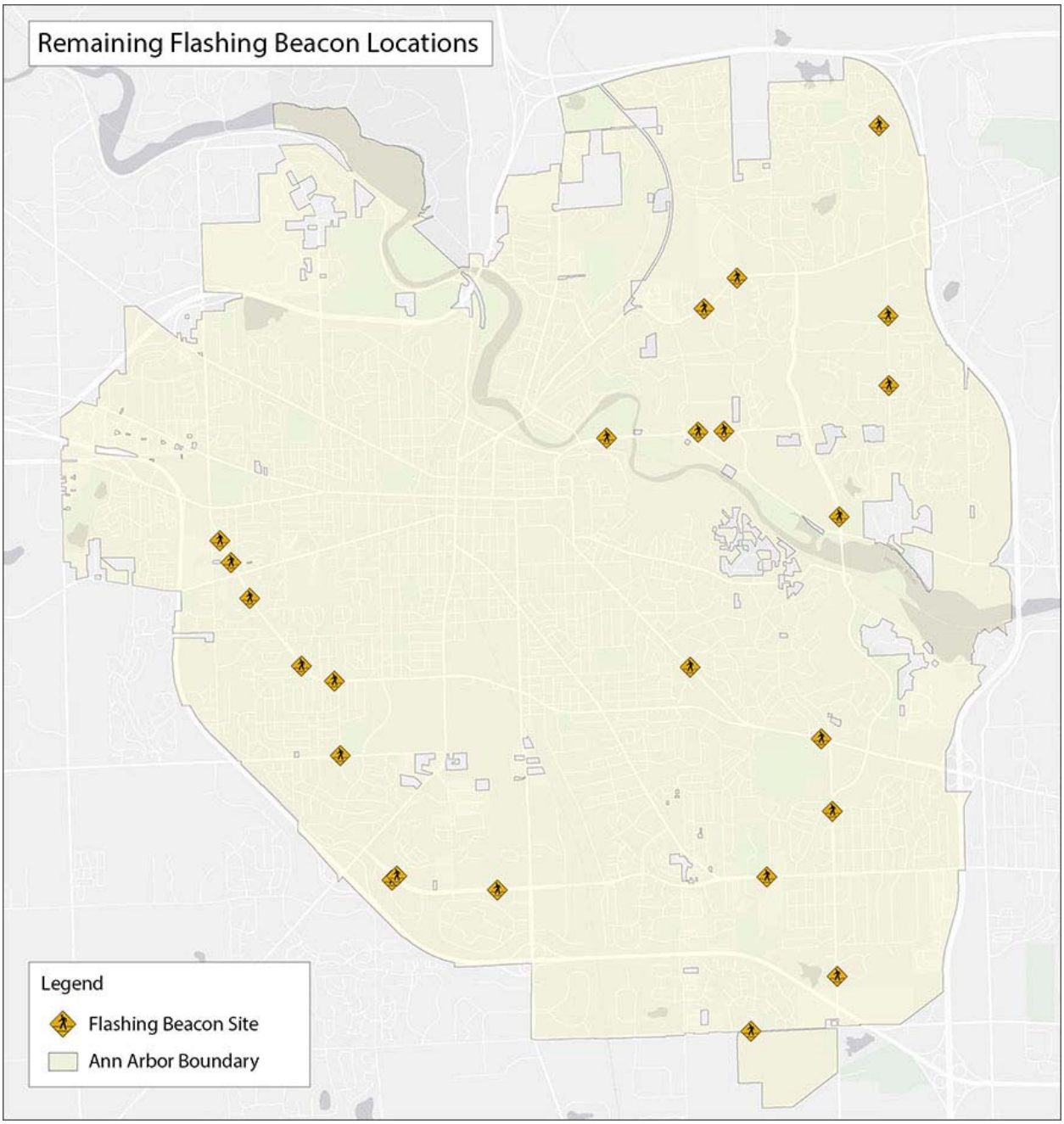


Figure 5 – Remaining flashing beacon installation sites

MAP-21 Opportunities - Funding

2007 Plan: Page 187

In 2007, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU, 2005) was the federal transportation bill that created new programs and continued many non-motorized funding opportunities from the previous federal transportation bill. The Plan identified several programs as potential resources for project funding through SAFETEA-LU and state and regional partners:

- Surface Transportation Program (STP)
- Congestion Mitigation and Air Quality (CMAQ)
- Transportation Enhancement (TE)

Additionally, state funding was provided through the Michigan Transportation Fund (MTF), a program that has distributed formula-based transportation funds to Michigan cities from vehicle revenues since 1963. Act 51 requires that municipalities use at least 1% of MTF dollars for non-motorized facilities."[4]

Locally, Ann Arbor officials mandated a larger investment in non-motorized infrastructure that the Act 51 requirement. In 2003, City Council committed to invest five percent of Ann Arbor's MTF dollars in the non-motorized system through resolution R-176-5-03. The resolution allocates the funds for the Alternative Transportation (ALT) Fund. After NTP adoption, these funds were planned for bike lanes and midblock crossings. In 2004, City Council adopted resolution R-217-5-04, which required that road projects include bike lanes when they were incidental to the overall project. This resulted in significant non-motorized system expansion through road resurfacing or reconstruction projects.

The non-motorized program has capitalized on these and other external funding opportunities since 2007 to promote network expansion. In July 2012, Congress passed a new transportation bill, "Moving Ahead for Progress in the 21st Century" (MAP-21). MAP-21 consolidates many of the programs in SAFETEA-LU that applied to non-motorized planning and investment into one program, called Transportation Alternatives Program (TAP). Aggregate spending on these programs was reduced by approximately 25% from the previous federal transportation bill's (SAFETEA-LU) levels. As MAP-21 goes into effect from 2012 into 2013, Safe Routes to School, Transportation Enhancements, Recreational Trails, and other consolidated programs will compete for funding from TAP. In addition, several communities within the state will apply for TAP funding, creating a more competitive context than SAFETEA-LU presented.

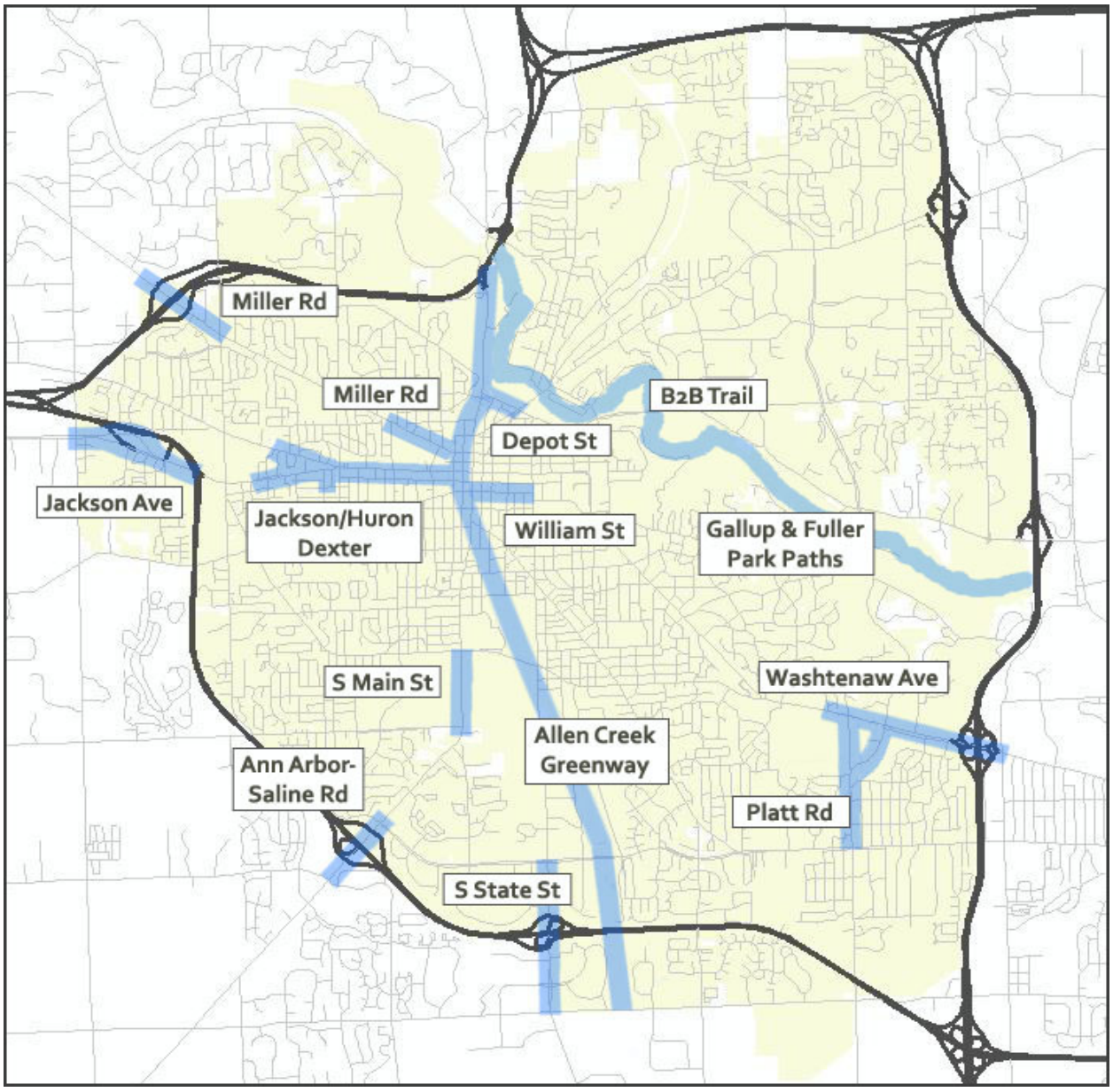
Moving forward, it will be important for City staff to work closely with regional and state partners to develop sound proposals and maximize potential funding for TAP projects in Ann Arbor.

[4] *State of Michigan*. http://www.michigan.gov/documents/act51simple_28749_7.pdf. Accessed 8-12-2012.

Geographic Area Recommendations

Staff has identified several areas in the city where 2007 Plan recommendations have proven non-implementable. These geographic areas often present opportunities to address gaps and build additional system connections on important corridors, and are therefore priorities for the non-motorized system.

Each area included in this list has unique challenges. Staff addressed these challenges in a collaborative workshop, and in many cases, the workshop produced new recommendations for system expansion in upcoming years. The map below highlights the selected areas. The areas are presented in the 2013 Update in alphabetical order.



Geographic Area Recommendations

Near-term Recommendations

Long-term Recommendations

Ann Arbor-Saline Road

Eisenhower Pkwy to Waters Rd | 0.5 Miles ***2007 Plan: Near-term Map***

The 2007 Plan recommended narrowing the lanes on the Ann Arbor-Saline Bridge over I-94 to collect enough width for bike lanes and sidewalks over the interstate. The current configuration does not provide a safe non-motorized crossing on the bridge, and the nearest alternative crossings are Scio Church Road to the northwest or S State Street to the east. Both crossings are multiple miles out of the way via the closest road connections, and S State St does not offer a safer non-motorized crossing than Ann Arbor-Saline Rd.

Completing this recommendation requires modifying the road geometry, including interstate ramps. The structure of the bridge may not allow for narrowing lanes and moving traffic towards the center of the bridge. The overall complexity and challenge of the project led staff to seek a new solution in the near-term.

A resurfacing project is scheduled for Ann Arbor-Saline Rd at this location in the near-term. The project includes a 5’ wide northbound bike lane and an 8’ wide raised concrete sidewalk on the east side of the bridge. The Michigan Department of Transportation (MDOT) is reviewing the feasibility of the project. The NTP Update recommends that staff work closely with the resurfacing project manager to maintain the programmed connections.

The long-term recommendation from the 2007 Plan remains installing bike lanes and sidewalks in both directions over the bridge. This recommendation will require additional consideration and engineering to address the limitations on the bridge in the long-term.

Depot Street

N Main St to Broadway Bridge | 0.25 miles ***2007 Plan: Near-term Map***

Depot Street connects N Main Street to Fuller Street at the north edge of downtown. The 2007 Plan recommended bike lanes on both sides of Depot St, but the current road configuration makes this recommendation non-implementable.

The revised near-term Plan recommendation is for a bike lane on the south side of Depot St with a shared road defined in the north side of the roadway. This will match the recommendation for Fuller St, the extension of Depot St to the east side of the Broadway Bridge. Therefore, a one-way bike lane will accommodate cyclists traveling uphill. Westbound cyclists will use a signed and marked shared-use lane.

An additional recommendation for this area is to designate shared-use lanes with signage and pavement markings on Summit Street. Summit St runs parallel to Depot St to the south, from N Main St to 4th Avenue, and 5th Avenue to Beakes Street. The low traffic, low speed conditions on Summit St present an attractive shared-use roadway option in each direction. While the road is interrupted at Wheeler Park, a shared-use path runs the length of the park from each end of Summit St. Signing and marking Summit St from N Main St to 4th Ave and 5th Ave to Beakes St will create a connected bike route from N Main St to Beakes St. In addition, crossing N Main St is facilitated at Summit St, not at Depot St, providing a natural extension to the proposed signed bike route to the west of N Main St on Summit St.

Jackson Avenue

Wagner Rd to Maple Rd | 1.1 miles ***2007 Plan: Existing Bike Lanes***

This area focuses on the section of Jackson Ave near the I-94 exit ramp and Weber's Restaurant & Hotel where westbound traffic separates from eastbound traffic around the hotel. The 2007 Plan showed Jackson Ave with bike lanes in each direction at this location. Westbound, the bike lane is in very poor condition approaching the bridge over the exit ramp. Further, the shoulder ends where the bridge begins, terminating the bike lane. Eastbound, the paved shoulder that accommodates the bike lane ends at Parklake Ave.

Repairing the shoulder on eastbound Jackson can reestablish a functional bike lane. A "Share the Road" sign should be placed prior to the bridge, with the bike lane picking up again after the bridge. Improvements on Jackson in this area may require the cooperation of MDOT.

An eight-foot-wide path begins before Parklake Ave, and ends after 400' at Hilltop Drive. Hilltop Dr runs parallel to Jackson Ave, and is the preferred cycling facility at this location. The NTP Update recommends signage where the shared-use path begins at Parklake Ave to inform cyclists of the changing facilities and to encourage them to use Hilltop Dr.

Jackson Avenue / Huron Street / Dexter Avenue Corridors

Maple Rd to 1st St | 1.5 miles ***2007 Plan: Near-term Map***

The NTP recommended a 4-to-3 lane road diet on Jackson Avenue from Maple Road to the Jackson /Huron/Dexter intersection with bike lanes in each direction. MDOT is planning the road diet, matching the recommendation, and will install bike lanes as part of the project. However, east of the intersection, the road configuration and daily traffic on W Huron Street prevent a similar road diet and the corresponding bike lanes.

The 2007 Plan recognized the challenge of installing bike lanes on W Huron St, and recommended that Charlton Street, Revena Boulevard, and Washington Street serve as signed bike routes for east-west bike traffic. However, the recommended routes do not provide a connection to westbound Jackson Ave from westbound Washington. In addition, the intersection pictured in Figure 4 is particularly challenging for cyclists or pedestrians, and additional consideration is needed to determine what implementation can facilitate non-motorized travel while remaining feasible from a traffic perspective.

Figure 4 – The Jackson Ave/Huron St/Dexter Ave intersection is not conducive to non-motorized travel

The NTP Update recommends a bike boulevard for Washington St. The characteristics of Washington St make it a good candidate for a bike boulevard, and cyclists and the neighborhood alike can reap the benefits of implementation as described on page 10. At the east end of Washington St, signage can direct westbound cyclists to use Revena Blvd, Abbott Avenue, and Virginia Avenue to reach Jackson Ave. Signage can also direct eastbound cyclists on Jackson Ave to use the same route in the opposite direction to reach Washington St. Eastbound cyclists on Dexter Ave will be encouraged to use Revena Blvd to reach Washington St.

N Main Street

Depot St to M-14 | 0.8 miles ***2007 Plan: Near-term Map***

N Main Street has a very important role as part of an extensive regional bike network. Due to the M-14 freeway and the Huron River, N Main St offers the only bike access to North Ann Arbor in the area. It links the Border to Border (B2B) trail from the Argo Dam to Huron River Dr and provides the main missing B2B connection in Ann Arbor.

The Plan called for a road diet from 4 to 3 lanes, but traffic volumes are too high for a successful conventional 4 lane to 3 lane reduction. Given N Main St's important role to the bicycling network, a unique solution may be needed.

One recommendation is to evaluate and install a "managed lane" cross section. The cross section could include a reversible center lane, one travel lane in each direction, and bike lanes. The reversible lane would accommodate the existing traffic flows during morning and evening commutes. As an MDOT trunk line, N Main St requires the cooperation of MDOT for any project.

Staff also recommended using the sidewalk on the east side of N Main St to provide near-term non-motorized access to Huron River Dr and Bluffs Nature Area. The sidewalk could be extended northerly and connected to Huron River Dr, south of M-14, with midblock crossings. A sidewalk installed from Huron River Dr to Huronview Blvd on the west side of N Main St would provide access to Bluffs Nature Area from Huronview Blvd. To complete this recommendation, sidewalk repair may be needed along N Main St.

The Plan Update also recommends monitoring planning projects. In particular, a combined non-motorized path and stormwater management tunnel at 4th Ave and Depot St may be able to provide a railroad crossing, if the project is feasible. As new concepts emerge, the next NTP update should incorporate new opportunities as appropriate.

The long-term recommendation for this corridor remains a reconstruction to a five-lane boulevard with bike lanes on both sides. It is recognized that there are significant right-of-way needs tied to this opportunity.

S Main Street

Stadium Blvd to Ann Arbor-Saline Rd | 0.7 miles ***2007 Plan: Near-term Map***

The Plan recommended narrowed travel lanes and installing a bike lane on the east side of S Main St between Stadium Blvd and Ann Arbor-Saline Rd. This would complement the existing shared-use path on the west side of the road. However, this recommendation does not provide for pedestrian access on the east side of the road. Creating a sidewalk in this location requires right-of-way. The adjacent golf course has objected to the idea, and as a result, staff has listed the bike facility as a near-term opportunity and moved the sidewalk into the long-term plan.

The Plan Update recommends a northbound bike lane on the east side of S Main St, from Scio Church Rd to Stadium Blvd. South of Scio Church Rd, a shared-use path exists on the west side of S Main St before it becomes Ann Arbor-Saline Rd, but nothing exists on the east side of the road. The recommended shared-use path has proven non-implementable, so it has been removed as a near-term recommendation. This area requires additional study.

Miller Avenue

M-14 to east of Maple Rd | 0.6 miles ***2007 Plan: Near-term Map***

Miller Ave had bike lanes from Maple Rd to 7th St when the 2008 Plan was written. The Plan recommended bike lanes and sidewalks west of Maple Rd to connect Ann Arbor to the community on the other side of M-14, but this recommendation was not implementable due to road configuration.

Staff has determined that the current road configuration can accommodate bike lanes if the road remains a rural section. With paved shoulders and no curb, 4' bike lanes and 10' travel lanes is appropriate on a rural street section. The Plan Update recommends paving the shoulders to provide this near-term solution.

Non-motorized travel on the bridge over M-14 requires a wider span or an adjacent bridge. Staff should work with MDOT to secure that opportunity when it arises in the long-term. The Plan Update maintains the near-term recommendation on the bridge for shared-use lanes with markings and signage.

In the long-term, development in the area will lead to curbs along this street section, and 5' bike lanes would be required. Therefore, the long-term recommendation is bike lane implementation with road reconstruction.

Miller Avenue

N 7th St to Spring St | 0.4 miles ***2007 Plan: Near-term Map***

Bike lanes and shared-use arrows have been implemented on the entire 2.5 mile Miller Ave/Catherine St corridor from Maple Rd to Glen Ave, except for a stretch between 7th St and Spring St. Previously, the 30' road width prevented installing bike lanes, because in 2007, 10' was seen as too narrow for a travel lane.

However, staff has experienced success with lanes under 11' wide since Plan adoption. Therefore, this recommendation is implementable. The Plan Update recommends marking Miller Ave for bike lanes.

Platt Road / Huron Parkway

Washtenaw Ave to Packard Rd | 0.9 miles ***2007 Plan: Near-term Map***

This segment of Platt Rd & Huron Pkwy plays an important role in connecting Ann Arbor destinations. South of the segment, Platt Rd has bike lanes to Ellsworth Rd, which connect to a greenway shared-use path in Pittsfield Twp. North of Washtenaw Ave, shared-use paths on Huron Pkwy provide non-motorized access to Gallup Park and the B2B Trail along the Huron River and to Plymouth Rd. The 2007 NTP recommended a road diet along this stretch to accommodate bike lanes, but at that time, the traffic volumes were seen as too high to perform the road diet.

Staff noted that the Plan recommendation may be feasible in 2013 due to changing conditions and positive experience with road diets. The Plan Update recommendation is to monitor the traffic on Platt Rd and Huron Pkwy and evaluate the opportunity for a road diet. For Platt Rd north of Canterbury Rd, the Plan Update maintains the 2007 recommendation for bike lanes and sidewalks.

If the road diet is not feasible along this stretch, the alternative recommendation is to convert Elmwood Ave to a bike boulevard to provide access from the Platt Rd and Packard Rd intersection to the shared-use path on the southeast side of Huron Pkwy. 3D signs should be used at both ends of Elmwood Ave to inform cyclists and encourage them to use the bike boulevard. This recommendation includes a 7’ wide bridge connector in Scheffler Park that may need to be widened to 10’ shared-use path width before this alternative is complete.

S State St

Eisenhower Parkway to Ellsworth Rd | 1.0 miles ***2007 Plan: Near-term Map***

S State St is an important non-motorized corridor and connection between south Ann Arbor and University of Michigan's Central Campus. Recent reconstruction on the Stadium Bridges at S State and E Stadium Blvd has finished, reopening S State to non-motorized use. The corridor also provides an important link over I-94 to Pittsfield Twp.

The 2007 Plan recommended extending the existing bike lanes south and onto the bridge over I-94 while narrowing vehicle lanes. However, this complicated area has challenges with road geometry issues and entrance and exit ramps and requires additional analysis to plan the best facilities.

In the near-term, staff has identified quick efforts that can enable bike access over I-94. Paved shoulders on S State are 8' – 12' wide through much of the segment and can be designated as buffered bike lanes. At specific points along the corridor, fixing curbs sections will allow the bike lanes to continue unobstructed.

Sidewalks are not a near-term opportunity for this area. Given the challenges of the segment and the analysis required, connecting the existing sidewalks and shared-use paths may be part of a future boulevard study that considers the whole corridor. Another opportunity may be using the median for a non-motorized bridge crossing with links to sidewalks and shared-use paths. The long-term recommendation for the Plan Update is to continue analyzing options along S State and to monitor concurrent planning processes like the South State Street Corridor Plan for new options.

U-M Campus to Campus link

Central Campus to North Campus | 1.8 Miles ***2007 Plan: Near-term Map***

The University of Michigan's Central and North Campuses are approximately 1.8 miles apart via Fuller Rd. A trip under 2 miles and the presence of the Fuller Rd shared-used paths make the campus to campus connection is ideal for biking (Pg. 158). From Non-motorized Program counts, an October 2006 sampling showed over 700 bicycles passing through the Fuller Rd-Maiden Lane intersection daily. Another count at Glen Ave and Catherine St in June 2008, when most students are out of class, showed over 350 bikes daily through that intersection.

On Central Campus, depending on the ultimate destination, completing the trip requires using roads that are not marked for bikes or sidewalks. Fuller Rd's shared-use paths existed when the Plan was written in 2007, but the Plan did recommend bike lanes and shared-use lanes on several roads around Central Campus. Several of these recommendations have been completed, but a direct path into Central Campus from the Glen-Catherine intersection does not exist.

To provide a safe and convenient route, staff developed a new recommendation to replace the near-term recommendation identified in the 2007 Plan. From Glen Ave and Catherine St, a two-way cycle track is recommended on the south side of Catherine St to accommodate bikes against the one-way westbound traffic. The cycle track winds around the curve to Zina Pitcher Pl and ends at Ann St. From there, the road configuration dictates a shared-lane implementation to reach Washtenaw Ave. Cyclists should access the shared-use path on the east of Washtenaw, and use this path to access the non-motorized bridge adjacent to the Central Campus Recreation Building or to reach Geddes Ave. Both options allow cyclists to reach the Central Campus Transit Center. Further analysis is needed to determine whether the cycle track will be feasible at the given location, given traffic and road configuration constraints. The same route is recommended for the reverse trip.

On North Campus, the University of Michigan owns many of the roads that serve the area. In 2010, the University added shared-use markings and signs to Bonisteel Blvd, Murfin St, and Hubbard St, clarifying the rights of and prioritizing bicyclists on multiple routes. There are also several off-road shared-use paths that serve the North Campus area.

Washtenaw Ave

Platt Rd to US-23 | 1.0 Miles ***2007 Plan: Near-term Map***

Washtenaw Ave is the primary link between Ann Arbor and Ypsilanti and a very important non-motorized corridor. The 2007 Plan recommended bike lanes for the stretch from Platt Rd to US-23, but the road configuration, MDOT ownership, and traffic on Washtenaw presented a challenge for the non-motorized network. The rest of Washtenaw Ave is served by shared-use paths and sidewalks, including a new shared-use path in 2011 from Tuomy to Glenwood & Platt.

The bike lane recommendation has proven non-implementable, and staff has revised that recommendation to focus on a shared-use path on the south side of Washtenaw Ave. At the east end of the segment, shared-use paths on both sides of the corridor have been completed, accommodating non-motorized traffic across entrance and exit ramps and under US-23. Connecting existing facilities west of Platt to these new shared-use paths becomes the priority for Washtenaw Ave in the Plan Update.

The long-term recommendation for Washtenaw is a full road reconstruction that transforms Washtenaw into a boulevard with a median and bike lanes in both directions. The recommendation references the improvements suggested by ReImagining Washtenaw.

William St & Downtown Area

Central Campus to North Campus | 1.5 Miles ***2007 Plan: Page 167 & Near-term Map***

The 2007 Plan described the downtown area as both a destination for non-motorized users and a challenge to design. The Plan recommended facilities for nearly every central downtown street, according to road configuration. Many of the 2007 recommendations have been completed, linking west Ann Arbor to the downtown area and beyond into Central Campus.

The Plan recommended bike lanes for William St, but this has not yet been implemented. Concurrent to the Non-motorized Plan Review process, William St was identified as a priority planning project. The DDA has studied William St and led community engagement efforts to identify improvement opportunities, including new facilities to enhance non-motorized travel. In separate efforts, the DDA has administered improvement projects on Fifth Ave and Division St to incorporate complete streets, including a bike lane in each direction, pedestrian bumpouts at intersections, street lighting, bike parking, and other improvements.

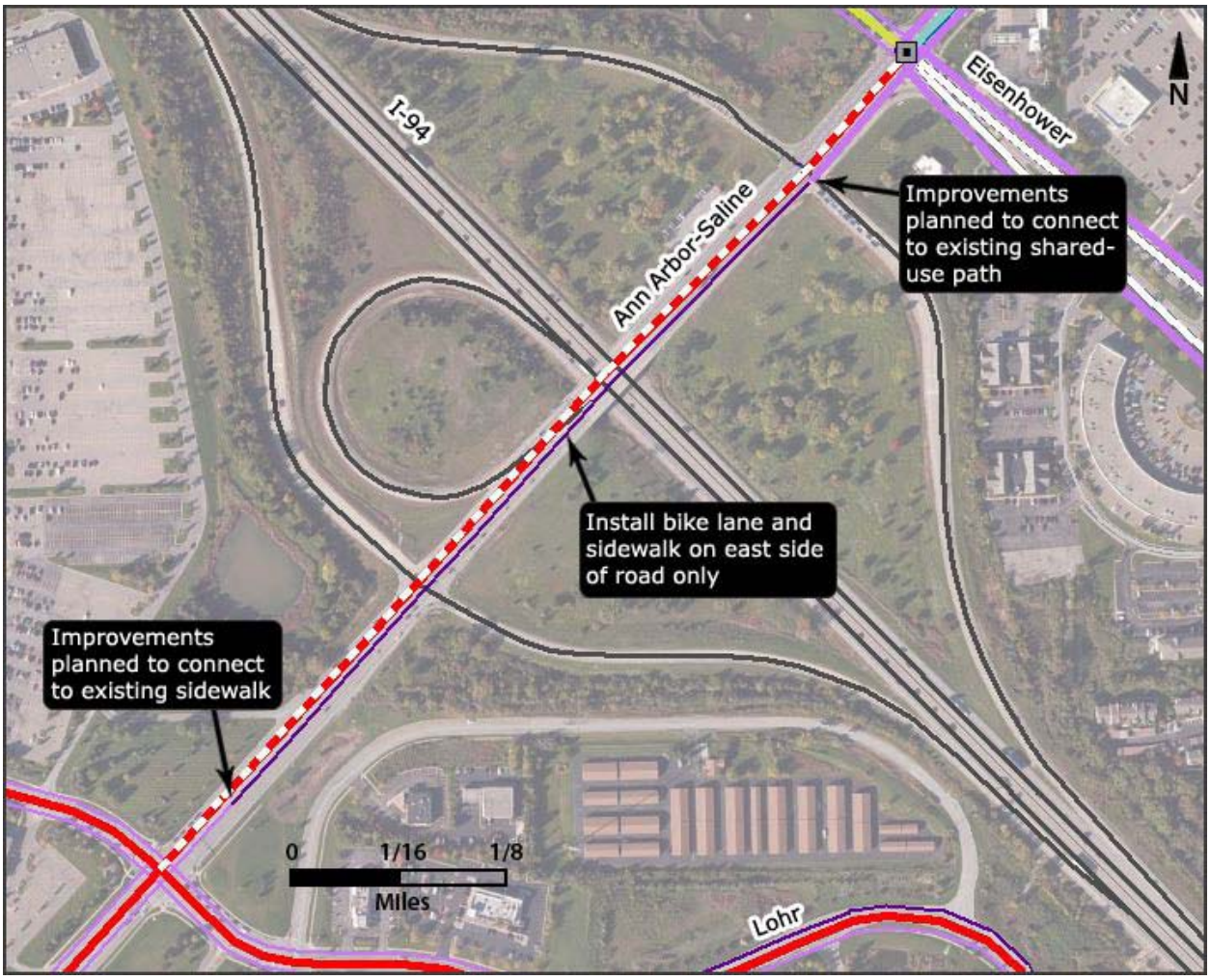
Due to the road configuration, staff decided to maintain the 2007 recommendation for bike lanes on William St in the near-term, although other options may be possible, subject to City Council's approval. In the long-term, potential road reconstruction projects may allow for a new look at non-motorized facilities on William St.

Near-term Opportunities

The following pages illustrate revised near-term recommendations for specific areas in the city. Notes are intended to provide planning-level insights to the revised recommendation.

Near-term Opportunities Update – Map Detail

Ann Arbor-Saline Rd

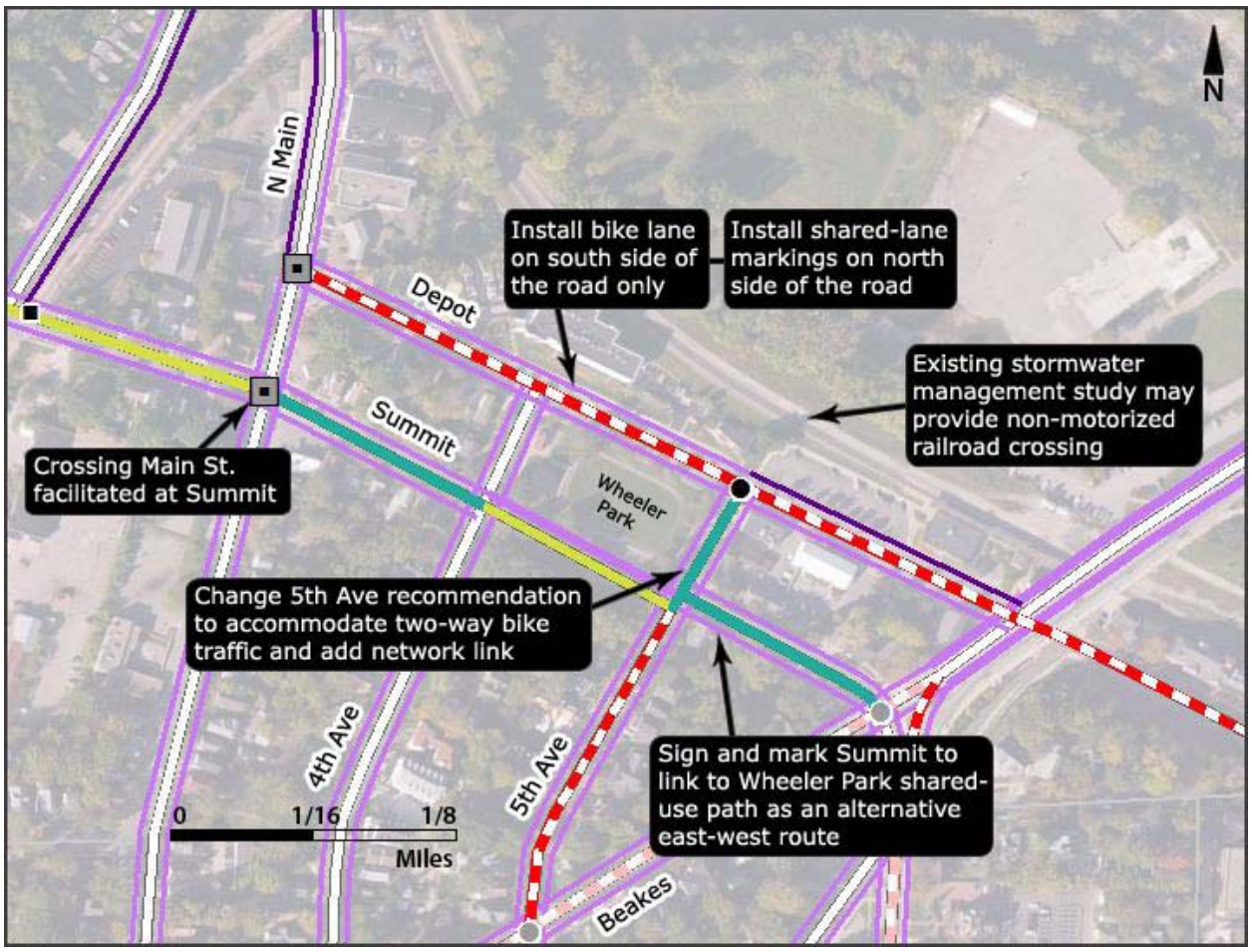


Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

Depot St



Existing	Proposed	
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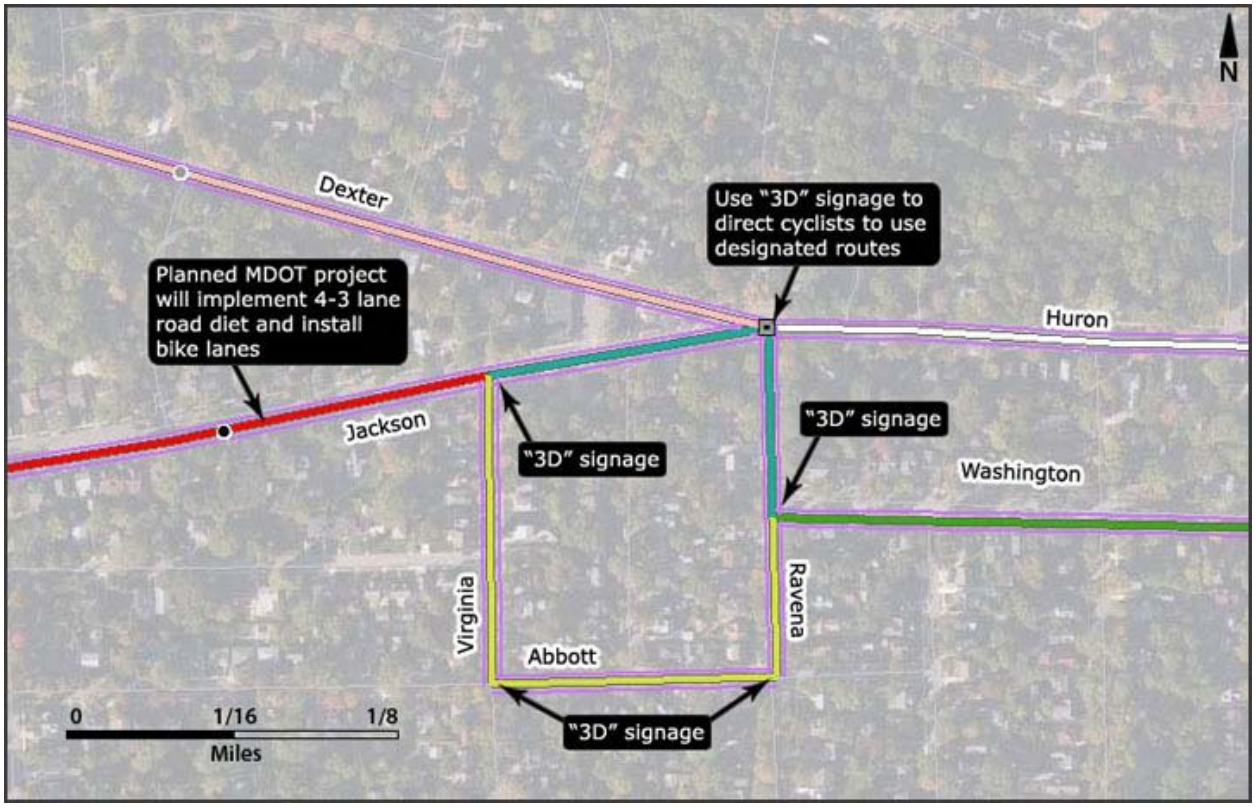
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

Huron St / Dexter Ave / Jackson Ave



Existing	Proposed	
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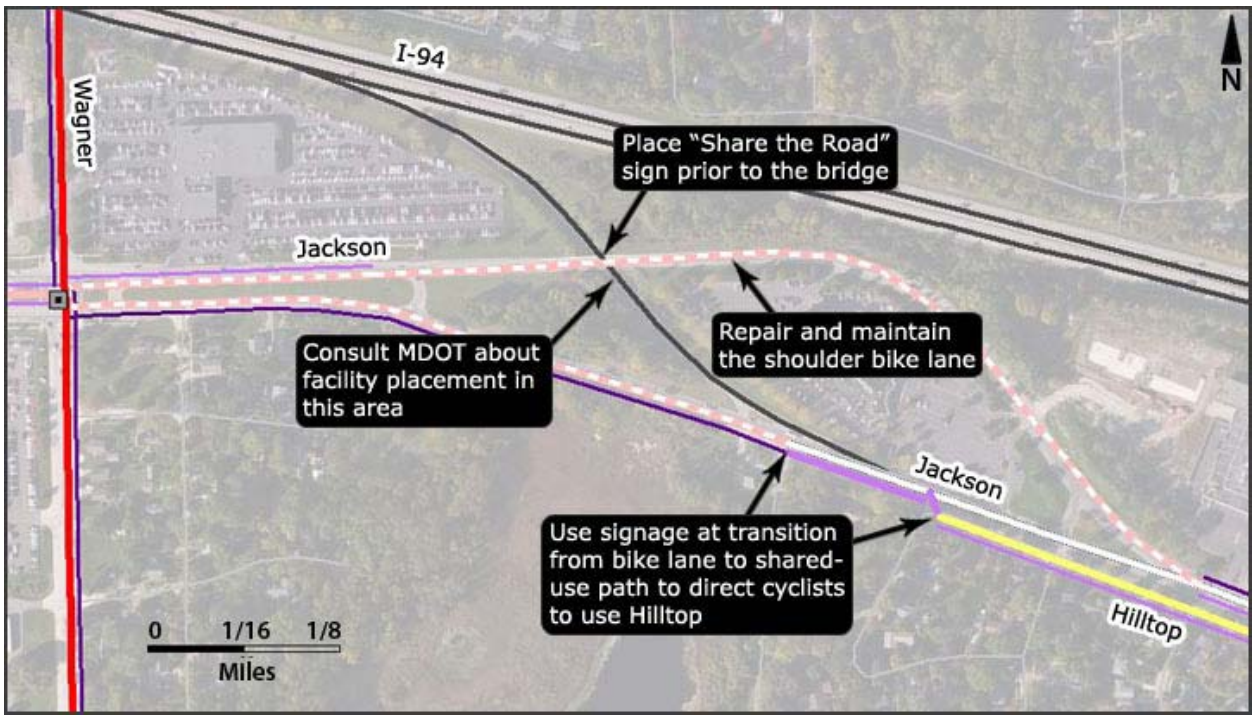
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

Jackson Ave

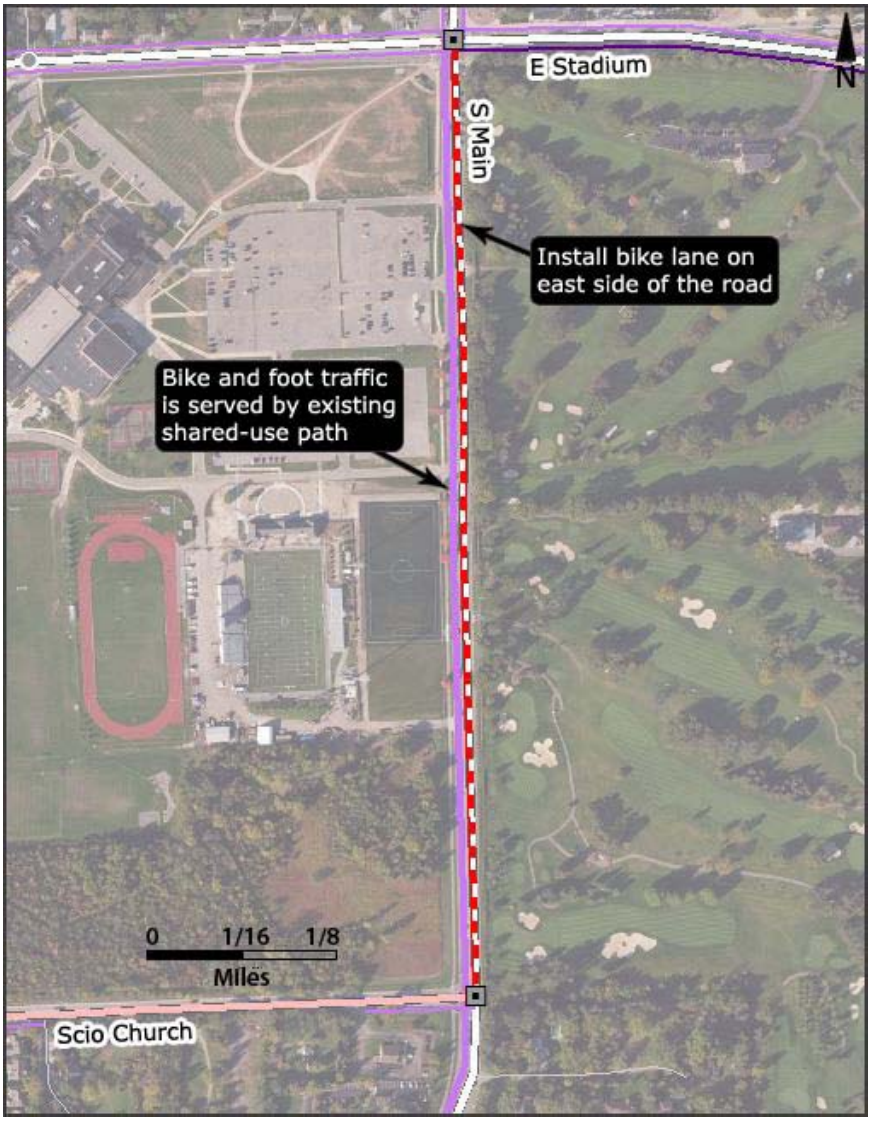


Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

S Main St

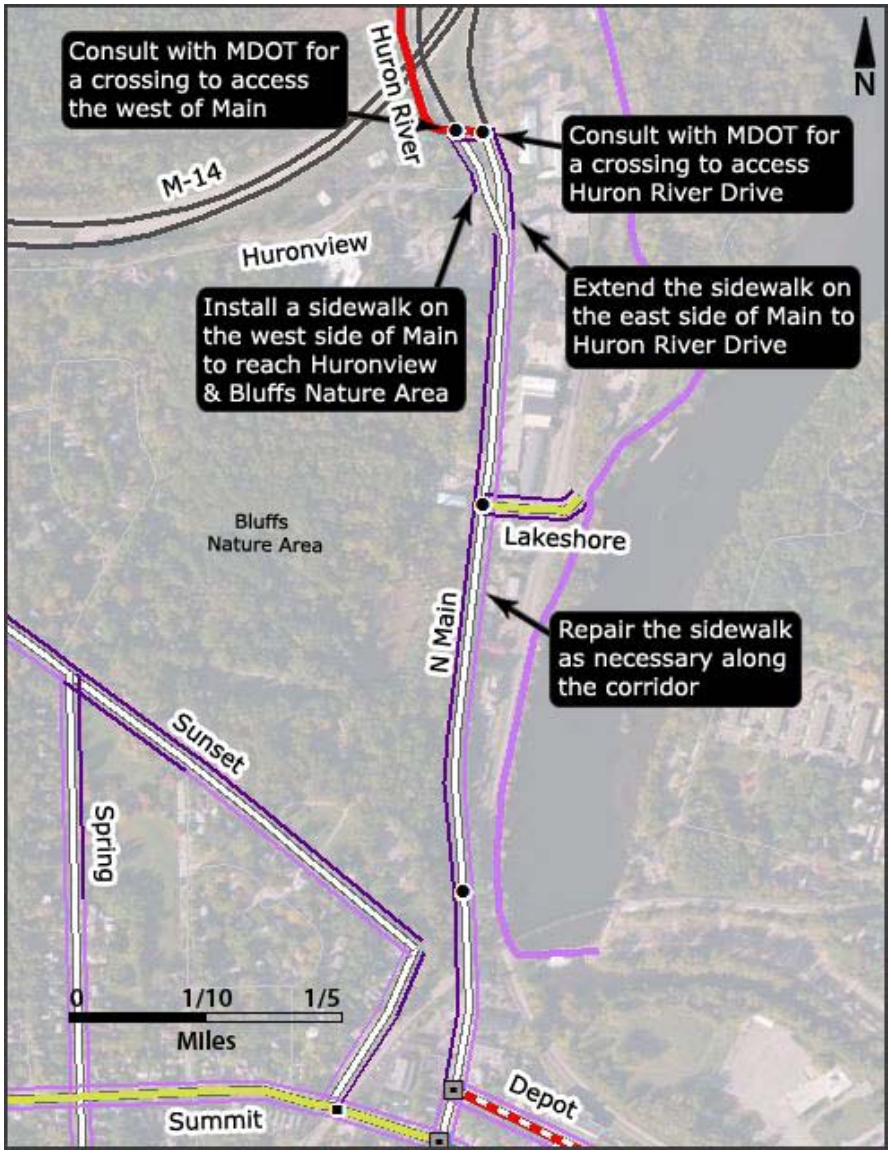


Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

N Main St



Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

Miller Ave

Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

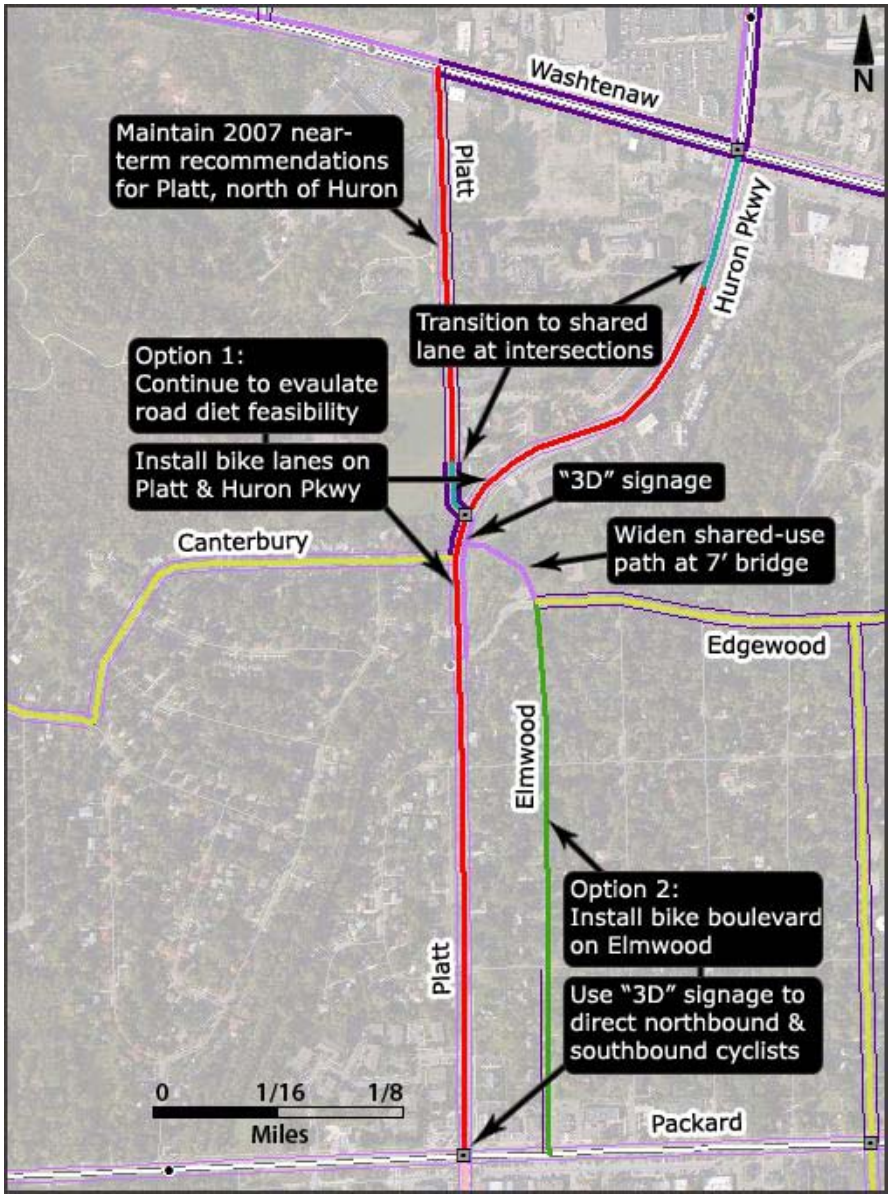
Miller Ave / Miller Rd

Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

Platt Rd

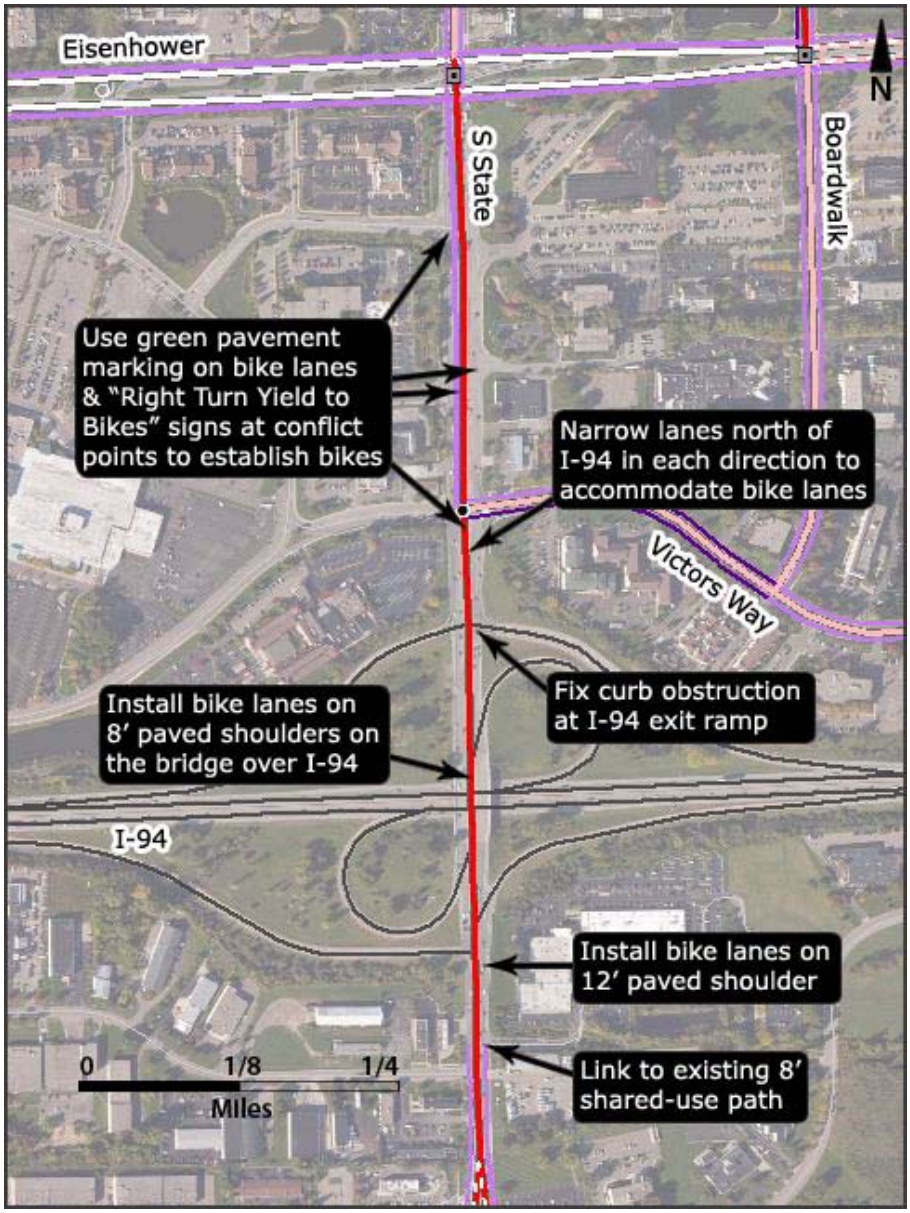


Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

S State St

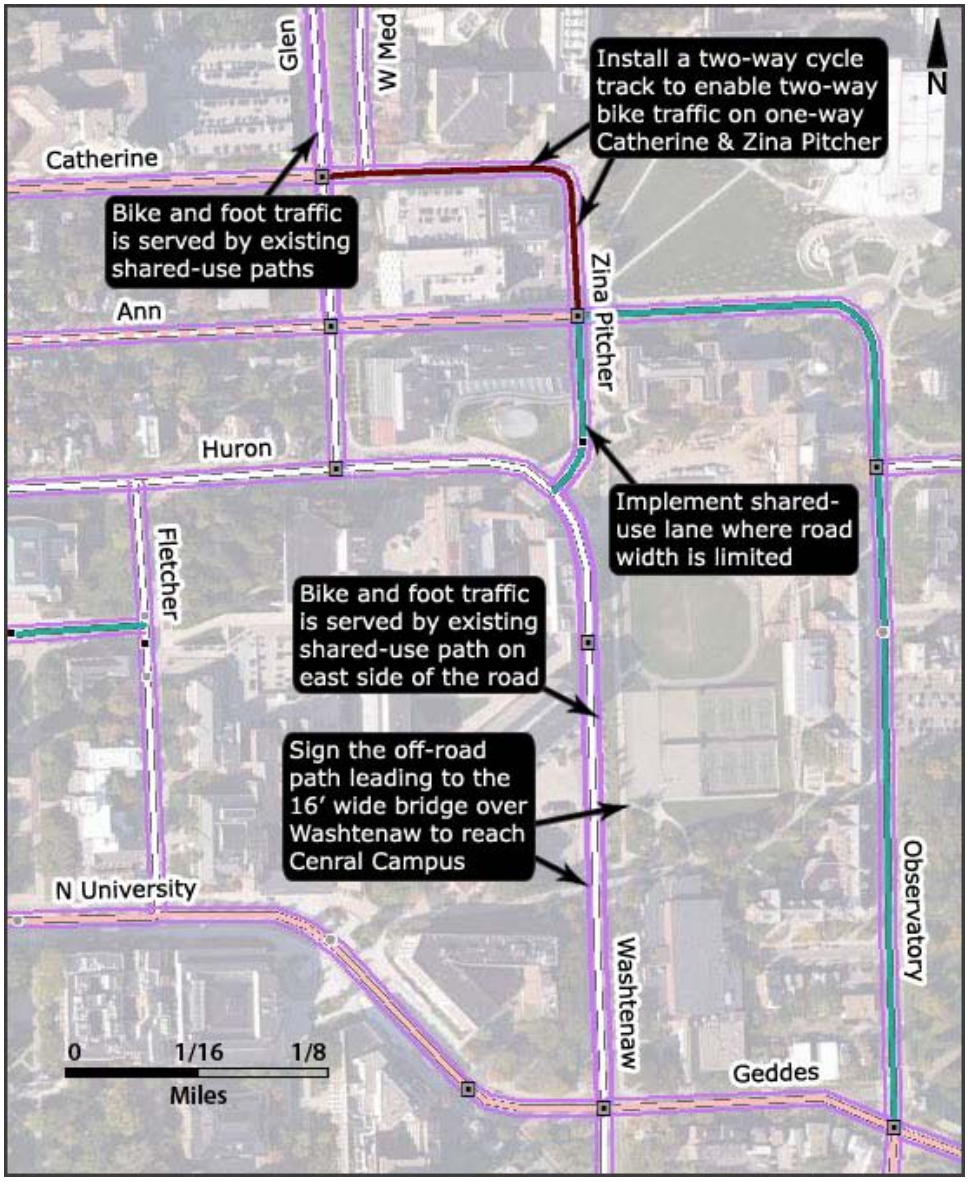


Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

University of Michigan Campus Connection

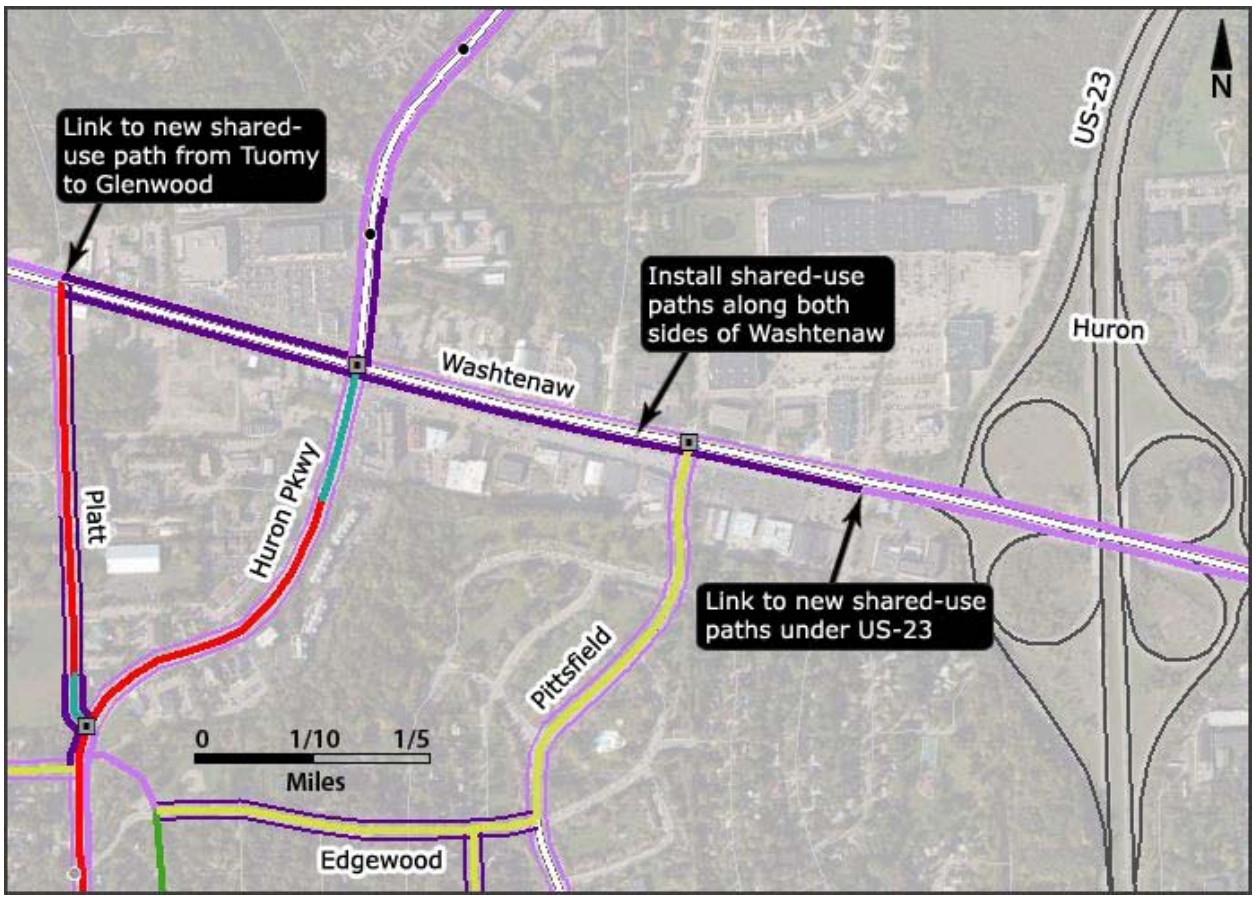


Existing	Proposed	
		Bike Lanes
		Bike Lane, 1 side only
		Bike Boulevard
		Cycle Track
		Shared-use Arrow
		Signed Bike Route

Existing	Proposed	
		Shared-use Path
		Sidewalk
		Signalized Crosswalk
		Major Mid-block Crossing
		Minor Mid-block Crossing
		No Near-term Improvements

Near-term Opportunities Update – Map Detail

Washtenaw Ave



Long-term Recommendations

The 2013 Plan Update focuses on near-term recommendation updates and revisions, but through the review process, long-term recommendations were brought to staff's attention for review. The 2007 Long-term recommendations were often the same as near-term opportunities; those that were different were meant as implementations to be made along with new or reconstructed major facilities. Long-term recommendations are major capital improvements that will be implemented over an extended period of time as funding becomes available or they are integrated into other major construction projects.

Long-term recommendations in the roadway:

- Are generally implemented when a new road is built or an existing road is reconstructed. Reconstruction projects typically include new curb, gutter, and storm water systems.
- Generally require road widening to accommodate the minimal lane width requirements for all users. This may require additional ROW.
- Strive to meet the minimum desired widths for bike lanes, motor vehicle lanes, buffers, and sidewalks to the extent that it is practical given the project's context (Pg. 177).

The 2007 Plan included a map of Long-term Recommendations to illustrate the ultimate facility goal for each near-term recommendation. The following areas are presented in the Plan Update to reemphasize or clarify 2007 Plan long-term recommendations in light of near-term revisions.

Long-term Site Recommendations

Allen Creek Greenway

South Ann Arbor to N Main St | 2.3 miles ***2007 Plan: Pages 167, 181***

The Allen Creek Greenway is a proposed "green walking and bicycle pathway located in the Ann Arbor Railroad right-of-way, running from the University of Michigan athletic complex to Argo Dam and the Huron River" that "will establish a context for the growth of residential, commercial, retail, and cultural development in Ann Arbor with the built-in guarantee of open space for recreation, alternative transportation, and nature" (acgreenwayconservancy.org). The Greenway will provide non-motorized access from the University of Michigan's South Campus to west of Downtown and the B2B Trail's shared-use path along the west bank of the Huron River.

Detailed analysis of the route and opportunities is provided with the 2008 Proposed Route of the Allen Creek Greenway: Essential Route and Future Opportunities Draft from the Allen Creek Greenway Conservancy. The guide displays overhead satellite images with the route and other features overlaid on top of the image. It also shows many photos of current conditions along the railroad and describes the property information for adjacent parcels.

The 2007 Plan identifies the Greenway as a long-term opportunity due to its extent and cost. Although the Greenway remains a long-term opportunity in the 2013 Update, staff will continue looking for opportunities to advance the project according to City Council direction. In particular, the N Main St area is being reviewed by the North Main Taskforce for recommendations to address multiple parcels in the area. The Taskforce may include non-motorized recommendations relevant to the Greenway and the Non-motorized Transportation Program.

Border to Border Trail

North Ann Arbor ***2007 Plan: Page 181 Map***

The Border-to-Border Trail (B2B) is a system of shared-use paths, bike lanes, bike routes, and other facilities that winds along the Huron River in Washtenaw County. It is designed to link communities and preserve open space along the river. The B2B Trail is an ongoing project, and the ultimate goal is a 35-mile trail that completely follows the Huron River through Washtenaw County.

In Ann Arbor, the B2B Trail winds from East Ann Arbor to the Argo Dam and up into the northwest corner of the city, but the trail is not continuous, due to multiple railroad and river crossing obstacles. Although the B2B Trail is not presented as a near-term opportunity, the Plan proposed a number of long-term shared-use path additions and multiple railroad and river crossings to link existing segments of the trail.

The need to connect existing B2B Trail segments was a common theme from public comment received in the review process, and is also identified in the Parks & Recreation Open Space (PROS) Plan. Also, recommendations from the North Main Tasksforce will consider a number of alternatives for facilitating non-motorized use in the North Main St area. Additionally, a stormwater management study is in progress for a tunnel project under the railroad where Fourth Ave meets Depot, which may find an opportunity for simultaneously establishing a non-motorized connection.

This Plan Update and its progress will benefit from the products of ongoing planning processes. Therefore, the updated recommendation is to maintain the long-term plan for B2B connections while monitoring concurrent planning projects. However, if new concepts emerge, the next update should incorporate new opportunities as appropriate.

Gallup & Fuller Park Paths

Location Varies ***2007 Plan: Page 181 Map***

The Gallup & Fuller Park shared-use paths are some of the most heavily used paths in the city. According to the PROS Plan, Gallup Park is the most popular park in the city. The shared-use paths along Fuller Park are the most direct non-motorized link between Central Campus and North Campus for University of Michigan students. Both parks contain the B2B Trail.

The Gallup & Fuller Park Paths are not a near-term opportunity in the 2007 Plan. However, staff identified the need to widen some segments of each park's shared-use paths to 10' wide, which is the AASHTO standard minimum width for heavily utilized shared-use facilities. Where possible, paths should be improved to achieve 12' or 14' width.

Environmental issues need to be assessed to define opportunities to widen facilities. This area is not a near-term opportunity.