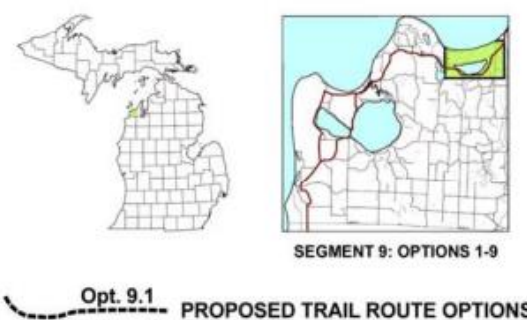


# NPS – 2008 Leelanau Scenic Heritage Route Trailway Plan & Environmental Assessment

## Opt. 9.2 – On-road Trail

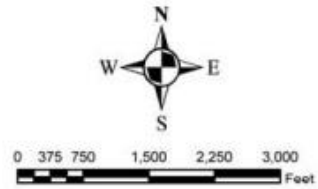


**MAP 1.9a - PROPOSED TRAILWAY ROUTING**  
LEELANAU SCENIC HERITAGE ROUTE TRAILWAY MASTER PLAN



### 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
- 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



NPS – 2008 Leelanau Scenic Heritage Route Trailway Plan & Environmental Assessment  
**Opt. 9.2 – On-road Trail**



**MAP 1.9b - PROPOSED TRAILWAY ROUTING**  
 LEELANAU SCENIC HERITAGE ROUTE TRAILWAY MASTER PLAN



SEGMENT 9: OPTIONS 1-9

**Opt. 9.1** PROPOSED TRAIL ROUTE OPTIONS

**GENERAL LEGEND**

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



Base GIS Data: Michigan Framework Data  
 1987 National Land Cover Dataset  
 1982 National Wetlands Color Dataset  
 National Park Service  
 NAD 1983 UTM 22QW 10k





**NPS – 2008 Leelanau Scenic Heritage Route Trailway Plan & Environmental Assessment**  
**Opt. 9.2 – On-road Trail**

<b>Table 17 – Segment 9 Impact to the Environment</b>										
	<b>Topography</b>	<b>Wetlands</b>	<b>Streams &amp; Creeks</b>	<b>Soils</b>	<b>Wildlife</b>	<b>Vegetation</b>	<b>Land Use</b>	<b>Cultural Resource</b>	<b>Viewsheds</b>	<b>TOTAL IMPACT TO THE ENVIRO.</b>
<b>SEGMENT 9</b>										
<b>Option 9.1</b>	0-1 M-22 R.O.W.; Ex. Minor long. slope; Mod. sideslope	0	1 Stream Name?	1-3 Muck soils along L.Traverse Lake	0	0	2 Private land use	0	2 Bufka Farm rural viewshed	6-9 (varies)
<b>Option 9.2</b>	0 Existing; Negligible slope	0	0	0 modified	0	0	2 Private land use/ Lake Assoc.; Co. Rd Chip Seal	2 Trail borders recommended Wilderness Boundary	0	4
<b>Option 9.3</b>	1 Proposed; Minor long. slope	3 Limited brdwalk	0	3 Wetland	1 Wetland	1 Wetland	0	3 Trail borders recommended Wilderness Boundary	0	12
<b>Option 9.4</b>	1 Proposed; Minor long. slope	0	1 Bridge less than 15'	3 Limited muck soils	0	0	0	0	2 Bufka Farm rural viewshed	7
<b>Option 9.5</b>	2 Proposed; Moderate long. slope	0	0	3 Limited muck soil	0	0	0	0	0	5
<b>Option 9.6</b>	2 Proposed; Moderate long. slope	0	0	3 Limited muck soil	0	0	0	0	0	5
<b>Option 9.7</b>	2 Proposed; Moderate long. slope	3 Wetland Delineation needed	1	3 Limited muck soil	0	0	0	0	0	9
<b>Option 9.8</b>	0	0	0	0 modified	0	0	0 County Road Gravel Improved	0	0	0
<b>Option 9.9</b>	1 Existing; Minor long. slope	0	0	0 modified	0	0	0 County Road Gravel Improved	0	0	0
<b>Segment 9: Bohemian Rd. to Good Harbor Trail</b>										

**NPS – 2008 Leelanau Scenic Heritage Route Trailway Plan & Environmental Assessment**  
**Opt. 9.2 – On-road Trail**

<b>Table 18 – Segment 9 Impact to Feasibility</b>							
	Recreational Experience	SLBE Visitor Experience	Safety	Cost	Operation & Maintenance	TOTAL IMPACT TO FEASIBILITY	TOTAL COMBINED IMPACT
<b>SEGMENT 9</b>							
<b>Option 9.1</b>	0	2 Proximity to Bufka Farm; Trail within R.O.W.	2 Road crossings; Trail access	2-3 Existing R.O.W./ New Asphalt	Evaluation with assistance from SLBE Staff	6-7 (varies)	12-16 (varies)
<b>Option 9.2</b>	0 Hiking access; Twp Park Access; picnicking; beach access to Little Traverse Lake	0	1 Utilizes existing chip seal road (22')	0 Utilize existing road no modification	Evaluation with assistance from SLBE Staff	1	5
<b>Option 9.3</b>	0 Wilderness ecosystem interpretation	2 Proximity to proposed Wilderness boundary	1 Remoteness	3 New asphalt; small boardwalk section possible	Evaluation with assistance from SLBE Staff	6	18
<b>Option 9.4</b>	0	2 Proximity to proposed Wilderness boundary and Bufka Farm	0	2 Limestone	Evaluation with assistance from SLBE Staff	4	11
<b>Option 9.5</b>	0 Wilderness ecosystem interpretation; Forested dune ecosystem	3 Goes through proposed Wilderness boundary	1 Gradient	2 Limestone	Evaluation with assistance from SLBE Staff	6	11
<b>Option 9.6</b>	0	3 Goes through proposed Wilderness boundary	0	2 Limestone	Evaluation with assistance from SLBE Staff	5	10
<b>Option 9.7</b>	0 Ridge and swale ecosystem interpretation;	0	1 Remoteness; Gradient	3 Limestone, Clearing and grubbing	Evaluation with assistance from SLBE Staff	4	13
<b>Option 9.8</b>	0 Good Harbor Beach Access; Swimming, Picnicking	0	1 Utilizes existing gravel road	0 Utilize existing road no modification - Good Harbor Rd.	Evaluation with assistance from SLBE Staff	1	1
<b>Option 9.9</b>	0	0	2 Gradient; Trail access	0 Utilize existing road no modification - Good Harbor Rd.	Evaluation with assistance from SLBE Staff	2	2
<b>Segment 9: Bohemian Rd. to Good Harbor Trail</b>							

# NPS – 2008 Leelanau Scenic Heritage Route Trailway Plan & Environmental Assessment

## Opt. 9.2 – On-road Trail

### TRAIL SEGMENT 9 - Alt B

COST PROJECTION  
Leelanau Scenic Heritage Route Trailway  
Phase I - Planning Project - February 2008

Total Trail Section Length:	25,133 Ft.	4.76 MI.					
Description: In M-22 ROW on north side from Bohemian Rd. to Little Traverse Lake Rd.(paved); Out of ROW west of Bufka Farm on north side of buildings to Townline Rd. (limestone) and possible boardwalk sections.							
Item	Estimated Quantity	Units	Unit Price in Year 2007	Estimated Cost	Notes	Subtotal	Subtotal
<b>R.O.W. / DESIGN ENGINEERING</b>							
ROW Land and Purchase (Survey, Legal, Admin. etc)	NA/	LS			None		
Surveying (5%)	0.05	LS	\$13,179	\$13,179	50% wooded wetlands		
Permit Processing; Engineering Design (12%)	0.12	LS	\$31,629	\$31,629	SESC; MDOT, MDEQ permits		
<b>Subtotal:</b>						<b>\$44,807</b>	<b>\$0</b>
<b>TRAIL CONSTRUCTION COSTS</b>							
<b>General Construction Costs</b>							
Bonds and Insurance (typ. 1-2%)	0.01	LS	\$3,956	\$3,956			
Mobilization (3-5K)	1	LS	\$4,000	\$4,000			
<b>Site Preparation</b>							
Clear and Grub; Topsoil (Remove and Stockpile)	2	MI	\$4,000	\$8,000	yes, wooded wetlands		
Unclassified Embankment; Subgrade excavation	0.5	MI	\$3,600	\$1,800	limited		
Traffic control	1	LS	\$4,000	\$4,000	yes		
<b>Trail Cross section</b>							
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading)	0.38	MI	\$158,400	\$60,192	Traverse Lake Rd. (ex. paved rd.) - (2.76 mi.) or Good Harbor Beach trailhead link on Townline Rd. (.46 mi.)		
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)		MI	\$100,300	\$0			
Limestone paving (4")(Base amend)(Trail grading)	1.27	MI	\$116,200	\$147,574	Additional spur to connect to Port Oneida Rd. (500 l.f.)		
On-Road Bikelane (4" white waterborne - two sides)	2.43	MI	\$7,500	\$18,225	Little Traverse Lake Road		
Wood boardwalk - auger supported (10' width)	60	LF	\$360	\$0	Possible with wetlands near Bartunek Rd. and near Townline Rd. west of the Bufka Farm		
Trail Restoration	0.57	MI	\$0	\$0	Good Harbor Beach Road - to be paved by NPS		
Seeding / Vegetation (restoration)	3.5	MI	\$950	\$3,325	yes, wooded and wetland edge restoration		
Trees (restoration)	50	EA	\$250	\$12,500	yes, wooded understory		
<b>Subtotal:</b>						<b>\$263,572</b>	<b>\$0</b>
<b>STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE</b>							
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	yes		
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	Port Oneida Rd.; S. Basch Rd.		
Pavement markings		LS		\$0	2 crosswalks		
Permanant signage		LS		\$0	Mile markers; Interpretive		
Bridge (10' width); Bridge Abutment/Wing walls	1	LS		\$70,000	es, creek location w. of Bartunek Rd. (30 Ft. span)		
Retaining Walls (Wood, modular conc.)		LS		\$0	yes, possible		
<b>Subtotal:</b>						<b>\$0</b>	<b>\$0</b>
<b>CONSTRUCTION ENGINEERING</b>							
Material Testing; Construction Management (7%)	0.07	LS	\$18,450	\$18,450			
Grant management / assistance	0.005	LS	\$1,318	\$1,318			
<b>Subtotal:</b>						<b>\$19,768</b>	<b>\$0</b>
<b>SUBTOTAL ENGINEERING AND CONSTRUCTION:</b>							
				\$398,147		<b>\$328,147</b>	<b>\$0</b>
<b>PROJECT CONTINGENCY (20%):</b>	0.2			\$79,629			
<b>TOTAL PROJECT COST PROJECTION</b>				<b>\$477,776</b>			

