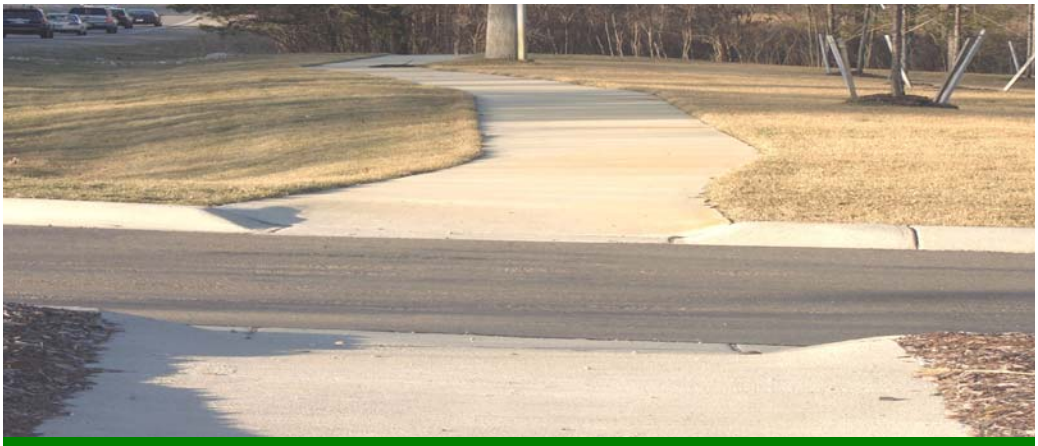


Section Four
Pathways Plan

The proposed network of pathways represents just over forty-one miles of pathways planned to connect residents to schools, parks, activity nodes and public facilities. This Section describes the specific locations, design and priority of segments for the proposed pathways.

All the proposed pathways in this Plan are designated for non-motorized use, which is defined to include use by pedestrians, bicycles, skates, scooters, skis, snowshoes, and any type of conveyance for persons with disabilities, but not mopeds, "push bikes," motorized bicycles, motorized scooters, or snowmobiles. No motor vehicles will be allowed on any of these pathways except as used by law enforcement officers and other authorized personnel in the course of their duties.

Locations

The locations of the proposed pathways collectively constitute a Township-wide network that reflects the results of the planning process. *Map Six Proposed Pathway System* depicts the ultimate location of recommended pathways. Pathways are proposed along major roadways, along roadways that connect to land use destinations, or segments that complete a continuous loop. Pathways are proposed only on one side of roads throughout the Township. This was done in part to reduce the amount of pavement and help protect the natural character of the area. The locations are conceptual, and exact locations will be determined only after landowner negotiations and site specific fieldwork are completed. As a general rule, the majority of the pathways are proposed along the northern and eastern sides of the road with a few exceptions as follows:

- Hilton: Hunter to Old U.S. 23 (South side)
- Larkins: Pleasant Valley to Kensington (South side)
- Old U.S. 23: Spencer to Green Oak Twp. (West side)
- Van Amberg: Newman to Spencer (West side)

Determination as to which side of the road pathways should be located was based on an inventory of each of the road segments. Site constraints were evaluated including the presence of steep slopes, wetlands, lakes, existing vegetation, drain crossings, incompatible uses, destinations, and presence of existing pathways.

Each proposed pathway should be located for public use on existing public right-of-way or public road easements. Where the existing right-of-way (ROW) or easements are insufficient, pathways should be placed on rights-of-way or easement corridors acquired from willing landowners, who may grant or sell a piece of property, an easement, or a license for use. No trails are proposed on private property without a landowner's consent. Where pathways are proposed within existing Road ROW or easements, all projects will require permitting through the Livingston County Road Commission.

Design

While the specific design of the pathways may vary, all of the paths are proposed to be off-street multi-use paths. This allows for maximum usage by a wide variety of user groups, ranging from birdwatchers to bicyclists and from young schoolchildren to senior citizens. Unfortunately trails are not always easy to construct, and pathway corridors are often very difficult to acquire. Therefore multiple-use pathways can often provide the greatest benefit to the most users. While no roads were designated specifically for on-street bike lanes, if the opportunity arises and demand for additional space for bicyclists becomes apparent in the future, the Township should consider separate bike lanes where appropriate. This would require close coordination with other road improvements conducted by the Livingston County Road Commission.

Designing and constructing non-motorized systems is often as complicated as building roads. There are a number of agencies that must be involved in the planning and design process and multiple issues need to be considered and resolved. The following design guidelines and other considerations provide guidance for proposed pathways within Brighton Township. These are intended as a guide only, although they are based on standards established by the American Association of State Highway and Transportation Officials (AASHTO), and other state agencies and non-motorized organizations. Regardless of the type or location of a pathway, users should expect a safe, user-friendly, and accessible system.

Design Guidelines. Nearly all accepted design guidelines have exceptions, as dictated by local conditions, community desire, changing trends, intensity of use, and many other factors. Similarly, these design guidelines allow for flexibility in dealing with site-specific issues. In general, pathways shall be placed one foot inside the future ROW line (see *Figure Seven Typical Pathway Cross Section*). Where necessary to avoid existing natural features, the pathway location can be altered.

- **Off-Street Multi-Use Paths/Sidewalks.** These pathways are physically separated from the adjacent roadway and are suitable for walkers, joggers, skaters, and others, as well as children and casual bicyclists. The multi-use paths should have an eight foot minimum width, and ten feet preferred, in order to safely accommodate travelers in each direction. They are to be paved with asphalt and must be separated from roadways by ten feet of open space or landscaping. If this separation is not feasible, the paths must be separated by a five foot horizontal separation or a physical barrier (concrete divider and railing minimum of three feet high) from motor vehicle traffic.

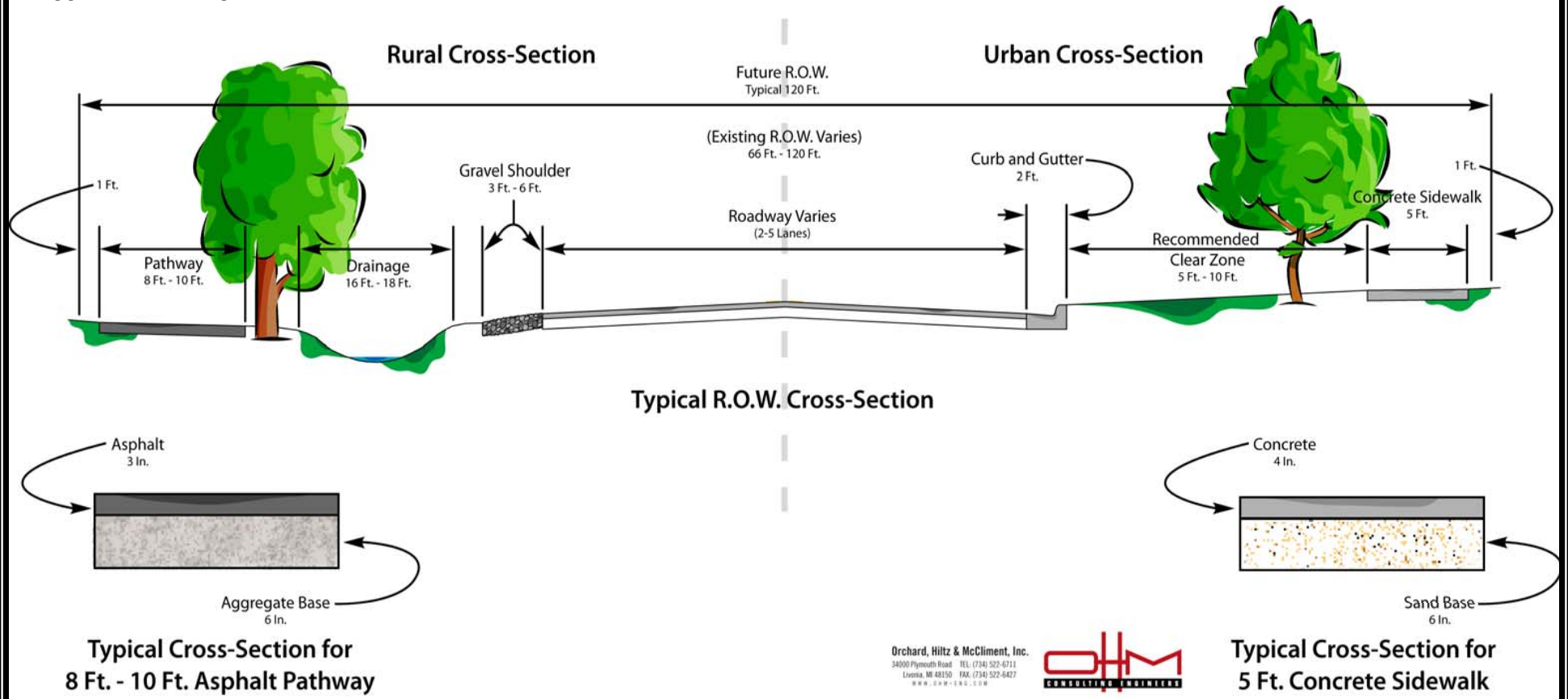
  In more urban areas near the City of Brighton, such as the Old U.S 23 south of Hilton and Grand River, sidewalks are recommended. Sidewalks are typically five feet wide and constructed of Portland cement concrete on a sand base (See *Figure Seven Typical Pathway Cross Section*).

Certain trails as identified by the Township, along predominately residential or rural roads, may be unpaved trails at first, consisting of a compacted surface such as crushed stones or rock, with the expectation that they will later be upgraded if desired and as funds become available. This will serve to provide a route sooner than expected in areas where safety or lack of connections exists. The Township should be cognizant of maintenance and longevity of gravel paths, at the same time recognizing that these are not intended to be long-term paths.

The mix of user types on multi-use paths is not without problems and can result in conflicts between different users. However, when design treatments, such as the ones listed below, are employed to address these potential conflicts, the majority of problems can generally be avoided.

Figure Seven

Typical Pathway Cross Section



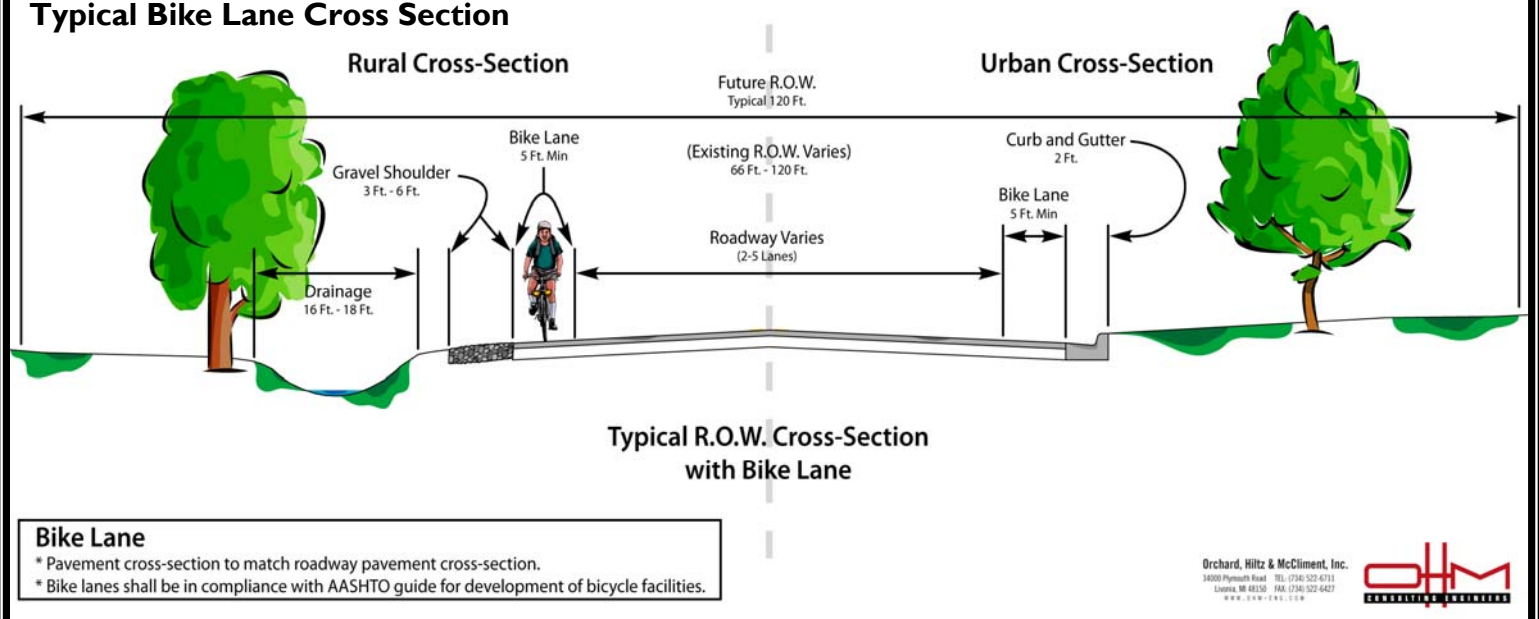
- Horizontal and vertical alignment to ensure clear sight lines.
- Avoid view obstructions at edges of the paths by placing signs, poles, utility boxes, and other elements away from the edge of the path and using low-growing shrubs and groundcovers or high-branching trees.
- Use bicycle speed limits.
- Use delineation and separation treatments such as colored paving, textured paving, pavement markings, and signing.
- Sign and mark a four-inch wide solid line at the center of the path as well as edge lines when curves with restricted sight distances are experienced.

- **On-Street Bike Lanes.** Several design features of roadways can be made more compatible to bicycle travel including bicycle-safe drainage grates, pavement textures, sight distances and signal timing and detector systems. All of these elements should be designed with the bicyclist in mind if the road corridor is to be shared safely and effectively. However, the most critical variable affecting the capability of a roadway to accommodate the bicycle is road width. Two ways to provide adequate road width for both vehicular and bicycle travel are as follows:

- **Bike Lane Striping.** A striped bike lane is a cost-effective means to safely provide a designated area of the road for bicycles. Bike lanes should be one-way facilities and carry bicycle traffic in the same direction as adjacent motor vehicles. A bike lane width of five feet is recommended and should only occur on the right-hand side of the travel lane. A smooth riding surface is necessary as well as drainage that is bicycle friendly. Bike lane pavement marking can be designated at the edge of the travel lane with a four-inch solid white line. Bike lane pavement marking should never extend through the intersection and never cross pedestrian crosswalks (See *Figure Eight Typical Bike Lane Cross Section)*.

Figure Eight

Typical Bike Lane Cross Section



- **Paved Shoulders.** Roads are often designed with a wide shoulder to enhance the life of the road, facilitate drainage and maintain adequate sight distances. Paving of these shoulders is an effective means to prevent edge deterioration of the road surface as well as accommodate bicycle travel.

Other Considerations. In addition to the design guidelines and cross-sections, a variety of other issues must be considered during the design and implementation of a pathways system.

- **Barrier Free Accessibility.** The Americans with Disabilities Act has established guidelines to provide barrier free accessibility at all public facilities. It is important to provide access to the pathway system according to these guidelines so that all residents can enjoy the paths in a safe manner. As each path is developed it should be designed to provide barrier free accessibility.

- **Materials.** Hard, all-weather asphalt or concrete surfaces are preferred over those of crushed aggregate, sand, or clay which provide a much lower level of service and require higher maintenance. Pavements should be machine laid and soil sterilants should be used where necessary to prevent vegetation from erupting

through the pavement. Asphalt pathways shall have a suitable aggregate base for longevity, and concrete sidewalks shall have a sand base.

Crushed stone or rock provides a smooth, firm surface that may be suitable for trails along rural residential corridors. Clay-gravel mixtures provide a trail surface that approaches asphalt in consistency and helps reduce the spreading seen on gravel only trails. Crushed limestone is similar to gravel surfaces and is generally rolled to provide a smooth surface suitable for most uses, but must be graded regularly to maintain an even tread.

- **Signage.** Standard and consistent signage is an essential element for a successful pathway system. Signage and way-finding can offer educational and/or interpretive information and provide directional, informational, awareness, or warning messages. All signs must conform to the "Manual on Uniform Traffic Control Devices" (MUTCD), the Brighton Township Sign Ordinance, and be coordinated with the Livingston County Road Commission and/or MDOT. All bikeway signing and striping plans should also be reviewed by a traffic engineer and coordinated and approved by the applicable road agency.

- **Roadway Crossings.** Roadway crossings should be made at roadway intersections to make use of traffic control devices such as signals or stop signs. Where crossings are proposed between road intersections, specific advanced warning signage shall be provided. In most cases, the crossing is accomplished by means of a signed and striped crosswalk. Zebra-style crosswalks are recommended as having the highest visibility to motorists, and are required at mid-block crossings. All roadways and driveway crossings requiring ramps shall be built in accordance with ADA requirements.

- **Pathway Amenities.** Pathway amenities, such as benches, bicycle racks, drinking fountains, waste receptacles, and trail information should be provided, as reasonable, along the pathways to enhance the pathway experience.

Priorities

As previously stated, this Plan represents a long-term vision that may not be fully implemented for over twenty years or more. The proposed pathways have been evaluated in order to determine their priority within the development of a cohesive pathways system. Evaluation criteria used to justify each segment's priority include:

- Connection to schools
- Connection to parks
- Connection to activity nodes
- Connection to public facilities
- Timing with planned road improvements
- Environmental impacts
- Availability of right-of-way
- Connections to existing sidewalks
- Concentration of population
- Proximity to the City of Brighton
- Existing road material: gravel or pavement
- Cost

As a result of the above evaluation, four priorities, or phases, were developed to help guide the order of pathway development. Again, the development of the pathway along East Grand River was not included in the priorities, and was classified as "planned" as installation of the sidewalk/pathway is expected in 2007. All of the priorities have an anticipated range of time that is recommended for installation of these segments; however, these are broad ranges. A number of variables could change the order of development including funding, feasibility, public involvement, and overall community priorities.

All of the pathways are proposed on public roads. The Township encourages the development of pathways on private roads to connect to the overall system. Specifically, High Pointe is the main road into Kensington within the Township. The Township should work with the Huron Clinton Metro Park to develop a trail from Kensington Road into the park. In addition, Spencer Road terminates at the edge of the park, and a non-motorized entrance at this location could link Township residents to the Kensington pathway system and consequently the Island Lake paths and the Huron Valley Trail.

Priority One. Pathways considered the most urgent to construct, these paths are concentrated around the southwest portion of the Township, near the City of Brighton. In addition, segments that provide connections to the planned East Grand River pathways were considered high priority to provide better access over I-96 for residents. It should be noted that MDOT has indicated their plans to reconstruct the Kensington bridge over I-96 in 2009 and has indicated that the bridge can be designed to accommodate additional space for non-motorized use if the pathways exist at both ends. Almost ten miles of pathways make up the Priority One pathways, consisting of:

- Grand River: Hilton to Hacker (East side)
- Hacker: Hyne to Grand River (East side)
- Hilton: Grand River to Hunter (South side)
- Hilton: Hunter to Old U.S. 23 (North side)
- Kensington: Larkins to East Grand River (East side)
- Kensington: Spencer to Larkins (East side)
- Kensington: Buno to Spencer (East side)
- Kensington: Jacoby to Buno (East side)
- Old U.S. 23: Hilton to Spencer (E) (East side)
- Old U.S. 23: Spencer (E) to Spencer (W) (West side)
- Old U.S. 23: Spencer to Grand River (West side)
- Pleasant Valley: Larkins to Grand River (East side)
- Spencer: City of Brighton to Old U.S. 23

Priority Two. Phase Two pathways are pathways that are considered important to connect residents to key land use destinations including schools, Township Park, and to the Grand River and Old U.S. 23 corridors. Nearly nine miles of Priority Two pathways are estimated to develop consisting of the following segments:

- Buno: Kensington to Township Park (North side)
- Buno: Spencer to Township Hall (East side)
- Old U.S. 23: Hartland Twp. to Hyne (West side)
- Old U.S. 23: Hyne to Hilton (East side)
- Old U.S. 23: Grand River to Green Oak Twp. (West side)
- Pleasant Valley: Spencer to Larkins (East side)
- Spencer: Old U.S. 23 to Buno (North side)
- Spencer: Buno to Van Amberg (North side)
- Spencer: Van Amberg to Pleasant Valley (North side)
- Spencer: Pleasant Valley to Kensington (North side)
- Taylor: Old U.S. 23 to schools (North/East sides)

Priority Three. Priority Three pathways are intended to make the pathways system more comprehensive by making it accessible to more residents. The Priority Three pathways, making up a little more than seven miles, consist of:

- Hyne: Hacker to Hunter (North side)
- Hyne: Hunter to Old U.S. 23 (North side)
- Hyne: Old U.S. 23 to Pleasant Valley (North side)
- Kensington: Pleasant Valley to Jacoby (East side)
- Pleasant Valley: Hyne to Kensington (East side)

Priority Four. The final segments to complete the comprehensive pathways system make up the fourth and final priority. The Priority Four pathways, if developed, make up just over twelve miles including:

- Buno: Pleasant Valley to Township Park (North side)
- Culver: Spencer to Pleasant Valley (East/North side)
- Hunter: Hyne to Hilton (East side)
- Larkins: Pleasant Valley to Kensington (South side)
- Newman: Van Amberg to Pleasant Valley (North side)
- Pleasant Valley: Commerce to Hyne (East side)
- Pleasant Valley: Kensington to Newman (North side)
- Pleasant Valley: Newman to Jacoby (East side)
- Pleasant Valley: Jacoby to Buno (East side)
- Pleasant Valley: Buno to Spencer (East side)
- Spencer: Kensington to Kensington Park (North side)
- Van Amberg: Newman to Buno (West side)
- Van Amberg: Buno to Spencer (West side)