

Appendix E

SEMCOG Sponsored Walkability/ Bikeability Audit

SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

Audit Attendees

Ryan Buck - Washtenaw Area Transportation Study (WATS)
Senior Transportation Planner
Amy Chestnut - McKenna and Associates, Inc.
Mandy Grewal - Pittsfield Township Supervisor
Calvin Johnson - SEMCOG Planner
Paul Montagno - Pittsfield Township Senior Planner
Kajal Patel - SEMCOG Engineer
Brian Pawlik - SEMCOG Planner
Roy Townsend - Washtenaw County Road Commission (WCRC)
Director of Engineering / County Highway Engineer
Chris White - Ann Arbor Transportation Authority (AATA)
Manager of Service Development

SEMCOG SPONSORED WALKABILITY/BIKEABILITY AUDIT

PURPOSE

To provide additional content to Pittsfield Township's master plan update that links transportation and land use and helps increase pedestrian, bicycle, and transit travel in and between the Township's activity centers.

BACKGROUND

Pittsfield Township has historically served as a bedroom community for the cities of Ann Arbor and Ypsilanti. The community has a mixture of housing, with older and denser developments in the northeast portion and newer homes in the southern and western portions. While Pittsfield Township has done an outstanding job constructing and repairing sidewalks and shared-use paths, recent public outreach has shown many residents desire even greater access and mobility through non-motorized and transit infrastructure.

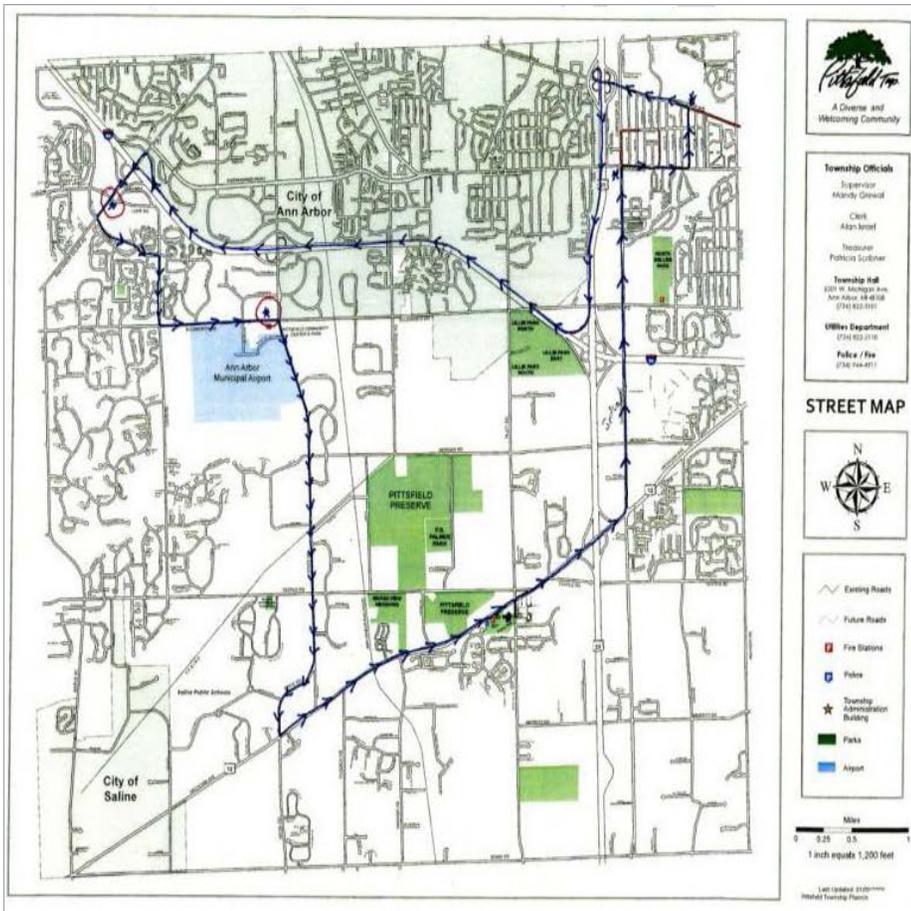
Pittsfield Township has made it a goal to link transportation with land use development in its current master plan update, looking to provide greater variety in housing and transportation options in destination districts (township centers), while preserving other rural lands and natural features. The Township's plan is to center development in the Washtenaw Avenue Corridor, Ann Arbor - Saline Corridor, Carpenter Road Corridor, Michigan Avenue Corridor, and State Street Corridor. These walkable districts will have higher land use density and access to public transit. Additionally, these districts or Township centers will be linked to each other and to parks and housing developments via non-motorized facilities such as sidewalks, shared-use paths, and bike lanes. The Township's transit and non-motorized plan maps can be seen in the appendix of this document.



METHOD

After the initial request was made by Township Supervisor Mandy Grewal, Southeast Michigan Council of Governments (SEMCOG) staff reviewed the Township’s draft master plan chapter on transportation and land use. On September 29th, 2010, a team from SEMCOG, Pittsfield Township, Ann Arbor Transportation Authority (AATA), Washtenaw Area Transportation Study (WATS), Washtenaw County Road Commission (WCRC), and McKenna and Associates, Inc. conducted a field investigation to identify ways of increasing safety for pedestrians, cyclists, and all other conventional modes of travel in the Township’s activity centers and surrounding corridors. The team toured the Township by van, stopping at several locations along the way for further examination.

FIELD INVESTIGATION ROUTE MAP



GOALS FOR THE WALKABILITY/BIKEABILITY AUDIT

- 1 Perform a technical walkability/bikeability audit for the northeast portion of the Township.
- 2 Provide land use and nonmotorized policy ideas that could enhance the Township’s planned destination districts outlined in the Township Master Plan Update.

The majority of this document is a list of the team’s observations and SEMCOG’s recommendations for the northeast portion of the Township (the technical aspect of the document). The remainder of this document provides some possible ideas to include in the Township’s Master plan that may increase bicycle and pedestrian travel and promote town center developments. The table on the following pages summarizes the observations and recommendations/ ideas.



Walkability/Bikeability Audit team

TECHNICAL AUDIT RESULTS

SAFETY ISSUE	LOCATION	SHORT-TERM RECOMMENDATION	LONG-TERM RECOMMENDATION
Jay walking	Major roads in N.E. portion of Township	<ul style="list-style-type: none"> Review bus stop locations Continue WCRC Road Diet Study for Golfside Drive 	<ul style="list-style-type: none"> Conduct pedestrian circulation studies Consider mid-block crosswalks with hybrid pedestrian beacons (where warranted)
Driveway densities	N.E. portion of Township	<ul style="list-style-type: none"> Update zoning ordinance driveway standards 	<ul style="list-style-type: none"> Access management plan
Unlevel pedestrian pathway at driveways	Township wide	<ul style="list-style-type: none"> Update zoning ordinance driveway standards 	
Sidewalk as a bike route	N.E. portion of Township	<ul style="list-style-type: none"> Minimize sight distance issues at intersections and driveways Consider a snow removal plan for nonmotorized facilities 	<ul style="list-style-type: none"> Consider on-road facilities for experienced, faster traveling cyclists, such as bike lanes, sharrows, wide shoulders, bike boulevards, etc. (as appropriate) Perform bicycle circulation studies Widen sidewalk to AASHTO guidelines for multi-use paths
Storm drains can catch bicycle wheel	Township wide	<ul style="list-style-type: none"> Consider revising code to exclude these storm sewer covers for new projects 	<ul style="list-style-type: none"> Install new storm sewer covers that do not “catch bicycle wheels” when roads and sewers are undergoing rehabilitation projects
Placement of shared-use side path traffic control devices	Platt Road	<ul style="list-style-type: none"> Consider the necessity of a stop sign per MUTCD Add a louver to stop signs so they are less visible to motorists on Platt Road, if a stop sign is warranted 	<ul style="list-style-type: none"> Consider other design features that can reinforce a bicycle stop such as pavement markings or a median, if a stop is warranted
ADA accessibility at sidewalk ramps and construction sites	N.E. portion of Township	<ul style="list-style-type: none"> Develop an ADA transition plan for noncompliant ramps 	<ul style="list-style-type: none"> Develop ADA compliant detours for all construction work that impacts sidewalks and shared-use paths
Lack of nonmotorized access across freeway ramps and bridges	Washtenaw/US-23 Ann Arbor Saline/I-94		<ul style="list-style-type: none"> Develop complete streets ordinance with WCRC and MDOT collaboration
High posted and observed speeds on arterials	Township wide	<ul style="list-style-type: none"> Work with road agencies to develop acceptable ways to decrease observed speeds, provide continuous paths or other nonmotorized facilities, develop complete streets policy 	<ul style="list-style-type: none"> Consider adding “visual friction” to roadway by adding objects with vertical mass (trees, taller buildings, street lights, etc.) Explore lane width reduction where lanes are greater than 11 feet

TECHNICAL AUDIT RESULTS (CONTINUED)

SAFETY ISSUE	LOCATION	SHORT-TERM RECOMMENDATION	LONG-TERM RECOMMENDATION
Discontinuous sidewalk and bikeway network (lack of funds to fill in gaps)	Township wide	<ul style="list-style-type: none"> • External funds may possibly be obtained through various efforts such as: <ol style="list-style-type: none"> 1. A Safe Routes to School plan 2. A Complete Streets plan 3. Linking projects with regional recreational facilities in Recreation Plan for Michigan Natural Resources Trust Fund eligibility • Explore/consider other creative ways to finance bicycle and pedestrian infrastructure 	<ul style="list-style-type: none"> • External funds may possibly be obtained through various efforts such as: <ol style="list-style-type: none"> 1. Low Impact Development (LID) opportunities such as Green Streets, which can be funded through storm water treatment grants. Green Streets practices can calm traffic and provide additional space for sidewalks and bikeways.

MASTER PLAN IDEAS

ISSUE	LOCATION	SHORT-TERM RECOMMENDATION	LONG-TERM RECOMMENDATION
Long distances for pedestrians and bikes to travel	State Street Ann Arbor/Saline Road Michigan Avenue	<ul style="list-style-type: none"> • Look for ways to bring land uses closer to each other • Consider different plans to add density to the State Street district 	<ul style="list-style-type: none"> • Discourage large non-traversable berms between stores and sidewalks • Encourage building designs that provide access from sidewalks • Utilize small parks and utility corridors to provide short-cut connections between housing, neighborhood parks, and larger nonmotorized corridors • Consider constructing railroad crossings for nonmotorized facilities • Consider developing a grid-like street network through PUD developments
Pedestrians must cross parking lots to access buildings	Township wide		<ul style="list-style-type: none"> • Encourage design plans that include quick, safe, and comfortable pedestrian access to buildings such as minimizing front yard parking lots and building setbacks • When buildings are set back from the road, encourage or require a pedestrian walkway from the sidewalk to the building
Storm water management (as Township develops)	Township wide		<ul style="list-style-type: none"> • Continue efforts in green infrastructure and low impact development (LID) techniques in road right-of-ways and new developments

WALKABILITY/BIKEABILITY TECHNICAL AUDIT

SECTION 1: OBSERVATIONS AND RECOMMENDATIONS FOR THE NORTHEAST CORNER

Northeast Pittsfield Township, which includes Washtenaw Avenue, Packard Road, Ellsworth Road, and Carpenter Road has the Township's densest development patterns and holds promise as a near-term township center for the following reasons:

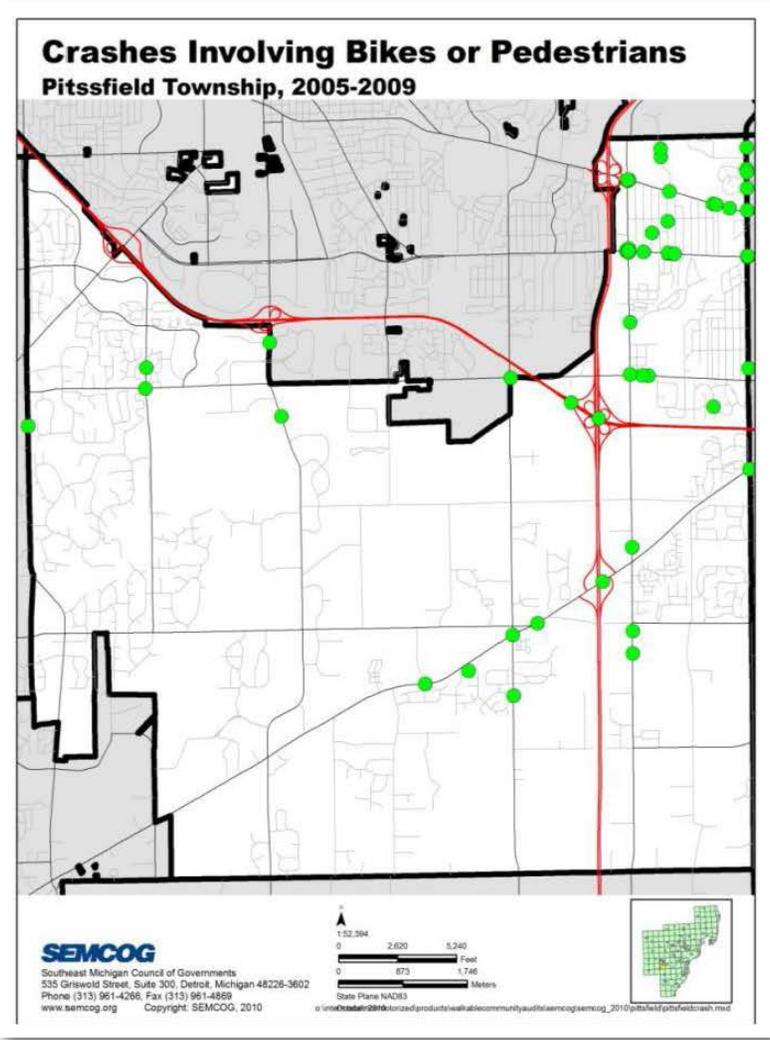
- Washtenaw Avenue serves as the primary route between Ypsilanti and Ann Arbor and has the largest volume of daily traffic within the township (approximately 29,000 Annual Average Daily Traffic [AADT]).
- The area has three (3) east-west and two (2) north-south transit corridors connecting Township residents with Ann Arbor, Ypsilanti, Ypsilanti Township, the University of Michigan, Eastern Michigan University, Washtenaw County Community College, and St. Joseph Mercy Hospital, as well as many other attractions.
- The area is home to Carpenter Elementary School, the only school in the district where children walk to school.
- The area has a range of housing options - apartments, condominiums, and mature single family homes. Mixed-use developments typically have housing options for an array of lifestyles and income levels.
- The area has several aging shopping centers that could be redeveloped into mixed-use developments.
- The area's roads are set up in a traditional grid pattern that best serves walkable and bikeable neighborhoods.

Additionally, the northeast portion has some of the highest safety concerns in the Township:

- The intersections of Carpenter at Packard, Golfside at Washtenaw, and Hogback at Washtenaw have the highest crash frequencies for the Township and Washtenaw County. Regionally, Carpenter is ranked 12th and Golfside and Hogback are tied for 24th.
- Over the past five years, 36 crashes in this area involved bicycles or pedestrians. This accounts for 65 percent of all Township crashes involving bikes and pedestrians. See the next page for a map illustrating this data.



The Northeast corner of the township has a well established gridded street network.



This map shows that most crashes involving bikes or pedestrians occur in the northeast portion of the Township.

OBSERVATION #1

While safety issues are complex and involve time-intensive observational studies (i.e., the team cannot definitively assign a specific roadway condition or activity to specific crashes without further studies), several issues were observed that can negatively impact safety.

- Most township roads have high speed limits that do not complement walkable/bikeable environments. Roads with high speed limits make it more difficult and costly to develop walkable and bikeable infrastructure such as mid-block crosswalks and sharrows (lanes that both bikes and motor vehicles use). A shared-use path or trail can cost \$1 million per mile in urban areas, while bike lanes or sharrows can sometimes be implemented with minimal added expense. Below is a table of major roads in the township and their corresponding speed limits. Keep in mind that, since posted speeds are partly based on the speed at which 85 percent of vehicles are traveling, 15 percent of traffic may be traveling faster or slower than the posted speed.

ROAD	POSTED SPEED	NO. OF LANES
Washtenaw	40	5
Carpenter	45	5
Packard	45	5
Ellsworth	35-45	3-5
Golfside	25-35	4
Clark	45	2
Platt	55	2
Hogback	45	5
Michigan	45-55	2
Bemis	55	2
Lohr	55	2
Moon	50	2
State	50	2

- Based on the existing road diagrams from the Traffic Engineering Services Report for the Washtenaw Area Transportation Study, many roads in the Township have lanes ranging from 12' to 16' in width.

SHORT-TERM SOLUTIONS

Explore reducing the width of motor vehicle lanes to 11 feet. Studies have shown there is no indication crash frequencies increase as lane width decreases for arterial roadway segments or arterial intersection approaches (as long as the lane remains above 10 feet in width). Generally, roads are safer due to slower travel speeds that result from the narrower lane. While engineering studies will still need to be performed, it is possible that bike lanes or sharrows could be added in many places within the footprint of existing roadways, if motorized vehicle lanes were reduced to 11 feet wide.

LONG-TERM SOLUTIONS

Look for ways to create "vertical friction" by framing roadways with objects and structures close to the road (but outside the clear zone). Objects such as street trees, pedestrian-scale street lighting, parked cars, and multi-story buildings (without front yard parking) provide vertical mass and contribute to a well defined roadside edge tending to lead drivers to exercise greater caution (i.e., slower observed speeds).

OBSERVATION #2

- Some AATA bus stops are far from signalized intersections, which can contribute to a higher occurrence of pedestrian jaywalking to either catch a bus or reach their destination.



A woman tries to cross carpenter Road between Packard and Washtenaw near a bus stop (left). A man attempts to cross Packard just east of the US-23 overpass, walking from the shopping center to the bus stop on the other side of the freeway (right).

- Portions of Golfside Drive are four lanes (two lanes in each direction). In some cases, speed can vary between lanes. These speed differentials can cause conflicts between faster-moving through vehicles and slower moving, left-turning vehicles (which sometimes stop in the lane while waiting for a gap in on-coming traffic). As the frequency of left turning traffic increases, the capacity of the four-lane road decreases. Additionally, both motorized and nonmotorized crashes may be more frequent. Pedestrians crossing midblock are exposed to four lanes of moving traffic.

SHORT-TERM SOLUTIONS

- Review the location of bus stops and possibly conduct pedestrian circulation studies to determine where pedestrians are traveling before getting on or after getting off the bus. Such studies may lead to changes in bus stop locations and improved pedestrian crossing compliance. Consulting the results of SEMCOG Onboard Transit Survey, available in late 2011, may provide insight on passenger origins and destinations.
- Where pedestrian activity is high, crosswalks should be re-installed with reflective paint or thermoplastic pavement markings and American with Disabilities Act (ADA) - compliant curb ramps. High-visibility crosswalk markings (commonly referred to as piano key, zebra-striped, or ladder style) should be used when possible.

- Continue with the ongoing WCRC road diet suitability studies for Golfside Drive. Typically, road diets utilized on four lane roads with less than 23,000 ADT increase both motor vehicle and bike/pedestrian safety, without any significant decrease in roadway capacity.

LONG-TERM SOLUTIONS

Based on the results of pedestrian circulation studies, consider installing mid-block crosswalks where traffic signals are too far apart, to encourage pedestrian crossing compliance. Such crosswalks should be more than pavement markings, including facilities such as median refuge islands and curb bulb-outs that decrease pedestrian exposure time and better define the roadway. Mid-block crosswalks should also include hybrid pedestrian beacons like rectangular rapid flashing beacons (RRFB) or the **High-Intensity Activated Crosswalk** (HAWK) signals.

An RRFB remains dark until a pedestrian activates the system by pressing a pushbutton. Once the system is activated, rapidly flashing amber beacon lights provide a bright warning to motorists. The system also provides a flashing amber light visible to the pedestrian, indicating the beacons are flashing.

The HAWK signal is also activated by pressing a pushbutton. When activated, the signal goes through a series of yellow and red sequences, requiring motorists to stop for pedestrians. After the signal is completed, the signal goes dark and motorists can continue through the intersection until it is activated again.



An RRFB (top and center), placed on either side of a mid-block crossing and median refuge island can be a highly effective solution. (Right) A HAWK signal at Maple and Drake in Oakland County. PHOTOS: (top) safety.fhwa.dot.gov. (center) co.washington.or.us. (right) local4traffic.wordpress.com.

OBSERVATION #3

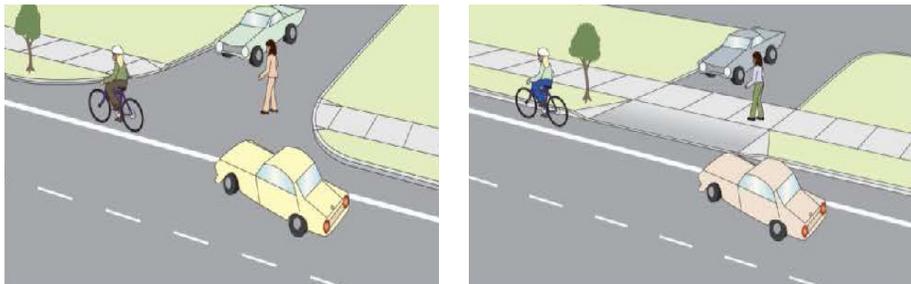
These corridors have a high driveway density that causes conflict points for motor vehicles, pedestrian, and bicyclists. Many of these driveways do not provide a level pedestrian walkway across them, instead of providing a continuous slope from the parking lot to the street.



This driveway looks and functions more like a road intersection than a commercial driveway. Such driveways allow for high-speed turns, which are unsafe for pedestrians. Unless the driveway is signalized, pedestrians have the right of way when approaching. Pedestrians with disabilities, especially those in wheelchairs have a difficult time traversing such driveways due to counter slopes that propel them into the street.

SHORT-TERM SOLUTIONS

- Ensure Township driveway standards include a level pedestrian walkway connecting both sides of the sidewalk, if the driveway is not signalized. The driveway slope should be between the street and the sidewalk, rather than continuous from the street to the parking lot. Such standards help meet ADA and decrease high speed turns in driveways.
- Consider standards that decrease pedestrian exposure at driveways. Some ideas include:
 - Driveway spacing minimums
 - Driveway width maximums



Pedestrians are supposed to have the right-of-way when crossing an unsignalized driveway. (Left) A driveway approach built like an intersection encourages high-speed vehicular turns and implies automobiles have the right-of-way. It also is less friendly to people with disabilities. (Right) A driveway including a level pedestrian walkway (and a slope between the sidewalk and street) encourages slower vehicular turns, is friendly to people with disabilities, and implies pedestrians have the right-of-way. (Diagram source: Pedestrian and Bicycle Information Center (PBIC))

LONG-TERM SOLUTIONS

- Develop access management plans that consolidate access points in the corridor. Encourage properties to use shared easements or access via less busy cross streets.
- Combine considerations in defining the curb with green infrastructure techniques. Example curb extensions using green infrastructure are shown below.



OBSERVATION #4

On certain roads like Packard, the designated bike route is the sidewalk that may be in disrepair and have vegetative overgrowth.



The Packard path needs attention if it is to continue as the designated bike route. In addition to safety concerns of sidewalk bicycle riding, a lack of vegetation maintenance (left), pathway surface condition (center), and conflict with pedestrians (right) due to the narrow width of the sidewalk, may deter users.

In general, sidewalks can be less safe for many cyclists because:

- Bicycles have different speeds, turning radii, and breaking distances than pedestrians, which can make sidewalk riding difficult and unsafe. Sidewalks are generally designed for pedestrians traveling at 3 miles per hour.

While some cyclists will travel at speeds comparable to pedestrians, such as children (type C bicyclists) and inexperienced adults (some type B bicyclists), typically experienced cyclists (types A and B) travel at speeds faster than 10 miles per hour.

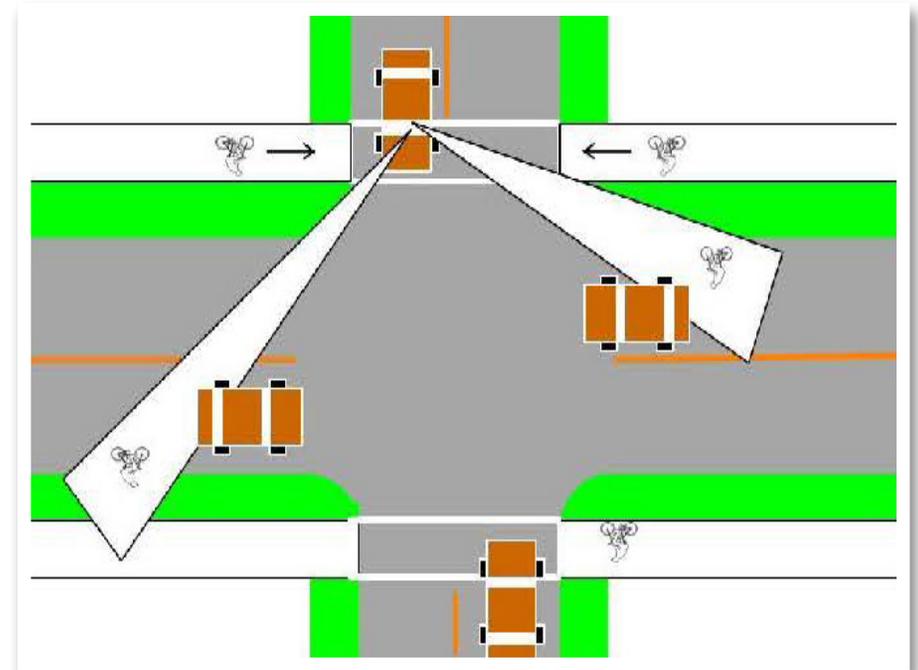
Sidewalk riding cyclists can also pose a safety concern to pedestrians.

- In certain urban and suburban environments, sidewalk (and shared-use side path) riding bicyclists are more likely to be hit by a motor vehicle than those bicyclists riding in the street (if obeying all traffic rules).

While this may seem counter-intuitive, cyclists who use the sidewalk or shared-use side paths, cross driveways and intersecting streets outside the common sight distance of automobiles. As driveway and intersecting street densities increase, so do the conflict points.

Some relevant studies include:

- 2010 Draft AASHTO Guide for Planning, Design, and Operation of Bicycle Facilities
- A TRB journal article, *Sidewalk Bicycle Safety Issues*, by Lisa Aultman-Hall and Michael F. Adams
- An ITE journal article, *Risk Factors for Bicycle-Motor Vehicle Collisions at Intersections*, by Alan Wachtel and Diana Lewiston
- A TRB article, *Survey of North American Bicycle Commuters: Design and Aggregate Results*, by William E. Mortiz
- Many sidewalks do not have comprehensive snow removal plans to allow bicycling during the winter (The sidewalk/bike route on Packard closes during winter months).



Motorists tend to stop in crosswalks when approaching an intersecting street in order to gain greater sight distances. Many drivers are not expecting faster moving cyclists on sidewalks. As driveway and intersecting road densities increase, so do conflict points and the crash probability for sidewalk riding cyclists.

SHORT TERM SOLUTIONS

- Minimize sight distance issues at intersections and driveways.
- Consider a snow removal plan for nonmotorized facilities.

LONG TERM SOLUTIONS

- Consider improving sidewalks to meet AASHTO guidelines for a multi-use side path. Such a facility can accommodate pedestrians and slow moving bicyclists.
- Consider adding a bike lane or shared-use lane to Packard to accommodate faster moving cyclists, especially if a lane diet can be performed.

OBSERVATION #5

There is a mixture of pedestrian crossing conditions — many have good curb cuts, detectable warnings (truncated domes), and pavement markings. But others are either missing some components like accessible pedestrian push-buttons or are in disrepair.



(Left to right, top to bottom) High visibility crosswalk with pedestrian countdown signal; crosswalk pushbutton actuator within reach of the sidewalk; crosswalk curb ramp without detectable warnings; crosswalk pushbutton actuator not within reach of the sidewalk (especially for someone in a wheelchair); crosswalk ramp blocked by sewer construction.

SHORT-TERM SOLUTIONS

- Conduct ADA accessibility audits at every intersection that has a crosswalk to ensure the intersections meet or exceed ADA requirements. The following are some of the things to look for:
 - Curb ramps
 - Detectable warnings
 - A flat landing at the top and bottom of ramps
 - Five-percent or less running slope
 - Two-percent or less counter slope
 - Access to crosswalk push button actuators
 - Obstructions

After such audits are completed, prioritize each needed improvement based on funding, suage, safety concerns, and public works project timelines.

- Implement construction detours for pedestrian and bicycle amenities that include temporary ramps for crosswalks and level landing areas. Such detours should be detectable by cane for those people with low visibility. If the sidewalk is closed completely, an alternative route and ADA-friendly detour signs should be placed upstream at the beginning of the block.
- Ensure pavement markings and crosswalk signs are maintained and visible.

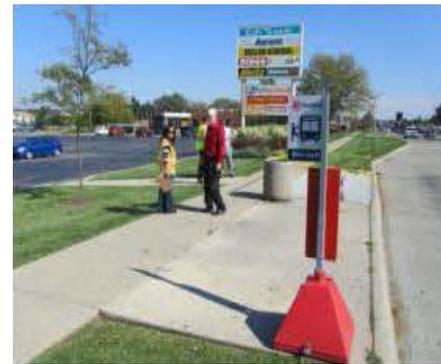
LONG-TERM SOLUTIONS

- Consider placing mid-block crosswalks (where warranted) where traffic signals are too far apart to encourage pedestrian crossing compliance. Such crosswalks should require median refuge islands and pedestrian hybrid beacons.
- As the Township develops its township centers, perform micro-level pedestrian circulation studies to further understand where pedestrians are traveling to and from. This may vary in each township center based on the mix of residential, retail, restaurants and other uses.
- Perform bicycle circulation studies to better understand how the current nonmotorized network can be improved for cyclists.

OBSERVATION #6

There is a mixture of pedestrian pathway conditions — some pathways are new, wide, and meet ADA standards, but others are in need of maintenance.

- Recently installed sidewalks on the south side of Packard and Washtenaw are safe and convenient ways for pedestrians to travel.
- Ongoing construction work has fragmented the sidewalk on the north side of Packard, creating an obstacle course for pedestrians who must choose to walk in the grass near the road or on the shoulder. There are no signs indicating the sidewalk is closed and no detours for pedestrians using this pathway to access the bus.
- Vegetation near the sidewalk on the north side of Packard is overgrown. Such overgrowth contributes to real and perceived safety issues, making the route less desirable. It should be noted that the sidewalk is over 30 years old.
- Many of the internal residential streets do not have sidewalks, even though they are close to Carpenter Elementary School. These streets are wide, contributing to vehicular speeding. A lack of street lighting and some unpaved road surfaces may also contribute to perceived safety problems that discourage walking.
- The Township strives to install new sidewalk as it gets revenue to do so, but demand outpaces funding.
- The Township has had some negative feedback from a few vocal residents about constructing sidewalks in the street right-of-way of their front yards.



(Left to right, top to bottom) New sidewalk on Washtenaw; newer sidewalk and walkway to a bus stop pad on Packard; new bus stop pad on Washtenaw; walkway from the sidewalk extending into and across a parking lot to the shopping center; new bus shelter on Washtenaw.



(Left to right, top to bottom) This pedestrian could use a sidewalk on the commercial side of Crystal Drive; unkempt vegetation obstructs pedestrians and contributes to a perceived notion of insecurity; aggregated surface and wide driveway pose problems for people with disabilities; dirt road without a sidewalk can make for a messy and unsafe situation; wide road without a sidewalk puts pedestrians at odds with speeding vehicles.



SHORT-TERM SOLUTIONS

The Township is moving forward with good solutions to the problem such as requiring sidewalk improvements during site plan review of new developments and routine maintenance on select walkways as part of the public works program. However, the Township may be able to implement more projects if they:

- Work with Michigan Department of Transportation (MDOT) and the Washtenaw County Road Commission (WCRC) on future road project planning as part of the Complete Streets planning process.
- Continue to pursue projects linking regional facilities and activity centers such as the Border to Border Trail. such projects may be competitive for grants like Transportation Enhancements and the Michigan Natural Resources Trust Fund.
- Consider further participation in the Safe Routes to School program to allow for more pedestrian and bicycle amenities and education programs within the neighborhood. If schools are not already registered with the state program, efforts should be made to do so. It is anticipated that when the federal governments surface transportation bill is reauthorized, more funds will be allocated to the Safe Routes to School program.

Such an effort could reinforce the grid-like design of residential neighborhoods, allowing pedestrians to more easily access nearby businesses on the arterial streets and get children to and from school without having to walk in the street.

- Explore and consider other ways to finance nonmotorized infrastructure.

LONG-TERM SOLUTIONS

- Consider Green Streets solutions (infrastructure that manages roadway storm water runoff), that narrow roadways, but provide additional green space, traffic calming measures and room for sidewalks. Such amenities can enhance the aesthetics of a streetscape and possibly win over residents who feel that sidewalks take away the “charm” of their neighborhood.
- Provide nonmotorized connections between housing, small neighborhood parks, and larger nonmotorized corridors in the nonmotorized plan. An example is a Century Trail-Century Valley Road connection via the nearby utility corridor. This could also provide a spur connection to Montebeller Park.

- Work with City of Ann Arbor, MDOT and WCRC to ensure long-term bridge replacement plans for US-23 include bicycle and pedestrian amenities along Washtenaw Avenue. Such a project could be cited in a complete streets plan.
- Consider the merits of a multi-jurisdictional Corridor Improvement Area, which can capture tax revenue increases for corridor improvements.

OBSERVATION #7

Roads like Packard have a shoulder that is not best suited for bicycling. The shoulder is divided between the one to two foot level travel area and an one foot curb and gutter area. Additionally, storm drains can catch a bike's tires, due to grating that parallels the road, causing a cyclist to fall. Essentially, the cyclist doesn't have enough room to ride unless occupying part of the travel lane.



(Left) The shoulder is not the best place to ride a bike on Packard. (Right) A close-up of a wheel-catching storm drain.

SHORT-TERM SOLUTIONS

- Consider replacing the storm drain covers with ones that have a criss-cross pattern, eliminating the potential for getting a bicycle tire wedged into the structure. A picture of such a drain cover is shown below:



LONG-TERM SOLUTION

- Consider a reconfiguration of lanes and the curb and gutter when redesigning the roadway. Narrowing the vehicular travel lanes to 11 feet may give more room for a bike lane, shared-use lane or wide shoulder. In some cases, the planter/furniture zone (the space between the sidewalk and the curb of the road) may need to be reduced to accommodate a bike facility. While in theory, the reduction of the planter/furniture zone can decrease the level of pedestrian comfort on the adjacent sidewalk, the new bike lane will act as a buffer between the pedestrian walkway and the roadway, providing a similar benefit to pedestrian comfort.

OBSERVATION #8

While not on the formal audit route, SEMCOG staff noticed a stop sign along the Platt Road shared-use side path (at Rosefield) that was very close to the road (see picture below). Such a sign may confuse drivers who think it is a traffic control device for vehicular traffic on Platt Road, rather than for bicyclists along the path.



SHORT-TERM SOLUTION

- A louver could be installed on the sign to obscure the viewing angle of the sign from Platt Road.

LONG-TERM SOLUTIONS

- Pavement markings and a median on the shared-use path could be used to reinforce a bicycle stop (as well as eliminate the need for the bollard), rather than relying on a stop sign
- Reconsider whether the stop sign is needed. Per the Manual of Uniform Traffic Control Devices (MUTCD), a yield sign (or no sign at all) may be appropriate depending on roadway and pathway characteristics. Such a determination would need to be made in a traffic safety study.

WALKABILITY/BIKEABILITY TECHNICAL AUDIT

SECTION 2: POSSIBLE IDEAS FOR THE TOWNSHIP MASTER PLAN

While not a part of the official technical audit, the team visited other parts of the township, looking at existing conditions and generating ideas for reaching the Township's goals of:

- Increasing the amount of people walking and biking,
- Increasing transit route extension viability, and
- Creating sustainable township centers.

Such ideas are by no means exhaustive and should not be considered the sole plan for redevelopment.

OBSERVATION #1

The Township wishes to create additional town centers on State Street.

- State Street is one of the radial streets extending south from downtown Ann Arbor and the University of Michigan. On the northern side of the Pittsfield Township-Ann Arbor border, the land use is characteristically suburban office and commercial. Upon entering Pittsfield Township, State Street is characteristically suburban industrial and undeveloped as seen in the pictures below. At Michigan Avenue, a new retail establishments are developing. The Township wishes to extend the existing bus route to Michigan Avenue as the corridor develops further. The area has potential for more intense land uses, yet currently the pedestrian and bicycle experience is mixed.



(Left) A suburban industrial office building. (Top right and left) "Birds-eye" views of the suburban industrial land use pattern. (Source maps: Bing.com)

- Sidewalks are new and wide, but discontinuous, due to installation as properties develop. Some sidewalks are only five to six feet in width, which is perfect for pedestrian-only facilities in a suburban corridor, but inadequate to serve as shared used paths.
- New buildings are set back far from the road and sidewalk, making shopping less pedestrian friendly and detracting from the user experience.



The Township's sidewalk standards for new developments are very progressive, providing wide paths and excellent crosswalk treatments, such as high-visibility crosswalks and pork chop islands for both pedestrians and cyclists. Yet, the pathways are not connected to the regional system and users must still traverse parking lots and vegetative landscaping to patronize local retail establishments.

- Land use in the corridor is separated and includes auto-oriented cul-de-sac style housing subdivision and undeveloped parcels requiring cars, bikes and pedestrians to travel farther to reach nearby establishments. In order to increase transit route extension viability and the town center development, multi-modal (i.e., auto, transit, bicycle, and pedestrian) interconnectivity should be pursued.



Intersection density and road connectivity is low in the State Street Corridor. (Source map: Bing.com)

LONG-TERM IDEAS

Since the Township clearly has sidewalk standards in place and has recently updated its building setback and parking standards, solutions in this area are more long term.

- Based on the available land and the desire to create a town center, a long-term idea would be to institute a gridded street network for future development.

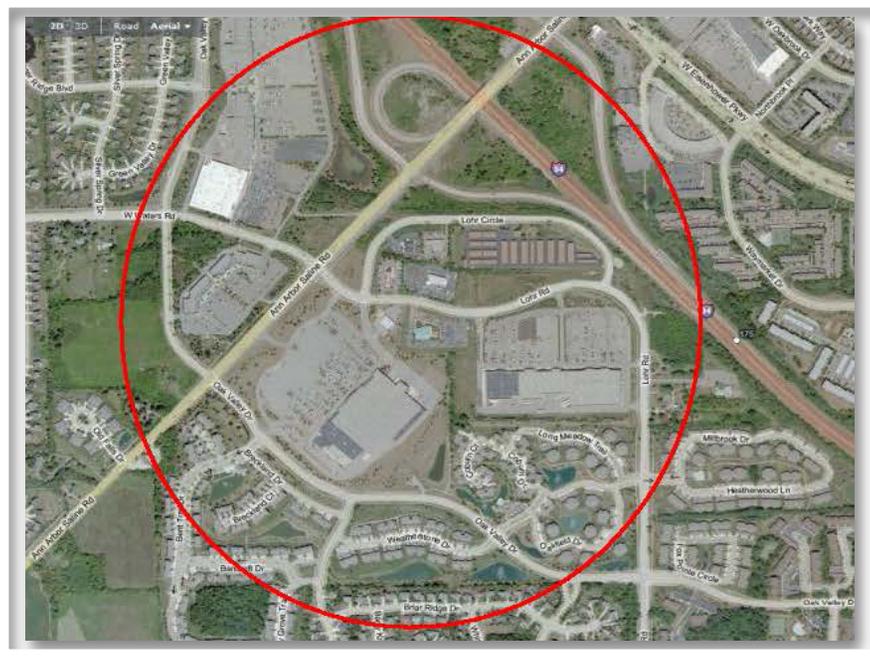
By instituting such a network, State Street would get a series of secondary streets which carry local traffic at slower speeds. Such traffic would be more compatible with bicycle and pedestrian travel (compared to State Street which has a 50 mile per hour speed limit), provide an opportunity for on-street parking, and complement town center land uses such as sidewalk cafes and other pedestrian-oriented developments.

The Township may be able to create such a network through coordinated Planned Unit Development (PUD) of parcels in the town center, after the plan is further investigated through a corridor study.

- Consider adding one or two pedestrian bicycle crossings over Ann Arbor Railroad to connect the State Street Township Center with recreation and development to the east, such as the Pittsfield Preserve and residential neighborhoods.
- Consider instituting building height minimums and encourage mixed-use buildings that pair complementary land uses, such as senior centers and grocery stores with pharmacies.
- Ensure the master plan and zoning ordinance discourage large front-yard building setbacks, front-yard surface parking lots, and buildings not oriented to the street (i.e., the front door is not accessible from the street, lacks street-level windows, etc.)
- Consider developing parking garages with non-parking uses on street level and top floors. Such garages supply ample parking, take up less surface space than surface lots, and allow for a better pedestrian environment.
- Consider Green Streets and Low Impact Development (LID) opportunities when redeveloping properties.

OBSERVATION #2

Ann Arbor-Saline Road is an intense highway-oriented commercial center ("the Center") that the Township wishes to redevelop.



This Township Center is adjacent to Interstate 94 and currently can be described as a highway-oriented development. (Source map: Bing.com)

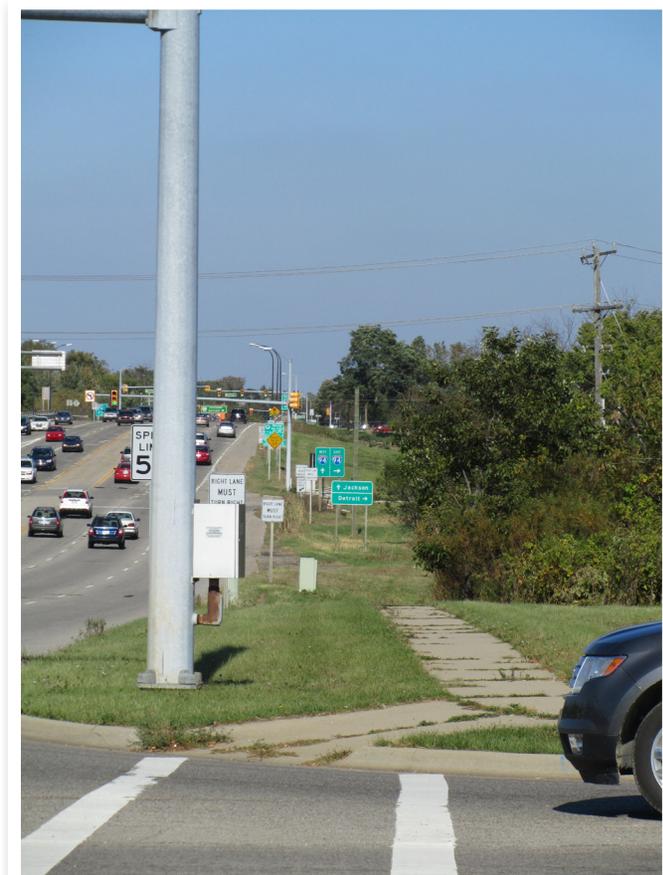
- Most traffic from the Center uses Ann Arbor-Saline Road to get to I-94.
- A bus line, which starts in downtown Ann Arbor, ends at this Center.
- Some of the retail parcels may be underperforming and may be ripe for redevelopment opportunities.
- Large tracts of front-yard parking and landscaping berms make the Center unfriendly to pedestrian-oriented shopping, despite wide sidewalks and adequate pedestrian crossing solutions.
- Sidewalk development is not contiguous but is installed as development occurs.
- I-94 serves as a major barrier to both bikes and pedestrians.
- Shopping centers seem isolated from each other and lack way finding signage to provide clear directions between facilities.



Pedestrian sidewalk amenities are good where installed, but the fractured nature of development and large front building setbacks still contribute to a pedestrian unfriendliness to the Center.



(Top and bottom) Ann Arbor-Saline road is very auto-oriented. Pedestrians must cross seven lanes of traffic, increasing their crash exposure rate with vehicles traveling at 50 miles per hour.



I-94 serves as a major road block to pedestrians and cyclists who wish to travel on Ann Arbor-Saline Road. Pedestrians do not have a pathway, bike lane, or shared use lane.

LONG TERM IDEAS

Solutions in this corridor will take some time and effort to reach fruition. The following is a list of some ideas to consider:

- Redesign collector roadways to be more bike and pedestrian friendly with lower posted speeds, narrower lanes, and bike lanes.
- Establish pedestrian scale buildings where there are currently landscaped berms along the roadway. Vehicular access can be given on new minor streets.
- Create a connected street network feeding into Ann Arbor-Saline Road, Lohr, Waters, and Oak Valley.
- Institute building height minimums and encourage mixed-use buildings with complementary land uses.
- Create/encourage parking garages with non-parking uses on street level and top floors.
- Redevelop properties and roadways with Green Streets and Low Impact Development (LID) principles.
- Work with the City of Ann Arbor, MDOT and WCRC to ensure long-term Ann Arbor-Saline Road bridge replacement over I-94 includes bicycle and pedestrian amenities. Such a project could be cited in a complete streets plan.

OBSERVATION #3

The Township wishes to create town centers along Michigan Avenue at the intersections of Carpenter Road, Platt Road, and State Street. The area has smaller commercial nodes surrounded by residential open space.



(Left) "Bird's eye" view of the intersection of Michigan Avenue and Platt Road. (Right) "Bird's eye" view of the intersection of Michigan Avenue and Carpenter Road. (Source maps: Bing.com)

LONG-TERM IDEAS

- Since these areas are in the more rural parts of the Township and are not planned to be served by transit, a hamlet development pattern may meet the spirit of the area. Hamlets are like town centers and downtowns, but are smaller and have less intense land use. Hamlets may include:

- One- or two-story buildings that have a more residential aesthetic
- Neighborhood retail, like small grocery stores and pharmacies
- Neighborhood restaurants or pubs
- Neighborhood services, like hair stylists, bed and breakfasts, or other services

The most important parts of this hamlet model are:

- Providing good pedestrian and bicyclist amenities such as sidewalks, paths, and signalized crosswalks (since speed limits on Michigan Avenue are between 45 and 55 miles per hour); and
 - Orienting buildings so they face and are easily accessible from the sidewalk and street.
- Include connections in the Township nonmotorized plan between housing, small neighborhood parks, and the larger nonmotorized corridors. A few that we noticed are:
 - A Shellbark Drive - Sycamore Drive connection; and
 - A Crane Road - Carpenter connection via land currently occupied by Arbor Meadows during a redevelopment opportunity.
 - The proposed US Bike Route 36, connecting Chicago with Detroit, follows a 50-mile swath that parallels the Michigan Avenue corridor. While no funding is currently attached to a bike route designation, if implemented, Pittsfield Township may be an area where touring cyclists could patronize local lodging, restaurants, and retail establishments. If the Township is interested in helping to implement such a route, it should coordinate with other communities in the corridor and MDOT.

SUMMARY

Pittsfield Township is a community with great potential and excellent leadership. The community has developed good policies to steer future development. Many short-term solutions are already being enacted. Long-term goals can be realized by continued dialogue with adjacent communities, the road and transit agencies, and a complete streets ordinance and plan.

The Township's master plan is quite ambitious and admirable; however, given the large geographic area, the Township should consider prioritizing or targeting which township centers will receive community resources first, so that designated centers can reach critical masses sooner through economies of scale.

FIGURE 1: TRANSIT PLAN

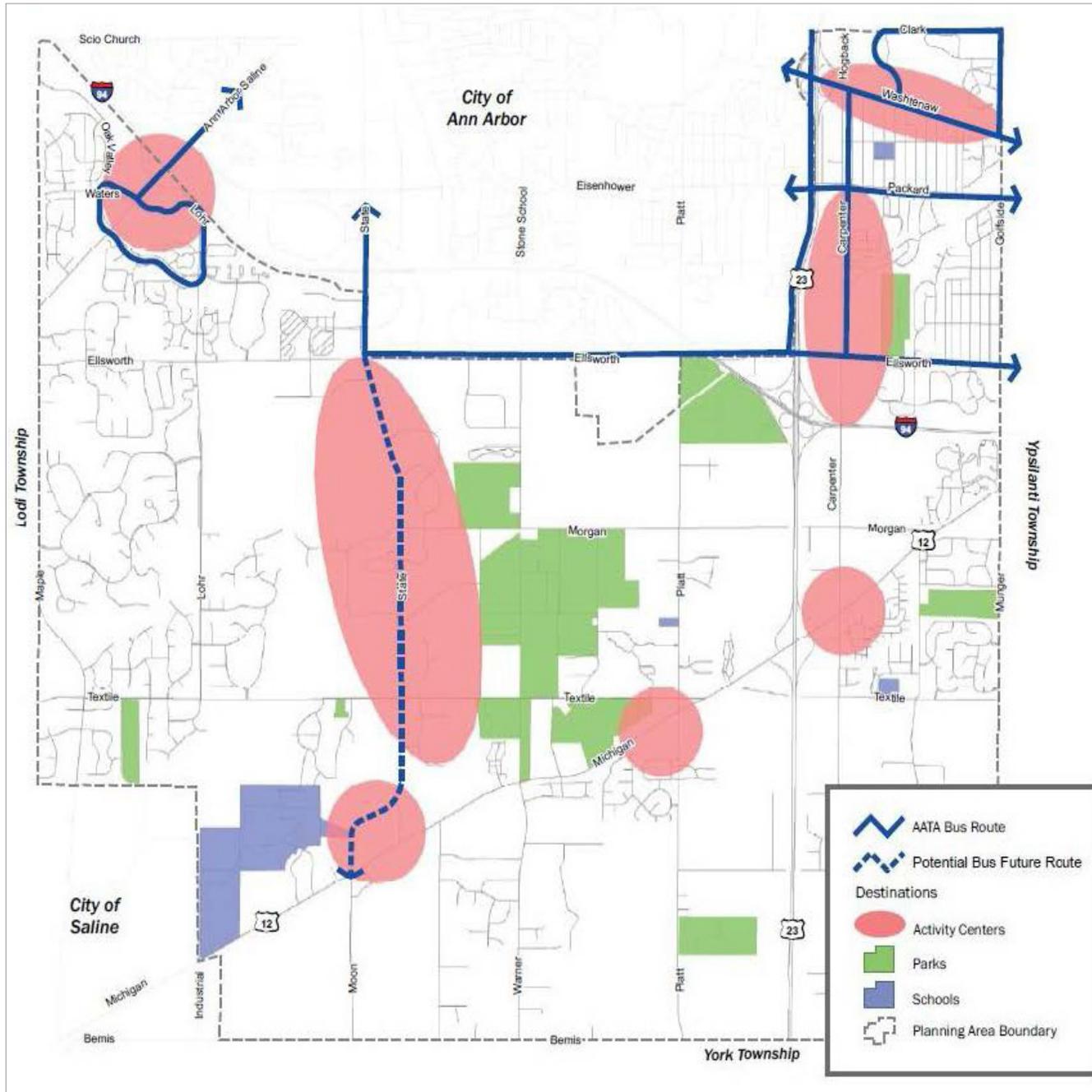


FIGURE 2: NONMOTORIZED PLAN

