



**MAP 1.9a - 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
- 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  
1980 National Land Cover Dataset  
1992 National Wetlands Cover Dataset  
National Park Service  
NAD 1983 UTM ZONE 18N





**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
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**Table 17 – Segment 9 Impact to the Environment**

	Topography	Wetlands	Streams & Creeks	Soils	Wildlife	Vegetation	Land Use	Cultural Resource	Viewsheds	TOTAL IMPACT TO THE ENVIRO.
<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 I. 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>										

<b>Table 18 – Segment 9 Impact to Feasibility</b>							
	<b>Recreational Experience</b>	<b>SLBE Visitor Experience</b>	<b>Safety</b>	<b>Cost</b>	<b>Operation &amp; Maintenance</b>	<b>TOTAL IMPACT TO FEASIBILITY</b>	<b>TOTAL COMBINED IMPACT</b>
<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>							

**TRAIL SEGMENT 9 - Alt B**  
**COST PROJECTION**  
 Leelanau Scenic Heritage Route Trailway  
 Phase I - Planning Project - February 2008

<b>Total Trail Section Length:</b>		<b>25,133 Ft.</b>	<b>4.76 MI.</b>				
<b>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.</b>							
<i>Item</i>	<i>Estimated Quantity</i>	<i>Units</i>	<i>Unit Price in Year 2007</i>	<i>Estimated Cost</i>	<i>Notes</i>	<i>Subtotal</i>	<i>Subtotal</i>
<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		
<b>Trail Restoration</b>					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>				<b>\$398,147</b>		<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>			

