

MASTER PLAN:
CIRCULATION PLAN ELEMENT AMENDMENT –
BICYCLE & PEDESTRIAN PLAN

LAWRENCE TOWNSHIP
MERCER COUNTY, NEW JERSEY



PLANNING BOARD
TOWNSHIP OF LAWRENCE
JUNE 17, 2019

This plan was developed under the direction of the Planning Board with contributions from members of the Board; the Township's Trails, Open Space and Stewardship Advisory Committee; the Friends of the Lawrence Greenway; the Mercer County Bicycle and Pedestrian Task Force; and from members of the public.

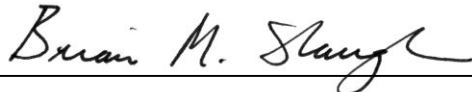
CIRCULATION PLAN ELEMENT AMENDMENT –
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TOWNSHIP OF LAWRENCE
COUNTY OF MERCER

ADOPTED
JUNE 17, 2019

Pursuant to *N.J.S.A. 40:55D-28b(4)*
An Element of the Master Plan

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VISION STATEMENT

For decades, streets in New Jersey and across the nation were designed primarily to move vehicles with cyclists, pedestrians, and transit riders as an afterthought. Accordingly, there is a general lack of infrastructure within street right-of-ways for people who are not driving. This includes sidewalks, crossings, pedestrian-scale lighting, bus shelters, and bike lanes. The transportation network is structurally and financially designed to primarily benefit people who can afford a car, while others are left to travel on a network that often makes travel inefficient, inconvenient and unsafe for them.

Lawrence was largely developed with a postwar suburban land use pattern and consequently is no exception to this trend. As portions of the Township have grown into more intensely developed areas, sidewalks and sidewalk connections have not always been provided through the site development process by the municipality, Mercer County, or NJDOT. The Township has required sidewalks on all collector and arterial roads since 1989. However, many of the major roads in Lawrence's commercial corridors still lack sidewalks, bike lanes, and safe crossings.

With approximately one-third of the general population unable to drive for reasons such as age, disability, or income, it is important that this significant segment of the population be able to safely access destinations. Multimodal infrastructure is important not only for safety, accessibility, and encouraging people to walk or bike to their destinations rather than drive, but also for the Township to address broader trends affecting transportation choice: declining per capita vehicle miles driven, an aging population, fluctuating gas prices, and demand for walkable neighborhoods and destinations (including retail centers) by millennials and aging baby boomers.

The Township Council recently updated its Complete Streets resolution and implementation policy to help make the vision of safer, more accessible streets a reality for Lawrence. This document is intended to further advance the Township's vision for complete streets and related open space and recreation goals by providing goals and objectives, recommendations and implementation strategies specifically intended to enhance bicycle and pedestrian safety, access, and mobility throughout Lawrence Township.

GOALS AND OBJECTIVES

GOAL: IMPROVE BICYCLIST AND PEDESTRIAN SAFETY

Objectives:

- Improve data collection and data management systems to identify high-risk locations and populations needing targeted improvements.

GOAL: ENHANCE ACCESSIBILITY, MOBILITY & CONNECTIVITY

Objectives:

- Continue to implement the Township’s Complete Streets policy
- Improve and expand transportation infrastructure for bicyclists and pedestrians, including sidewalks, trails, bikeways, and bicycle parking, and providing linkages between road, sidewalk, trail and transit systems.

GOAL: PROVIDE OPPORTUNITIES FOR PEOPLE TO BECOME MORE HEALTHY AND ACTIVE THROUGH WALKING AND BICYCLING.

Objectives:

- Increase public awareness of the benefits of bicycling and walking.
- Encourage the use of trails for access to open space, natural and historic resources.
- Improve bicyclist, pedestrian and driver behavior.
- Address emerging technologies, such as electric bikes and scooters, motorized skateboards, and bike share programs.

GOAL: FACILITATE COORDINATION AND INTEGRATION.

Objectives:

- Collaborate with the State of New Jersey, Mercer County, surrounding municipalities, and the school board on land use and transportation decisions.
- Partner with the public, private and non-profit organizations to support integrated bicycle and pedestrian policies, planning, facilities, activities, and events.

PLANS AND POLICIES; EXISTING CONDITIONS

Lawrence Township Master Plan

The Township Master Plan, last adopted in 1995, includes Goals and Objectives and a number of plan elements. The Circulation Element includes a description of the road network and classifications, recommended actions and road improvements, and a description of greenways/bikeways and public transportation options. This Bicycle and Pedestrian Plan is intended to be adopted as a new sub-element of the Master Plan Circulation Element, in conjunction with an update of the Circulation Plan map that provides two separate maps –one focused on Vehicle Circulation, and other focused on Bicycle and Pedestrian Circulation.

The following existing conditions are depicted on the accompanying Bicycle and Pedestrian Circulation Map:

- Existing Trails/Bikeways – identifies major trail/bikeways, including the D&R Canal Trail, Lawrence Hopewell Trail, and Johnson Trolley line trail (see 2018 Open Space and Recreation Plan Element for additional detail regarding trails).
- Parks and Schools – identifies park, open space and school sites (see 2018 Open Space and Recreation Plan Element for additional detail regarding these sites and related recreational facilities).
- Facilities and Places – identifies locations where bicycle and pedestrian connections are desirable, including schools, municipal building/facilities, shopping centers, and major office campuses.

As indicated above, the Open Space and Recreation Plan Element, recently updated in 2018, describes the Township’s trails and bikeways, as well as park, open space and school sites and recreational facilities. The element notes that improvements to bicycle and pedestrian facilities, together with education and enforcement activities, will help enhance access to the Township’s parks and open space areas. Other Master Plan Elements that are relevant to bicycle and pedestrian circulation are the Land Use Element, which provides the basis for circulation systems, and the 2010 Green Buildings and Environmental Sustainability Element, which includes a discussion of sustainable circulation systems.

Complete Streets Policy

In March 2019, the Township Council adopted an updated resolution in support of the Complete Streets that required all public street projects undertaken by the Township to be designed and constructed as complete streets. The Township’s Complete Streets Implementation Policy was also updated to include the NJDOT’s Complete Street checklist to assist project managers and designers to plan for, design and construct appropriate accommodations for bicyclists, pedestrians, and transit users. To date, the implementation of the complete streets policy has focused on collector roadways under the jurisdiction of the

Township. As residential and neighborhood streets do not require centerline or shoulder striping, improvements are typically limited to ADA accessibility and crosswalk striping.

Bicycle and Pedestrian Planning Assistance Study

In 2009, a Bicycle and Pedestrian Planning Assistance Study was completed under the auspices of the NJDOT's Office of Bicycle and Pedestrian Programs. The study was comprised of two volumes. The first volume, a *Planning Resource Manual*, includes review of traffic patterns, conditions of roads, sidewalks and intersections in key locations, and a summary of crash reports. The second volume, an *Implementation Workbook* identified conceptual improvements for sidewalks, bicycle lanes, traffic calming measures, intersections and interchanges. The study is now largely outdated, given changes in road conditions, development and traffic patterns, but is an example of the implementation of a complete streets policy.

State, County and Regional Pedestrian/Bicycle Improvements

The Brunswick Pike corridor has been the subject of several studies over the past two decades and most recently, boulevard street improvements by NJDOT, including enhanced sidewalk and crosswalk facilities. This state project is nearing completion and upon final project acceptance, Brunswick Pike will revert to Lawrence Township jurisdiction. The Township has received a grant from the Delaware Valley Regional Planning Commission (DVRPC) to develop plans for an accompanying streetscape project for the Brunswick Pike that will enhance the pedestrian experience, including design of "gateway" elements at Whitehead Road and Brunswick Circle.

Improvements to the Johnson Trolley Line trail have been funded through a grant from the Mercer County Greenlinks Project, as well as by a National Recreational Trails grant, and a federal Recreational Trails Program Grant. Under a Recreational Trails grant from DVRPC as part of the Transportation and Community Development Initiative (TCDI), a study was conducted regarding a possible linkage of the southern and northern segments of the Johnson Trolley Line over or under Interstate 295 which currently bisects the old trolley right-of-way. A study in 2014 identifies several options for providing this linkage with the construction of a dual use pedestrian and bicycle bridge over the interstate with a cost estimate range of \$6.6-8.1 million - a substantial capital project. Mercer County has taken the lead in making a request for federal funding for the project. Extending the trail would connect the north and south sides of the trail. Route 206, the present alternative, lacks bicycle and pedestrian facilities, most notably where this highway traverses over the Interstate.

The Township supports and participates in the Greater Mercer Transportation Management Association (GMTMA) Mercer County Bicycle and Pedestrian Task Force. With the assistance of DVRPC, the County has developed an interactive map which provides bicycle facility conditions throughout the County.

The Johnson Trolley Trail, Lawrence Hopewell Trail, and D&R Canal Trail are included as part of the Circuit Trails, a network of hundreds of miles of multi-use trails connecting the Greater Philadelphia region. The Circuit Trails Coalition coordinates with the DVRPC to encourage allocation of funding to build the network. The Township has received funding from the DVRPC's Regional Trail Fund for multiple projects along the Lawrence Hopewell Trail.

RECOMMENDATIONS

Complete Streets Policy Implementation

NJDOT defines five steps for implementing the Complete Streets approach:¹

- 1) Updating plans, policies, and procedures to incorporate Complete Streets principles;
- 2) Incorporating Complete Streets into the development process;
- 3) Building institutional capacity through training, communication, and monitoring;
- 4) Creating partnerships; and
- 5) Initiating pilot projects to build support and demonstrate the value of Complete Streets.

The Township's adoption of a Complete Streets resolution and policy implementation document provides the foundation for incorporating Complete Streets principles in street improvement projects. To further advance implementation of its Complete Streets policy, the Township should consider review and assessment of street improvements where the policy has been implemented so that successes can be documented and/or problems addressed. Ongoing training, communication and monitoring of the Complete Streets program should also be pursued. Guidance on creating and implementing Complete Streets policies is available from several entities, including NJDOT, the New Jersey Bicycle and Pedestrian Resource Center, and the National Complete Streets Coalition. NJDOT uses the Resource Center to provide technical assistance through trainings and workshops.

Sidewalks

A sidewalk prioritization list should be created that ranks recommended sidewalk locations and improvements. In order to determine where to allocate scarce funding, a sidewalk plan should be developed that ranks the Township's sidewalk priorities based on factors like traffic volume/speed, presence of pedestrian-friendly destinations, proximity to schools, connection to the existing sidewalk/trail network and dangerous pedestrian conditions. The adequacy of the right-of-way and other issues that may impact the feasibility of providing improvements should also be considered. Review and updating data provided in the 2009 Bicycle and Pedestrian Planning Assistance Study could be considered a first step in this effort.

¹ <http://www.state.nj.us/transportation/eng/completestreets/pdf/cscreateimplementationplan.pdf>

Crosswalks should be included as part of the sidewalk priority list. If pedestrians have no safe way to cross the street, then pedestrian safety and efforts to encourage walking will remain disappointing. Accordingly, all intersections involving arterial highways or collector roads with traffic control devices should include highly-visible crosswalks (painted, different surface, etc.), ADA-compliant curb cuts, curb extensions, and, where signalization is present, priority pedestrian signals with visual countdown timers and audible warnings.

Pedestrians will only use crosswalks if they are conveniently located. If it is a five minute walk to the closest intersection where the individual will have to double-back in the other direction to reach a destination that is across the street, people will risk crossing the street mid-block. Mid-block crossings at uncontrolled locations are particularly dangerous to pedestrians, research shows. Where there are long segments of arterial and collector roads without controlled intersections, the Township should consider installing mid-block crossings, which should be signalized or otherwise engineered so drivers see and stop for pedestrians.



Mid-block crossing

The sidewalk priority list should also indicate where bicycle paths are preferred over sidewalks, consistent with the proposed bikeways indicated on the accompanying Bicycle and Pedestrian Circulation Plan. With the sidewalk/bikeway priority list, the Township can pursue bicycle and pedestrian funding through NJDOT’s Safe Routes to School program, which has pass-through money from the federal government’s Transportation Alternatives program. The Township can also prepare a capital improvement plan to construct missing links identified on the priority list, utilizing modest but consistent multi-year funding. This would operate like the road improvement program, but on a much smaller scale. Residents could be encouraged to recommend sidewalk projects that could then be evaluated and placed on the priority list.

Sidewalks should continue to be required on both sides of the street for all collector, secondary arterial and arterial roads in nonresidential development, as required by §533 of the Township’s Land Use Ordinance. Sidewalks should also continue to be required on all residential streets consistent with RSIS standards, as provided for by §504 of the LUO.

Bicycle Facilities

Adequate bicycle infrastructure that separates bicycles from vehicles is necessary to significantly reduce car/bike conflict zones (and thus accidents) and encourage people to bike to everyday destinations, not just for recreation. A 2014 survey of 2,283 residents across five cities indicated that approximately two-thirds of those respondents would be more likely to ride a bike if there was physical separation between cars and bikes, including 85% of those who were “interested but concerned” about biking. In addition, 10% of cyclists surveyed who

had protected bike lanes available had switched from other modes of transportation.² As this information shows, protected bike facilities have the potential to attract residents interested in biking, including those who otherwise would take motorized transportation. Other municipalities have successfully applied for bicycle path construction funds based on an adopted plan.

Bicycle routes are typically classified in the following manner:

Class I (Separate Facility) - A non-motorized paved cartway, physically separated from motorized vehicular traffic by an open space strip or curb barrier. This is also called a bicycle path, bike trail, multi-purpose trail or some combination thereof.

Class II (Bike or Bicycle Lane) - A portion of a roadway that is designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists. Most often these are done in couplets, each one being one way and adjacent to the outside through travel lane.

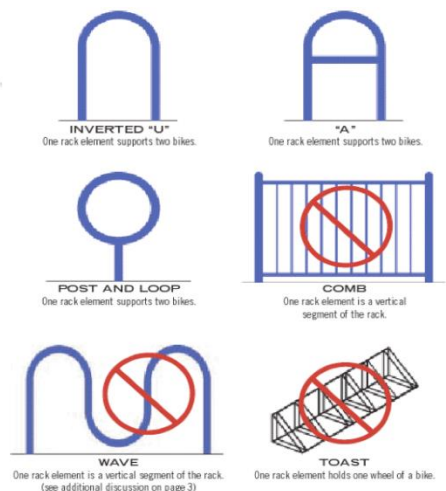
Class III (Bike or Bicycle Route) - A segment of road designated by the jurisdiction having authority, with appropriate directional and informational markers (e.g., markings on the road called “sharrows”), but without striping, signing and pavement markings for the preferential or exclusive use of bicyclists.



Sharrows

The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide should be used as the primary reference for bikeway design. The FHWA supports using the NACTO guide³ and nearly all of its designs are permitted by the Manual on Uniform Traffic Control Devices (MUTCD).⁴ The MUTCD provides national standards for traffic control devices and is followed by public agencies across the country. This is why drivers typically see the same traffic control devices (stop signs, traffic lights, etc.) everywhere in the United States.

Bicycle parking should be provided in conjunction with bikeway development, as people are more likely to bicycle where they can conveniently and safely secure their bikes. Bicycle parking should also continue to be required for nonresidential uses such as education uses and shopping centers, as required by §533 of the LUO.



Bike Rack Guide (Sacbike.org)

² - http://ppms.otrec.us/media/project_files/NITC-RR-583_ProtectedLanes_FinalReportb.pdf

³ - http://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_guidance/design_flexibility.cfm

⁴ - <http://nacto.org/publication/urban-bikeway-design-guide/>

Bicycle parking areas should be designed to provide secure anchoring for locking devices and be within 50 feet of building entrances. Additionally, bike parking should be in well-lit areas, not within 2 ft. of a parallel wall or 2.5 ft. of a perpendicular wall, not require stair access from the street or main point of access, and ideally, protected from the weather.

However, such parking should not obstruct vehicle or pedestrian traffic. To best accommodate bicycles of all frame and tire sizes, the permitted bike parking facilities should be only bike lockers, post and loop racks, inverted U Racks, or “A” racks.⁵

Bicycle and Pedestrian Circulation Plan

The Bicycle and Pedestrian Circulation Plan depicts proposed trails, bike lanes, and multi-use paths. These pedestrian and bikeway improvements are intended to help enhance linkages between the road and sidewalk system, the Township’s greenway of open space and recreational sites, and key locations including schools, municipal building/facilities, shopping centers, and major office campuses.

The plan also identifies two proposed bridge connections:

- Bridge over I-295 to connect Johnson Trolley Line north and south trail segments. As discussed in the previous section, Mercer County has taken the lead in making a request for federal funding for the project, based on a 2014 study of alternatives for the bridge. The Township should support the County in efforts to secure the funding and in the implementation of the bridge construction, once funded.
- Bridge over Route 1 to connect Quaker Bridge Mall with Yorkshire Village. The Township should work with NJDOT, Quaker Bridge Mall and other commercial developments along the Route 1 corridor to implement construction of a pedestrian/bicycle bridge connection across Route 1, as was required in the latest general development plan for the Mall.

Pedestrian/Bicyclist Education and Outreach

An annual Bicycle Safety Rodeo has been hosted at St. Lawrence Rehabilitation Center, with support of the Township Police Department. The event provides an opportunity for children ages 3 – 11 and their families to learn about bicycle safety, including bicycle inspections, free helmets, and a bicycle safety course.

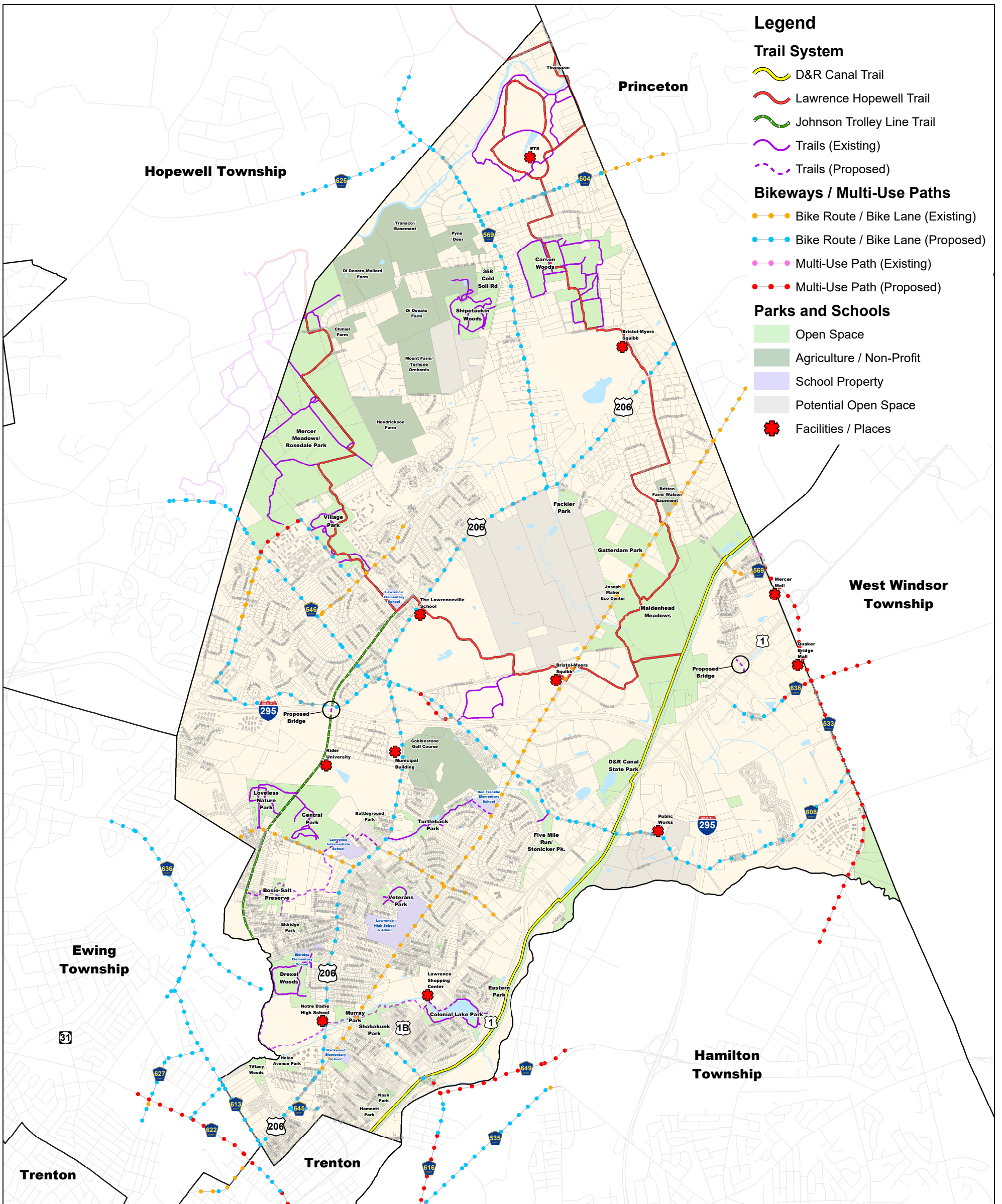
The non-profit Lawrence Hopewell Trail Corporation helps support development of the Lawrence Hopewell Trail and also sponsors special events including a walking club and trail rides.

⁵ - <http://www.fhwa.dot.gov/publications/research/safety/pedbike/05085/pdf/lesson17lo.pdf>

IMPLEMENTATION/ACTION PLAN

The following specific actions are recommended to address the Township's goals and objectives related to bicycle and pedestrian circulation:

- 1) Review existing bicycle and pedestrian improvements installed under the Complete Streets policy to identify successes and address any problems or concerns.
- 2) Develop a sidewalk priority list based on factors like traffic volume/speed, presence of pedestrian-friendly destinations, proximity to schools, connection to the existing sidewalk/trail network, dangerous pedestrian/bicycle conditions, and adequacy of the right-of-way. Include crosswalks and indicate where bikeways are preferred to sidewalks, as part of the sidewalk priority list. Incorporate the priority sidewalk improvements in the Township's capital improvements plan.
- 3) Continue to develop pedestrian trails and bikeways and upgrade and enhance bicycle and pedestrian facilities in coordination with public and private entities, including Mercer County, DVRPC and GMTMA.
- 4) Support Mercer County in seeking federal funding for a bridge over I-95/I-295 to provide a connection between the north and south segments of the historic Johnson Trolley Line right-of-way.
- 5) Encourage collaboration between NJDOT, Quaker Bridge Mall and other commercial developments along the Route 1 corridor to implement the construction of a pedestrian/bicycle bridge construction across Route 1.
- 6) Review/update existing data regarding traffic patterns, crash reports, road, sidewalk, and intersection conditions, and review new technologies (e.g. electric bikes and scooters, motorized skateboards) to identify high-risk locations and needed improvements.
- 7) Identify opportunities for ongoing training and education of Township staff, Board member and/or volunteers on the implementation of complete streets from the New Jersey Bicycle and Pedestrian Resource Center.
- 8) Continue to collaborate with the State of New Jersey, Mercer County, surrounding municipalities, and the school board on land use and transportation decisions that include and support bicycle and pedestrian facilities.
- 9) Continue to partner with the public, private and non-profit organizations to support integrated bicycle and pedestrian policies, planning, facilities, activities, and events that promote bicycle and pedestrian safety and opportunities for increased recreation and health benefits.



Legend

Trail System

- D&R Canal Trail
- Lawrence Hopewell Trail
- Johnson Trolley Line Trail
- Trails (Existing)
- Trails (Proposed)

Bikeways / Multi-Use Paths

- Bike Route / Bike Lane (Existing)
- Bike Route / Bike Lane (Proposed)
- Multi-Use Path (Existing)
- Multi-Use Path (Proposed)

Parks and Schools

- Open Space
- Agriculture / Non-Profit
- School Property
- Potential Open Space
- Facilities / Places



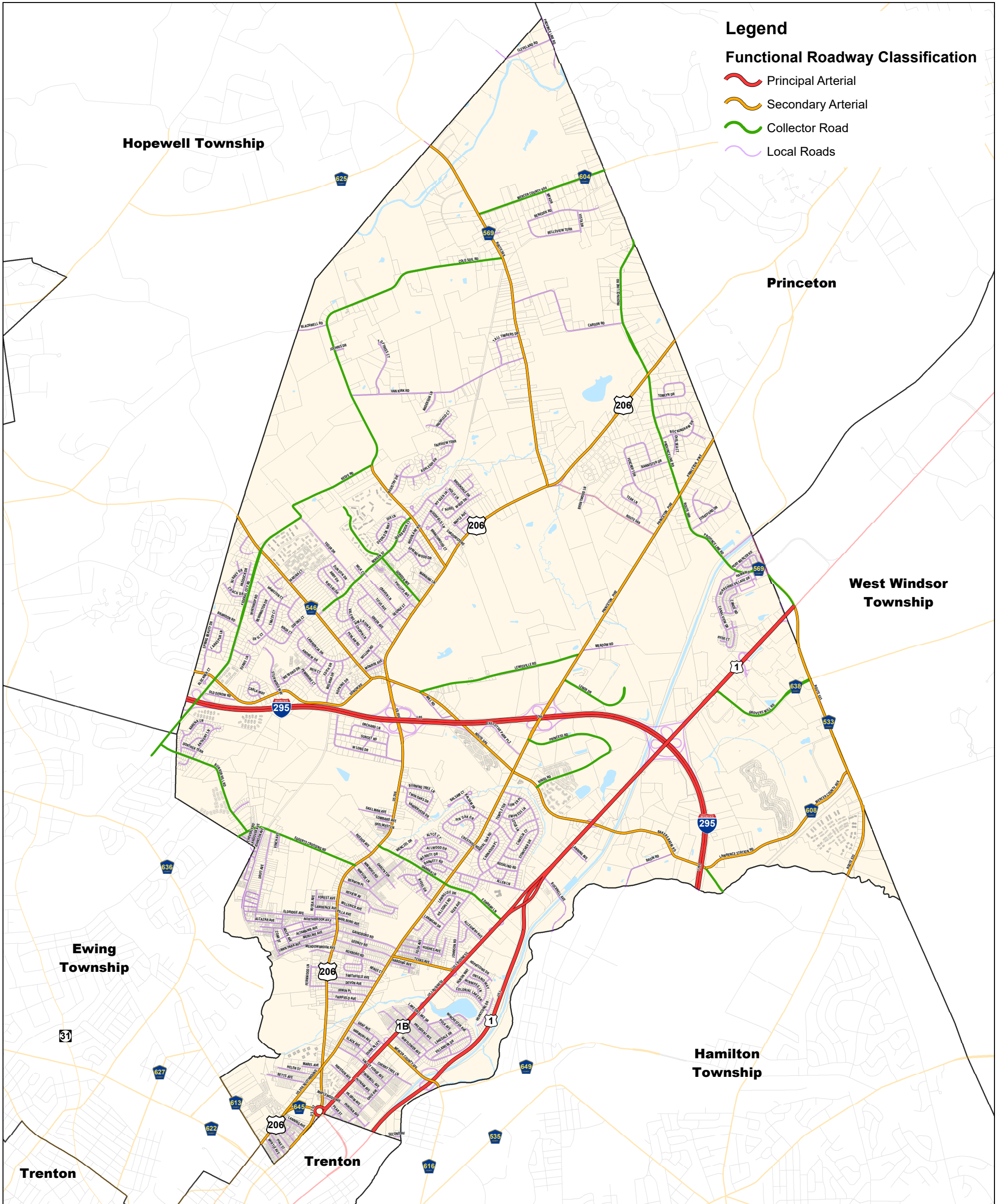
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Bicycle and Pedestrian Circulation Plan

LOCATION:
 Lawrence Township, Mercer County, NJ

DATE:
 June 17, 2019



Legend

Functional Roadway Classification

- Principal Arterial
- Secondary Arterial
- Collector Road
- Local Roads



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Vehicular Circulation Plan

LOCATION:
 Lawrence Township, Mercer County, NJ

DATE:
 June 17, 2019