Chapter 5. Project Phasing and Class C Cost Estimate

a. Project Phasing

This chapter provides project statements to accomplish the Recommended Treatment (Alternative 2: Preferred Alternative) for the Oregon Trail ruts landscape. Each project statement includes treatments grouped together that need to occur concurrently, however the order of the projects as they are presented does not imply a level of importance or suggest a sequence for implementation.

Project A: Trail Preservation (Character Area A)

- Slow storm water runoff entering the trail rut corridor.
  - Install runoff dissipaters or check dams to the north and south of the trail where adjacent storm water runoff can be slowed prior to reaching the trail corridor. Dissipaters should be natural materials (e.g. coir logs) strategically place on the surface in tributary drainages that lead to problem trail areas.
- Reduce erosion potential of trail surface.
  - Rehabilitate the trail surface by combining the native soil with a soil hardening agent or soil cement.
- Raise the visitor trail surface.
  - Raise the trail surface to meet the level of the adjacent vegetated edge and level of adjacent non-eroded grade where significant scouring has occurred. Fill soil should be native material or clean, weed free soil import, free of archeological materials. Ensure compatibility with soil cement or soil hardener materials. Separate existing grade from fill soil with geotextile fabric.
- Divert runoff from the trail surface with water bars.
  - Install water bars and drainage improvements where water should be diverted off the trail. Water bars should extend well beyond the trail edge to insure drainage is directed off of the trail corridor.
  - Materials for water bars should be natural stone native to SCBL.

Project B: Visitor Trail Site Work (Character Area A)

- Develop an Accessible Interpretive Wayside
  - Develop an accessible interpretive wayside at the current interpretive sign location.
  - Concentrate information, seating and historic artifacts in this area.
- Remove and replace the lower asphalt trail (Visitor Center to Interpretive Station).
  - Remove and replace the asphalt trail with a hardened natural surface trail.
  - Locate the trail to improve visitor experience.
- Remove and replace the upper asphalt trail (existing asphalt/chip seal trail).
  - Remove and replace the asphalt trail with a hardened natural surface trial in the current location. Separate existing grade from fill soil with geotextile fabric.

Project C: William Henry Jackson Campsite Rehabilitation

- Rehabilitate the interpretive wayside at the W.H. Jackson campsite.
  - Rehabilitate the wayside to provide informal seating on low walls of native stone materials.
  - Accentuate the view of the adjacent trail resources, the historic view to the east of Mitchell Pass, and the views of the double cut in Character Area B1.
  - Provide information to guide the visitor to an overall understanding of the emigrant experience and emigrant trail over Mitchell Pass.
- Complete archeological investigations in the proposed campsite area in advance of any work on the project including demolition. Use non-destructive methods such as ground-penetrating radar and magnetic gradient surveys, to document the extent of buried or non-visible cultural resources.

Project D: Trail Documentation

- Document and map trail locations using the standards of the Mapping Emigrant Trails (MET) manual by the Oregon-California Trails Association. Provide mapping data that corresponds to the mapping procedures outlined in the MET.
- Mark known emigrant trail resources in the field and record GPS coordinate data points and survey notes.
    - Integrate this information into the park GIS data.
- Provide trail markers locating known emigrant trails using the Oregon-California Trails Association (OCTA) Trail Marker and Trail Marking Policies.

Refer to the Class C Cost Estimate that follows this section.

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Class C Construction Cost Estimate

Project: Oregon Trail Ruts Landscape Study/ Enironmental Assessment
Park: Scotts Bluff National Monument
PMIS: 36867

Basis of Estimate

Date of Estimate: 11/24/10

Estimated By: Mundus Bishop Design
333 W. Colfax, Suite 350
Denver, CO 80214
(303) 477-5244

Supporting Material: Oregon Trail Ruts Landscape Study/Environmental Assessment -100% Report (November 2010)
Monument Field Visit 11/09

Cost Data: Square Foot Cost Data.
Unit Prices based on 2010 Cost data

Mark-ups and Add-ons:
Published Location Factor: Nearest City - Alliance, Nebraska - Negative 14.5 percent
Project Remoteness: Scotts Bluff, Nebraska , site is 60 miles from nearest published commercial center.-7 Percent
Federal Wage Rate Factor: Included in Labor Cost - 7.5 Percent
Design Contingency: Preferred Treatment Alternative - 30 Percent
Taxes: Sales Tax included in Unit Costs - 5.5%
Standard General Conditions: Remote Location - 14 Percent
Government General Conditions: Remote Location - 8 Percent
Bonds and Permits: No permit costs. Bond - 2 Percent
Historic Preservation Factor: Not applicable.
Overhead: Small Job, Limited sub-contractors.
Profit: Small Size Project - 15 Percent
Contracting Method Adjustment: Procurement Method unknown - 15 Percent
Inflaton Escalation: Assume start of construction to be May 2012
6 Month Construction Period. Inflation Predictions Indicate 6.6 Percent per year.

Comments: Class C Construction Cost Estimate based on;
Preferred Treatment Alternative Plan - November 2010

Class C Construction Cost Estimate

Project: Oregon Trail Ruts Landscape Study Environmental Assessment
Park: Scotts Bluff National Monument
PMIS: 36867

Estimated By: Mundus Bishop
Date: 24-Nov-10

Reviewed By: Mundus Bishop
Date: 24-Nov-10

Estimate Based on 2010 Costs

Project A: Trail Preservation (Character Area A)

Item	Description	Quantity	Unit	Cost/Unit	Direct Cost	Total Net
	SITE WORK					
1	Slow storm water runoff (coir logs)	40	EA	$ 300.00	$ 12,000.00	$ 23,398.80
2	Reduce trail erosion (soil cement)	130	CY	$ 75.00	$ 9,750.00	$ 19,011.53
3	Raise visitor trail surface (soil import)	220	CY	$ 30.00	$ 6,600.00	$ 12,869.34
4	Divert runoff (water bars)	6	EA	$ 1,200.00	$ 7,200.00	$ 14,039.28
	Subtotal Project A				**$ 35,550.00**	**$ 69,318.95**

Project B: Visitor Trail Site Work (Character Area A)

Item	Description	Quantity	Unit	Cost/Unit	Direct Cost	Total Net
	SITE WORK					
1	Interpretive Wayside					
	Signs	4	EA	$ 1,000.00	$ 4,000.00	$ 7,799.60
	Seating (walls)	20	LF	$ 300.00	$ 6,000.00	$ 11,699.40
	Paving	380	SF	$ 10.00	$ 3,800.00	$ 7,409.62
	Relocated granite marker	1	LS	$ 1,500.00	$ 1,500.00	$ 2,924.85
2	Remove and replace lower asphalt trail					
	Demo and dispose	1	LS	$ 8,000.00	$ 8,000.00	$ 15,599.20
	Soil cement	70	CY	$ 75.00	$ 5,250.00	$ 10,236.98
	Import	70	CY	$ 30.00	$ 2,100.00	$ 4,094.79
	Seeding	7320	SF	$ 0.50	$ 3,660.00	$ 7,136.63
3	Remove and replace upper asphalt trail					
	Demo and dispose	1	LS	$ 6,500.00	$ 6,500.00	$ 12,674.35
	Soil cement	60	CY	$ 70.00	$ 4,200.00	$ 8,189.58
	Import	60	CY	$ 30.00	$ 1,800.00	$ 3,509.82
	Seeding	6480	SF	$ 0.50	$ 3,240.00	$ 6,317.68
4	Archeological Investigations (Ground Penetrating Radar)	1	LS	$ 7,000.00	$ 7,000.00	$ 13,649.30
5	Archeological Investigations (Magnetic Gradient Survey)	1	LS	$ 8,000.00	$ 8,000.00	$ 15,599.20
	Subtotal Project B				**$ 65,050.00**	**$ 126,841.00**

Project C: William Henry Jackson Campsite Rehabilitation

Item	Description	Quantity	Unit	Cost/Unit	Direct Cost	Total Net
	SITE WORK					
1	Interpretive Wayside					
	Walls	20	LF	$ 250.00	$ 5,000.00	$ 9,749.50
	Paving	380	SF	$ 10.00	$ 3,800.00	$ 7,409.62
	Signs	4	EA	$ 750.00	$ 3,000.00	$ 5,849.70
	Soil Cement	30	CY	$ 75.00	$ 2,250.00	$ 4,387.28
	Seeding	3500	SF	$ 0.50	$ 1,750.00	$ 3,412.33
2	Archeological Investigations (Ground Penetrating Radar)	1	LS	$ 4,000.00	$ 4,000.00	$ 7,799.60
3	Archeological Investigations (Magnetic Gradient Survey)	1	LS	$ 6,000.00	$ 6,000.00	$ 11,699.40
	Subtotal Project C				**$ 25,800.00**	**$ 50,307.42**

Class C Construction Cost Estimate

Project: Oregon Trail Ruts Landscape Study Environmental Assessment
Park: Scotts Bluff National Monument
PMIS: 36867

Estimated By: Mundus Bishop
Date: 24-Nov-10

Reviewed By: Mundus Bishop
Date: 24-Nov-10

Estimate Based on 2010 Costs

Project D: Trail Documentation

Item	Description	Quantity	Unit	Cost/Unit	Direct Cost	Total Net
	SITE WORK					
1	Document and Map Trail Location using MET Handbook & GPS coord					
	Character Area A	1	LS	$ 1,922.73	$ 1,922.73	$ 3,749.13
	Character Area B1	1	LS	$ 1,769.32	$ 1,769.32	$ 3,449.99
	Character Area B2	1	LS	$ 6,458.52	$ 6,458.52	$ 12,593.47
	Character Area C	1	LS	$ 1,135.23	$ 1,135.23	$ 2,213.58
	Character Area D1	1	LS	$ 3,380.11	$ 3,380.11	$ 6,590.88
	Character Area D2	1	LS	$ 1,692.61	$ 1,692.61	$ 3,300.43
2	Integrate GPS data with SCBL GIS data	1	LS	$ 10,000.00	$ 10,000.00	$ 19,499.00
3	Trail Soil Evaluation & Testing (all areas)	1	LS	$ 8,000.00	$ 8,000.00	$ 15,599.20
4	Trail Vegetation Study (all areas)	1	LS	$ 10,000.00	$ 10,000.00	$ 19,499.00
5	Trail Markers	64	EA	$ 500.00	$ 32,000.00	$ 62,396.80
6	Archeological Investigations	1	LS	$ 35,000.00	$ 35,000.00	$ 68,246.50
	Subtotal Project D				**$ 111,358.52**	**$ 217,137.98**
	Subtotal Direct Construction Costs				$ 237,758.52	$ 463,605.34
	Published Location Factor (Negative 14.5 Percent)				$ (34,474.99)	
	Remoteness Factor (7 Percent)				$ 16,643.10	
	Federal wage Rate Factor (7.5 Percent)				$ 17,831.89	
	Design Contingency (30 Percent)				$ 71,327.56	
	Total Direct Construction Costs				$ 309,086.08	
	Standard General Conditions (14 Percent)				$ 33,286.19	
	Government General Conditions (8 Percent)				$ 19,020.68	
	Bond (2 Percent)				$ 4,755.17	
	Historic Preservation Factor (N/A)				$ -	
	Subtotal NET Construction Cost				$ 366,148.13	
	Overhead (15 Percent)				$ 35,663.78	
	Profit (10 Percent)				$ 23,775.85	
	Estimated NET Construction Cost				$ 425,587.76	
	Procurement Method Unknown (15 Percent)				$ 35,663.78	
	Inflation Escalation (20 Months to Midpoint of Construction, July 2012 - 6.6 Percent)				$ 2,353.81	
	Total Estimated NET Cost of Construction				$ 463,605.34	