

**MAP 2.14 - PROPOSED TRAILWAY ALTERNATIVES  
SEGMENT 5: ALTERNATIVE B**  
LEELANAU SCENIC HERITAGE ROUTE TRAILWAY MASTER PLAN

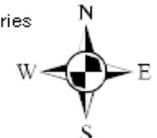


**GENERAL LEGEND**

- State Trunkline
- County Primary Roads
- County Local Roads
- Village Roads
- Other Roads
- - - Existing Hiking & Skiing Trails
- Historic Buildings & Structures
- ▲ Rest Areas/Scenic Turnouts
- Recommended SLBE Wilderness Boundary (1981)
- SLBE Boundary
- ~ Rivers
- ☪ Lakes
- ⊕ Village Boundaries
- ⊕ Township Boundaries
- ⊕ Aquatic Bed
- Forested
- Agricultural

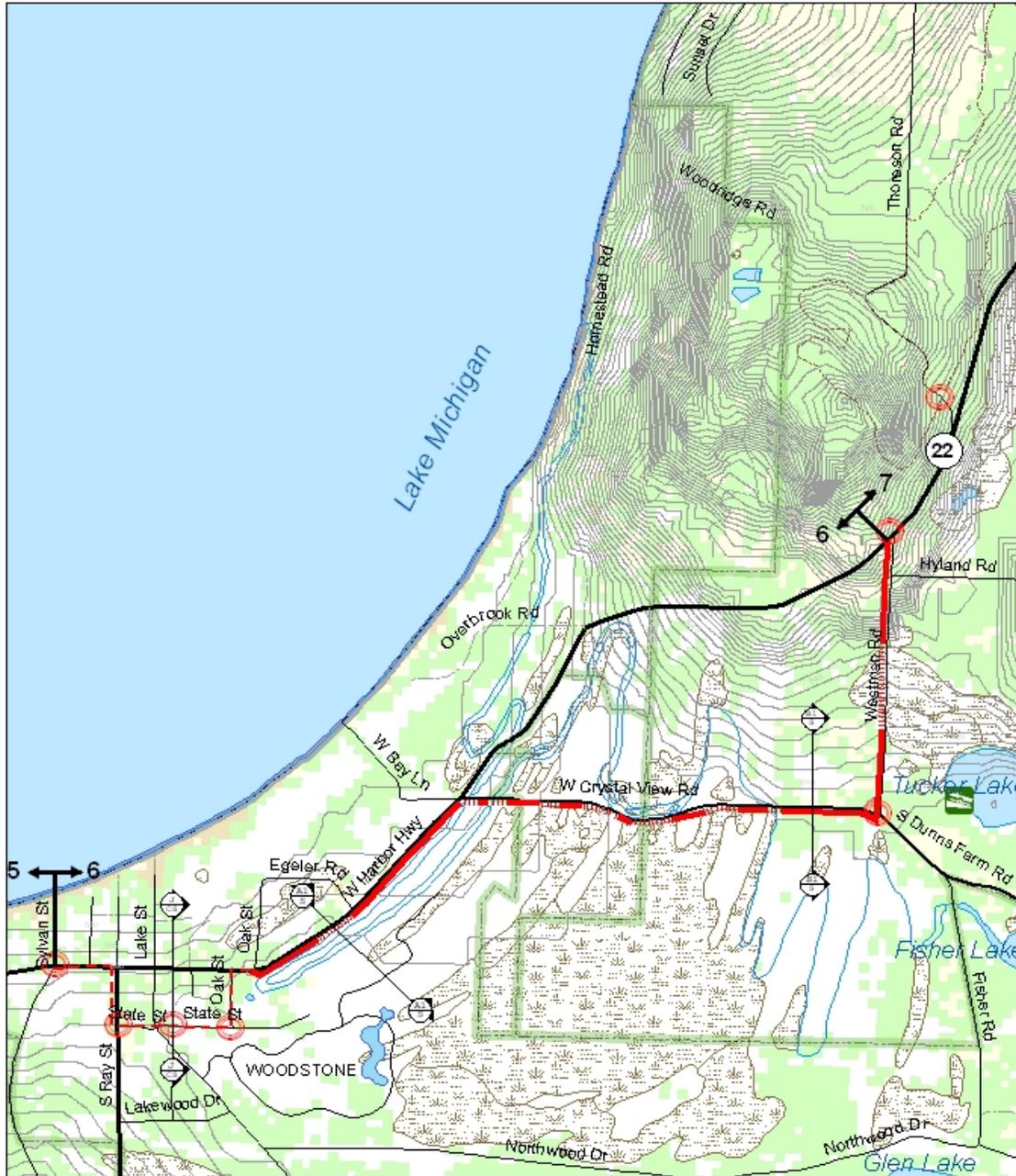
**TRAIL SURFACE LEGEND**

- Asphalt
- ⋯ Crushed Limestone
- ⋯ Boardwalk
- - - On-Road Bike Lane
- ⋯ Existing Gravel Road
- Road Crossing Location



Base GIS Data: 10 digit Framework Data  
1992 National Land Cover Dataset  
1992 National Wetlands Cover Dataset  
National Park Service  
NAD 1983 UTM ZONE 18N

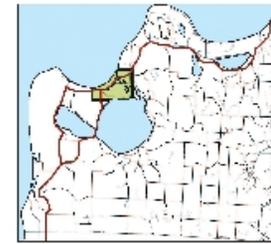




**MAP 2.15 - PROPOSED TRAILWAY ALTERNATIVES  
SEGMENT 6: ALTERNATE B**  
LEELANAU SCENIC HERITAGE ROUTE TRAILWAY MASTER PLAN

**TRAIL SURFACE LEGEND**

- Asphalt
- Crushed Limestone
- Boardwalk
- On-Road Bike Lane
- Existing Gravel Road
- Road Crossing Location



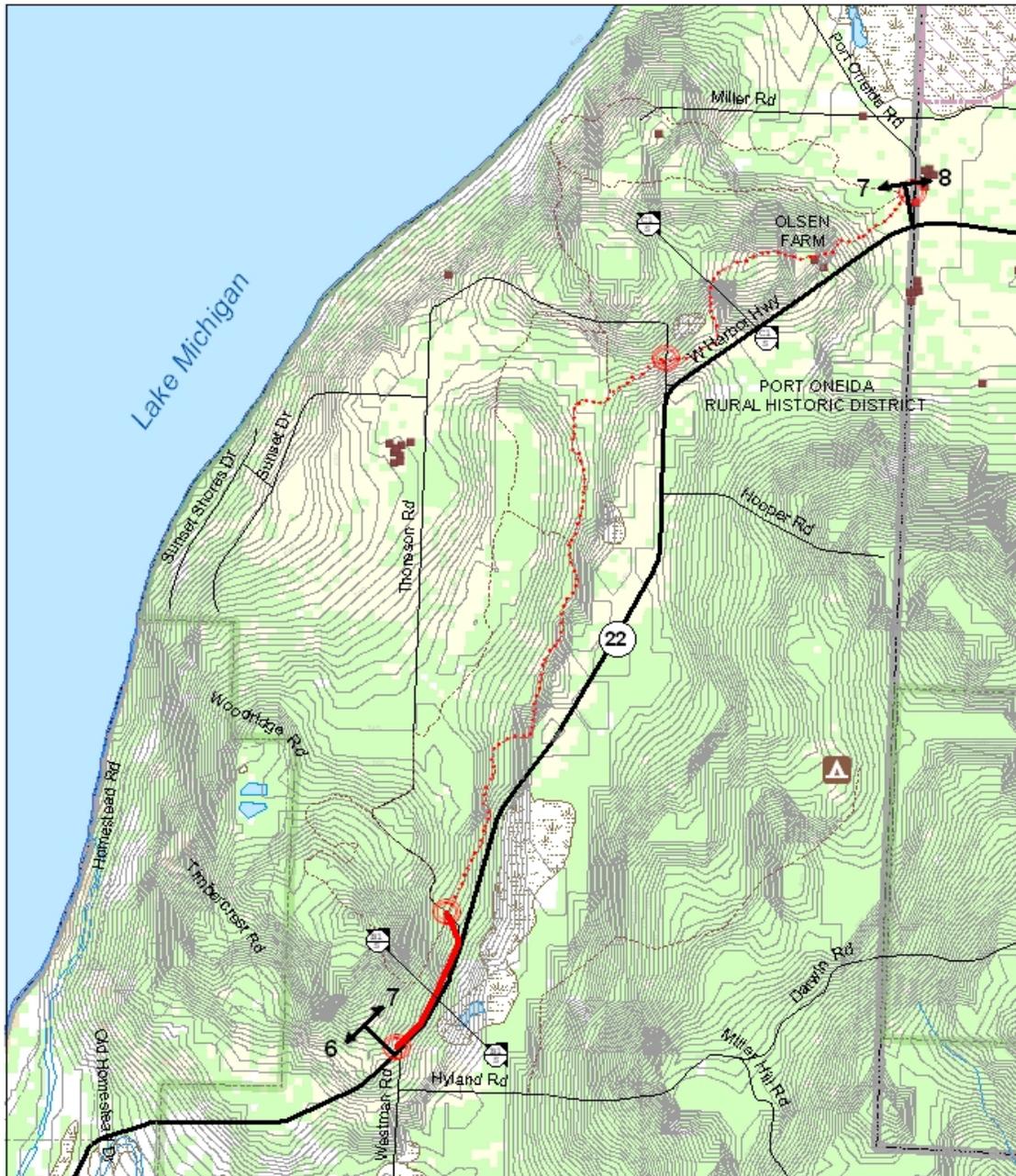
**GENERAL LEGEND**

- State Trunkline
- County Primary Roads
- County Local Roads
- Village Roads
- Other Roads
- Existing Hiking & Skiing Trails
- Historic Buildings & Structures
- Rest Areas/Scenic Turnouts
- Recommended SLBE Wilderness Boundary (1981)
- SLBE Boundary
- Rivers
- Lakes
- Village Boundaries
- Township Boundaries
- Aquatic Bed
- Forested
- Agricultural



Base GIS Data: Michigan Framework Data  
1992 National Land Cover Dataset  
1992 National Village Center Dataset  
National Park Service  
NAD 1983 UTM Zone 18N





**MAP 2.16 - PROPOSED TRAILWAY ALTERNATIVES  
SEGMENT 7: ALTERNATIVE B**  
LEELANAU SCENIC HERITAGE ROUTE TRAILWAY MASTER PLAN

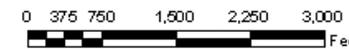
**TRAIL SURFACE LEGEND**

- Asphalt
- ⋯ Crushed Limestone
- - - Boardwalk
- - - On-Road Bike Lane
- - - Existing Gravel Road
- Road Crossing Location



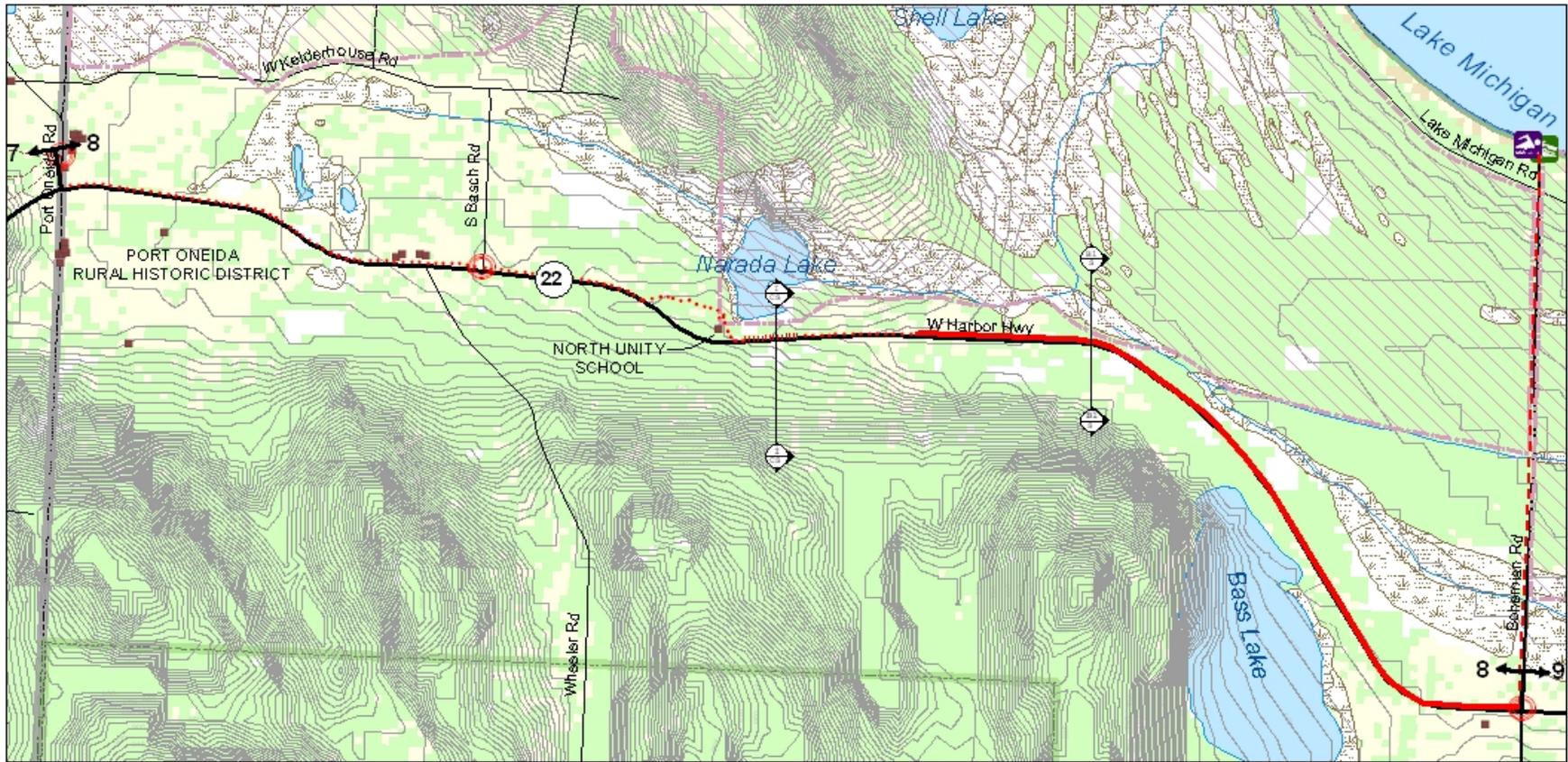
**GENERAL LEGEND**

- State Trunkline
- County Primary Roads
- County Local Roads
- Village Roads
- Other Roads
- Existing Hiking & Skiing Trails
- Historic Buildings & Structures
- ▲ Rest Areas/Scenic Turnouts
- ⊗ Recommended SLBE Wilderness Boundary (1981)
- SLBE Boundary
- Rivers
- Lakes
- Village Boundaries
- Township Boundaries
- Aquatic Bed
- Forested
- Agricultural

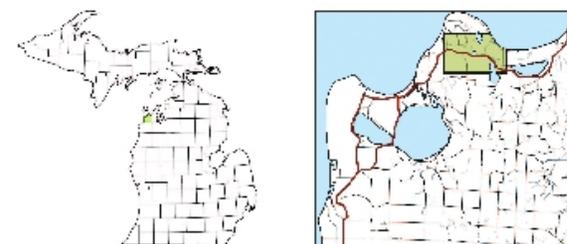


Base GIS Data: Michigan Framework Data  
1992 National Land Cover Dataset  
1992 National Wetlands Cover Dataset  
National Park Service  
NAD 1983 UTM Zone 18N





**MAP 2.17 - PROPOSED TRAILWAY ALTERNATIVES  
SEGMENT 8: ALTERNATIVE B**  
LEELANAU SCENIC HERITAGE ROUTE TRAILWAY MASTER PLAN

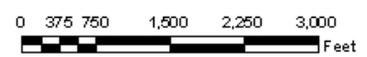


**GENERAL LEGEND**

- State Trunkline
- County Primary Roads
- County Local Roads
- Village Roads
- Other Roads
- - - Existing Hiking & Skiing Trails
- Historic Buildings & Structures
- ▲ Rest Areas/Scenic Turnouts
- Recommended SLBE Wilderness Boundary (1981)
- SLBE Boundary
- ~ Rivers
- ☪ Lakes
- ⊕ Village Boundaries
- ⊕ Township Boundaries
- ⊕ Aquatic Bed
- Forested
- Agricultural

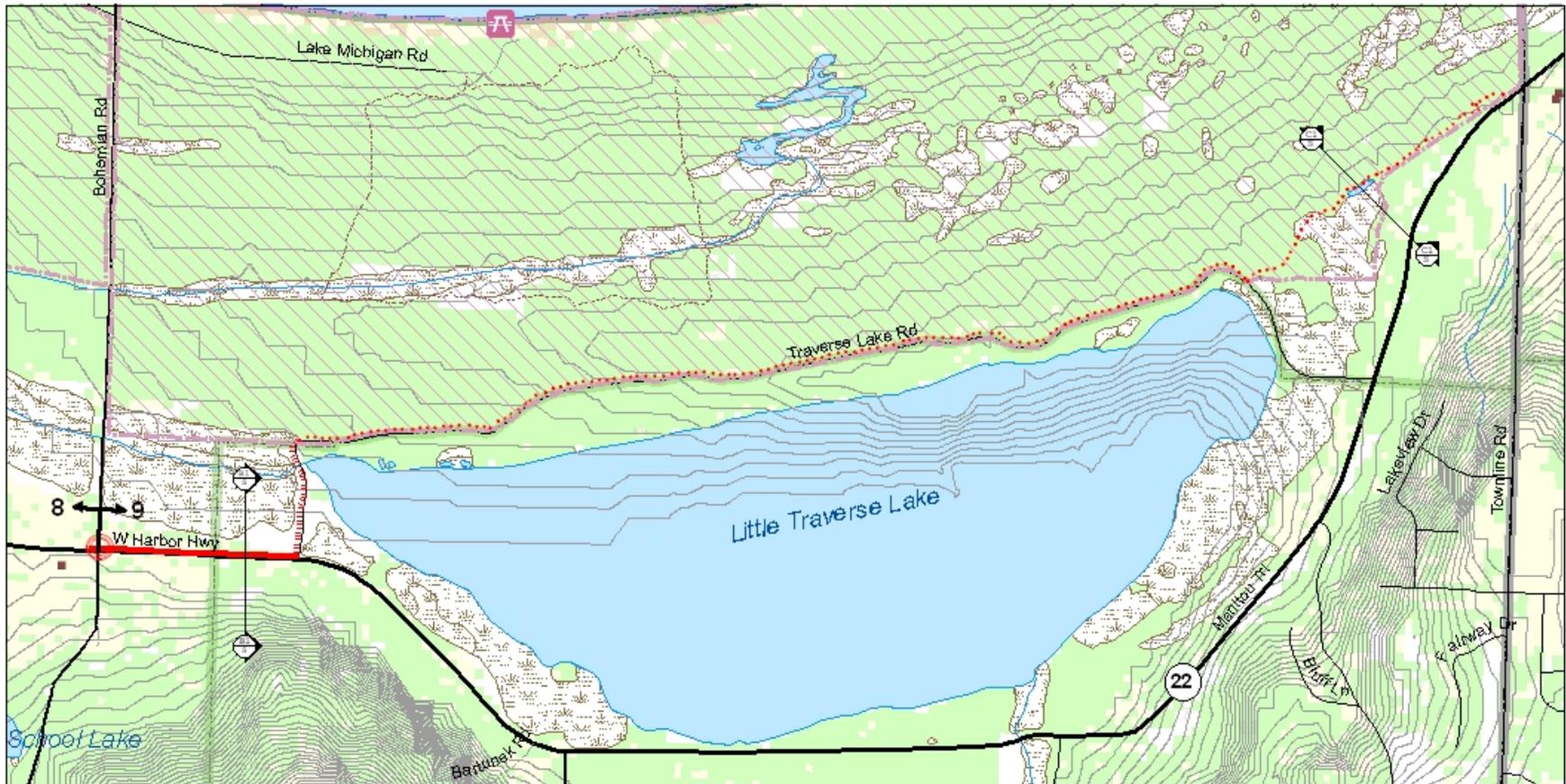
**TRAIL SURFACE LEGEND**

- Asphalt
- ⋯ Crushed Limestone
- ⋯ Boardwalk
- - - On-Road Bike Lane
- ⋯ Existing Gravel Road
- Road Crossing Location

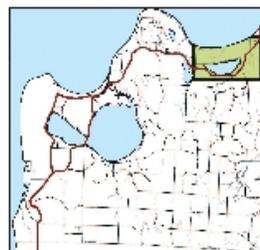


Base GIS Data: 10/20/01 Franconia, Data  
1992 National Land Cover Dataset  
1992 National Wetlands Cover Dataset  
National Park Service  
NAD 1983 UTM ZONE 18N

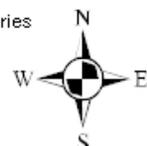




**MAP 2.18a - PROPOSED TRAILWAY ALTERNATIVES  
SEGMENT 9: ALTERNATIVE B**  
LEELANAU SCENIC HERITAGE ROUTE TRAILWAY MASTER PLAN



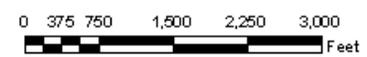
- GENERAL LEGEND**
- State Trunkline
  - County Primary Roads
  - County Local Roads
  - Village Roads
  - Other Roads
  - - - Existing Hiking & Skiing Trails
  - Historic Buildings & Structures
  - ▲ Rest Areas/Scenic Turnouts
  - Recommended SLBE Wilderness Boundary (1981)
  - SLBE Boundary
  - ~ Rivers
  - ☪ Lakes
  - ☒ Village Boundaries
  - ☒ Township Boundaries
  - ☒ Aquatic Bed
  - Forested
  - Agricultural

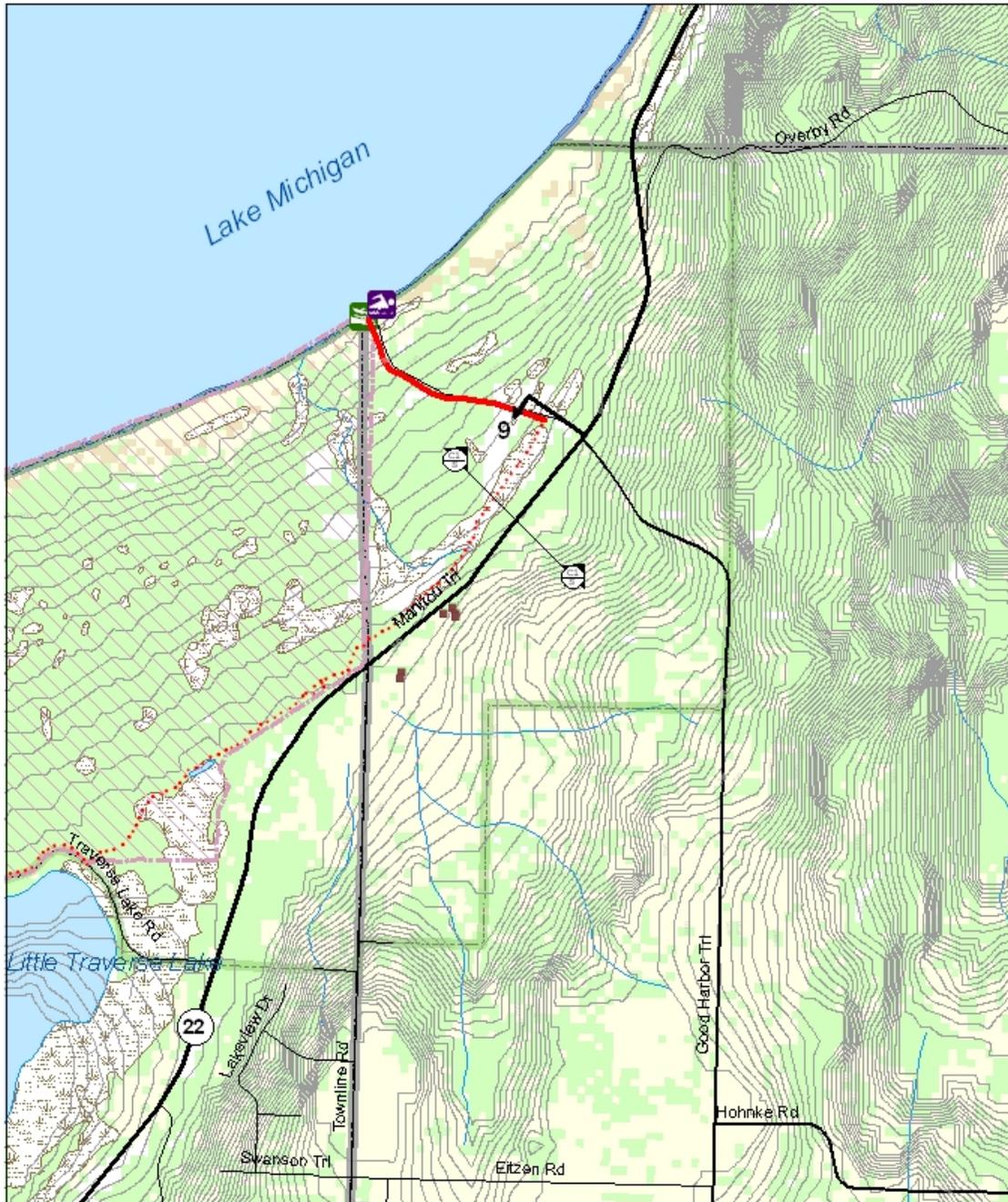


Base GIS Data: Michigan Framework Data  
1992 National Land Cover Dataset  
1992 National Wetlands Cover Dataset  
National Park Service  
NAD 1983 UTM ZONE 18N

**TRAIL SURFACE LEGEND**

- Asphalt
- ..... Crushed Limestone
- ..... Boardwalk
- - - On-Road Bike Lane
- ..... Existing Gravel Road
- Road Crossing Location

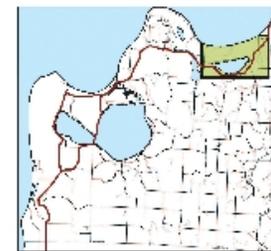




**MAP 2.18b - PROPOSED TRAILWAY ALTERNATIVES  
SEGMENT 9: ALTERNATIVE B**  
LEELANAU SCENIC HERITAGE ROUTE TRAILWAY MASTER PLAN

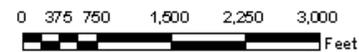
**TRAIL SURFACE LEGEND**

- Asphalt
- ⋯ Crushed Limestone
- ▬▬▬ Boardwalk
- - - On-Road Bike Lane
- ▬▬▬ Existing Gravel Road
- Road Crossing Location



**GENERAL LEGEND**

- |   |   |
|---|---|
| <span style="color: black;">—</span> State Trunkline                              | <span style="color: blue;">~</span> Rivers  |
| <span style="color: black;">—</span> County Primary Roads                         | <span style="color: blue;">☁</span> Lakes   |
| <span style="color: black;">—</span> County Local Roads                           | <span style="border: 1px solid black; padding: 2px;"> </span> Village Boundaries  |
| <span style="color: black;">—</span> Village Roads                                | <span style="border: 1px solid black; padding: 2px;"> </span> Township Boundaries |
| <span style="color: black;">—</span> Other Roads                                  | <span style="border: 1px solid black; padding: 2px;"> </span> Aquatic Bed         |
| <span style="color: black;">⋯</span> Existing Hiking & Skiing Trails              | <span style="color: green;">■</span> Forested                                     |
| <span style="color: brown;">■</span> Historic Buildings & Structures              | <span style="color: yellow;">■</span> Agricultural                                |
| <span style="color: yellow;">▲</span> Rest Areas/Scenic Turnouts                  |   |
| <span style="color: purple;">▣</span> Recommended SLBE Wilderness Boundary (1981) |   |
| <span style="color: green;">▣</span> SLBE Boundary                                |   |



Base GIS Data - Michigan Forensics Data  
1992 National Land Cover Dataset  
1992 National Wetlands Cover Dataset  
National Park Service  
NAD 1983 UTM ZONE 18N



#### 2.3.4 ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The Environmentally Preferable Alternative is defined as the alternative that causes the least damage to the biological and physical environment and would best preserve, protect, and enhance historic, cultural, and natural resources. The National Environmental Policy Act (NEPA) – Section 101(b) identifies six criteria to help define the Environmentally Preferable Alternative. The Act directs that federal plans should:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
2. Assure for all Americans, safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
3. Attain the widest range of beneficial uses of the environment without degradation, risk to health and safety, or other undesirable and unintended consequences.
4. Preserve important historical, cultural, and natural aspects of our natural heritage, and maintain, whenever possible, an environment which supports diversity and variety of individual choice.
5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.
6. Enhance the quality of renewable resources and approach the maximum attainable recycling of resources.

The No-Action alternative, which represents “business as usual,” would cause the least damage to the biological and physical environment, since no new construction would be implemented (realizes criterion 1). Lakeshore visitors, mostly bicyclists, would continue to use existing state highways and county roads. Hiking would continue on existing trails. The No-Action alternative would not fully realize criteria 2, 3, 4, and 5 to the same extent as alternatives A and B (the preferred) because it offers fewer recreational opportunities. It would not realize criterion 2 because visitors would use road shoulders (where available) and safety concerns would be paramount. It also would not realize criterion 6 because no resource recycling would occur, such as the use of renewable, sustainable construction materials.

Alternative A would cause some damage to the biological and physical environment due to new construction. Non-native plants may establish and follow routes of new construction. However, much of the construction would occur in disturbed areas in the highway right-of-way, so any impact would be reduced. Criterion 2 would be realized, because most of the trail would be separate from the highway surface to provide a safe experience. Only in a few instances, because of physical limitations, would the road shoulder be used as the trail. Criteria 3-5 would be fully realized. This alternative would provide additional access to natural, cultural, and recreational resources; would provide alternative modes of transportation; and provide greater opportunities for interpretation (e.g., narrow gauge railroad, Glen Haven, and ponds and wetlands). Renewable, sustainable construction materials would be used to the extent possible.

Alternative B, the preferred alternative, would cause some damage to the biological and physical environment due to new construction. Non-native plants may establish and follow routes of new construction. However, much of the construction would occur in disturbed areas in the highway right-of-way, so impact would be reduced. In keeping with the concept of this alternative, however, in some areas the trail would diverge from the highway right-of-way and, in some cases, would be constructed in areas of very little previous disturbance. Criteria 2-5 would be realized, to an even greater extent than alternative A, since the divergent route locations would provide an array of recreational, cultural, and interpretive opportunities. Renewable, sustainable construction materials would be used to the extent possible.

Overall, the No-Action alternative is the one that causes the least damage to the biological and physical environment and would best preserve, protect, and enhance historic, cultural, and natural resources; it is the environmentally preferred alternative.

### **2.3.5 ALTERNATIVES AND/OR OPTIONS THAT WERE ELIMINATED (Appendix – Optional Trail Route Maps)**

Trail Segment 1 - Option 1.1 (east side of M-22) was not considered due to excessive wooded gradient and a private residence within the potential trail routing.

Trail Segment 4 - Option 4.4 was considered initially as an alternative to allow a safer access route from Segment 4 around the steep gradient and curving right-of-way north of Welch Road. With field assessment of Option 4.3 and input from the NPS staff it was determined that 4.4 would not be feasible, practical or necessary when option 4.3 would be superior.

Trail Segment 6 - Option 6.3 was considered initially as a possible link from the Glen Arbor urbanized area but required significant procurement of private right-of-way and/or property although the NPS temporarily designated a recreational easement along logging road/trail accessing from West Crystal View Road.

An alternative that kept the trail only on road rights-of-way was dismissed, as this was not physically feasible in some locations or the safety concerns were too great.

### **2.3.6 BEST MANAGEMENT PRACTICES AND MITIGATION FOR THE ACTION ALTERNATIVES**

Best Management Practices (BMP's) are recommended for each action alternative in order to minimize potential adverse effects associated with Trailway implementation. The BMP's would be incorporated into construction bid packages and specifications in order to reduce potential adverse effects on Trailway project sites. The following BMP's would be utilized along with more project-specific measures during the implementation of the Trailway construction phase. These BMP's were also considered to be in effect when conducting the impact analysis in the Environmental Consequences section (see section 2.6).

National Park Service BMP's and more specific BMP's for trail systems should be further explored, adapted, and/or created to meet specific needs of the Alternative Trail segments implemented for the Trailway. The following list is not intended to be comprehensive nor project specific but provides an example framework that should be further developed.

**Resource Protection Measures / Best Management Practice Framework**

| Resource Category   | BMP Goals and general description   |
|---|---|
| <p><b>Topography; Soils</b></p>                                     | <p>In order to minimize significant earthwork, landform change construction limits would be marked prior to beginning any work under the proposed contract. Every effort would be made to utilize native soils and prevent establishment of non-native plants. Imported soils will be sterilized or otherwise treated to be weed free.</p> <p>Standard erosion control best management practices, including silt fencing, would be used in areas of steep topography. Erosion control would also include prompt temporary / permanent restoration to disturbed areas in order to reduce destructive erosion. Stock piling and placement of fill material and/or existing soil would be verified by NPS staff and private consultant.</p>  |
| <p><b>Wetlands; Streams / Creeks</b></p>                            | <p>The contractor would be required to use best management practices, as well as follow and comply with all federal, state and local ordinances and guidelines when working in or near regulated wetlands.</p> <p>Standard practices would include sediment control fencing, limited construction area, and other suitable measures to protect wetlands.</p>  |
| <p><b>Wildlife</b></p>  | <p>Workers would maintain a defined work area perimeter and would keep all construction – related effects within construction limits. Construction activities would not be allowed at night in order to allow wildlife to return to their roosts or dens, and forage in areas within the project vicinity. A construction schedule would be required by the contractor indicating progress and operating hours in order to limit construction activities to a desired time frame.</p>   |
| <p><b>Vegetation</b></p>  | <p>In order to minimize significant earthwork, landform change construction limits would be marked prior to beginning any work under the proposed contract.</p> <p>Standard erosion control best management practices, including silt fencing, would be used in areas of steep topography. A professional biologist or NPS staff would prepare a list of native plant species that would be affected by the project and identify a plan for relocating plants. If required, other plant species within the construction vicinity would be marked and flagged with protective fencing. Weed free mulch will be sterilized if required.</p> <p>At the completion of the project, restoration would occur, which would include soil preparation and native seeding and planting.</p> |
| <p><b>Land Use</b></p>  | <p>A project schedule would be required in order to limit disturbance to private housing developments and commercial businesses within the vicinity of the Village of Empire and Glen Arbor.</p> <p>Provide adequate orientation to construction personnel prior to construction to limit potential conflicts with existing land use.</p>   |
| <p><b>Cultural Landscape/ Historic Resources; Viewsheds</b></p>     | <p>Implement ground-disturbing actions that avoid potential disturbance to existing cultural landscapes and historic sites.</p> <p>Include resource protection measures in the construction documents to protect existing resources. Set construction limits that are clearly marked and instruct workers to avoid conducting activities beyond the construction limits.</p> <p>To ensure a safe working environment and protection of existing resources a safety supervisor and/or quality control officer would be required of the contractor.</p> <p>Provide adequate orientation to construction personnel prior to construction to limit potential conflicts with existing land use.</p>  |
| <p><b>Safety; Lakeshore Visitor Experience; Park Operations</b></p> | <p>The contractor would be required to schedule activities in consultation with NPS staff to minimize conflicts with daily park operations and other park projects.</p> <p>Include resource protection measures in the construction documents to protect existing resources. Set construction limits that are clearly marked and instruct workers to avoid conducting activities beyond the construction limits.</p> <p>To ensure a safe working environment and protection of existing resources a safety supervisor and/or quality control officer would be required of the contractor.</p> <p>Provide adequate orientation to construction personnel prior to construction to limit potential conflicts with existing land use.</p>  |

### 2.3.7 COMPARISON OF ALTERNATIVES

The following chart compares the Trailway alternatives to objectives in Purpose and Need Section 2.1.

| <b>Comparison of Trailway Alternatives</b> |   |  |  |
|--|---|--|--|
| <b>ALTERNATIVE</b>                         | <b>NO-ACTION</b>  | <b>A</b>   | <b>B (THE PREFERRED)</b>   |
| ALTERNATIVE CONCEPT                        | There are no non-motorized, hardened surface trails within the M-22/M-109 corridors. Only the Pierce Stocking Scenic Drive is designated for bicycle use, with a shared lane adjacent the road surface. Currently, bicyclists are limited to the road shoulder along M-22, M-109, and county roads. | A separate off road non-motorized trail would be constructed in the M-22/M-109 rights-of-way to the extent possible, only deviating where necessary due to physical or environmental constraints. It would be a contiguous non-motorized trail of over 27 miles commencing from the southern Leelanau County line at Manning Road to County Road 651 at Good Harbor Beach. Access to the trail would be made at the existing Lakeshore trailheads and designated visitor parking areas.                                      | A separate off road non-motorized trail would be constructed in the M-22/M-109 right-of-way, in many areas, but deviating from the highway corridor where possible to avoid physical or environmental constraints, provide access to natural, cultural, or recreation resources, and to promote a broader variety of experiences for the Trailway user. It would be a contiguous non-motorized trail of over 27 miles commencing from the southern Leelanau County line at Manning Road to County Road 651 at Good Harbor Beach. Access to the trail would be made at the existing Lakeshore trailheads and designated visitor parking areas.  |
| SEGMENT 1                                  | Not applicable  | <p>The west side of M-22 would be used to establish a crushed limestone pathway from Manning Road north to Stormer Road. A new trailhead would be located near Manning Road. A variation from the right-of-way would be made to descend a steep gradient along M-22 where an old gravel pit (Scussel pit) has been restored by the NPS.</p> <p>The route north of Stormer Road would continue within the right-of-way on the west side. The Trailway segment provides access to the Empire Bluffs Trail from Wilco Road.</p> | <p>The trail would start at the intersection of Manning Road and Norconk Road. A new trailhead would be located near this location intersection. The trail would head north following Norconk Road on the west side as a 10' separated crushed limestone path. The trail turns and heads east along the north side of Stormer Road. A crushed limestone surface would be utilized in this segment to integrate with the historic Tweddle-Treat Farms and cultural landscape.</p> <p>As the Trailway leaves Stormer Road, it changes to a 10' wide asphalt cross section and follows an existing utility right-of-way, crossing Wilco Road. The route then deviates into the wooded area on the west side of M-22 using some ridgelines and relatively gentle gradient to emerge back in the M-22 right-of-way before the Lakeshore entrance sign. Steep side slope areas would necessitate excavation and possible retaining walls before and after the entrance sign. An M-22 crossing could be located at the New Neighborhood.</p> <p>This segment of the Trailway would provide an open vista of the historic fields and buildings of the Tweddle-Treat cultural landscape. Wayfinding information would be developed at an appropriate location to assist Trailway users in accessing the Empire Bluffs Trail (hiking only) and the cultural landscape.</p> |

| ALTERNATIVE | NO-ACTION      | A   | B (THE PREFERRED)  |
|-------------|----------------|---|--|
| SEGMENT 2   | Not applicable | <p>The Trailway would enter the Village of Empire along the M-22 right-of-way. The Village Council would determine the trail route within the Village of Empire, but access to the Lakeshore Visitor Center, the downtown area, and the beach should all be considered in route planning. For purposes of this alternative, the following possible trail route is described:</p> <p>The Trailway routing would continue within the Village of Empire using existing road right-of-way through the Quercus Alba (New Neighborhood) and Beaver Creek neighborhoods. The Lakeshore Visitor Center would provide restrooms and information.</p> <p>Trailway users would also have direct access to the Village of Empire via streetscape sidewalk and streets immediately to the east of the Visitor Center. The Trailway would use Ottawa Street as a crossing location at M-22 at the north end of the Village.</p> <p>A new paved section in the right-of-way along the northwest side of M-22 would be developed to LaCore Road, then north to Fisher Street via striped and signed bike lanes on both sides. From there the Trailway would be an adjacent doubled striped bike-lane along the east side of LaCore to Bar Lake Road in the county road right-of-way. The Trailway would cross to the north side of Voice Road and continue east to the intersection at M-22 as an off-road asphalt path. The Trailway segment provides a direct link to the North Bar Lake public beach access.</p> | <p>The Trailway routing could continue within the Village of Empire by using existing road right-of-way through the Quercus Alba (New neighborhood) and Beaver Creek neighborhoods. With oversight from MDOT, a north-south oriented M-22 crossing could be implemented and a north-south oriented M-72 crossing accessing Trailway users to the Visitor Center. The facility provides public restrooms, information, interpretive displays, and other support facilities open to the public during regular business hours. Trailway users could also have direct access to the Village of Empire. Continuing through the Beaver Creek development, the Trailway could use Ottawa Street as a crossing location at M-22 at the north end of the Village.</p> <p>A new paved section in the right-of-way along the northwest side of M-22 could be developed to LaCore Road in the Village of Empire, then north to the Village limits. From there the Trailway could travel along the west side of LaCore to Bar Lake Road in the county road right-of-way. The Trailway would continue along the north side of Voice Road on Lakeshore property to avoid impacts to the designated Natural Beauty Road and continue east to the intersection at M-22. This section would require a minor creek/wetland crossing along LaCore Road and addressing several side slope and grading challenges north of Voice Road, including near the Trailway's intersection with M-22 where Segment 3 begins.</p> <p>The Trailway segment provides a direct link to the North Bar Lake public beach access, although the existing access on Bar Lake Road is gravel. Wayfinding information could be added at the Voice Road-Bar Lake Road intersection to assist Trailway users with accessing North Bar Lake facilities.</p> |

| ALTERNATIVE | NO-ACTION      | A   | B (THE PREFERRED)  |
|-------------|----------------|---|--|
| SEGMENT 3   | Not applicable | <p>The Trailway continues from Voice Road at M-22 and along the M-22 and M-109 right-of-way on the west side of the road. The Trailway would include a new asphalt path from Voice Road to Pierce Stocking Scenic Drive.</p> <p>This segment provides access to hiking trailheads, loops and support facilities at Pierce Stocking Scenic Drive and the Windy Moraine Trail parking area. Information would be provided regarding the challenge level and safety considerations for riders interested in using Pierce Stocking Scenic Drive, since it is a very challenging bicycling experience.</p> | <p>The grade falls away near the intersection of Voice Road and M-22 and includes roadway guardrail and overhead utilities. MDOT would need to approve some additional fill material and trail grading at the corner within the utility right-of-way, as well as the alignment of the trail to allow safe access around this corner. The Trailway continues from its intersection with M-22 to M-109 in the right-of-way on the west side of the road. The Trailway would include a new 10' wide asphalt cross-section from Voice Road to Pierce Stocking Scenic Drive. Considerations for Trailway construction in this area include side slopes, existing mature trees, and proximity to the road (see Chapter 4 - Trail Cross-section Development).</p> <p>The Trailway segment provides access to hiking trailheads, loops and support facilities at Pierce Stocking Scenic Drive and the Windy Moraine Trail parking area. Wayfinding information would be added to assist Trailway users in recognizing other existing facilities in the area. Trailway users would be able to use the parking area at Pierce Stocking Scenic Drive as a trailhead. Information would be provided regarding the challenge level and safety considerations for riders interested in using the Pierce Stocking Scenic Drive, since it is a very challenging bicycling experience. A connecting trailhead link would connect the parking area to the main Trailway along M-109.</p> |
| SEGMENT 4   | Not applicable | The Trailway continues on the west side of the M-109 right-of-way to Hunter Road at the Dune Climb.   | North of the Scenic Drive, the Trailway would veer to the northwest on an old logging road outside of the right-of-way. An asphalt path would take the trail user through a wooded area and emerge on Greenan Road. An adjacent pathway along this gravel county road would be paved to the M-109 right-of-way where it would continue along M-109 until Hunter Road.  |

| ALTERNATIVE | NO-ACTION      | A   | B (THE PREFERRED)  |
|-------------|----------------|---|--|
| SEGMENT 5   | Not applicable | <p>Hunter Road is used as a Trailway link to the Dune Climb and the Dune Center. The Trailway would follow a boardwalk constructed on the northwest side of the M-109 right-of-way. The boardwalk would continue northwest, then use the historic narrow gauge railway bed that bisects the shrub-scrub wetland at the base of the dune. An asphalt path would continue to Harwood Road. From there, the old narrow gauge rail bed would be used for continuation of a 10' limestone path connecting north to Dune Valley Road and continuing into the Glen Haven Historic District.</p> <p>Continuing due east, the Trailway would be a 10' limestone path using an existing county road (two-track) access to D.H. Day Campground. The Trailway would use the existing campground gravel road and connect with the M-109 corridor to the south.</p> <p>The Trailway would then continue as an asphalt path on the south side of M-109 running east-west from Stocking Drive to South Forest Haven Drive, connecting to Glen Arbor.</p> <p>The Trailway segment provides access to hiking trailheads, loops and support facilities at the Glen Haven Maritime Museum, Glen Haven Village, D.H. Day Campground, and Alligator Hill.</p> | <p>Hunter Road links the Trailway to the Dune Climb, a major attraction within the Lakeshore. The Trailway would cross the perimeter of the parking area. A wide cleared area to the east of the parking area would allow for an asphalt path to be developed adjacent to, but separate from, the Duneside Accessible Trail. The route then utilizes the historic narrow gauge railway that extends to Harwood Drive.</p> <p>From Harwood Drive, near the D.H. Day Group Campground, the narrow gauge rail bed would be used for continuation of a 10' limestone path connecting north to Dune Valley Road and continuing into the Glen Haven Historic District.</p> <p>An existing two-track road would be used to connect the railroad grade route with M-209 in Glen Haven. A limestone path using an existing county road (two-track) would provide access to D.H. Day Campground.</p> <p>The Trailway would then use Pine Haven Road right-of-way as an separate paved path to avoid the user conflicts associated with the D.H. Day Campground access road.</p> <p>After crossing M-109, asphalt Trailway would use an existing unmarked two-track trail running east-west along the base of the Alligator Hill escarpment from Stocking Road to South Forest Haven Drive, connecting to Glen Arbor.</p> |

| ALTERNATIVE | NO-ACTION      | A  | B (THE PREFERRED)  |
|-------------|----------------|--|--|
| SEGMENT 6   | Not applicable | <p>The Glen Arbor Township Board would be counseled to determine the best way through Glen Arbor. For purposes of this alternative, the following trail route possibility is described:</p> <p>From Sylvan Street the Trailway would use the existing paved shoulder of M-109. It would continue four blocks east to Oak Street, with bike lanes on both sides of M-22. Trailway signage would guide trail users through Glen Arbor on existing streets. The Trailway would widen to an asphalt pathway within the existing M-22 and/or utility right-of-way on the southeast side of the road along the Crystal River to West Crystal View Road (CR 675). A boardwalk section would be installed for several hundred feet in the vicinity of the bicycle club rest area across from the gasoline service station.</p> <p>Once across West Crystal View Road, the Trailway would continue along M-22 on the south side as an asphalt pathway within the existing M-22 roadway. A boardwalk would be installed along a very narrow pinch point on the approach to the auto/pedestrian bridge. From the bridge, the Trailway would continue as an off-road asphalt path located on the south side of the right-of-way. The Trailway would then pass the entrance of The Homestead and cross to the north side of M-22 near Westman Road.</p> | <p>The Glen Arbor Township Board would be counseled to determine the best way through Glen Arbor. For purposes of this alternative, the following trail route possibility is described:</p> <p>Through Glen Arbor, the Trailway would be a paved shoulder on both sides of M-109. It would continue two blocks east to Ray Street (M-22), then south one block to State Street at the Township Park, then east to Oak Street, and then north on Oak Street, back to the M-22 right-of-way. Trailway signage would guide trail users through Glen Arbor on existing streets. The Trailway would widen to an asphalt pathway within the existing M-22 and/or utility right-of-way on the southeast side of the road along the Crystal River to West Crystal View Road (CR 675). A boardwalk section would be installed for several hundred feet in the vicinity of the bicycle club rest area across from the gasoline service station.</p> <p>An asphalt path would be installed along the south side of West Crystal View Road. A river crossing would occur at three existing culvert locations on the Crystal River. Boardwalk sections would be needed for several hundred feet in multiple areas, in particular along the Crystal River bend. Trail users would cross the Crystal River on a separate pedestrian bridge, which would span the river on the south side of the road and continue to Westman Road on an off-road asphalt path on the east side. Another boardwalk (as long as 1000') would be necessary to traverse wetlands on the west side of Westman Road, near Tucker Lake.</p> <p>From that point, the Trailway would continue north as an off-road asphalt path located on the west side of the right-of-way up to the entrance of The Homestead, near Westman Road.</p> |

| ALTERNATIVE | NO-ACTION      | A  | B (THE PREFERRED)   |
|-------------|----------------|--|---|
| SEGMENT 7   | Not applicable | <p>From Westman Road, the Trailway would use the M-22 right-of-way on the west side of the road as an off-road asphalt path to the intersection of M-22 and Thoreson Road, near the split at M-22 “Y” intersection.</p> <p>The Trailway would leave M-22 and continue a short distance north on Thoreson Road to access to the Bay View Trail. Here it would be maintained as a crushed limestone path from Thoreson Road to Port Oneida Road.</p>   | <p>As with alternative A, the Trailway would use the M-22 right-of-way on the west side of the road as an off-road asphalt path from The Homestead to the intersection of M-22 and Thoreson Road. The Trailway would then divert north on Thoreson Road to access the lower section of the Bay View Trail, currently not open for bicycle use. The Trailway would then cross Thoreson Road at a safe distance past the “Y” intersection, and continue on the Bay View Trail.</p> <p>This section of the Bay View Trail would be a 10’ crushed limestone path from Thoreson Road to Port Oneida Road.</p>  |
| SEGMENT 8   | Not applicable | <p>Trailway connects south back to M-22 along the Port Oneida Road right-of-way. From the intersection of Port Oneida Road, the Trailway would be on the north side of the M-22 right-of-way as an off road 10’ crushed limestone path. It would use the M-22 right-of-way past South Basch Road and North Unity School. The Trailway would then align along the M-22 right-of-way below the road embankment and guardrail at Narada Lake. A boardwalk would provide a unique nature experience along this water resource, avoiding the hazardous proximity and tight right-of-way of a roadside route.</p> <p>From Narada Lake, the Trailway would continue as an off road asphalt section on the north side of the right-of-way to the Bohemian Road (CR 669) and M-22 intersection.</p> | <p>Trailway connects south back to M-22 along the Port Oneida Road right-of-way. From Port Oneida Road to the Port Oneida Rural Historic District boundary just east of Narada Lake, the Trailway would be an off-road 10’ crushed limestone path. It would deviate from the right-of-way to approach the North Unity School from an interior aspect. A boardwalk along the M-22 bridge would provide a unique nature experience along Narada Lake.</p> <p>From the Port Oneida Rural Historic District boundary, the Trailway would continue as an off-road asphalt section on the north side of the right-of-way to the Bohemian Road (CR 669) and M-22 intersection.</p> |

| ALTERNATIVE | NO-ACTION      | A   | B (THE PREFERRED)   |
|-------------|----------------|---|---|
| SEGMENT 9   | Not applicable | <p>The Trailway would be an off-road asphalt path on the north side of M-22 up to Traverse Lake Road, past Bartunek Road and continue along the M-22 right-of-way to the east end of Traverse Lake Road.</p> <p>A crossing would occur at Traverse Lake Road and the Trailway route then proceeds as an off-road crushed limestone trail to the Bufka Farm. The proposed Trailway would route past the Bufka property along the north side of M-22, using the glacial ridges and valleys below the M-22 corridor as needed. It would end at the Good Harbor Trail/Townline Road (CR 651) and M-22 intersection.</p> <p>The Trailway provides access from there to Good Harbor Beach (CR 651) swimming beach and other Lakeshore facilities. A trailhead would be located on the SE corner of the intersection of Townline Road and M-22. A more formal parking area and safe crossings with pavement striping, advanced warning, and wayfinding signage would be developed.</p> | <p>The Trailway would be a 10' off-road asphalt section on the north side of M-22 up to Traverse Lake Road. The Trailway turns north on the west side of Traverse Lake Road onto an off road boardwalk within the county road right of way. It continues as a separate 10' off road path on the north side of Traverse Lake Road either within the county road right-of-way or on Lakeshore property south of proposed wilderness. The trail would then follow an old two track road that runs from the northeast end of Little Traverse Lake to behind the Bufka Farmstead.</p> <p>After the farm, the Trailway would stay below the M-22 right-of-way, to the extent possible, using the glacial ridges and valleys below the M-22 corridor. The steep embankment and narrow right-of-way with guardrails on both sides would be avoided with this routing; however, the lowland areas present some challenge for Trailway construction. The Trailway ends at the Good Harbor Beach parking facility at the end of County Road 651.</p> <p>The Trailway segment provides access to Good Harbor Trail (CR 651) and Good Harbor Beach. Wayfinding information would be added to assist Trailway users in recognizing the existing Lakeshore facilities at the end of Good Harbor Trail. A trailhead could be located at the parking facility with improvements such as safe crossings with pavement striping, advanced warning and signage.</p> |

### 2.3.8 IMPACTS OF THE TRAILWAY ALTERNATIVES

The following table identifies the impacts of the alternatives on the nine impact topics described in Section 2.4, “Affected Environment.” Detailed impact analyses are found in Section 2.5, “Environmental Consequences.”

| <b>Impacts of the Trailway Alternatives</b> |   |   |  |
|---|---|---|--|
| <b>IMPACT TOPIC</b>                         | <b>NO-ACTION ALTERNATIVE</b>  | <b>ALTERNATIVE A</b>  | <b>ALTERNATIVE B (PREFERRED)</b>   |
| <b>TOPOGRAPHY</b>                           | Short-term and long-term: none<br>Cumulative: short-term minor adverse;<br>long-term minor to moderate beneficial | Short-term and long-term minor adverse<br>Cumulative: short-term minor to moderate<br>adverse, long-term minor adverse                  | Short-term and long-term minor adverse<br>Cumulative: short-term and long-term<br>minor adverse                                |
| <b>WETLANDS AND WATER QUALITY</b>           | Short-term and long-term: none<br>Cumulative: short-term and long-term<br>minor adverse                           | Short-term and long-term minor adverse<br>Cumulative: Short-term and long-term<br>minor adverse   | Short-term and long-term minor adverse<br>Cumulative: Short-term and long-term<br>minor adverse                                |
| <b>VEGETATION AND WILDLIFE</b>              | Short-term and long-term: none<br>Cumulative: short-term and long-term<br>minor adverse                           | Short-term and long-term minor adverse<br>Cumulative: short-term and long-term<br>minor adverse   | Short-term moderate adverse, long-term<br>minor adverse<br>Cumulative: short-term and long-term<br>minor adverse               |
| <b>MICHIGAN STATE-LISTED SPECIES</b>        | Short-term and long-term: none<br>Cumulative: short-term and long-term<br>minor adverse                           | Short-term moderate adverse, long-term<br>minor adverse<br>Cumulative: short-term and long-term<br>minor adverse                        | Short-term moderate adverse, long-term<br>minor adverse<br>Cumulative: short-term and long-term<br>minor adverse               |
| <b>SOILS</b>                                | Short-term and long-term: none<br>Cumulative: short-term and long-term<br>minor adverse                           | Short-term and long-term minor adverse<br>Cumulative: short-term and long-term<br>minor adverse   | Short-term moderate adverse, long-term<br>minor adverse<br>Cumulative: short-term and long-term<br>minor adverse               |
| <b>SOCIOECONOMICS</b>                       | Short-term and long-term: none<br>Cumulative: short-term and long-term<br>negligible beneficial                   | Short-term and long-term negligible to<br>minor adverse and beneficial<br>Cumulative: short-term and long-term<br>negligible beneficial | Short-term and long-term negligible<br>adverse and beneficial<br>Cumulative: short-term and long-term<br>negligible beneficial |
| <b>CULTURAL RESOURCES</b>                   | Short-term and long-term: none<br>Cumulative: none  | Short-term and long-term: none<br>Cumulative: none  | Short-term and long-term: none<br>Cumulative: none   |
| <b>VISITOR OPPORTUNITIES AND USE</b>        | Short-term and long-term: none<br>Cumulative: short-term and long-term<br>minor beneficial                        | Short-term and long-term moderate<br>beneficial<br>Cumulative: short-term and long-term<br>minor beneficial                             | Short-term and long-term moderate<br>beneficial<br>Cumulative: short-term and long-term<br>minor beneficial                    |
| <b>OPERATIONS AND MAINTENANCE</b>           | Short-term and long-term: none<br>Cumulative: short-term and long-term<br>minor adverse                           | Short-term and long-term major adverse<br>Cumulative: short-term and long-term<br>minor adverse   | Short-term and long-term major adverse<br>Cumulative: short-term and long-term<br>minor adverse                                |