

## APPENDIX D: COST ANALYSIS

### Assumptions and Comments

Cost analyses are required for all construction projects under National Park Service Alaska regional policy. Following are construction and staffing cost estimates for the proposed action and the alternative for the South Denali Implementation Plan. Most cost estimates are rough NPS "class C" estimates based on the average cost of similar facilities constructed in Alaska through federal government contracts. Actual costs may be higher or lower depending on the final design, site conditions, and the contracting agency. Facilities may be constructed by the National Park Service, the State of Alaska, the Matanuska-Susitna Borough, or some other entity such as a private or nonprofit corporation.

Facilities construction cost estimates generated by the State of Alaska, Department of Natural Resources (ADNR) were developed using 2003 RSMeans Square Foot Costs, 24<sup>th</sup> Annual Edition; historical data from previous Alaska State Parks construction projects for similar facilities; and cost estimating worksheets provided by the State of Alaska, Department of Transportation and Public Facilities (ADOT&PF). Markup for design/site planning costs (15%), construction administration costs (18%), contingent costs (varying percentages) have been applied due to assumptions & unknowns. These costs represent facility development without some amenities that are usually associated with visitor operations. For example, electricity is currently 14 miles south of the site so power generation, water recovery, and wastewater facility dispersal would be designed accordingly.

Initial one-time costs include net government contract costs, construction supervision, and contingencies. Recurring annual costs include operations and maintenance, including equipment, supplies, utilities, and services necessary to operate the facility. Life cycle costs are for equipment that would need to be replaced during the first 20 years of the facility's life. Design costs including surveys, more detailed site planning, facility design, construction documents, and additional project compliance activities are listed in a line item at 15%.

The road upgrading and construction cost estimates were provided by the Alaska Department of Transportation and Public Facilities.

These estimates are intended primarily to assist in comparing the relative cost of alternatives. Some figures may not add up due to rounding. These estimates are in 2006 dollars and do not include inflation.

Staffing figures are rough estimates based on a number of assumptions. They are subject to change as plans are finalized and a better understanding of facility operation requirements is gained. The staffing titles listed below are state position descriptions except where position titles are preceded with "NPS" (National Park Service). This does

not mean the position will be filled only by state (or NPS) employees; whether the state, the National Park Service, or the private sector provides the staffing is a decision to be made in subsequent negotiations.

Costs will vary depending on the operating season. These initial estimates assume full operation of all campgrounds and visitor centers from around June 1 through September 30, and limited operation of the Parks Highway Visitor Center during the winter. Full operation of the visitor centers is defined as being open to the public 12 hours per day, 7 days per week. Operating seasons of some facilities may be extended in the future.

Snow removal would be provided only in the shoulder seasons to prolong the late summer use or enable early thaw at the beginning of the summer season. Costs would vary depending on whether services (including provision of related employee housing) are privately contracted or provided by state or federal employees or volunteers.

**Summary of Cost Analysis**

Costs associated with the two action alternatives are summarized below. A more detailed cost analysis is located in the tables on the following pages.

	Construction Costs	Annual Staffing Costs
Alternative B: Peters Hills	<b>\$99,550,000</b>	<b>\$456,400</b>
Alternative C: Parks Highway	<b>\$28,126,000</b>	<b>\$551,000</b>

**Alternative A: No Action**

There are no new construction or staffing costs associated with Alternative A

**Alternative B: Peters Hills**

Item	Estimated Cost (millions)		
	Initial one-time costs (Construction)	Recurring annual costs (Maintenance and Operations)	Life-cycle costs (20 year life)
Construct nature center at Peters Hills			
• Visitor Contact (3,500 sf)	1.522	0.03	0.03
• Exhibits (1,600 sf)	0.522	0.005	0.03
• Bus shelter (800 sf)	0.130	0.005	0.01
• Restrooms (vaulted toilets or porta-johns) (800 sf)	0.139	0.01	0.02
• Power Generation (800 sf), Water Storage	0.139	0.02	0.03
Construct transportation facility near junction of Petersville Road and the proposed access road			
• Parking/Circulation	1.739	0.01	0.02
• Bus Shelter (1000 sf)	0.130	0.005	0.01
• Visitor Contact (1500 sf)	0.435	0.02	0.04
• Restrooms/Septic (1000 sf)	0.130	0.01	0.02
• Maintenance and Storage (2000 sf)	0.435	0.005	0.01
• Power Generation (800 sf)	0.139	0.01	0.02
• Ranger Quarters (1000 sf)	0.217	0.01	0.02
Construct 7-mile access road	12.174	0.01	0.03
Construct 31 miles of trails	0.270	0.01	0.02
Construct picnic shelter at Long Point	0.022	0	0.005

**Alternative B: Peters Hills, continued**

Item	Estimated Cost (millions)		
	Initial one-time costs (Construction)	Recurring annual costs (Maintenance and Operations)	Life-cycle costs (20 year life)
Construct public use cabin at Home Lake	0.052	0.005	0.005
Seek dedicated trail easement and construct a primitive trail for the Chulitna Bluff/Rabideux/106 Seismic Trail System	0	0.01	0
Improve parking area/wayside at MP 121.5 and create new parking area at MP 122 Parks Highway	1.043	0.01	0.03
Construct parking area near Rabideux Creek (west side of Parks Highway)	0.609	0.01	0.03
Provide signage to improve highway crossing near MP 122 of Parks Highway			
Construct informational kiosk near Parks Highway/Petersville Road intersection	0.017	0.005	0.01
Sign trail system	0	0.05	0
Support marking and grooming winter trails	0	0	0
Support local communities in Scenic Hwy designation for Parks Highway MP 105-132	0.004	0	0
Protect natural and scenic values of the Parks Highway corridor from MP 105 to MP 132	0.1	0	0
Retain scenic and natural qualities of Petersville Road corridor	0	0	0
Produce a map showing recreational opportunities on public lands west of the Petersville Canyon	0	0	0
Construct non-motorized boat access near Troublesome Creek	0.261	0	0
Determine feasibility of a docking facility on Chulitna River	0.017	0	0

**Alternative B: Peters Hills, continued**

Item	Estimated Cost (millions)		
	Initial one-time costs (Construction)	Recurring annual costs (Maintenance and Operations)	Life-cycle costs (20 year life)
Construct a campground near Petersville Road near the Forks	0.609	0.02	0.03
Upgrade Petersville Road to a 24-foot wide gravel surface from MP 9.3 to MP 18.6	20.865	0.05	0.2
Construct a bike path along Petersville Road MP 0-7	3.165	0.005	0.03
Evaluate the need for a 45 mile-per-hour speed zone on the Parks Highway near Petersville Road	0.002	0	0
Determine the feasibility of left-hand and right-hand turning lanes at the Petersville Road/Parks Highway intersection	0	0	0
Develop turnouts at MP 12.8 and MP 16.3 of Petersville Road	0.783	0.01	0.03
Redesign Kroto Creek parking lot	0.026	0.01	0
<b>Total Construction Costs</b>	<b>45.696</b>		
<b>Design Costs (15%)</b>	<b>6.854</b>		
<b>TOTAL</b>	<b>52.550*</b>	<b>0.336</b>	<b>0.68</b>

\* This estimate does not include an upgrade to Petersville Road to MP 28 that would be necessary to implement this alternative. Upgrading Petersville Road to MP 28 would add an additional \$47 million to the total for Alternative B.

**Alternative B - Staffing Needs**

<b>Position</b>	<b>Number</b>	<b>Appointment</b>	<b>Total Estimated Salary Per Year</b>
Park Ranger II	1 position	year-round	74,000
Park Ranger I	1 position	year-round	59,000
Park Specialist	1 position	seasonal (6 months)	26,400
Park Technician	3 positions	seasonal (5 months)	64,300
Maintenance Worker 1	1 position	year-round	62,400
Park volunteer	1 position	year-round	4,500
Park volunteer	5 positions	Seasonal (5 months)	8,800
Mat-Su Upper Valley Planner	1 position	Year-round	74,000
NPS Biological Technician	2 positions	seasonal (6 months)	43,000
NPS Interpretation Ranger	1 position	seasonal (6 months)	22,000
NPS Visitor Use Assistant	1 position	seasonal (6 months)	18,000
<b>TOTAL</b>	<b>18</b>		<b>456,400</b>

**Alternative C: Parks Highway**

Item	Estimated Cost (millions)		
	Initial one-time costs (Construction)	Recurring annual costs (Maintenance and Operations)	Life-cycle costs
Construct visitor center at Parks Highway site			
• Visitor Contact (5,000 sf)	2.174	0.04	0.60
• Theater (2,400 sf)	0.870	0.01	0.02
• Exhibits (2,400 sf)	0.696	0.005	0.04
• Food Service (2,400 sf)	0.609	0.01	0.04
• Bus Shelter (1,500 sf)	0.174	0.005	0.01
• Restrooms/Septic (1,500 sf)	0.174	0.01	0.02
• Power Generation (800 sf)	0.139	0.01	0.02
Construct transportation center off Parks Highway			
• Parking/Circulation	3.478	0.01	0.04
• Bus shelter (1,500 sf)	0.174	0.005	0.02
• Visitor contact (2,200 sf)	0.652	0.02	0.05
• Restrooms (1,500 sf)	0.130	0.01	0.01
• Storage/Maintenance (2,000 sf)	0.435	0.01	0.05
• Power Generation (800 sf)	0.139	0.02	0.05
• Ranger Quarters (1,000 sf)	0.217	0.02	0.03
• DOT Maintenance Facility	0.950	0.02	0.03
Construct campground off Parks Highway	0.609	0.02	0.04
Construct 3.5-mile access road	6.087	0.01	0.03
Construct 13 miles of trails	0.113	0.01	0.01
Seek dedicated trail easements and construct a primitive trail for the Chulitna Bluff/Rabideux/106 Seismic Trail System	0	0.01	0

**Alternative C: Parks Highway, continued**

Item	Estimated Cost (millions)		
	Initial one-time costs (Construction)	Recurring annual costs (Maintenance and Operations)	Life-cycle costs
Improve parking area/wayside at MP 121.5 and create new parking area at MP 122 Parks Highway	1.043	0.01	0.03
Construct parking area near Rabideux Creek (west side of Parks Highway)	0.609	0.01	0.03
Provide signage to improve highway crossing near MP 122	0	0	0
Construct informational kiosk near Parks Highway/Petersville Road intersection	0.017	0.005	0.01
Sign trail system	0	0.05	0
Support marking and grooming winter trails	0	0	0
Support local communities in Scenic Hwy designation for Parks Highway MP 105-132	0.004	0	0
Protect natural and scenic values of the Parks Highway corridor from MP 105 to MP 132	0.1	0	0
Retain scenic and natural qualities of Petersville Road corridor	0	0	0
Produce a map showing recreational opportunities on public land west of the Petersville Canyon	0	0	0
Construct non-motorized boat access near Troublesome Creek	0.261	0	0
Determine the feasibility of a docking facility on the Chulitna River	0.017	0	0
Construct a campground near Petersville Road near the Forks	0.609	0.02	0.03



**Alternative C: Parks Highway, continued**

Item	Estimated Cost (millions)		
	Initial one-time costs (Construction)	Recurring annual costs (Maintenance and Operations)	Life-cycle costs
Construct a bike path along Petersville Road MP 0-7	3.165	0.005	0.03
Evaluate the need for a 45 mile-per-hour speed zone on the Parks Highway near Petersville Road	0.002	0	0
Determine the feasibility of left-hand and right-hand turning lanes at the Petersville Road/Parks Highway intersection	0	0	0
Develop turnouts at MP 12.8 and MP 16.3 of Petersville Road	0.784	0.01	0.03
Redesign Kroto Creek parking lot	0.026	0.01	0
<b>Total Construction Costs</b>	<b>24.457</b>		
<b>Design Costs (15%)</b>	<b>3.669</b>		
<b>TOTAL</b>	<b>28.126</b>	<b>0.355</b>	<b>1.24</b>

**Alternative C - Staffing Needs**

<b>Position</b>	<b>Number</b>	<b>Appointment</b>	<b>Total Estimated Salary Per Year</b>
Park Ranger II	1 position	year-round	74,000
Park Ranger I	1 position	year-round	59,000
Park Ranger I	1 position	seasonal (9 months)	44,000
Park Specialist	1 position	seasonal (7 months)	31,000
Park Technician	3 positions	seasonal (6 months)	77,000
Maintenance Worker I	1 position	year-round	62,500
Laborer	1 position	seasonal (6 months)	28,000
Park volunteer	1 position	year-round	4,500
Park volunteer	8 positions	seasonal (5 months)	14,000
Mat-Su Upper Valley Planner	1 position	Year-round	74,000
NPS Biological Technician	2 positions	seasonal (6 months)	43,000
NPS Interpretation Ranger	1 position	seasonal (6 months)	22,000
NPS Visitor Use Assistant	1 position	seasonal (6 months)	18,000
<b>TOTAL</b>	<b>23</b>		<b>551,000</b>