



CHAPTER 5 – Cost Projections

Leelanau Scenic Heritage Route Trailway Plan

- 5.1 COST ANALYSIS OVERVIEW**
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5.1 COST ANALYSIS OVERVIEW

The following cost analysis was done based on typical cost projections gathered from similar trail system master plans in various parts of the country, and actual bid tabulations for projects in northwest Michigan. Detailed Cost projections were compiled for each of the 9 trail segments developed for the Trailway - **Preferred Alternative B** (Please see appendix)

Unit pricing was developed for this plan by considering cost projections ranges from the following sources: Asheville, North Carolina, Greenway (2005), Indiana Ped. & Pedal (2004), Seattle, Washington Bicycle Master Plan (2007). The unit pricing from these sources provided a baseline for comparison to estimate 2007-2008 pricing for services, materials, and labor for the Trailway. Where unit costs were utilized for comparison from the sources above, a *Consumer Price Index* conversion was used to account for inflation and calculate an equivalent value for 2007-2008.

The baseline unit costs from selected master plans were then compared to bid tabulations available from: the *South Boardman Lake Trail project, Traverse City, Michigan. (2005)*; Charlevoix County (Charlevoix to Petoskey) non-motorized Trail (MDOT 2002); Three Mile Road Bicycle path (Grand Traverse County Road Commission 2005); and the Kalkaska Area Recreational Trail (KART 2007) data from recent regional projects. Finally, unit costs for major trail elements were converted to a **per mile cost** (MI) and per linear foot for boardwalk (LF) for ease of comparison. The following chart is a breakdown of the values generated for the major trail elements used in the detailed costs analysis

Site Preparation	Unit	Cost / Unit
Clear and Grub; Topsoil (Remove and Stockpile)	MI	\$4,000
Unclassified Embankment; Sub grade excavation	MI	\$3,600
Trail Cross section		
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading)	MI	\$158,400
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)	MI	\$100,300
Limestone paving (4")(Base amend)(Trail grading)	MI	\$116,200
Limestone paving (4")(Existing substrate/gravel)	MI	\$87,100
Engineered soil paving (existing path)	MI	\$53,000
On-Road Bikelane (4" white waterborne - two sides)	MI	\$7,500
Existing Gravel Road	MI	TBD
Wood boardwalk - auger supported (10' width)	LF	\$360
Trail Restoration		
Seeding / Vegetation (restoration)	MI	\$950

5.2 ASSUMPTIONS

The cost projections developed for the Trailway Master Plan are preliminary in nature and designed to give a comparative assessment of relative Trailway segment costs. The detailed unit cost projections also serve as checklists for tracking detail needed during final design development of a Trailway segment. The following assumptions were made in the development of the cost projections.

- *All segments would occur on either the National Park Service (NPS) property, Michigan Department of Transportation, or Leelanau County right-of-ways..*
- *No costs for land acquisition or Trailway easements over private, utility or public land was included.*
- *Trailway routes chosen are conceptual for the purposes of calculations and may vary significantly in final design.*
- *Trailway materials chosen are conceptual for the purposes of calculations and may vary significantly in final design.*
- *Trailway lengths indicated may vary significantly in final design development.*
- *Detailed design elements such as retaining walls, guardrails, culverts, advanced warning signals are not quantified in the estimate but identified as probable details to be included in final design.*
- *A 20% contingency was utilized to account for details and modifications to the proposed segment.*
- *Asphalt paving is estimated with a 2" thickness throughout the cost analysis.*
- *Design and construction engineering services, surveying, permitting, and contractor mobilization/bonds and insurance are estimated on a per segment basis.*
- *Cost projections must be adjusted for inflation as they are utilized for grant development, funding and planning in the future.*

5.3 COST PROJECTION SUMMARY

The cost projections summarized on the following table were developed to provide a comparative breakdown of each segment represented in the **Trailway Preferred Alternative B**. Relative lengths, materials and overall projected costs are provided.

TRAILWAY SEGMENTS - Alternative B

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

Segment	Total Trail Lengths (in miles)	Trail Surface Materials					Cost Projection	Recommendations	
	Length (miles)	Asphalt (mi)	Limestone (mi)	Boardwalk (mi)	On-road Bike Lanes (mi)	Ex. Gravel Road (mi)		Phase / Year	Funding Sources
1	2.15	1.22	0.93				\$490,869	\$0	\$0
2	2.66	1.96			0.7		\$500,674	\$0	\$0
3	1.49	1.49					\$443,414	\$0	\$0
4	2.21	2.21					\$684,075	\$0	\$0
5	3.96	3.71	0.25				\$897,799	\$0	\$0
6	2.42	1.27		0.51	0.64		\$2,345,690	\$0	\$0
7	2.32	0.32	2				\$395,447	\$0	\$0
8	4.26	3.07		0.13	1.06		\$1,070,015	\$0	\$0
9	4.76	0.38	1.27		2.43	0.57	\$477,776	\$0	\$0
Totals	26.23	15.63	4.45	0.64	4.83	0.57	\$7,305,761	\$0	\$0

= Alternative Route



TRAIL SEGMENT 1 - Alt B
COST PROJECTION
 Leelanau Scenic Heritage Route Trailway
 Phase I - Planning Project - February 2008

Total Trail Section Length:		11,352 Ft.		2.15 MI.		
Description: In M-22 R.O.W. west side from Manning Rd. to Stormer Rd. (limestone); In M-22 R.O.W west side from Stormer Rd. to Empire Village limits (paved)						
<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>
R.O.W. / DESIGN ENGINEERING						
ROW Land and Purchase (Survey, Legal, Admin. etc.)	NA/	LS			None	
Surveying (5%)	0.05	LS	\$16,494	\$16,494	50% wooded; hilly	
Permit Processing; Engineering Design (12%)	0.12	LS	\$39,586	\$39,586	SESC; MDOT permits	
Subtotal:						\$56,080
TRAIL CONSTRUCTION COSTS						
General Construction Costs						
Bonds and Insurance (typ. 1-2%)	0.01	LS	\$5,349	\$5,349		
Mobilization (3-5K)	1	LS	\$4,000	\$4,000		
Site Preparation						
Clear and Grub; Topsoil (Remove and Stockpile)	1.61	MI	\$4,000	\$6,440	yes	
Unclassified Embankment; Subgrade excavation	2.15	MI	\$3,600	\$7,740	yes	
Traffic control	1	LS	\$3,000	\$3,000	yes	
Trail Cross section						
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading)	1.22	MI	\$158,400	\$193,248	1.22 Mi. @ 10'	
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)		MI	\$100,300	\$0		
Limestone paving (4")(Base amend)(Trail grading)	0.93	MI	\$116,200	\$108,066	.93 Mi. @ 10'	
Limestone paving (4")(Existing substrate/gravel)		MI	\$87,100	\$0		
Engineered soil paving (existing path)		MI	\$53,000	\$0		
On-Road Bikelane (4" white waterborne - two sides)		MI	\$7,500	\$0	5' width both sides	
Existing Gravel Road		MI	TBD	\$0	Amendment	
Wood boardwalk - auger supported (10' width)		MI	\$360	\$0		
Trail Restoration						
Seeding / Vegetation (restoration)	2.15	MI	\$950	\$2,043	yes	
Trees (restoration)		EA	\$450	\$0	?	
Subtotal:						\$329,885
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE						
Guard Rail Railings		LS		\$0	possible	
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	possible	
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	M-22 @ Quer. Alb.	
Pavement markings		LS		\$0	3 crosswalks	
Perminant signage		LS		\$0	Mile markers; Interpretive	
Bridge (10' width); Bridge Abutment/Wing walls		LS		\$0		
Retaining Walls (Wood, modular conc.)		LS		\$0	yes , ?	
Subtotal:						\$0
CONSTRUCTION ENGINEERING						
Material Testing; Construction Management (6%)	0.06	LS	\$19,793	\$19,793		
Grant management / assistance (1%)	0.01	LS	\$3,299	\$3,299		
Subtotal:						\$23,092
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$409,058		\$409,058
PROJECT CONTINGENCY (20%):				\$81,812		
TOTAL PROJECT COST PROJECTION				\$490,869		



TRAIL SEGMENT 2 - Alt B

COST PROJECTION

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

Total Trail Section Length:		14,045 Ft.	2.66 Mi.			
Description: In Quecas alba bike lane to M-22 (paved connector);New neighborhood bike lanes to M-22 (paved connector); Lacore bike lanes to Fisher St.; In LaCore ROW (east or west side) bike path to N. Bar Lake Rd.; Voice Rd. bike path (north side) to M-22.						
<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>
R.O.W. / DESIGN ENGINEERING						
ROW Land and Purchase (Survey, Legal, Admin. etc.)	NA/	LS			None	
Surveying (2%)	0.02	LS	\$6,896	\$6,896	Ex. R.O.W / platted Roads in Village	
Permit Processing; Engineering Design (12%)	0.12	LS	\$41,378	\$41,378	SESC; MDOT permits	
Subtotal:						\$48,274
TRAIL CONSTRUCTION COSTS						
General Construction Costs						
Bonds and Insurance (typ. 1-2%)	0.01	LS	\$5,345	\$5,345		
Mobilization (3-5K)	1	LS	\$4,000	\$4,000		
Site Preparation						
Clear and Grub; Topsoil (Remove and Stockpile)	1.96	MI	\$4,000	\$7,840	yes	
Unclassified Embankment; Subgrade excavation	1.96	MI	\$3,600	\$7,056	Along voice Rd.; M-22 and Voice Road	
Traffic control	1	LS	\$3,000	\$3,000	yes	
Trail Cross section						
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading)	1.96	MI	\$158,400	\$310,464	Includes two added paved connections at Quecas Alba and New neighborhood	
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)		MI	\$100,300	\$0		
Limestone paving (4")(Base amend)(Trail grading)		MI	\$116,200	\$0		
Limestone paving (4")(Existing substrate/gravel)		MI	\$87,100	\$0		
Engineered soil paving (existing path)		MI	\$53,000	\$0		
On-Road Bikelane (4" white waterborne - two sides)	0.7	MI	\$7,500	\$5,250	5' width both sides	
Existing Gravel Road		MI	TBD	\$0	Amendment	
Trail Restoration						
Seeding / Vegetation (restoration)	1.96	MI	\$950	\$1,862	yes	
Trees (restoration)		EA	\$450	\$0	?	
Subtotal:						\$344,817
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE						
Guard Rail Railings		LS		\$0	Possible at M-22 and Voice Road	
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	Possible at M-22 and Voice Road	
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	M-72 @ New Neighborhood; M-22 @ Salsbury Rd.; LaCore at N. Bar Lake Rd.	
Pavement markings		LS		\$0	3 crosswalks	
Perminant signage		LS		\$0	Mile markers; Interpretive	
Subtotal:						\$0
CONSTRUCTION ENGINEERING						
Material Testing; Construction Management (6%)	0.06	LS	\$20,689	\$20,689		
Grant management / assistance (1%)	0.01	LS	\$3,448	\$3,448		
Subtotal:						\$24,137
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$417,229		\$417,229
PROJECT CONTINGENCY (20%):				\$83,446		
TOTAL PROJECT COST PROJECTION				\$500,674		



TRAIL SEGMENT 3 - Alt B

COST PROJECTION

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

Total Trail Section Length:		7,867 Ft.	1.49 MI.			
Description: In M-22 R.O.W. (west side) from Voice Rd. to Stormer Rd. (paved) to intersection of M-109; In M-109 R.O.W (west side) to Pierce Stocking Drive (paved)						
Item	Estimated Quantity	Units	Unit Price in Year 2007	Estimated Cost	Notes	Subtotal
R.O.W. / DESIGN ENGINEERING						
ROW Land and Purchase (Survey, Legal, Admin. etc.)	NA/	LS			None	
Surveying (5%)	0.05	LS	\$14,900	\$14,900	100% wooded; hilly	
Permit Processing; Engineering Design (12%)	0.12	LS	\$35,759	\$35,759	SESC; MDOT permits	
Subtotal:						\$50,659
TRAIL CONSTRUCTION COSTS						
General Construction Costs						
Bonds and Insurance (typ. 1-2%)	0.01	LS	\$4,738	\$4,738		
Mobilization (3-5K)	1	LS	\$4,000	\$4,000		
Site Preparation						
Clear and Grub; Topsoil (Remove and Stockpile)	1.49	MI	\$4,000	\$5,960	yes, construct on shelf abve road	
Unclassified Embankment; Subgrade excavation	1.49	MI	\$3,600	\$5,364	yes, construct on shelf abve road	
Traffic control	1	LS	\$3,000	\$3,000	Intersection of M-22, M-109	
Trail Cross section						
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading)	1.49	MI	\$158,400	\$236,016	1.49 Mi. @ 10'	
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)		MI	\$100,300	\$0		
Limestone paving (4")(Base amend)(Trail grading)		MI	\$116,200	\$0		
Limestone paving (4")(Existing substrate/gravel)		MI	\$87,100	\$0		
Trail Restoration						
Seeding / Vegetation (restoration)	1.49	MI	\$950	\$1,416	yes, wooded understory	
Trees (restoration)	150	EA	\$250	\$37,500	yes, wooded understory	
Subtotal:						\$297,994
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE						
Guard Rail Railings		LS		\$0	possible	
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	possible	
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	Safety concerns clear vision at M-109 and Pierce Stocking Drive	
Pavement markings		LS		\$0		
Perminant signage		LS		\$0	Mile markers; Interpretive	
Retaining Walls (Wood, modular conc.)		LS		\$0	Possible north of Voice Rd. and north of M-22/M-109 intersection	
Subtotal:						\$0
CONSTRUCTION ENGINEERING						
Material Testing; Construction Management (6%)	0.06	LS	\$17,880	\$17,880		
Grant management / assistance (1%)	0.01	LS	\$2,980	\$2,980		
Subtotal:						\$20,860
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$369,512		\$369,512
PROJECT CONTINGENCY (20%):				\$73,902		
TOTAL PROJECT COST PROJECTION				\$443,414		



TRAIL SEGMENT 4 - Alt B
COST PROJECTION
 Leelanau Scenic Heritage Route Trailway
 Phase I - Planning Project - February 2008

Total Trail Section Length:		11,669 Ft.	2.21 MI.			
Description: In M-109 R.O.W. (west side) from Pierce Stocking to .2 mi. north of W. Welch Rd.; Old logging road (west side) to Greenan Rd. (.2 Mi paved); Greenan Rd. (east or west side) to M-109 (.4 Mi. paved); In M-22 R.O.W west side from Stormer Rd to Empire Village limits (paved)						
Item	Estimated Quantity	Units	Unit Price in Year 2007	Estimated Cost	Notes	Subtotal
R.O.W. / DESIGN ENGINEERING						
ROW Land and Purchase (Survey, Legal, Admin. etc.)	NA/	LS			None	
Surveying (5%)	0.05	LS	\$22,986	\$22,986	50% wooded; hilly	
Permit Processing; Engineering Design (12%)	0.12	LS	\$55,167	\$55,167	SESC; MDOT permits	
Subtotal:						\$78,154
TRAIL CONSTRUCTION COSTS						
General Construction Costs						
Bonds and Insurance (typ. 1-2%)	0.01	LS	\$5,268	\$5,268		
Mobilization (3-5K)	1	LS	\$4,000	\$4,000		
Site Preparation						
Clear and Grub; Topsoil (Remove and Stockpile)	2.21	MI	\$4,000	\$8,840		
Unclassified Embankment; Subgrade excavation	2.21	MI	\$3,600	\$7,956	yes	
Traffic control	1	LS	\$3,000	\$3,000	yes	
Trail Cross section						
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading)	2.01	MI	\$158,400	\$318,384		
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)	0.6	MI	\$100,300	\$60,180	Ex. Greenan Rd. (gravel) (.4 mi); Old logging road bed (.2 mi)	
Limestone paving (4")(Base amend)(Trail grading)		MI	\$116,200	\$0		
Limestone paving (4")(Existing substrate/gravel)		MI	\$87,100	\$0		
Engineered soil paving (existing path)		MI	\$53,000	\$0		
Existing Gravel Road		MI	TBD	\$0	Possible as early phase on Greenan Rd.	
Trail Restoration						
Seeding / Vegetation (restoration)	2.21	MI	\$950	\$2,100	yes, wooded understroy	
Trees (restoration)	200	EA	\$250	\$50,000	yes, wooded understory	
Subtotal:						\$459,728
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE						
Guard Rail Railings		LS		\$0	possible	
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	possible	
Crossing Advanced Warning (lights, signs, striping)		LS		\$0		
Pavement markings		LS		\$0		
Perminant signage		LS		\$0	Mile markers; Interpretive	
Retaining Walls (Wood, modular conc.)		LS		\$0	Possible north of Greenan Rd.	
Subtotal:						\$0
CONSTRUCTION ENGINEERING						
Material Testing; Construction Management (6%)	0.06	LS	\$27,584	\$27,584		
Grant management / assistance (1%)	0.01	LS	\$4,597	\$4,597		
Subtotal:						\$32,181
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$570,062		\$570,062
PROJECT CONTINGENCY (20%):				\$114,012		
TOTAL PROJECT COST PROJECTION				\$684,075		



TRAIL SEGMENT 5 - Alt B
COST PROJECTION
 Leelanau Scenic Heritage Route Trailway
 Phase I - Planning Project - February 2008

Total Trail Section Length:		20,909 Ft.	3.96 MI.				
Description: In M-22 R.O.W. west side Hunter Rd. following a parallel trail along the duneside trail; continue on narrow gauge RR bed to former group camp ground at Harwood Dr. to Dune Valley Rd. then to Glen Haven Village (1.86 mi paved); Glen Haven Village (sub-area paved and/or limestone); to D.H. Day campground utilize existing two-track (paved); to Pine Haven Rd. utilized existing gravel road ROW (paved to crossing at M-22 and Stocking Rd.; continue on s. side Stocking Rd. ROW to existing NPS forest tow-tracks along base of escarpment (Alligator Hill) to S. Forest Haven Dr (paved); N. side of S. forest Haven Dr. in ROW to M-22; (2.44 mi. paved)							
<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>
R.O.W. / DESIGN ENGINEERING							
ROW Land and Purchase (Survey, Legal, Admin. etc)	NA/	LS			None		
Surveying (3%)	0.03	LS	\$18,627	\$18,627	50% wooded; existing RR bed (fair to deteriorating)		
Permit Processing; Engineering Design (8%)	0.12	LS	\$74,506	\$74,506	SESC; MDOT, MDEQ permits		
Subtotal:						\$93,133	\$0
TRAIL CONSTRUCTION COSTS							
General Construction Costs							
Bonds and Insurance (typ. 1-2%)	0.015	LS	\$9,102	\$9,102			
Mobilization (3-5K)	1	LS	\$5,000	\$5,000			
Site Preparation							
Clear and Grub; Topsoil (Remove and Stockpile)	3.96	MI	\$4,000	\$15,840	50% wooded; existing RR bed and two tracks		
Unclassified Embankment; Subgrade excavation	2.5	MI	\$3,600	\$9,000	limited		
Traffic control	1	LS	\$3,000	\$3,000	yes		
Trail Cross section							
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading	2.78	MI	\$158,400	\$440,352			
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)	0.93	MI	\$100,300	\$93,279	Existing two tracks; Haven Rd. ROW		
Limestone paving (4")(Base amend)(Trail grading)	0.25	MI	\$116,200	\$29,050	alternative route extened barrier free pathway (.67 mi.)		
Existing Gravel Road	0.32	MI	TBD	\$0	Early phase could use Haven Rd.		
Wood boardwalk - auger supported (10' width)		LF	\$360	\$0	Boardwalk from Hunter Rd. at dune climb to narrow gauge railbed (.61 Mi.)		
Trail Restoration							
Seeding / Vegetation (restoration)	3.96	MI	\$950	\$3,762	Yes, wooded wetland edge restoration		
Trees (restoration)	50	EA	\$250	\$12,500	yes, wooded understory		
Subtotal:						\$620,885	\$0
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE							
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	yes		
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	Hunter Rd. at dune climb; M-22 and Stocking Rd.; Glen Haven Village (at least one)		
Pavement markings		LS		\$0	3+ Crosswalks		
Perminant signage		LS		\$0	Mile markers; Interpretive		
Subtotal:						\$0	\$0
CONSTRUCTION ENGINEERING							
Material Testing; Construction Management (5%)	0.05	LS	\$31,044	\$31,044			
Grant management / assistance	0.005	LS	\$3,104	\$3,104			
Subtotal:						\$34,149	\$0
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$748,166		\$748,166	\$0
PROJECT CONTINGENCY (20%):	0.2			\$149,633			
TOTAL PROJECT COST PROJECTION				\$897,799			



TRAIL SEGMENT 6 - Alt B
COST PROJECTION
 Leelanau Scenic Heritage Route Trailway
 Phase I - Planning Project - February 2008

Total Trail Section Length:		12,778 Ft.	2.42 MI.				
Description: In ROW to M-22 on-road bike lanes from S. Forest Haven Rd. to Village of Glen Arbor; Bike lanes thru Village via S. Ray St., State St. and Oak St. back to M-22 east of town; in M-22 ROW south side following utility corridor from Oak St. to W. Crystal View Rd. (paved with short section of boardwalk (140 l.f.) near Marathon Station); Along and in W. Crystal View Rd. ROW on (south side) from M-22 to Westman Rd. (paved and boardwalk (2000 l.f.); Along Westman Rd. (west side) from W. Crystal View Rd. to M-22 (paved with boardwalk segments)							
Item	Estimated Quantity	Units	Unit Price in Year 2007	Estimated Cost	Notes	Subtotal	Subtotal
R.O.W. / DESIGN ENGINEERING							
ROW Land and Purchase (Survey, Legal, Admin. etc)	NA/	LS			None		
Surveying (5%)	0.05	LS	\$76,657	\$76,657	60% wooded wetlands		
Permit Processing; Engineering Design (15%)	0.15	LS	\$229,970	\$229,970	SESC; MDOT, MDEQ permits		
Subtotal:						\$306,626	\$0
TRAIL CONSTRUCTION COSTS							
General Construction Costs							
Bonds and Insurance (3%)	0.02	LS	\$23,983	\$23,983			
Mobilization	1	LS	\$10,000	\$10,000			
Site Preparation							
Clear and Grub; Topsoil (Remove and Stockpile)	2.42	MI	\$4,000	\$9,680	yes, wooded wetlands		
Unclassified Embankment; Subgrade excavation	1	MI	\$3,600	\$3,600	limited		
Traffic control	1	LS	\$6,000	\$6,000	yes		
Trail Cross section							
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading)	1.27	MI	\$158,400	\$201,168			
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)		MI	\$100,300	\$0			
On-Road Bikelane (4" white waterborne - two sides)	0.64	MI	\$7,500	\$4,800	width both sides M-22 and in Village of Glen Arbor		
Wood boardwalk - auger supported (10' width)	2700	LF	\$360	\$972,000	Boardwalk along W. Harbor Highway (500 l.f) and W. Crystal View Rd. - s. side (2200 l.f)		
Trail Restoration							
Seeding / Vegetation (restoration)	2	MI	\$950	\$1,900	yes, wooded wetland edge restoration		
Trees (restoration)		EA	\$450	\$0	possible		
Subtotal:						\$1,233,131	\$0
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE							
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	yes		
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	Major safety crossings in Village		
Pavement markings		LS		\$0	Multiple crosswalks		
Permanant signage		LS		\$0	Mile markers; Interpretive		
Bridge (10' width); Bridge Abutment/Wing walls	1	LS		\$300,000	Yes, south side at Crystal River (150+ ft. span)		
Retaining Walls (Wood, modular conc.)		LS		\$0	yes, ?		
Subtotal:						\$300,000	\$0
CONSTRUCTION ENGINEERING							
Material Testing; Construction Management (7%)	0.07	LS	\$107,319	\$107,319			
Grant management / assistance	0.005	LS	\$7,666	\$7,666			
Subtotal:						\$114,985	\$0
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$1,954,742		\$1,954,742	\$0
PROJECT CONTINGENCY (20%):				\$390,948			
TOTAL PROJECT COST PROJECTION				\$2,345,690			



TRAIL SEGMENT 7 - Alt B
COST PROJECTION
 Leelanau Scenic Heritage Route Trailway
 Phase I - Planning Project - February 2008

Total Trail Section Length:		12,250 Ft.	2.32 Mi.				
Description: In M-22 ROW on west side from Westman Rd.to S. Thoreson Rd. (paved); On existing Bayview Trail alignment from S. Thoreson Rd. To N. Thoreson Road cross and continue on Bayview Trail past Oleson Farm (amended limestone path); additional new spur to connect to Port Oneida Rd. (500 l.f.); cross at Port Onieda Road link to M-22 (paved)							
Item	Estimated Quantity	Units	Unit Price in Year 2007	Estimated Cost	Notes	Subtotal	Subtotal
R.O.W. / DESIGN ENGINEERING							
ROW Land and Purchase (Survey, Legal, Admin. etc)	NA/	LS			None		
Surveying (5%)	0.05	LS	\$13,451	\$13,451	70% wooded uplands		
Permit Processing; Engineering Design (12%)	0.12	LS	\$32,281	\$32,281	SESC; MDOT, MDEQ permits		
Subtotal:						\$45,732	\$0
TRAIL CONSTRUCTION COSTS							
General Construction Costs							
Bonds and Insurance (typ. 1-2%)	0.01	LS	\$2,624	\$2,624			
Mobilization (3-5K)	1	LS	\$4,000	\$4,000			
Site Preparation							
Clear and Grub; Topsoil (Remove and Stockpile)	1	MI	\$4,000	\$4,000	yes, wooded wetlands		
Unclassified Embankment; Subgrade excavation	1	MI	\$3,600	\$3,600	limited		
Traffic control	1	LS	\$3,000	\$3,000	yes		
Trail Cross section							
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading;	0.32	MI	\$158,400	\$50,688	Link to existing trail head on Thoreson Rd. and Alternate route (2.08 Mi) not included		
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)		MI	\$100,300	\$0	Additional spur to connect to Port Oneida Rd. (500 l.f.)		
Limestone paving (4")(Base amend)(Trail grading)		MI	\$116,200	\$0			
Limestone paving (4")(Existing substrate/gravel)	2	MI	\$87,100	\$174,200			
Engineered soil paving (existing path)		MI	\$53,000	\$0			
On-Road Bikelane (4" white waterborne - two sides)		MI	\$7,500	\$0			
Trail Restoration							
Seeding / Vegetation (restoration)	2	MI	\$950	\$1,900	Yes, wooded sideslope restoration		
Trees (restoration)	100	EA	\$250	\$25,000	yes, wooded understory		
Subtotal:						\$269,012	\$0
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE							
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	yes		
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	Westman Rd; Thoreson Rd. (twice)		
Pavement markings		LS		\$0	3 crosswalks		
Perminant signage		LS		\$0	Mile markers; Interpretive		
Retaining Walls (VWood, modular conc.)		LS		\$0	Yes, possible near Westman Rd.		
Subtotal:						\$0	\$0
CONSTRUCTION ENGINEERING							
Material Testing; Construction Management (5%)	0.05	LS	\$13,451	\$13,451			
Grant management / assistance	0.005	LS	\$1,345	\$1,345			
Subtotal:						\$14,796	\$0
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$329,540		\$329,540	\$0
PROJECT CONTINGENCY (20%):				\$65,908			
TOTAL PROJECT COST PROJECTION				\$395,447			



TRAIL SEGMENT 8 - Alt B

COST PROJECTION

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

Total Trail Section Length:		16,738 Ft.	3.17 MI.				
Description: In M-22 ROW on north side from Port Onieda Rd. to just west of North Unity School (paved); Out of ROW west of North Unity School on north side of buildings to Narada Lake boardwalk; in M-22 ROW from Narada Lake boardwalk (north side) to Bohemian Rd. (paved)							
Item	Estimated Quantity	Units	Unit Price in Year 2007	Estimated Cost	Notes	Subtotal	Subtotal
R.O.W. / DESIGN ENGINEERING							
ROW Land and Purchase (Survey, Legal, Admin. etc)	NA/	LS			None		
Surveying (5%)	0.05	LS	\$35,810	\$35,810	50% wooded wetlands		
Permit Processing; Engineering Design (12%)	0.12	LS	\$85,945	\$85,945	SESC; MDOT, MDEQ permits		
Subtotal:						\$121,755	\$0
TRAIL CONSTRUCTION COSTS							
General Construction Costs							
Bonds and Insurance (typ. 1-2%)	0.015	LS	\$4,190	\$4,190			
Mobilization (3-5K)	1	LS	\$4,000	\$4,000			
Site Preparation							
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		
Trail Cross section							
Asphalt paving (2") (220#/sy)(6" - 22A)(Trail grading)	3.07	MI	\$158,400	\$486,288	Does not include alternative route along S. Basch Rd. (gravel) - (1.68 mi.) or Good Harbor Beach trailhead link on Bohemian Rd. (1.21 mi.)		
Asphalt paving (2") (220#/sy)(3"- 22A + Ex. Gravel)		MI	\$100,300	\$0			
On-Road Bikelane (4" white waterborne - two sides)		MI	\$7,500	\$0			
Wood boardwalk - auger supported (10' width)	528	LF	\$360	\$190,080	embankment near North Unity School at Narada Lake - (north side)		
Trail Restoration							
Seeding / Vegetation (restoration)	3	MI	\$950	\$2,850	yes, wooded and wetland edge restoration		
Trees (restoration)	60	EA	\$250	\$15,000	yes, wooded understory		
Subtotal:						\$716,208	\$0
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE							
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	yes		
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	Port Onieda Rd.; S. Basch Rd.		
Pavement markings		LS		\$0	2 crosswalks		
Perminant signage		LS		\$0	Mile markers; Interpretive		
Subtotal:						\$0	\$0
CONSTRUCTION ENGINEERING							
Material Testing; Construction Management (7%)	0.07	LS	\$50,135	\$50,135			
Grant management / assistance	0.005	LS	\$3,581	\$3,581			
Subtotal:						\$53,716	\$0
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$891,679		\$891,679	\$0
PROJECT CONTINGENCY (20%):				\$178,336			
TOTAL PROJECT COST PROJECTION				\$1,070,015			



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.							
<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>
R.O.W. / DESIGN ENGINEERING							
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		
Subtotal:						\$44,807	\$0
TRAIL CONSTRUCTION COSTS							
General Construction Costs							
Bonds and Insurance (typ. 1-2%)	0.01	LS	\$3,956	\$3,956			
Mobilization (3-5K)	1	LS	\$4,000	\$4,000			
Site Preparation							
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		
Trail Cross section							
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)		LF	\$360	\$0	Possible with wetlands near Bartunek Rd. and near Townline Rd. west of the Bufka Farm		
	60	MI	\$0	\$0	Good Harbor Beach Road - to be paved by NPS		
Trail Restoration							
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		
Subtotal:						\$263,572	\$0
STRUCTURES / SPECIAL FEATURES / SAFETY / DRAINAGE							
Culverts; Rip-rap; Erosion Control (Silt fencing)		LS		\$0	yes		
Crossing Advanced Warning (lights, signs, striping)		LS		\$0	Port Onieda Rd.; S. Basch Rd.		
Pavement markings		LS		\$0	2 crosswalks		
Perminant 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		
Subtotal:						\$0	\$0
CONSTRUCTION ENGINEERING							
Material Testing; Construction Management (7%)	0.07	LS	\$18,450	\$18,450			
Grant management / assistance	0.005	LS	\$1,318	\$1,318			
Subtotal:						\$19,768	\$0
SUBTOTAL ENGINEERING AND CONSTRUCTION:				\$398,147		\$328,147	\$0
PROJECT CONTINGENCY (20%):				\$79,629			
TOTAL PROJECT COST PROJECTION				\$477,776			

