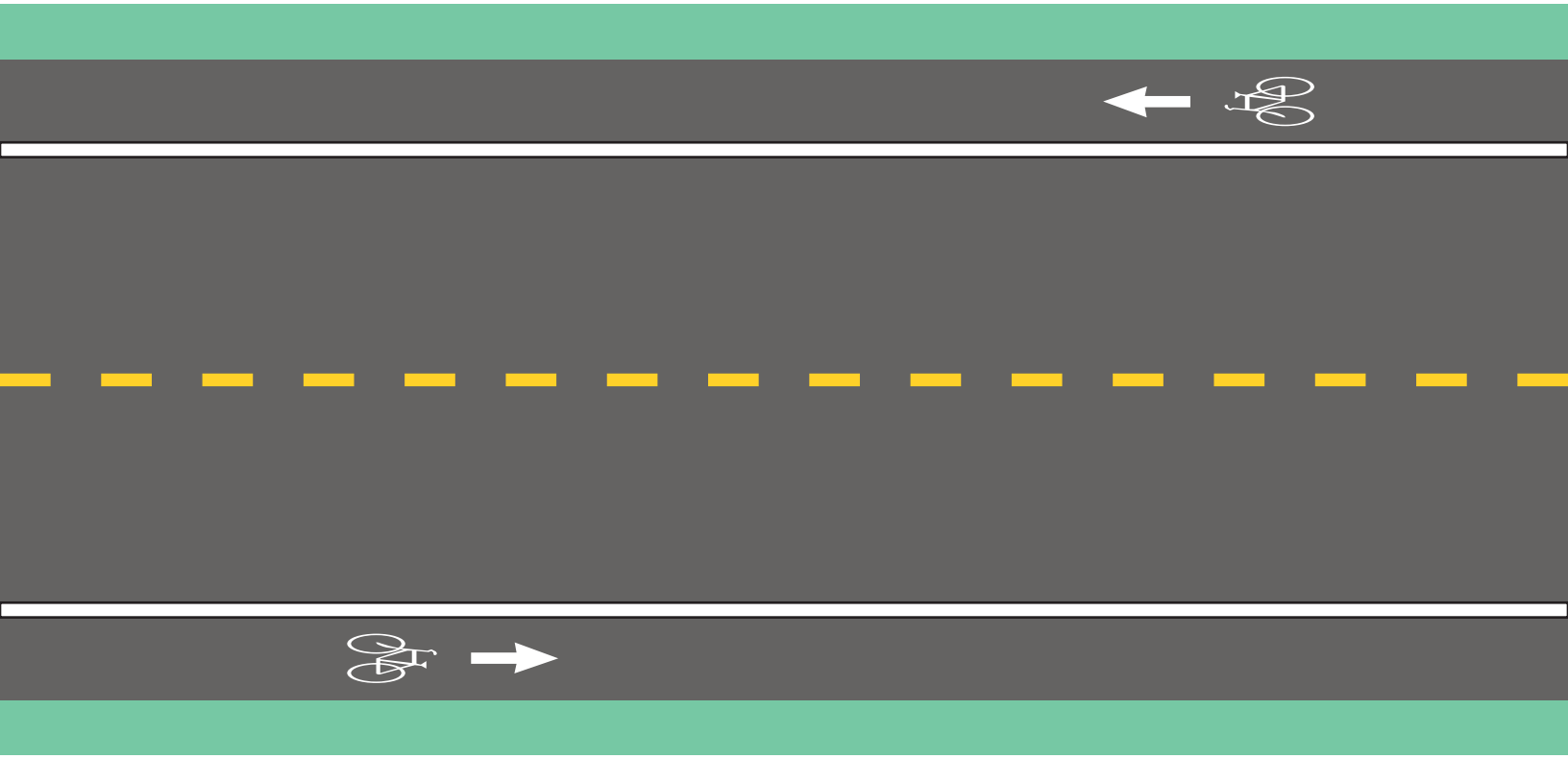
THE 2016 DELHI TOWNSHIP NON-MOTORIZED TRANSPORTATION PLAN



DELHI CHARTER TOWNSHIP

WRITTEN BY

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APPROVED BY

DELHI TOWNSHIP PLANNING COMMISSION

AUTHORIZED BY

DELHI TOWNSHIP BOARD OF TRUSTEES

ADOPTED

[INSERT ADOPTION DATE UPON ADOPTION]

THE 2016 DELHI TOWNSHIP NON-MOTORIZED TRANSPORTATION PLAN

ACKNOWLEDGMENTS

This NMTP has been generated over a period of several months with much planning, study and input. We would therefore like to thank the following agencies or committees for their input, cooperation, support and commitments to the Delhi NMTP:

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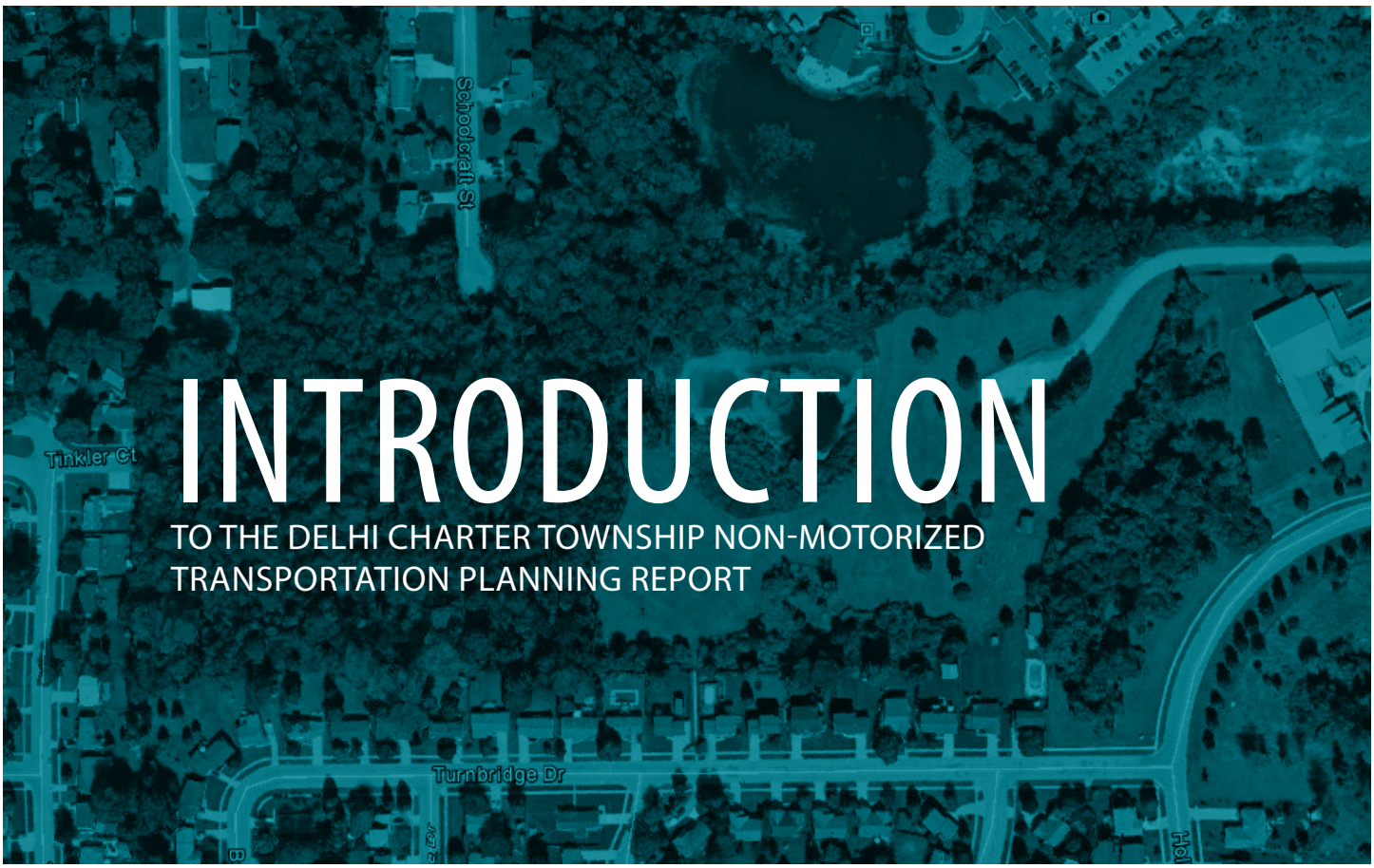


INTRODUCTION

TO THE DELHI CHARTER TOWNSHIP NON-MOTORIZED TRANSPORTATION PLANNING REPORT

A CASE FOR NON-MOTORIZED TRANSPORTATION

For many decades, "mobility" has been the crown jewel of the transportation industry. With the dawn of the automobile, Americans have enjoyed an unprecedented freedom in mobility unlike any other time before. The car opened up opportunities for economic expansion, personal recreation, and access to resources that were previously unavailable. Consider going grocery shopping without your personal vehicle. Or imagine what it was like to visit Yellowstone before the car. And imagine all of the job opportunities within a 50 mile radius that would have been unavailable to most people before the automobile. It is obvious that the automobile has transformed our society in many positive ways.

At the same time, the rise of the automobile in our society has contributed to the decline of mobility at the pedestrian scale. Vehicular dominance has resulted in spread-out developments, far-flung

subdivisions isolated from community assets, and stretched out commercial corridors. It has also culminated in the preferential planning of car-centric roadways that prioritize efficient movement of vehicles with little regard for other modes of transportation. Faster, wider roads, stretching for greater distances, intersecting cities and towns, have become the standard. The end result is that walking to school, your friend's house, your community center, your community park, your grocery store, or your favorite shop has become difficult, if not impossible. With everything spread out and too dangerous to get to on foot, Americans have lost personal mobility within their communities. Their communities are no longer "walkable."

IMPACT OF UNWALKABLE COMMUNITIES

A community that is unwalkable can be dangerous, unwelcoming, unfriendly and physically and socially disconnected. In an unwalkable community there are limited opportunities for community members to interact on a day-to-day basis. People don't feel safe allowing their children to play outside because of the threat of vehicular traffic. The costs associated with owning and operating a vehicle are forced upon residents because they have no other option. In an unwalkable community, essential services such as grocery stores, schools and medical services are either too far away to walk to or would be too dangerous to attempt to navigate to through the roadways and parking lots that prioritize vehicular travel. Unwalkable communities can contribute to chronic diseases associated with obesity and poor cardiovascular health.

IMPACT OF WALKABLE COMMUNITIES

In a walkable community pedestrians are given priority in neighborhood, work, school and shopping areas. People of all ages and abilities are given access to their community's gathering places, amenities, and resources. Walkable communities lead to more social interaction, physical fitness, and diminished crime and other social problems. This leads to communities and neighborhoods that are safer, healthier and friendlier. Traffic calming measures are used to reduce vehicle speeds. Parents feel more comfortable about their children being outside in their neighborhoods with the reduced threat of motor vehicles. Children spend more time outside with other children so they are more active, physically fit and healthy.

A walkable community also provides non-motorized access to education and employment. Economically, socially or physically disadvantaged students/workers who don't have access to or can't afford a vehicle now have a means to not only improve themselves, but through being a contributing member of the workforce, help to better the economy of the community as whole. Walkable communities are more livable communities and lead to whole, happy, healthy lives for the people who live in them.

NON-MOTORIZED, ACTIVE, HUMAN-POWERED?

The terms non-motorized transportation system and active transportation system as well as other terms such as human powered transportation system can be used interchangeably. However the use of negatives like the "non" in non-motorized can sometimes give a perception that the non-motorized system is fighting against the motorized or vehicular system, when in fact, if designed properly, the non-motorized and motorized systems should work together to create a unified and all-inclusive transportation system. The use of the term "active" is thought to take away this adversarial connotation and re-orient the terminology to emphasize physical activity, which is an important issue throughout the United States. More and more industry experts and agencies are using the term "active transportation" side-by-side with "non-motorized", and some entities, such as the National Parks and Recreation Association, have dropped "non-motorized" completely in favor of "active transportation".

WHAT MAKES UP A NON-MOTORIZED TRANSPORTATION SYSTEM (NMTS)?

A Non-Motorized Transportation System (NMTS) is made up of a network of infrastructure like sidewalks, pathways, and bicycle lanes that connect people to places, businesses, and resources throughout the community. It works in concert with the roadway infrastructure, but also spans the gaps where the road network does not exist. While NMTS infrastructure may look different from community to community, there are a few basic types of infrastructure that are common to most non-motorized transportation systems.

SIDEWALK

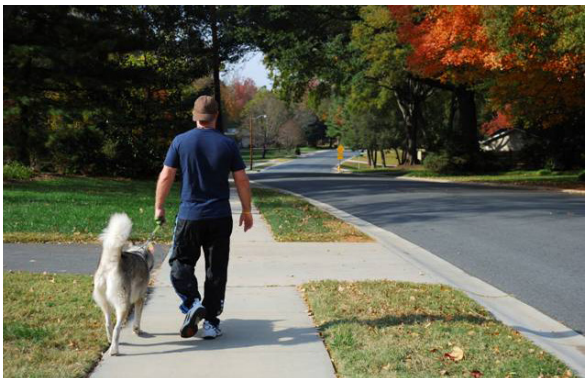


Photo 1: Sidewalk

A sidewalk is the portion of public right of way between the street and the adjacent properties that is paved or improved and intended for use by pedestrians (although many other types of users usually use them, too). Sidewalks have these common characteristics:

- A paved area 5 to 6 feet wide. (ADA standard is 5 feet).
- Typically concrete, though other materials may be used, such as brick or asphalt.
- Often built by developers as part of their projects, though sometimes they are built by the city or municipality. It is common to have gaps between sections of sidewalks.
- Ordinances often place the burden of maintenance and replacement on the adjacent property owners.
- Ordinances often prohibit use of the sidewalk by anyone but pedestrians.

BICYCLE LANE

Photo 2: Bike lane along a roadway

A bicycle lane is a designated lane of traffic within the roadway that is specifically limited to bicycle use. It is considered the preferred facility for bicycles for two primary reasons: 1) mixing fast bicyclists and slow pedestrians can result in dangerous collisions or conflicts of use, 2) bicycles are more visible to vehicles at intersections when the bicyclists ride in the road as opposed to on a pathway that is adjacent to the road. Bicycle lanes have these common characteristics:

- 5' minimum width when curb is present (AASHTO).
- 4' minimum width with no curb (AASHTO).
- Greater than 5' is preferred depending on the context of the roadway.
- Designated with markings, arrows, and signage (AASHTO).
- Green lane coloring may be used (AASHTO).

SHARED USE PATH

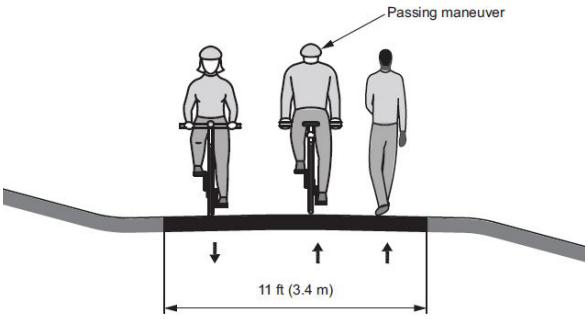


Photo 3: Cross-section of a shared-use path

A shared use path is a multi-use facility for non-motorized traffic that extends the non-motorized transportation system beyond the road right of way. All types of non-motorized users, including bicyclists, rollerbladers, skateboarders, walkers, runners, and push scooters, are encouraged to share the same path. Shared use paths are commonly referred to as "trails," and are often given names with the word "Trail" in them, but they are not technically trails. Trails are typically natural, "unimproved," or unpaved pathways. Shared use paths are always paved, have specific design criteria, and don't always extend through natural environments. Shared use paths have these common characteristics:

- Min. recommended width (AASHTO) is 10' for two way traffic. Up to 14' wide is common.
- Min. recommended width (AASHTO) is 11' for two way traffic with bicyclist passing in the center.
- Smaller widths to as little as 8' are allowed (AASHTO), though only in low traffic volume scenarios with limited maintenance vehicle loading.
- May split the path to segregate uses (AASHTO) using a minimum of 5' for the pedestrian portion and 10' for the bicycle portion. These segregated lanes can be adjacent to

each other or physically separated.
- Typically asphalt, though concrete or other materials may be used.
- Inclusion of a shared use path is complementary to bicycle lanes or other types of bicycle facilities in the road right of way and should not be considered a replacement for those facilities

SIDE PATH

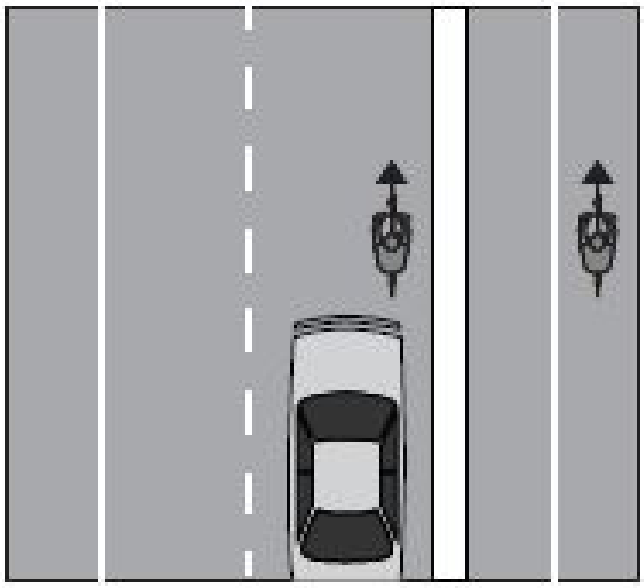


Photo 4: Example of side path running parallel to a roadway

A side path is like a sidewalk, but it is intended for more than pedestrians. It is found parallel to the roadway in the public right of way, but it behaves more like a shared use path. Bicyclists, rollerbladers, and other types of people are allowed to use the side path alongside pedestrians. In order to accommodate the varied uses, side paths are wider. Often a side path is simply a shared use path that has a portion of the path routed alongside a road. Side paths have these common characteristics:

- A two-way side path uses the same design criteria (AASHTO) as a shared use path (see Shared Use Path).
- A two way side path is typically only on one side of the road.
- A one-way side path may be smaller than the typical shared use path. Design criteria is based on the context of the site.
- One-way side paths must be placed on both sides of the road to accommodate proper traffic patterns. Signage must be present to identify one-way usage (AASHTO).
- Typically asphalt, though concrete or other materials may be used.
- Inclusion of a side path is complementary to bicycle lanes or other types of bicycle facilities in the road right of way and should not be considered a replacement for those facilities.

PAVED SHOULDERS

Photo 5: Paved shoulder along roadway

The "paved shoulder" is the portion of paved roadway outside of the white line on the right side of the road. Paved shoulders are not travel lanes and they are typically designed for temporary parking, emergency pullovers, and emergency access. They can be a variety of widths; some paved shoulders are only 6", others are greater than 8'. While paved shoulders are not intended to be used as travel lanes, they can be an excellent facility for bicyclists (and sometimes pedestrians) to utilize under certain circumstances, acting as unofficial bike lanes. For paved shoulders to be used in an NMTS, they should have these common characteristics:

- 4' minimum width when no curb is present (AASHTO).
- 5' minimum width when curb or other vertical elements (such as guard rails) are present (AASHTO).
- On roads with speeds over 50 mph, widths greater than 5' should be utilized (AASHTO).
- Provided on both sides of the road (AASHTO).
- 4' minimum shoulder maintained at bypass lanes (AASHTO).

SHARED LANES

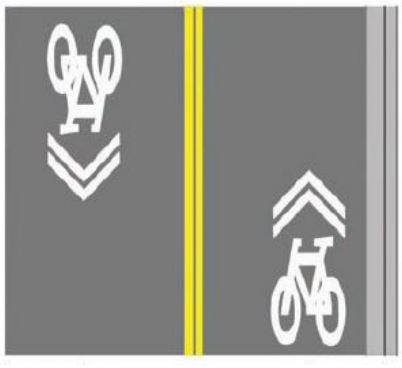


Photo 6: Example of shared lane pavement markings

A shared lane is a lane in a road that is used by both bicyclists and automobiles. What many people don't know, however, is that all roads by default are "shared," except where prohibited by regulation or statute. Bicycles are considered legal vehicles and are allowed to utilize all lanes of traffic like a car. However, some automobile drivers don't know this and they treat bicyclists as if they belong in the ditch rather than on the road. "Shared lanes" are therefore enhanced lanes that facilitate bicycle use and promote greater awareness and respect for bicycle traffic. Enhanced "shared lanes" have these common characteristics:

- Typically only implemented on low-speed roads, 35 mph or less.
- Lane markings added to the middle of the driving lane to indicate bicycle usage is permitted and expected. Can be positioned to indicate approximate expected bicycle position within the lane to facilitate safer passing practices.
- Signage to signal to drivers that bicyclists may be entering the roadway and/or that they have the right to use the entire lane.
- Additional roadway designs to facilitate bicycle use such as: bicycle detectors at intersection signals, appropriate signal timing for bicycle speeds, storm drain modifications, and other enhancements.

WAYFINDING

Wayfinding signs are important tools in identifying routes and helping people reach their destinations. At the pedestrian and bicycle level, these signs are small and meant to be read at lower speeds. AASHTO provides guidance on wayfinding signs for bicycle facilities that can easily be incorporated into defined bicycle routes. Signs for pedestrians are often designed by the communities based on the context of the surroundings (downtown, parks, etc) and often take on a variety of forms. It is also important to consider how to use wayfinding signs to direct vehicular traffic to certain facilities, such as parks or trail heads, in order to facilitate easy access for those who may choose to drive to a certain location along the non-motorized transportation network.

Photo 7: Example of a wayfinding sign

CONTROLLED CROSSINGS

In locations where the non-motorized transportation facilities intersect with other, certain crossings improvements should be considered to enhance safety. All crossings should be authorized by and coordinated with the proper transportation authority. Typical crossings include:

- **Railroad crossings:** A portion of bicycle lane or pathway that is designed to intersect railroad tracks at a 90 degree angle. This allows wheels to cross the tracks without getting caught between in the grooves. Crossing railroads at a sharper angle can trap the wheel in the track and cause the rider to lose control.
- **Mid-block crossings:** A crossing point positioned in the middle of a block rather than at an intersection. These crossings provide places to safely cross a road where traveling to the next intersection is impractical. They take on many forms and are designed to each specific situation.
- **Striped crossings:** A painted area that is typically accompanied by signage to indicate legal pedestrian crossings on roadways. Used as a low-cost first step in creating a safer controlled crossing. Often used by itself or in tandem with signalization.
- **Rectangular Rapid Flash Beacon (RRFB):** A crossing sign with pedestrian-activated, flashing lights mounted on the same post. Used to make mid-block crossings more visible where moderate traffic volumes are present. Requires traffic

study to determine need.

- **HAWK or PHB crossings:** An overhead, standalone traffic light, activated by pedestrians, typically in high traffic volume situations at mid-block crossings or at roundabouts. Used to temporarily stop traffic, allowing pedestrians to cross the road safely. Requires traffic study to determine need.

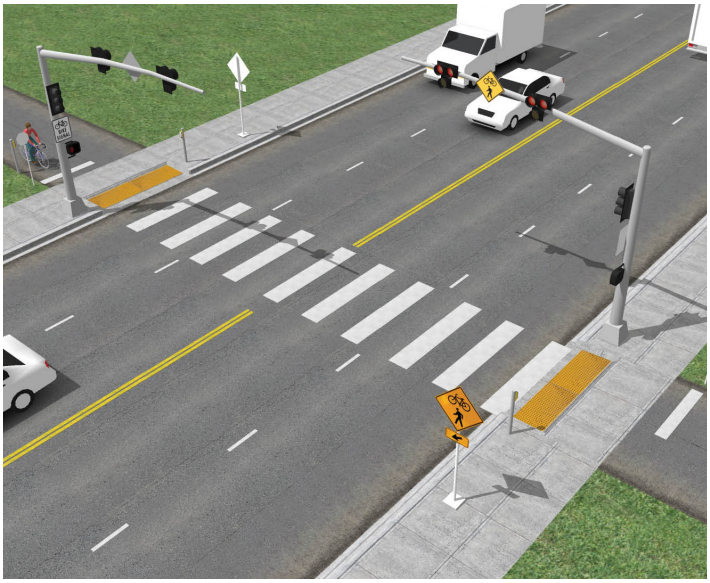


Photo 8: Mid-block crossing with HAWK signal

ROAD IMPROVEMENTS

RETROFIT

A retrofit expands the existing roadway to accommodate bike lanes or paved shoulders by adding material to the outer edges of the existing pavement. Retrofits are appropriate in situations where the road still has plenty of life left in it and can simply be modified to include bicycle facilities.

LANE CONVERSIONS

Sometimes it is possible to add bicycle facilities, such as paved shoulders or bike lanes, to existing roadways by just changing the striping on the road. It could be as simple as reducing lane widths and making room for a bike lane, or it could be more complicated like in the case of a road diet on a 4 lane road where the outer lanes are eliminated, a center turn lane is added, and the balance of roadway is used for bike lanes.

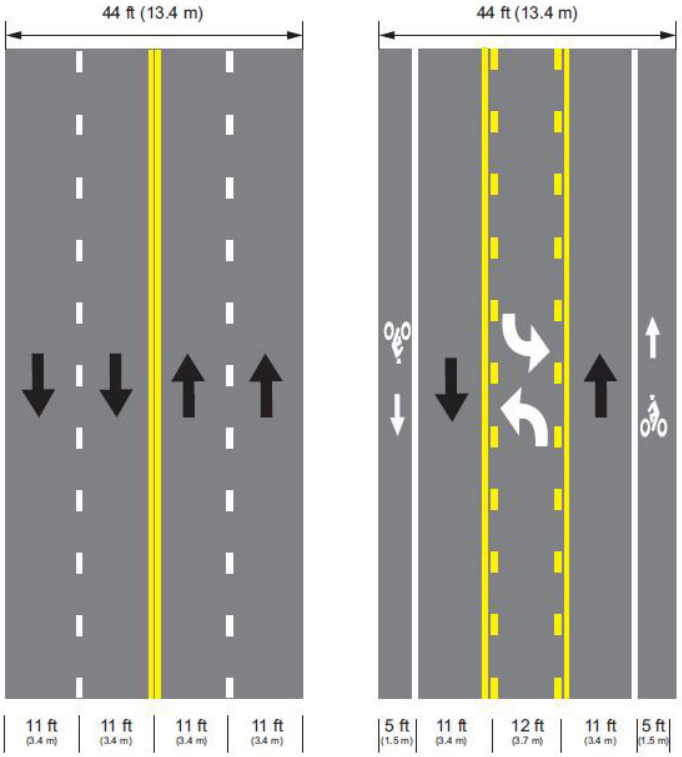


Photo 9: Example of lane conversion scenario

BICYCLE BOULEVARDS

A bicycle boulevard is a series of contiguous street segments that create a seamless bike thoroughfare through a particular portion of a community. The streetscape along a bicycle boulevard is modified to restrict vehicle use and slow traffic while at the same time increase bicycle transportation efficiency and safety.

Photo 10: Bicycle boulevard

RELATED TERMS AND DEFINITIONS

EASEMENT

An interest in land owned by another that entitles its holder to a specific limited use or enjoyment.

RIGHT-OF-WAY

A right-to-make a way over a piece of land, usually to and from another piece of land. A right-of-way is a type of easement granted or reserved over the land for transportation purposes, this can be for a highway, public footpath, rail transport, canal, as well as electrical transmission lines, oil and gas pipelines. A right-of-way is reserved for the purposes of maintenance or expansion of existing services within the right-of-way. In the case of an easement, it may revert to its original owners if the facility is abandoned.

WALKABLE/WALKABILITY

A measure of how friendly an area is to walking. Factors influencing walkability include the presence or absence and quality of footpaths, sidewalks or other pedestrian rights-of-way, traffic and road conditions, land use patterns, building accessibility, and safety.

Photo 1: UNC-Chapel Hill Highway Safety Research Center, Vanasse Hangen Brustlin Inc. Westat. (October 2010). *Pedestrian Safety Strategic Plan: Recommendations for Research and Product Development.* page 52

Photo 2: *Class II.* digital image. *Silicon Valley Bicycle Coalition.* web. 10/21/2016. https://bikesiliconvalley.org/bikeway-design/

Photo 3: ASHTO. (2012). *Guide for Development of Bicycle Facilities*

Photo 4: ASHTO. (2012). *Guide for Development of Bicycle Facilities*

Photo 5: *Trail/Shared Use Path (Paved)*. digital image. iowadot.gov. web. 10/21/2016. http://www.iowadot.gov/iowabikes/bikemap/PavedShoulder.html

Photo 6: ASHTO. (2012). *Guide for Development of Bicycle Facilities*

Photo 7: Michael Farrell, COG/TPB. (DRAFT May 15, 2007). *Best Practices in Bicycle and Pedestrian Wayfinding in the Washington Region.* Page 6

Photo 8: NACTO. (March 2014). *Urban Bikeway Design Guide, Second Edition*

Photo 9: ASHTO. (2012). *Guide for Development of Bicycle Facilities*

Photo 10: Digital Image. *tcsidewalks.blogspot.com*. web. 10/21/2016. http://tcsidewalks.blogspot.com/2012/04/last-minute-amendment-strips-traffic.html

PLANNING

PAST, PRESENT, AND FUTURE

A LOOK AT THE 2007 NON-MOTORIZED TRANSPORTATION PLAN

In 2007, Delhi Township developed its first non-motorized transportation plan. The plan was developed in recognition of the growing demand for more walkable communities and the trending national health crisis related to inactivity.

A thorough public engagement process was used to inform the 2007 plan. With the use of the website, news coverage, and newspaper advertisements, the public was made aware of the process. Large numbers of residents responded to the information and provided letters of support for the planning project. In addition, two public meetings were held in the fall of 2006 to allow for public comment. There was overwhelming support for the plan. The input resulted in constructive modifications to the plan that enhanced the end product.

In addition, a steering committee was formed to inform the planning process. The steering committee was made up of a variety of local and state agencies and township residents. These same agencies were convened for the 2016 update.

2016 UPDATE PLANNING PROCESS

For the past ten years, the 2007 plan has guided millions of dollars worth of community investments aimed at improving non-motorized transportation access throughout the community. The map on the following page shows the portions of the original plan that have been completed as of 2016. All of these completed projects were among the 2007 Phase 1 priority projects

While many of the Phase 1 priorities have not yet been completed, new opportunities and phasing priorities have emerged since the original plan was written. Delhi Township recognized that after ten years of successful use, the 2007 plan was in need of an update.

PUBLIC ENGAGEMENT

Since this 2016 plan is an update to a previously well-supported and highly engaged public planning process, only one public meeting was held to gather input. The majority of the critical community decisions had been made during the 2007 plan, so this 2016 update was intended to support and expand upon those decisions with new information that had arisen over the past 10 years.

An official public hearing was held on November 28, 2016 to allow for the community to review the plan updates and provide comment. These comments included the following remarks:

- [insert public comments]

STEERING COMMITTEE MEETINGS

This update heavily relied upon a series of steering committee meetings with representatives from local and state agencies, including township officials. The meetings were open to the public and advertised on the township website.

The steering committee model was determined to be the best method for gathering input to shape this plan. Township officials have been in continuous communication with their constituents over the past ten years of implementing the 2007 plan and it was determined that their extensive knowledge of the community's needs would provide a good channel for input for the 2016 update process.

The steering committee was formed from the original steering committee agencies that were involved in the 2007 plan. These agencies included:

- Delhi Administration
- Delhi Township Parks and Recreation Commission
- Delhi Township Board of Trustees
- Delhi Township Community Development Department
- Delhi Township Parks and Recreation Department
- Delhi Township Public Service Department
- Delhi Township Downtown Development Authority
- Holt Public School District
- Ingham County Parks and Recreation
- Ingham County Road Commission
- Ingham County Drain Commission
- Michigan Department of Transportation (MDOT)

The steering committee met monthly on the following dates:

- June 7, 2016 - reviewed the 2007 plan and the completed projects.
- July 11, 2016 - discussed an updated framework and potential additions to the plan.
- August 8, 2016 - prioritized future projects.

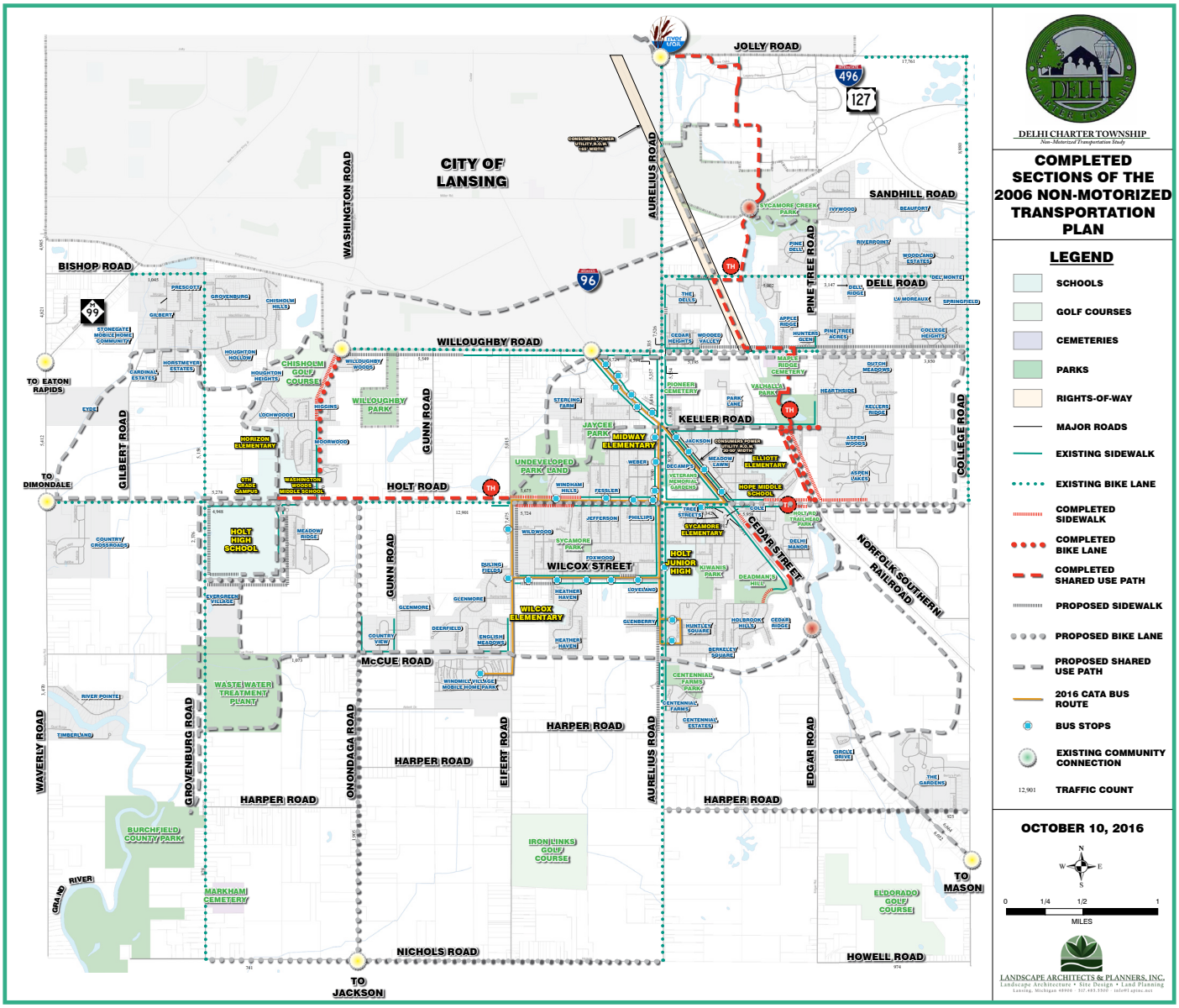
FOCUS GROUP MEETING

A meeting was held with the Tri-County Bicycle Association on July 20th, 2016. This meeting was used to review the plan and identify the needs of local bicyclists.

LOCAL PLANNING REPORTS

The following local planning reports were consulted in order to inform this plan:

- MDOT University Region Transportation Plan
- Design Lansing 2012 Comprehensive Plan
- City of East Lansing Non-Motorized Transportation Plan 2011
- MSU Campus Master Plan 2011 Update
- Tri-County Regional 2040 Transportation Plan
- Non-Motorized Trail Connection Feasibility Study: Delhi Township to Mason Connector Trail 2014
- Delhi Township 2007 Non-Motorized Transportation Plan
- Delhi Township Community Recreation Plan 2015-2020



The completed projects have opened up a variety opportunities for community members to travel throughout the township.

COMPLETED PROJECTS FROM 2007 NMTP

Over 6.7 miles of paths, 3 miles of sidewalks, and 1.5 miles of bike lanes, among other improvements, were installed between 2007 and 2016. This plan shows the projects as originally identified in the 2007 plan with actual completed projects shown in red.

OTHER SOURCES OF INFORMATION

Some municipalities do not have non-motorized transportation plans. Information for these municipalities was extracted from local knowledge, municipal websites, references in other planning reports, and site visits.

GOALS AND OBJECTIVES FOR 2016 AND BEYOND

The following goals and objectives were used in the development of the 2016 Non-Motorized Transportation Plan. These goals look to the future and seek to improve and expand upon the non-motorized transportation system that Delhi Township established in 2007.

1. **Create a non-motorized transportation system, also called an "active transportation system," within the township in which traveling by walking, biking, and other non-motorized transportation options are just as or more convenient than traveling by passive transportation options, such as by car or bus.**
   a. Provide a variety of transportation options that accommodate as many modes of non-motorized transportation as possible.
   b. Provide all residents access to the non-motorized transportation system from their neighborhoods.
   c. Route the non-motorized transportation system to reach all of the township's diverse destinations.
   d. Route the non-motorized transportation system to connect to adjacent communities.
   e. Bridge gaps in the system to create a continuous network of travel route options.

2. **Provide a non-motorized transportation system that is equitable.**
   a. Distribute the non-motorized transportation system to reach as many residents as possible.
   b. Create non-motorized transportation infrastructure that is accessible and usable by people of all abilities and walks of life.
   c. Create a non-motorized transportation system that does not require motorized transportation to reach (whether by bus, car or otherwise).

3. **Provide a non-motorized transportation system that is enjoyable to use.**
   a. Prioritize routing options that are scenic or otherwise have positive aesthetic values.
   b. Design the environment surrounding the non-motorized transportation infrastructure to be aesthetically pleasing where it is otherwise not.
   c. Create a non-motorized transportation network that incorporates support facilities that accommodate recreational uses.
   d. Design the non-motorized transportation facilities to promote and facilitate social uses.
   e. Develop the non-motorized transportation system so that it is comfortable and clean.

4. **Provide a non-motorized transportation system that is integrated with other transportation options.**
   a. Provide connections to the CATA Bus Route throughout the township.
   b. Provide vehicular access at strategic locations (for example: trail heads and commuter parking lots).
   c. Provide connections to future forms of public transportation as they become available in the township.

5. **Develop a non-motorized transportation system that incorporates environmentally responsible practices into the planning, design, and construction of the system.**
   a. Adopt holistic policies that define non-motorized transportation corridors as part of complex, overlapping environmental systems which should be supported, enhanced,

conserved, preserved, and/or protected through the planning, design, and construction of the non-motorized transportation network.

b. Utilize products and materials that reduce or eliminate adverse effects to the environment, such as:
   i. Use products and materials that are responsibly harvested, managed, and manufactured.
   ii. Use products and materials with low embodied energy.

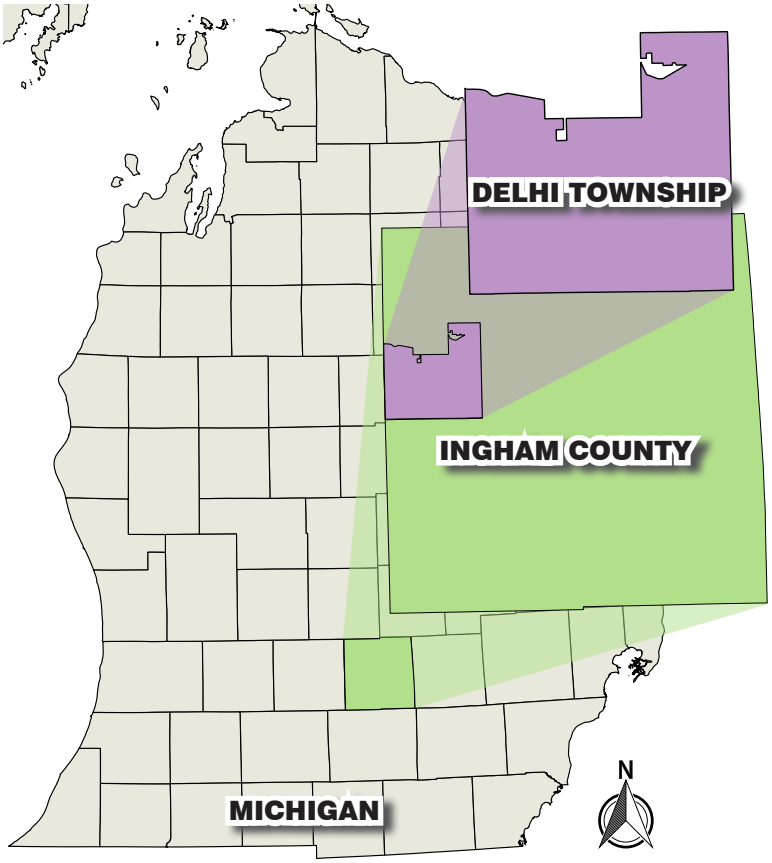
c. Implement design, construction, and management practices that support healthy environments and ecosystems along the non-motorized transportation route, such as:
   i. Use the non-motorized transportation network, especially trail routes, to create natural habitat corridors that connect habitat fragments.
   ii. Actively manage the natural environment around the non-motorized transportation network to reduce the impact and spread of invasive species.
   iii. Utilize land along the non-motorized transportation network to develop habitat that supports a diversity of plant and animal species, especially critically important species such as honey bees.
   iv. Plant trees and other vegetation along the non-motorized transportation system to improve the local micro-climate and air quality for users.
   v. Implement Low Impact Development techniques throughout the non-motorized transportation network to appropriately manage storm water and reduce system loads on the existing storm water system.

6. **Develop a non-motorized transportation system that is safe for all users.**
   a. Adopt policies that prioritize the safety of non-motorized transportation users throughout the various interconnected transportation networks.
   b. Work with the Ingham County Road Commission to implement pedestrian safety measures along roadways, especially at road crossings.
   c. Implement traffic calming techniques where appropriate to make the public right of way (public realm) safer and more welcoming to non-motorized users.
   d. Use up-to-date national, state, and local standards when designing and implementing the non-motorized transportation system.
   e. Address safety concerns in existing infrastructure, especially at road intersections and places where multiple modes of transportation converge.

7. **Maintain the infrastructure of the non-motorized transportation system to such standards that continually fulfill the goals and objectives of this plan and uphold the health, safety and welfare of the users of the non-motorized transportation network.**
   a. Develop regular (daily, weekly, monthly, and annual), periodic (every 2 years, 5, years, 10 years) and long-term (end-of-life) maintenance programs for the non-motorized transportation system.
   b. Utilize appropriate funding mechanisms to adequately fund the maintenance programs.
   c. Provide adequate training to maintenance staff to enable them to successfully implement the various maintenance activities required throughout the life-cycle of the non-motorized transportation system.
   d. Establish partnerships with other government agencies, non-profit organizations, private companies, or individuals to creatively manage and implement maintenance programs.

EXISTING CONDITIONS

UNDERSTANDING DELHI TODAY



Above: Map of Study Area

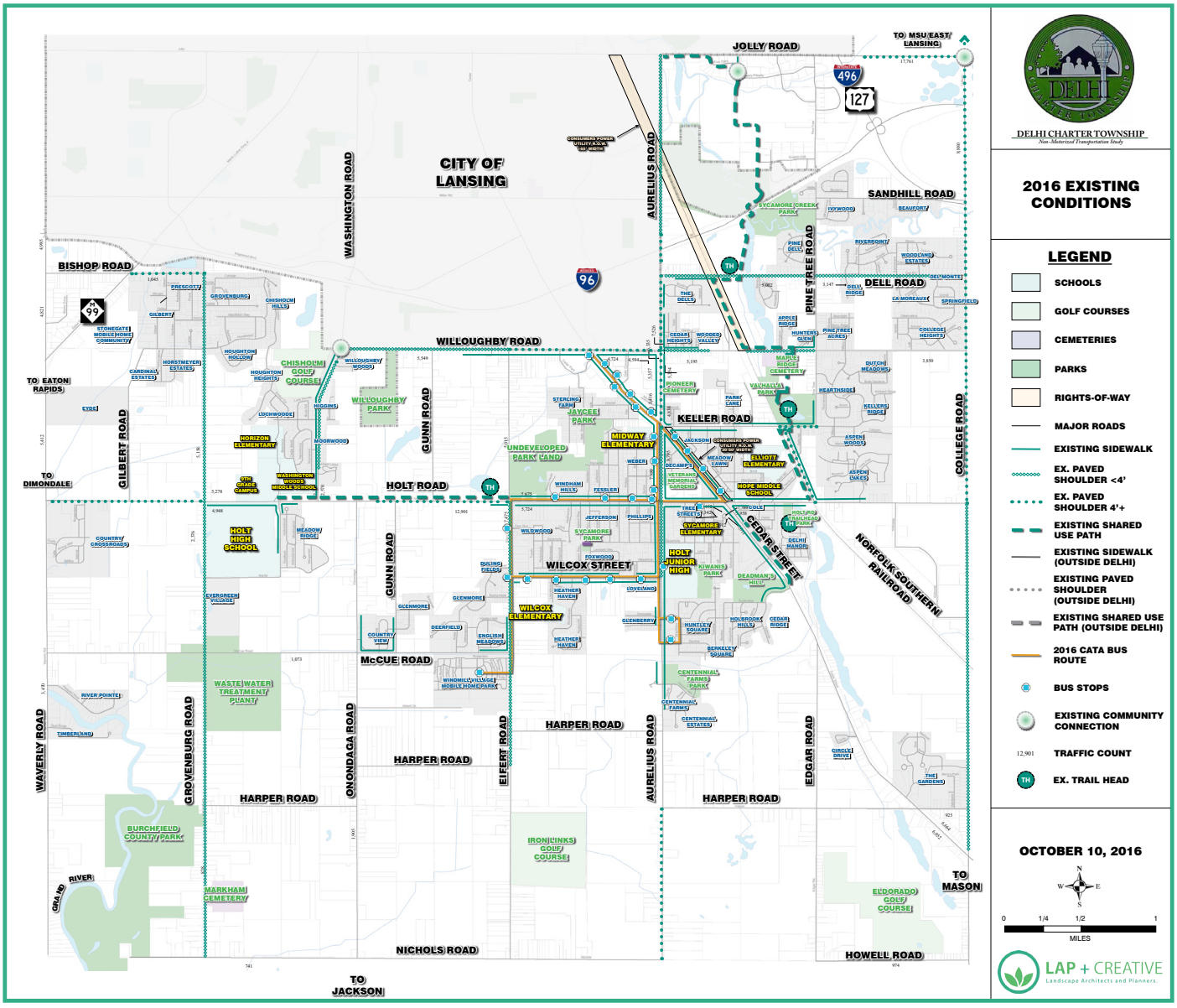
STUDY AREA

Delhi Township is a township of Michigan. It is located in the northwest quadrant of Ingham County at T3N, R2W and comprises approximately 28.5 square miles. The Township boundaries are as follows: Nichols Road to the south, Waverly Road to the west, College Road to the east, and then a combination of Jolly Road, Aurelius Road, Willoughby Road and I-96 to the north.

CHARACTER OF DELHI TOWNSHIP

Delhi Township has been in existence for over 170 years. It was historically an agrarian community and has since developed into a popular community for families to settle into in the Lansing Area. It has small pockets of commercial development, expansive farmland, a mixture of traditional, suburban, and rural neighborhoods, a strong school system, and a well maintained park system.

The "Triangle," which is formed by Aurelius Road, Cedar Street, and Holt Road, is located within the



The existing non-motorized transportation network has proven to be an effective way to travel throughout the township.

EXISTING CONDITIONS MAP

Delhi Township has a number of schools, parks, neighborhoods, and commercial areas within its boundaries. This map shows the existing non-motorized transportation network overlaid on the township map. While there are still gaps in the network, the non-motorized transportation system reaches many of the township's neighborhoods and community resources.

"urban" center of the township and is currently the subject of an extensive planning effort to reinvent the commercial landscape of Delhi Township. As this new development model unfolds, additional demand for pedestrian-friendly access and connections to the non-motorized transportation network will likely increase.

The township contains ten developed parks, three undeveloped park properties, and a senior center. Total township park acreage is approximately 262 acres. There is also a county park that is approximately 540 acres.

The area has a "small town" suburban atmosphere, and with it's close proximity to the City of Lansing and Michigan State University, Delhi Township has a wide array of resources available within a short distance.

NEIGHBORING JURISDICTIONS

Delhi Township is bordered by the following jurisdictions: The City of Lansing (north), Lansing Township (north), Meridian Township (kitty corner, north east), Alaiedon Township (east), Vevay Township (kitty corner, south east) Aurelius Township (south), Eaton Rapids Township (kitty corner, south west), and Windsor Township (west). Nearby cities and villages include the City of East Lansing to the north, the City of Mason to the south east, and the Village of Dimondale to the west.

RELATIONSHIP TO LANSING

Delhi Township and the City of Lansing are generally separated by I-96, with crossings at Waverly Road, M-99 (Martin Luther King Jr. Boulevard), Washington Avenue, and Aurelius Road. Lansing is the area's largest city. Holt Public Schools are in demand and a number of students from Lansing attend via "schools of choice." Park and trail users cross boundaries, traveling between jurisdictions either along the river trail or by way of vehicle, to use each jurisdiction's parks. Area bicyclists also travel between the two jurisdictions for both work and pleasure. Many of Delhi Township's residents work in the City of Lansing. Lansing's non-motorized transportation network directly connects to Delhi Township's network.

RELATIONSHIP TO LANSING TOWNSHIP, MERIDIAN TOWNSHIP, AND THE CITY OF EAST LANSING

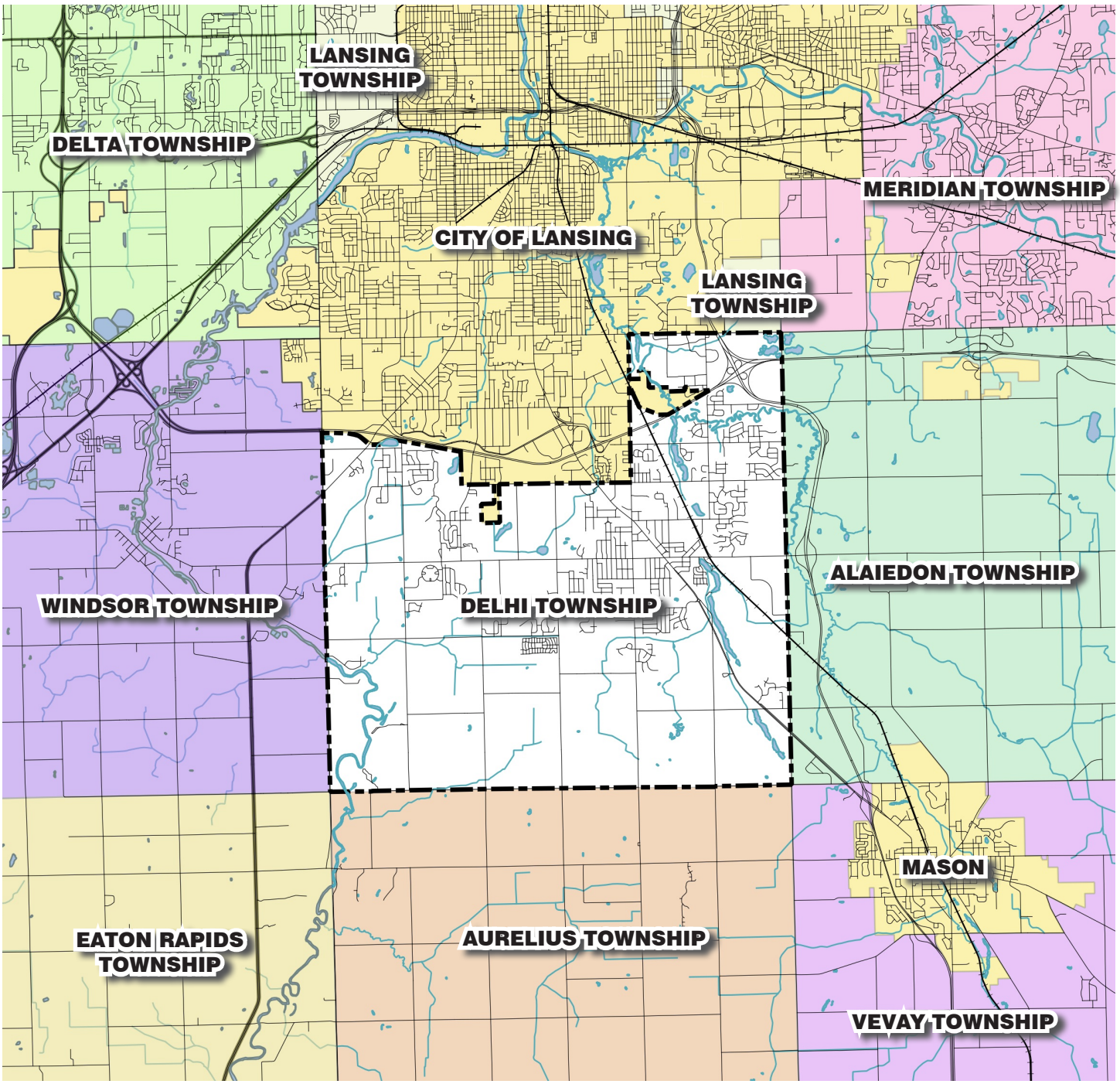
A small piece of Lansing Township borders the east portion of Delhi Township's northern border, adjacent to Meridian Township, and connected to East Lansing. All three of these jurisdictions share one thing in common: Michigan State University (MSU). MSU, one of the nation's largest universities, resides in all three jurisdictions at the north east side of Delhi Township. There are a number of residents who have children that attend MSU and travel back and forth throughout the school year. Many of the residents also work at MSU. A constituent of bicyclists coming from MSU use College Road to enter Delhi Township as part of their regular bicycle route. The City of East Lansing and Michigan State University both have non-motorized transportation networks that Delhi Township is peripherally connected to through rural roads and Lansing's non-motorized transportation network.

RELATIONSHIP TO ALAIEDON, AURELIUS, EATON RAPIDS, AND VEVAY TOWNSHIPS AND THE CITIES OF MASON AND JACKSON

Alaiedon, Aurelius, Eaton Rapids, and Vevay Townships are primarily rural communities that do not have non-motorized plans. However, they have regional importance as intermediary jurisdictions that could potentially host connections between nearby cities and villages. Their rural roads are also generally usable for bicyclists who are comfortable traveling on low-volume rural roads. Vevay and Alaiedon Township have been involved in plans regarding a connection from Delhi Township to Mason. Aurelius Township also has the potential to play a part in connecting the Lansing Area at Delhi's southern border to Jackson, Michigan. Connections to other small cities, such as Charlotte and Potterville, can be made through Eaton Rapids Township. MDOT's University Region Non-Motorized Transportation Plan shows routes through each of these four townships.

RELATIONSHIP TO WINDSOR TOWNSHIP AND THE VILLAGE OF DIMONDALE

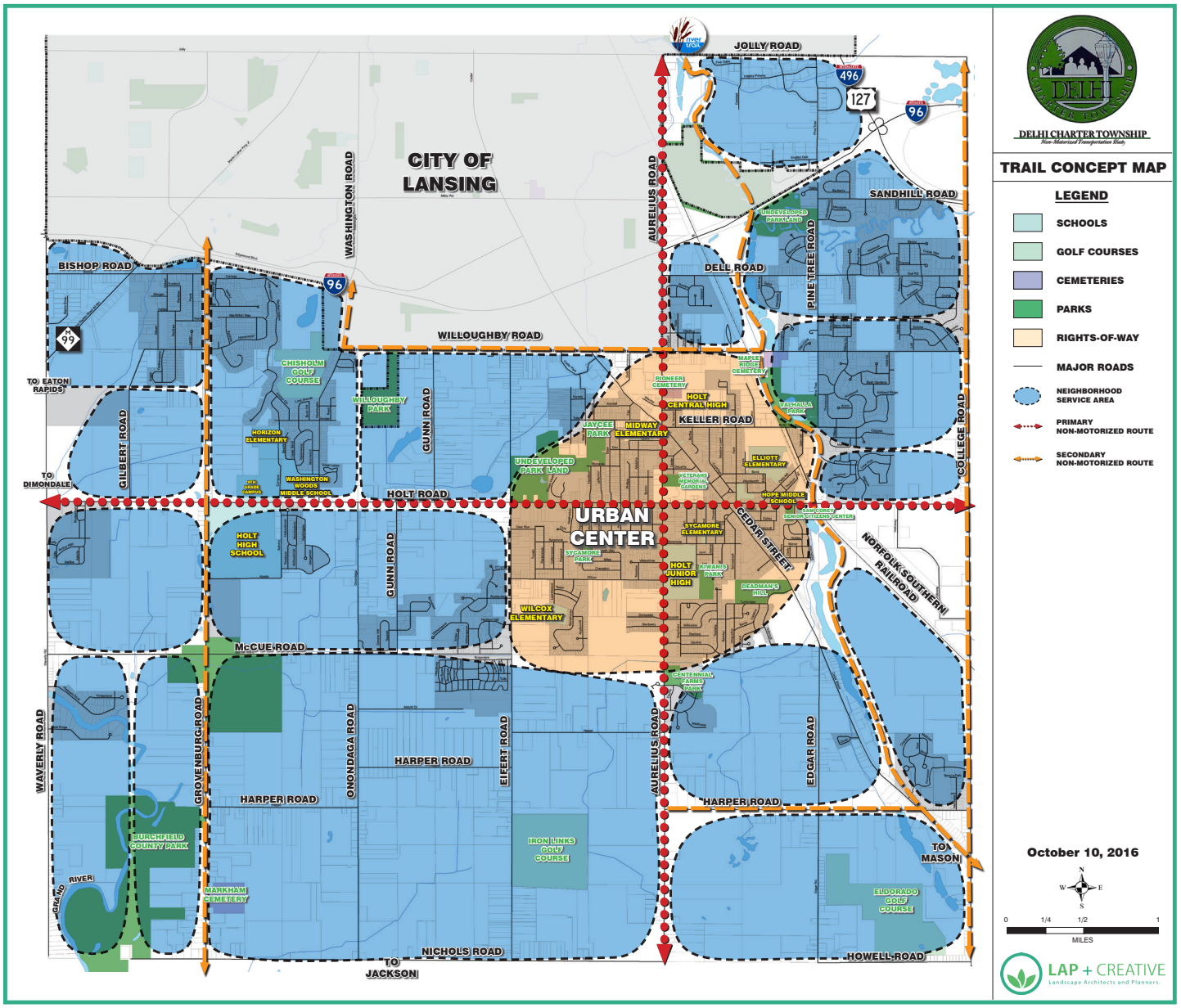
The Village of Dimondale, though not bordering Delhi Township, is part of Delhi Township's Holt Public School system and is on good terms with Delhi Township. Delhi Township's Parks and Recreation Department is involved with maintaining all of the area schools and accommodates the Village of Dimondale. Neither the Village of Dimondale nor Windsor Township have a non-motorized transportation plan, but both have begun working together to move towards developing one. Students and residents travel back and forth between the jurisdictions to get to school, shop at the farmers market, and to use each other's parks.



Making connections to nearby townships, cities, and villages helps strengthen the network and increase mobility across the region.

NEIGHBORING JURISDICTIONS MAP

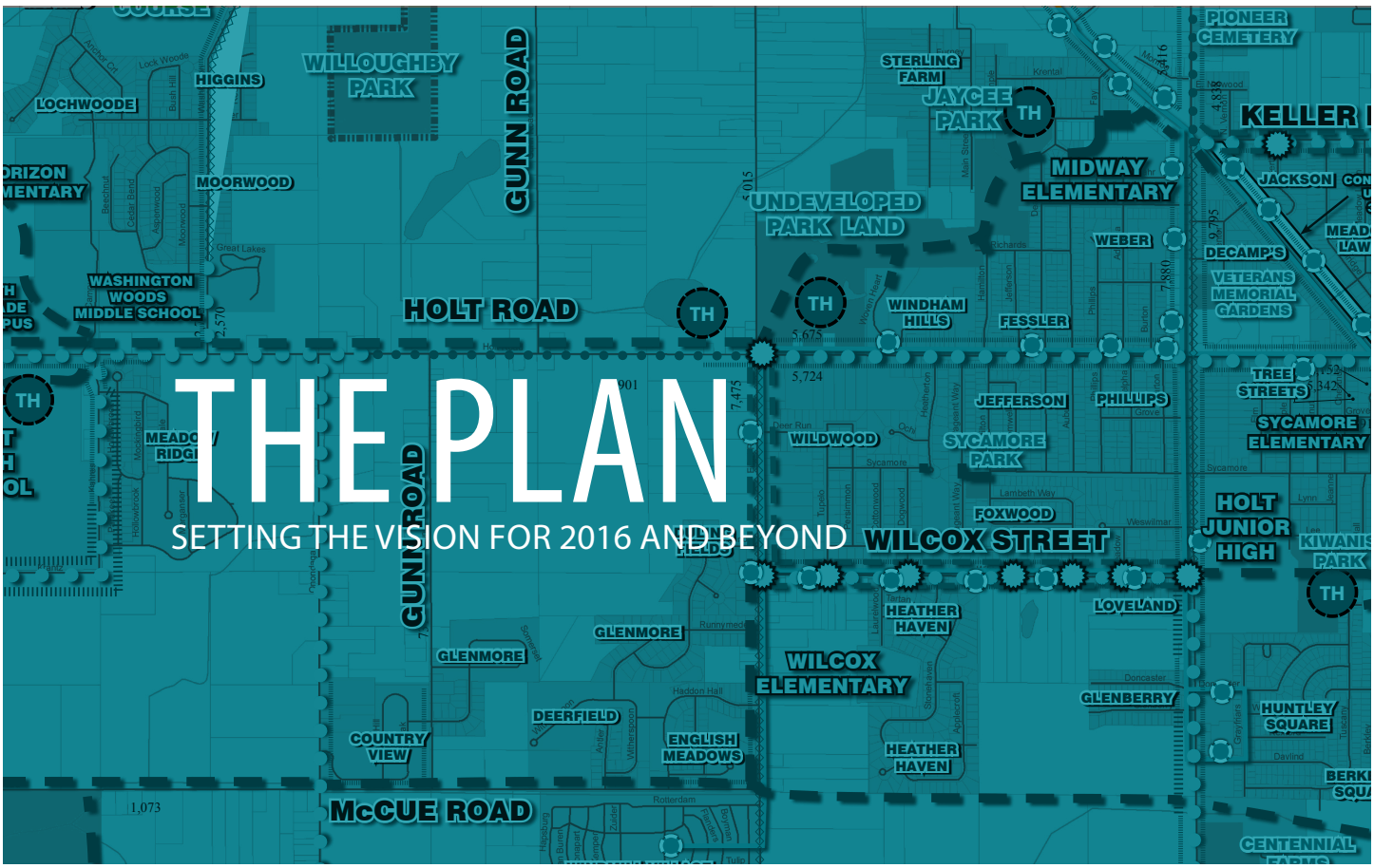
Each neighboring jurisdiction's relationship to Delhi Township impacts the planning and use of Delhi Township's non-motorized transportation system. With jobs, parks, schools, and other community resources available across each other's borders, it is important to work together to create an interconnected, regional transportation network. This map shows those regional connections at Delhi Township's borders.



The non-motorized transportation network should connect to all of the trip generator regions.

TOWNSHIP TRIP GENERATOR MAP

Trips are generated primarily from people's homes. They start at their house, make their way around town, and return home. This map shows the various regions of Delhi Township that act as trip generators. The neighborhoods been combined into grouped areas to show the relationship between the edges of the neighborhoods and the nearby non-motorized transportation network. This helps us see where the non-motorized transportation network needs to be routed in order to provide access to as many residents as possible.



PURPOSE

The purpose of the Non-Motorized Transportation Plan is to establish a long-term vision for creating a comprehensive non-motorized transportation network. The plan describes the ultimate network layout that will eventually be built, however long it takes. When all of the infrastructure outlined in this plan has been constructed, this plan will have been fulfilled.

This plan is future-oriented and focuses on new infrastructure projects that will help fill gaps and extend the network. The plan seeks to provide a planning framework to guide funding and construction efforts in order to help bring the complete system to life. It discusses implementation strategies, tools, and issues to consider, an implementation process, and other considerations such as coordination, ordinances, planning processes, funding mechanisms, design criteria, and continued public engagement. These issues are all inter-related and contribute to the complex

environment in which construction projects exist. The right approach will help create successful projects.

A portion of this plan is dedicated to project priorities for the next five to ten years. These projects are based on current needs and potential feasibility. The priorities may shift over time as new funding sources and information come forward. For example, a project that was not considered a priority may end up rising to the top of the priority list because specific funding mechanisms or coordinated construction efforts make it the most feasible project in the plan at that time. With this in mind, the priority plan should be considered a flexible guide that simply identifies today's considerations and attempts to rank projects in a preferred order for construction. It may change in the future.

Routine and periodic maintenance projects, while critically important to the success of the system, are not part of this plan. This plan discusses recommended maintenance practices, but it is not intended to provide a comprehensive review of the existing conditions of the existing infrastructure, nor does it outline maintenance projects. These activities are assumed elements of any system's life-cycle and are the responsibility of Delhi Township to plan for and execute on a regular basis.

THE DELHI TOWNSHIP NON-MOTORIZED TRANSPORTATION SYSTEM MAP

The following information is provided to augment and support the Delhi Township Non-Motorized Transportation System Map so that all elements of the map are understandable and clear.

NEIGHBORHOODS

WHY AREN'T NEIGHBORHOODS ADDRESSED ON THE MAP?

The map does not show the infrastructure upgrades required in each neighborhood. There are some major roads that intersect neighborhoods that have received attention on the map, but for the most part, the map intentionally does not show required upgrades for neighborhoods. This is for the sake of clarity and simplicity. If all the existing infrastructure and recommended improvements required in neighborhoods were to be drawn on a single map, the map would be overly complex and unreadable.

RELATED PLANNING REPORTS THAT ADDRESS NEIGHBORHOODS

The existing neighborhood sidewalks have been addressed in the Delhi Charter Township ADA Transition Plan Report 2015. This report outlines which sidewalks and sidewalk ramps are out of compliance with the Americans with Disabilities Act rules and regulations. The plan outlines recommended priorities and budget considerations for improving existing conditions. The transition plan does not identify gaps in the network or new construction opportunities.

THIS PLAN'S RECOMMENDATIONS FOR NEIGHBORHOODS

There are many gaps within the neighborhood areas that may prevent residents from accessing the broader non-motorized transportation system. It is this plan's intent to apply the following recommendations to all residential areas:

- Add sidewalks or side paths to all neighborhoods where gaps exist.
- Maintain the legal right for bicyclists to use the neighborhood roads for travel.
- Bridge gaps between neighborhood roads to provide interconnectivity throughout the neighborhoods, from one side to another. This creates a type of bike boulevard that is low-investment and allows continuous travel throughout the township.
- Use the "shared lane" method to implement signage and markings at neighborhood transition areas, along known bicycle routes, and in higher-traffic roadways to increase awareness to all road users of the presence and legal rights of bicyclists on the road way.
- Implement sidewalk or side path construction projects in coordination with roadway improvements, as stipulated in Delhi Township's No. 123 Complete Streets Ordinance, Section IV.

RECOMMENDATIONS WITHIN THE PUBLIC RIGHT-OF-WAY

Delhi Township's public right-of-way, or the area that typically contains the road and sidewalk system, is under the control of the Ingham County Road Commission (ICRC). All improvements shown within the ICRC's right-of-way must be completed in cooperation with the ICRC. This is discussed in more detail later in this report.

RECOMMENDATIONS FOR ALL EXISTING BIKE LANES AND PAVED SHOULDERS

Where there are existing bike lanes and paved shoulders that do not meet AASHTO's guidelines for bicycle facilities, Delhi

Township and the ICRC should upgrade the infrastructure to meet those standards. This means maintaining a minimum 4' width on all bike lanes and paved shoulders where there are no vertical obstructions on the side of the road (curbs, guard rails, etc.), and a minimum width of 5' where there are vertical obstructions on the side of the road. See AASHTO's guidelines for more details.

RECOMMENDATIONS FOR ALL EXISTING SIDEWALKS

Where there are existing sidewalks that are less than 5' wide, Delhi Township and the ICRC should upgrade the sidewalks to be at least 5' wide. This ensures compliance with the Americans with Disabilities Act and provides good flow for bi-directional pedestrian traffic in low-traffic areas. It is recommended to construct sidewalks up to 8' wide in areas with higher traffic.

RECOMMENDATIONS ON LAND NOT OWNED BY DELHI TOWNSHIP

The improvements shown on this plan are not intended to indicate a forced taking of land, but rather a recommendation for optimal routing. It is understood that any land owned by private entities, utility companies, or other governmental agencies must be used with permission and by legal agreement, typically in the form of an easement. This is discussed in more detail later in this report.

LEGEND CLARIFICATIONS

COMBINED ELEMENTS

The following recommended, related features have been combined into a single form of infrastructure in order to maintain clarity and order on the map:

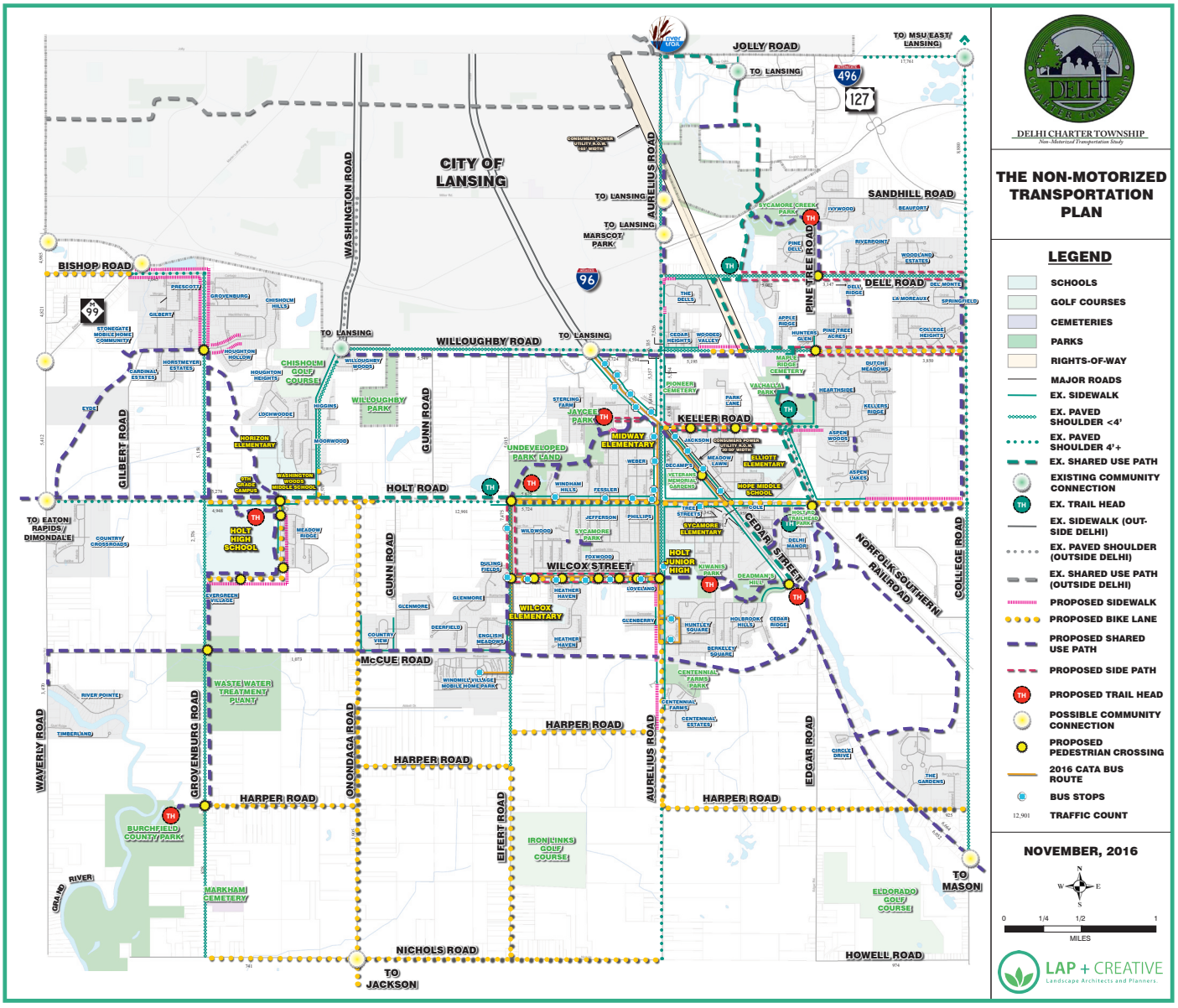
- **Bike Lanes** and **Paved Shoulders** are shown on the plan as "Proposed Bike Lanes." The two types of infrastructure share related design criteria and are similar in nature. It is the general recommendation of this plan to install bike lanes in more urban areas and paved shoulders in more rural areas. However, the plan intends to leave the implementation of bike lanes vs paved shoulders up to the township and road commission on a case-by-case basis.
- **Shared Use Paths** and **Side Paths** are shown on the plan as "Proposed Shared Use Path" and "Proposed Side Path." Where shared use paths and side paths maintain a width of 8' or greater, they are essentially the same type of infrastructure and are only different in where they are installed with relation to the roadway. Side paths that are less than 8' wide are distinct in that they are typically one-way and installed on both sides of the road.

OTHER LEGEND CLARIFICATIONS

- **Wayfinding signage** is not shown on the plan because wayfinding requires a separate study and its own map. It would be overly complex to show each sign on this map in combination with all of the other infrastructure. Wayfinding is discussed in more detail in the narrative that follows.
- **Crossings** are indicated on the plan, but the type of each crossing is not indicated. Traffic studies must be conducted to determine the most appropriate crossing method for each location.
- **Trail heads** are shown on the plan, but the type of each trail head is not indicated. A trail head can take on a variety of forms, but would typically include vehicle and bicycle parking, system signage, and a direct connection to the non-motorized transportation network. Other types of improvements may be present at trail heads, such as park amenities, restrooms, bike repair stations, and drinking fountains.

THE NON-MOTORIZED TRANSPORTATION SYSTEM MAP

See the next page for the Non-Motorized Transportation System Map.



The map shows the entire non-motorized transportation system in its project final form.

THE DELHI TOWNSHIP NON-MOTORIZED TRANSPORTATION SYSTEM MAP

Delhi Township's non-motorized transportation system contains bike lanes, paved shoulders, shared use paths, side paths, sidewalks, shared lanes, wayfinding signage, controlled crossings, and trail heads. The map shows a variety of line types and colors to represent infrastructure recommendations. A detailed legend is provided to help clarify the map features.

THE NON-MOTORIZED TRANSPORTATION FRAMEWORK

INTENT OF THE FRAMEWORK

The non-motorized transportation system is designed around a framework that organizes the flow of traffic throughout the township. The framework is intended to identify routes that will serve the greatest number of residents with the most efficient use of resources. These pieces of the system will be the most important pieces to construct first. As the system comes closer and closer to being completely constructed, it will lose some of its structured identity as it becomes a more and more complex web of interconnected infrastructure. People will find their way throughout the township by whatever route serves their purposes, which may avoid these primary routes altogether. The framework's purpose, then, is not to direct people's use of the system, but to identify routes that will provide a high level of connectivity and guide prioritization of projects.

The framework is made of the following components:

THE NORTH -SOUTH AXIS

There are several north/south routes throughout the township, but one in particular stands out as a major spine in the transportation network. This primary north-south axis runs the entire length of the township and connects to the City of Lansing in the north east portion of the township at Jolly Road and Aurelius Road and continues through Delhi Township to its south east border en-route to the City of Mason. While this axis is not central to the township, it provides significant access to important township assets, such as commercial areas, parks, and civic buildings.

This north-south route is particularly unique within the township in that it is comprised almost entirely of shared use path. This shared use path is of particular regional importance because it connects to the Lansing River Trail and is proposed to connect to Mason's Hayhoe River Trail.

THE EAST-WEST AXIS

There are multiple east-west routes throughout the township, but one acts as an uninterrupted corridor that extends from one side of the township to the other. This primary east-west axis lies along Holt Road and lies entirely within the public right-of-way. Portions of this axis are shared use path (side paths) with bike lane (or paved shoulder) and other portions are sidewalks with bike lane (or paved shoulder). Holt Road is central to the township and lies within roughly the same proximity to the north half of the township as is does to the south half. It also runs through the heart of the more "urban" area of the township and lies within close proximity to many of the township's schools.

THE INNER LOOP

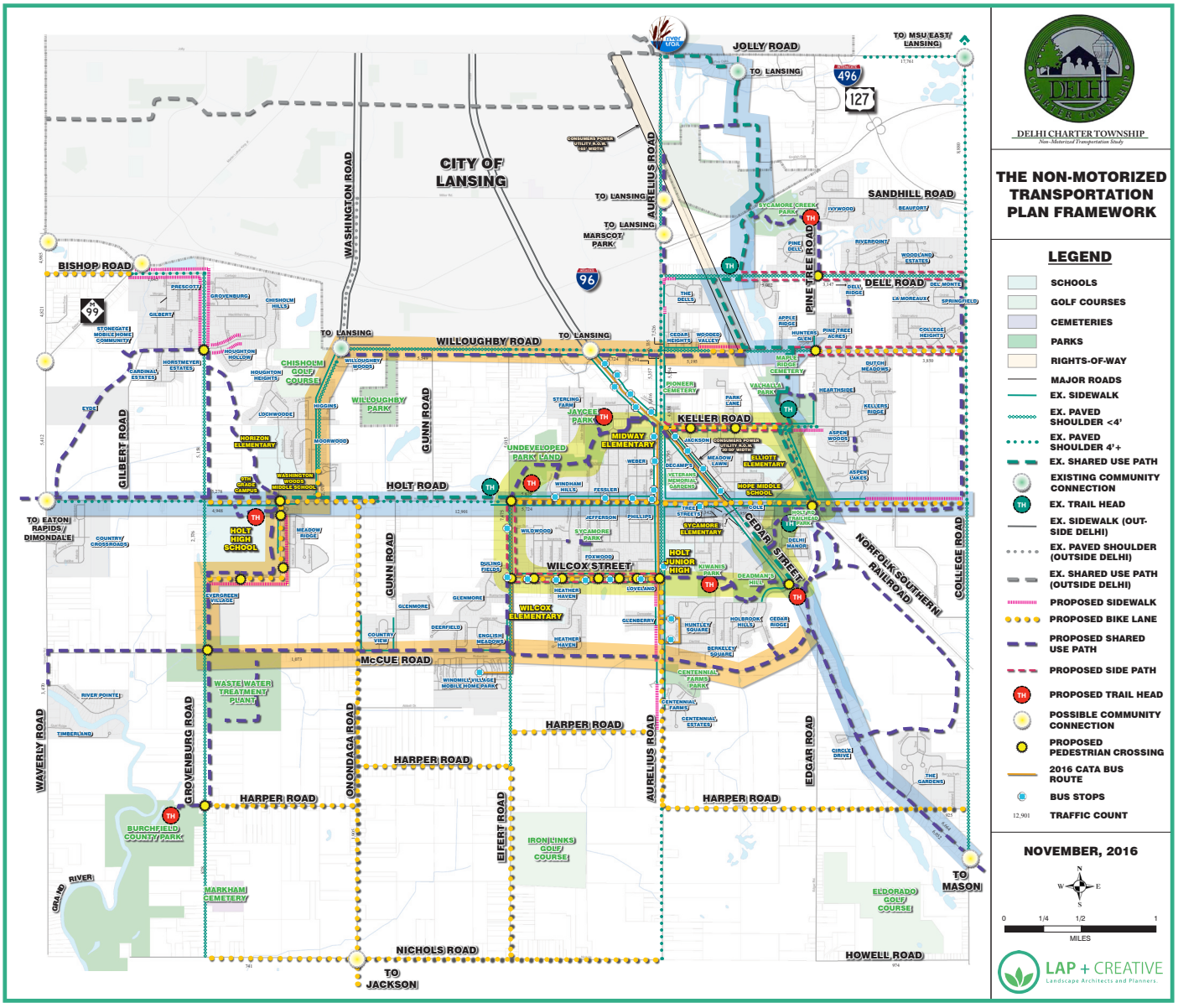
An inner loop has been identified as a prime transportation route that will create connectivity throughout the urban core of the township. This loop connects the traditional neighborhoods to the two primary axes and also connects to various places around the urban core that aren't along the major axes routes. This route also connects a variety of neighborhoods and will make it easier for friends and family members to travel between each other's homes without using a vehicle.

THE OUTER LOOP

An outer loop has been identified as a prime transportation route that will create connectivity around the fringes of the township. This loop connects the more suburban and rural areas to the major axes and allows residents to reach all of the other areas of the township outside of the urban core. Like the inner loop, this outer loop connects neighborhoods to each other to facilitate travel between friends and family's homes.

NETWORK SPURS

There are a variety of areas throughout the township that are not directly accessible from the axes or loops which will be reached via spurs. The spurs are direct connections that link these places to the main travel corridors. The spurs may be small looped networks that diverge from the main network, or they may be direct, dead-end segments of network that terminate at their destinations. The spurs are primarily planned to be shared use paths, though other forms of infrastructure may be used to make these connections possible.



The framework creates order and structure for connecting the majority of the area's neighborhoods and assets.

THE FRAMEWORK MAP

The blue bands of transparent color represent the two major axes throughout the township. The orange band represents the outer loop. The yellow band represents the inner loop. These routes are within close proximity to each of the area's neighborhoods, providing access to most of the area's residents.

CHALLENGING AREAS

Some parts of the plan involve routing infrastructure through challenging areas. The following sections attempt to address these areas and provide recommendations for potential solutions.

JAYCEE PARK TO KELLER ROAD CONNECTION

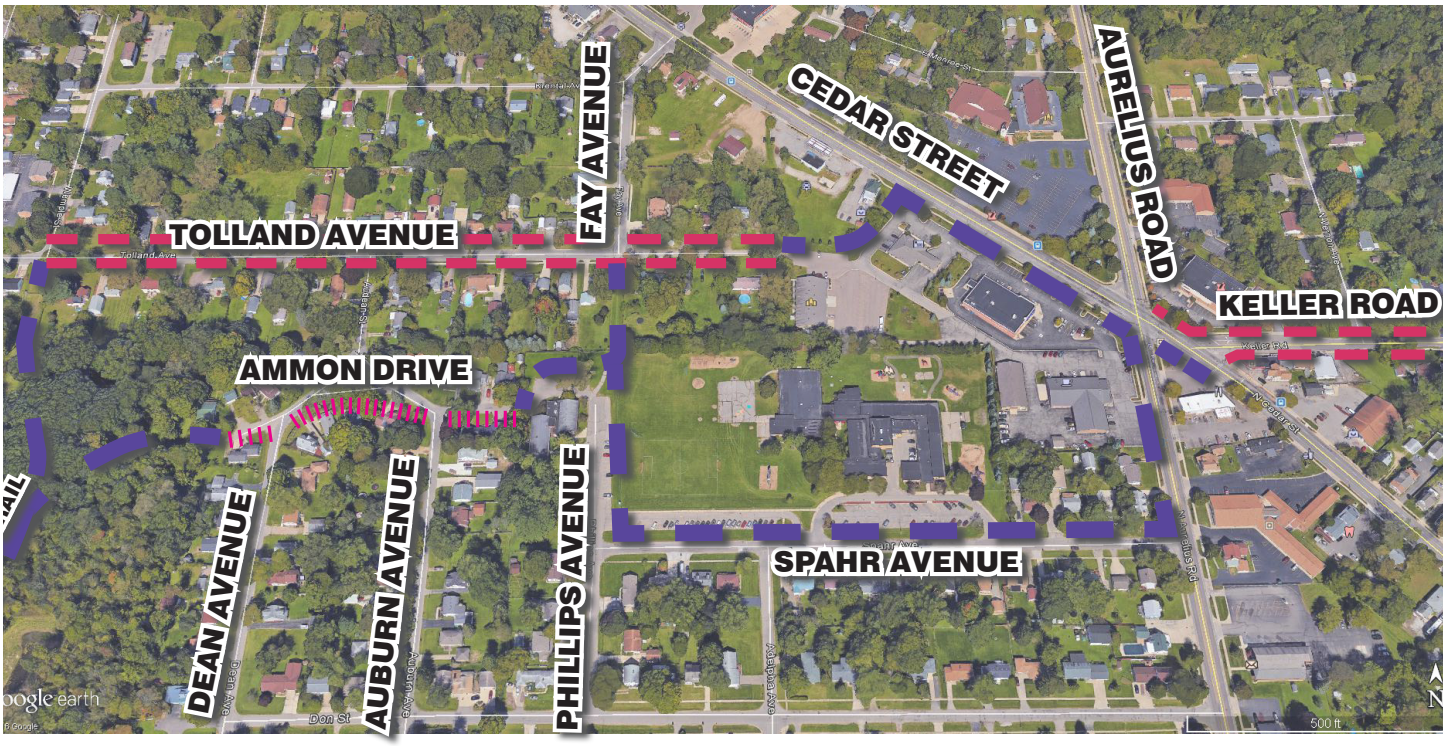
The Ram Trail has a portion of trail that terminates at Jaycee Park and a nearby road end in one of the neighborhoods along the inner loop. There is an infrastructure gap between this part of the trail and Keller Road, which will become one of the main connections along the inner loop, leading to Depot Road and Valhalla Park, which the North-South Axis runs up and down. The plan below shows options for routing infrastructure through the neighborhood, crossing Cedar Street and Aurelius Road, and connecting to Keller Road.

One opportunity would be to add side paths on Tolland Avenue where they would converge at the east end into a shared use path that would meander through private properties in the commercial area on Cedar Street, requiring easements. The existing sidewalk could be used, or a new widened side path could be installed up to the intersections at Aurelius Road and Keller Road where the path would cross over to Keller.

A second opportunity would be to add sidewalks along Ammon Drive to span the gap between the road ends, then continue a shared use path east and then north on a portion of school property and a small public right-of-way between houses, up to Tolland Avenue where it would follow the previously described infrastructure to Keller Road.

A third opportunity would be to head east and then south from Ammon Drive, along the east side of Phillips Avenue, turning east at Spahr on the north side of the road, continuing out to Aurelius Road where either the existing sidewalk would carry traffic up to Keller, or a new widened side path would carry traffic up to Keller.

This network of pathways will help to complete an important section of the inner loop network.



Above: Jaycee Park to Keller Road Connection.

SYCAMORE CREEK PARK AND DELL ROAD TRAIL

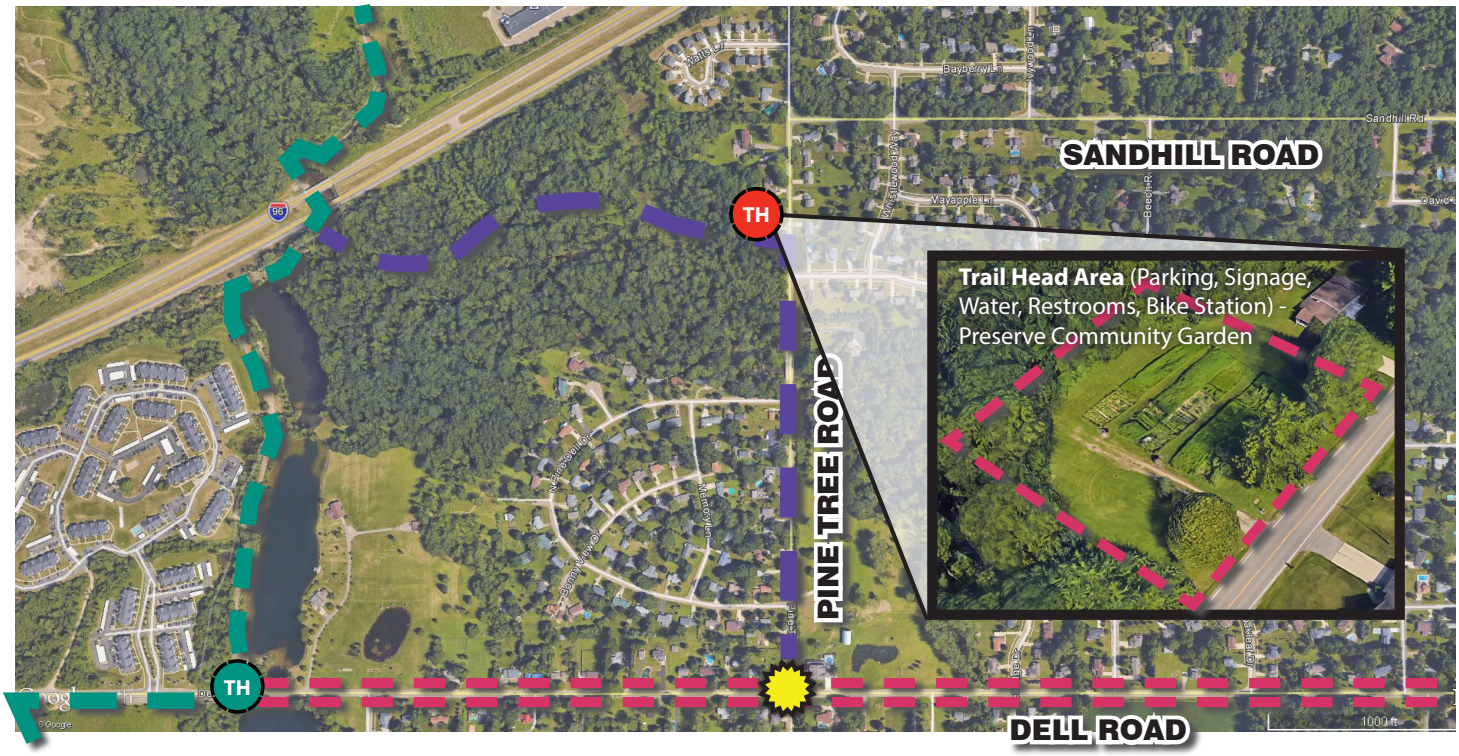
Sycamore Creek Park is an undeveloped park land that the Delhi Township Parks Department has slated for future development on their Five Year Recreation Maser Plan. The recently constructed Sycamore Creek Trail, which connects Delhi Township's trail network to the Lansing River Trail, is routed through a small portion of the Sycamore Creek property. There are currently community gardens in the location where the proposed trail head is shown.

The neighborhoods to the east of Sycamore Creek Trail do not currently have access to the trail. Residents must drive to a trail head if they want to use the trail, even though the trail is within a quarter mile of the nearest neighbors.

There is an opportunity to route a shared use path through Sycamore Creek Park and south to the intersection of Pine Tree Road where it would connect to an east-west side path system along Dell Road. This side path would create a loop to Sycamore Creek Trail at the existing trail head at the township's pump house, south east of the Woodland Lakes apartment complex. The sidepath would also serve to connect all of the neighborhoods along Dell Road to the Sycamore Creek Trail.

A trail head would be placed at the location of the existing community gardens and would act primarily as a neighborhood park. The trail head is proposed to include parking, signage, drinking water, restrooms, and a bike station. The community gardens would be preserved and additional park amenities, such as a pavilion or playground, could be considered.

A path was considered along Sandhill Road, but traffic counts are so low through this area that it is safe for pedestrians and bicyclists to use the road as a pathway. Signage could be considered in this area to indicate that the road is multi-use and that vehicles should drive slowly. As the conditions change, a shared use path or side path should be considered.



Above: Proposed plan for trail connections through Sycamore Creek Park and Dell Road.

KIWANIS TO DEADMAN'S HILL TO CEDAR STREET

Kiwanis Park and Deadman's Hill are popular parks within the community. They are within close proximity to each other and to a number of neighborhoods. Some residents are able to access the parks directly, but others are cut off without any access paths to either park, even though they are within a quarter mile of each park. When you're in either park, there is also no way to get from one park to the other.

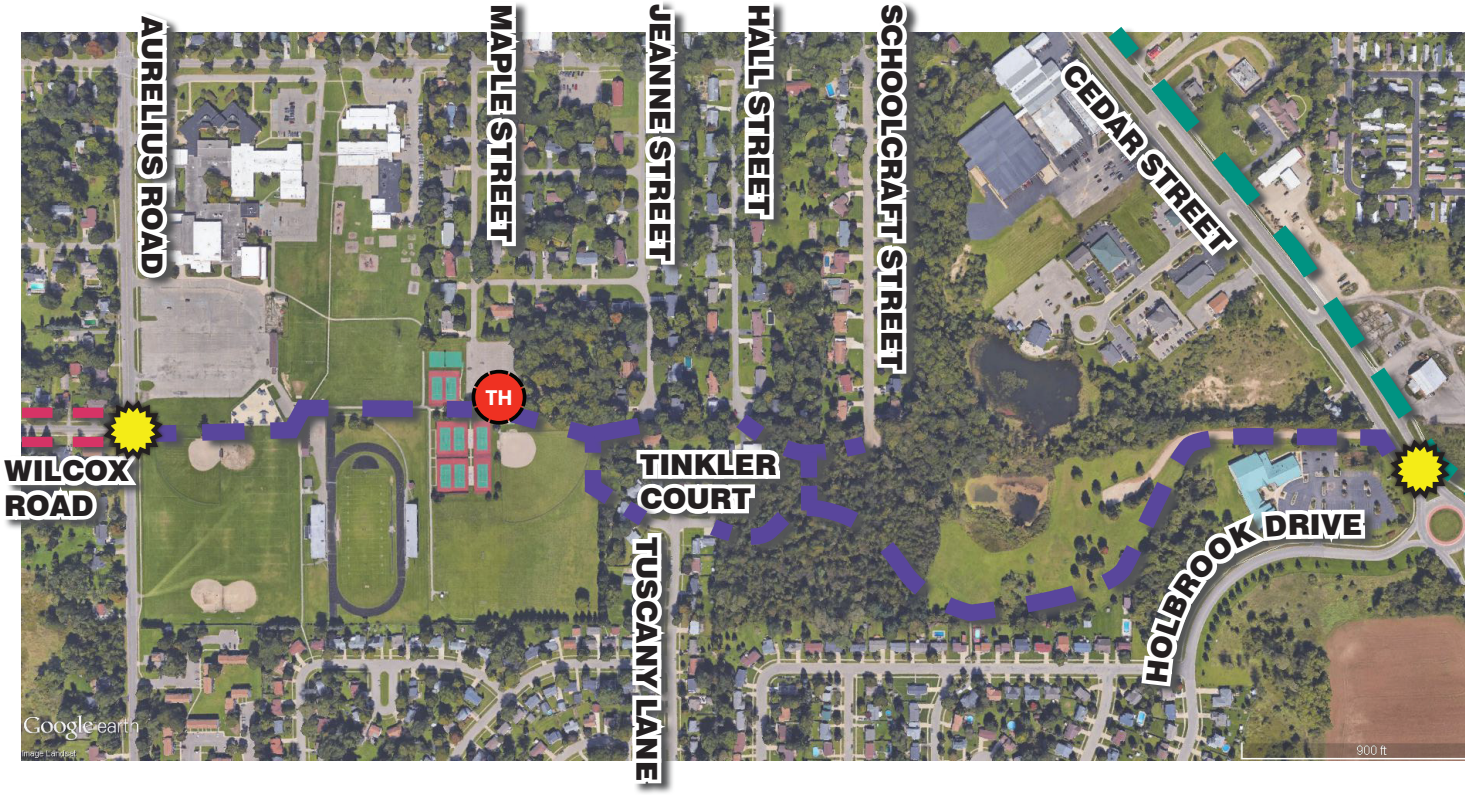
There is also an existing path along Cedar Street, which connects to the commercial areas, neighborhoods, schools, parks, and pathways to the north. In the future, there will be an extension of side paths along Wilcox Road that will connect to the neighborhoods, schools and pathways to the west.

A path has been proposed to extend from the intersection of Wilcox and Aurelius Road through the Holt Junior High School property, adjacent to the skate park, connecting to Kiwanis Park where a trail head is planned to be constructed in the spring of 2017.

The path would continue east, connecting Kiwanis Park to the neighborhoods to the east on Tuscany Lane and Tinkler Court as well as Jeanne Street. This connection would bridge the gap between the neighborhoods north and south of Tinkler Court, which are currently separated by cul-de-sac road ends and private property.

From the Tinkler Court road end, the path would continue on to the local utility company property, which is currently all forested, and would pass through to Deadman's Hill. The road ends on Hall Street and Schoolcraft Street would receive path connections that would provide access to the main path, connecting those neighborhood streets directly to Deadman's Hill and providing easy access to Kiwanis Park.

The path would continue east through Deadman's Hill and would eventually cross Cedar Street and connect to the existing path. This entire length of pathway will form an important stretch of the inner loop network.



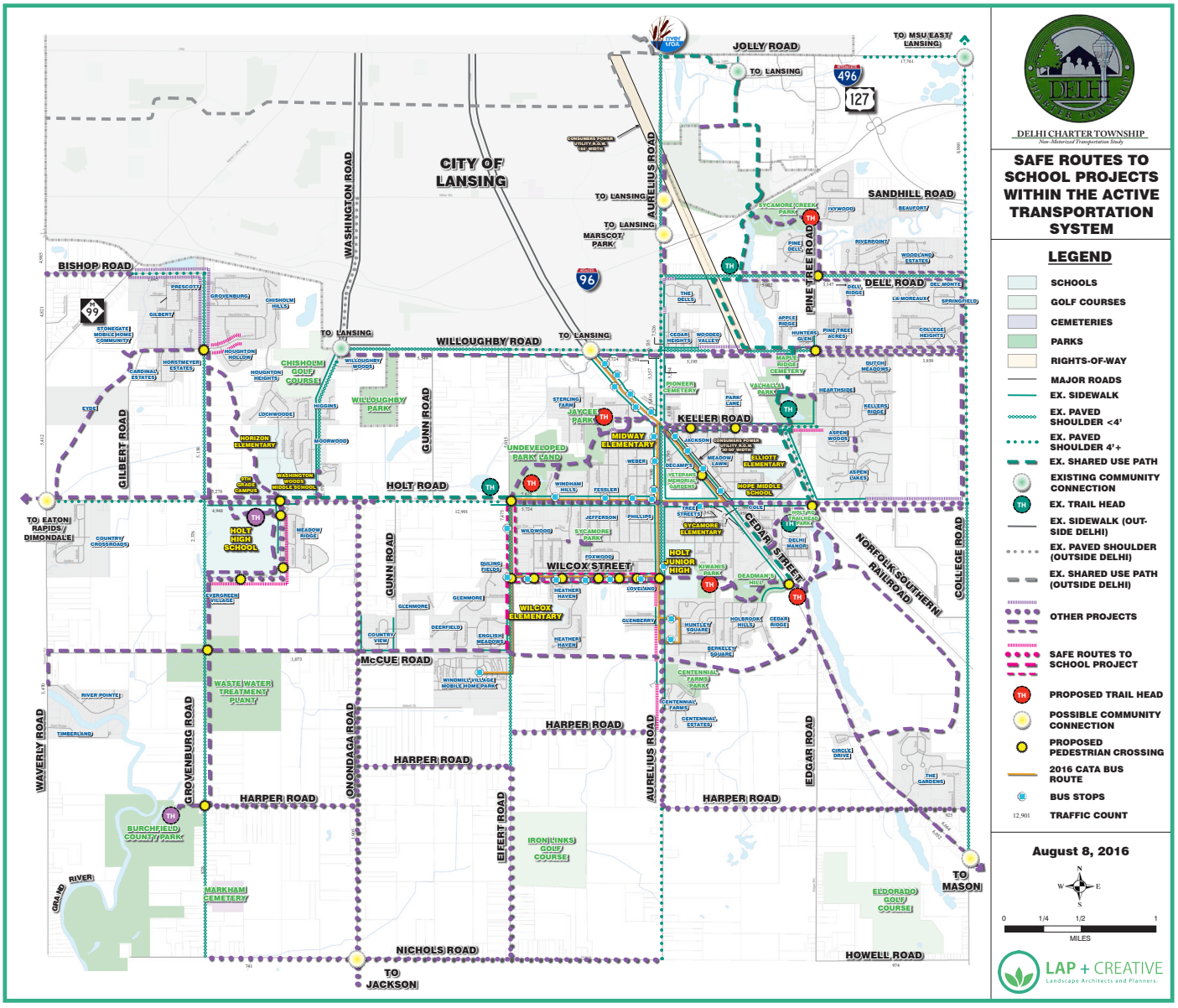
Above: The Kiwanis to Deadman's Hill path is an important stretch of the inner loop network.

HOLT PUBLIC SCHOOLS AND SAFE ROUTES TO SCHOOLS

Holt Public Schools has been engaged in the Safe Routes to School program since 2009. They have a robust non-infrastructure program to encourage kids to walk and bike to school, and they have made strides in creating an infrastructure program to fill in the gaps in the path system.

As of the writing of this plan, the school system is in the middle of developing an infrastructure plan for all of their schools. They've been performing walking audits and identifying deficiencies in the system.

The projects that they have identified have been incorporated into this plan and are highlighted on the map on the next page. Holt Public Schools and Delhi Township have worked together on Safe Routes to Schools projects in the past and they plan to continue coordinating on these projected projects into the future.



This map shows potential Safe Routes to School projects.

SAFE ROUTES TO SCHOOLS PROJECTS MAP

Holt Public Schools has identified several priority projects that are likely to be eligible for Safe Routes to School Funding. This map highlights those projects in the overall non-motorized transportation network. These projects were identified through the school district's Safe Routes to School planning process.

REGIONAL CONNECTIVITY

Regional connectivity is an important consideration in this transportation plan. As discussed in the existing conditions chapter, there are regions of the township that border significant populations of people who may cross between the township and the adjacent jurisdiction. The following connections have been incorporated into the planning framework and are important considerations as the local jurisdictions choose to develop cooperative plans with Delhi Township.

CONNECTIONS TO THE VILLAGE OF DIMONDALE AND WINDSOR TOWNSHIP

CONNECTION AT HOLT ROAD - INCOMPLETE

Windsor Township and the Village of Dimondale reside on the western side of Delhi Township. With the Village of Dimondale having schools within the Holt Public School Systems, and there being parks in both Dimondale and Delhi Township that local residents in both municipalities visit, there is a strong desire to connect Delhi Township's non-motorized transportation network to the Village of Dimondale.

Windsor Township and the Village of Dimondale have begun discussions to develop a non-motorized transportation plan that would cover both jurisdictions. This future plan will bridge the gap between Delhi Township, Dimondale, and Windsor Township, and may open up other opportunities in the region.

The regional connection map proposes a pathway from Delhi Township's Ram Trail along Holt Road heading west into the Village of Dimondale. Delhi Township plans to work with Windsor Township and the Village of Dimondale to continue planning this connection.

CONNECTIONS TO THE CITY OF EATON RAPIDS

CONNECTION AT HOLT ROAD - INCOMPLETE

Eaton Rapids lies south of Delhi Township, along M-99. Holt Road continues through Windsor Township to M-99. The same trail that would connect Delhi Township to the Village of Dimondale could be used to connect Delhi Township to Eaton Rapids along M-99.

OTHER CONSIDERATIONS ALONG M-99

Another connection between Delhi Township and Eaton Rapids could be made starting at Bishop Road and heading south west along M-99. This is a future potential, but was not put on the plan due to limited population demand in this area. It also did not seem likely that M-99 would be used over other transportation options that Delhi Township is planning at this time.

CONNECTIONS TO THE CITY OF LANSING

CONNECTION AT M-99/MARTIN LUTHER KING JR. BOULEVARD

Like the connection to Eaton Rapids along M-99, the connection to Lansing along M-99 could be a future consideration, but was not included in the map due to its limited service area and challenging transportation landscape within the city. M-99 north of I-96 is a car-centric road with limited pedestrian and bicycle facilities. The conditions are uncomfortable and do not encourage users to travel along this route. Washington Avenue is a better, safer connection for pedestrians and bicyclists.

CONNECTION AT WASHINGTON AVENUE - COMPLETED

Washington Avenue is a strong connection into the City of Lansing and provides a safe, comfortable route into the heart of South Lansing. Washington Avenue connects to the city's East West Connector Trail that spans the entire southern half of the city. Washington Avenue is reported to be used by bicycle commuters to do business in Downtown Lansing. This connection was completed with the construction of bike lanes and sidewalks along Washington Avenue in Delhi Township in 2012/2013.

CONNECTION AT CEDAR STREET - NEEDS IMPROVEMENT

A pedestrian connection between Delhi Township and Lansing exists at Cedar Street, though the transportation network is oriented towards vehicles and does not accommodate bicyclists. Cedar Street has been developed over time as a long continuous commercial corridor that serves its customers primarily by way of car. Therefore, while there are many services to be utilized in this region, pedestrian and bicycle use is not generally feasible. Cedar Street is simply too uncomfortable and too sprawling to be an effective route for people traveling by non-motorized methods. Improvements, such as more street trees, wider sidewalks or side paths, bike lanes, store frontage along the roads, and more compact development patterns in general, will need to be made in order to improve the non-motorized transportation options along this route. The Realize Cedar plan that Delhi Township is in the process of developing seeks to address some of these concerns as it looks at economic development opportunities.

CONNECTION AT AURELIUS AND JOLLY ROAD - COMPLETED

The City of Lansing's River Trail extends through McGuire Park to Jolly Road, just west of Aurelius Road. In 2014/2015, Delhi Township completed a pathway that extended from Dell Road at the north terminus of Valhalla Trail, north to the intersection of Jolly Road and Aurelius Road. This established a direct connection between Delhi Township and the City of Lansing at the northeast portion of the Township. This also established a continuous link between Delhi's pathway network and Lansing's pathway network, forming an extended regional trail system.

CONNECTION ALONG AURELIUS ROAD

Simple connections to Lansing can be made along Aurelius Road at Miller Road and just South of Miller Road across from the church. Miller Road has been slowly upgraded with Sidewalks on its south side, which will eventually reach Aurelius Road, so this connection will be easy to make in the future. All that is needed are sidewalks from Miller Road to Dell Road. If an easement were granted on the adjacent property owner's property, a direct connection with Marscot Park in Lansing could be made closer to the north side of I-96 along Aurelius Road. At this time, both of these connections could be completed exclusively on the City of Lansing's side of Aurelius Road. While no sidewalk improvements have been shown on this plan's map, the township could work with the City of Lansing to coordinate this effort if the City had an interest in making these connections.

CONNECTIONS TO THE CITY OF MASON

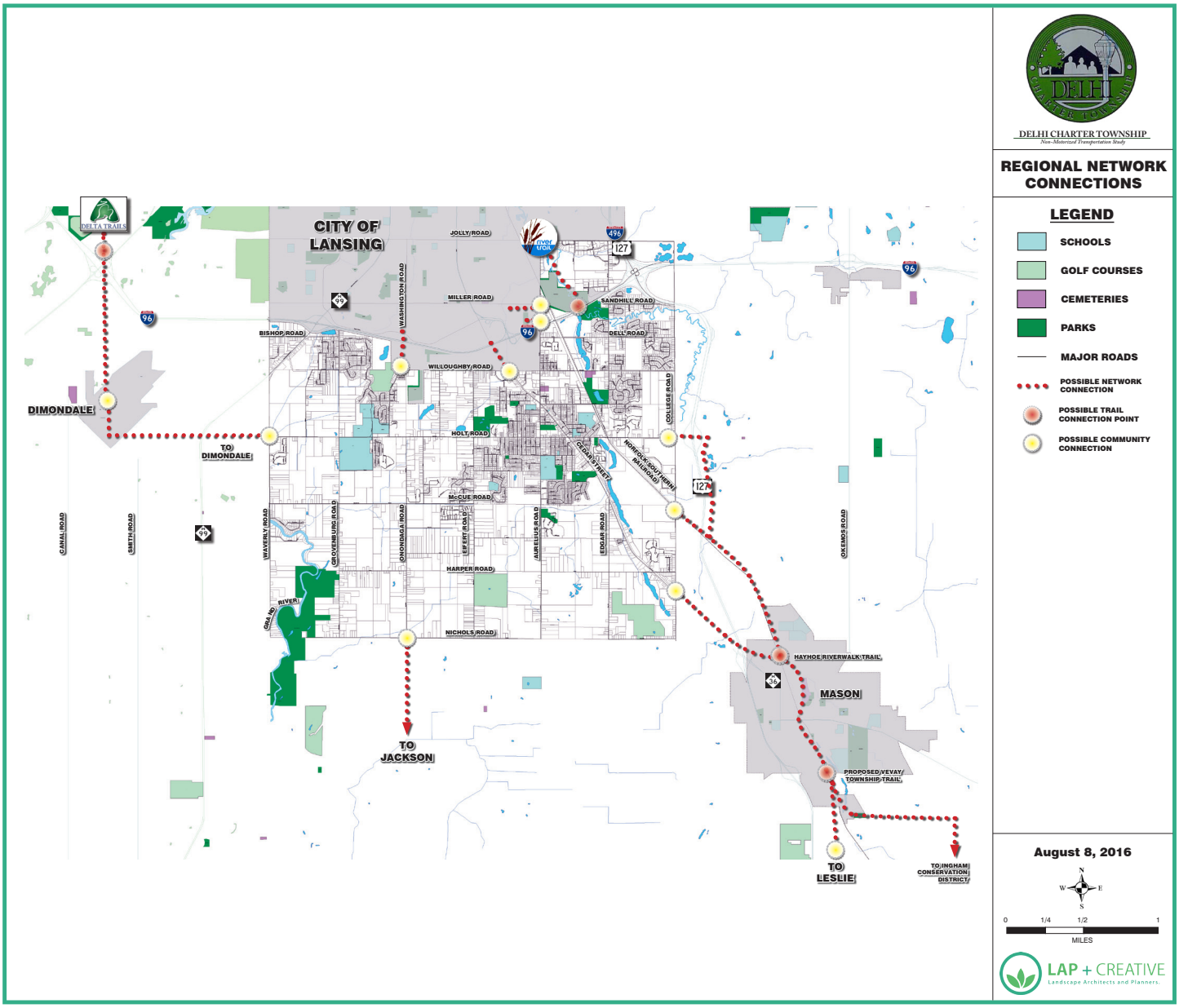
CONNECTION AT CEDAR STREET

The 2007 Delhi Non-Motorized Transportation Plan and a recent feasibility study commissioned by the Michigan Fitness Foundation both looked at opportunities to connect Delhi Township's path network to Mason's Hayhoe Trail. There are opportunities to create that trail connection along Delhi's border at both Harper Road and along Cedar Street, but the routing into Mason is less obvious. Another option, though likely more expensive, would be to route a path up to Holt Road and enter the township from the middle of the eastern border. The major challenge will be figuring out how to effectively cross US-127. Pedestrian bridges and widening vehicular bridges are two likely options. The biggest hurdle for this connection is securing funding and establishing maintenance responsibilities. A large portion of this path will reside within Alaiedon Township, which does not have the financial resources at this time to take over the maintenance and repair of such a large piece of infrastructure, nor does it have the population to justify the implementation of such a path. There is a need for regional cooperation and funding mechanisms to make this regional trail connection possible. Delhi Township plans to continue its path south along Cedar Street in anticipation that the south eastern connection will be completed in the future.

CONNECTIONS TO THE CITY OF JACKSON

CONNECTIONS ALONG THE SOUTHERN BORDER

A number of the north-south roads in Delhi Township would be able to be used as routes to reach the City of Jackson and other towns along the way. Onondaga has been identified as a strong candidate with continuous flow to M-50, which could then be taken south east into the City of Jackson. It is unlikely that pedestrians would make the trip from Jackson to Delhi Township, so the plan currently shows the connection as a paved shoulder/bike lane, though it could become a shared use path in the future.



This map describes regional connections from Delhi Township to the surrounding areas.

REGIONAL CONNECTIVITY MAP

This map outlines suggested routes to areas outside of Delhi Township. Delhi Township does not have control over the development of the network outside of its borders, but it has made efforts to anticipate these regional connections within its own system based on the suggestions outlined in this map. These suggestions would need to be planned and developed further by the jurisdictions in control of these routes.

PRIORITIES

The priority projects were determined by the steering committee during several meetings. These projects were identified as high-value, high-feasibility projects that are likely to be completed in the next five to ten years. The priorities are focused within the inner loop, with several spurs that will connect outer regions of the township to the existing trail systems. Once each of the priorities are constructed, the entire inner loop will have been completed, a major cluster of neighborhoods will be connected to the path network, and a significant regional park will be connected to the path network.

PRIORITY 1A RAM TRAIL TO BURCHFIELD PARK

This project extends from the west side of the Ram Trail down to Burchfield County Park. This project is in the design phase and funding will be sought through the Ingham County Trails Millage. This is likely to be constructed within the next two to five years (2018-2021).

PRIORITY 1B RAM TRAIL TO CEDAR STREET

This project stretches from the east side of the recently completed Ram Trail along Holt Road, between Holt High School and Eifert Road. This project has funding in place and is currently in the design phase. It will likely be constructed in the next couple years (2017/2018).

PRIORITY 2A DEPOT TO CEDAR STREET

This project extends from Holt Road Trail Head near Depot Street and heads south to Cedar Street by way of Michael Road and an easement on property owned by Delhi Township. This will connect the path along Depot Street to the path along Cedar Street. This will complete the remaining eastern portion of the inner loop. This project is in the early planning phase and is likely to be constructed within the next two to three years (2018-2019).

PRIORITY 2B KIWANIS/DEADMAN'S HILL

This project is considered low-hanging fruit, but has not yet entered the planning phase. It is a small project that would be relatively easy to construct and it would provide critical linkage along the inner loop. This would complete half of the southern portion of the inner loop. Planning will likely begin in 2017/2018 and funding will be pursued shortly thereafter. Construction is likely within the next five years (2021).

PRIORITY 2C KELLER ROAD

This project extends from Depot Street, near Valhalla Park, west to Cedar Street. This will bridge a gap between the Ram Trail to Cedar Street project and will complete the northern half of the inner loop network. Planning will likely begin in 2017/2018 and funding will be pursued shortly thereafter. Construction is likely within the next five to 10 years (2021-2026).

PRIORITY 3A WILCOX STREET

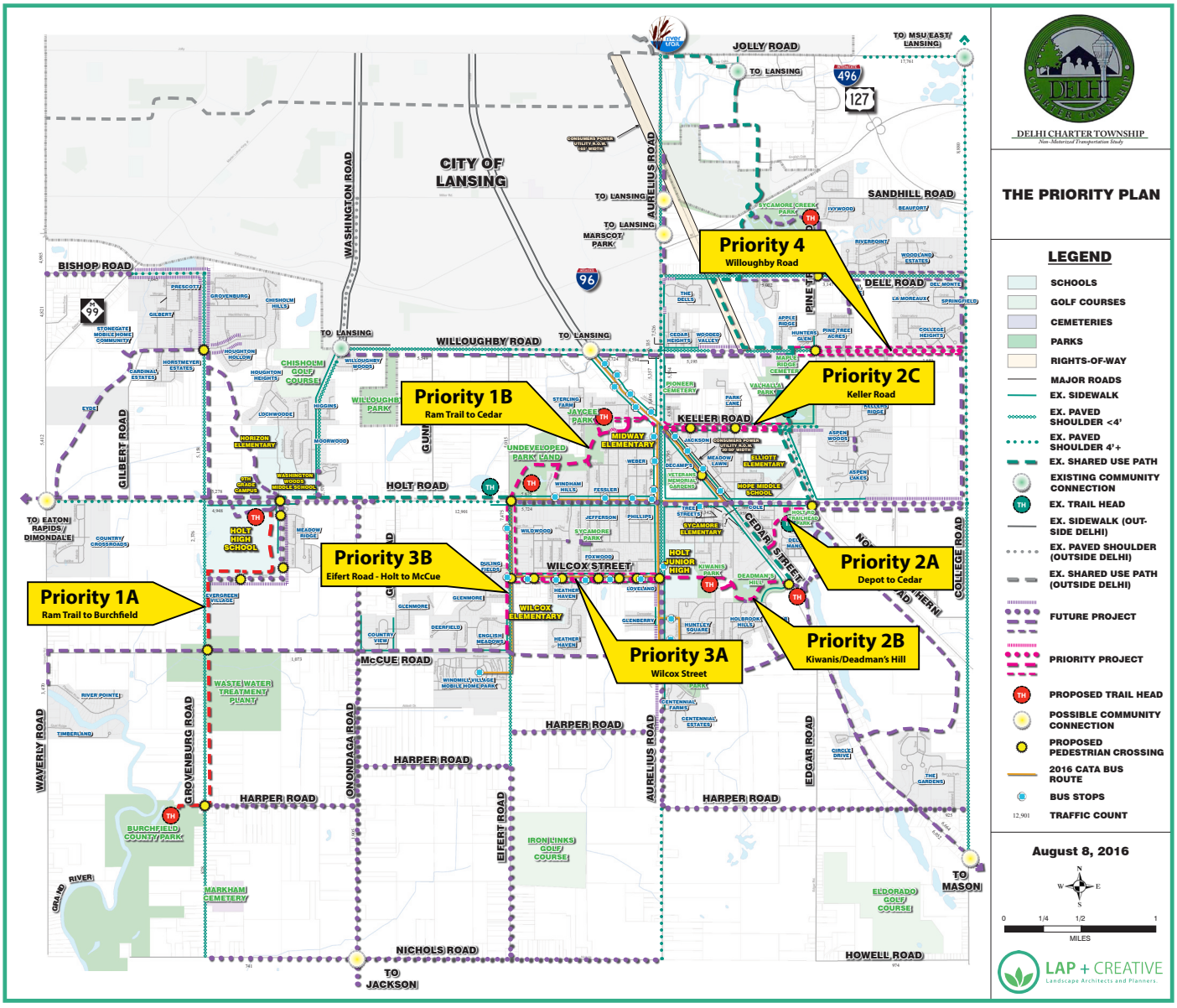
This project will fill in gaps in the inner loop network by constructing a new side path network. It will also improve crossing safety by adding controlled crossings at strategic locations. If road improvements can be combined in coordination with the Ingham County Road Commission, a paved shoulder or bike lane will be completed at the same time. This will complete half of the southern portion of the inner loop. This project is on the Safe Routes to School project list. If this becomes a Safe Routes to School project, design could start in 2017/2018 with construction occurring the following two years (2019/2020). Otherwise, planning and design may occur within the next three to five years, and construction within the next five to ten years (2021-2026).

PRIORITY 3B EIFERT ROAD HOLT TO MCCUE

This project will fill in the gap between Holt Road and Wilcox Street, as well as extend to the neighborhoods to the south to McCue Road. This will be done with a combination of shared use and side paths. This will complete the western portion of the inner loop. If this becomes a Safe Routes to School project, planning and design could start in 2017/2018 with construction occurring the following two years (2019/2020). Otherwise, planning and design may occur within the next three to five years (2019-2021), and construction within ten or more years (2026+).

PRIORITY 4 WILLOUGHBY ROAD

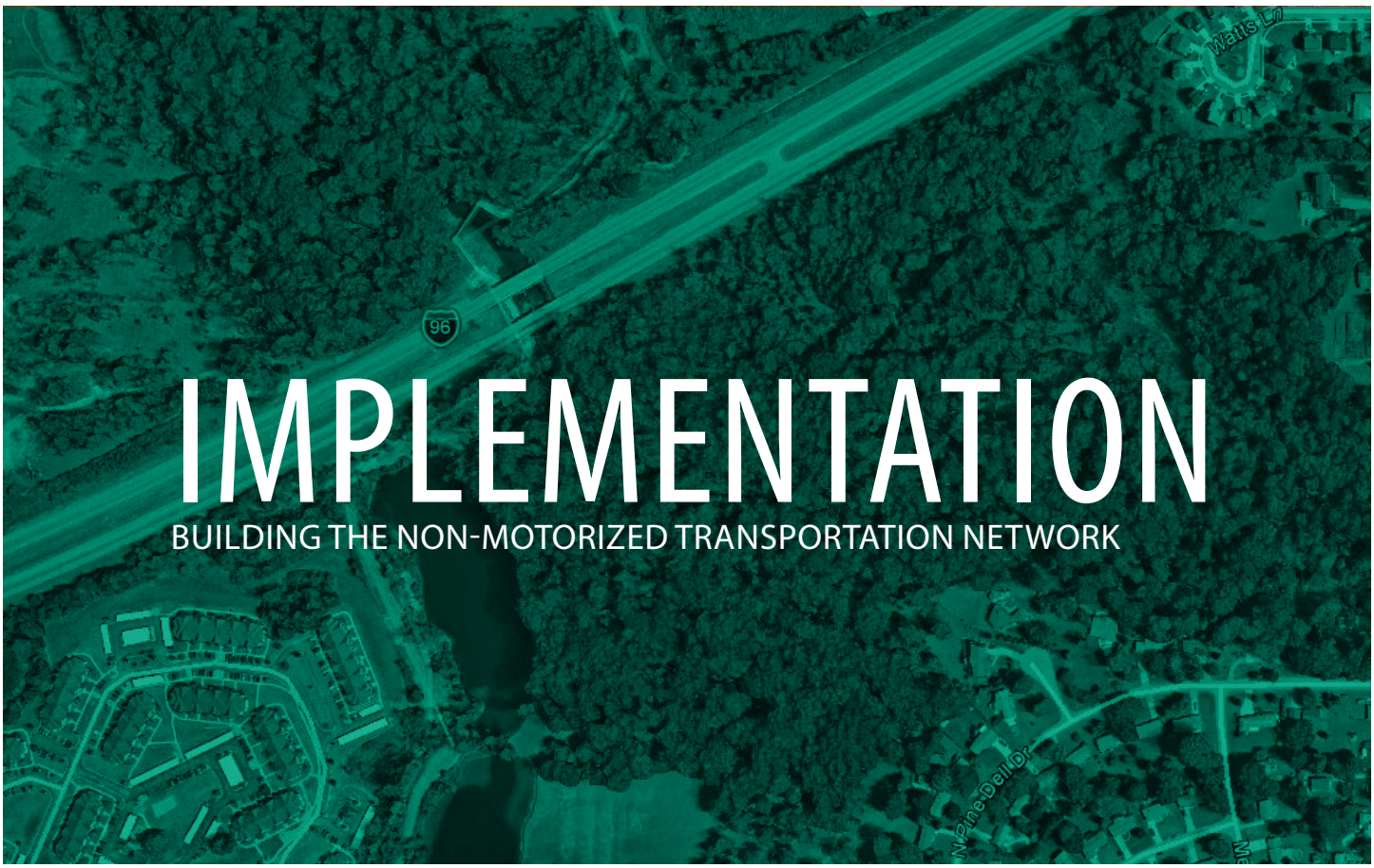
This project extends along Willoughby Road from College Road to the path just west of Pine Tree Road. This will connect neighborhoods north and south of Willoughby Road to the network, creating connectivity for a large portion of the area's residents. Willoughby was selected over Dell Road because Willoughby does not have any facilities, whereas Dell Road has paved shoulders. Neighbors north of Dell could also cross Dell and use the neighborhood roads to reach Willoughby Road as a temporary route. Planning and construction for this section will likely occur within ten or more years (2026+).



The map shows the priorities projects that have been identified for construction within the next five to ten years.

THE PROJECT PRIORITY MAP

The priorities shown above represent the current, best understanding of highest demand, most feasible projects. These projects will be slated for construction within the next five to ten years. They are listed in order of priority by number, 1 through 5, with sub letters indicating some projects could be developed concurrently or within close timing of each other. Future opportunities (such as new funding sources) may change the order of priorities of these projects, and may even change which projects are in this small top priority list.



IMPLEMENTATION

BUILDING THE NON-MOTORIZED TRANSPORTATION NETWORK

IMPLEMENTATION STRATEGIES

The following strategies should be considered when adopting the Delhi Township Non-Motorized Transportation Plan (NMTP):

- Adopt the NMTP dated [Enter Date].
- Continue to actively pursue property acquisitions or public and private easements along proposed routes identified in the NMTP.
- Implement nationally recognized American Association of State Highway and Transportation Officials (AASHTO) design standards when designing non-motorized transportation facilities within the Township.
- Incorporate Americans with Disabilities Act (ADA) standards when designing non-motorized transportation facilities within the Township.
- Continue working with other State and Local review agencies during the implementation of the NMTP.
- Designate shared-use paths as Township properties to allow the Township access to

manage and maintain them.
- Utilize a public input process at appropriate times during the design and construction of the NMTP.
- Actively pursue Federal, State and Local funding for the implementation of the NMTP through the Community Development Department.

General and specific recommendations for the Plan are summarized below and categorized into on road facilities, off road facilities, and other recommendations. Many of these recommendations need further study by the Planning Commission and other appropriate review and approval agencies to see how they compare to the current ordinances and other adopted Township planning studies prior to actual implementation. After its adoption, further detailed study needs to be completed for specific routes and conditions. The results of these studies and final analysis of each route needs to be presented to the appropriate municipal body for final review and approval.

COOPERATION

The NMTP will require cooperation and coordination, between the Township, residents and adjacent communities, to achieve successful implementation. The NMTP is a tool that allows the Township to share information and communicate clearly with other agencies relative to the improvements under their control. Some of the other key agencies include:
- Delhi Community Development Department (CDD)
- Delhi Parks & Recreation Department
- Delhi Downtown Development Authority (DDA)
- Holt Public School District
- Ingham County Drain Commission (ICDC)
- Ingham County Road Commission (ICRC)
- Michigan Department of Transportation (MDOT)
- Other private entities and/or industries

Land acquisition is a key component to some of the specific routes identified in the NMTP and it will be a necessary step to implement the NMTP. When considering how to acquire land for trail development the following should be considered:
- **Donations** – recommended first when possible to lower trail costs
- **Easements** – where trail development needs specific rights
- **Leases** – lease specific rights for use
- **Purchases** – buy land from willing sellers at the appraised value

It is important to keep the lines of communication open during the implementation process of the NMTP. The public should be encouraged to remain involved in the planning process to help ensure its continued success. The manner in which the specific projects are communicated to the public is key to the success of this effort and important in all phases.

The NMTP is a long-term effort that will require substantial funding to implement beyond what the Township or the ICRC can afford to do alone. The NMTP may be used for the Township to initiate design of specific routes and to obtain funding from the State and local funding sources. One of the criteria for obtaining funding is having a comprehensive study in place that demonstrates proposed routing and connectivity to other communities. The implementation of the routes can be attained quicker by leveraging the Township's local dollars with other funding sources such as:
- State and Federal grants
- Set aside funds for acquisition
- Endowments and foundations
- Other public or quasi public agencies
- Others as they become available

Refer to a list of grants and suggested funding options in the following section.

The NMTP identifies which tools should be used for specific routing. It also helps direct the Township where to begin obtaining private easements for future trail implementation. The NMTP also places the Township in a position to communicate the need to improve roadway safety by providing a comprehensive design to the Township staff and non-motorized transportation advocates. This allows the Township to work closely with other local agencies during the planning and implementation process. Communicating this information with the ICRC will provide a basis for discussions and allow the Township to gain insight and understanding of the Road Commission's procedures with regards to non-motorized transportation issues. The Township has a good relationship with the ICRC and realizes that they are an important planning partner for a successful NMTP.

IMPLEMENTATION TOOLS

Utilize the following tools as identified in the plan and as further listed below.

1. **Sidewalks** - The current Township sidewalk standard width is a 5' minimum, but a 6' wide minimum is preferred. LAP recommends that the Township consider changing the standard width to a minimum of 6' wide along major roadways to allow more adequate room for two-way traffic on sidewalks.

2. **Bikeways** - Add bikeways to existing roadways by re-striping the road within the existing section. This kind of change would require approval of the ICRC.

3. **Shared-Use Path** - Numerous shared-use paths are recommended throughout the Township. A shared-use path is typically 8'-10' in width; their purpose is to provide multiple modes of non-motorized transportation for the user. See the Phasing Plan for specific locations.

4. **Lane Conversion** - Using the existing roadway section, a road may be converted from four to three lanes. When roads are being repaved or rebuilt, a lane conversion should be considered where appropriately identified on the Plan requiring dialog and cooperation between the Road Commission and Delhi Township. Further study and the approval of the ICRC is required prior to implementation of any lane conversion.

5. **Mid–block Crossing** - We recommend a limited amount of mid-block crossings throughout Delhi Township. The installation of one as a prototype can be used on a trial basis to see how it is utilized. As people become familiar with the function of a mid-block crossing and location, others may be installed. Further study and the approval of the ICRC is required prior to implementation of any mid-block crossings.

6. **Pedestrian Underpass** – Allows pedestrians safe passage under an obstacle, like Willoughby Road at the railroad corridor, and does not require the pedestrian to travel long distances out of the desired direction of travel to go around the obstruction. Further study and the approval of the ICRC is required prior to implementation of an underpass.

7. **Roundabout** - Plans have been completed for a roundabout at the corner of Cedar Street and Holbrook Street. This roundabout can be used as a prototype project if others are considered in the future.

8. **Publicly Owned Land** - There are publicly owned lands identified in this study where a trail is being recommended. Any trail design must respect the rights of the adjacent landowners as much as possible. Individual landowners should be consulted during the preliminary design stage of the route to account for privacy measures among other design issues.

9. **Privately Owned Land** - One way to develop a trail on private land is by obtaining the private land and placing it in public ownership. Another way is to secure a private easement allowing the trail to be constructed on the private land. It is recommended that this be accomplished by either purchase or donation. It is not recommended that eminent domain or condemnation be used for this purpose. Riparian rights come with the landowner's bundle of rights. Riparian rights cannot be granted without the owner's permission through an easement or purchase.

10. **Public Easements** - It is recommended that when the Township seeks easements for public use such as: utilities, maintenance, or other uses, a provision should be included to allow for recreational use or future trail construction within that easement.

11. **Private Easements** - Private easements are a good method of acquiring the land needed for the implementation of the NMTP, but does not require the same amount of money as the purchase of entire parcels.

OTHER IMPLEMENTATION ISSUES

1. **Design Criteria** - It is recommended that current design criteria be used to design the trail. This would include meeting the ADA (barrier free) standards, AASHTO (design standards), and others that are common for public trails. Privacy should be accommodated to the extent possible by the use of fencing, landscaping, or other visual barriers.

2. **Lighting** - Lighting is not recommended for the majority of the trail, but can be implemented and beneficial in areas of high use or security concerns. The hours of operation for trails are generally from dawn to dusk. The need for lighting usually appears only in densely populated areas where use is promoted after dark such as near downtown centers, retail areas, and event venues.

3. **Noise** - Non-motorized trails are generally quiet. Noise usually becomes a factor if large events are scheduled on the trail or if they are motorized. An occasional barking dog or a person's voice are the main sources of noise. However, if this is an area of concern, it is recommended that enforcement of regulations can control most of these disturbances.

4. **Materials** - It is recommended that the Township consider trail surfaces during the planning process. Solid surfaces, such as asphalt and boardwalks, are the primary choices for shared-use paths; however, there are applications, like less frequently used trails in woods, in which gravel and wood chips are acceptable. The choice of materials must be based upon the site, user groups and the frequency of use.

5. **Conservation Practices** - The most up to date conservation practices are recommended when developing a trail within any vegetated area. Enhance and/or avoid sensitive natural features whenever possible (primarily large healthy trees and/or underbrush). Use interpretative signage and education whenever possible to allow for a greater appreciation of natural resources. Develop conservation policies that protect and enhance the natural systems associated with this area.

6. **Trail Heads and Access Control** - A trail head acts as a point of entrance and exit and many times includes parking for cars. Trail heads are discouraged in neighborhoods as they can be unsightly and encourage large volumes of traffic and users. It is recommended to provide intimate connections to neighborhoods and destinations. Use barriers and/or gates to deter motor vehicles from entering the trail. Post signs to inform users of regulations.

7. **Other Agencies** - It is recommended to communicate with and utilize the expertise of other agencies (Drain Commission, Road Commission, Police Department, Public Service Department, Parks Department, Planning Department, and others) during the design, development, and management of this trail system.

8. **Screening** - It is recommended that there be adequate setbacks and generous screening or buffers between the trail and the adjacent property owner. Use vertical barriers, fencing or similar means to provide and create privacy where requested.

9. **Trail Advocacy Group** - A trail advocacy group is recommended to allow public participation in the development and monitoring of the trail. Work with local law enforcement agencies to implement police patrols and neighborhood watch programs from the initial stages of development. Add a regular bicycle patrol component to the police program. Allow designated neighbors to participate in the patrol of the trails and greenways and encourage communication and participation.

10. **Maintenance Program** - Designate the off-road trail areas as a Township property and allow the Township Departments to manage the property. The trail will require regular trash pick up, sweeping, and plowing. Provide the personnel and equipment necessary to perform these functions.

11. **Adjacent Communities** - Delhi Township should continue to communicate with the surrounding communities to discuss potential connection locations. The timing and exact connection points should be agreed upon so connectivity will happen between communities.

12. **Bridges** - Work with Michigan Department of Transportation (MDOT) and the Ingham County Road Commission (ICRC) to coordinate any future improvements. Accommodation should be made to include non-motorized transportation provisions whenever a bridge reconstruction or new bridge is considered within Delhi Township.

Further study will allow a more in-depth analysis and should be completed when specific routes are being considered for implementation. Refer to the Phasing Plan for recommended routing. A study process should include the following: study/design development (design of specific areas based on the Phasing Plan), verification of funding (application for grants and/or allocation of local funds), implementation (construction plans, bidding and construction), maintenance and post evaluation (the Township to provide maintenance and monitor procedures).

PROPOSED IMPLEMENTATION PROCESS

It is recommended that an implementation process be considered for implementation of the routes proposed throughout the Township. The following is an example:

PLANNING

1. Determine the base information
2. Analyze data
3. Prepare a preliminary plan
4. Determine ownership – Agency in Charge (dedicated park vs. others)
5. Determine policies to govern the trail
6. Prepare a preliminary cost estimate

FUNDING

1. Apply for grant funding - Federal and State funding opportunities, private foundations, others.
2. Review budgetary allocations - matching funds for grants or approve allocation of local funds for implementation

DESIGN DEVELOPMENT

1. Meet with citizens to discuss design parameters with relationship to impacts on private properties
    a. Discuss individual needs
        i. Trail location within the proposed route
        ii. Individual access to trail from adjacent property
        iii. Privacy issues – fencing, landscaping, setbacks
    b. Review specific design issues
        i. Vehicle deterrents – bollards, gates, barriers
        ii. Drainage – trench drains, culverts, catch basins, etc.
        iii. Road crossings and/or intersections
        iv. Signs (location, type, size etc.)
        v. Amenities (benches, trail markers, exercise stations, etc.)
        vi. Materials (asphalt, concrete, limestone, cinders, etc.)
        vii. Refine preliminary cost estimate

CONSTRUCTION DOCUMENTS

1. Prepare construction documents
2. Prepare written specifications
3. Develop final cost estimates
4. Publicly bid project
5. Construction observation
6. Maintenance and post construction evaluation (The Township to provide maintenance and monitor procedures).

FURTHER CONSIDERATIONS & STUDY

ORDINANCE CONSIDERATIONS

Some communities have completely restructured their zoning ordinances to permit mixed-use developments with higher densities and more open space than traditional neighborhood developments. Delhi Township is proactive in their planning and has done this in anticipation of planned unit developments (PUD) that consider trails an asset to their developments. The Township currently allows for higher densities in exchange for open space and recreational opportunities. Final trail policies should align with current ordinances or be modified to allow for pedestrian friendly design and implementation.

SIDEWALK ORDINANCE

The existing sidewalk ordinance requires that a minimum 5' wide sidewalk be installed. Two people walking side-by-side or passing one another generally require 1.4m (4.67') of space, while two people in wheelchairs need a minimum of 1.5m (5') to pass one another, so the current 5' wide sidewalk should be reviewed.

The sidewalk ordinance should be reviewed and consider a revision to require:

- 6' minimum width for all new sidewalks along major thoroughfares.
- 6' minimum width for all new sidewalks along secondary streets that act as connectors.

PLANNING CONSIDERATIONS

We recommend that Delhi Township consider the following principles which can make the Township more pedestrian friendly. Numerous tools can be used to accomplish this; however, one is to upgrade the land development/subdivision regulations. The principles that should be considered are:

- Discuss pedestrian accommodations early in the site planning process so that existing transportation efforts can be coordinated with any proposed developments.
- During review of new residential developments, consider sidewalk design that includes connectivity between adjacent parks, schools, other residential communities and commercial centers.
- During review of commercial developments, consider sidewalk design that includes pedestrian connections to neighborhood parks, schools, other residential communities and commercial centers.
- In commercial districts consider placing a higher emphasis on pedestrian access by setting maximum limits on the amount of parking, encouraging shared parking, and provide direct access to the front of building sites with direct sidewalk connections to the main streets
- Consider requiring the developer to pay for improvements such as the sidewalks and shared-use paths, similar to those shown on the NMTP for all new developments. This would include sidewalks or shared-use paths within the development and along right-of-ways.

SHARED-USE PATH DESIGN CRITERIA

Shared-use paths should contain the minimum design criteria listed below:

- 8' wide minimum for shared-use paths (10' preferred)
- Minimum 2' unobstructed area adjacent to both sides of trail
- Side slopes should not exceed 3:1 (33%)
- Vertical clearance to obstructions of 8'
- Grades not steeper than 5% recommended, with a graduated scale up to 11% or more for short distances
- Separation from roadways should be a minimum of 4'
- Cross slopes should not exceed 2%
- Path-roadway intersections should be carefully designed (See AASHTO Guide for the Development for Bicycle Facilities)

Once reviewed by the proper public process, the new widths should be adopted and incorporated into the zoning ordinance for implementation of future shared-use path design and construction.

ON-GOING CONSIDERATIONS

CITIZEN INITIATIVE

Once implemented, it is citizen participation that is crucial for the success of the approved NMTP. A trail advocacy group is needed to continue to voice support for non-motorized issues in the Township. It will take a long-term commitment and support by the community and residents to begin to change old planning practices where non-motorized transportation was not previously considered in the planning process.

There are a number of ways to implement those changes including, speaking with Township staff first, then attending Township Board meetings to speak on behalf of non-motorized projects being considered. When roadway projects are up for public review attend the Ingham County Road Commission meeting to show support for non-motorized design. A continuous presence and positive outlook will signify the desire for a more pedestrian friendly community.

MAINTENANCE

Proper trail maintenance is just as important as using correct design and construction techniques. A sidewalk that becomes inaccessible because of inadequate maintenance or improper construction zone provisions can be just as inconvenient or undesirable as failing to construct the proper pedestrian facilities in the first place.

Public works agencies should have a program for routine maintenance checks of trails and should have a process in place to quickly respond to citizen reports of damaged surfaces, particularly along high-priority routes, so that pedestrians with mobility impairments do not have to seek alternative routes.

Public agencies should adopt a snow removal program for trails that includes ensuring that the most heavily used pedestrian routes are cleared, including bus stops and curb ramps at street crossings so that snow plows do not create impassible areas.

Vegetation along trails can be a safety issue. Prevent vegetation from encroaching into walkways. Roots should be controlled to

prevent break-up of the sidewalk surface. Adequate clearances and sight distances should be maintained at driveways and intersections; pedestrians must be visible to approaching motorists.

A regular pruning and maintenance program is recommended. Vegetation and litter, including leaves and branches, should be removed on a regular basis. A checklist of surface repair and vegetation maintenance items should include:

- Frequent inspection of walkways for surface irregularities
- Responding to citizen complaints in a timely manner
- Repairing potential hazardous conditions immediately
- Performing preventative maintenance operations, such as keeping drains in operating condition and cutting back intrusive tree roots
- Sweeping of a project area after repair to any surface
- Cutting back vegetation to prevent encroachment in the path's clear zone

If a Township-wide millage is considered to fund sidewalk and shared-use paths, some of the money allocated in an annual budget should be reserved for routine maintenance. Maintenance is an on-going expense that should be discussed and the Township needs to decide what level of maintenance will be required to do an adequate job of maintaining the NMTP. There are also maintenance costs associated with the bikeways and the ICRC suggests a cost sharing system of not only maintaining them, but installing them as well.

FUNDING STRATEGIES

There are multiple options available to fund the implementation of the NMTP. The Township already has an annual sidewalk replacement budget and additional funds could be allocated to assist in building new sidewalks proposed in the NMTP.

Another source of implementation of the NMTP is the allocation of money available from the DDA. The DDA has plans to assist in the completion of the north/south link of the NMTP over the next few years. The Township can also explore alternative methods of cost sharing with the Township and property owners. There are a number of federal, state and private grants available for non-motorized projects and community improvements.

Maintenance and replacement will be an on-going cost throughout the life of the system and should be planned for accordingly. Other communities have successfully funded similar projects through the support of a millage. A sidewalk or trail millage allows for an annual funding source to provide maintenance and construction of the NMTP. A trail millage would also enable the Township to apply for federal and state funding where local money can be leveraged to obtain grant funding from those agencies.

STATE RECREATION FUNDING FOR TRAILS

MICHIGAN NATURAL RESOURCES TRUST FUND (MNRTF)

The MNRTF is available through the Michigan Department of Natural Resources (MDNR), to any local unit of government, including school districts, or any combination of units in which authority is legally constituted to provide recreation. These funds are utilized to acquire land for outdoor recreation, natural resources protection, and to develop facilities for outdoor recreational opportunities including trailways. The MNRTF is supported by revenue, interest accrued to the Trust from oil and gas exploration, and sales from state land. The grant program requires at least 25% of the project costs to be covered by the grantee. The program currently has a maximum state contribution of $300,000. Projects that meet one or more of the special initiatives will be given additional points. Currently trails are a major initiative for the MNRTF.

LAND AND WATER CONSERVATION FUND (LWCF)

This federal program, administered in Michigan by the Michigan Department of Natural Resources (MDNR), funds the planning, acquisition, and development of land for federal and non-federal (known as "state-side") outdoor recreation. These funds can generally be used to acquire land, build or repair recreation or park facilities, provide riding and hiking trails, enhance recreational access, and provide wildlife and hunting areas. The program requires at least 50% of the project costs to be covered by the grantee. The current federal contribution per project is capped at $150,000 (as of 2016). This grant program currently has a trails priority that scores trail projects higher than other types of projects.

MICHIGAN RECREATION PASSPORT GRANT

The MDNR also administers a grant program funded by voluntary license plate fees that can be used to fund small recreation based capital improvement projects. The grant requires at least 25% of the project to be funded by the grantee and the state will provide up to $45,000 of the project costs.

FEDERAL FUNDING

Federal funding for pedestrian and bicycle facilities is available through a variety of programs enacted by legislation. While some programs can last for many years, many of the programs are subject to renewal and regular review by the legislative bodies that enacted them. Current funding opportunities should always be evaluated on a project-by-project basis as funding opportunities will likely change over the effective life of this plan. Current information for funding opportunities can be found on the Federal Highway Administration's website at http://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/funding_opportunities.cfm.

METROPOLITAN PLANNING ORGANIZATION FUNDING (MPO)

This funding is administered through the local regional Planning Commission office. The Tri-County Regional Planning Commission office administers on behalf of Clinton, Eaton, and Ingham Counties. A study must be submitted to the Tri-County Regional Planning Commission Office for review to see if it qualifies for funding. To be considered a project must have a cost estimate, fulfill a transportation need and be submitted through an Act 51 Agency. A local match is usually required by the applicant. The MPO funds non-motorized trails with monies allocated for proposed transportation projects. The funding is provided by Michigan Department of Transportation (MDOT). Funding availability varies each year.

PRIVATE FUNDING SOURCES

Robert Wood Johnson Foundation
www.rwjf.org
Mott Foundation
www.mott.org
Kellogg Foundation
www.wkkf.org
General Motors Corporation
www.gm.com

LOCAL PRIVATE FUNDING SOURCES

Granger Foundation
www.grangerfoundation.org
Meijer
www.meijer.com
Target
www.target.com
Wal-Mart
www.walmart.com

PLAN AMENDMENTS & PHASING PLAN REVISIONS

The NMTP should be reviewed and updated every five years and prior to the expiration of the NMTP. The Township may want to update portions of the Plan and review the priorities for each route, and status of obtaining required easements. The approved Plan may be amended at any time during the five-year period to reflect significant changes in community conditions, needs, or changes in obtaining significant easements in a particular area. If an amendment takes place during the five-year period, the changes should be presented at a public meeting where public participation is encouraged and considered. Update the Plan when the grant funding is different than the Phasing Plan. Some examples of funding sources are the State of Michigan (who handles the federal disbursement of monies), Michigan Department of Natural Resources (MDNR) or Michigan Department of Transportation (MDOT).
At a minimum amendments or updates should include:

- Public Input – This should include a description of the public involvement process used in development of the amendment including the pubic input methods utilized. Public input should be encouraged when considering any amendments or revisions.
- Review current base information and inventory changes such as new developments that have taken place since the adoption of the latest revision of the NMTP.
- Update the NMTP and make changes to the Phasing Plan.
- Discuss new technology for construction methods and materials.
- Update implementation costs based on inflation and priority adjustments.
- Review progress of securing easements or newly acquired Township properties.
- Review and evaluate overall connectivity to destination points such as parks, schools, neighborhoods and commercial areas, Township owned properties and adjacent communities.
- Review and discuss possible funding opportunities; public and private.
- Document local adoption of the amendments or updates to

the NMTP and Phasing Plan.
- Develop a written summary indicating what aspects of the NMTP and Phasing Plan have been revised and why the changes were made.
- Communicate and distribute the revised amendments to the general public and other public agencies.

Amendments should involve a public meeting and/or an input session to allow the public to be involved in the decision making process.

CONCLUSIONS

The efforts of the Township, the Steering Committee and the above agencies, coupled with input received from the community have resulted in an NMTP that is consistent with the wants and needs of the community. The overall map generated by these efforts shows an evolving Township network that includes sidewalks, bikeways, shared-use paths, mid-block crossings, an underpass and a roundabout. The internal network that is made up of these components is also designed to encourage physical activity and regional connectivity with adjacent communities.

The NMTP should be used as a planning tool and the implementation process of it should begin as soon as possible to realize the goals set forth in the NMTP, including the following action steps:

- Begin the process of obtaining public & private easements
- Embrace working with other agencies to obtain the NMTP goals
- Work with the public to implement the non-motorized transportation routes as identified in the NMTP
- Identify specific projects for implementation
- Explore funding opportunities and begin applying for State and Federal grant funding
- Implement a pilot project for promotion and evaluation

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Landscape Architects and Planners.

NOVEMBER, 2016