Timpanogos Cave National Monument
Utah

National Park Service
U.S. Department of the Interior

Study Report
Timpanogos Cave National Monument

PMIS #172474

Alternative Transportation Feasibility Study

Prepared for:
National Park Service
Timpanogos Cave National Monument

Prepared by:
Cambridge Systematics, Inc.
In Association with:
David Evans and Associates, Inc.
IBI Group

study report

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date

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Acknowledgments

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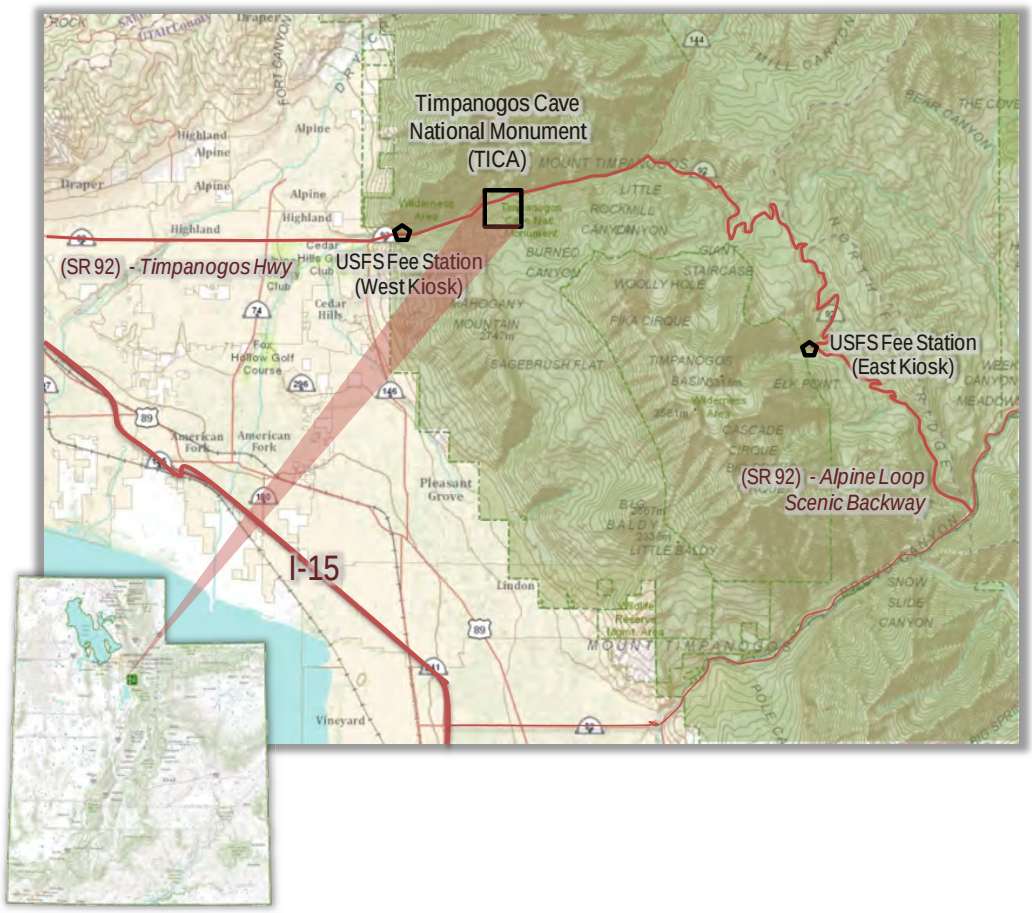
Executive Summary

This report presents findings of an alternative transportation feasibility study conducted for the Timpanogos Cave National Monument (TICA/monument) operated by the National Park Service (NPS). TICA is located 35 miles southeast of Salt Lake City, Utah, as shown in Figure ES.1. The Timpanogos Cave formations are the monument's primary resource attracting over 120,000 visitors annually. The NPS provides managed access to the caves through guided tours as well as on-site interpretative services and visitor facilities. The majority of visitors arrive from the greater Wasatch Front region by personal vehicle in small groups, requiring the provision of an efficient and safe transportation system.

OVERVIEW

This study identifies a range of transit and non-transit alternatives for providing visitor access to Timpanogos Caves National Monument. The primary goals of the study are to improve visitor access and safety, enhance visitor experience, and protect natural resources at the monument. Currently, traffic and parking congestion creates pedestrian and vehicle conflicts along State Highway 92 (SR 92), the roadway providing access to the monument, especially when pedestrians cross the highway to access the visitor center and when parking is at capacity in designated parking areas. To address these needs, a range of transportation strategies and combinations of strategies were identified that could improve visitor access to TICA, relieve congestion, improve safety conditions, and enhance visitor experience. An additional key objective of this study is to determine the feasibility of a shuttle bus system to TICA from a proposed United States Forest Service (USFS) and National Park Service interagency visitor center at the western mouth of the American Fork Canyon. The site of the proposed interagency center, which is located in the City of Highland, Utah, is referred to as the "Highland" site. The site of visitor facilities and the trailhead leading to the Timpanogos Caves is referred to as the "Canyon" site.

Figure ES.1 Project Study Area



The study process involved the following activities:

- Project site visit;
- Data collection;
- Development of alternatives;
- Alternatives meeting with stakeholders;
- Refinement of alternatives;
- Financial feasibility analysis; and
- Value Analysis/Choosing By Advantages (VA/CBA) workshop.

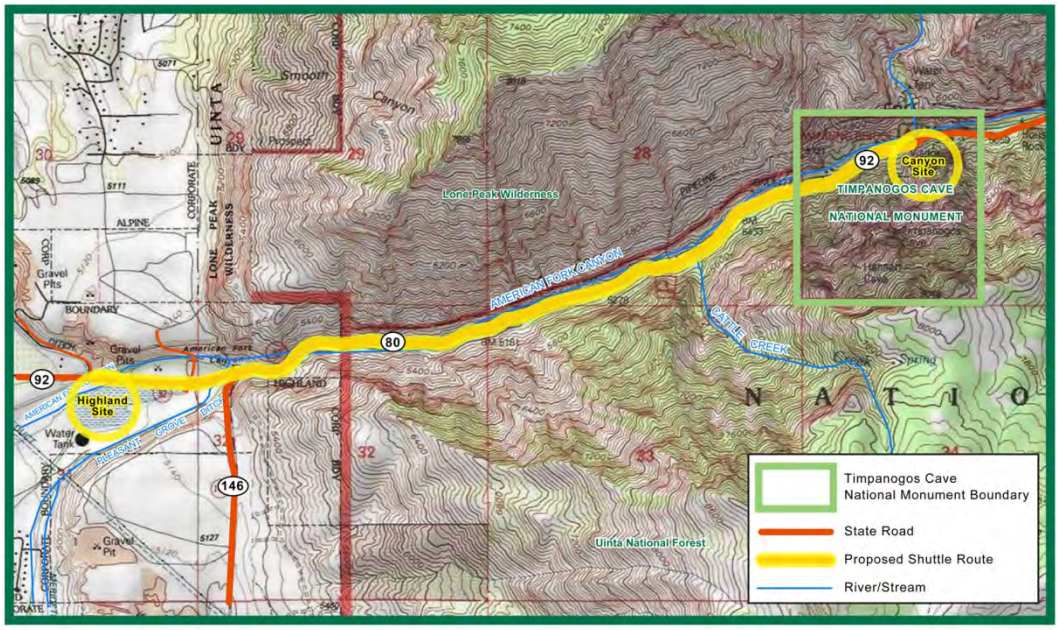
Four alternatives were identified and analyzed through this study. Two alternatives involve the operation of a shuttle service between the Highland and Canyon site. The other two alternatives do not involve a shuttle operation. All four alternatives involve some degree of demand management, particularly to manage available capacity of parking facilities and the scheduling of cave tours.

ALTERNATIVES CONSIDERED

The general concepts of the four alternatives are as follow:

- **Alternative 1: Mandatory Shuttle Service –** Shuttle service would operate seven days a week to transport visitors from facilities at the Highland site to the cave trailhead at the Canyon site. The proposed shuttle route is shown in Figure ES.2. The Highland site would include interagency administrative functions and a visitor center, incorporating interpretative services, ticket sales, parking, shuttle staging, and visitor shelter areas. The Canyon site would include a small visitor contact station, shuttle staging, and visitor shelter areas – consistent with prior National Park Service recommendations. Visitor parking areas would be significantly reduced and much of the area would be restored to natural conditions. Pedestrian safety and traffic flow improvements would also be implemented.

Figure ES.2 Proposed Shuttle Route



- **Alternative 2: Peak-Period Optional Shuttle –** An optional shuttle service from the Highland site would operate on weekends and holidays (peak days). The route followed is shown in Figure ES.2, the same route operated under Alternative 1. Parking at the Highland sites would include sufficient overflow visitor parking for cave tour visitors on weekends and holidays. Parking at the Canyon site would be redesigned and reduced to provide sufficient parking only for average weekday visitor demand. Demand management strategies would be employed to better match visitation times and levels to available safe, parking capacity and planned shuttle bus service. The Highland Site would include interagency administrative functions and a

visitor center. The visitor center would incorporate interpretation services, ticket sales, weekend visitor parking, and shuttle staging and shelter areas. The Canyon site would include a small contact station and shuttle staging and shelter areas at the cave trailhead. Safety and traffic flow improvements would also be implemented.

- **Alternative 3: Canyon Site Safety Improvements and Realignment of SR 92 –** A section of State Highway 92 would be realigned to maximize parking provided adjacent to the Canyon site visitor contact station and cave trailhead. Roadway realignment and redesign would consolidate parking on the same side of the highway as the visitor use area resulting in improved safety and traffic flow. With reduced parking availability, visitor demand management strategies would be employed to match visitation times and levels to available, safe parking capacity. The Highland Site would include interagency administrative functions and a visitor center with interpretation services and ticket sales. The Canyon site would include a small contact station and limited services at the cave trailhead. Roadway realignment would improve safety for pedestrians, visitor vehicles, and through traffic and enable the Canyon site visitor contact station to be located away from hazardous rock fall areas.
- **Alternative 4: Canyon Site Capacity Improvements –** Parking would be reconfigured at the Canyon site to maximize designated, formal areas while providing pedestrian safety enhancements and eliminating unsafe, informal parking areas. This alternative would provide the maximum feasible visitor parking at the Canyon site and would not realign SR 92. The Highland Site would include interagency administrative functions and a visitor center with interpretation services and limited ticket sales. The Canyon site would include a small contact station and limited services at the cave trailhead. Parking would be reconfigured to maximize the supply of parking for visitors. This alternative emphasizes improving safety and reducing the resource impacts from informal roadside parking. Visitor demand strategies would be employed to better match visitation times and levels with available parking capacity.

ALTERNATIVES ANALYSIS AND EVALUATION

These alternatives were reviewed with input from NPS staff and regional stakeholders and analyzed to determine their financial feasibility, operational requirements, and impacts on visitation. The alternatives were then assessed and compared using the Value Analysis/Choosing By Advantages (VA/CBA) process which is required for all major investments being considered by the NPS. The VA/CBA is a structured, value-based decision-making process that focuses on the key functions to be provided by a proposed investment and the respective advantages of each alternative. To undertake this process, a study team, including TICA staff members, NPS Denver Service Center and Intermountain

Region staff members, managers from other NPS units in the region, the U.S. Forest Service, as well as the architectural design team and the consultant planning team participated in the two-day workshop, which was held at Highland City Municipal Offices on January 10 and 11, 2012.

The consultant team assembled relevant data and materials for the VA/CBA process. Critical project information was circulated to the study team in advance of the workshop and was reviewed at the workshop. A draft Functional Analysis System Technique (FAST) diagram for the project was prepared in advance of the workshop to streamline the functional analysis phase of the process. The required functions for NPS projects are derived from the National Park Service agency goals. Workshop participants used this structured process to assign importance scores to project functions and then scored each alternative based on how well it met project goals and functions. This decision-making process results in the assignment of a numerical importance score for each alternative, which used in conjunction with alternative cost valuations, provides a rigorous, consensus-based decision-making method.

VA/CBA RESULTS

As a result of the VA/CBA process, Alternative 3 was determined to have the greatest total importance and to be the best value alternative. Alternative 3 was found to have the greatest importance advantages for the following key functions, when compared to the other alternatives:

- Protect natural, cultural, and historic resources:
  - Much less soil and vegetation damage associated with informal parking and social trails.
- Protect employee and public health, safety, and welfare:
  - Provides a major reduction in pedestrian conflicts with traffic on SR 92 (only 10 parking spaces across road);
  - Provides a major reduction in parking conflicts with traffic on SR 92 (only 10 parking spaces back into roadway);
  - Provides the greatest reduction in rock fall hazards to facilities due to removal of buildings from hazard zone; and
  - Provides the greatest reduction in time spent and numbers of people in rock fall zone.
- Provide for visitor enjoyment through improved educational and recreational opportunities:
  - Provides some additional future flexibility to manage visitor use;
  - $3 to $10 lower ticket price relative to other alternatives involving a shuttle service;

  - Much less need for mode changes and fewest visitors from the east required to travel out of direction;
  - Much more consistent access to TICA; and
  - Much less crowding on cave trails and tours.
- Improve operational efficiency, reliability, and sustainability:
  - Much lower ongoing maintenance requirements and much less need to direct traffic and manage parking; and
  - Offers much more flexibility for future site development.

Although this alternative had the lowest overall annual and daily visitation capacity, the above listed advantages outweigh this disadvantage. The design for the improvements will preserve the option to implement a shuttle system, should this option be desired and deemed feasible at a future time.

NEXT STEPS

Public and stakeholder outreach, advanced design, and operational planning activities will continue to be undertaken to implement the findings of this study and to advance the eventual development of both the Highland and Canyon sites. Alternative 3 financial and operational requirements will be continually refined. Key next steps include:

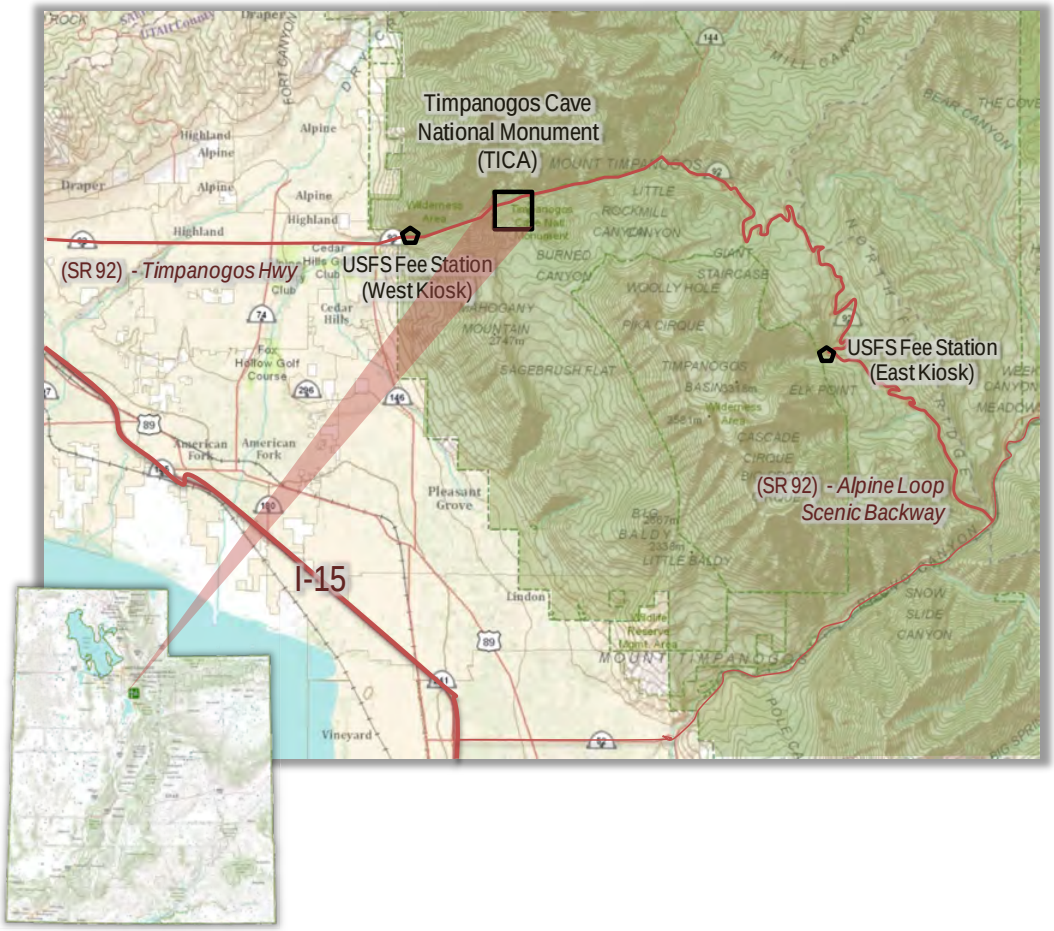
- *Continue Refinement of Alternative Components*: Detailed design schematics and cost estimates will be produced through separate processes for key components of the preferred alternative.
- *Phased Construction of Alternative Components:* The proposed alternative involves major reconstruction of TICA facilities at the Canyon site and realignment of heavily traveled state roadway. Construction will be planned and phased to minimize impacts associated with these projects.
- *Plan and Leverage Funding Sources:* NPS staff will work to align available project funding with proposed implementation timeline and construction phasing for the alternative.
- *Complete Environmental Assessment and FONSI (Finding of No Significant Impact):* NPS will select and refine a preferred alternative after completing an environmental assessment and public involvement process consistent with NEPA (National Environmental Policy Act) requirements.

Implementing the recommendations of the VA/CBA and Alternatives Transportation Feasibility Study will be coordinated with the NPS Intermountain Regional Office (IMRO), TICA and USFS management, and other key project partners as work progresses. Additional value analysis processes may be required at later design stages to select preferred functions and facilities at each development site.

1.0 Introduction

Timpanogos Cave National Monument (TICA/monument), consisting of 250 acres, is located 35 miles southeast of Salt Lake City, Utah. The monument was established by Presidential Proclamation in 1922 to preserve natural cave formations of unusual scientific interest and importance. Timpanogos Cave formations are the monument's primary resource. The cave system is uniquely known for its abundance of helictites and the coloration of its formations. As shown in Figure 1.1, TICA is surrounded by the Uinta-Wasatch-Cache National Forest, which encompasses nearly 2.1 million acres of recreational lands and designated wilderness. With its proximity to Salt Lake City, Uinta-Wasatch-Cache is one of the most visited National Forests in the nation and heavily recreated areas along Utah's Wasatch Front Range. TICA is accessed via State Highway 92 (SR 92) a Utah Scenic Backway, also known as the Alpine Scenic Loop. At the mouth of American Fork Canyon, the U.S. Forest Service (USFS) and National Park Service (NPS) jointly operate and staff an entrance fee station, which collects a fee for all visitors entering the canyon.

Figure 1.1 Location of Timpanogos Cave National Monument



1.1 Overview of The Alternative Transportation Feasibility Study

This Alternative Transportation Feasibility Study (study) was undertaken to identify a range of transit and non-transit options for providing visitor access to Timpanogos Cave National Monument (TICA). A key objective of the study was to determine the feasibility of introducing a shuttle bus system to serve TICA visitors and alleviate critical safety and congestion issues. The proposed design and development of the United States Forest Service and National Park Service interagency visitor center at the mouth of American Fork Canyon provides the opportunity to explore transit options for TICA. The preferred alternative resulting from this study will be incorporated into ongoing planning and design activities for this proposed interagency facility at the mouth of the canyon to accommodate both NPS and USFS administrative staff, referred to as the "Highland" site. Visitor facilities located at the trailhead to the Timpanogos Caves are referred to as the "Canyon" site.

The ultimate goal of this study is to improve visitor access and safety at Timpanogos Cave National Monument. Currently, traffic and parking congestion creates pedestrian and vehicle conflicts along State Highway 92 (SR 92), especially when pedestrians cross the highway to access the visitor center and when parking is at capacity in designated parking areas. A range of transportation strategies and combinations of strategies were identified to improve visitor access to TICA, relieve congestion, improve safety conditions, and enhance visitor experience. The identified strategies could also reduce energy use and limit transportation system impacts on sensitive resources.

As originally scoped, the objective of this study was to identify alternatives that could address the transportation needs of visitors to TICA in conjunction with the development of new facilities at both the Canyon and Highland sites. Further consideration of the alternatives would then occur as planning and design for these sites was advanced. However, during the course of the study, at the direction of both the NPS Intermountain Region and the U.S. Forest Service, a decision was made to modify the scope of the study so that a preferred alternative could be identified to expedite the planning process for the Canyon and Highland sites. The final preferred alternative will be selected during the upcoming environmental assessment planning process.

1.2 STUDY BACKGROUND AND ISSUES

Approximately 120,000 people visit TICA annually. During peak visitor season, for six to eight weeks each summer, parking utilization is over capacity at the TICA visitor center, in overflow parking areas located across State Highway 92 and in additional parking along the shoulders. Visitors who park across and along SR 92 must cross the highway to access the visitor center and cave trailhead. Crossing the roadway creates a dangerous pedestrian environment with potential for serious pedestrian and vehicle conflicts. In addition, vehicles parked along the road shoulders often back into traffic along the narrow and winding road creating hazardous conditions for vehicles traveling on the highway. The TICA visitor center is located below an active talus slope in a steep and narrow canyon and occasional rock fall presents a hazard to visitors and employees. Furthermore, much of the visitor center parking is within the 100-year floodplain of American Fork River.

In response to these identified hazards, the 1993 General Management Plan (GMP) and Development Concept Plan/Environmental Impact Statement recommended moving the majority of facilities out of the canyon to a safer and more operationally functional location at the western mouth of American Fork Canyon. A proposed shuttle bus system between the new facility and the cave trailhead was identified as the preferred means of visitor access to the monument.

The 1993 GMP also recommended that the NPS explore partnering with the USFS to develop an interagency facility at the mouth of American Fork Canyon. In 2001, the United States Congress passed the Timpanogos Interagency Land

Exchange Act requiring the acquisition of land suitable for an interagency center serving both the U.S. Forest Service's Uinta-Wasatch-Cache National Forest Pleasant Grove Ranger District and the National Park Service's Timpanogos Cave National Monument. The Forest Service completed the transaction in 2005, acquiring 37.5 acres at the mouth of American Fork Canyon.

The interagency center is currently under design. A new, year-round visitor center is proposed at the site incorporate visitor service components and to house administrative functions for both the USFS and NPS. Additionally, the Forest Service will locate maintenance and fire cache operations at the Highland site. In conjunction with the development of the Highland site, a new visitor contact station is proposed for the Canyon site adjacent to the trailhead to Timpanogos Cave.

A 2010 Value Analysis (VA) study for the construction of the interagency facility identified a shuttle bus system to transport visitors to the cave trailhead as part of the preferred concept for TICA. The VA recommended further analysis of shuttle bus capital and operational costs. The NPS and Federal Highway Administration also prepared concept designs for facilities at the cave site to improve safety and expand parking in the event that a transit system was deemed infeasible.

In 1991, a fire at the Monument destroyed the TICA visitor center and the administrative office headquarters at the Canyon site. Since the fire, the visitor center has been operated from a temporary modular building, while the administrative offices have occupied a modified residence building on the opposite site of SR 92. The current visitor center has reached the end of its life cycle and requires extensive maintenance. The redesign of facilities at the cave trailhead site would provide safety improvements by relocating the visitor and concessions facilities out of the most hazardous rock fall area. The redesign would also include new parking facilities and revised traffic flow patterns, potentially, including the realignment of SR 92 to reduce the need for visitors to cross the highway.

To balance visitor demand with available parking capacity, the design of the interagency facility at the Highland site and the design of facilities at the Canyon site must reflect the planned means of providing visitor access to the cave trailhead. If a shuttle bus system provides visitor access to the cave, additional parking and possibly other visitor facilities will be needed at the Highland site, while fewer facilities would be needed at the Canyon site. Conversely, if all visitor access continues to be in private vehicles, more parking and visitor facilities will be needed at the Canyon site unless demand management strategies are applied.

1.3 PRIOR STUDIES AND PLANS

A number of plans and studies have been undertaken relevant to TICA prior to this study which provided a background to the issues and needs which were considered in this study. These include:

National Park Service, "Timpanogos Caves National Monument Environmental Impact Statement, General Management Plan, Development Concept Plan." August 1993.

A General Management Plan (GMP) was prepared to guide long-term development, management, and use of the Timpanogos Cave resources. The plan identifies an environmentally preferred alternative to be implemented by the NPS as funding becomes available. The preferred alternative is to move primary visitor facilities outside of the immediate monument area to reduce natural dangers in rock fall and floodplain zones and to resolve conflicts among vehicles and pedestrians. The plan also calls for close coordination with the USFS for joint facilities.

Specific to this project, the GMP identifies a mandatory transportation system or shuttle system to transport visitors and employees from the visitor center at the mouth of American Fork Canyon to the cave trailhead. The plan notes that a shuttle bus staging area will require an adjustment of the alignment of State Highway 92 at the cave trailhead. The plan calls for 3, 40-person shuttle buses; one of which would be a back up bus in the event one of the other two break down. The need for 2 buses was based on the estimate that round trip from the visitor center to the trailhead and back again would take 20 minutes, including loading and unloading. The estimate of buses also is based on tour sizes of 20 people with 6 tours per hour. The fee for the bus (as identified in 1993) would be $1.46 per person to break even based on 82,517 average yearly visitors and estimated annual operating costs of $120,786. The analysis assumed the shuttle would be operated by NPS. If the shuttle were operated by an outside vendor, costs could increase to cover profit. The proposed parking area at the Highland site visitor center would provide spaces for 153 vehicles, including, 3 buses, 35 oversized vehicles, and 115 regular-sized vehicles.

National Park Service, "Timpanogos Cave National Monument Long-Range Interpretive Plan." December 2010.

The Interpretative Plan provides the outline for the monument's interpretive programming, including key messages, stories, and desired visitor experiences. The goal of the interpretive planning process is to "guide interpretive staff in developing a cost-effective, tightly focused, high-quality interpretive program that engages all audiences, enhances visitor experiences, and achieves management goals."

Of the established visitor goals, the following is most applicable to this study:

> *"Visitors want a monument experience that is safe, well-marked without confusing directions, and reasonably comfortable with adequate facilities (restrooms, waiting areas, concessions, parking, etc.)."*

National Park Service, "DRAFT Schematic Design Document: Interagency Center American Fork Utah." August 2010.

In April 2010, ajc architects was contracted by the National Park Service to work with the NPS Denver Service Center, the Timpanogos Cave National Monument, the U.S. Forest Service, and Uinta National Forest Pleasant Grove Ranger District, to design new interagency facilities. In May 2010, ajc architects began the schematic design phase, working with the NPS and USFS to develop alternatives for each of the facilities. In July 2010, three design alternatives for each facility were evaluated using the NPS Choosing By Advantages (CBA) decision-making process. The preliminary design was intended to form the foundation for subsequent design development. As represented in the document, the design does not include transit or shuttle bus facilities, but instead a realignment of State Highway 92 to provide additional parking at the current TICA visitor center site.

National Park Service, "Timpanogos Interagency Center and Replace/ Relocate Unsafe/Unhealthy/Unsustainable Visitor Facility Value Analysis No. 1." Functional and Operational Elements Draft Report January 2011.

A recent NPS Value Analysis (VA) identified and evaluated a number of functional and operational alternatives to determine needed facilities at TICA. The process identified a preferred alternative which included a shuttle bus system which is described as:

> *"This alternative is the closest to the original 1993 GMP proposal. It includes a small visitor contact station and restrooms in the canyon at the cave trailhead in conjunction with dramatically reduced parking, a Highland site with substantial visitor center in conjunction with NPS and FS administrative offices and FS fire/ maintenance building. Cave ticket sales would be from the Highland site and a large parking area would be provided there. A shuttle bus system would transport visitors from the Highland site to the cave trailhead."*

The preferred alternative was identified by key NPS stakeholders through the Choosing by Advantage process in which decisions are based on the importance of advantages between alternatives. It was this VA study that recommended that this Alternative Transportation Feasibility Study be undertaken.

1.4 STUDY METHODOLOGY

In 2011, the study was initiated with a site visit from the project team, followed by an intensive data collection effort, development and refinement of alternatives, stakeholder outreach, development of schematic designs and cost estimates, and a Value Analysis/Choosing By Advantages (VA/CBA) Workshop at which time a preferred alternative was selected. The overall analysis involved the following activities:

- ***Project Initiation Site Visit –*** The project team visited the Highland and Canyon sites and met with NPS staff and stakeholders to observe TICA operations, and discuss project goals, issues, and opportunities. This visit also

provided the basis for planning a subsequent, more intensive data collection effort.

- ***Data Collection –*** Data collection was conducted over a three-day period during the 2011 Labor Day weekend, a period of high visitation. Data collection included parking and traffic counts and observations of visitor behavior and traffic patterns. Additional data was obtained from documentation of previous studies and available daily visitor data provided by the NPS.
- ***Development of Alternatives –*** Alternatives were developed with variety of components necessary to represent complete solutions to visitor access to the Canyon site. Both transit (involving a shuttle and parking management) and non-transit (no shuttle but with parking management) alternatives were developed and refined over the course of the study. Alternatives were based on known parameters, assumptions, and data and observations of operations and conditions.
- ***Alternatives Meeting –*** A meeting with stakeholders was held to discuss the initial set of alternatives and to obtain feedback on their feasibility and desirability. Useful input regarding potential flaws in the concepts was obtained as well as suggestions for improvement and refinement of the alternatives.
- ***Refinement of Alternatives –*** Based on input from stakeholders and feedback from NPS staff, four alternatives (two transit and two non-transit) were refined and finalized for detailed analysis. Schematic design drawings of the two sites and Class C cost estimates were prepared for each alternative.
- ***Financial Feasibility Analysis –*** Based on the Class C cost estimates, a financial feasibility analysis accounting for capital and operating costs and potential revenues was developed.
- ***Decision-Making Workshop –*** A Value Analysis/Choosing By Advantages Workshop was conducted over two days to review the advantages and disadvantag**es** of each alternative and evaluate their ability to achieve key objectives of the NPS. Workshop participants consisting of NPS staff and cooperating state and Federal agency participants reviewed project alternatives recommended during previous scoping meetings and identified an alternative that best meets the project purpose and needs.

2.0 Existing Conditions

This section provides an overview of baseline conditions at TICA. The complete Existing Conditions report can be found in Appendix A.

2.1 STUDY SETTING

Timpanogos Cave National Monument (TICA/monument), consisting of 250 acres, is located 35 miles southeast of Salt Lake City, Utah. TICA is surrounded by the Uinta-Wasatch-Cache National Forest and is accessed via State Highway 92 (SR 92) a Utah Scenic Backway, also known as the Alpine Scenic Loop.

TICA Facilities and Operations

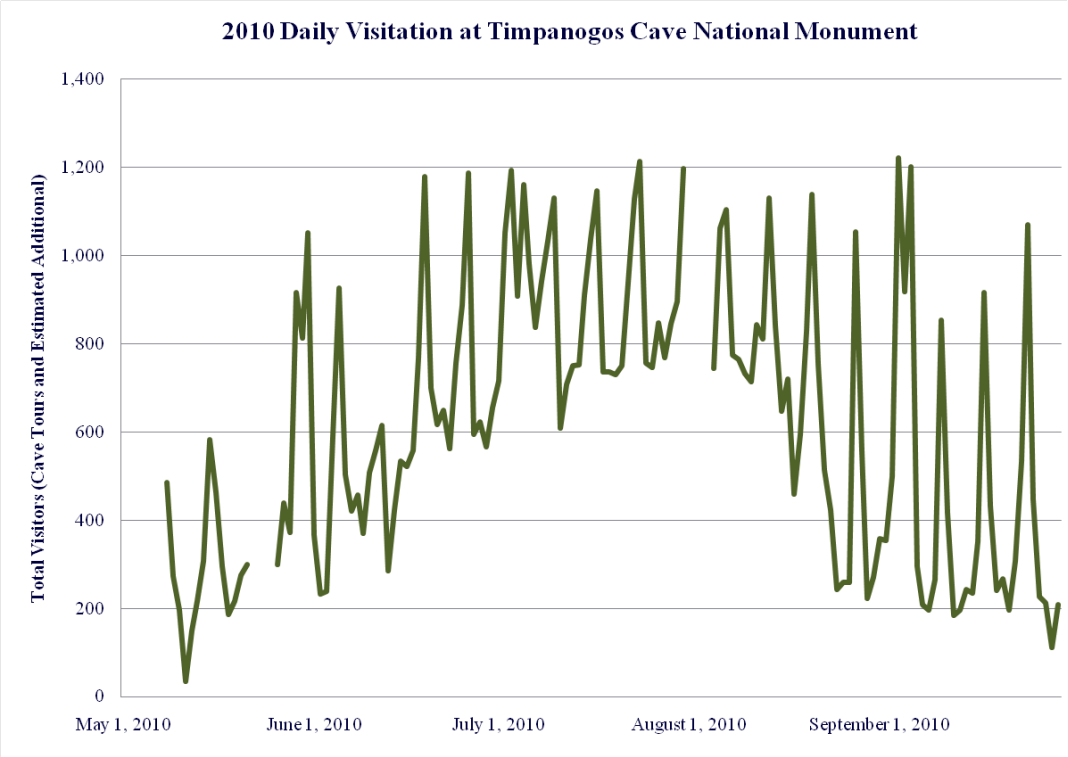
National Park Service rangers conduct interpretive tours of the cave resource for a fee of $3 to $7, depending on visitor age. The caves are open daily for frequent tours, to groups of up to 20 persons. TICA's visitor center and administration facility is open daily between early May and mid-October. Outside of this period, TICA is closed for the winter.

To reach the Timpanogos Caves, visitors hike a paved, 1.5-mile trail from the base of American Fork Canyon. Information is provided along the trail by staff, via cell phone tour, and through displays. In recent years, a series of accidents involving visitors and staff necessitated immediate safety improvements to existing facilities. In addition to the resources provided at the visitor center, there are two other picnic areas at TICA; the Swinging Bridge Picnic Area to the west of the visitor center and the Canyon View Picnic Area located directly across SR 92 from the visitor center.

Visitation Trends

In 2010, 120,241 persons visited TICA – a 13 percent decrease in visitation from 2009. This may reflect short-term sensitivity in demand to regional economic conditions being experienced at the time. From 2005 to 2009, TICA experienced a 24 percent increase in annual visitation, or an additional 30,000 annual visitors. Figure 2.1 below displays daily TICA recreational visitors for 2010. Spikes and troughs in visitation demonstrate the variability between weekday and week-end/holiday visitation over the course of a summer.

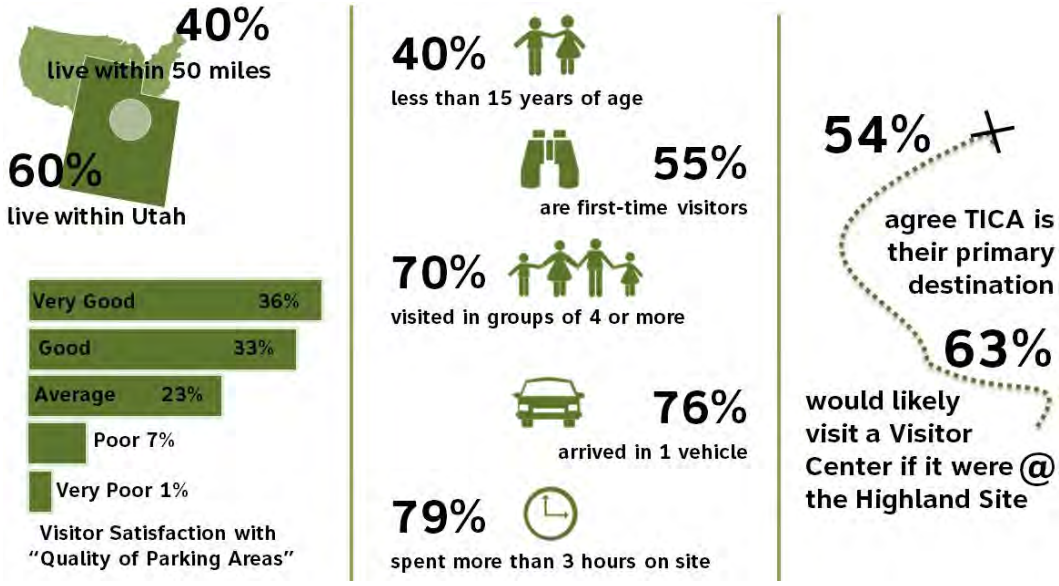
Figure 2.1 TICA Daily Visitation, 2010



Visitor Profile

A visitor study was conducted in July of 2005 by the Visitor Services Project of the University of Idaho Park Studies Unit. The study surveyed visitors to determine their demographic characteristics and attitudes regarding their experience while visiting TICA. Figure 2.2 presents a summary of key findings from this survey.

Figure 2.2 Visitor Profile Statistics

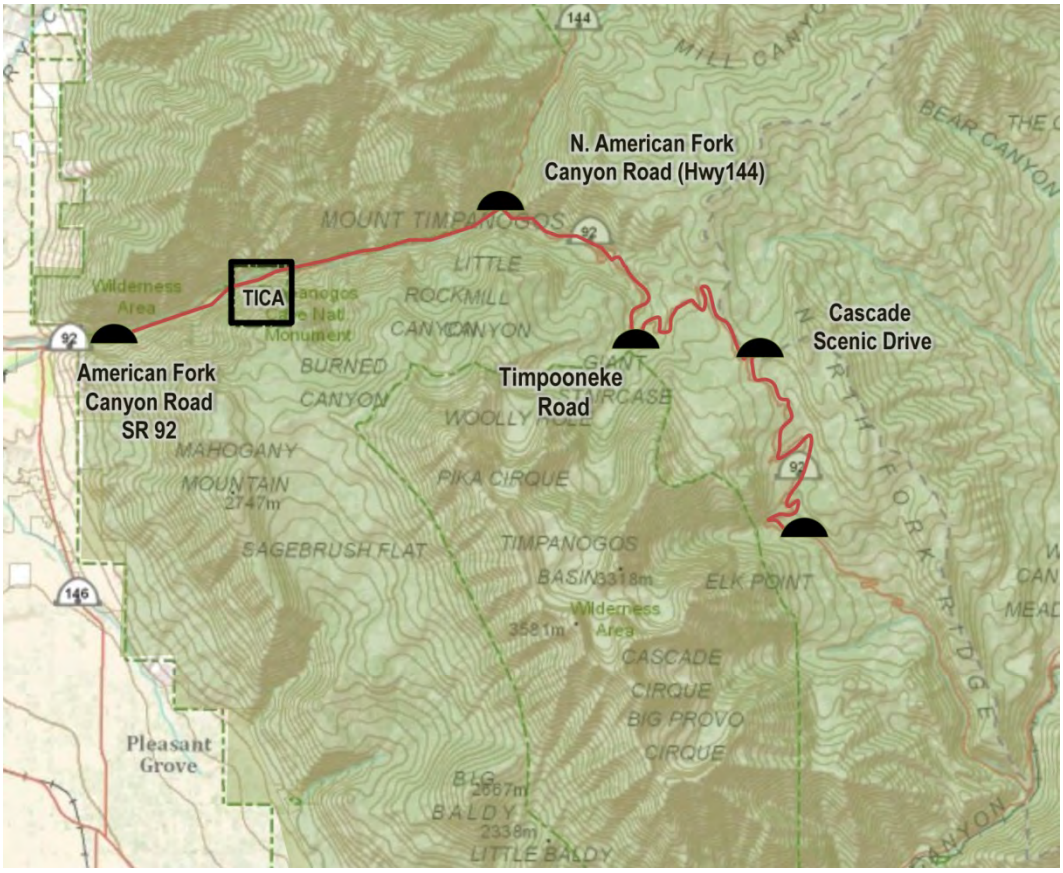


2.2 EXISTING TRANSPORTATION INFRASTRUCTURE

Roadways

Access to TICA is provided from State Highway 92 (SR 92). SR 92 runs through the American Fork Canyon following the American Fork River. SR 92 is a paved two-lane, narrow, winding roadway with little or no shoulder. The western section of SR 92 is open from approximately late May to late October. Figure 2.3 on the next page illustrates the relationship of TICA to area roadways.

Figure 2.3 Timpanogos Study Area Roadways

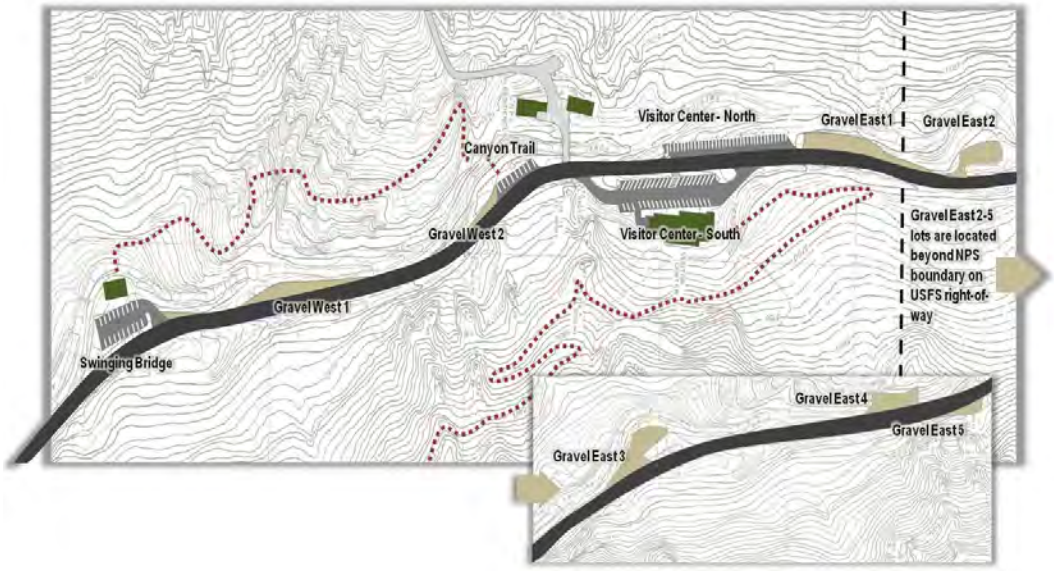


Parking and Access Information

There are two points of access to TICA: the American Fork Canyon fee station on SR 92 a few miles west of the visitor center, and the Aspen Grove fee station on SR 92 several miles east of the visitor's center. (See Figure 1.1. in the preceding section.) Fee stations are typically staffed five to seven days per week from 7:00 a.m. to 5:00 p.m. with extended hours on weekends and holidays. Visitors must use private vehicles to access the monument as no public transit options are available within the forest area. Private buses provide access for schools and other groups.

The location of parking areas are shown in Figure 2.4. Parking is available at the TICA visitor center and the Swinging Bridge Picnic Area. There also is designated staff parking available at the Mission 66 administrative buildings located across SR 92 from the trailhead. High-visitation demand during peak periods results in parking along SR 92 outside of the designated areas, infringing on natural resources, creating safety conflicts between vehicles and pedestrians, and impeding access for through traffic on SR 92 and emergency response vehicles.

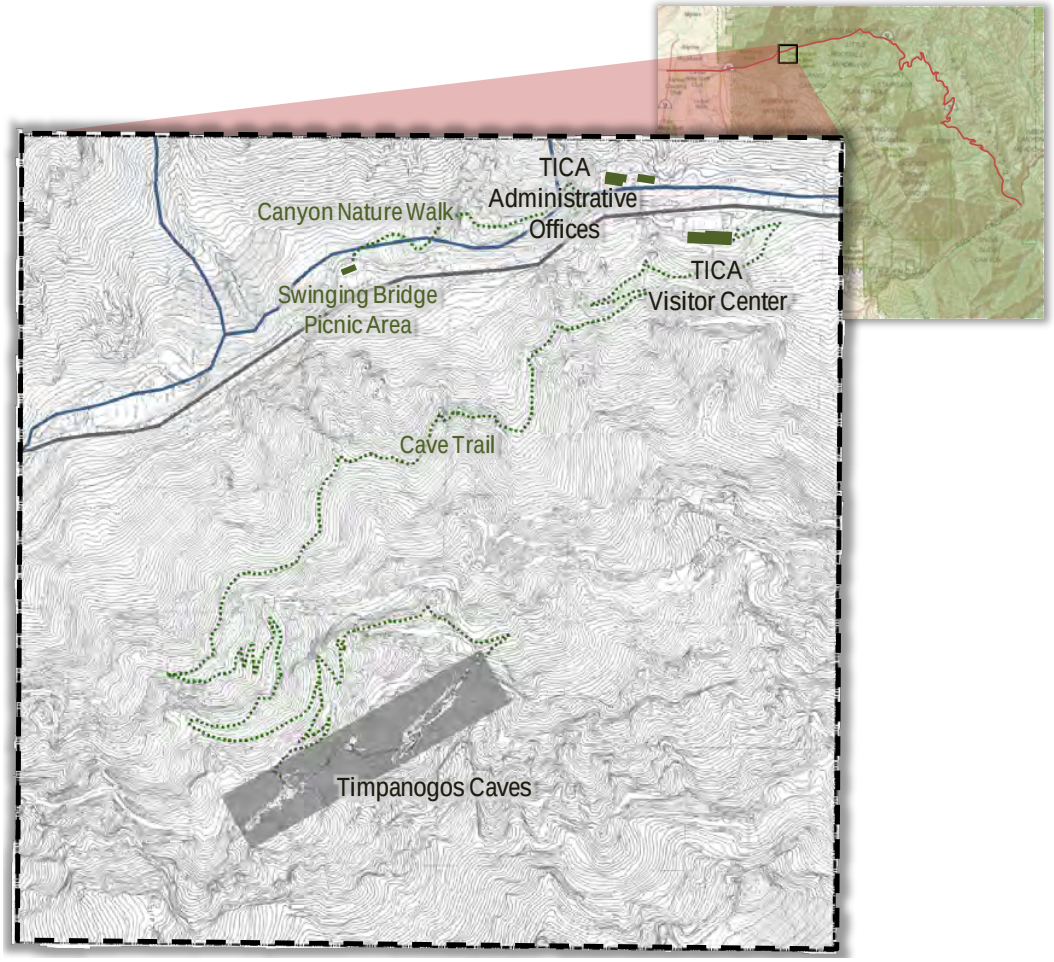
Figure 2.4 Timpanogos Cave National Monument Parking Areas



Trail and Recreation System

Within the monument, access to the cave system is provided by a 1.5-mile paved trail. The round-trip hike and tour of the cave system takes approximately three hours. Outside of the monument additional recreation trailheads, camping and picnic areas can be accessed along SR 92. Figure 2.5 shows the boundaries of TICA and key features in greater detail in greater detail.

Figure 2.5 Timpanogos Cave National Monument Boundary and Major Features



2.3 VISITATION DATA

Traffic, parking activity, trail use, and vehicle characteristics were observed over a three-day, peak activity period of Labor Day weekend, September 2011. The purpose of the data collection was to observe visitor behavior and use of TICA facilities and to collect data for use in the analysis of alternatives. This data was supplemented with additional historical data provided by NPS.

Traffic Volume Counts

The average annual daily traffic (AADT) volumes along SR 92 currently are available through the year 2010. Annual growth trends on SR 92 varied somewhat over the five-year period examined. Table 2.1 shows volumes increasing until 2007 at the west fee station, declining for a year, reaching their peak in 2009 before declining again. There was an overall 10.5 percent increase in AADT at

the west station from 2006 to 2010. The east fee station has significantly less traffic, but similar trends. Declining traffic volumes in 2010 likely reflect the economic downturn along with an increase in gas prices that influenced demand.

Table 2.1 Average Annual Daily Traffic

		Average Annual Daily Traffic Volume					Change	
Mile	Count Location	2006	2007	2008	2009	2010	Total	Annual
7.9	American Fork Canyon West Fee Station	1,470	1,495	1,485	1,670	1,625	10.5%	2.5%
22.5	Aspen Grove East Fee Station	420	501	505	570	425	1.2%	0.3%

Source: UDOT, Automatic Traffic Recorder Monitoring Station History.

Parking Data

Parking occupancy and duration data were collected at parking lots and gravel pull out areas in and near the monument to document parking area utilization by time of day, and to determine the average length of stay by visitors. The data collection and analysis indicated that the parking facilities serving TICA are over capacity on weekends and holidays for six to eight weeks during peak-period visitation in summer months. Overflow parking occurs at gravel lots along SR 92 and along the highway shoulders, creating significant safety concerns as visitors walk along and cross the roadway to access the visitor center. Complete tabulations of parking counts are presented in the Existing Conditions report in Appendix A.

Cave Visitor Data

Visitor accumulation was determined based on the assumption that cave tour participants generally take three hours from start to finish to complete their cave tour visit (ascent, tour, and descent). Under these conditions and based on NPS records of tour timing and demand, the number of visitors on-site at TICA during popular peak times may be as many as 400. During very busy times tours sell out early and visitors often wait at the trailhead for hours before beginning the hike. When average time on-site increases to four or more hours, visitors accumulate, so that there may be over 500 people on-site at any given time, with upwards of 175 vehicles parked nearby. The number of vehicles on-site was based on the observed average vehicle occupancy of three persons per vehicle. Additional details about visitor accumulation is discussed in Section 3.2 in relation to transportation and visitor demand strategies.

Field Observations

During the on-site data collection, some qualitative observations were made which helped inform the later development of alternatives:

- ***Staff Parking:*** NPS staff currently park in both paved administrative and visitor parking areas, as necessary. Rangers suggested that there were no formal parking policies in place, rather an informal understanding that on peak days and holidays staff do not utilize visitor spaces. The administrative areas provide approximately 18 administrative parking spaces the north side of SR 92 (across from the visitor center) for office and visitor center staff. The number of staff on-site during peak times may exceed available administrative parking capacity at times.
- ***Pedestrians:*** Data collection staff observed hazards and vehicle conflicts with pedestrians crossing SR 92 both at the single, marked crosswalk as well as at various points east and west along SR 92 from the visitor center. Pedestrian use of highway shoulders to access formal parking across 92, informal gravel parking areas along SR92, as well as the Canyon Nature Trail is potentially hazardous.
- ***Traffic Conditions:*** Based on observation, relatively few through-travel vehicles slow to the advisory 20 mph speed limit along SR 92 in the immediate vicinity of TICA. Parked vehicles turning into or backing out of spaces along SR 92 create congestion and represented a hazard to oncoming traffic.
- ***Swinging Bridge:*** Use of the Swinging Bridge Picnic Area's 20 parking spaces appears to be primarily for available picnic and restroom facilities and does not serve as overflow parking for cave visitors.

2.4 VISITOR FEE STATISTICS

Interagency Entrance Fee Program

American Fork Canyon – Alpine Scenic Loop Backway is a U.S. Forest Service Fee Area. At the western and eastern ends of American Fork Canyon, the USFS and NPS jointly operate and staff kiosks or fee stations, which collect a fee for all visitors entering the canyon (including visitors who are only visiting the Monument). Both Forest Service and National Park Service employees staff the fee stations. During the summer visitor season, the fee stations operate from 7:00 a.m. to 7:00 p.m., seven days a week. When not operating, fees are collected via self service fee tubes. Fees are as follows, with Golden Eagle, Golden Age, and Golden Access passports also being honored:

- Three-Day.....$6.00
- Seven-Day.....$12.00
- Twelve-Month.....$45.00

Managed under USFS authority, fee revenue is distributed to the NPS, the USFS, and a number of recreation fee partners. Table 2.2 below shows the reported receipts and distribution of entrance fee revenues for fiscal year 2010 and 2011.

Table 2.2 Interagency Entrance Fee Revenues

Fee Receipts	FY 2010	FY 2011
Total Receipts	$925,962	$715,350
Distribution		
USFS Visitor Services and Compliance	$167,056	$152,862
NPS Visitor Services and Compliance (Timpanogos Cave)	$189,970	$140,638
Recreation Fee Partners	$56,500	$19,500
Project Expenditures	$462,436	$342,000
Carry Over to Next Fiscal Year	$50,000	$60,350

Source: Timpanogos Cave National Monument. Courtesy of NPS Staff.

Funds made available to Timpanogos Cave National Monument are used for personnel costs to help run the fee program and to complete projects. At present, almost all funding the monument receives through this program supports interpretive or maintenance services. The USFS expects to make changes to this program in 2013 or later, which may significantly reduce the revenue received from the interagency partnership.

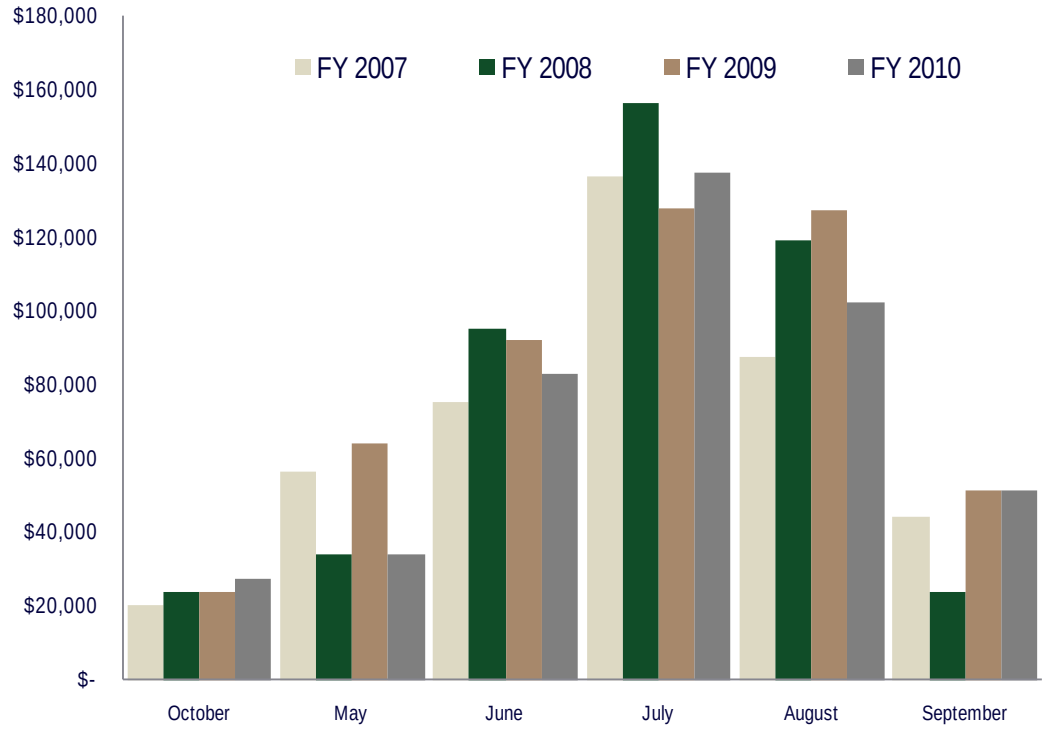
Cave Tour Fees

The cave is open for tours from May to early October. Visitors wishing to take a tour of Timpanogos Caves can purchase tour tickets by phone up to 30 days in advance or in-person at the visitor center on the day of the tour if tickets are available. The fee for cave tours is charged in addition to the interagency entrance fee. The fees for cave tours are:

- Adults (age 16 and older)..$7
- Child (age 3-5)…….$3
- Junior (age 6-15)……..$5
- Infant (age 0-2)…… Free

Figure 2.6 illustrates total revenues derived from cave tour ticket sales for fiscal years 2007 through 2010.

Figure 2.6 Monthly TICA Revenue from Cave Tour Ticket Sales
FY 2007-2010

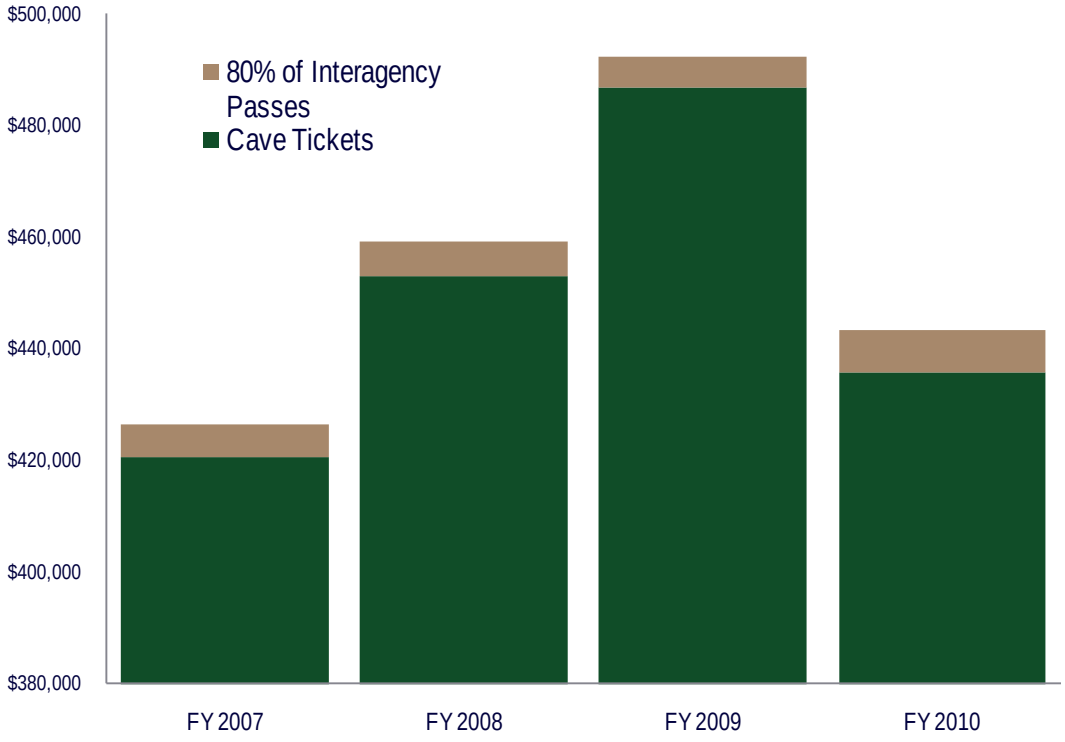


Source: Timpanogos Cave National Monument. Courtesy of NPS Staff.

TICA Revenues

Including revenue from cave tour ticket sales and 80 percent of revenue from Interagency Passes (America the Beautiful – the National Parks and Federal Recreational Lands Pass), TICA generated between $400,000 and $500,000 in annual revenue in fiscal years 2007 and 2010. Figure 2.7 indicates the values for these years, by source of revenues. Currently, this fee revenue pays for most, but not all, interpretive services provided on cave tours as well as fee program administrative costs. Any additional demands on this revenue stream (e.g. shuttle or advance operating system costs) would require either a fee increase or a reduction in current services, or both.

Figure 2.7 TICA Revenues
By Source FY 2007-2010



3.0 Alternative Components

This section discusses some of the key components considered in the development of the alternatives. These components provide the basis for the full specification of alternatives as described in Section 4.0.

3.1 TRANSIT SYSTEM CONSIDERATIONS

Transit alternatives were developed with consideration of Timpanogos Cave National Monument (TICA/monument) visitor demand and travel patterns, the number and frequency of cave tours, and parking supply, in order to provide safe, convenient access for visitors.

Transit Routing, Stops, and Parking

Shuttle routing for proposed transit alternatives was designed to minimize run time and maximize convenience for the majority of TICA visitors. Primary access to the Canyon site is from the west entrance which accommodates approximately 70 percent of visitors to the caves. The Highland site, which will house the proposed USFS and NPS facilities, is located 3.5 miles west of the Canyon site along SR 92.

To capture visitors accessing TICA from the west and to minimize run times, the shuttle route for both transit alternatives was designed to run from the Highland site parking area to the Canyon site on SR 92 with no intermediate stops. Visitors arriving from the east entrance to the National Forest (approximately 30 percent of cave visitors) would need to drive past the caves to the Highland site, then board the shuttle to travel back to the TICA trailhead.

The proposed shuttle route provides a short ride of approximately 10 minutes each way, including five minutes for loading and unloading. (Occasional seasonal congestion at the fee station at the western entrance to the Canyon could potentially increase travel time, although the second existing lane at the fee station could be designated as a bus-only bypass lane.) The Highland site would be open and accessible and provide parking for visitors transferring to the shuttle and a sheltered waiting area. The site design would also accommodate layover space for transit vehicles. The Canyon site will be designed to provide shuttle loading and unloading area and a sheltered waiting area.

Parking at Highland site must be designed to accommodate the number of visitors assumed to utilize the shuttle system. For example, if a full-time shuttle is provided, parking at Highland must meet all visitor needs. If a part-time shuttle is provided, fewer parking spaces may be needed at Highland. The number of shuttle-rider parking spaces at the Highland Site is based on the number of riders and vehicle occupancy (averaging three people per vehicle). The number of

riders anticipated is a function of the number and frequency of cave tours, the duration of visits to the cave, as well as the amount of parking provided at the Canyon site. The Canyon site would be designed to accommodate expected levels of visitation and to include shuttle bus loading and unloading facilities as well as loading and unloading group tour buses.

Service Span and Frequency

TICA is open seasonally, generally from early May to early October, or approximately 145 days. The number of weekends and holidays during that period, vary depending on calendar year, but range from 40 to 50 days. The span of transit service must provide adequate allowance for tourists to board the bus, ride to the Canyon site, hike to and from the cave, and participate in cave tours. Consequently, the shuttle service is designed to start two hours prior to the first tour and end three hours after the last tour had started – a 13-hour span of service. This span assumes a generous amount of time for visitors to hike to and from the cave.

Service frequency must be tied to the number, time of day, and frequency of tours. Based on past years, tours are provided approximately every 10 minutes with a maximum of 20 people per tour. To meet tour demand, the shuttle frequency would either be every 10 minutes with 25 passenger buses, or every 15 minutes with 30 to 35 passenger buses. Although tours occur every 10 minutes at peak season, 15-minute headways would result in lower operating costs and could conveniently accommodate cave tourists. Since visitors naturally stagger during the steep hike between the Canyon site and the cave entrance, matching tour times exactly to the shuttle schedule is not essential.

Vehicle Considerations

Appropriate vehicles must meet requirements for the safety, comfort, and convenience of TICA visitors. Vehicle capacity requirements are a function of service frequency. Ten-minute headways would require four, 25 passenger buses (three buses in operation and one spare). Fifteen-minute headways would require three 30 to 35 passenger buses (two buses in operation and one spare). Vehicle requirements are the same for any transit service, whether mandatory or voluntary, as requirements are based on the busiest days served.

Based on experiences and shuttle implementation at other NPS units, transit vehicles could either be purchased by the NPS or leased from existing stock through a contract with an external public or private transit provider. If the vehicles were part of an external providers' current fleet, the type of vehicles would be limited to these vehicles. If NPS were purchasing new vehicles, the vehicles could be tailored to the service and include low-polluting and energy-efficient alternative fuels and vehicles, as appropriate.

Operating Costs

Operating costs for the alternatives are based on the number of hours and miles required for each alternative multiplied by the operating cost per hour and mile. Per unit costs from three different transit operators were used to develop an estimated range of potential costs: Rocky Mountain Shuttle Rocky in Rocky Mountain National Park, Colorado; Eastern Sierra Transit Authority (ESTA) in Bishop, California; and Utah Transit Authority (UTA) locally. In addition to the costs of running service between the Highland site and the Canyon site, dead-head costs (miles and time between where the buses are stored and where they start/end their routes) were estimated. Operating costs per alternative are discussed in greater detail in Section 4.0 of this report.

3.2 TRANSPORTATION DEMAND MANAGEMENT STRATEGIES

Visitation Patterns and Parking Demand

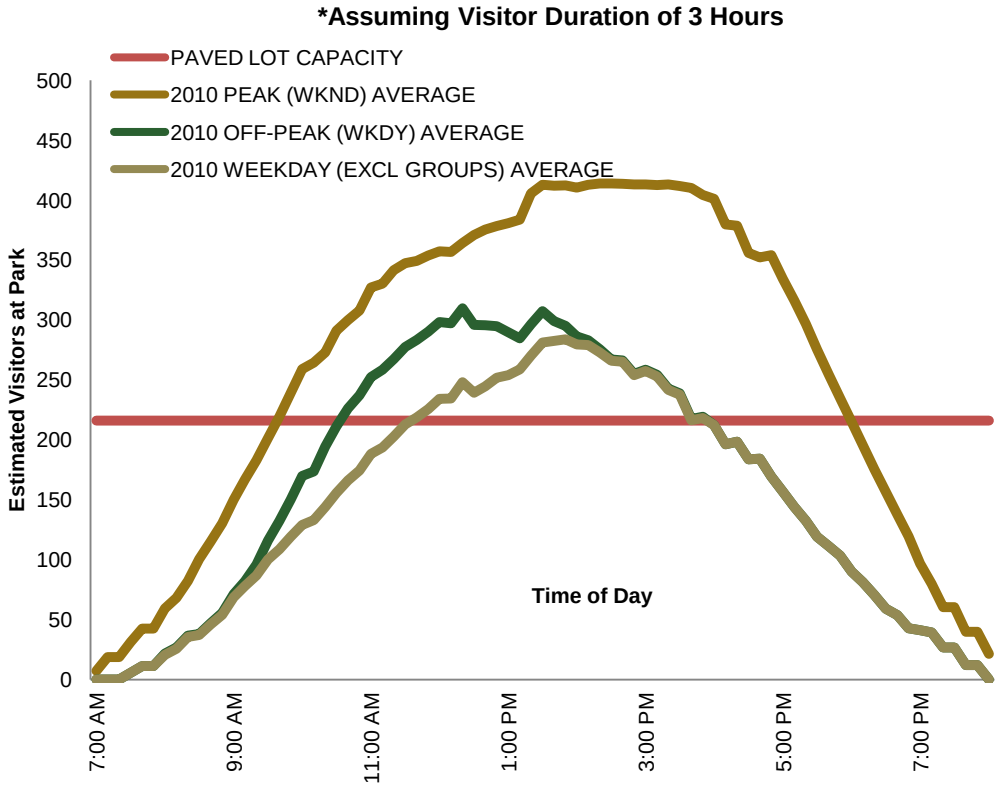
Historically, TICA attracts visitors from around the country and within the region in great numbers. Monument visitation levels in the 1960s and 1970s often reached over 200,000 annual visitors. The 1983 General Management Plan for TICA determined the cave resources had a maximum carrying capacity of 120 tour visitors per hour. To meet that capacity, the plan specified that during peak seasonal operations six tours would be provided every hour, spaced 10 minutes apart and accommodating at most 20 persons per tour. This general guidance remains in place through the 2011 season and governs tour supply. Visitation demand and tour supply does vary each season due to regional economic conditions, staff availability, and temporary closures for resource protection or for visitor safety considerations.

Visitation patterns at TICA do vary significantly based on time of day, day of week, and month of year. For most weekday and off-peak hour periods, total visitors to TICA number less than 120 persons per hour through the caves. However during busy holidays and popular weekend times, tour visitors fill all available tours and tickets are often sold out by midday. Under existing tour schedules and accounting for an average visit duration of three hours, the 120 persons per hour cave carrying capacity more than triples, so that as many as 400 persons are within TICA at any given time during peak operations. This level of visitation exceeds the carrying capacity of TICA facilities, including interpretative staff, public use facilities and concessions, and available parking.

During peak operations, the number of ticket holders and other visitors on-site at TICA exceeds the availability of formal, paved parking areas, creating hazardous conditions for passing motorists, visitor vehicles, and visitor pedestrians. Figure 3.1 shows visitor accumulation on-site for peak-period weekends and off-peak weekdays for the 2010 season. Shown in red as a horizontal line is the

maximum available parking in designated, paved parking areas – assuming observed vehicle occupancy of three persons per vehicle.

Figure 3.1 Average TICA Visitor Accumulation by Time of Day
2010



These visitation patterns and levels lead to unsafe conditions for visitors and other recreation area users and have been identified as significant issues by NPS management. TICA staff currently are undertaking a Cave Management Plan study process to reevaluate the carrying capacity of the cave resources.

The following sections present detailed estimates of the feasibility and impacts of implementing demand management strategies at TICA. Impacts of these strategies are discussed in greater detail in Section 6.0 of this study report.

Visitor Demand Management Strategies

Demand management strategies include two primary tools of rescheduling tour timing and adopting advance ticket sale policies. By shifting visitation from peak, popular times in the middle of days, the total number of visitors present at the monument at any one time is reduced and available parking capacity is efficiently utilized throughout an entire day. Increasing the proportion of tour tickets sold in advance and limiting the number of tours offered at peak times may

encourage visitors to fully utilize tours offered at earlier and later times of day. These strategies increase the effective use of resources, including parking, visitor amenities, and staff; improve visitor safety and experience; and, may help better manage the caves and natural resources for future use.

- Alternative tour scheduling limits the total number of tours offered during popular times (approximately 11:00 a.m. to 2:00 p.m.) and adjusts tour intervals with the goal of reducing peak visitor accumulation. For example, in 2010 on peak weekend days an average of 47 tours were offered every 10 minutes over a 10-hour span. On off-peak weekdays an average of 38 tours were offered every 10 minutes over a 8.5-hour span. Alternative tour scheduling offers fewer tours at midday, adjusts tour timing to 10- to 20-minute increments, and offers tours in a shorter daily span. The impact of this tour schedule pattern is to smooth visitor distribution, reduce peak accumulation of visitors and encourage utilization of tours available throughout the day.
- Advance ticket tour sale policies encourage utilization of tours offered earlier and later in the day, resulting in an increase in the utilization of all tour times offered. For example in 2010, the average number of persons per tour on peak holidays and weekends was 17 and on off-peak weekdays was 11. These averages indicate excess supply because tours offered earlier in the morning and later in the afternoon are often undersold. In addition, advance ticket sale policies may reduce the number of visitors arriving at the trailhead to purchase tickets and waiting on-site for several hours before beginning their hike.

3.3 OPERATIONAL AND SYSTEM IMPROVEMENTS

Visitor Information and Wayfinding

NPS guidance for informational signage is intended to provide clear direction, self-guidance, and interpretative services for visitors, without distracting from viewsheds or the natural environment.

Traffic Control Signage

Wayfinding and instructional signage to inform visitors of parking and traffic conditions at TICA currently is understated. Installation of roadside traffic control signs on the state highway were recommended in the 1983 General Management Plan. Currently, two advisory 20mph pedestrian zone signs with flashing beacons are located within TICA boundaries and two traffic congestion warning signs are posted half-mile distant from the visitor center along SR 92. At the entrance to the canyon, a single no parking sign informs travelers of parking restrictions along roadway shoulders and several small no parking signs are located along the roadway adjacent to the visitor center. The following figure displays examples of current wayfinding and traffic control signs installed within TICA.

Figure 3.2 TICA Traffic Control Signs

Source: Cambridge Systematics, Inc., 2011.

Additional wayfinding signs could be located strategically to direct visitors to overflow parking areas at Swinging Bridge Picnic Area. Permanent informational signs or temporary message boards could be installed at the ticket booth and within the visitor center to remind visitors that parking in gravel turnouts is prohibited and directing visitors to park only in designated areas. Information for visitors available on-line through TICA's web site could be enhanced to inform visitors of parking restrictions and best times to visit to ensure parking availability.

Visitor Information Signage

Additional visitor information resources would be required to successfully incorporate a transit system within TICA operations. Under each of the proposed transit alternatives, visitors must be adequately informed of parking restrictions and parking availability at both the Canyon and Highland sites.

For those visitors approaching from the eastern entrance to the USFS recreation area, signs must be installed at the fee station and TICA trailhead directing visitors to continue to the Highland site for tour ticket purchases and parking. For a mandatory, full-time shuttle system, visitors must be directed to the Highland site for access to TICA with direction signs along SR 92 and at the canyon entrance. For an optional, part-time shuttle system, visitors must be informed when the Canyon site parking is full and be directed to the Highland site for shuttle access. Variable message signs could be installed at the western fee station to better inform visitors of tour ticket and parking availability at TICA. The system currently employed relies on hand-lettered, temporary signs which are placed at the fee stations to indicate when tours have sold out for the day.

National parks around the nation have implemented variable message signs to help inform visitors and direct traffic. Message signs may be manually programmed as needed or linked to a future on-line tour ticket database system to automatically change the information displayed.

Each alternative scenario developed for this study will include potential enhancements to traffic control, wayfinding, and information signs in order to improve visitor experience and safety. Signage will be considered in relation to existing signage and to minimize distractions from the natural environment.

Site Safety Improvements

The 1983 General Management Plan (GMP) identified several strategies to improve pedestrian and vehicle safety within TICA, many of which have been implemented. The GMP recommended installing traffic calming devices such as pedestrian zone and advisory speed limit signage with flashing lights, enhancing striping of highway shoulders, and pedestrian enhancements such as creating pedestrian walkways, and posting of no parking signs in critical areas.

Traffic Calming Devices

Traffic calming includes various physical devices and management techniques intended to reduce vehicle speeds and enhance safety for motorists, bicyclists, and pedestrians. Installation of speed bumps, or less intrusive rumble strips and other traffic calming devices have been under consideration by TICA management for a period of time. However, based on the usage patterns of through-traffic along SR 92 and the restrictions imposed by winter maintenance snow plows, permanent devices are not considered feasible. Temporary traffic calming devices which could be installed across the highway during peak visitor seasonal months or even times of day, but removed during off-season months could be considered as unobtrusive, but effective traffic calming devices.

The 1983 GMP recommended the installation of an advisory speed limit but noted that improving enforcement would be more effective than further lowering speed limits. Currently, the 20 mph pedestrian zone limit is advisory and marked by a yellow sign with the words 'speed limit' omitted. With approval of UDOT, the State could amend the zone to a regulatory speed limit, which would allow NPS law enforcement rangers and state highway patrol to issue citations. Additional informal management techniques could improve through-traffic observance of the pedestrian zone, including parking the NPS ranger vehicle in a high-visibility location or installing a radar monitoring sign that displays actual vehicle speed in relation to the posted speed.

Pedestrian Access Improvements

Pedestrian access points, designated trails, and safety barriers are installed in a variety of national parks and monuments in order to improve visitor safety, minimize social trails, and informal use impacts.

Currently, most pedestrian access and safety improvements at TICA are concentrated in high-hazard areas along the cave trail. Only a single marked crosswalk traverses SR 92 to provide access to additional parking and small barriers have been installed along the shoulder of SR 92 to provide visitors safer access from the crosswalk to the trailhead of Canyon View Nature Walk. Pedestrians commonly utilize other unmarked points to cross SR 92, including the blind corner directly opposite the Mission 66 buildings and directly to the east of the main parking lot. Visitors parked in gravel turnouts along SR 92 east of TICA must commonly walk along the shoulder or in the lanes of SR 92 to access informal parking areas. These behavior patterns have resulted in social trails up and down SR 92 and unsafe conditions for pedestrians and passing motorists. The following figure shows several images of visitors in formal and informal pedestrian access areas.

Figure 3.3 Pedestrian Access at TICA

Source: Cambridge Systematics, Inc., 2011.

The 1983 General Management Plan and subsequent planning documents have guided pedestrian access improvements, including existing striped crosswalk and roadside barriers. Additional pedestrian access improvements could be made to enhance visitor safety and minimize vehicle-pedestrian conflict zones. For example, an additional crosswalk could be striped and signed across from the main parking exit to formalize an already commonly utilized crossing point. A grade-separated pedestrian crossing could also be considered as a future enhancement, although potential impacts on environmental resources and compliance with ADA (Americans with Disabilities Act) requirements would need to be considered. An existing, informal path leading from the contact station on the south side of SR 92 up canyon could be improved and expanded to provide access to gravel turnout parking areas which are located outside of TICA

boundaries. Where possible, other roadway shoulder areas and common pedestrian access points to Canyon View Natural Trail and Picnic Area could be improved by creating additional safety barriers or pathways. Pedestrian access improvements would be concentrated in areas where social trailing already has disturbed natural resources so as to minimize ecological impacts.

Where feasible, safety improvements are included within each alternative developed, including installation of traffic control devices and pedestrian access improvements in order to improve visitor experience and safety.

Site Design Improvements

The 1983 General Management Plan identified specific site design improvements to enhance visitor safety within TICA. That plan focused on pedestrian access points and vehicle-pedestrian conflict areas along SR 92. Later planning studies and management decisions have recommended further enhancements to the location of the trailhead, visitor center, rock fall barriers, and primary parking areas to further improve safety conditions. Most resources have been utilized to improve the design and safety of the cave trail and entrance and exits points following several accidents in the past decade. Additional major site design improvements which have been recommended in previous planning studies include relocating TICA visitor facilities out of hazardous rock fall zones and realignment of SR 92 to consolidate visitor parking and eliminate roadway crossings be pedestrians.

Relocation of TICA Visitor Facilities

The current visitor center at the TICA trailhead was intended as a temporary structure following the destruction by fire of the previous facility and is presently located in a high-hazard rock fall area. Anecdotes of rocks loosing from the talus slope immediately behind the visitor center and damaging structures are common. Visitors also commonly congregate in rock fall zones in the immediate vicinity of the current visitor center.

The 1993 General Management and Concept Development Plan for TICA recommended relocating the majority of visitor facilities and functions outside of the Canyon site and within the proposed interagency facility at the Highland site. That plan called for the construction of new structures at the trailhead, including visitor waiting and shuttle staging areas, that are relocated in areas of reduced rock fall. As planning advanced, relocation of visitor facilities was considered a key component of future management plans, both with and without a transit system providing access to the trailhead. The following figure shows a preliminary rendering prepared in 2010 illustrating the proposed relocation of visitor facilities within the Canyon site.

Figure 3.4 Rendering of Facility Design Concept of TICA Canyon Site

Source: National Park Service, Schematic Design Document, August 2010.

All alternatives developed for this study incorporate designs for limited visitor facilities at the Canyon site and emphasize the relocation of structures out of hazardous rock fall areas to the greatest extent possible.

Realignment of State Highway 92

As recommended in the TICA 1993 Concept Development Plan, the alignment of SR 92 could be modified to accommodate redesigned trailhead facilities, including shuttle staging, visitor shelter, and ticket collection areas in safer locations. Realignment of SR 92 results in significant safety improvements over existing conditions by reducing pedestrian crossings of the highway, eliminating the need for vehicles turning movements into parking spaces and backing up into active traffic lanes, as well as providing for new development area to relocate most structures and visitor facilities away from primary rock fall hazard areas.

Preliminary schematics and cost estimates for realignment have been prepared at various points in time from 1993 through 2010. Approximately 800 linear feet of roadway would be shifted to the north, into the current creekside parking area. This would result in the elimination of 90 current parking spaces, but allow for additional parking spaces to be constructed adjacent to the trailhead and visitor contact station. Retaining walls and environmental remediation would be necessary to protect the creek from impacts of construction and future erosion.

In 2012, preliminary Class D cost estimates were prepared by Federal Highway Administration's Central Federal Lands Highway Division. Estimated project capital costs totaled $900,000, as shown in Table 3.1.

Table 3.1 Class D Cost Estimate: Roadway Realignment – American Fork Canyon Road

	Unit	Quantity	Unit Price	Amount
Mobilization	LPSM	15%		$120,000
Road Excavation	CY	12,500	$30	$375,000
Agg Base	TON	649	$50	$32,433
HACP	TON	360	$120	$43,176
Retaining Wall	SQFT	2,000	$75	$150,000
Contingency	LPSM	25%		$175,000
Total				$900,000

Source: Federal Highway Administration, Central Federal Lands Highway Division. Provided courtesy of National Park Service.

The realignment of SR 92 has been incorporated into one of the alternatives examined.

Reconfiguration of Parking Areas

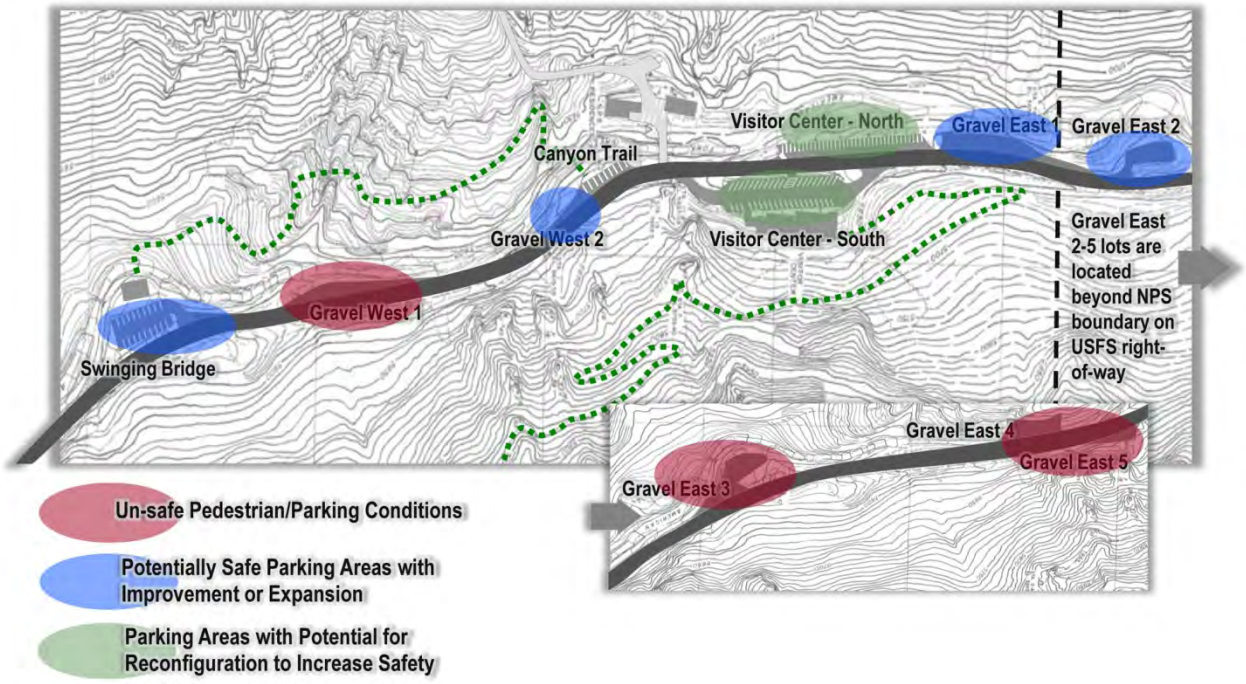
Existing parking at TICA is provided in four designated paved parking areas and at least four gravel areas or roadside turnouts. Designated parking areas include Swinging Bridge Picnic Area (22 spaces), Canyon View Nature Trail Area (11 spaces), North Creekside Parking Area (30 spaces), and the Main Visitor Center Area (43 spaces). Informal gravel areas include semiformal parking extending from the North Creekside Parking Area that can accommodate as many as 20 vehicles, a small area adjacent to the Canyon View Nature Trail Parking Area that can accommodate 3 to 4 vehicles, and four gravel turnouts outside of TICA boundaries that can accommodate a total of 30 to 40 vehicles depending on positioning.

Both formal paved areas and informal gravel areas present dangerous conditions for vehicles turning from SR 92 into tight spaces, for vehicles backing out directly into active traffic lanes, and from pedestrians crossing and traversing narrow roadway shoulders to access their vehicles. In addition, informal gravel areas and other utilized road turnoffs present environmental resource impacts as vehicles damage vegetated areas and pedestrians create social trails. To address these issues, each of the alternatives will incorporate the redesign and reconfiguration of existing parking areas, where possible.

For each alternative presented, primary parking areas were examined for reconfiguration to maximize safe, formal parking areas. Currently, unsafe informal areas were identified either for expansion to improve safety or for elimination by

completely barricading and revegetating areas. Figure 3.5 displays existing parking areas utilized by TICA visitors and indicates which areas are considered very unsafe and in need of significant redesign or elimination (in red), which areas could be made safer with improvements (in blue), and which currently safe areas may be improved, enlarged, or reduced with reconfiguration (in green).

Figure 3.5 TICA Existing Parking Areas and Recommended Improvements



4.0 Alternatives

Four alternatives were developed for analysis in this study to address transportation needs identified in the initial phases of the study. Two alternatives involve the operation of a proposed transit service as a shuttle between the Highland and Canyon sites with reconfiguration and redevelopment of the Canyon site and two other alternatives also involve reconfiguration of Canyon site design but do not include a transit component. Each of the alternatives were refined with stakeholder input and designed to best meet the goals of this study.

4.1 Development of Alternatives

The alternative components and strategies discussed in the prior section of this report, were combined to assemble a set of four feasible, comprehensive alternatives representing a range of options for subsequent evaluation. Key components included redesign of the layout of parking at the Canyon and Highland sites, implementation of parking and visitor management strategies, configuration and location of visitor facilities, and inclusion of transit service. These preliminary alternatives were then presented to NPS staff and other stakeholders to provide an opportunity for comment at an alternatives refinement meeting held in Provo, Utah at the midpoint of the study. Based on feedback obtained at this meeting and through further discussion with NPS staff, alternatives were refined. The alternatives were then further enhanced as schematic designs for the Highland and Canyon sites were developed to accommodate the various alternatives within the physical constraints of the respective project sites. This was particularly significant given the constraints posed by the location of the proposed visitor contact station at the Canyon site in conjunction with the alignment of SR 92, available area for parking, and the need to locate facilities outside of the hazardous rock fall area. Various iterations of transit operating plans in coordination with the capacity for parking at both Highland and Canyon were developed to specify final alternatives for further analysis and assessment through the VA/CBA process. Class C cost estimates and operating costs were then developed for each alternative to establish the financial feasibility of proposals.

4.2 Alternative 1: Mandatory Shuttle Service

General Concept and Overview

This alternative would include the operation of shuttle service between the Highland and Canyon sites with dramatically reduced parking at the Canyon site in order to meet project objectives of improving visitor safety and experience.

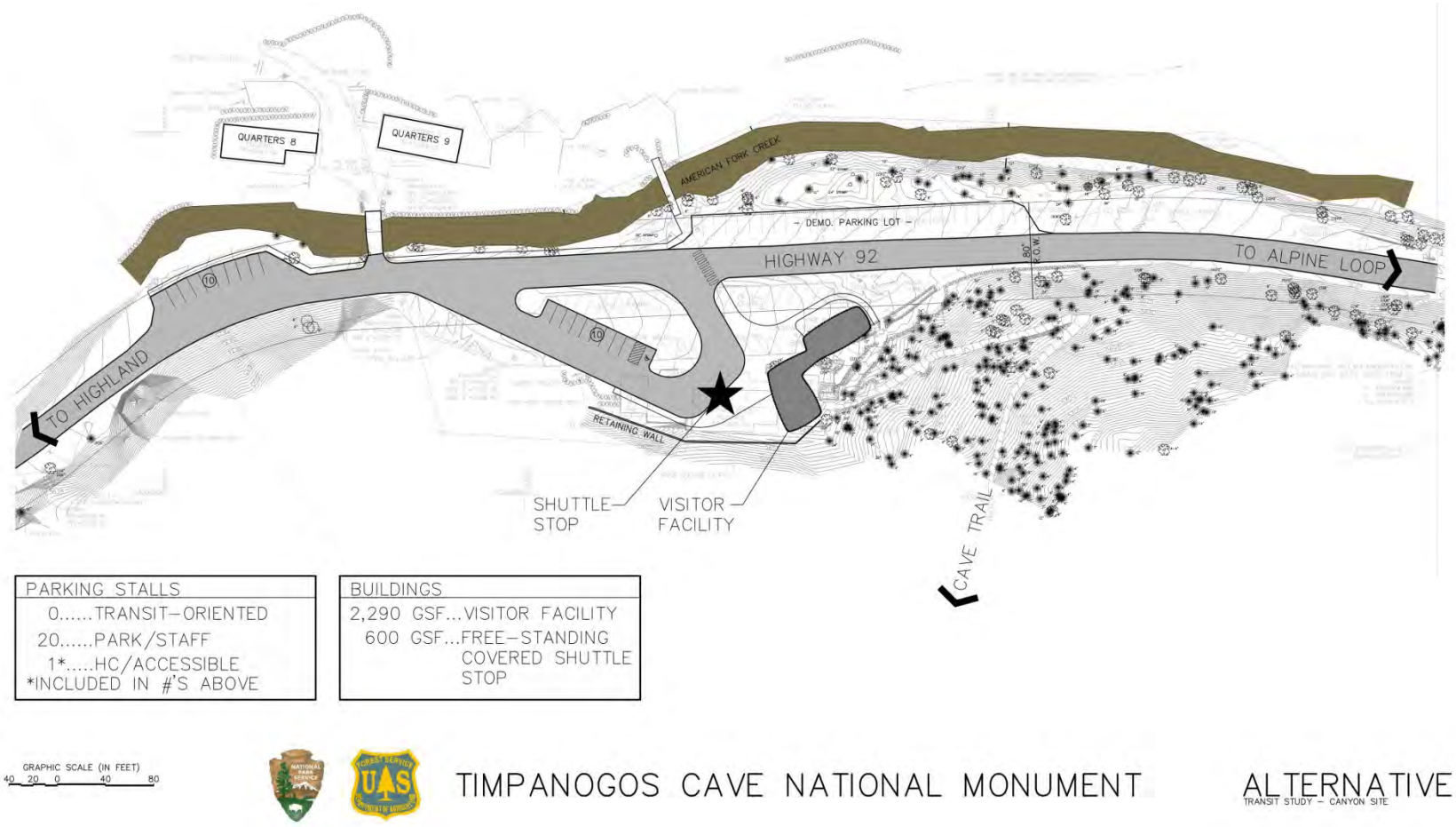
Shuttle service would operate seven days a week to transport visitors from facilities at the Highland site to the cave trailhead at the Canyon site.

The Highland site would be designed to include interagency administrative functions and a visitor center. The visitor center would incorporate interpretation services, ticket sales, parking, and shuttle staging and shelter areas. The Canyon site would include a small visitor contact station and shuttle staging and shelter areas at the cave trailhead – consistent with National Park Service 2010 value analysis recommendations. Visitor parking areas would be significantly reduced and much of the area restored to natural conditions.

Safety improvements would be implemented, including installation of traffic calming devices and introduction of a regulatory speed limit to improve the safety of access to the Canyon View Picnic Area and Canyon View Nature Trail across SR 92. Parking enforcement would also be used to improve safety.

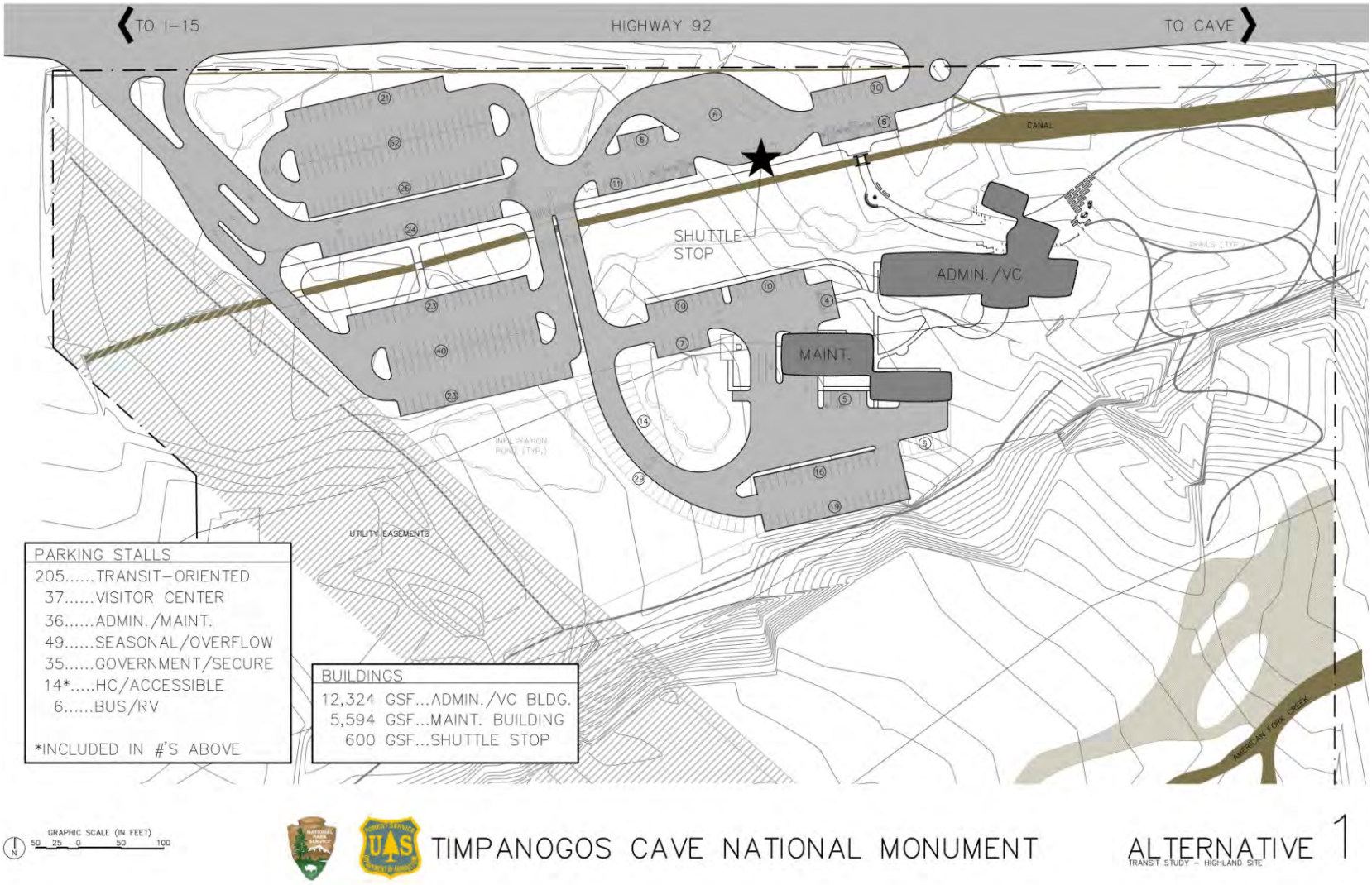
Figure 4.1 and 4.2 show the site studies for the Canyon site and Highland site, respectively.

Figure 4.1 Alternative 1: Canyon Site Schematic Design



Source: ajc architects.

Figure 4.2 Alternative 1: Highland Site Schematic Design



Source: ajc architects.

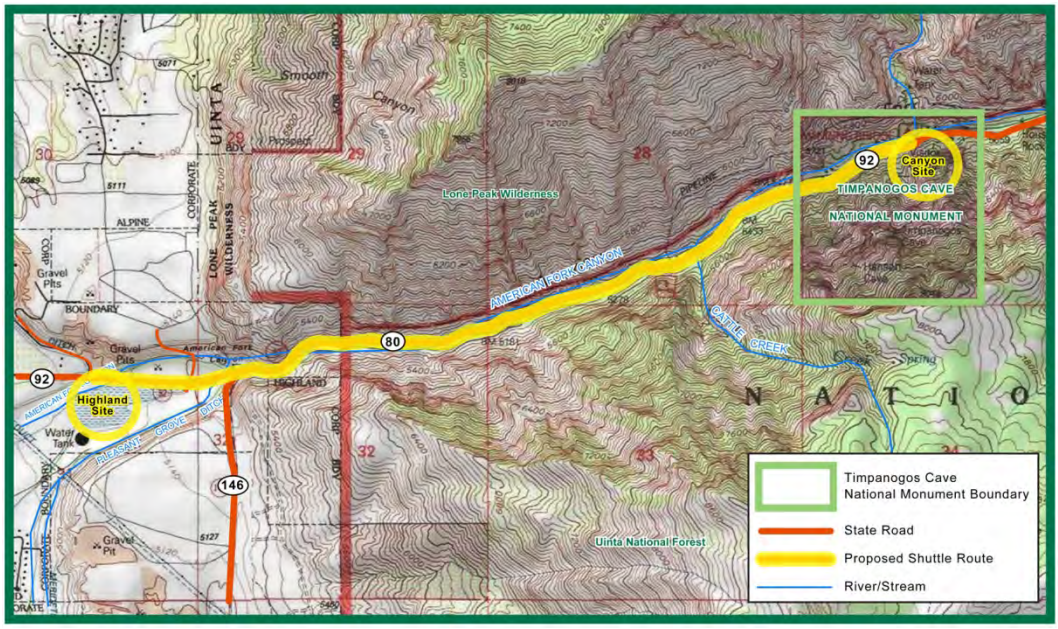
Transit Operating Plan

Service would be provided seven days a week during seasonal operations. Service hours would begin at 6:30 a.m., leaving from the Highland site approximately 2 hours before the first tour, and extend to 9:30 p.m., leaving the Canyon site approximately 3.5 hours after the last tour. For the purpose of identifying a preferred overall alternative for visitor access to TICA, the option with 15-minute headways was assumed.

Transit Route and Stops

The mandatory shuttle service would transport visitors along SR 92 between the Highland and Canyon sites, with no additional stops as shown in Figure 4.3.

Figure 4.3 Alternative 1: Shuttle Route



Vehicles and Fuel

Three vehicles would be required for 15-minute headways (two operating and one spare). Four vehicles would be required for 10-minute headways (three operating and one spare). Shuttle vehicle capacity should accommodate 30 to 35 passengers for 15-minute headways and 20 to 25 passengers for 10-minute headways. Vehicles would be in compliance with Americans with Disabilities Act of 1990 requirements.

The type of vehicle used for the service and the type of fuel used by the vehicles would be dependent upon the fleet owned by the contractor or agency partner. Use of low-polluting and energy-efficient alternative fuels and vehicles would be encouraged and could be required as part of the contract or agreement terms.

Parking

Sufficient visitor parking to meet the peak demand for cave tours would be provided at the Highland site. Oversize tour group vehicles would be required to drop-off their passengers at the Canyon site and return to Highland site to park while passengers are visiting TICA. A total of 205 visitor parking spaces and 6 large vehicle parking spaces would be provided at Highland site for use by TICA visitors riding the shuttle. An additional 37 parking spaces would meet the needs of visitors using the visitor center but not traveling to TICA for cave tours.

National Park Service seasonal staff parking would be provided at the Highland site. Employees would be encouraged or required to carpool or ride shuttle buses to their work locations. Existing staff parking would be retained at Mission 66 residences 8 and 9 for seasonal rangers and maintenance vehicles. A total of 20 parking spaces would be provided for staff use at the trailhead parking lot and the lot across SR 92 from the trailhead.

Existing parking areas at the Canyon site would be substantially reduced and no parking for cave tour visitors would be provided. Ten existing spaces would be retained at the Canyon View Nature Trail lot for early morning, repeat day use trail users. Ten spaces would also be provided in the main trailhead lot, including two for National Park Service staff emergency and maintenance use and one to accommodate disabled visitors. Swinging Bridge Picnic Area parking would be retained and may also be utilized by early morning trail hikers, but signage and parking enforcement would prohibit extended parking by cave tour visitors at this location.

Visitor Information

Wayfinding and informational signage improvements at both the east and west entrances to Uinta-Wasatch-Cache National Forest, west of the Highland site on SR 92, and at the TICA contact station would better inform visitors about parking availability, shuttle bus service, and tour ticket purchase options. Improved wayfinding signage would be needed to direct TICA visitors to travel to the Highland site for ticketing and parking.

Demand Management

Ticket sales would be offered only at the Highland site, but under this alternative and others tickets would be primarily sold in advance to better manage peak visitor demand in coordination with the shuttle operations. The schedule of cave tours would also be adjusted to coordinate with the shuttle service schedule, to reduce spikes in demand, and to fulfill park resource objectives of reducing visitor impacts.

Potential Impacts

Visitor Impacts

Under this alternative, it is assumed that there would be no shift in visitation from the current peak days to other, less busy days. If visitation demand shifts to less busy days, there could be a neutral to positive impact in overall annual visitation capacity.

Resource Impacts

With the exception of the Swinging Bridge and Canyon Nature Trail lots, all existing paved and informal gravel parking areas within TICA boundaries and adjacent Forest Service property would be revegetated and parking would be prohibited.

Transit Operation Cost Estimates

The cost estimates presented here assume that the proposed shuttle bus service would be delivered through a partnership agreement with a public transit provider or through a service contract with a private transit operator. Existing shuttle bus systems in the Intermountain Region of the National Park Service that are provided through service contracts include Rocky Mountain National Park and Bryce Canyon National Park. It is assumed that the partner or contractor would supply the vehicles, labor, and maintenance services required for the proposed operation. This type of arrangement results in higher operating costs than in a scenario where the National Park Service provides the vehicles and maintenance facilities, and a contractor or partner provides the labor (such as Grand Canyon National Park, Zion National Park, and Glacier National Park).

The operating costs for the proposed shuttle bus service in Alternative 1 were estimated based on cost information for the Rocky Mountain National Park shuttle bus service (service contract option) and cost information provided by the Utah Transit Authority (UTA – partnership option). UTA would only provide service to TICA if a private contractor were not available to provide the service. There is a substantial difference in cost between the partnership and service contract options due to the fact the a private operator will expect to earn a profit to run the service and will include the cost of acquiring vehicles for the service in its overall cost structure. A range of potential operating costs is presented for Alternative 1 reflecting the uncertainty regarding how the service would be delivered. The detailed operating cost estimates for the shuttle bus service are shown in Appendix B. Additional maintenance costs and any changes in operating and administrative costs other than those directly related to the transit service have not been estimated. Construction costs for the alternatives are based on Class C estimates for the improvements illustrated on the site plans.

Annual operating costs for Alternative 1 ranged from $232,000 to a higher estimates of $1,190,000 (in 2012 dollars.) The low-range cost estimate represents a

service level with 15-minute headways and operated in partnership with a public partner, such as the Utah Transit Authority. The high-range cost estimates represents service level with 10-minute headways and operated under a service agreement with a private, for-profit contractor.

Cave tour visitor fees could be increased by an amount sufficient to cover the cost of operating the shuttle system. Based on the potential range in operating costs, the additional visitor fee could range from $3.09 to $10.77 (2012 dollars) per tour ticket sold for service operated with 15-minute headways.

Capital Cost Estimates

Cost estimates for transit alternatives assumed that vehicles would not be purchased by NPS expressly for TICA service. It was assumed that the contractor or agency partner would use existing vehicles in their fleet or would acquire vehicles that would also be used for other service when the TICA service is not operating.

Table 4.1 below provides a summary of the Class C capital cost estimates by major components included within Alternative 1. Estimates are shown in 2012 dollars and assume a four percent escalation in construction costs from 2011.

Table 4.1 Alternative 1: Class C Cost Estimate Summary, 2012 Dollars

Cost Component	2012 Dollars
Highland Site Preparation	$1,113,783
Highland Site Buildings	$7,819,454
Highland Site Parking	$3,751,197
Highland Site Amenities	$816,057
Highland Site Utilities and Signage	$76,763
Highland Site Total	$13,577,254
Canyon Site Preparation	$255,223
Canyon Site Buildings	$1,426,331
Canyon Site Parking	$201,691
Canyon Site Amenities	$318,050
Canyon Site Safety, Signage, and Utilities	$90,572
Canyon Site Total	$2,291,867
Roadway Improvements	$41,704
Total Construction Cost	$15,910,825

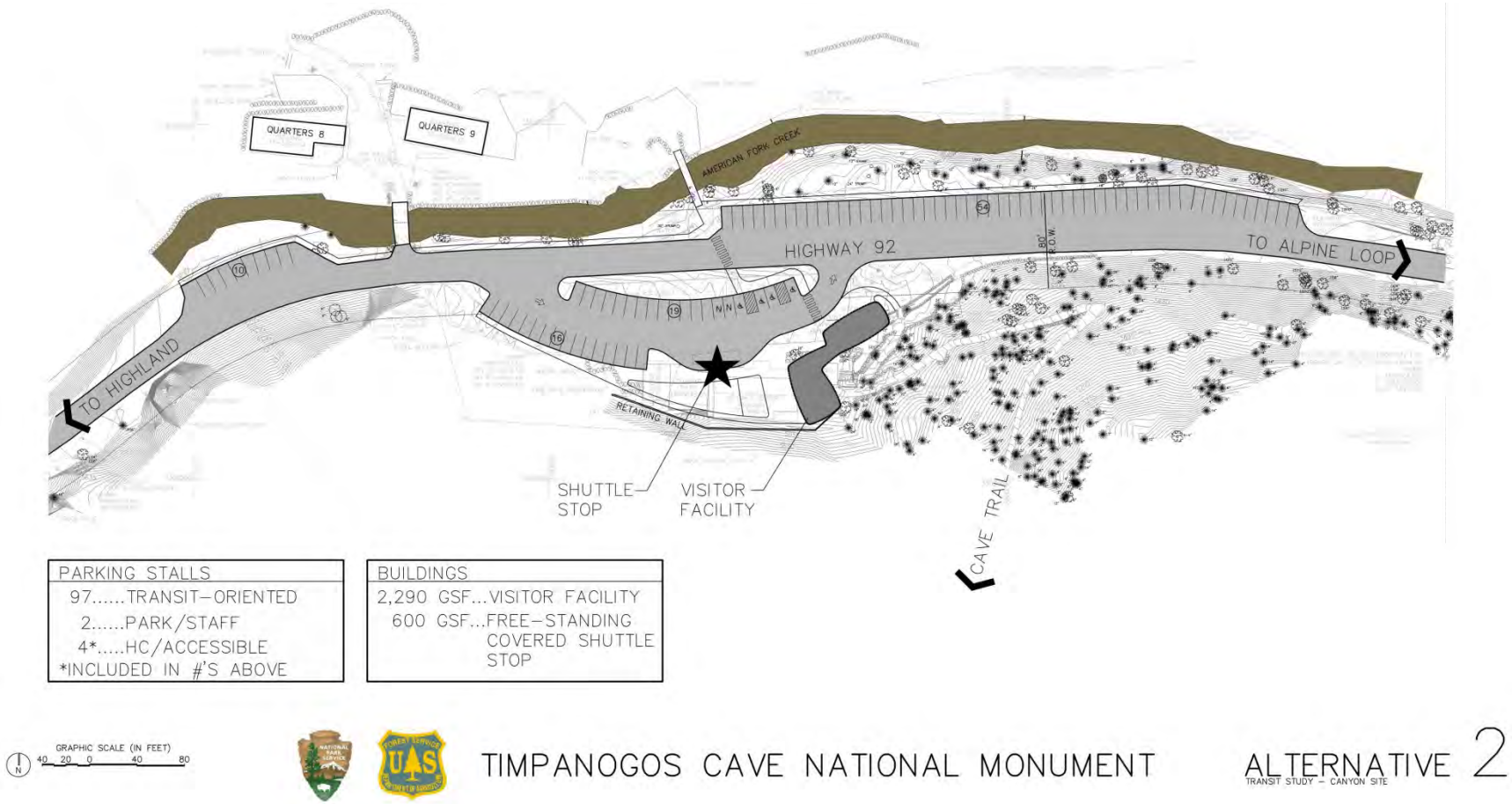
4.3 ALTERNATIVE 2: PEAK-PERIOD OPTIONAL SHUTTLE

General Concept and Overview

This alternative would provide limited visitor parking at the Canyon site and an optional shuttle service from the Highland site on weekends and holidays in order to meet the project objectives of improving visitor safety and experience.

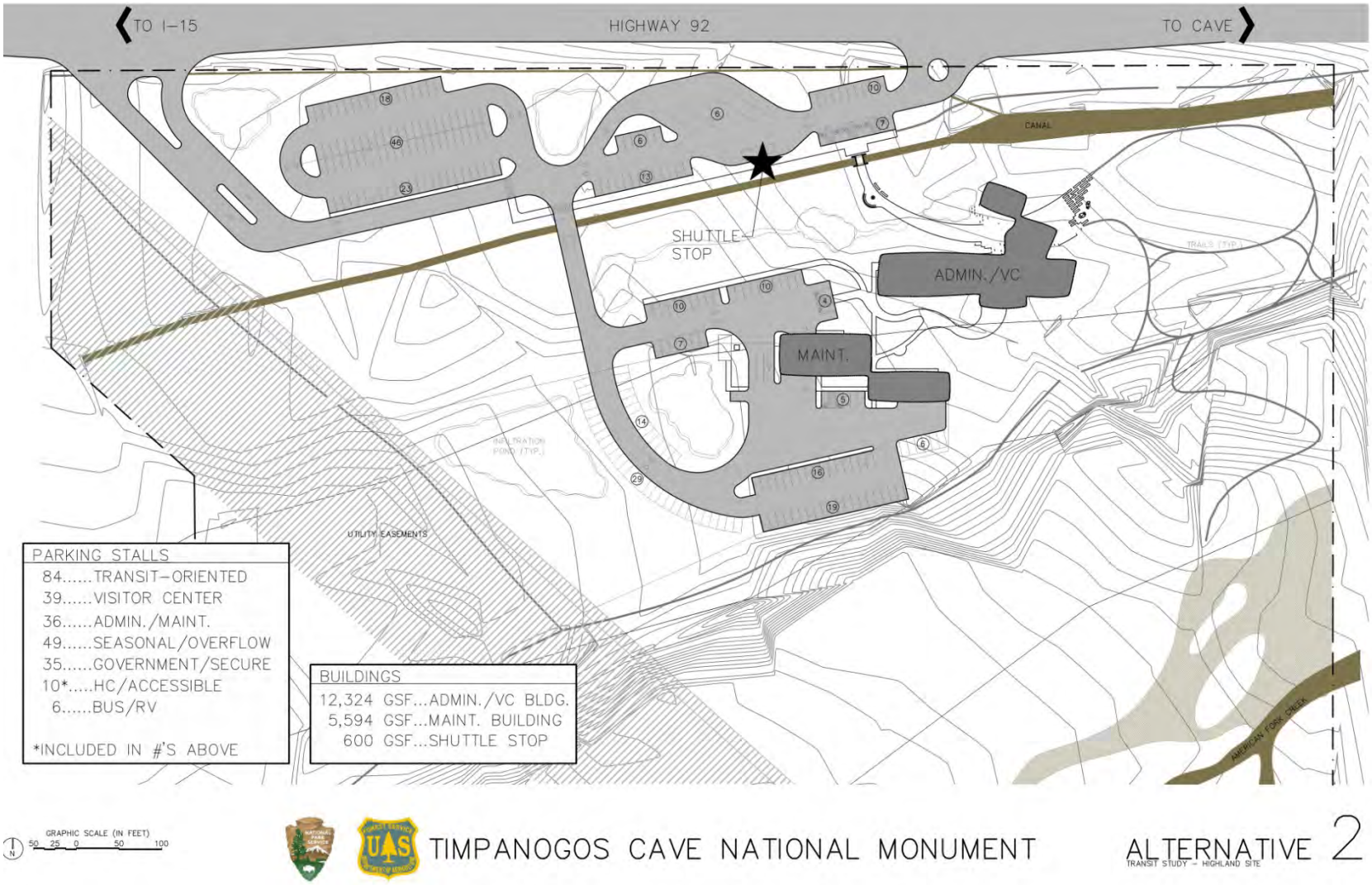
The Highland site would include interagency administrative functions and a visitor center. The visitor center would incorporate interpretation services, ticket sales, weekend visitor parking, and shuttle staging and shelter areas. The Canyon site would include a small contact station and shuttle staging and shelter areas at the cave trailhead. The Highland site would also provide additional cave tour visitor parking to meet weekend and holiday demand, along with shuttle facilities. The Canyon site parking would be redesigned and limited to meet only average weekday visitor demand. Advance tour ticket sales and modified tour schedules would be utilized to spread demand in coordination with the planned parking supply and shuttle bus service. Visitor parking areas would be redesigned and formalized to improve safety and traffic flow. Safety improvements, including additional or better designed pedestrian crosswalks, installation of traffic calming signals and devices, and introduction of a regulatory speed limit would enhance safe access to parking areas, the Canyon View Picnic Area, and Canyon Nature Trail across SR 92. Figure 4.4 and 4.5 show the proposed site plans for the Canyon site and Highland site.

Figure 4.4 Alternative 2: Canyon Site Schematic Design



Source: ajc architects.

Figure 4.5 Alternative 2: Highland Site Schematic Design



Source: ajc architects.

Transit Operating Plan

The proposed shuttle service would be provided only on weekends and holidays, during peak seasonal operations. Service hours would begin at 6:30 a.m., leaving from the Highland site approximately 2 hours before the first tour, and extend to 9:30 p.m., leaving the Canyon site approximately 3.5 hours after the last tour. For the purpose of identifying a preferred overall alternative for visitor access to TICA, the option with 15-minute headways was assumed.

Transit Route and Stops

The proposed shuttle route would operate along the same route between the Canyon and Highland sites as proposed in Alternative 1 and shown in Figure 4.3.

Vehicles and Fuel

Three vehicles would be required for 15-minute headways (two operating and one spare). Four vehicles would be required for 10-minute headways (three operating and one spare). Shuttle vehicle capacity should accommodate 30 to 35 passengers for 15-minute headways and 20 to 25 passengers for 10-minute headways. Vehicles would be in compliance with Americans with Disabilities Act of 1990 requirements.

Parking

Sufficient visitor parking would be provided at the Highland site to meet the portion of holiday and weekend TICA visitor demand not accommodated by the limited parking available at the Canyon site. At Highland, 84 regular parking spaces would be provided for shuttle bus users going to TICA and six large vehicle parking spaces would be provided for tour groups. In addition, 39 parking spaces would be provided for visitors to the visitor center who are not going to TICA. Similar to Alternative 1, tour groups to TICA would be required to drop-off visitors at the Canyon site, travel to the Highland site to park, and return to pick up their tour members.

National Park Service seasonal staff parking would be provided at Highland and employees would be encouraged to carpool or utilize the shuttle to access the Canyon site. Existing staff parking would be retained at Mission 66 residences 8 and 9 for seasonal rangers and maintenance vehicles.

Parking at the Canyon site would be redesigned and expanded to meet average weekday demand, with a total of 97 visitor parking spaces. Ten existing spaces would be retained at the Canyon View Nature Trail lot across SR 29. The parking spaces north of SR 92 adjacent to American Fork Creek would be reoriented and a portion of the adjacent gravel lot would be paved to provide a total of 54 visitor spaces across SR 92 from the visitor contact station. The trailhead parking lot would be redesigned to provide visitor parking, shuttle and

tour bus drop-off, two spaces for National Park Service staff emergency and maintenance use, and four spaces to accommodate disabled visitors. Swinging Bridge Picnic Area parking would be retained and may also be utilized by early morning trail hikers, but signage and parking enforcement would prohibit extended parking by cave tour visitors at this location.

Visitor Information

Variable messaging and real-time information systems installed along SR 92 and at the Highland site would direct visitors to the Highland site overflow parking and shuttle service when parking nears capacity at Canyon site.

Preliminary Impacts

Visitor Impacts

If visitation demand shifts to less busy days, there could be a neutral to positive impact in overall annual visitation capacity.

Resource Impacts

With the exception of the redesigned parking areas, all informal gravel or road-side parking areas within TICA boundaries and adjacent Forest Service property could be revegetated and parking would be prohibited.

Demand Management

Ticket sales would be offered only at the Highland site, but tickets would be primarily sold in advance to spread demand and coordinate visitor use with available parking on weekdays and the combined parking and shuttle system on weekends and holidays.

The schedule of cave tours would also be adjusted to coordinate with the shuttle service schedule, reduce demand spikes, and to fulfill park resource objectives of reducing visitor impacts. The availability of guaranteed parking at the Highland site, entry to TICA without paying the Forest Service entry fee, interpretation services on shuttle, and visitor services at the Highland site are visitor benefits that may help to encourage use of the shuttle.

Transit Operating Cost Estimates

As with Alternative 1, the cost estimates presented here assume that the proposed shuttle bus service is delivered through a partnership agreement with a public transit provider or through a service contract with a private transit operator.

A range of potential operating costs are presented for Alternative 2 reflecting uncertainty regarding how the service would be delivered. Detailed operating cost estimates for the shuttle service are shown in Appendix B of this report.

Additional maintenance costs and any changes in operating and administrative costs other than those directly related to the transit service have not been estimated. Construction costs for the alternatives are based on Class C estimates for the improvements illustrated on the site plans.

A range of estimated shuttle annual operating costs for Alternative 2 was prepared. A low-range cost of $75,000 represents service operated at 15-minute headways as a partnership with a local operator. A high-range cost of $386,000 represents service at 10-minute headways operated under a service contract.

Fee Structure

The visitor cave tour fee could be increased by an amount sufficient to cover the cost of operating the shuttle system. Based on the potential range in operating costs depending on whether the service is contracted through a public or private operator, the additional visitor fee could range from $1.00 to $3.49 (2012 dollars) for service operated at 15-minute headways.

Capital Cost Estimates

Construction costs are based on Class C estimates for the improvements illustrated on the schematic site plans developed for Alternative 2. Detailed Class C estimates are shown in Appendix B.

Table 4.2 below provides a summary of capital cost estimates by major components included within Alternative 2. The Class C estimates are provided in 2012 dollars assuming four percent escalation in construction costs from 2011.

Table 4.2 Alternative 2: Class C Cost Estimate Summary, 2012 Dollars

Cost Component	2012 Dollars
Highland Site Preparation	$1,113,783
Highland Site Buildings	$7,819,454
Highland Site Parking	$3,021,672
Highland Site Amenities	$664,986
Highland Site Utilities and Signage	$75,660
Highland Site Total	$12,695,555
Canyon Site Preparation	$318,508
Canyon Site Buildings	$1,426,331
Canyon Site Parking	$362,621
Canyon Site Amenities	$346,825
Canyon Site Safety, Signage, and Utilities	$90,572
Canyon Site Total	$2,544857
Roadway Improvements	$41,704
Total Construction Cost	$15,282,117

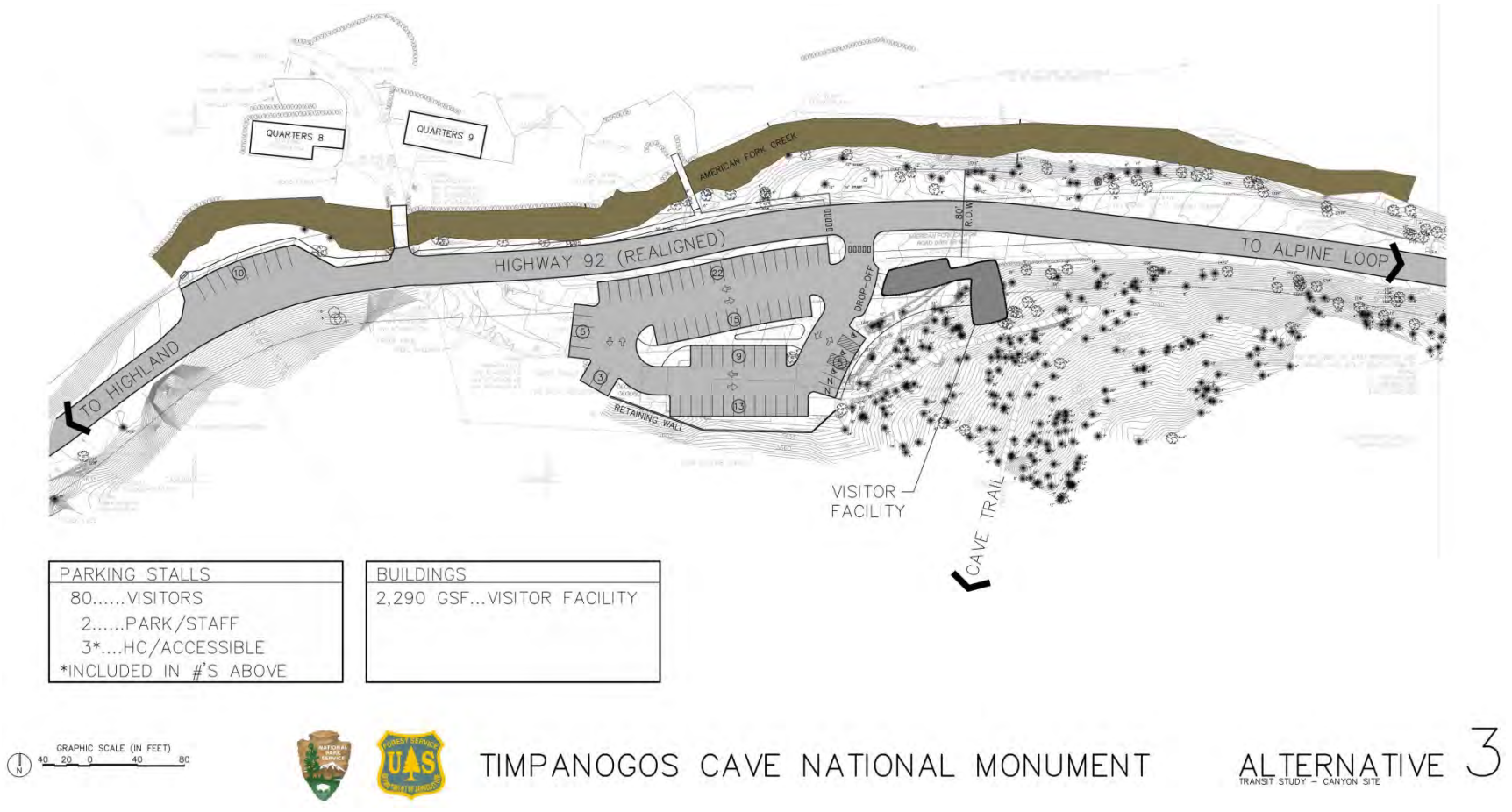
4.4 ALTERNATIVE 3: CANYON SITE SAFETY IMPROVEMENTS AND REALIGNMENT OF SR 92

General Concept and Overview

This alternative incorporates the realignment of SR 92 to maximize parking provided adjacent to the Canyon site visitor contact station and cave trailhead in order to meet the project objectives of improving visitor safety and experience. The total amount of parking provided at the Canyon site would be reduced by the realignment of the road, resulting in the need to implement visitor demand management strategies that reduce visitation at any time to match the available parking. Overall annual visitation is likely to be reduced from historical levels under this alternative, even if visitation were to shift from busy days to less busy days.

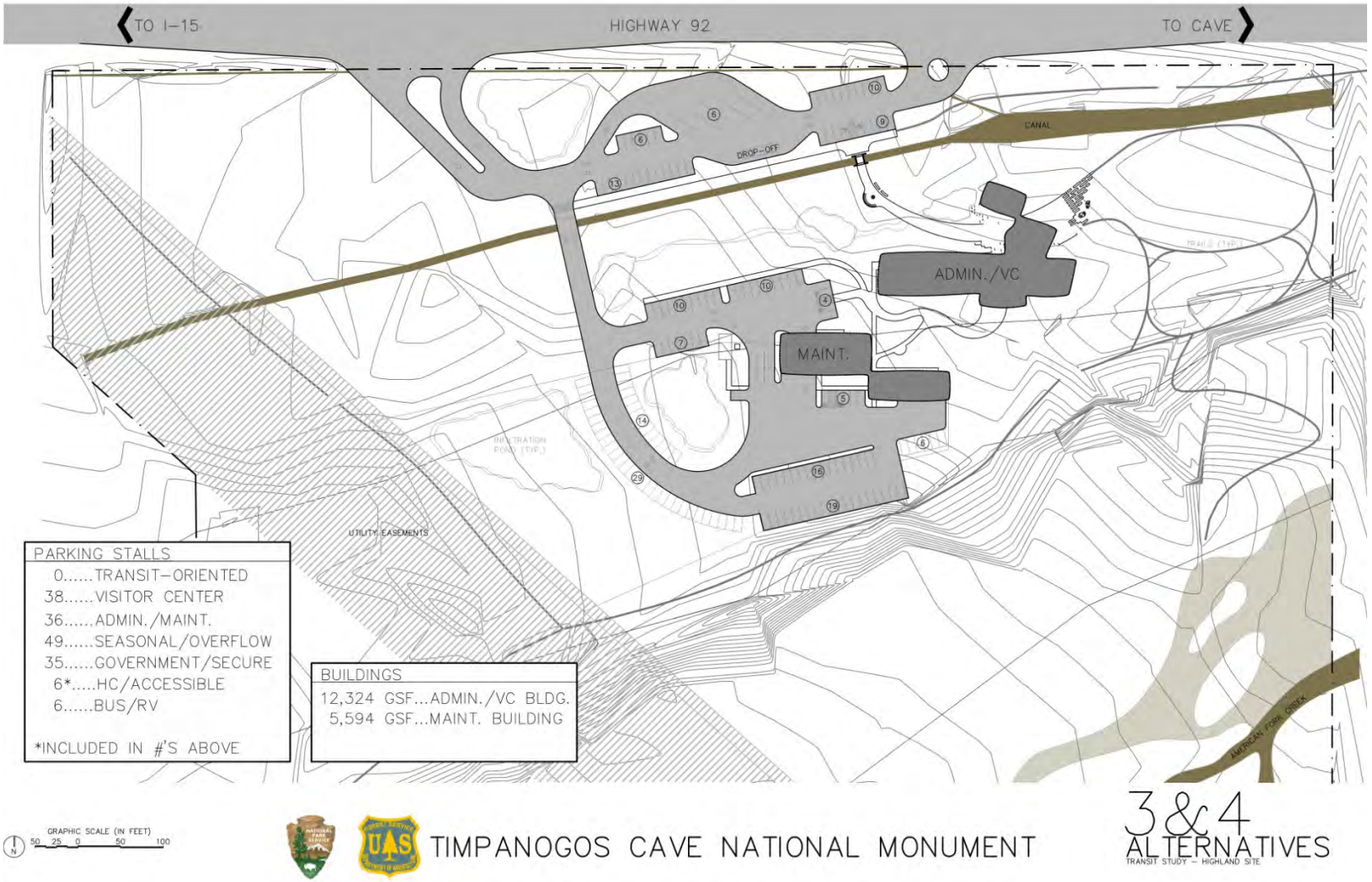
The Highland site would include interagency administrative functions and a visitor center with interpretation services and ticket sales. The Canyon site would include a small contact station and limited services at the cave trailhead. A segment of the SR 92 roadway would be realigned to the north in order to accommodate redesign of Canyon site, to improve through traffic flow on SR 92, to consolidate available parking, and to improve pedestrian safety by reducing the number of pedestrians crossing SR 92. Safety improvements, including installation of traffic calming devices and introduction of a regulatory speed limit would also improve the safety of access to the Canyon View Picnic Area and Canyon View Nature Trail across SR 92. Figures 4.6 and 4.7 detail the site studies for the Canyon and Highland sites.

Figure 4.6 Alternative 3: Canyon Site Schematic Design



Source: ajc architects.

Figure 4.7 Alternative 3: Highland Site Schematic Design



Source: ajc architects.

Parking

Parking at the Canyon site would be redesigned to provide the maximum feasible number of parking spaces given the realignment of SR 92. Tour group accommodations would be managed as in Alternatives 1 and 2. The trailhead parking lot would be redesigned to maximize parking, as well as to provide two spaces for National Park Service staff emergency and maintenance use and three spaces to accommodate disabled visitors along with a loading and unloading area for oversized vehicles serving tour groups. Eighty parking spaces would be provided for cave tour visitors at the Canyon site.

National Park Service seasonal staff parking and other administrative parking would be managed as in Alternatives 1 and 2. All existing parking spaces north of SR 92 would be removed to accommodate the realignment of SR 92. Ten existing spaces would be retained at the Canyon View Nature Trail lot. The Swinging Bridge Picnic Area lot would be retained for picnic and cave tour use with signage installed at trailhead contact station directing visitors to access the lot via the Canyon View Nature Trail route. At the Highland site, 38 spaces would be provided for visitors accessing the services and facilities offered at the interagency center.

Demand Management

Cave tour schedules and sales policies would be adjusted to maximize the total number of visitors that can be accommodated with limited available parking at the Canyon site. All ticket sales would be provided only by advance reservation in order to maximize average tour group size and encourage visitor use of early morning and late afternoon tour openings on less busy days.

Visitor Information

Wayfinding and informational signage improvements at both entrances to Uinta-Wasatch-Cache National Forest, Highland site visitor center, and TICA trailhead would inform visitors of appropriate, legal parking areas and the current, real-time availability of parking at TICA. Expanded information in tourist publications and on the National Park Service's web site would inform potential visitors of parking constraints, advance reservation and cave tour ticketing policies, and revised tour schedule.

Potential Impacts

Visitor Impacts

Preliminary estimates of the effects of this alternative indicate that a daily total of 680 tour visitors on 34 tours could be accommodated on weekend days and holidays and a daily total of 580 tour visitors on 29 tours could be accommodated on weekdays. This represents a reduction in daily weekend and holiday use of 26

percent from 2010 baseline levels and a potential increase in weekday visitation of 39 percent. The overall impact of this alternatives is a reduction in annual visitation of 11 percent and a reduction of 29 percent in the annual number of tours offered (assuming visitation does not shift from busy days to less busy days.)

Resource Impacts

Existing informal gravel and roadside parking areas within TICA boundaries and adjacent USFS property would be revegetated and parking prohibited. The location of all parking adjacent to the trailhead and elimination of informal areas, would reduce social trailing and environmental damage along the creekside. The realignment of SR 92 may negatively impact streamside areas along American Fork River.

Capital Cost Estimates

The table below provides a summary of the Class C capital cost estimates by major component of Alternative 3. Cost estimates are provided in 2012 dollars assuming four percent escalation in construction costs from 2011.

Table 4.3 Alternative 3: Class C Cost Estimate Summary, 2012 Dollars

Cost Component	2012 Dollars
Highland Site Preparation	$619,853
Highland Site Buildings	$7,819,454
Highland Site Parking	$2,127,907
Highland Site Amenities	$643,826
Highland Site Utilities and Signage	$74,382
Highland Site Total	**$11,285,422**
Canyon Site Preparation	$403,493
Canyon Site Buildings	$1,426,331
Canyon Site Parking	$447,503
Canyon Site Amenities	$362,781
Canyon Site Safety, Signage, and Utilities	$90,301
Canyon Site Total	**$2,730,409**
Roadway Improvements	$1,479,163
Total Construction Cost	**$15,494,994**

4.5 ALTERNATIVE 4: CANYON SITE CAPACITY IMPROVEMENTS

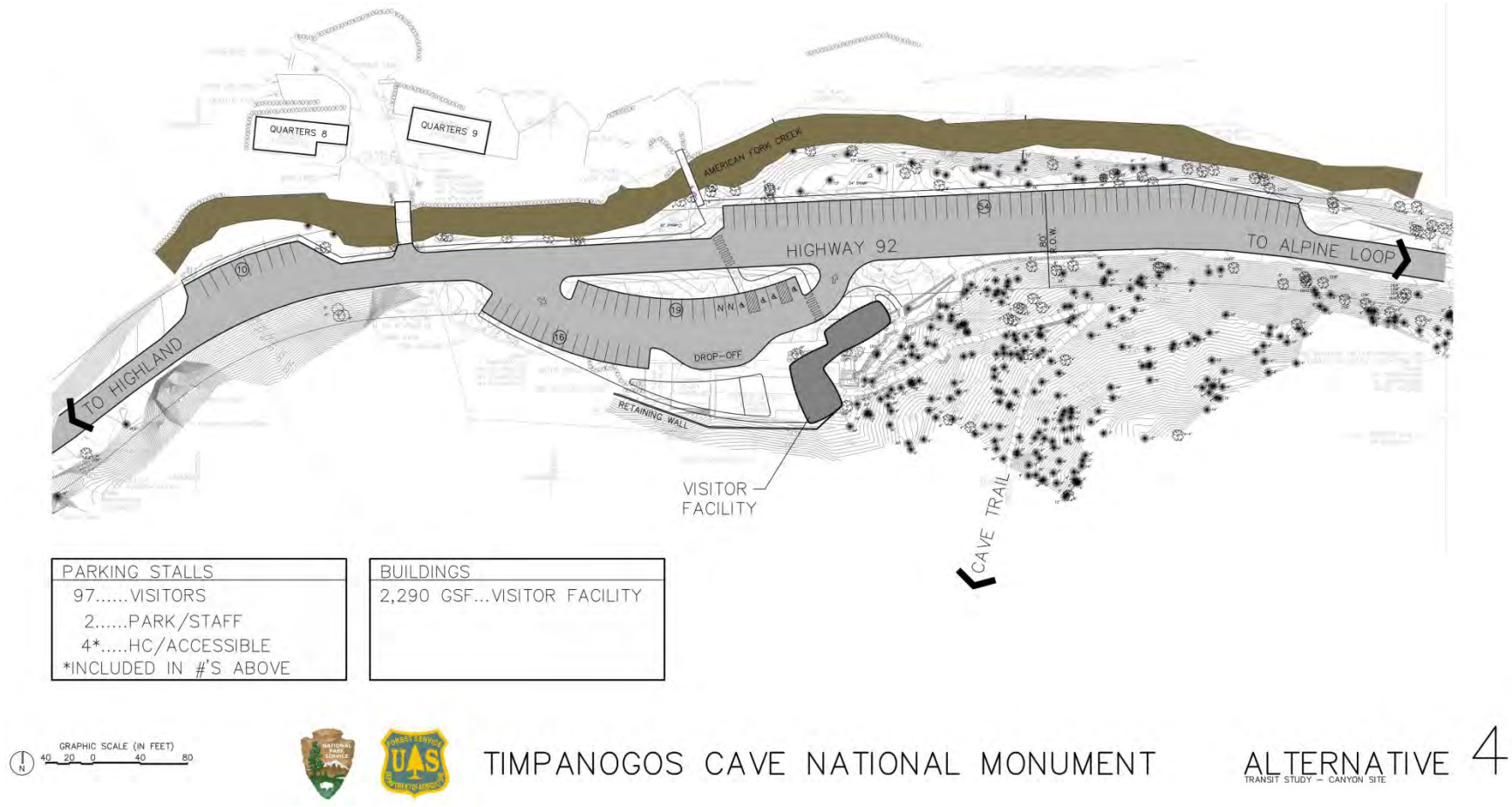
General Concept and Overview

This alternative would maximize parking capacity at the Canyon site while providing pedestrian safety enhancements and demand management in order to meet the project objectives of improving visitor safety and experience. This alternative would provide the maximum feasible visitor parking at the Canyon site without major changes to the current site plan, parking layout, and traffic flow configuration.

The Highland site would include interagency administrative functions and a visitor center with interpretation services and limited ticket sales. The Canyon would site include a small contact station and limited services at the cave trailhead. Parking would be reconfigured to maximize the supply of visitor parking while improving safety and reducing resource impacts from informal roadside parking. The Canyon site would be reconfigured to maximize the available parking at the trailhead and across SR 92.

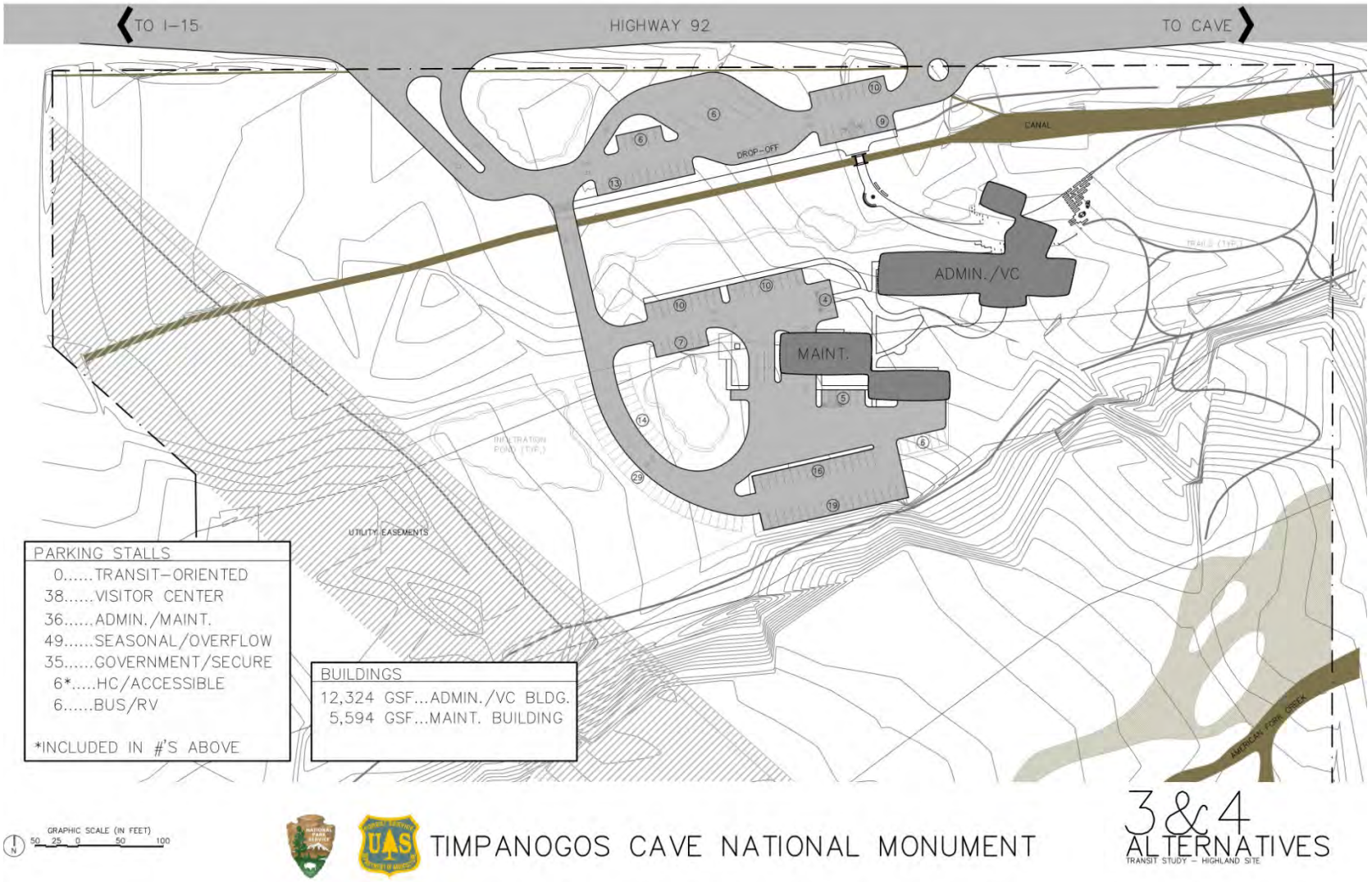
Safety improvements, including additional pedestrian crosswalks, the installation of traffic calming signals and devices, and the introduction of a regulatory speed limit would be implemented to improve the safety of access to the Canyon View Picnic Area, the Canyon View Nature Trail, and the expanded visitor parking across SR 92. Figures 4.8 and 4.9 show the site studies for the Canyon and Highland sites for Alternative 4.

Figure 4.8 Alternative 4: Canyon Site



Source: ajc architects.

Figure 4.9 Alternative 4: Highland Site



Parking

Parking at the Canyon site would be reconfigured to provide the maximum feasible amount of visitor access to the trailhead and contact station while improving safety over current conditions. Oversize vehicles serving tour groups would be accommodated as described in Alternatives 1, 2, and 3. A total of 97 visitor parking spaces would be provided at the Canyon site. The trailhead parking lot would be redesigned to increase capacity, improve traffic flow, and to provide two spaces for National Park Service staff emergency and maintenance use and four spaces to accommodate disabled visitors. Ten existing spaces would be retained at the Canyon View Nature Trail lot. Parking spaces on the north side of SR 92 would be reconfigured as head-in spaces, and a portion of the existing adjacent gravel lot would be paved to provide a total of 54 visitor spaces across SR 92. The trailhead lot also would accommodate a loading and unloading area for oversized vehicles serving tour groups. The Swinging Bridge Picnic Area lot would be retained for picnic and cave tour visitor use with signage directing visitors to access the lot via the Canyon View Nature Trail route. National Park Service seasonal and regular staff parking would be accommodated as described in Alternative 3.

Visitor parking at the Highland site would be limited to parking for visitors using the visitor center, with a total of 38 visitor spaces and 6 spaces for oversized vehicles serving tour groups.

Demand Management

Cave tour schedules and sales policies would be adjusted to maximize the number of visitors that may be accommodated as a function of the available parking. It is assumed that all cave tour ticket sales would be completed by advance reservation. This policy maximizes the average tour group size and encourages visitor use of early morning and late afternoon tour openings and visits on less busy days.

Visitor Information

Wayfinding and informational signage improvements at both entrances to Uinta-Wasatch-Cache National Forest, Highland site visitor center, and TICA trailhead would inform visitors of appropriate, legal parking areas and availability of parking at TICA.

Expanded information in tourist publications and on the National Park Service's web site would inform potential visitors of parking constraints, advance reservation policy, in order to encourage utilization of tour openings at less busy times and on less busy days.

Potential Impacts

Visitor Impacts

Preliminary estimates of the effects of modified tour schedules and advance sales indicate that a daily total of 800 tour visitors on 40 tours may be accommodated during weekends and holidays and a daily total of 720 tour visitors on 36 tours may be accommodated on weekdays. This represents a reduction of 12 percent in daily visitation on weekends and holidays and a potential increase in daily visitation of 73 percent on weekdays. This alternative would result in an overall decrease in annual visitation of 12 percent and a 5 percent decrease in the number of tours offered per year, assuming no shifts in visitation from busy days to less busy days.

Resource Impacts

With the exception of designated parking areas, existing informal gravel and roadside parking areas within TICA boundaries and adjacent Forest Service property would be revegetated and parking would be prohibited.

Capital Costs Estimates

Table 4.4 below provides a summary of the Class C capital cost estimates by major component. The cost estimates are provided in 2012 dollars assuming four percent escalation in construction costs from 2011.

Table 4.4 Alternative 4: Class C Cost Estimate Summary, 2012 Dollars

Cost Component	2012 Dollars
Highland Site Preparation	$619,853
Highland Site Buildings	$7,819,454
Highland Site Parking	$2,127,907
Highland Site Amenities	$643,826
Highland Site Utilities and Signage	$74,382
Highland Site Total	$11,285,422
Canyon Site Preparation	$318,508
Canyon Site Buildings	$1,426,331
Canyon Site Parking	$362,621
Canyon Site Amenities	$346,825
Canyon Site Safety, Signage, and Utilities	$90,399
Canyon Site Total	$2,544,684
Roadway Improvements	$41,704
Total Construction Cost	$13,871,810

4.6 ALTERNATIVE SUMMARY AND COMPARISON

The matrix shown as Table 4.5 in the following pages presents a comparison of the four alternatives and their primary components.

Table 4.5 TICA Alternatives Summary

Component Strategies and Solutions	Alternative 1: Mandatory Shuttle Service	Alternative 2: Peak-Period Optional Shuttle	Alternative 3: Canyon Site Safety Improvements and Realignment of SR 92	Alternative 4: Canyon Site Capacity Improvements
General Concept	• Full-time shuttle service. • Shuttle and visitor facilities at Highland. • Very limited parking at Canyon.	• Weekend and holiday shuttle service. • Shuttle and visitor facilities at Highland. • Safe parking at Canyon; overflow parking at Highland.	• No shuttle service. • Realignment of SR 92. • Improved parking and pedestrian facilities at Canyon. • Reduction and shifting of cave tour times to manage demand. • Presale of tickets to manage demand.	• No shuttle service. • Improved parking and pedestrian facilities at Canyon. • Reduction and shifting of cave tour times to manage demand. • Presale of tickets to manage demand.
Highland Site Function	• Interagency administration facility, with visitor center with ticket sales. • All visitor parking, with shuttle pick-up/drop-off and shuttle staging area.	• Interagency administration facility, with visitor center with ticket sales. • Overflow visitor parking, shuttle pick-up/drop-off, and small shuttle staging area.	• Interagency administration facility, with visitor center with ticket sales. • Visitor center parking only.	• Interagency administration facility, with visitor center without ticket sales. • Visitor center parking only.
Canyon Site Function	• Small visitor contact station with basic amenities. • Eliminates nearly all visitor parking.	• Small visitor contact station with basic amenities. • Visitor parking limited to meet needs of weekday operations.	• Small visitor contact station with basic amenities. • Limited, but consolidated and safer visitor parking.	• Small visitor contact station with basic amenities. • Visitor parking expanded to meet needs of peak weekend and holiday operations.

Table 4.5 TICA Alternatives Summary (continued)

Component Strategies and Solutions	Alternative 1: Mandatory Shuttle Service	Alternative 2: Peak-Period Optional Shuttle	Alternative 3: Canyon Site Safety Improvements and Realignment of SR 92	Alternative 4: Canyon Site Capacity Improvements
Shuttle Operations	• Seven-day full-service schedule. • Ten- or 15-minute headways. • Runs 6:30 a.m.-9:30 p.m. • Four 25 passenger or three 35 passenger vehicles, including one spare (depending on headway).	• Weekend and holiday service.	• None.	• None.
Parking	• Highland provides parking for most visitors, tour group, and employee vehicles. Estimated need for 205 visitor parking spaces, plus for tour group vehicles. • Canyon provides 10 parking spots only for handicapped, emergency, and maintenance vehicles. • Parking in non-designated areas enforced. • Staff carpool, shuttle use required.	• Highland provides parking for overflow visitors, employee, and tour group vehicles; 84 visitor spaces required, depending on quantity of spaces provided at Canyon, plus spaces for tour group vehicles. • Canyon provides 97 parking spaces. • Parking in non-designated areas enforced. • Staff carpool, shuttle use required.	• Highland provides parking for visitor center, tour group, and employee vehicles. • Canyon provides 80 safe parking spaces. (Fewer required if effective TDM instituted.) • Staff administrative parking area improved.	• Highland provides parking for most visitor tour groups, and employee vehicles. • Canyon provides 97 parking spaces (Fewer spaces required if effective TDM instituted.) • Staff administrative parking area improved.
Fees	• Shuttle cost incorporated into base fee increase. • Shuttle users exempt from USFS fee.	• Shuttle cost incorporated into base fee increase. • Shuttle users exempt from USFS fee.	• Improvement cost offset by base fee increase.	• No change in base fee.

Table 4.5 TICA Alternatives Summary (continued)

Component Strategies and Solutions	Alternative 1: Mandatory Shuttle Service	Alternative 2: Peak-Period Optional Shuttle	Alternative 3: Canyon Site Safety Improvements and Realignment of SR 92	Alternative 4: Canyon Site Capacity Improvements
Canyon Site Improvements	• Most paved and gravel parking areas eliminated.	• Paved creekside parking retained. • Gravel parking areas eliminated. • Consider elimination of Canyon View picnic facilities.	• Realignment of SR 92. • Contact station parking consolidated. • Pedestrian amenities improved. • Consider elimination of Canyon View picnic facilities.	• Paved and gravel parking areas expanded and improved. • Pedestrian amenities improved. • Consider elimination of Canyon View picnic facilities.
System Management	• Informational signage improved • Additional parking restrictions and enforcement at Canyon.	• Real-time, variable message signs at fee stations and Highland. • Additional parking restrictions and enforcement at Canyon.	• Speed limit, parking restrictions, and pedestrian zone signs improved. • Enforcement of parking restrictions at Canyon.	• Speed limit, parking restrictions, and pedestrian zone signs improved. • Enforcement of parking restrictions at Canyon.
Demand Management	• Tour group size and tour timing could be adjusted to reduce parking needs at Highland site.	• Tour group size and tour timing could be adjusted to reduce parking needs at Highland site.	• Tour group size and tour timing adjusted to manage parking demand.	• Tour group size and tour timing adjusted to manage parking demand.

5.0 Financial Analysis

An analysis of the financial implications of the capital and operating costs for each of the four alternatives was conducted to determine the overall financial feasibility of each alternative. While a number of variables are uncertain at this stage of planning and will be refined by NPS as site plans for the Highland and Canyon sites are advanced, these costs represent a reasonable basis for comparison between alternatives and establishing the overall feasibility of the concepts. It should be noted that since the VA/CBA workshop was held, described in Section 7.0, some elements of the capital costs have been modified and, therefore, do not exactly replicate the costs originally presented in the workshop.

5.1 BASIS OF ESTIMATES

The costs of the alternatives include capital costs for construction of the proposed facilities for all of the alternatives and operating costs for the proposed transit services. The cost estimates presented here assume that the shuttle bus service would be delivered through a partnership agreement with a public transit provider or through a service contract with a private transit operator. Existing shuttle bus systems in the Intermountain Region of the National Park Service that are provided through service contracts include Rocky Mountain National Park and Bryce Canyon National Park. It is assumed that the partner or contractor would supply the vehicles, labor, and maintenance services required for the proposed operation. This type of arrangement results in higher operating costs than for other systems where the National Park Service provides the vehicles and maintenance facilities for the service and a contractor or partner provides the labor (Grand Canyon National Park, Zion National Park, and Glacier National Park). However, this also reduces the overall management and oversight responsibilities of the NPS along with the risks involved with the capital investment in facilities and vehicles.

The operating costs for the proposed shuttle bus service in Alternatives 1 and 2 (the transit alternatives) were estimated based on cost information for the Rocky Mountain National Park shuttle bus service (service contract option) and cost information provided by the Utah Transit Authority (UTA – partnership option). It should be noted that UTA would only provide service to TICA if a private contractor were not available to provide the service, in accordance with its operating charter as a public transit agency. However, given their service area in proximity to TICA, they present a viable option as a service contractor. There is a substantial difference in cost between the partnership and service contract options due to the fact that a private operator will expect to earn a profit to run the service. The private operator and potentially a public operator will also be expected to include the cost of acquiring vehicles for the service in their overall

cost structure. A range of potential operating costs is presented for Alternatives 1 and 2 reflecting uncertainty regarding how the service would be delivered. The detailed operating cost estimates for the shuttle bus service are shown in Appendix B. Additional maintenance costs and any changes in operating and administrative costs other than those directly related to the transit service have not been estimated for this study.

Construction costs for the alternatives are based on Class C estimates for the improvements illustrated on the site plans presented in the alternatives section of this report. Detailed Class C estimates are shown in Appendix B.

5.2 OPERATING COST ESTIMATES

The table below provides the range of estimated shuttle bus annual operating costs for Alternatives 1 and 2 in 2012 dollars assuming four percent escalation in operating costs from 2011.

Table 5.1 Annual Shuttle Operating Costs

	Annual Operating Costs – 2012 Dollars	
Alternative	Low Range	High Range
1 – Mandatory Shuttle (10-minute headways)	$345,000	$1,190,000
1 – Mandatory Shuttle (15-minute headways)	$232,000	$808,000
2 – Peak-Period Optional Shuttle (10-minute headways)	$112,000	$386,000
2 – Peak-Period Optional Shuttle (15-minute headways)	$75,000	$262,000

5.3 CAPITAL COST ESTIMATES

The table below provides a summary of the Class C capital cost estimates by major component of each alternative. The cost estimates are shown in 2012 dollars assuming four percent escalation in construction costs from 2011. As indicated above, these cost estimates do not exactly replicate the costs presented in the VA/CBA workshop due to subsequent adjustments.

Table 5.2 Capital Costs

	Alt 1	Alt 2	Alt 3	Alt 4
Highland Site Preparation	1,113,783	1,113,783	619,853	619,853
Highland Site Buildings	7,819,454	7,819,454	7,819,454	7,819,454
Highland Site Parking	3,751,197	3,021,672	2,127,907	2,127,907
Highland Site Amenities	816,057	664,986	643,826	643,826
Highland Site Utilities and Signage	76,763	75,660	74,382	74,382
Highland Site Total	13,577,254	12,695,555	11,285,422	11,285,422

Table 5.2 Capital Costs (continued)

	Alt 1	Alt 2	Alt 3	Alt 4
Canyon Site preparation	255,223	318,508	403,493	318,508
Canyon Site Buildings	1,426,331	1,426,331	1,426,331	1,426,331
Canyon Site Parking	201,691	362,621	447,503	362,621
Canyon Site Amenities	318,050	346,825	362,781	346,825
Canyon Site Safety, Signage and Utilities	90,572	90,572	90,301	90,399
Canyon Site Total	2,291,867	2,544,857	2,730,409	2,544,684
Roadway Improvements	41,704	41,704	1,479,163	41,704
Total Construction Cost	15,910,825	15,282,117	15,494,994	13,871,810

The following charts provide an illustration of the difference in cost for the primary elements of the alternatives. The largest cost elements of the alternatives are the building components, which do not change across the alternatives. The primary differences in cost for the Highland site are site preparation and parking costs, with Alternative 1 having the highest cost for these components and Alternatives 3 and 4 having the lowest costs, as shown in Figure 5.1 The primary differences in cost for the Canyon site are in site preparation and parking and, for Alternative 3, roadway costs associated with realignment of SR 92, as shown in Figure 5.2. Figure 5.3 presents the combined capital costs for each alternative.

Figure 5.1 Class C Estimates: Highland Site

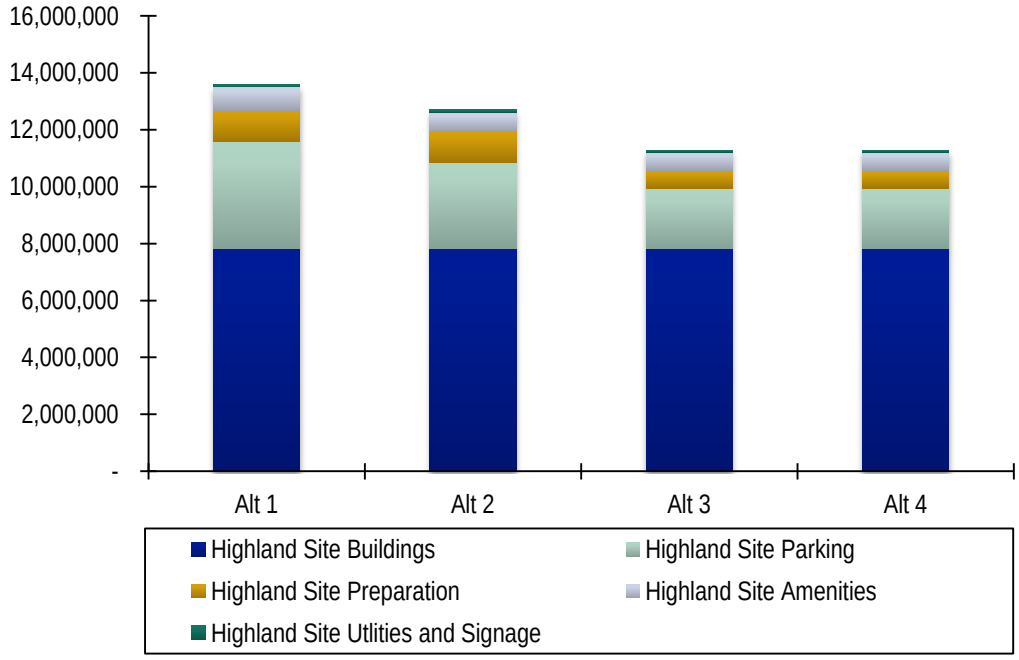


Figure 5.2 Class C Estimates: Canyon Site

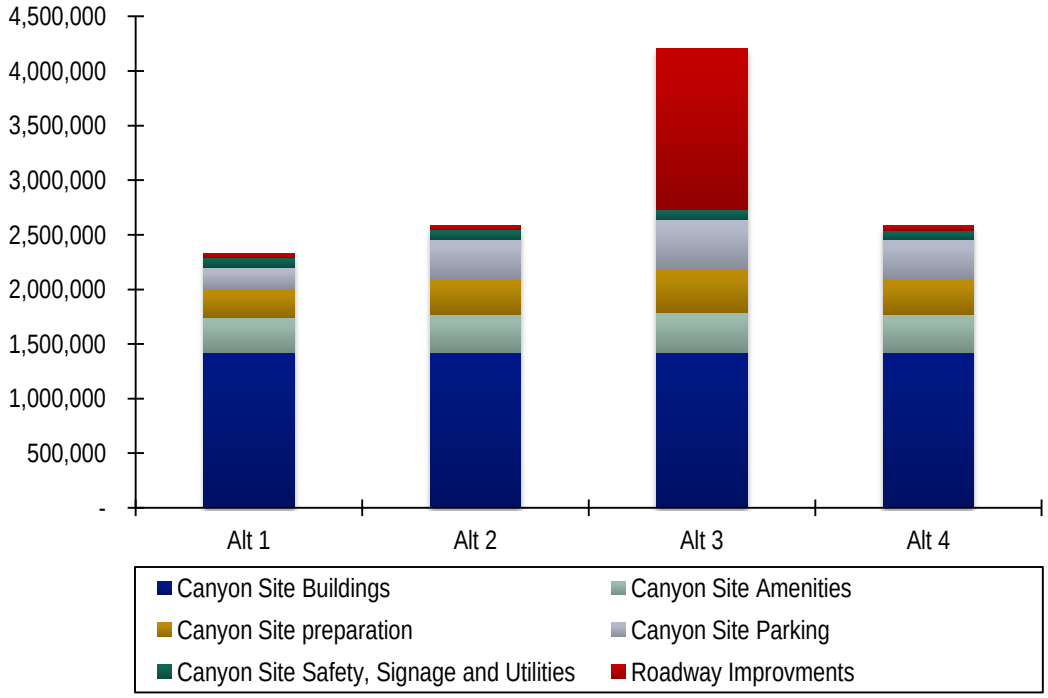
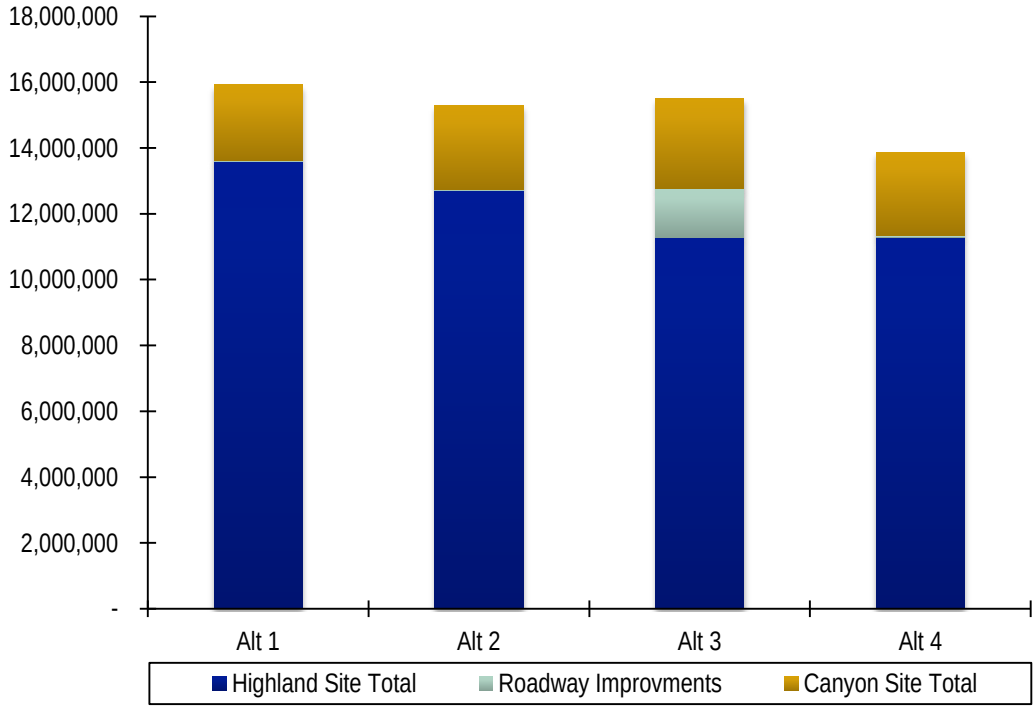


Figure 5.3 Combined Site and Building Costs



5.4 FINANCIAL PRO FORMAS

Based on the operating and capital cost components presented above, financial pro formas were prepared which indicate the anticipated schedule of expenditures and revenues that would be applicable to the alternatives. As explained below, 10 sets of pro formas were prepared reflecting the four alternatives, and alternative headways and operating costs for Alternatives 1 and 2.

Development of the pro formas involved three components:

1. **Capital Costs:** Total construction costs (in 2011 dollars) for the four alternatives – Alternative 1 (Mandatory), Alternative 2 (Peak Shuttle), Alternative 3 (Canyon Capacity Improvements), and Alternative 4 (Canyon Safety Improvements) were calculated on the basis of the Class C cost estimates. These costs were separated into three capital cost groups to be inserted into the Pro forma – Highland site, Canyon site, and roadways. In addition, contingencies (such as Federal wage rate, overhead, and contracting method adjustment) were applied as percentages of total construction costs. The same contingencies percentages were applied to the three capital groups in order to proportionally assign the contingencies for each group. The total construction costs and contingencies for each capital cost group were inflated to 2013 dollars to reflect capital costs in mid-construction year of the project. This total capital cost (in 2013 dollars) was then split in two and allocated to the years 2013 and 2014 (the construction period).
2. **Operating Costs:** Average operating costs for services similar to those being proposed in Alternatives 1 and 2 were identified for three different operators – Rocky Mountain Shuttle, UTA, and ESTA. On the basis of these costs, a high cost of operation (Rocky Mountain Shuttle based on operating cost/mile), and a low cost of operation (UTA) was applied in the analysis in order to present a range of operation costs. For each operator, there are two alternatives (Mandatory or Peak Shuttle), and two headways (10 or 15 minutes). As shown in the table below, there are eight possible cost-alternative-headway combinations.

Table 5.3 Operating Cost Variables

Low-Cost Operator	Headway	High-Cost Operator	Headway
Alternative 1 – Mandatory	10	Alternative 1 – Mandatory	10
Alternative 1 – Mandatory	15	Alternative 1 – Mandatory	15
Alternative 2 – Peak Shuttle	10	Alternative 2 – Peak Shuttle	10
Alternative 2 – Peak Shuttle	15	Alternative 2 – Peak Shuttle	15

Operating unit cost for UTA was provided in 2011 dollars and unit cost for Rocky Mountain Shuttle was in 2007 dollars. The latter was adjusted to unit costs in 2011 dollars based on the U.S. Bureau of Labor Statistics' Consumer

Price Index. Operating costs in 2011 dollars were then calculated for each of the eight cost-alternative-headway combinations by multiplying the adjusted unit cost with daily vehicle miles and daily vehicle hours estimated by the project team, and the number of operating days (145 days for Mandatory shuttle, and 47 days for Peak shuttle). Daily vehicle miles and vehicle hours differ slightly between the two operators because of slight differences in assumed deadhead distance. Operating costs in 2011 dollars were inflated by an annual rate of four percent to calculate costs from 2015 (first year of operation) to 2021. For each of the eight cost-alternative-headway combination, cost per ticket (in 2011 dollars) to fully cover the cost of operations was calculated by dividing operating costs (in 2011 dollars) by the estimated 75,000 annual visitors.

3. **Pro Forma Spreadsheet:** Ten pro forma spreadsheets were prepared (for the eight cost-alternative-headway combinations, plus Alternatives 3 and 4) and are provided in Appendix B. Each of the spreadsheets incorporated the inflation adjusted capital costs under the three aforementioned capital cost groups. The eight pro forma spreadsheets that correspond to Alternatives 1 and 2, also incorporated inflation adjusted operating costs from the year 2015 to 2022. Inflation adjusted operating costs were inserted in the spreadsheet tab "Option 2." In these eight spreadsheets, User Fees and Fares from the year 2015 to 2022 reflected the inflation adjusted operating cost for these years. The inflation function in each pro forma spreadsheet was not utilized.

5.5 FINANCIAL FEASIBILITY

A definite source of capital funding for the construction of facilities at the Highland and Canyon site for each of the four alternatives is yet to be determined but is assumed to require dedicated funding given the substantial costs involved in constructing these facilities. Operating costs for the shuttle operation that would service visitors in Alternatives 1 and 2 would be subsidized by a fee charged to all visitors that would be sufficient to offset the cost of transit operations. Based on these assumptions and the analysis described above, it is concluded that each of the four alternatives is financially feasible.

6.0 Demand Management Impacts

As discussed in Section 4.0, Alternatives 3 and 4, without a shuttle operation and with limitations on parking capacity at the Canyon site, require the application of demand management strategies to limit visitation to the capacity of the facility. To some extent, each of the alternatives would benefit from demand management strategies to better regulate the flow of visitors and manage tour scheduling. The following section discusses how demand management strategies might be implemented and presents estimates of the overall impact of those strategies on TICA visitation.

Demand management strategies considered for this study include rescheduling tour timing and adopting advance ticket sale policies. These tools may enable TICA management to shift visitation from popular, mid-day times to early and late day tour slots. While these strategies would limit total visitation levels for TICA, they also encourage effective use of park resources, including parking, visitor amenities, and staff; improve visitor safety and experience; and better manage the caves and other natural resources for future use. The two recommended demand management strategies are described in more detail below.

- Introducing an alternative tour schedule that limits the total number of tours offered during popular times (approximately 11:00 a.m. to 2:00 p.m.) and adjusts tour interval timing will reduce peak visitor accumulation. Alternative schedules must offer fewer tours at midday, adjust tour timing to 10- to 20-minute increments, and provide tours over a shorter daily span. This alternative pattern smoothes visitor distribution, reduces peak accumulation of visitors, and encourages utilization of tours available throughout the day.
- Implementing advance tour ticket sale policies encourages utilization of tours offered early and late in the day and would support the success of any alternative tour schedule. Advance purchase quotas could be mandated for anywhere from 70 to 100 percent of all tickets sold and would be best implemented through an online system. Advance sales would also reduce the number of visitors arriving at the trailhead to purchase tickets and waiting on-site for several hours before beginning their hike.

The following discussion provides additional information on the potential, feasibility, and visitation impacts of demand management strategies. While impacts are estimated for all alternatives examined in this study, a proposed tour schedule and visitation effects for Alternative 3 are highlighted. The information provided here are estimates based on best available data and rely on key assumptions such as the implementation of an advance ticket sale system. NPS and TICA management will further consider alternative visitation levels and

demand management strategies in the context of the anticipated cave management planning process.

6.1 IMPLEMENTING DEMAND MANAGEMENT STRATEGIES

The success of demand management strategies hinges on several key assumptions including the willingness of visitors to change arrival time preferences and the success of advance ticket sale policies in facilitating that change. Alternative tour schedules were developed based on observed patterns that less popular tour times are undersold, while more popular times are often sold out. This imbalance results in times where TICA parking and visitor facilities are overwhelmed with visitors and other times where there is excess capacity. The alternative tour schedules suggested here attempt to match demand to supply and smooth visitation patterns at TICA.

Figure 6.1 illustrates the potential smoothing effect of alternative demand management strategies on tour utilization. These data contrast the average demand for tours (persons per tour, by time of day) with the current supply of tours (tours offered, by time of day). Tour schedules are shown for both actual average 2010 season patterns and for a potential demand management schedule implemented under Alternative 3.

- Shown top and bottom in grey graphs are 2010 average peak and off-peak operating schedules plotted against average tickets sold per tour. On peak days, tours offered early morning and late afternoon are typically undersold with fewer than 20 persons per tour offered. For off-peak days, average tour utilization is approximately 10 persons per tour. Visitor demand patterns are illustrated by the green trendlines.

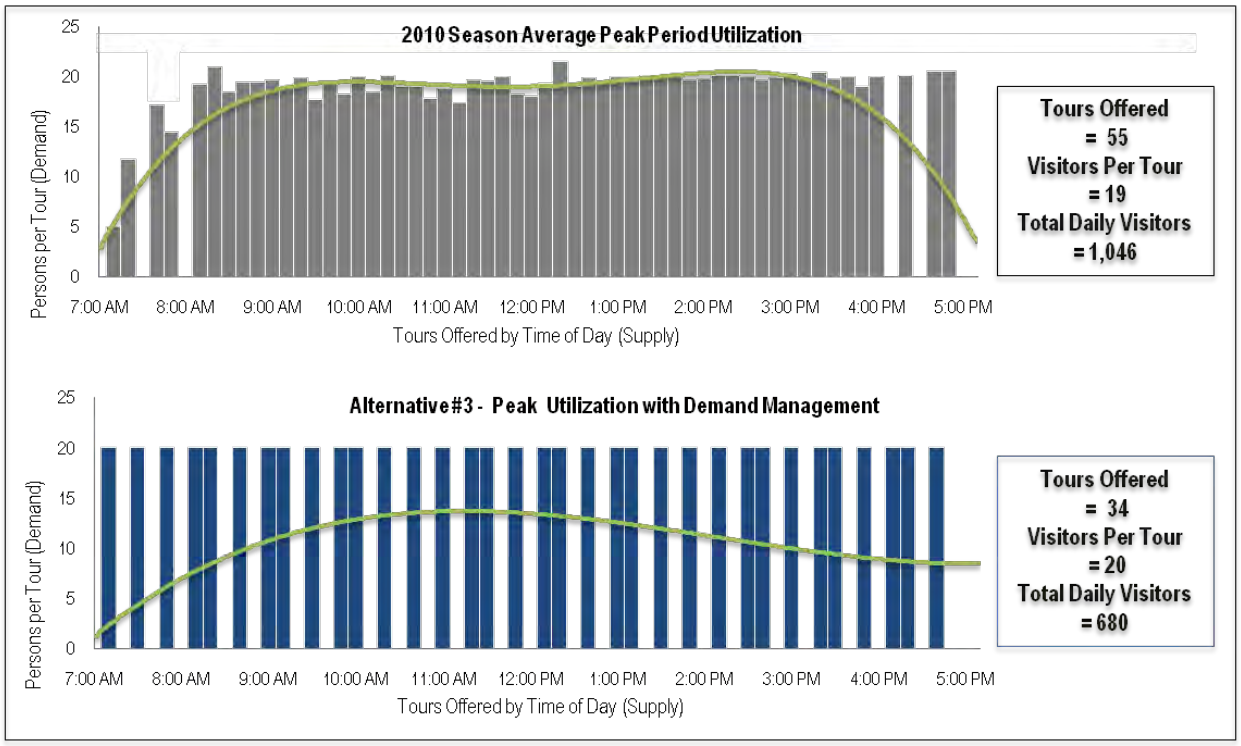
  Current tour schedules may accommodate a greater number of total visitors, thus fulfilling one of the monument's objectives. However, NPS staff are underutilized during slower times, and may be overwhelmed at other times which affect visitor experience and safety.

- Shown top and bottom in blue graphs are alternative tour schedules for peak and off-peak days which achieves higher average tour utilization by implementing advance ticket sale policies.

  Tours are spaced at intervals intended to limit maximum visitor accumulation so as not to exceed available parking. Visitor accumulation is based on a three-hour average visit time. The induced change in demand patterns is illustrated by the green trendlines.

  While alternative schedules do reduce the total number of visitors with access to TICA resources, NPS staff are utilized more effectively and visitation levels are constant throughout the day, thus improving visitor experience.

Figure 6.1 Comparison of Tour Scheduling to Utilization



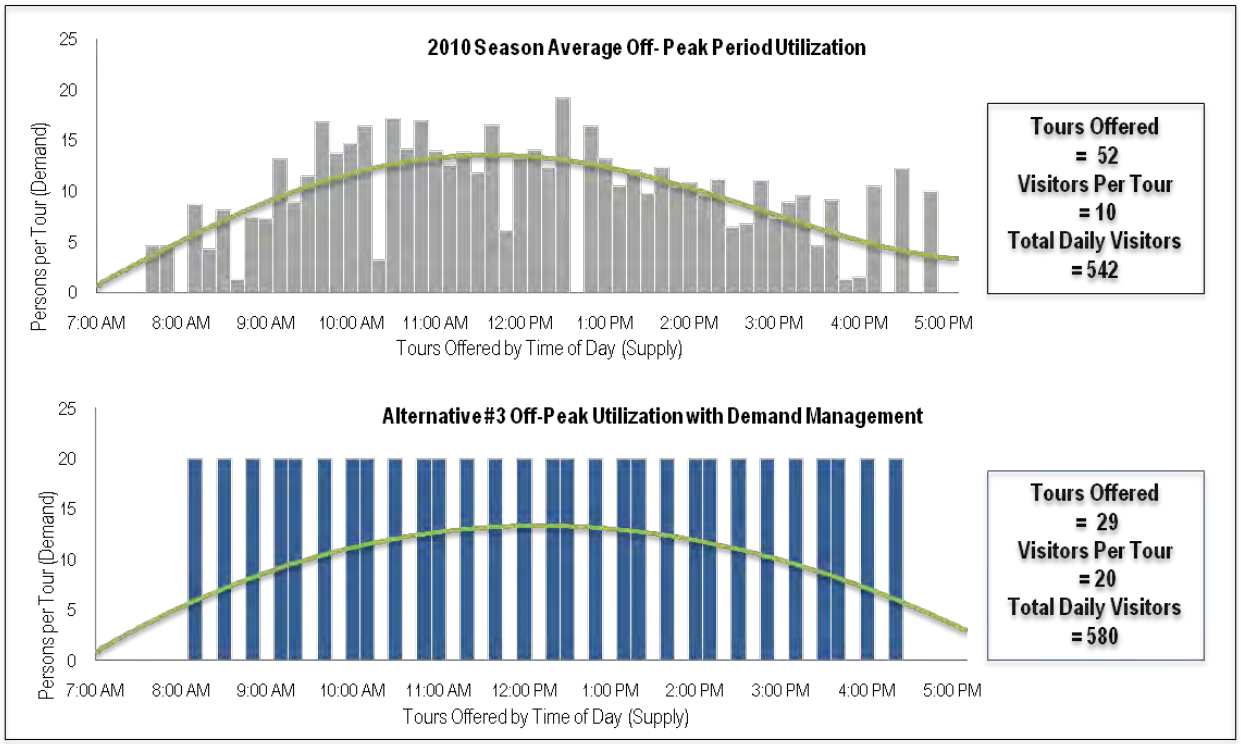
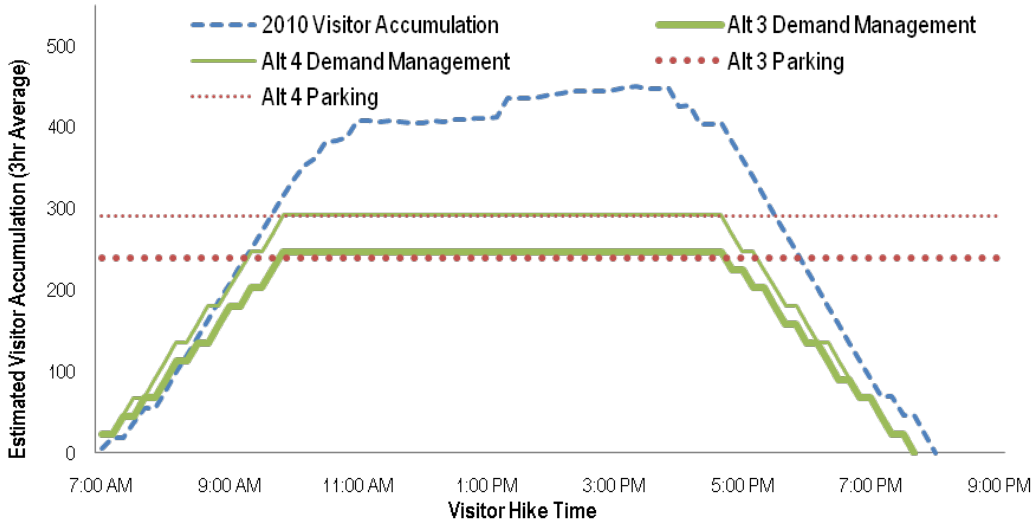


Figure 6.1 above is intended to illustrate current imbalances in supply and demand and to highlight the potential of alternative tour schedules in shifting demand patterns. To further illustrate the effects of proposed Alternative 3 and 4 demand management strategies on daily visitor accumulation, charts were prepared showing visitor accumulation patterns and a proposed alternative tour schedule is included for peak and off-peak days.

In Figure 6.2, historical peak-period visitor accumulation is shown as a blue dashed line with Alternatives 3 and 4 (those with parking constraints at the Canyon site) shown as thick and thin green lines. Because these alternatives do not involve a shuttle, visitation is limited by the availability of parking at the Canyon site. Parking capacities are shown as red dotted lines for each alternative. To best match tour demand with parking supply, alternative tour schedules encourages visitor use earlier in the morning until parking capacity is reached and then staggers tours by 10- and 20-minute increments to maintain, but not exceed, that capacity.

Figure 6.2 Peak-Period Visitor Accumulation
2010



Under the parking constraints imposed by Alternative 3, an alternative tour schedule must be implemented that reduces the likelihood of visitors bunching during peak times and advance sale policies must be in place to maximize tour utilization. It is assumed that the average visitor length is no more than three hours, which may be more readily achieved with fewer visitor interpretation and vendor services at the Canyon site and advance sales that reduce visitor wait times.

Table 6.1 compares TICA's current operating scheduling with the managed demand schedule proposed for Alternative 3. Key indicators contrast the number of tours offered, daily visitors accommodated and peak visitor accumulation from current levels with a proposed Alternative 3 schedule. Average operational

schedules for 2010 peak weekend and holidays are shown by 10-minute increment along with the average number of visitors purchasing tickets for each tour time, as based on actual ticket sales. The alternative schedule shown relies on demand management strategies to achieve higher average visitors per tour and staggers tours on 10- to 20-minute intervals in order to maximize visitation potential given visitor parking constraints.

Table 6.1 Proposed Alternative 3 Weekend and Holiday Tour Schedule

Peak-Period Historical Comparison and Proposed Managed Demand Schedule:

Key Indicators	2010	Alt #3
Number of Tours	58	37
Average Visitors per Tour	17	20
Daily Tour Total	1001	680
Peak Visitor Accumulation	409	248

Hike Time	2010 Schedule and Demand	Tour + Visitor Accumulation (Three-Hour Visit)		Alternative #3 Managed Demand Schedule	Tour + Visitor Accumulation (Three-Hour Visit)
7:00 AM	*5*	*6*		*20*	*23*
7:10 AM	*12*	*18*		*-*	*23*
7:20 AM	*-*	*18*		*20*	*45*
7:30 AM	*17*	*33*		*-*	*45*
7:40 AM	*15*	*46*		*20*	*68*
7:50 AM	*-*	*46*		*-*	*68*
8:00 AM	*19*	*64*		*20*	*90*
8:10 AM	*21*	*80*		*20*	*113*
8:20 AM	*19*	*97*		*-*	*113*
8:30 AM	*20*	*116*		*20*	*135*
8:40 AM	*20*	*133*		*-*	*135*
8:50 AM	*20*	*151*		*20*	*158*
9:00 AM	*19*	*170*		*20*	*180*
9:10 AM	*20*	*189*		*-*	*180*
9:20 AM	*18*	*206*		*20*	*203*
9:30 AM	*20*	*225*		*-*	*203*
9:40 AM	*18*	*244*		*20*	*225*
9:50 AM	*20*	*264*		*20*	*248*
10:00 AM	*18*	*283*		*-*	*248*
10:10 AM	*20*	*294*		*20*	*248*
10:20 AM	*19*	*302*		*-*	*248*
10:30 AM	*19*	*320*		*20*	*248*
10:40 AM	*18*	*325*		*-*	*248*
10:50 AM	*19*	*331*		*20*	*248*
11:00 AM	*17*	*349*		*-*	*248*
11:10 AM	*20*	*351*		*20*	*248*
11:20 AM	*20*	*355*		*20*	*248*
11:30 AM	*20*	*359*		*-*	*248*
11:40 AM	*18*	*359*		*20*	*248*
11:50 AM	*18*	*360*		*-*	*248*
12:00 PM	*19*	*362*		*20*	*248*

12:10 PM	22	363		20	248
12:20 PM	19	366		-	248
12:30 PM	20	370		20	248
12:40 PM	20	372		-	248
12:50 PM	20	375		20	248
1:00 PM	20	376		20	248
1:10 PM	20	378		-	248
1:20 PM	20	399		20	248
1:30 PM	20	402		-	248
1:40 PM	20	402		20	248
1:50 PM	20	403		-	248
2:00 PM	20	403		20	248
2:10 PM	20	405		-	248
2:20 PM	20	407		20	248
2:30 PM	20	407		20	248
2:40 PM	20	407		-	248
2:50 PM	20	407		20	248
3:00 PM	20	408		-	248
3:10 PM	20	409		20	248
3:20 PM	20	409		20	248
3:30 PM	20	408		-	248
3:40 PM	19	407		20	248
3:50 PM	20	404		-	248
4:00 PM	-	401		20	248
4:10 PM	20	403		20	248
4:20 PM	-	400		-	248
4:30 PM	21	402		20	248
4:40 PM	21	400		-	248
4:50 PM		400			225
5:00 PM		380			225
5:10 PM		361			203
5:20 PM		341			203
5:30 PM		320			180
5:40 PM		299			158
5:50 PM		279			158
6:00 PM		259			135
6:10 PM		239			135
6:20 PM		219			113
6:30 PM		199			90
6:40 PM		180			90
6:50 PM		160			68
7:00 PM		139			68
7:10 PM		121			45
7:20 PM		103			23
7:30 PM		81			23
7:40 PM		62			0
7:50 PM		39			
8:00 PM		20			

Notes 2010 averages derived from a sample of daily visitor reports. Visitor accumulation (Tour visitors + other visitors) assumes additional visitation of 12.5 percent and a three-hour average visit duration.

Peak weekend and holidays have different visitation demand patterns than off-peak weekdays. Current off-peak operating schedules at TICA do shorten the length of the day during which tours are offered, but still offer a number of tours many of which are not fully utilized by visitors. It is important to note that on off-peak days, more visitors may be accommodated than historical actual visitation patterns suggest. This provides an opportunity for TICA to accommodate those visitors not able to visit on peak days due to limited tour availability under the revised managed schedule. However only a portion of visitors turned away on weekends are likely to be willing and able to visit on weekdays instead. The data presented below do include group tour visitors and TICA may continue to accommodate groups under the revised schedules for each alternative.

In Figure 6.3, off-peak weekday visitor accumulation is shown as a blue dashed line with Alternatives 3 and 4 visitation shown in thick and thin green lines. Parking capacities are shown as red dotted lines for each alternative. In these alternatives, tour schedule changes encourage visitor use earlier in the morning until parking capacity is reached and then staggers tours by 10- and 20-minute increments to maintain, but not exceed capacity.

Figure 6.3 Off-Peak Period Visitor Accumulation
2010

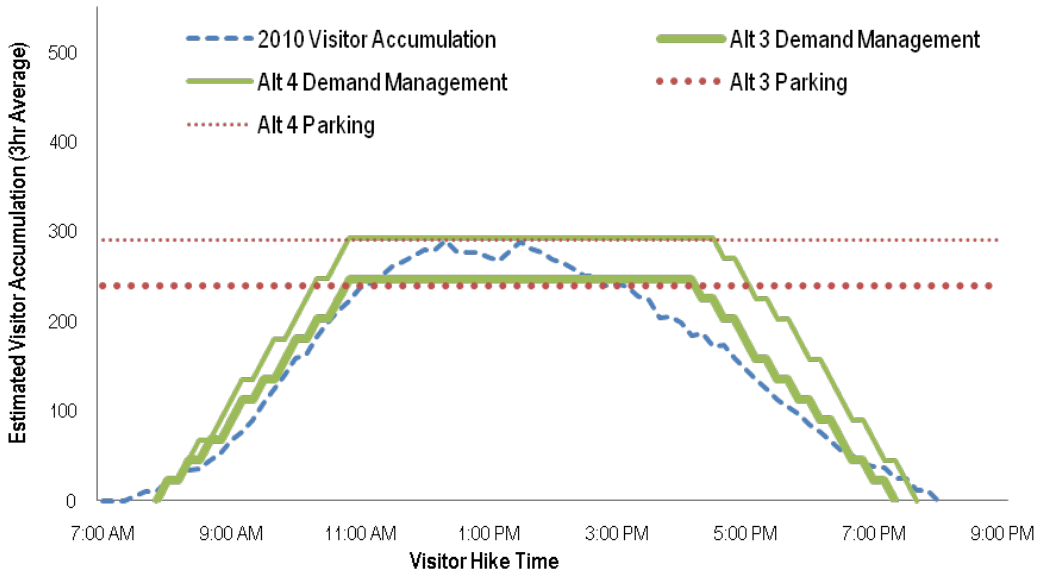


Table 6.2 compares TICA's current weekday operating scheduling with the managed demand schedule proposed for Alternative 3. Key indicators contrast tours offered, daily visitors accommodated, and maximum visitor accumulation of current operations with the Alternative 3 schedule. The table displays average operational schedules for 2010 weekdays by 10-minute increment along with the average number of visitors purchasing tickets for each tour time, as based on actual ticket sales. The alternative schedule shown relies on demand

management strategies to achieve higher average visitors per tour and staggers tours on 10- to 20-minute intervals in order to maximize visitation potential given visitor parking constraints.

Table 6.2 Proposed Alternative 3 Weekday Tour Schedule

Off-Peak Period Historical Comparison and Proposed Managed Demand Schedule:

Key Indicators	2010	Alt #3
Number of Tours	52	29
Average Visitors per Tour	10	20
Daily Tour Total	542	580
Peak Visitor Accumulation	290	248

Hike Time	2010 Schedule and Demand	Tour + Visitor Accumulation (Three-Hour Visit)		Alternative #3 Managed Demand Schedule	Tour + Visitor Accumulation (Three-Hour Visit)
7:00 AM	-			-	
7:10 AM	-			-	
7:20 AM	-			-	
7:30 AM	5	5		-	
7:40 AM	5	10		-	
7:50 AM	-	10		-	
8:00 AM	9	20		20	23
8:10 AM	4	25		-	23
8:20 AM	8	34		20	45
8:30 AM	1	36		-	45
8:40 AM	7	44		20	68
8:50 AM	7	52		-	68
9:00 AM	13	67		20	90
9:10 AM	9	77		20	113
9:20 AM	11	90		-	113
9:30 AM	17	109		20	135
9:40 AM	14	124		-	135
9:50 AM	15	141		20	158
10:00 AM	16	159		20	180
10:10 AM	3	163		-	180
10:20 AM	17	182		20	203
10:30 AM	14	198		-	203
10:40 AM	17	212		20	225
10:50 AM	14	222		20	248
11:00 AM	13	237		-	248
11:10 AM	14	242		20	248
11:20 AM	12	251		-	248
11:30 AM	17	260		20	248
11:40 AM	6	266		-	248
11:50 AM	13	272		20	248
12:00 PM	14	280		-	248
12:10 PM	12	279		20	248
12:20 PM	19	290		20	248
12:30 PM	-	277		-	248
12:40 PM	16	277		20	248

12:50 PM	13	276		-	248
1:00 PM	11	272		20	248
1:10 PM	12	267		20	248
1:20 PM	10	278		-	248
1:30 PM	12	288		20	248
1:40 PM	10	280		-	248
1:50 PM	11	277		20	248
2:00 PM	10	268		20	248
2:10 PM	11	265		-	248
2:20 PM	6	258		20	248
2:30 PM	7	250		-	248
2:40 PM	11	250		20	248
2:50 PM	7	239		-	248
3:00 PM	9	242		20	248
3:10 PM	10	238		-	248
3:20 PM	5	228		20	248
3:30 PM	9	224		20	248
3:40 PM	1	204		-	248
3:50 PM	2	206		20	248
4:00 PM	11	199		-	248
4:10 PM	-	184		20	248
4:20 PM	12	186		-	225
4:30 PM	-	172		-	225
4:40 PM	10	173		-	203
4:50 PM		159			203
5:00 PM		147			180
5:10 PM		135			158
5:20 PM		124			158
5:30 PM		112			135
5:40 PM		104			135
5:50 PM		97			113
6:00 PM		84			113
6:10 PM		76			90
6:20 PM		66			90
6:30 PM		55			68
6:40 PM		50			45
6:50 PM		40			45
7:00 PM		39			23
7:10 PM		37			23
7:20 PM		25			0
7:30 PM		25			
7:40 PM		11			
7:50 PM		11			
8:00 PM		0			

Notes: 2010 averages derived from a sample of daily visitor reports. Visitor accumulation (Tour visitors + other visitors) assumes additional visitation of 12.5 percent and a three-hour average visit duration.

6.2 ESTIMATING THE IMPACTS OF ALTERNATIVES

Given parking constraints under Alternatives 3 and 4, demand management strategies for those alternatives result in limitations to the total number of

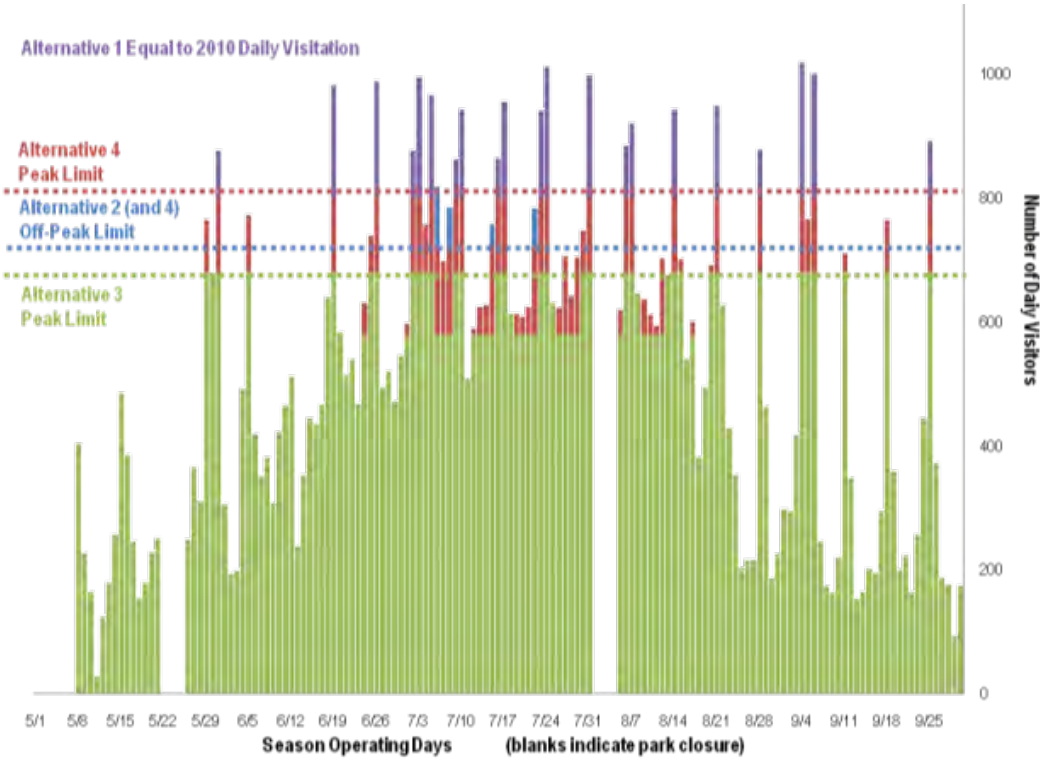
visitors TICA may accommodate. The alternative tour schedules proposed in the previous section were developed with the goal of enabling the maximum number of tour visitors possible, but also result in reduced visitation and thus ticket revenue to TICA.

To estimate the annual impacts on visitation of these alternatives, the daily peak and off-peak limits of Alternatives 3 and 4 were applied to actual daily totals from the 2010 season. This methodology offers a consistent means to evaluate alternatives by estimating the impact of these limits had they been in place during the 2010 season.

Figure 6.4 illustrates daily visitation levels (tour ticket holders and additional visitors) for the entire 2010 operating season. In the background, purple bars show visitation patterns for Alternative 1 which is also equal to 2010 visitor totals. Alternative 2 accommodates all peak weekend and holiday visitation with a combination of parking and shuttle service, but limits off-peak visitation to available parking at the Canyon site without a shuttle. In the figure, blue bars, show that there would have been only a few off-peak days in 2010 in which Alternative 2 would not have been able to accommodate all off-peak visitation. In the middle, red bars show the peak and off-peak limits of Alternative 4. Under this alternative, daily peak and off-peak visitation is limited to match visit patterns with available parking at the Canyon site. During popular months of the season, this alternative would have limited visitation on most weekends and some weekdays– – though still accommodating a majority of visitors.

In the foreground, green bars show the limits of Alternative 3 which limits daily peak visitation to 680 visitors and off-peak visitation to 580 visitors. Alternative 3 limits daily visitation totals most severely from late June to late August and particularly on popular holidays.

Figure 6.4 Alternative Visitation Totals
2010



These estimates are based on historical visit patterns and do not account for any future shifts in visit patterns in response to demand management strategies. Alternatives 2, 3, and 4 offer tour capacity on off-peak days that exceeds 2010 historical averages, suggesting excess availability that TICA may encourage visitors to utilize.

The estimated impacts of demand management strategies had they been applied at TICA during the 2010 operating season are described below and quantified in Table 6.1.

- Alternative 1 provides for no significant differences in daily or annual visitation compared to the 2010 baseline. Shuttle service is designed to meet the needs of peak visitation.
- Alternative 2 provides for peak-period visitation as shuttle service is designed to meet the needs of peak visitation. Off-peak visitation is limited to 720 visitors based on the current park operating procedures of reduced staffing and operating hours on weekdays, though under a full schedule and staff, parking could accommodate as many as 800 daily visitors. This alternative is estimated to have a negligible impact on annual visitation of less than one percent, and is a result of park operations rather than parking constraints.

- Alternative 3 provides the least parking available for visitors and the greatest impact on daily and annual visitation. Peak-period capacity is limited to 680 visitors, significantly less than are accommodated on many holidays and popular weekends. The resulting estimated reduction in annual visitation is greater than 10 percent, or nearly 8,000 visitors. This reduction may be mitigated by increasing tours offered on off-peak days and encouraging visitation during off-peak days.
- Alternative 4 provides for parking sufficient to meet average off-peak visitation and is consistent with current park operations of reduced staff and operating hours on weekdays. Peak-period visitation is limited to a maximum of 800 daily visitors and 40 tours. Estimated annual reduction in visitation is 5 percent or approximately 3,000 visitors.

Table 6.3 Estimated Impacts of Demand Management Strategies

	2010 Baseline		Alternative 1		Alternative 2		Alternative 3		Alternative 4	
	Tours	*Visitors*	*Tours*	*Visitors*	*Tours*	*Visitors*	*Tours*	*Visitors*	*Tours*	*Visitors*
Season Total	5,729	71,282	*No change*		5,435	71,018	4,268	63,341	5,025	68,070
Daily Average	42	517	42	517	39	515	31	459	36	493
Seasonal Change			*No change*		*-5%*	*< -1%*	*-26%*	*-11%*	*-12%*	*-5%*
Peak *Max*			*No change*		*No change*		*34*	*680*	*40*	*800*
Off-Peak *Max*			*No change*		*36*	*720*	*29*	*580*	*36*	*720*

Source: Analysis by Cambridge Systematics, Inc. Data provided courtesy of National Park Service.

7.0 Value Analysis

The alternatives for providing visitor access to the Canyon site at Timpanogos Cave National Monument (TICA/monument) were assessed and compared using the Value Analysis/Choosing-by-Advantages (VA/CBA) process, as required for all major investments being considered by the National Park Service. VA/CBA is a structured, value-based decision-making process that focuses on the key functions to be provided by the proposed investment and the advantages of each alternative in meeting-defined functional requirements. The VA/CBA process was conducted at a workshop held in Highland, Utah on January 10 and 11, 2012. The results of the VA/CBA for the TICA visitor access alternatives are documented in a separate report included in this report as Appendix C. This section provides a brief overview of the VA/CBA process and results.

7.1 VALUE ANALYSIS OBJECTIVES

The VA/CBA process is used by the National Park Service to assure that decisions on major project investments are based on the value added by the various alternatives under consideration in relation to the cost of the alternatives. The VA/CBA process is used to make the best choice among the available alternatives considering the functions that the project is intended to provide, the relative ability of the alternatives to provide those functions, and the relative life-cycle costs associated with each alternative. The VA/CBA process also helps to identify refinements to the alternatives that can add value at a reasonable cost.

7.2 VALUE ANALYSIS PROCESS

The value analysis process includes the following phases:

- **Information Phase –** Information on existing conditions and project background information is assembled.
- **Functional Analysis Phase –** The goals and objectives of the project are translated into primary and secondary functions that must be provided, along with components of the project that are intended to provide those functions.
- **Creativity Phase –** The project alternatives are reviewed and alternative ways of achieving the defined functions are identified and discussed.
- **Evaluation Phase –** The alternatives, including any refinements identified in the creativity phase are evaluated to identify the best value among the alternatives. Choosing-by-advantages has been adopted by NPS as the means of conducting the evaluation phase.
- **Development Phase –** The results of the evaluation are reviewed and any refinements to the preferred alternative are identified.

- **Recommendation Phase –** The rationale for the choice of the preferred alternative is developed and reviewed.
- **Implementation Phase –** Occurs after the project recommendations are forwarded to the National Park Service Development Advisory Board for review and concurrence.

The VA/CBA process can involve four to five days of intense work on the part of a review team that typically includes representatives from the NPS park unit, NPS regional administration, other stakeholders that may be directly impacted by the project, the project planning and design team and independent subject matter experts.

For projects in the predesign stage of project development, NPS applies a streamlined version of the VA/CBA process so that recommendations can be developed in one or two days. This streamlined process was used for the TICA Alternative Transportation Study. A study team, including TICA staff members, NPS Denver Service Center and Intermountain Region staff members, managers from other NPS units in the region, the U.S. Forest Service, the architectural design team and the Cambridge Systematics planning team participated in the two-day workshop, which was held at the Highland Municipal Offices on January 10 and 11, 2012.

The consulting team assembled relevant data and materials for the Information phase of the VA/CBA process. The information was circulated to the study team in advance of the workshop and was reviewed at the workshop. The consulting team prepared a draft Functional Analysis System Technique (FAST) diagram for the project in advance of the workshop to streamline the Functional Analysis phase of the process. The FAST diagram uses simple phrases to define the key functions to be provided and the means of providing the functions. The required functions for NPS projects are derived from the National Park Service agency goals established in response to the Government Performance and Results Act (GPRA). The goals are organized into the following categories:

- Protect park resources;
- Provide for the public enjoyment and visitor experience of parks;
- Strengthen and preserve natural and cultural resources and enhance recreational opportunities managed by partners; and
- Ensure organizational effectiveness.

The VA/CBA process as implemented by NPS translates the GPRA goal categories into the following topic areas to identify key functions:

- Protect and enhance natural and cultural resources;
- Provide for visitor enjoyment;
- Protect and enhance visitor and employee safety and security;

- Maintain and improve operational efficiency, reliability, and sustainability; and
- Provide other benefits to the National Park Service.

The FAST diagram identified basic and secondary functions and strategies for achieving the specific objectives of the TICA project in each of the topic areas. The study team reviewed the FAST diagram at the workshop. Additionally, to assure that all key functions were included, the study team independently identified the key functions for the project using simple phrases. The consulting team confirmed that all of the phrases identified at the workshop were included in the FAST diagram.

The creativity phase of the process was conducted at the workshop. The design team presented the four planning alternatives for review by the study team. Site plan drawings were prepared for the Highland site and the Canyon site for each alternative. Potential refinements were discussed and those with merit were carried forward into the evaluation phase.

The CBA process was used to conduct the evaluation phase of the process. The planning team worked with the design team in advance to prepare materials for the CBA to streamline the process. CBA is a process for identifying the preferred alternative that focuses on the importance of the advantages of the alternatives relative to one another. CBA is based on the key concepts of factors, attributes, and advantages. A factor is an element or component of a decision, which is important to the decision-makers and for which there are differences across the alternatives. An attribute is a characteristic or consequence of one alternative relative to one factor. An advantage is a favorable difference in the attributes of one alternative compared to another alternative for one factor.

The attributes of the alternatives under consideration in a CBA are arrayed in a matrix, with the alternatives across the top of the matrix and the factors along the left side of the matrix. The attributes for each alternative are entered in the cells of the matrix where the alternatives and factors intersect. Advantages are determined by comparing the attributes of the alternatives across each factor and they are presented below the attribute statements. For every factor, the alternative with the least favorable attributes is identified as the least preferred alternative and advantage statements are developed that describe the advantages of the other alternative compared to the least preferred.

The planning team identified the factors to be considered in making a decision among the TICA alternatives and prepared draft attribute descriptions for the alternatives across all of the identified factors. During the workshop, the study team made changes to the factors and refined the attribute descriptions. Based on the refined descriptions of the attributes, the study team collaborated on developing advantage statements for the alternatives, addressing all of the factors. The study team then determined scores (from 0 to 100) for the importance of the advantages for the alternatives across all the factors, using a facilitated pair-wise comparison process. Based on the importance scores, the

total importance was calculated for each alternative using a specially developed Excel worksheet. After total importance was determined, the alternatives were arrayed from lowest life-cycle cost to highest and the relationship between cost and total importance was assessed to identify the alternative with the best value. The study team then identified refinements to be considered to the preferred alternative and next steps for the project development process.

7.3 VA/CBA RESULTS

Alternative 3 was determined to have the greatest total importance and to be the best value alternative. Alternative 3 has the following important advantages in the major goal areas compared to the other alternatives:

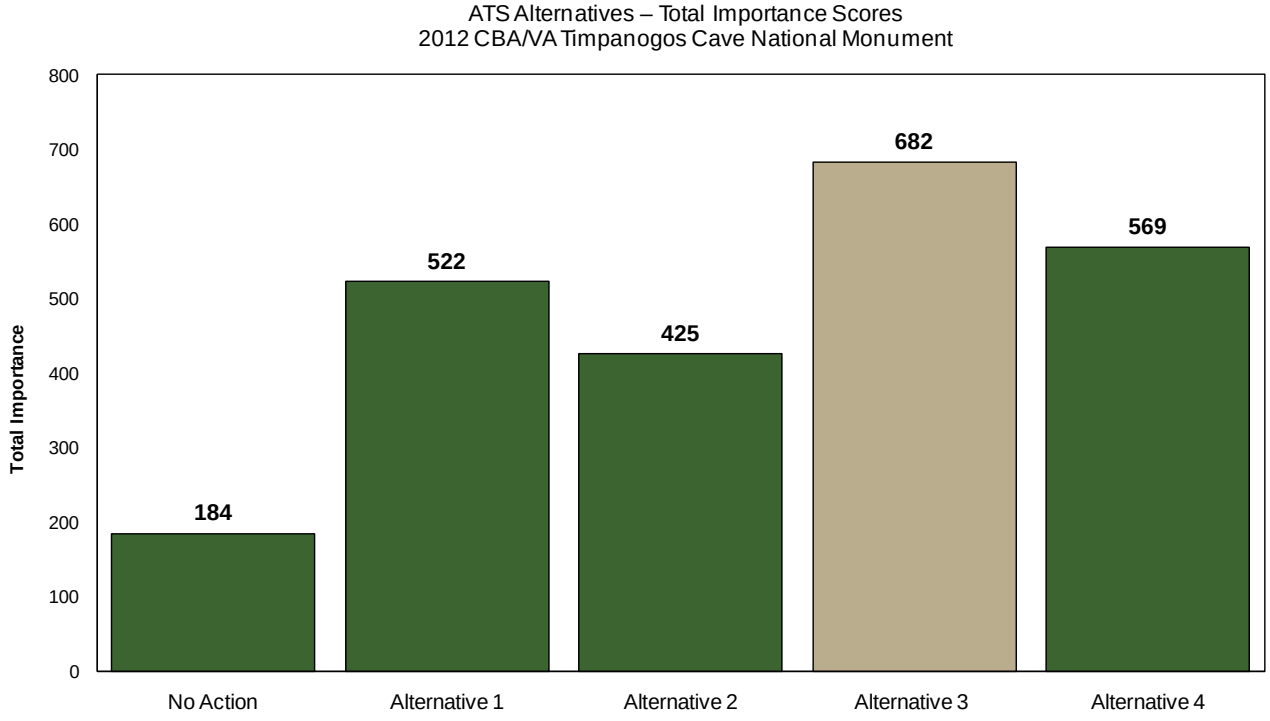
- ***Protect Natural, Cultural and Historic Resources:***
  - Much less soil and vegetation damage associated with informal parking and social trails.
- ***Protect Employee and Public Health, Safety, and Welfare:***
  - Provides a major reduction in pedestrian conflicts with traffic on SR 92 (only 10 parking spaces across road);
  - Provides a major reduction in parking conflicts with traffic on SR 92 (only 10 parking spaces which must reverse into roadway);
  - Provides the greatest reduction in rock fall hazards to facilities due to removal of buildings from hazard zone; and
  - Provides the greatest reduction in time spent and numbers of people in rock fall zone.
- ***Provide for Visitor Enjoyment Through Improved Educational and Recreational Opportunities:***
  - Provides some additional flexibility to manage visitor use;
  - $3 to $10 lower ticket price relative to other alternatives involving a shuttle service;
  - Much less need for mode changes and fewest visitors from the east required to travel out of direction;
  - Much more consistent access to TICA; and
  - Much less crowding on cave trails and tours.
- ***Improve Operational Efficiency, Reliability and Sustainability:***
  - Much lower ongoing maintenance requirements and much less need to direct traffic and manage parking; and
  - Offers much more flexibility for future development.

Although this alternative had the lowest visitation capacity, the above listed advantages outweigh this disadvantage. The design for the improvements will

preserve the option to implement a shuttle system in the future, should this become more feasible.

Figure 7.1 shows the total importance scores for the alternatives considered in the CBA, demonstrating that Alternative 3 had the highest total importance among the alternatives.

Figure 7.1 Total Importance Scores of Alternatives



7.4 IMPLEMENTATION OF PREFERRED ALTERNATIVE

Stakeholders briefly discussed potential refinements, phasing of design and construction, and important considerations for implementation of the preferred alternative.

No substantive changes to the preferred alternative were offered during the CBA/VA workshop process. However, to enhance operation efficiency and future flexibility of the alternative, stakeholders were in agreement that future site design refinements should plan for, or at least not preclude, implementation of a transit system. It was suggested that parking layout and roadway realignment at both Canyon and Highlight sites be developed with transit vehicle access points, turn-outs, and staging areas in mind. This key point will be adapted into the preferred alternative and will be transferred to future planning and phasing processes.

Stakeholders also acknowledged that future refinements to project costs and design enhancements to the site plan will occur as more information becomes available. For example, the design and costs presented for the visitor contact station and additional enhancements at TICA's Canyon site were preliminary and will be revised in later planning and design stages. Additional information on the cost and project timeline for realignment of State Highway 92 also will be developed and may affect future decision-making.

Following the workshop, stakeholder discussion focused primarily on strategically phasing planning, design, and construction of the various projects associated with the preferred alternative. Careful implementation planning will help to minimize impacts to TICA and U.S. Forest Service recreation area visitors; to leverage currently planned or funded projects; and to best coordinate with project partners, including the Federal Highway Administration and Utah Department of Transportation.

8.0 Next Steps

Various activities will continue to be undertaken toward the implementation of the findings of this study and the eventual development of the Highland and Canyon sites for Timpanogos Cave National Monument (TICA/monument).

Continue Refinement of Alternative Components: Detailed design schematics and cost estimates will be produced through separate processes for key components of the alternative.

- Design of the Canyon visitor contact station and parking accommodations is currently underway and will provide key inputs into future value analysis and environmental impact processes.
- The Denver Service Center, in cooperation with the NPS Intermountain Regional Office (IMRO), Federal Highway Administration's Office of Federal Lands Highway and UDOT will develop detailed cost and construction impact estimates for the realignment of SR 92.

Phased Construction of Alternative Components: The proposed alternative involves major reconstruction of TICA facilities at the Canyon site and realignment of heavily traveled state roadway. Construction may be phased to minimize impacts associated with these projects and to best advance the alternative.

- Environmental permitting requirements could require a lengthy review process and needs to be considered within the overall schedule.
- Construction of the rock fence and proposed safety enhancements may occur before other major roadway and visitor facility construction commences.
- Demolition or repurposing of Mission 66 structures may occur in coordination with development of NPS administrative facilities at the Highland site.
- Roadway realignment and construction of the new visitor contact station may be timed during less-frequently visited off-season months for both TICA and the USFS recreation area.

Plan and Leverage Funding Sources: NPS staff will work to align project funding with proposed implementation timeline for the alternative.

- Funding for the proposed safety rock fence already has been advanced into the NPS Project Management Information System.

Complete Environmental Assessment and FONSI (Finding of No Significant Impact): NPS will select and refine a preferred alternative after completing an environmental assessment and public involvement process consistent with NEPA (National Environmental Policy Act) requirements.

Implementing the recommendations of this value analysis and feasibility study will be coordinated with the NPS IMRO, TICA management, and key project partners as work progresses in the future. Additional value analysis processes may be required at later design stages to select preferred functions and facilities at each development site.

Appendix A

Existing Conditions Report

CAMBRIDGE SYSTEMATICS

Timpanogos Cave National Monument

Alternative Transportation Feasibility Study [TICA – 172474]

Existing Conditions and Baseline Analysis

DRAFT

prepared for

National Park Service

prepared by

Cambridge Systematics, Inc.

with

David Evans & Associates, Inc.
IBI Group, Inc.

December, 2011

www.camsys.com

draft report

Timpanogos Cave National Monument

Alternative Transportation Feasibility Study [TICA – 172474]

prepared for

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David Evans & Associates, Inc.
IBI Group, Inc.

date

December, 2011

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Summary of Findings

This Existing Conditions and Baseline Analysis Report provides a basis for the development of feasible alternatives to address parking capacity and safety issues at the Timpanogos Cave National Monument (TICA). Preparation of this report involved an intensive data collection effort, undertaken over the Labor Day weekend, September 2 through 5, 2011. Major findings from that effort and other available data pertaining to visitation characteristics, fee collection, and potential funding sources are summarized below. A detailed discussion of these findings is provided in the body of this report.

Park Operations

- TICA is located within Uinta-Wasatch-Cache National Forest which is under the jurisdiction of the U.S. Forest Service (USFS). The USFS operates two fee stations at the entrances to American Fork Canyon in partnership with the National Park Service (NPS).
- Fees collected at the two entrances to American Fork Canyon are shared between multiple recreation fee partners including: USFS, NPS, Wasatch Mountain State Park Snowmobile Grooming, Utah Department of Transportation Fee Area Road Enhancement Work, Utah County Law Enforcement Support, Utah County Search and Rescue, Timpanogos Emergency Response Team, and Utah Avalanche Center.
- Timpanogos Cave National Monument is one of numerous destinations within the recreation area. Forest Service attractions include Tibble Fork Reservoir, multiple hiking trails, and campsites.

Park Visitation Patterns

- A 2005 survey found 34 percent of visitor groups reported their primary reason for traveling to the Timpanogos Cave area (within 50 miles) was to visit Timpanogos Cave NM. Sampling of visitors at the west and east kiosk found that 20 percent of the visitor groups entering American Fork Canyon from the west and 11 percent of the visitor groups entering the canyon from the east planned to take cave tours.
- The number of cave tours offered directly impacts demand to visit the Monument. Cave tours are provided in 10 to 20 minute intervals from 8:00 am to 4:00 pm. Based on ticket sales during Labor Day weekend in 2011, Monday had the highest number of visitors with 928 visitors on tours, Saturday visitation was 902, and Sunday visitation 789.

Park Access and Parking Conditions

- Access to the Monument is via State Highway 92 (SR 92) and is only available through the use of private vehicles (including private buses for tour groups). Most visitors who access the Monument (approximately 70 percent) come from the west, passing through the American Fork Fee Station entrance to the Uinta-Wasatch-Cache National Forest. The other 30 percent enter from east through the Aspen Grove Fee Station.
- A cave tour takes approximately one hour. With the hike up to and back from the cave entrance, the overall tour takes approximately three hours to complete depending on the speed at which a visitor hikes. Parking duration near the cave trailhead averaged three hours.
- Designated parking at the cave trailhead and visitor center includes two parking lots with a total of 85 paved spaces, including emergency and handicapped stalls. These lots are used by visitors as well as National Park Service and concessions employees. Overflow parking occurs primarily at gravel parking lots located along SR 92 within 1/2 mile of visitor center. The parking facilities serving TICA are over capacity on weekends and holidays for six to eight weeks during peak period visitation in summer months.
- Swinging Bridge picnic area provides 22 parking spaces within 1/8 mile of the visitor center, but this area appears to be overlooked by cave visitors. This may be a result of limited signage directing visitors to alternative and overflow parking along SR 92.
- Pedestrian facilities are limited to a marked crosswalk connecting the north and south lots near the visitor center. There are no sidewalks along SR 92 and pedestrians cross the highway to reach the visitor center from the north lot, Swinging Bridge parking area, and informal parking on shoulders of the highway.

1.0 Introduction

1.1 STUDY GOALS

This Alternative Transportation Feasibility Study (study) is being undertaken to identify a range of transit and non-transit options for providing visitor access to Timpanogos Cave National Monument (TICA) in Utah County, Utah. In particular, the study will determine if a shuttle bus system to the monument from a proposed United States Forest Service (USFS) and National Park Service (NPS) interagency visitor center at the mouth of American Fork Canyon is feasible. The results of this study will inform ongoing planning and design activities for the interagency facility at the mouth of the canyon and for facilities at the monument site. If this study determines that providing visitor access to the monument using shuttle buses is feasible, specific alternatives would be further evaluated through National Environmental Policy Act compliance activities.

The ultimate goal of this project is to improve visitor access and safety at Timpanogos Caves National Monument. Currently, traffic and parking congestion creates pedestrian and vehicle conflicts along State Highway 92 (SR 92) especially when pedestrians cross the highway to access the visitor center and when parking is unavailable in designated parking areas. This project will identify a range of transportation strategies and combinations of strategies that could improve visitor access to TICA, relieve congestion, improve safety conditions, and enhance visitor experience. The identified strategies could also reduce energy use and limit transportation system impacts on sensitive resources.

The purpose of this existing conditions and baseline analysis report is to convey an understanding of current conditions by documenting the results of data collection during the Labor Day weekend in 2011. Data sampling and analysis included traffic volumes, parking utilization, trail activity, vehicle occupancy, and visitor accumulation data. This report also reviews applicable plans and policies, documents the existing setting, and inventories transportation infrastructure (roadways, trails, parking, transit and other elements) characteristics and conditions.

The data and analysis presented here will inform the identification of alternative transportation strategies that address the major goals of this study.

1.2 STUDY PARTNERS

The National Park Service commissioned the Timpanogos Caves National Monument Alternative Transportation Feasibility Study. The study includes close coordination and consultation with the USFS, as a major partner in the project. In support of this effort, the transportation planners from Cambridge Systematics, Inc. (CS), David Evans and Associates, Inc. (DEA), and the IBI Group were contracted to review existing data, conduct research and develop visitor access and transportation solutions for the study. The study will also examine opportunities to achieve enhanced intermodal interconnectivity with existing and planned regional networks by coordinating with Utah Department of Transportation (UDOT), Utah Transit Authority (UTA) and the local communities. The study provides a means for TICA and its partners to work together to address the numerous transportation issues that are central to the improvement of visitor safety, access, and experience.

1.3 STUDY BACKGROUND

During peak visitor season, for six to eight weeks each summer, parking utilization is over capacity at the monument's visitor center, in overflow parking areas located across State Highway 92 and in additional parking along the shoulders of SR 92. Visitors parking across and along SR 92 must cross the busy highway to access the TICA visitor center and cave trailhead. The crossing of SR 92 creates a dangerous pedestrian environment with potential for pedestrian and vehicle conflicts. In addition, vehicles parked along the road shoulders often back into traffic along the narrow and winding road creating hazardous conditions. The monument's visitor center is located below an active talus slope in a steep and narrow canyon and the potential for rock fall presents a hazard to visitors and employees. Furthermore, much of the monument visitor center parking is within the 100-year floodplain of American Fork Creek.

In response to the identified hazards, the 1993 General Management Plan (GMP) and Development Concept Plan/Environmental Impact Statement recommended moving the majority of TICA facilities out of the canyon to a safer and more operationally functional location at the mouth of American Fork Canyon. A proposed shuttle bus system between the new facility and the cave trailhead would provide the primary means of visitor access to the monument. The 1993 GMP also recommended that NPS explore partnering with USFS to develop an interagency facility at the mouth of American Fork Canyon.

In 2001, the United States Congress passed the Timpanogos Interagency Land Exchange Act requiring the acquisition of land suitable for the Interagency Center for the U.S. Forest Service's Uinta-Wasatch-Cache National Forest Pleasant Grove Ranger District and the National Park Service's Timpanogos Cave National Monument. The Forest Service

completed the transaction in 2005, acquiring 37.5 acres at the mouth of American Fork Canyon.

The interagency facility for Timpanogos Cave National Monument and the Uinta-Wasatch-Cache National Forest, Pleasant Grove Ranger District is currently under design. A new, year-round visitor center is proposed at the "Highland" site (located at the western mouth of the canyon). This facility is proposed to incorporate new visitor components and house administrative functions for both the USFS and NPS organizations. Additionally, the Forest Service will locate maintenance and fire cache operations at the Highland site. In conjunction with the development of the Highland site, a new visitor contact station is proposed for the "Canyon" site adjacent to the trailhead to Timpanogos Cave.

A 2010 Value Analysis (VA) study for the construction of the interagency facility identified a shuttle bus system to transport visitors to the cave trailhead as part of the preferred concept for TICA. The VA recommended further analysis of shuttle capital and operational costs. However, the NPS and Federal Highway Administration (FHWA) has prepared concept designs for facilities at the cave site to improve safety and expand parking in the event that a transit system is not feasible.

The redesign of facilities at the cave trailhead site would provide safety improvements by relocating the visitor and concessions facilities out of the most hazardous rock fall area. The proposed design also includes new parking facilities and revised traffic flow patterns, including the realignment of SR 92 to reduce the need for visitors to cross the highway.

The design of the interagency facility at the Highland site and the design of facilities at the cave trailhead need to reflect the planned means of visitor access to the cave trailhead. If a shuttle bus system provides visitor access to the cave, additional parking and possibly other visitor facilities will be needed at the Highland site, while fewer facilities would be needed at the cave trailhead. Conversely, if all visitor access continues to be in private vehicles, more parking and visitor facilities will be needed at the cave trailhead.

1.4 SUMMARY OF RELATED PLANS

The following plans were reviewed for their relevancy to the project and to provide a contextual framework to guide alternatives development:

National Park Service, "Timpanogos Caves National Monument Environmental Impact Statement, General Management Plan, Development Concept Plan." August 1993.

A General Management Plan (GMP) was prepared to guide long-term development, management, and use of the Timpanogos Cave resources. The plan identifies the environmentally preferred alternative, which is to be implemented by the NPS as funding becomes available. The preferred

alternative is to move primary visitor facilities outside of the immediate monument area to reduce natural dangers in rock fall and floodplain zones and to resolve conflicts among vehicles and pedestrians. The plan also calls for close coordination with the USFS for joint facilities.

Specific to this project, the GMP identifies a mandatory transportation system or shuttle system to transport visitors and employees from the visitor center at the mouth of American Fork Canyon to the cave trailhead. The plan notes that a shuttle bus staging area will require an adjustment of the alignment of State Highway 92 at the cave trailhead. The plan calls for three, 40-person shuttle buses; one of which would be a back up bus in the event one of the other two break down. The need for two buses was based on the estimate that round trip from the visitor center to the trailhead and back again would take 20 minutes including loading and unloading. The estimate of buses is also based on tour sizes of 20 people with six tours per hour. The fee for the bus (as identified in 1993) would be $1.46 per person to break even based on 82,517 average yearly visitors and estimated annual operating costs of $120,786. The analysis assumed the shuttle would be operated by NPS. If the shuttle were operated by an outside vendor, costs could increase to cover profit. The proposed parking area at the Highland site visitor center would provide spaces for 153 vehicles, including, 3 buses, 35 over-sized vehicles, and 115 regular-sized vehicles.

National Park Service, "Timpanogos Cave National Monument Long-Range Interpretive Plan." December 2010.

The Interpretative Plan provides the outline for the monument's interpretive programming including key messages, stories, and desired visitor experiences. The goal of the interpretive planning process is to "guide interpretive staff in developing a cost-effective, tightly focused, high-quality interpretive program that engages all audiences, enhances visitor experiences, and achieves management goals."

Of the established visitor goals, the following is most applicable to this project:

"Visitors want a monument experience that is safe, well-marked without confusing directions, and reasonably comfortable with adequate facilities (restrooms, waiting areas, concessions, parking, etc.)."

Federal Highway Administration, Federal Transit Administration, National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, "Federal Lands Alternative Transportation Systems Study Summary of National ATS Needs." Volume III. August 2001.

The goal of this national study was to identify opportunities for application of alternative transportation systems (ATS) on Federal Lands to ease congestion at recreation site where undesirable transportation conditions were found to be "compromising visitor experience and

degrading natural, cultural and historic resources." The study tasks included:

- Identifying existing and potential problems related to congestion, resource impacts, and visitor experience that might be addressed by transit;
- Identifying and describing transit needs at sites managed by federal agencies;
- Quantifying, on a national basis, transit needs for each of the three agencies including project development, capital, and operating and maintenance costs;
- Describing potential benefits from successful implementation of ATS including protecting the site's natural, cultural or historic resources, improving transportation services, increasing economic development in surrounding communities, and improving the visitor experience; and
- Providing a potential framework for a funding program to implement transit systems on federally-managed lands.

Volume III of the Federal Lands ATS report summarizes the transit needs identified at sites managed by the NPS, the U.S. Fish and Wildlife Service, and the Bureau of Land Management. Specific to the TICA, Table 4-1 of the report identifies the monument as a site where transit needs were identified. Table 4-2 identifies the monument as needing new transit in the form of "other bus."

National Park Service, "DRAFT Schematic Design Document: Interagency Center American Fork Utah." August 2010.

In April 2010, ajc architects was contracted by the National Park Service to work with the NPS Denver Service Center, the Timpanogos Cave National Monument, the U.S. Forest Service and Uinta National Forest Pleasant Grove Ranger District, to design new interagency facilities. In May 2010, ajc architects began the schematic design phase, working with the NPS and USFS to develop alternatives for each of the facilities. In July 2010, three design alternatives for each facility were evaluated using the NPS Choosing By Advantages decision-making process. The preliminary design was intended to form the foundation for subsequent design development. As represented in the document, the design does not include transit or shuttle bus facilities, but instead a realignment of State Highway 92 to provide additional parking at the current TICA visitor center site.

National Park Service, "Timpanogos Interagency Center & Replace/ Relocate Unsafe/ Unhealthy/ Unsustainable Visitor Facility Value Analysis No. 1." Functional & Operational Elements Draft Report January 2011.

A recent NPS value analysis identified and evaluated a number of functional and operational alternatives to determine needed park facilities. The process identified a preferred alternative which included a shuttle bus system which is described as:

"This alternative is the closest to the original 1993 GMP proposal. It includes a small visitor contact station and restrooms in the canyon at the cave trailhead in conjunction with dramatically reduced parking, a Highland site with substantial visitor center in conjunction with NPS and FS administrative offices and FS fire/maintenance building. Cave ticket sales would be from the Highland site and a large parking area would be provided there. A shuttle bus system would transport visitors from the Highland site to the cave trailhead."

The preferred alternative was determined by key NPS stakeholders through the Choosing by Advantage process in which decisions are based on the importance of advantages between alternatives.

National Park Service, "Intermountain Region Transportation System Plan." Date Unknown.

The Intermountain Region Transportation System Plan provides the framework for multimodal access to National Park Service units within the Intermountain region. The plan identifies where investments should be made to take advantage of existing infrastructure while "enhancing visitor experience, to reduce impacts to resources, connect with nearby communities, and respond to emerging challenges such as sustainability and climate change."

The plan includes four goals and corresponding objectives: Asset Management and Mobility; Access and Connectivity; Visitor Experience; and Sustainable Operations. NPS projects must be consistent with the goals and objectives of the plan. The access and connectivity goal is the most relevant for this TICA ATS:

"Provide a multimodal park transportation system with seamless connections within each park and to surrounding communities where opportunities exist."

Central Federal Lands Highway Division, "Utah Forest Highway Long Range Transportation Plan 2010-2030." April 2010.

Established by the passage of the Federal Highway Act of 1921, specific roadways in national forests across the U.S. were designated as Forest Highways (FHs) due to the benefits they provide to the national forests, states, and local communities. The portion of State Highway 92 in the study area is designated a Forest Highway.

The 20-year transportation plan describes the Utah Forest Highway Program and identifies the long-range goals for the program. The plan is the product of the Tri-Agency partnership including representatives from the Utah Department of Transportation (UDOT); the U.S. Forest Service; and the Federal Highway Administration (FHWA). The plan is intended

to help the Tri-Agency make investment decisions for planning, safety management, preservation, and construction on FHs in Utah. The vision of the Utah FH Program is to advance Utah's FH network in a manner that facilitates responsible care for the land, while providing an enhanced user experience to and within Utah's USFS lands.

The plan specifies that alternative transportation modes must be considered when proposed projects are evaluated. Applicable goals to this TICA ATS project include:

- Access and Mobility: Provide sustainable access to Utah national forests for utilization and enjoyment of the USFS lands and resources.
- Funding and Economic Development: Utilize innovative partnerships to fund FH projects and to support economic development opportunities at the local, regional, and national level.
- Natural Resource Protection: Maintain leadership in protecting and enhancing the natural environment.

Mountainland Association of Governments, "2040 Metropolitan Transportation Plan 2011 – 2040." May 2011.

The Metropolitan Transportation Plan (MTP) is a guide to maintain and enhance the regional transportation system and the economy in the Mountainland region, which includes much of Utah County. The MTP specifies a coordinated system of capital-intensive roadway projects, pedestrian/bicycle facilities, and transit improvements needed during the next thirty years, while conforming to the requirements of the Federal Clean Air Act. Maps that accompany this plan show the following which provide context for the project:

- Identified "Bicycle and Pedestrian" projects include a paved trail from Highland to the monument.
- Identified "Transit Projects" include enhanced bus or rapid transit along State Highway 92 east to N 4800 W Street with connections to Salt Lake City.

1.5 STUDY SETTING

Timpanogos Cave National Monument (TICA), consisting of 250 acres, is located 35 miles southeast of Salt Lake City, Utah. The National Monument was established by Presidential Proclamation in 1922 stating that the natural cave formations are of unusual scientific interest and importance. Timpanogos Cave formations are the monument's primary resource. The cave system is uniquely known for its abundance of helictites and the coloration of its formations.

The monument is surrounded by the Uinta-Wasatch-Cache National Forest, which encompasses nearly 2.1 million acres of recreational lands

and designated wilderness and is one of the most visited forests in the nation. The monument is within American Fork Canyon, which is one of the most visited and recreated areas along Utah's Wasatch Front Range. The monument and forest are accessed via State Highway 92 (SR 92) a Utah Scenic Backway, also known as the Alpine Scenic Loop. At the mouth of American Fork Canyon, the U.S. Forest Service (USFS) and National Park Service (NPS) jointly operate and staff an entrance fee station, which collects a fee for all visitors entering the canyon.

Park Facilities and Operations

National Park Service rangers conduct interpretive tours of the cave resource for a fee of $3 to $7, depending on age. The caves are open daily for frequent tours, to groups of up to 20 persons. Smaller, limited tours are offered for advanced cave tours. Tour tickets may be purchased up to 30 days in advance by phone or in person at the visitor center. In 2011, 70 percent of total daily tickets could be sold in advance, with 30 percent remaining for same-day ticket sales. TICA's visitor center and administration facility is open 7:00 a.m. to 5:30 p.m. from early May to early September. The hours of operation are 8:00 a.m. to 5:00 p.m. from early September until mid-October, when the monument closes for the winter. The visitor center offers cave tour orientation videos, an outdoor ticket window, restrooms, telephones and an open-air patio. Timpanogos Cave Snack Bar and Gift Shop is adjacent to the visitor center.

To reach the Timpanogos Caves, visitors hike a paved, 1.5-mile trail. Information and informal interpretation is provided along the trail by staff and volunteers. Additional interpretative information is provided via a cell phone tour and displays. One hour guided tours are offered daily during the summer and fall season. Evening programs are offered every Friday, Saturday and Monday evenings from Memorial Day until Labor Day. Junior Ranger programs are offered on Saturdays and holidays, Memorial Day through Labor Day.

In recent years, a series of accidents involving visitors and staff necessitated immediate safety improvements to existing facilities. Trail improvements, including painted hazard zones and safety stops were added. In addition, a new entrance and rock fall shelter is currently under construction at the current exit to the cave system.

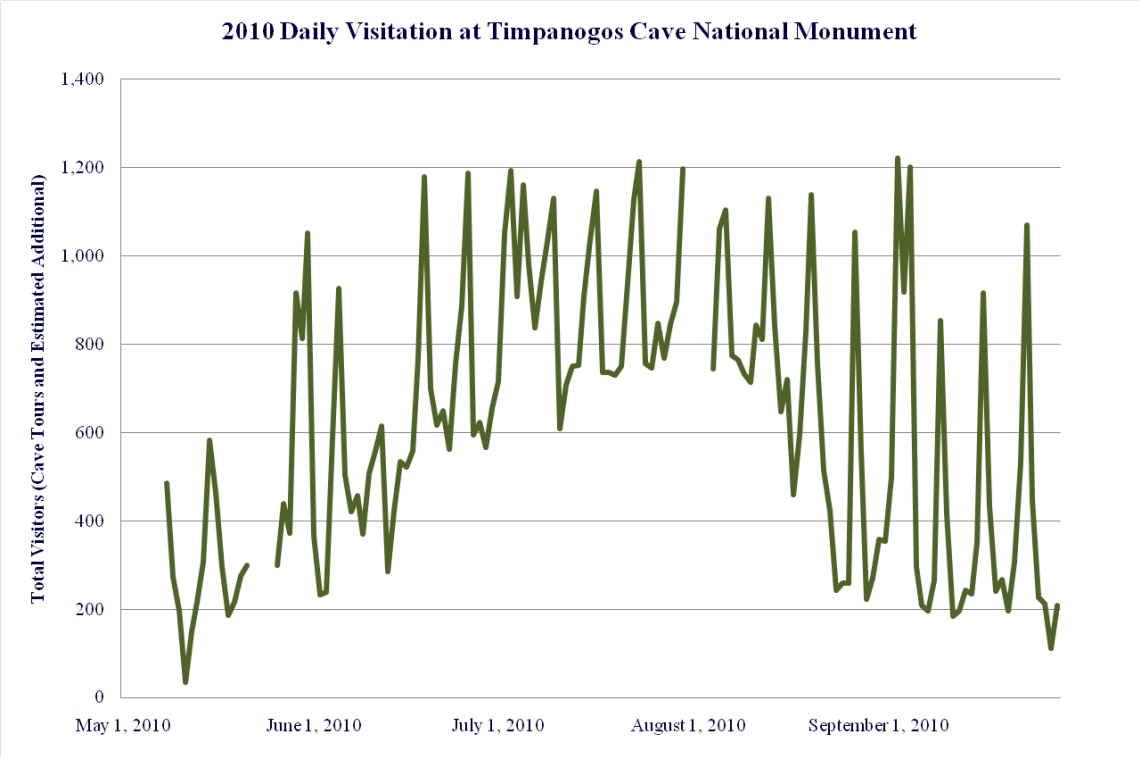
In addition to the resources provided at the visitor center, there are two other picnic areas in the park; the Swinging Bridge picnic area to the west of and the Canyon View picnic area located directly across SR 92 from the visitor center. Swinging Bridge picnic area is connected to the Monument's primary facilities by a 1/4 mile Canyon Nature Hike trail.

Visitation Trends

National Park Service Servicewide Interpretive Reports (SIR) data reports detailed visitation statistics for TICA.

In 2010, 120,241 persons visited the Monument - a 13 percent decrease in visitation from 2009. This may reflect sensitivity in demand to regional economic conditions. From 2005 to 2009 the Monument experienced a 24 percent increase in annual visitation, or an additional 30,000 annual visitors. Figure 1.1 below displays daily TICA recreational visitors for 2010.

Figure 1.1 TICA Daily Visitation 2010



NPS SIR reports include statistics detailing total recreational visitors and visitor subset populations including cave and visitor center visits. These total numbers include estimates of visitation not supported by actual counts, as staff are not equipped to accurately count all visitors to monument property. For example, in July of 2011 an estimated 28,165 total recreational visitors visited the site utilizing the visitor center and other visit purposes (interpretative programs, junior ranger, etc.). Visitors embarking on cave tours numbered 23,471 persons.

A study completed in 2005 "Studying Cave Visitation Trends at Timpanogos Cave National Monument and Nutty Putty Cave" by Jon Jasper, Resource Management Specialist at Timpanogos Cave National Monument detailed typical visitation trends. Key observations, based on historical data, indicate that holiday weekends are peak visitation days, daily visitation is fairly consistent throughout the day except for a peak around noon, and that overall visitation peaks during the hottest time of the year.

Visitor Profile

A visitor study was conducted in July of 2005 by the Visitor Services Project of the University of Idaho Park Studies Unit. A total of 460 questionnaires were distributed to visitors with a 62 percent response rate. The study documented the following visitor trends:

Demographics

- Typically, 40 percent of visitor groups were residents of the local area. United States visitors, comprising 96 percent of total visitation, were from Utah (64 percent) and California (6 percent) with smaller proportions from 33 other states.
- Visitor group sizes were relatively large. 52 percent of visitors traveled in groups of 5 or more, 27 percent were in groups of three or four, and 17 percent were in groups of two.
- On average, 69 percent of the visitor groups were family groups. Overall, 42 percent of visitors were ages 21-50 years and 39 percent were ages 15 or younger

Vehicles and Parking

- On average, 76 percent of visitor groups arrived in one vehicle and 14 percent arrived in two vehicles.
- Quality of parking areas was rated by respondents overall as very good. (36 percent very good – 33 percent good - 23 percent average - 7 percent poor, and very poor - 1 percent.) Overall, 93 percent of respondents said parking areas are either "extremely important" or "very important".

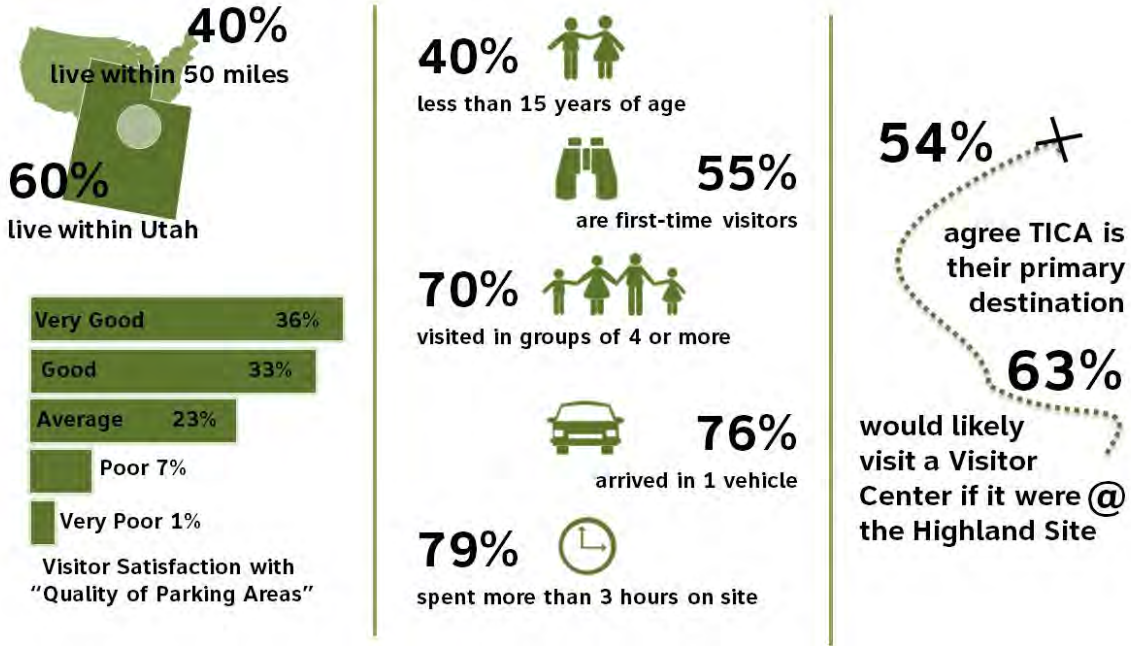
Activity

- Typically, 34 percent of visitor groups' primary reason for traveling to the Timpanogos Cave area (within 50 miles) was to visit Timpanogos Cave. On this visit, the most common activities were taking the cave tour (85 percent), hiking/walking (63 percent), and visiting visitor center (47 percent). The least common activity was attending evening programs (1percent)

Visitation

- Most visitors had been to the Monument within the last year. With 88 percent having visited the Monument once, 6 percent of visitors having visited twice, and 6 percent having visited three or more times in the past 12 months.
- Most visitors spent over three hours visiting Timpanogos Cave NM (11 percent up to one hour, 10 percent two hours, 28 percent three hours, 35 percent four hours, and 16 percent five or more hours).

Figure 1.2 Visitor Profile Statistics



2.0 Existing Transportation Infrastructure

The following section documents the existing transportation system facilities and operations in TICA and the surrounding area including roadways, parking, bus routes, and pedestrian and bicycle trails. Figure 2.1 provides an overview of the project study area.

2.1 ROADWAYS

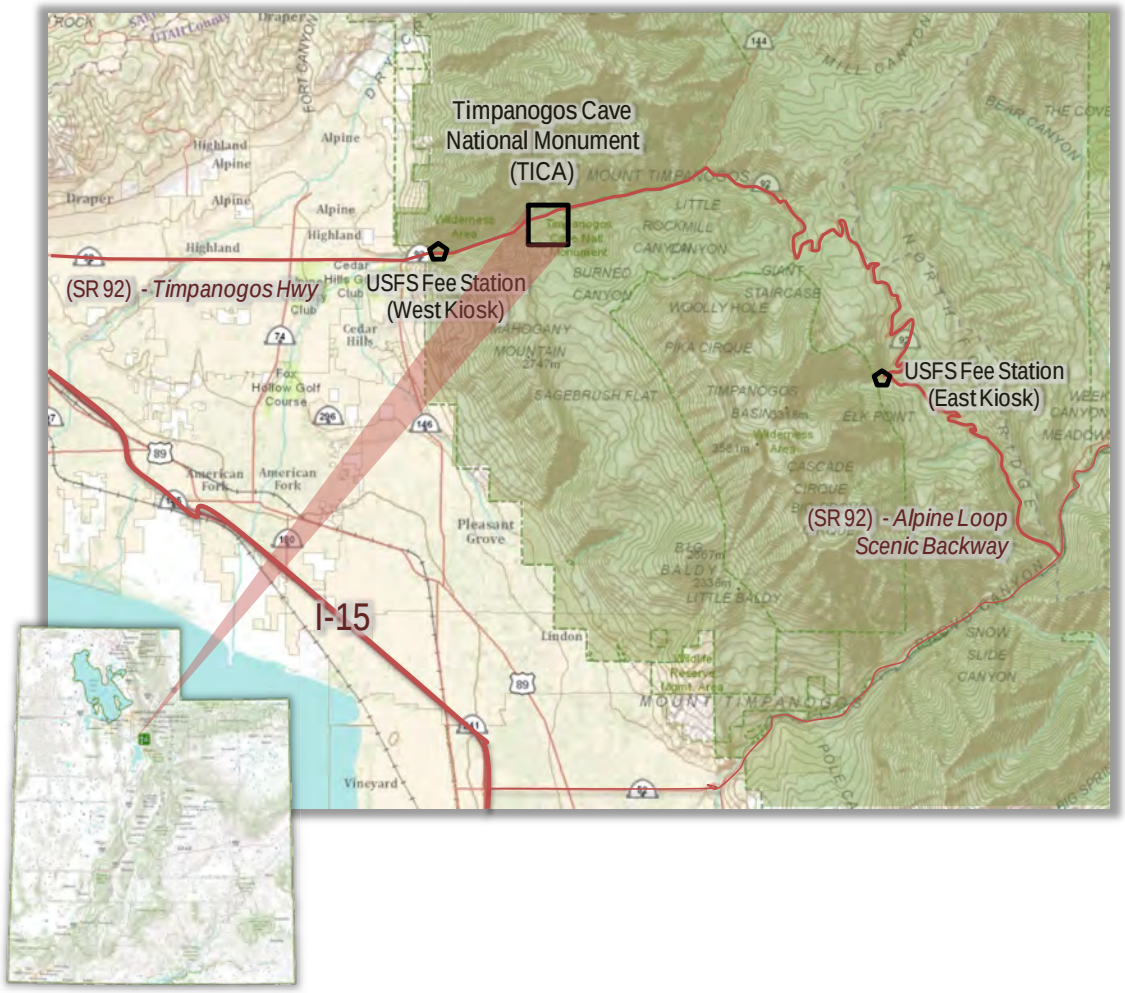
Access to TICA is provided from State Highway 92 (SR 92). SR 92 runs through the American Fork Canyon following the south bank of the American Fork River. SR 92 is a paved two-lane, narrow, winding roadway with little or no shoulder. Vehicles more than 30 feet long are not recommended on portions of the roadway. Through the American Fork Canyon to its connection with US 189 in Provo Canyon, this section of SR 92 is called the Alpine Loop Scenic Backway; a scenic state highway approximately 27 miles long. The western section of SR 92 is open from approximately late May to late October. The roadway is maintained from late spring to early winter, until winter conditions close the road to vehicle traffic. When the road is closed to cars, the gate becomes a trailhead for winter recreation opportunities, primarily snowmobiling and cross-country skiing.

Additional roadway connections to the east include the following:

- Highway 144 (North American Fork Canyon Road) a paved, two-lane state highway, intersects SR 92 at the bend where SR 92 turns southward.
- Highway 144 heads northeast to Tibble Fork Reservoir and campgrounds from SR 92. Timpooneke Road, a two-lane road which is partially paved connects to the south side of SR 92 and winds around the front of Mount Timpanogos providing access to campgrounds and trails.
- Cascade Scenic Drive (Forest Road 114) is also called Cascade Springs Scenic Backway. From SR 92, it is a paved, two-lane road for seven miles and gravel thereafter.

Roadway connections to urbanized Utah County areas are via Canyon Road which intersects SR 92 at the mouth of the American Fork Canyon and runs south. SR 92 connects with Interstate 15 approximately 7.5 miles from the mouth of the Canyon and approximately 9.5 miles from the Monument. SR 92 connects with SR 189 to the east.

Figure 2.1 Timpanogos Study Area Overview



2.2 PARKING AND ACCESS INFORMATION

Timpanogos Cave National Monument is located at milepost (M.P.) 10.1 on SR 92, within Uinta National Forest. There are two points of access to the monument: the American Fork Canyon fee station at M.P. 7.87 on SR 92 a few miles west of the visitor center and the Aspen Grove fee station at M.P. 22.49 on SR 92 several miles east of the visitor's center. (See Figure 2.1 above.) Fee stations are typically staffed five to seven days per week from 7:00 am to 5:00 pm with extended hours on weekends and holidays. The fee station staff offer visitor information and advise visitors of parking conditions and access options before they enter the National Forest.

Visitors must use private vehicles to access the monument as no public transit options are available within the forest area. Private buses provide occasional access for schools and other groups.

The TICA visitor center provides two paved parking lots with a total of 85 designated parking spots available on a first come, first served basis. An additional paved lot for the Swinging Bridge picnic areas provides a total of 22 additional spaces which are sometimes used by visitor center attendees. Signs indicate parking throughout the canyon is only allowed in designated areas or in gravel pullouts. Gravel pullouts along SR 92, which accommodate overflow parking, legally can accommodate up to approximately 70 vehicles – depending on parking patterns.

In addition to the parking lots provided for visitors, there is designated staff parking within Timpanogos Cave Administrative Offices area. This lot has approximately 15 designated parking spots that are filled during the work week by administrative staff. On the weekends, the lot is available to all NPS staff on a first come, first served basis. However, due to additional on-duty staff and concessions employees on weekends, this parking lot does not accommodate all employees and some staff members may occupy parking spaces otherwise intended for visitors.

Visitation demand during peak periods results in parking along SR 92 outside of the designated areas, infringing on natural resources, creating safety conflicts between vehicles and pedestrians, and impeding access for thru traffic on SR 92 and emergency response vehicles.

2.3 TRANSIT SYSTEM

The Utah Transit Authority (UTA) provides transit service in Utah County and Salt Lake County. UTA provides bus service on SR 92 near the American Fork Canyon entrance. The FrontRunner South line, which is under construction, will add commuter rail service from the Provo Intermodal Center through Utah County to the Salt Lake Central Station in downtown Salt Lake City. Notable transit connections include:

- Bus F868 - Connects with SR 92 at Canyon Drive with a loop linking to TRAX light rail and Salt Lake City. Runs 10 times a day on weekdays.
- Bus 807 - Weekday express service along SR 92 east to N 4800 W Street. Two buses provide service to and from Salt Lake City

2.4 TRAIL AND RECREATION SYSTEM

Within the monument, access to the cave system is provided by a 1.5-mile paved trail, which rises 1,065 feet to an elevation of 6,730 feet and offers scenic views of American Fork Canyon. The round-trip hike and tour of the cave system takes approximately three hours. Because of the steep incline of the cave trail, strollers and other wheeled vehicles are not allowed. Two picnic areas are located in the Monument: Canyon View Picnic Area located directly across SR 92 from the visitor center and Swinging Bridge Picnic Area accessible by a paved parking lot and Canyon Nature Trail, a 1/4 mile trail.

The monument cave trail has recently become popular among recreational visitors as a means of weekly or daily exercise. These repeat visitors are given green lanyards with passes identifying them to park rangers. During the 2011 season, NPS has had to request additional printing of green lanyard three times and has given out an estimated 500 passes. Exact counts of trail usage by these visitors are not currently captured. However, anecdotal evidence offered by rangers suggested that during peak times (primarily early morning, weekend days) as many as 30 to 60 green lanyard walkers may utilize the trail.

During the data collection period, technicians attempted to monitor these green lanyard visitors by visual inspection and routine requests of counts from rangers at the trailhead. The data collected during this period is inadequate to accurately estimate the exact number of routine hikers which visited the Monument over Labor Day weekend 2011 – due to constraints on both consultant and NPS staff time. However, the following observations were made:

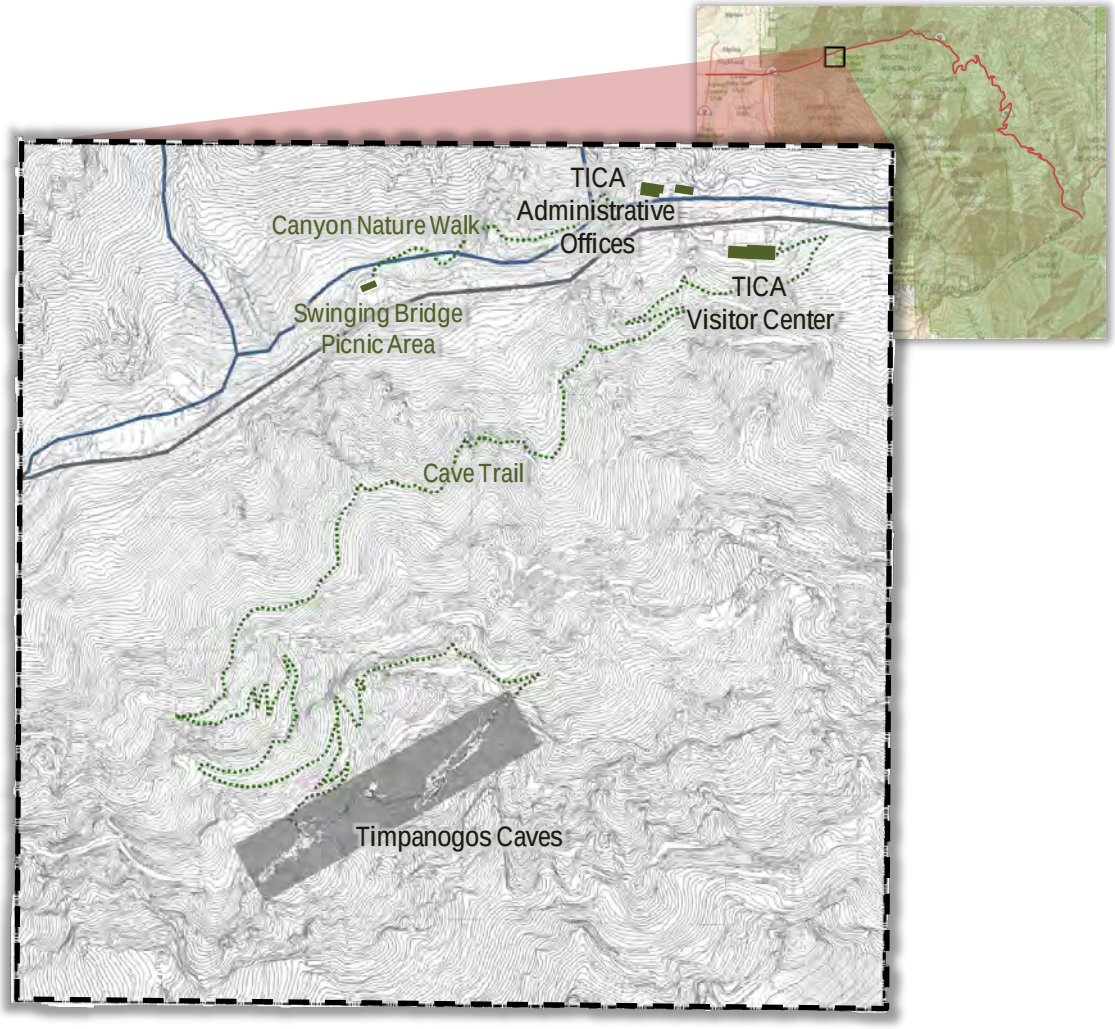
> Friday, September 2 approximately a dozen or more visitors with lanyards were observed on the trails. Saturday, September 3 approximately 30 walkers with lanyards were counted by NPS staff prior to 11am. Sunday, September 4 fewer than a dozen visitors with lanyards were observed before 9am. Monday, September 5 fewer than 8 were observed before 10am.

Outside of the monument additional recreation trailheads, camping and picnic areas can be accessed along SR 92. Tank Canyon trailhead is located east of the monument and the Bonneville Shoreline Trailhead is located west of the monument near the mouth of the canyon. One

campground, the Little Mill Campground, is located east of the monument.

Figure 2.2 shows the boundaries of the Timpanogos Cave National Monument and key features in greater detail in greater detail.

Figure 2.2 Timpanogos Cave National Monument Boundary and Major Features



3.0 Data Collection Summaries

Traffic, parking activity, trail use, and vehicle characteristics were observed over a three-day, peak activity period of Labor Day weekend September, 2011. The holiday weekend was chosen to reflect peak period visitation conditions and maximum visitor volumes experienced at the monument. Data was collected on Saturday, Sunday, and Monday. No collection occurred during a typical weekday, because the monument was operating only on weekends and holidays due to construction along the cave trail and cave entrance and exit shelters. Sunday visitation levels have been similar to weekday total visitation in the past, and along with past data collection sources, will be utilized to understand off-peak visitation patterns.

Visitors come to the American Fork Canyon area to visit the Timpanogos Cave National Monument and participate in various other outdoor activities. The purpose of the data collection was to determine how the American Fork Canyon area is being used, specifically as it relates to the Timpanogos Cave National Monument.

This section of the report summarizes traffic, parking and visitation characteristics. The data collected for the 2011 Labor Day weekend is summarized and discussed, then compared to 2010 visitation based on ticketed tours to better understand peak and off-peak patterns.

3.1 TRAFFIC VOLUME COUNTS

Daily traffic volume counts were collected throughout American Fork Canyon to document and support the evaluation of summer and peak visitor activity. Data from existing sources indicating historical volumes and truck traffic were also compiled for SR 92 to compare to peak holiday weekend travel. The historical volumes, data collection methodology and results of these counts are described in the following sections.

Average Annual Daily Traffic Volumes

The average annual daily traffic (AADT) volumes along SR 92 are currently available through the year 2010. Annual growth trends on SR 92 varied somewhat over the five-year period examined. Table 3.1 shows volumes increasing until 2007 at the west fee station, declining for a year, reaching their peak in 2009 before declining again. There was an overall 10.5 percent increase in AADT at the west station from 2006 to 2010. The east fee station has significantly less traffic, but similar trends. Declining traffic volumes in 2010 likely reflect the economic downturn along with an increase in gas prices that influenced driver behavior.

Table 3.1 Average Annual Daily Traffic

Mile	Count Location	Average Annual Daily Traffic Volume					Change	
		2006	2007	2008	2009	2010	Total	Annual
7.9	American Fork Canyon West Fee Station	1,470	1,495	1,485	1,670	1,625	10.5%	2.5%
22.5	Aspen Grove East Fee Station	420	501	505	570	425	1.2%	0.3%

Source: UDOT, Automatic Traffic Recorder Monitoring Station History

Truck Traffic

Though large multiple axle trucks (labeled "combo" in Table 3.2) are not a major component of traffic along SR 92 through the study area, especially east of TICA, single unit trucks (i.e. RV's, camper trailers, and trucks with light trailers and off-road vehicles (ORV) in tow) commonly use the route to reach campsites and Tibble Fork Reservoir. As a result, the data summarized below may not accurately capture truck traffic volumes on SR 92, as popularly perceived. Table 3.2 summarizes the truck percentages at the two entrances to the American Fork Canyon Recreation Area for the last five years.

Table 3.2 Truck Traffic

Location	2008 Truck Traffic			2009 Truck Traffic			2010 Truck Traffic		
	ADT	Single	Combo	ADT	Single	Combo	ADT	Single	Combo
State Park Fee Station (West Station)	1,485	7%	4%	1,670	12%	2%	1,625	4%	2%
West Boundary - Timpanogos (East Station)	505	8%	9%	570	8%	9%	425	7%	6%

Source: UDOT, Automatic Traffic Recorder Monitoring Station History

The count data shows that truck traffic as a percentage of AADT is highest at the west entrance. Further breakdown of truck traffic was not available. Based on general observations, most single unit trucks are not visiting the Timpanogos Cave. It is more likely that RV/ORV users are parking their vehicle at other locations off of SR 92 within the study area and then using an alternate, smaller vehicle or bicycle if they plan on visiting the cave.

Methodology, Locations, and Times

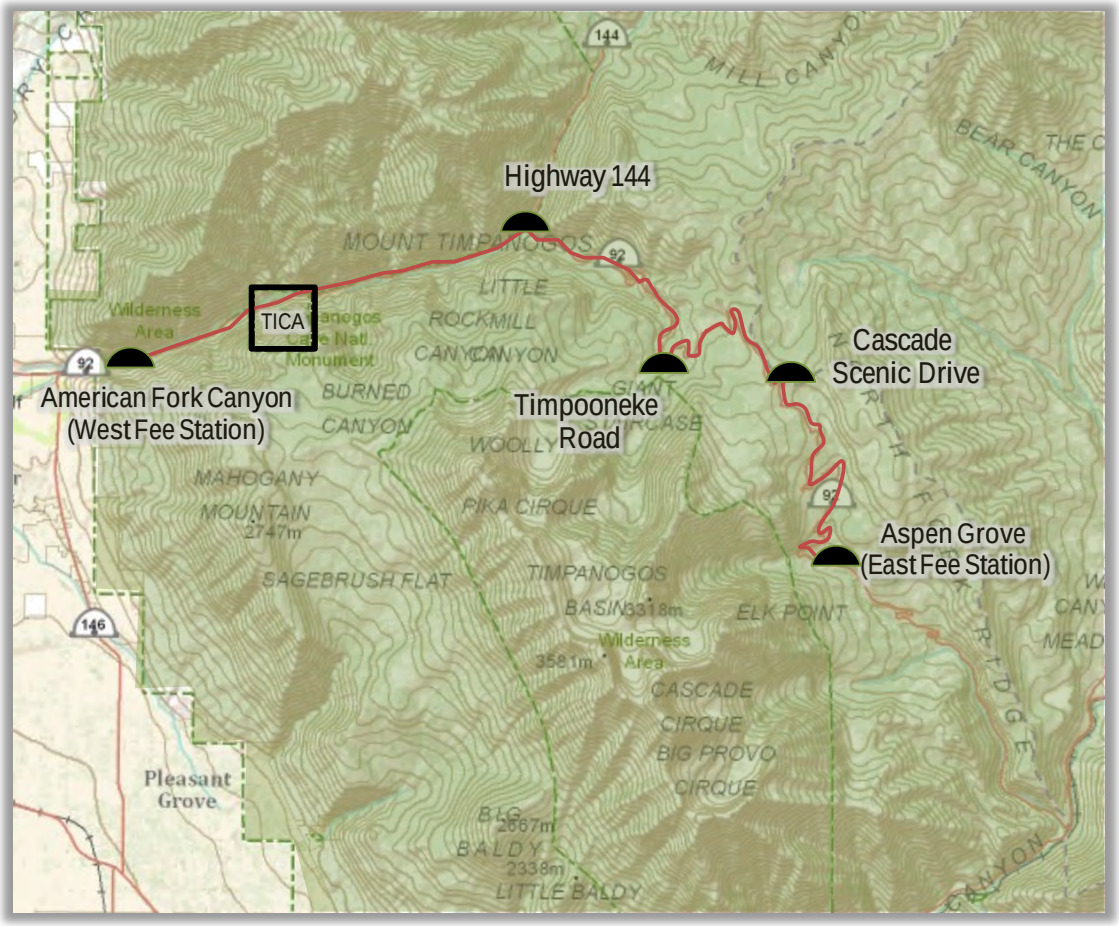
Automatic traffic tube counters were placed at five locations throughout American Fork Canyon (as shown in Figure 3.1 and listed in Table 3.3**)**.

The traffic counters recorded volumes in one-hour increments in each direction of travel. The counters generally collected data for a 72-hour period from 7:00 pm Friday, September 2nd through 7:00 pm Monday, September 5th, 2011.

Table 3.3 Vehicle Counter Locations and Types

Location	Type of Count	Count Dates
1. American Fork Canyon West Fee Station	24-hour Directional Volume Count	6:00 PM 9/2/2011 – 9:00 PM 9/5/2011
2. Highway 144		6:00 PM 9/2/2011 – 8:00 PM 9/5/2011
3. Timpooneke Road		7:00 PM 9/2/2011 – 8:00 PM 9/5/2011
4. Cascade Scenic Drive (FR 114)		8:00 PM 9/2/2011 – 8:00 PM 9/5/2011
5. Aspen Grove East Fee Station		6:00 PM 9/2/2011 – 8:00 PM 9/5/2011

Figure 3.1 Vehicle Counter Locations



On SR 92 at the American Fork Canyon fee station, the highest traffic into the project area occurred on Monday (Labor Day) with 3,291 vehicles counted. The same day and location also saw the largest volume of departures from the study area, with 3,768 vehicles heading west. This large number of vehicles leaving the project area coincides with the

holiday weekend coming to an end. Visitors began heading home from the day and weekend activities. These numbers are just over double the 2010 Average Daily Traffic (ADT) for the same location, confirming indications that travel volumes significantly increase on holiday weekends in the study area.

Compared to the fee station at the west entrance, the Aspen Grove fee station at the east entrance saw far less traffic at its gates. The peak volume day was also Monday, but the total bi-directional volume was less than half of that at the west entrance, with 733 vehicles heading east, and 791 vehicles traveling west into the American Fork Recreation Area. The 3-day average volume at the east fee station was approximately 30 percent of the west fee station's 3-day average volume.

For each of the locations, counts are summarized into 24-hour volumes, as shown in Table 3.4.

Table 3.4 Daily 24-Hour Traffic Volumes

Day	American Fork Canyon Fee Station (West)			Highway 144			Timpooneke Road			Cascade Scenic Drive (FR 114)			Aspen Grove Fee Station (East)		
	EB	WB	2-way	NB	SB	2-way	NB	SB	2-way	NB	SB	2-way	EB	WB	2-way
Saturday	2,663	2,293	4,956	1,220	1,090	2,310	516	400	916	471	437	908	792	865	1,657
Sunday	2,687	2,363	5,050	1,379	1,342	2,721	462	343	805	564	491	1,055	673	717	1,390
Monday	3,291	3,768	7,059	1,565	1,940	3,505	561	395	956	606	618	1,224	942	1,081	2,023
Sat-Sun Average	2,675	2,328	5,003	1,300	1,216	2,516	489	372	861	518	464	982	733	791	1,524
3-Day Average	2,880	2,808	5,688	1,388	1,457	2,845	513	379	892	547	515	1,062	802	888	1,690

Source: TICA ATS data collection, September 2011

Once vehicles passed through the fee stations, they could visit the Timpanogos Cave National Monument, continue and turn off the highway onto three main roads that intersect with SR 92, or pull off SR 92 at various campsites, picnic areas, trail heads, and gravel pull outs. Based solely on the tube count data, park usage was approximated. Of the inbound trips to the park, percentages were calculated based on the number of vehicles turning onto the main intersecting streets and then averaged for the weekend. The remaining percentage of vehicles are assumed to be either at Timpanogos Cave visitor center, traveling SR 92, or parked along the side of the highway at various recreational sites. The majority of the vehicles are split between sites off of Highway 144 (most likely the Tibble Fork Reservoir) and SR 92. Table 3.5 provides a detailed breakdown.

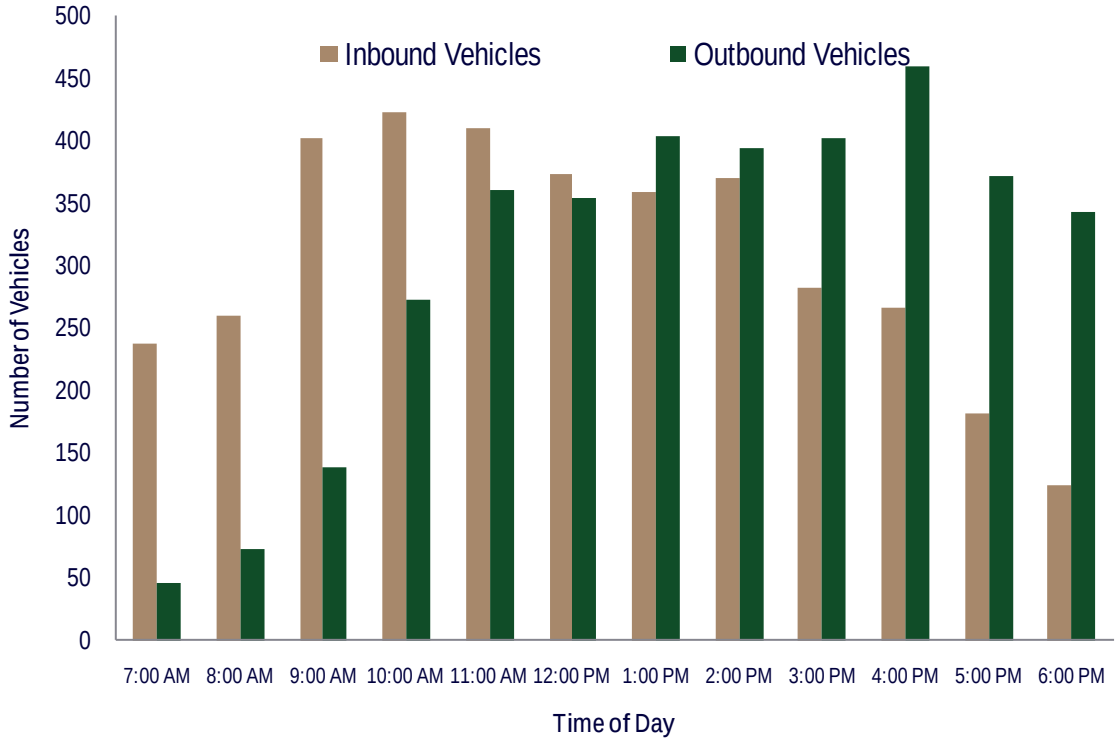
Table 3.5 Park Utilization

	Highway 144 (Tibble Fork)	Timpooneke Road	Cascade Scenic Drive	SR 92 (parked or traveling)
Saturday	34%	13%	13%	39%
Sunday	38%	12%	14%	36%
Monday	37%	11%	14%	37%
3-Day Average	37%	12%	14%	38%

For the peak traffic day (Monday, September 5, 2011) along SR 92, traffic counts were summarized on an hourly basis for the combined inbound movements and outbound movements at the east and west fee stations. Figure 3.2 illustrates this activity. This data is presented over a 12-hour time span to coincide with the parking data collection discussed in Section 3.3.

The hourly count data indicates that between the hours of 9:00 am and 3:00 pm, hourly volumes typically exceed 350 vehicles entering the study area, with a maximum inbound hourly volume of 423 vehicles between 10:00 am and 11:00 am. The hours between 11:00 am and 6:00 pm represent the peak outbound time period, with the highest hourly volume of 460 vehicles leaving the study area between 4:00 pm and 5:00 pm.

Figure 3.2 Study Area 12-Hour Traffic Volumes – SR 92 Monday, September 5, 2011



3.2 TIMPANOGOS CAVE VISITOR ACCUMULATION 2011

Tours of the Timpanogos Cave National Monument are conducted at 10 to 20 minutes intervals throughout the day. The maximum number of people allowed on a tour is usually 20, although one or two more people may sometimes be added if they are part of a group.

The analysis of accumulation can be used to show the span of time that parking will likely be over capacity. This analysis is based on visitation patterns for both peak days, derived from the Labor Day weekend statistics and 2010 visitor data, and summer weekdays based on 2010 tour data sampled for the summer weekdays.

Cave Visitor Data

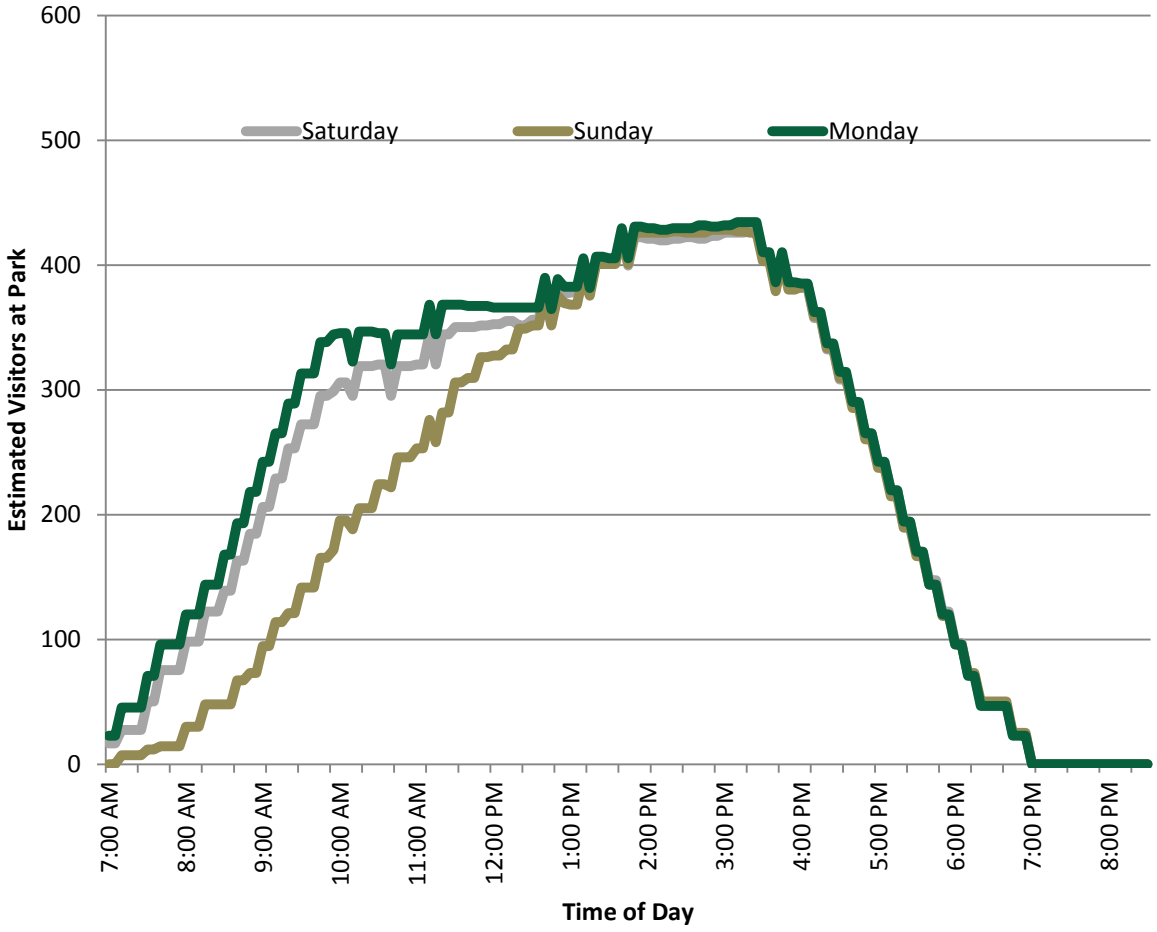
Total visitor estimates were determined from visitor data for the Timpanogos Cave National Monument between Saturday, September 3 and Monday, September 5, 2011. Visitors are defined as individuals who attended a cave tour. Based on ticket sales, Monday had the highest number of visitors with 928 on tours, Saturday was next with 902 visitors, and Sunday had 789 visitors. The daily counts do not include persons seeking refunds for not completing the hike and/or tour, persons simply

hiking the trail, and persons waiting in the parking lot or using park facilities are not counted in these daily tally sheets. As a result, these estimates are conservative counts of visitor accumulation.

Data collection occurred during one of the highest visitation periods of the year, the Labor Day holiday weekend. Morning activity on Sunday was significantly lower than that of Saturday and Monday. (Sunday total visitation has been similar to weekday totals in past years.)

On both Saturday and Sunday, early morning tours were not sold out, but demand rose steadily by mid-morning. Monday's visitation represented nearly a maximum attendance (one less tour was offered this day than others due to ranger availability). Monday's visitor arrival patterns, based on hike time may illustrate the effects of the 70/30 percent split on advance sales versus same-day sales. With greater advance sales, the popular time slots are likely to sell out most quickly, encouraging visitors to utilize early morning and late afternoon time slots. This may result in a constant and more efficiently managed stream of visitors using park resources – and manageable parking situations. The reverse of this situation may be reflected in Saturday's visitation patterns. Where fewer tickets are sold in advance, arriving visitors take the first available time slot for the size of their group. This means that early tours are not sold out, but by mid-morning four hour wait times are common for visitors who purchase same day tickets. This pattern places greater strain on available parking capacity and increases the number of people at the park at peak times – even though actual daily visitors may be fewer than in Monday's example.

Figure 3.3 Visitors at Park by Time of Day Labor Day Weekend 2011
*Assuming Visitor Duration of 3 Hours



Visitor accumulation was determined based on the assumption that cave tour participants generally take three hours from start to finish to complete their cave tour visit (ascent, tour and descent). If the average time on site is increased to four hours, then there could potentially be over 500 people at the Timpanogos Cave site at one time, with upwards of 175 vehicles parked nearby. The number of vehicles on-site at any given time is based on the observed average vehicle occupancy of three persons per vehicle. This accumulation of parked vehicles is consistent with NPS 2005 visitation study which found most visitors spending more than three hours at the Monument (11 percent up to one hour, 10 percent two hours, 28 percent three hours, 35 percent four hours, and 16 percent five or more hours).

In addition 2010 ticket tour sale data were analyzed to understand visitation patterns for the peak and nonpeak times. To estimate total visitation, the park has estimated an additional 20 percent visitation to

account for visitors to the monument that are engaging in other activities than cave tours. Similar to the 2011 analysis a visit duration of three hours, and three-person vehicle occupancy were assumed for 2010. This 2010 data was used to compare to the weekend/peak data gathered for the 2011 Labor Day weekend and to develop an understanding of the weekday/non-peak visitation patterns. This was important, because in 2011 few weekday tours were offered due to construction near the cave trailhead.

Cave Visitor Vehicle Occupancy

Data was collected at both fee stations at specific time periods each day between Saturday, September 3 and Monday, September 5, 2011. At the west fee station, 100 vehicles were sampled each day for vehicle type (car, oversized or motorcycle), vehicle occupancy, and whether or not any passengers were planning on attending the cave tour. The same was done at the east fee station, but the sample size was 60 vehicles per day. The results are summarized in Table 3.6.

Table 3.6 Vehicle Occupancy Entering Study Area

Location	Destination		Average Vehicle Occupancy (persons/vehicle)	
	Cave	Other Sites	Cave Visitors	Other Sites
American Fork Canyon West Fee Station	20%	80%	4	3
Aspen Grove East Fee Station	11%	89%	4	3

Note: Other sites include all destinations other than the caves within the fee access area.

These numbers were compared with the more in-depth data collection conducted by NPS in 2005. That study found that visitor group sizes were large - with 36 percent of groups including six or more people, 16 percent with five people, 32 percent with three or four people, and 28 percent with two or three people. Because the 2011 sampling was by vehicle rather than the size of the total party, the vehicle occupancy estimates are consistent with the earlier findings. This is because in the 2005 study, only 69 percent of visitors arrived in one vehicle, while 14 percent arrived in two cars. In other words, a group of six in 2005, may have arrived in two cars with an average vehicle occupancy of three people per vehicle.

Further comparisons of data for the 2011 Labor Day weekend tour ticket sales, indicates four people per vehicle may be too high an estimate. An assumption of three people per vehicle appears to better match the number of cars parked to tickets sold. This estimate is used in further analyses of this study.

3.3 PARKING DATA

Parking Occupancy and Duration

Parking occupancy and duration data were collected at parking lots and gravel pull out areas in and near the Timpanogos Cave National Monument. The purpose of this information is to document parking area utilization by time of day, and to determine the average length of stay by visitors. This data can be used to estimate the number of people accessing the monument by time of day during a peak weekend. Total visitation and visits by time of day will inform the feasibility analysis for provision of a shuttle service to the monument.

This section describes the methodology, the locations, and the results.

Methodology, Locations, and Times

Parking occupancy and duration data were collected during 12-hour periods from Saturday, September 3 through Monday, September 5, 2011. Data collection began at 7:00 am and was completed by 7:00 pm.

All parking activities were recorded manually by field technicians stationed at the parking lots or driving a predetermined route to monitor the roadside parking. Data summaries were prepared based on field data sheets. Field technicians generally recorded data every 30 minutes. Parking activities were observed at the following lots and roadside parking areas:

Locations at the Timpanogos Cave National Monument Visitor's Center

- Visitor Center – South**:** Paved parking lot on the south side of SR 92
- Visitor Center – North: Paved parking lot on the north side of SR 92
- Canyon Trail: Paved parking lot with access to Canyon Nature Trail

Locations West of the Timpanogos Cave National Monument Visitor's Center

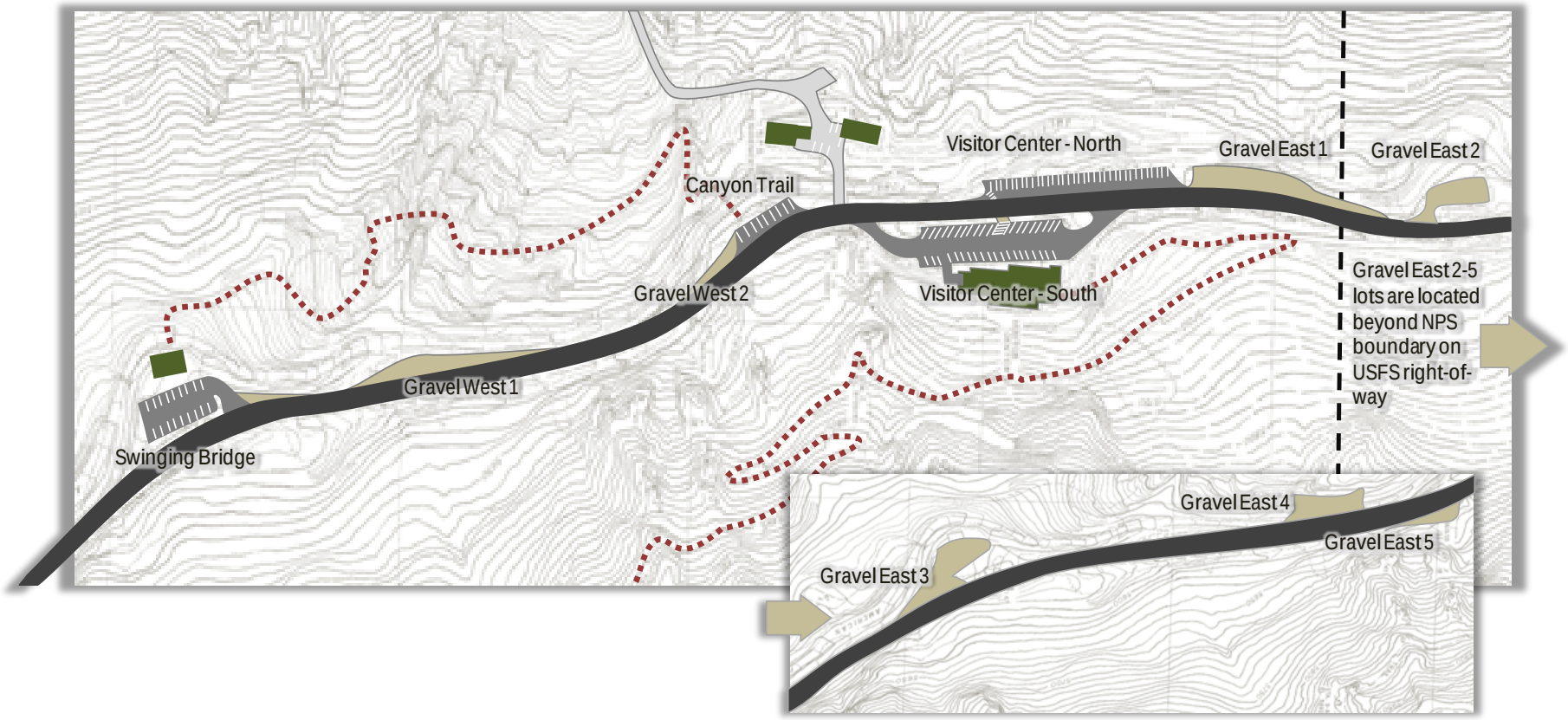
- Swinging Bridge: Paved parking lot at Swinging Bridge picnic area
- Gravel West 1: Roadside pullout just west of Swinging Bridge
- Gravel West 2: Roadside pullout just east of Canyon Trail

Locations East of the Timpanogos Cave National Monument Visitor's Center

- Gravel parking adjacent to North Lot (East 1)
- Roadside/gravel pullout approximately 800 feet east of the Visitor's Center, on the north side of SR 92 (East 2)
- Roadside/gravel pullout approximately 1/4 of a mile east of the Visitor's Center, on the north side of SR 92 (East 3)
- Roadside/gravel pullout approximately 1/3 of a mile east of the Visitor's Center, on the north side of SR 92 (East 4)
- Roadside/gravel pullout approximately 1/3 of a mile east of the Visitor's Center, on the south side of SR 92 (East 5)

Figure 3.4 illustrates the locations of these parking areas.

Figure 3.4 General Layout of Timpanogos Cave NM Facilities, Roadways, and Parking Arrangements



Occupancy

For parking occupancy, the number of vehicles within a parking lot or roadside parking area at a given time was recorded. Because parking spaces are not clearly designated with striping in the gravel lots, the parking capacity available in each lot was estimated. The number of actual parking spaces may vary slightly if parking configurations are managed or more clearly designated. For example, some roadside areas change from parallel to head-in parking, the latter accommodating more vehicles. Since the parking configuration is not fixed, we can estimate the number of spaces based on the peak usage during the Labor Day weekend. The gravel pullouts accommodated up to 73 cars. The East 1 and East 2 pullouts accommodated the most cars with 27 and 14 automobiles, respectively. It should be noted that these estimates of parking utilization include all vehicles present, even though the spaces used may not be authorized or acceptable due to resource and/or safety issues. Estimates of total parking accumulation in half hour increments for the 2011 Labor Day holiday weekend are shown in Table 3.7. The table also indicates the time periods in which the number of observed vehicles exceeded the 85 spaces available in the paved parking areas.

Table 3.7 Parking Volumes at and Near Monument, Labor Day Weekend 2011 (Saturday, Sunday, and Monday)

Time of Day	Parked Vehicles Near Monument*			Parked Vehicles* Excluding Swinging Bridge Lot		
	Saturday	Sunday	Monday	Saturday	Sunday	Monday
7:00 AM	16	4	23	16	4	23
7:30 AM	25	14	49	25	14	49
8:00 AM	43	20	66	43	20	66
8:30 AM	59	33	72	58	33	72
9:00 AM	77	49	107	75	44	87
9:30 AM	94	63	120	93	57	98
10:00 AM	112	79	142	112	72	120
10:30 AM	120	96	163	120	91	145
11:00 AM	124	113	160	122	112	144
11:30 AM	122	130	156	121	127	145
12:00 PM	127	146	155	122	139	139
12:30 PM	131	151	162	123	144	141
1:00 PM	135	154	156	127	145	137
1:30 PM	131	161	155	121	147	139
2:00 PM	129	171	160	121	154	138
2:30 PM	134	168	165	126	146	144
3:00 PM	129	175	170	122	154	149
3:30 PM	109	167	163	102	145	146
4:00 PM	105	155	133	97	134	113
4:30 PM	95	132	109	89	112	94
5:00 PM	82	115	92	73	98	71
5:30 PM	66	82	75	57	68	55
6:00 PM	49	66	61	41	52	43
6:30 PM	40	48	47	36	35	26
7:00 PM	35	42	40	32	28	21

** Includes paved lots, gravel lots, and informal shoulder parking.*
Shading denotes times when more than 85 cars were parked near the monument (North, South, and Canyon Trail paved parking spaces total 85).

Paved Lot Parking Occupancy

The South, North, Canyon Trail and Swinging Bridge lots are all paved parking lots near the Timpanogos Cave Visitor Center providing 107 paved spaces, as described earlier in this section. The South lot is the

largest and busiest parking lot at the Timpanogos site with 44 spots (including one signed for handicapped drivers and one reserved for emergency response vehicles). Next largest is the North lot with 30 striped parking spots (including one signed for handicapped use), then the Swinging Bridge lot with 22 striped parking spots (including one signed for handicapped use) and finally the Canyon Trail lot with 11 striped parking spots.

The parking occupancy in the four lots is summarized in Table 3.8. The table shows the first times at which all parking spaces in each lot were occupied. With the exception of the Swinging Bridge lot, the parking lots were filled between 9:00 and 11:00 am.

Table 3.8 Paved Parking Lot Total Spaces

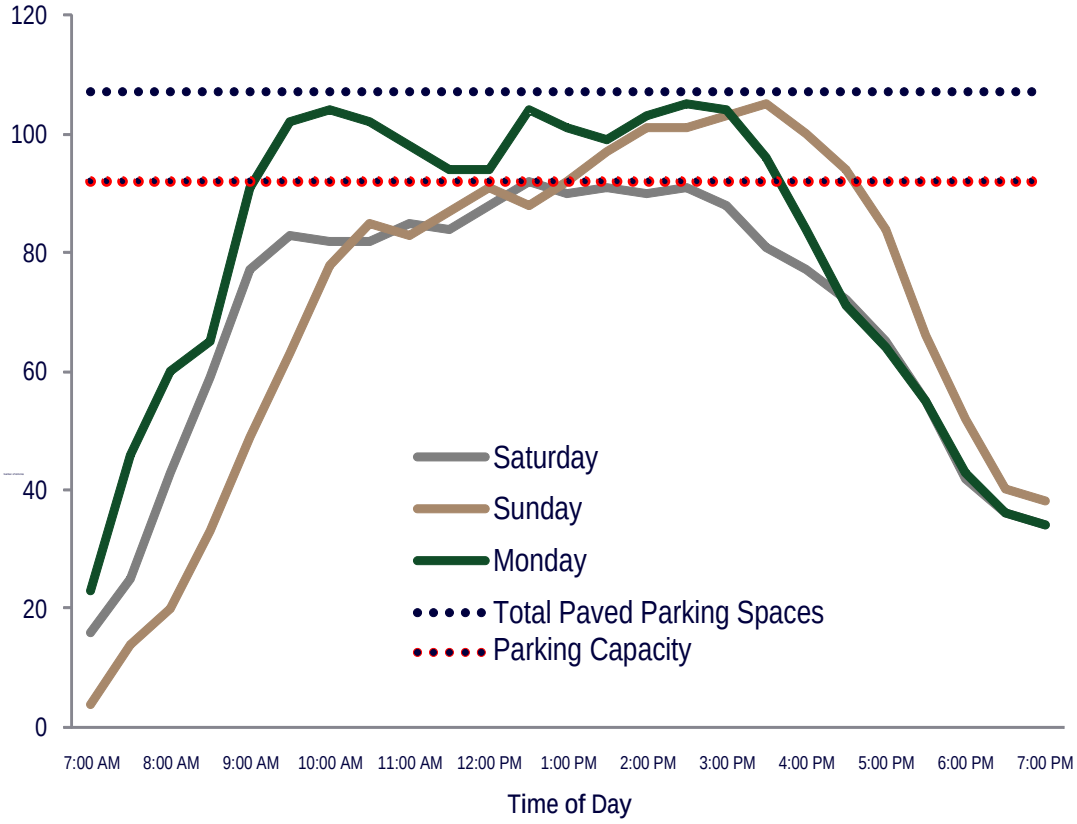
Parking Lot	Capacity (vehicles)	Day	Time Lot was Completely Full
South	44	Saturday	9:00 AM
		Sunday	10:00 AM
		Monday	9:00 AM
North	30	Saturday	9:00 AM
		Sunday	10:30 AM
		Monday	9:30 AM
Canyon Trail	11	Saturday	9:30 AM
		Sunday	11:00 AM
		Monday	10:00 AM
Swinging Bridge	22	Saturday	N/A
		Sunday	2:30 PM
		Monday	9:30 AM

Figure 3.5 illustrates the occupancy of the paved parking lots by time of day for each day during the study period. There are 107 total spaces among the four parking lots. However, some of these spaces are reserved for emergency vehicles and handicapped parking. If we exclude these spaces there are 102 spaces. Generally, capacity is assumed at some proportion of total spaces less than 100 percent occupancy. This is because visitors will often not be able to find a space and will need to circle the lot or search elsewhere when that level of use occurs. If we

assume 90 percent occupancy equals capacity, we can assume that the lots would meet capacity when 92 spaces are filled.

The figure shows parking occupancy reaching capacity on early Monday around 8:00 am, and on Saturday around 1:00 to 4:00 pm (which coincides the peak number of visitors on site). Sunday was near capacity for most of the midday. Occupancy tends to remain steady throughout the day until the late afternoon (after 4:00 pm) when it drops off.

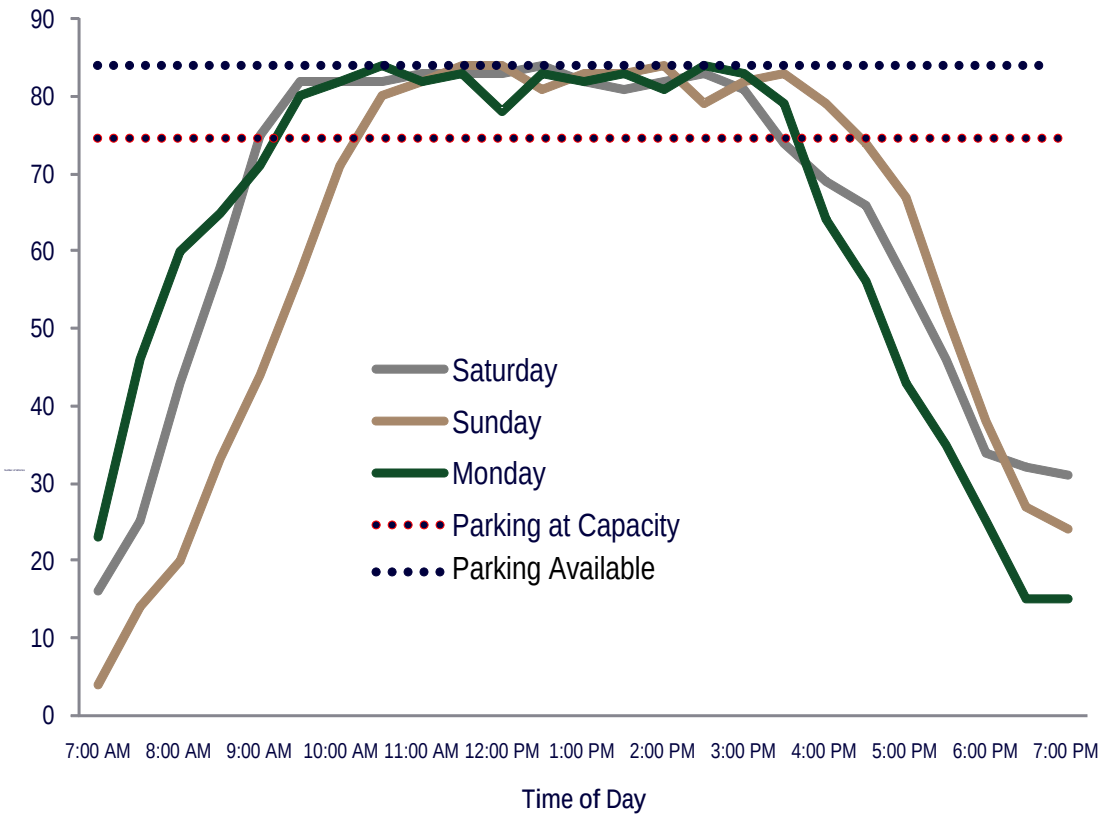
Figure 3.5 Daily Paved Parking Lot Occupancy



Since Saturday parking conditions were observed to be much worse by the field technicians, another figure was created to see when total occupancy was reached if the less utilized Swinging Bridge lot was excluded. Figure 3.6 shows that the North, South and Canyon Trail lots combined fill every space between 9:30 – 10:30 am. Sunday occupancy was lower than Saturday or the holiday Monday. Parking occupancy continued to show a decline in the late afternoon after 4:00 pm.

The paved lots exceeded capacity each of the three days. By comparing Figures 3.5 and 3.6, it is apparent that Swinging Bridge may function differently than the other paved lots. It appeared that cave visitors were using the North and South lots and pullouts more readily than Swinging Bridge parking lot.

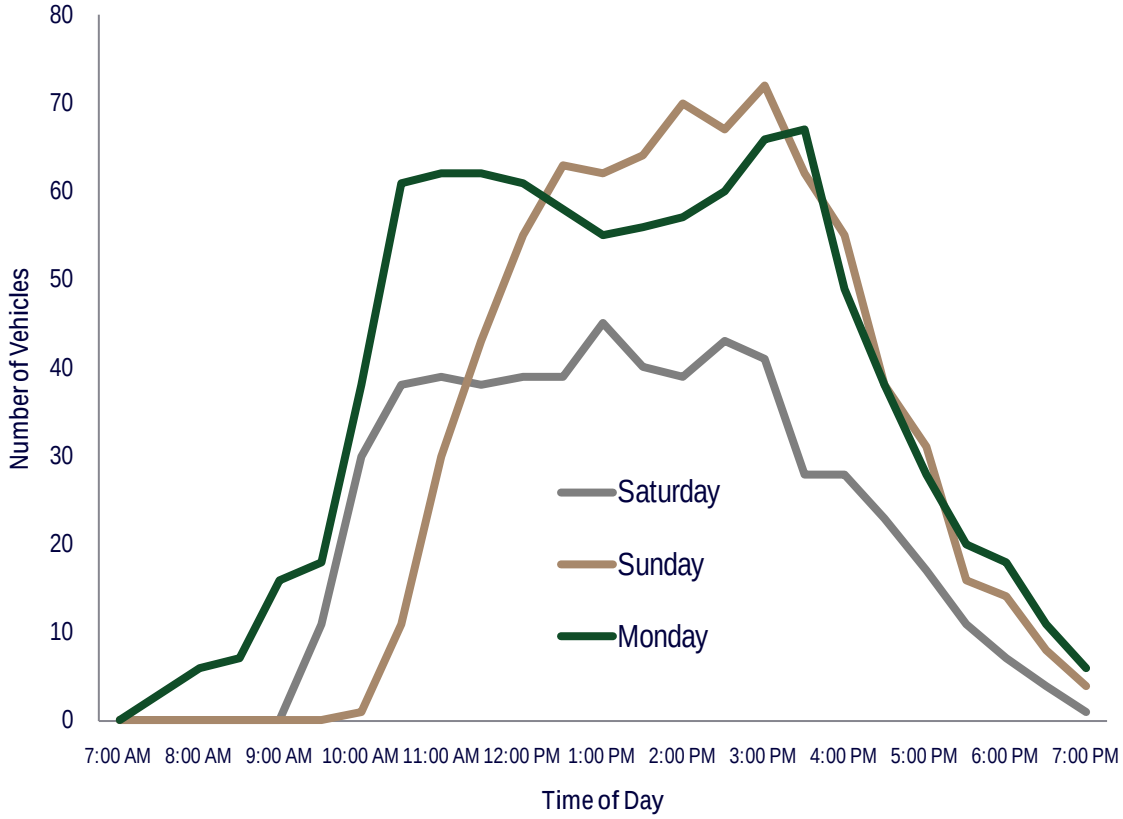
Figure 3.6 Daily Paved Parking Lot Occupancy (excludes Swinging Bridge)



Unpaved Lot Parking Occupancy

The seven gravel pullout parking areas were utilized as soon as the paved parking lots were filled (excluding Swinging Bridge). On Monday and Saturday, the busiest days within the study period, the peak occupancy of the paved lots was reached around 9:00 am to 4:30 pm. On Sunday, the paved lots filled about an hour later, but were full until around 5:00 pm. As soon as the paved lots near trailhead filled, people started to park in the gravel lots. Of the unpaved lots, the East 1 lot is closest to the main entrance, and was the busiest.

Figure 3.7 Daily Unpaved Parking Areas Occupancy



Utilization of the unpaved areas (lots and pullouts) for the three days is displayed in Figure 3. 7 showing vehicle totals by half hour for each day. The parking utilization follows a similar pattern to that for the paved lots, but occurs after the paved lots fill. During the peak, up to 73 cars were parked in these gravel areas. Capacity of the unpaved lots and gravel pullouts was not determined. These areas are not striped and the number of vehicles that can be accommodated varies based on how visitors park (head in or parallel).

Parking Duration

For parking duration, license plates of vehicles within a lot were recorded every half-hour. All vehicles were given an estimated parking duration rounded to the half-hour. The durations of vehicles parked in the spaces were then placed into categories: 30 minutes to 1 hour, 1 hour to 2 hours, and so on. The average parking duration was calculated for all vehicles that both arrived and departed during the 12-hour monitoring period. Vehicles that arrived before or departed after the monitoring were not included in the calculation of average parking duration.

Parking duration data was collected at each of the four paved lots in the study area, as the unpaved lots did not have striped spaces for continuous duration monitoring. The paved lot utilization and duration data is summarized in Table 3.9. The most utilized lot is the South lot, most likely due to its proximity to the Visitor Center and the number of striped parking spots.

Table 3.9 Daily Parking Utilization and Duration

Lot	Day	Total Vehicles Utilizing Lot Per Day	Average Duration (hours)
South	Saturday	181	2.6
	Sunday	175	2.7
	Monday	183	2.7
North	Saturday	83	4.7
	Sunday	70	5.1
	Monday	107	2.6
Canyon Trail	Saturday	27	4.8
	Sunday	24	4.3
	Monday	34	2.6
Swinging Bridge	Saturday	22	1.7
	Sunday	57	2.5
	Monday	91	2.4

South Lot

Average duration for each parked car varied little between the three days of the study, as seen in Table 3.10. Saturday's average was at 2.6 hours, while Sunday and Monday were both 2.7 hours. On average, nearly a third of all visitors (30 percent) stayed between 1 and 2 hours, while 25 percent stayed between 30 minutes and an hour and only 11 percent stayed over 4 hours. Since this lot was closest to the ticket booth, and bathrooms, it most likely acted as the primary lot for visitors to use the

restrooms, reserve their cave tour or eat at the snack shop, which are shorter duration activities.

North Lot

Average duration of stay at the North lot varied between 2.6 hours on Monday to 4.8 hours on Saturday. On average, over half (55 percent) of visit percent) stayed between 30 minutes and 1 hour. It was noted by field technicians that several NPS staff parked in this lot Saturday and Sunday, which may contribute to the longer average duration. This would have the greatest impact on peak days when more staff are working at the Monument.

Canyon Trail Lot

Average duration of stay at the Canyon Trail Lot varied between 3.2 hours on Saturday to 4 hours on Sunday. Nearly half of all visitors stayed longer than 3 hours (47 percent), 12 percent stayed between 2 and 3 hours, and 22 percent stayed between 1 and 2 hours.

Swinging Bridge Lot

Average duration of stay at the Swinging Bridge lot was the shortest amongst all the parking lots with averages ranging between 1.7 and 2.5 hours. The Swinging Bridge Lot was not used for as long as the other three lots. Half of all visitors stayed less than two hours, while 22 percent stayed two to three hours and only 15 percent stayed over four hours. This parking lot appears to be used almost exclusively for parking at the Swinging Bridge Picnic Area, even though it is in close proximity to the visitor center. This could be because the lot is located west of the monument and visitors pass it to find parking at the North or South lot. It could also be that is not clear from the monument area that this is an alternative parking lot for people visiting the cave.

Table 3.10 Parking Duration Summary

Lot	Day	Duration									
		0.5-1 hours		1-2 hours		2-3 hours		3-4 hours		4+ hours	
		Vehicles	%	Vehicles	%	Vehicles	%	Vehicles	%	Vehicles	%
South	Saturday	41	24	55	32	20	12	38	22	17	10
	Sunday	45	24	59	32	23	12	42	23	17	9
	Monday	52	28	47	25	20	11	41	22	27	14
	Average	46	25	54	30	21	12	40	22	20	11
North	Saturday	17	24	5	7	4	6	29	40	17	24
	Sunday	11	17	8	13	8	13	17	27	20	31
	Monday	30	32	13	14	10	11	27	29	13	14
	Average	19	24	9	11	7	10	24	32	17	23
Canyon Trail	Saturday	4	17	5	21	4	17	7	29	4	17
	Sunday	3	17	3	17	3	17	6	33	3	17
	Monday	8	26	9	29	1	3	8	26	5	16
	Average	5	20	6	22	3	12	7	29	4	16
Swinging Bridge	Saturday	5	26	5	26	4	21	1	5	4	21
	Sunday	14	26	14	26	8	15	9	17	8	15
	Monday	14	16	26	29	26	29	16	18	7	8
	Average	11	23	15	27	13	22	9	13	6	15

3.4 VISITOR BEHAVIOR AND PATTERNS COMPARING LABOR DAY AND 2010 DATA

In addition to the September 2011 data, 2010 ticket tour sales by time of day were analyzed to understand visitor behavior and accumulation for both peak and nonpeak times.

Major Observations/Conclusions

Visitor Volumes

Labor Day weekend 2011 visitation was slightly higher than 2010 peak period and holiday averages, particularly on Sunday.

Groups

Groups, which arrive in buses or vans not requiring parking at the monument, comprised a large percent of visitors in early and late season months – when schools are in session.

- Typically groups occupy two to three tours (30-60 persons).
- Arrivals occurred between 9 and 11:00 am Monday through Thursday.
- May and September were most popular for group use.
- Groups can make up 30-60 percent of off-peak visitation in May and September.

Advanced Tour Ticket Sales

- Most advance sales were for family groups of five or more.
- No substantial difference between weekday and weekend advance sales was observed.

Tour Schedules and Frequency

Schedules vary by day of week and month in season.

- Monday through Thursday tours have a later start and fewer mid-day tours.
- Saturdays have the earliest tour start times and more mid-day tours.
- Sundays have later tour start times and more mid-day tours.

Schedules must be flexible based on staff availability, cancellations, and the need to accommodate groups. There will always be some variation in tour offerings.

Excluding group tours - off-peak, weekday tours do not reach capacity until 10:00 am at the earliest and tour utilization declines between 2 and 3:00 pm.

Visit Duration

Parking duration indicates that on average, 50 percent of the visitors stay less than 3 hours and 50 percent stay longer than 3 hours. However, the averages included employees that were parked for 8 to 10 hours. The average parking duration is less when these vehicles are removed from the analysis.

Purchasing tickets at the trailhead results in lengthened visit times as tours sell out and people purchase tickets for later in the day and wait for their tour time.

- A greater proportion of advance ticket sales and the removal of the concessions, visitor center, and picnic facilities at the Canyon site would likely reduce visit duration.

- With shuttle transit time and accounting for the use of facilities at Highland, visit duration could increase to 4 hours or longer for visitors accessing the cave site by shuttle bus.

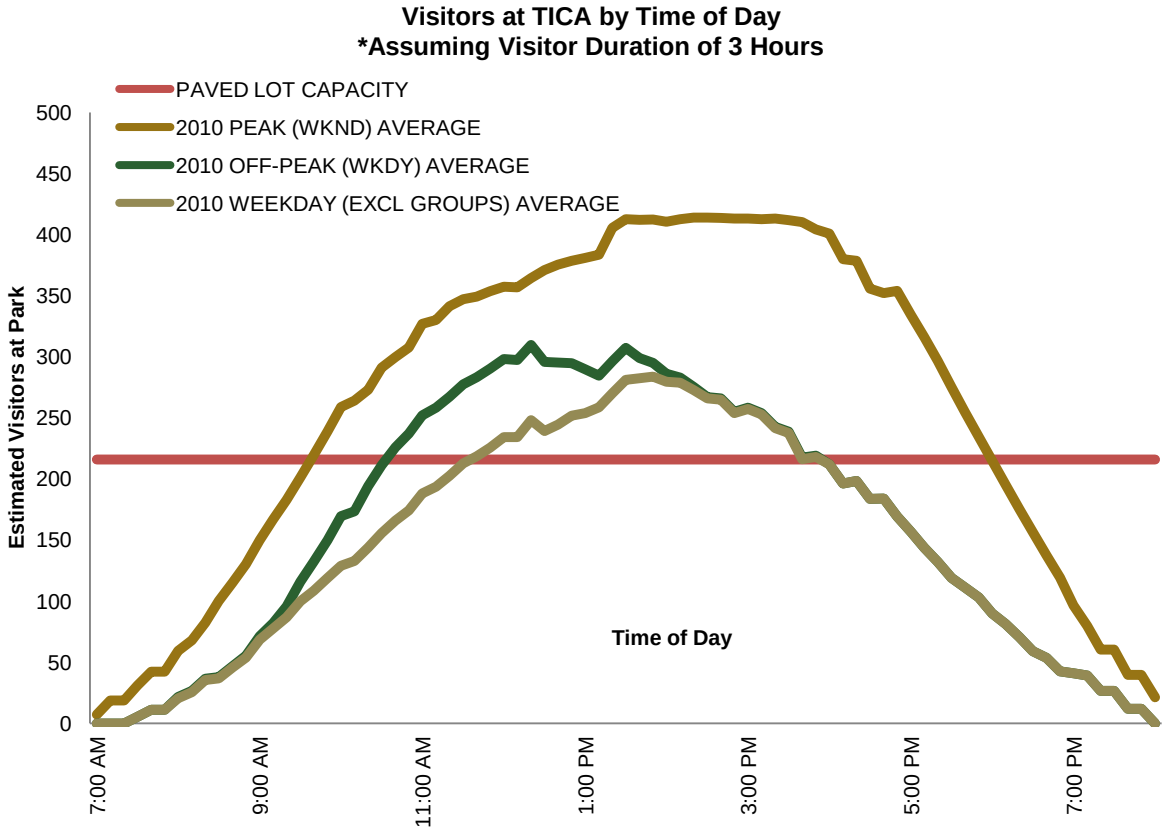
Visitor Accumulation

The September 2011 analysis showed that, based on visitation volumes, visitor duration, and available parking, the paved parking areas were over capacity on all three days.

Visitor data for 2010 was also analyzed to understand the visitor behavior, accumulation, and times where parking is likely to be oversubscribed. Using ticket sales, what we know about visit duration, and vehicle occupancy, we determined the time periods that the paved parking areas (excluding Swinging Bridge) would be full for peak and off-peak times.

As shown in Figure 3.8, during peak times (weekends) in 2010, parking was estimated to be full from approximately 9:00 am to 6:00 pm.

Figure 3.8 2010 Visitors at TICA by Time of Day



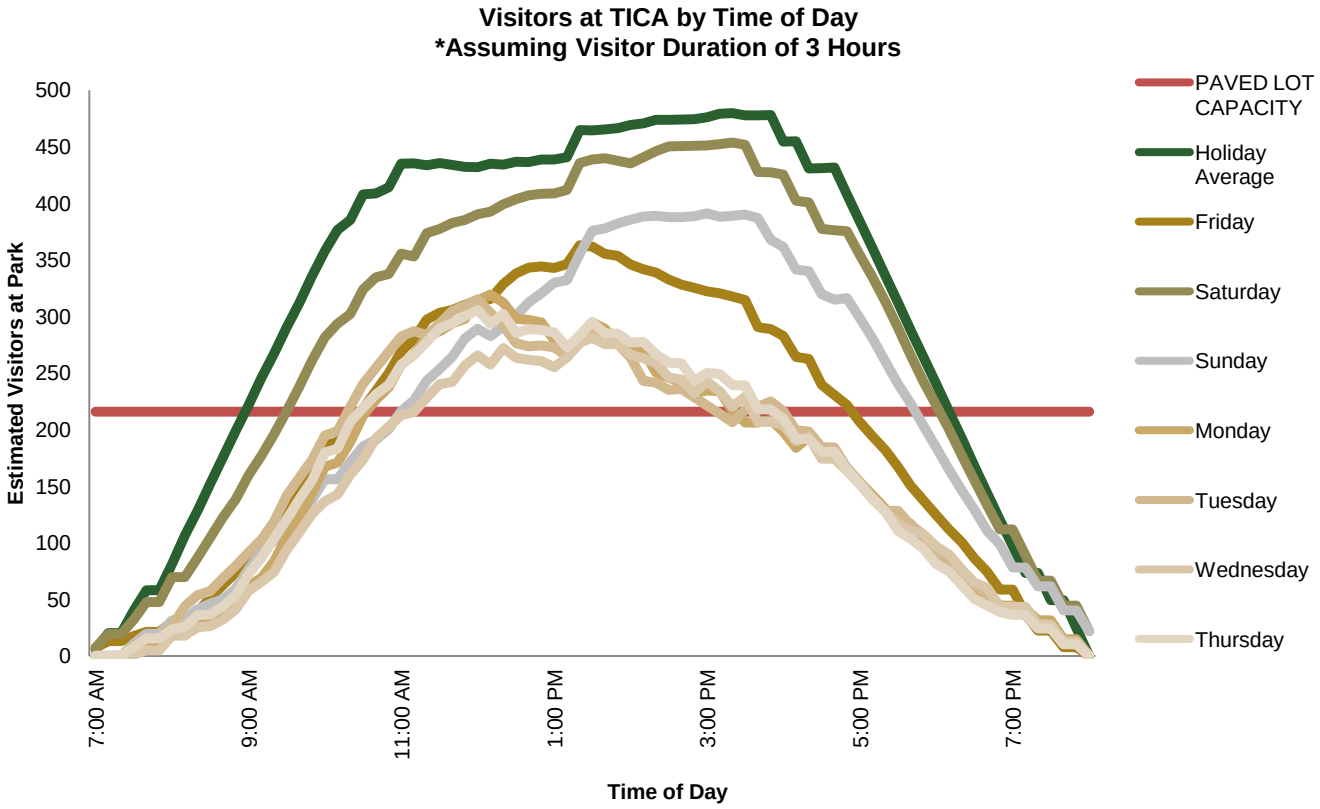
For off-peak time periods, weekday tour times were analyzed based on total visitors, and visitors minus groups (which are likely to be dropped

off by buses or vans rather than arriving in and parking private vehicles). When including all the visitors, the parking is estimated to have been full from around 10:30 am to 4:00 pm. Assuming groups arrive in buses or vans and do not require parking, the parking lots were full from around 11:30 am to 4:00 pm.

Figure 3.8 demonstrates that the parking will be over capacity, even when visitor duration is limited to three hours and it is assumed that tour groups do not require parking.

Using this same methodology, we found that the parking lots were over capacity, on average, every day of the week in 2010. Figure 3.9 compares the average visitation for different days over the 2010 season. Although the lots are full longer on weekends and holidays, they are oversubscribed for most of the day on all days.

Figure 3.9 2010 Average Visitor Accumulation by Day



Note: Demand was estimated based on cave tour tickets sold, plus 20 percent to account for visitors to the monument that engage in other activities. The analysis assumed three people per vehicle and 85 paved spaces at the canyon site (not including Swinging Bridge parking).

3.5 FIELD OBSERVATIONS

Staff Parking: NPS staff currently park in both paved administrative and visitor parking areas, as necessary. Rangers suggested that there were no formal policies in place, rather an informal understanding that approximately 18 administrative parking spaces on north creek side were available for office and visitor center staff. Rangers and other staff are allowed to use paved lots, except for the main south side visitor lot. Concessions staff were observed parking all day in main south side lot and staff regularly double-parked vehicles in the service entrance to the concession stand as later shifts arrived. The maximum number of staff on duty during peak periods is at least 30 (15 rangers, 10 office staff, 1 visitor info staff, 4 concession staff). Considering carpooling and motorcycle use, there is a need for at least a dozen dedicated staff spaces in addition to the administrative spaces currently available.

Pedestrians: Data collection staff observed hazards and vehicle conflicts with pedestrians crossing SR 92 both at the official crosswalk and east and west of the visitor center from the gravel parking lots. Many pedestrians crossed SR 92 at the crosswalk but many crossed at random. Pedestrian use along the highway shoulders to the east and west of the main lot and connecting to the gravel and the Canyon Nature Trail is hazardous. Shoulders are non-existent and curves in the roadway reduce the sight distance for traffic in either direction. There is an informal pedestrian safety zone between the North 1 and North 2 lots on the north side of SR 92 created by anchoring parking barriers in the roadway. Barriers effectively reduced the lane width immediately across from the main entrance to the visitor center. Drivers were observed travelling through the pedestrian zone without slowing and vehicles would queue when stopped at crosswalk, though only during times of high through traffic volume.

Traffic Conditions: Based on observation, relatively few through-travel vehicles slow to the 20 mph speed limit along SR 92 through the monument area. Parked vehicles turning into or backing out of spaces along SR 92 created congestion and represented a hazard to oncoming traffic. Parking conflicts within the main south side lot were generally not observed, i.e. no fender benders, no horn use, and no observed conflicts between drivers.

Swinging Bridge: Use of the Swinging Bridge parking spaces appears to be primarily for picnic and restroom facilities and the lot does not serve as overflow parking for cave visitors. This is based on occupancy levels (below capacity at peak cave visit times and above capacity during low visitation) as well as observations by data collection staff. Additional signage at the visitor center directing people to the Swinging Bridge lot and better signage of Canyon Nature Walk may encourage people to use this lot.

4.0 Visitor Fee Statistics

4.1 INTERAGENCY ENTRANCE FEE PROGRAM

American Fork Canyon is a U.S. Forest Service Fee Area. At the western and eastern ends of American Fork Canyon, the USFS and NPS jointly operate and staff kiosks or fee stations, which collect a fee for all visitors entering the canyon (including visitors who are only visiting the Monument). The American Fork Canyon Station is located at the western end of the Canyon and the Aspen Grove Station is at the eastern end, both on State Route 92. Both Forest Service and National Park Service employees staff the fee stations. Personnel assigned to fee collection include eight full-time USFS employees and two full-time and two part-time NPS employees. In addition, the USFS employs a compliance officer who randomly checks visitor passes throughout the Canyon. During the summer visitor season, the fee stations operate from 7:00 am to 7:00 pm, seven days a week. When not operating, fees are collected via self service fee tubes. Fees are as follows, with Golden Eagle, Golden Age, and Golden Access passports being honored:

3 Day .....$6.00 7 Day .....$12.00 12 Month $45.00

A Remittance Clerk employed by the National Park Service is responsible for counting, verifying, and depositing collected funds into a USFS account. Managed under USFS authority, fee revenue is distributed to the NPS, the USFS, and a number of recreation fee partners. There is no fixed distribution of fee revenues. The NPS, USFS, and recreation fee partners hold an annual meeting to determine the distribution of fees and these amounts will vary from year to year depending upon receipts and needs.

Table 4.1 below shows the reported receipts and distribution of entrance fee revenues for FY 2010 and 2011.

Table 4.1 Interagency Entrance Fee Revenues

Fee Receipts	FY 2010	FY 2011
Total Receipts	$925,962	$715,350
Distribution		
USFS Visitor Services and Compliance	$167,056	$152,862
NPS Visitor Services and Compliance (Timpanogos Cave)	$189,970	$140,638
Recreation Fee Partners	$56,500	$19,500
Project Expenditures	$462,436	$342,000
Carry Over to Next FY	$50,000	$60,350

Source: Timpanogos Cave National Monument. Courtesy of NPS Staff.

Funds made available to Timpanogos Cave National Monument are used for personnel costs to help run the fee program and to complete projects. At present, almost all funding the monument receives through this program supports interpretive or maintenance services. In FY 2010 and 2011, recreation fee partners included:

- Wasatch Mountain State Park Snowmobile Grooming
- Utah Dept. of Transportation Fee Area Road Enhancement Work
- Utah County Law Enforcement Support
- Utah County Search and Rescue
- Timpanogos Emergency Response Team
- Utah Avalanche Center

Projects are selected from recommendations made by all partners and the public. In FY 2011, visitor fees were used to support the following projects:

Maintenance and Operations

- Developed Recreation Operations & Maintenance
- Winter Program Operations (plowing and x-country ski trail grooming)
- Trails/Dispersed/Wilderness Operations & Maintenance
- North Fork Road Maintenance
- Volunteer Program Support

Facility Enhancement

- Kiosks, Maps and Updated Signing
- Fee Tube Replacement
- Theater in the Pines Rehabilitation
- Cascade Springs Picnic Ground Construction
- Echo Picnic Ground Paving

4.2 CAVE TOUR FEES

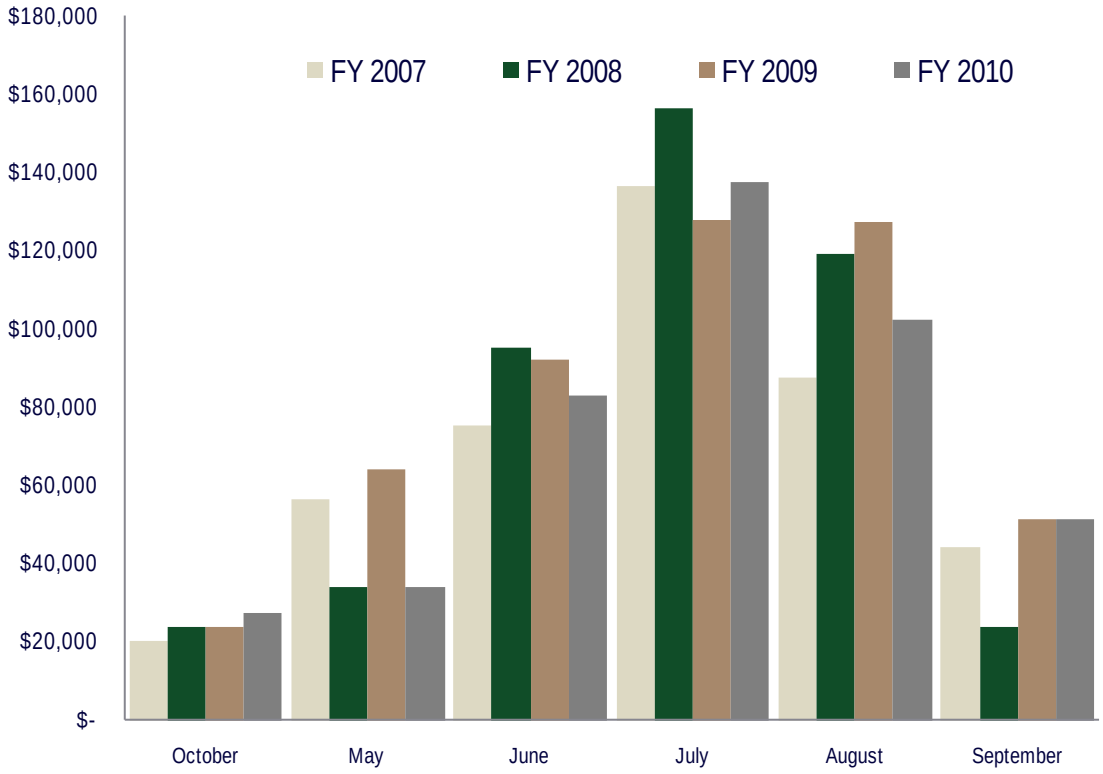
The cave is open for tours from May to early October. Visitors wishing to take a tour of Timpanogos Cave can purchase tour tickets by phone up to 30 days in advance or in-person at the visitor center on the day of the tour if tickets are available. Tickets must be purchased at the visitor center before hiking to the cave and cannot be purchased at the cave entrance. The NPS provides on average 40 -50 tours per day with a maximum of 20 visitors per tour group. The fees for cave tours are:

Adults (age 16 and older)…….$7.00 Child (age 3-5)……..$3.00

Junior (age 6-15)……...……..$5.00 Infant (age 0-2)……..Free

Figure 4.1 illustrates total revenues derived from cave tour ticket sales for fiscal years 2007 through 2010.

Figure 4.1 Monthly TICA Revenue from Cave Tour Ticket Sales, FY 2007-2010

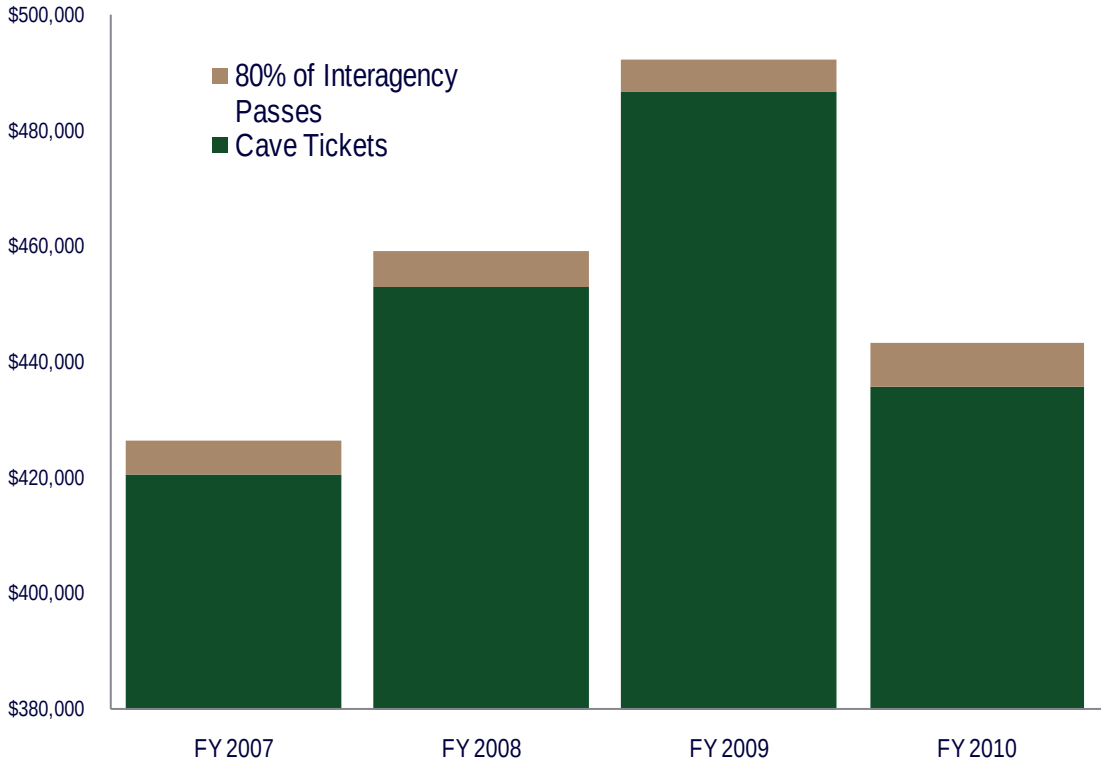


Source: Timpanogos Cave National Monument. Courtesy of NPS Staff.

4.3 TICA REVENUES

Including revenue from cave tour ticket sales and 80 percent of revenue from Interagency Passes (America the Beautiful - the National Parks and Federal Recreational Lands Pass), Timpanogos Cave generated between $400,000 and $500,000 in annual revenue in fiscal years 2007 and 2010. Figure 4.2 indicates the values for these years, by source of revenues.

Figure 4.2 TICA Revenues, by Source FY 2007-2010



5.0 ATS Project Funding Sources

A variety of potential funding sources exist for consideration for funding capital and operations costs of transit and non-transit alternatives within TICA. The following sections briefly summarize major federal transportation, federal land management agency, regional public, and civic funding programs.

In fiscal year 2010, 52 percent of all National Park Service (NPS) transportation improvements were funded through programs authorized under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) of 2005 and the American Recovery and Reinvestment Act (ARRA) of 2009. The remaining 48 percent were funded through sources such as Transportation System Fees, Repair and Rehabilitation Program, and assistance provided by non-profit organizations and corporations such as The Boeing Company Charitable Trust, L.L. Bean, and the National Park Foundation.

The Public Roads and Parkways (PRP) Program is the primary source of transportation funding for the NPS, however PRP projects are commonly supplemented with funds from other federal, public or private sources. The following section summarizes a selection of potential funding which may be applicable to the general range of ATS alternatives under consideration for improvements to operations and visitor access and safety at TICA. Potential funding sources considered include:

- **Federal Highway Administration**
  - Park Roads and Parkways Program
  - Public Lands Highway Discretionary Program
  - Transportation Enhancement Activities
- **Federal Transit Administration**
  - Transit in Parks Program
- **U.S. Department of the Interior**
  - National Park Service, Transportation Related Fees and Funds
- **State of Utah**
- **Private and Civic Organizations**

5.1 FEDERAL HIGHWAY ADMINISTRATION

Federal Lands Highway, Park Roads and Parkways Program

The U.S. Department of Transportation, Federal Highway Administration, Office of Federal Lands Highway (FLH) and the NPS jointly administer the Park Roads and Parkways (PRP), Program which is part of the Federal Lands Highway Program (FLH). PRP includes approximately 9,550 miles of park roads and parkways, bridges, and tunnels under NPS jurisdiction.

The program supports NPS priority projects with available funding which are jointly administered by the NPS and FLH. FLH typically undertakes a majority of the design and construction and NPS is responsible for planning, environment and protection of park values. Transportation projects must be selected based on Choosing By Advantage (CBA) process. Parks nominate projects to either the Region or Washington Support Office (WASO) for prioritization and selection, which then require submittal to FHWA FLH for approval.

Several funding categories are provided, including those of interest to TICA, ATS Category I and III, which are described as follows:

- ***PRP Program Category I: Resurfacing, Rehabilitation, Restoration (3R), and Reconstruction Projects (4R):*** include projects focused on preservation of existing park roadway infrastructure and are selected on a three year cycle using CBA criteria.
  - Regions must select 4R projects using the CBA process and for 3R projects other means of prioritization are acceptable. Projects must be selected by a committee of NPS Region, Federal Lands Highway Division (FLHD), and Park representatives and then presented to the Regional Director for approval.
- ***PRP Program Category III, Transportation Systems Projects:*** include projects focused on planning and implementing new ATS systems and the sustainability of existing ATS systems and are selected on a four-year cycle using CBA criteria. This category is also referred to as the Transportation Management Program (TMP), formerly the Alternative Transportation Program. The Program is intended to integrate all modes of travel in national park system units, including transit, bicycle, pedestrian, and motor vehicle.
  - Parks must identify projects generated from General Management Plans, transportation planning, engineering studies or Section 3039 transit need studies. Projects are selected by Parks, forwarded to Regions for prioritization and then evaluated through the CBA process by WASO representatives.

SAFETEA–LU funded the PRP Program through fiscal year 2011 at $240 million annual appropriations.

Public Lands Highways – Discretionary (PLHD) Program

The U.S. DOT Office of Federal Lands Highway administers the Public Lands Highways (PLH) Program, including the subprogram for discretionary funds. The intent of the program is to improve access to and within Federal lands.

The program is administered by the Federal Highway Administration's Federal Lands Highway Office. The PLHD program provides funding for planning, research, and engineering and construction of transportation infrastructure and transit facilities that provide access to Federal public lands, including national parks. PLH funds can be used for any type of Title 23 U.S.C. Federal-Aid Highways transportation projects providing access to Federal lands. Additional notable eligibility criteria include:

- Available for transportation planning for tourism and recreational travel; adjacent vehicular parking areas; interpretive signage; acquisition of easements; provisions for pedestrians and bicycles; construction and reconstruction of roadside rest areas, including sanitary and water facilities; and other appropriate public road facilities such as visitor centers, as described in 23 U.S.C. 204(h).
- Applicable to state/local matching share for apportioned Federal-aid Highway Funds, as described in 23 U.S.C. 120(l).
- Available for operation and maintenance of transit facilities located on Federal public lands, as described in 23 U.S.C. 204(b)(1)(B).

Federal Highway Administration (FHWA) issues annual calls for PLH-D projects. States submit project applications to the FHWA, and projects are selected on the basis of need as determined by the FHWA. Preference is given to those projects that are significantly impacted by Federal land and resource management activities. Preference is also given to projects that contain at least 3 percent of the total public lands in the country. Funds for selected projects are provided directly to State transportation departments. Through agreements with the State, Federal Land Management Agencies (FLMAs) may receive PLH-D funds directly from the FHWA if projects they submit through the State are selected for PLH-D funding.

In fiscal year 2011, a total of $90.9 million of PLH-D funds were awarded. Projects within Utah included: Livability Plan for Plan for Utah's Scenic Byways and Backways Program and safety improvements to SR 210 and SR 190. The majority of national PLH-D awards in 2011 were for maintenance or enhancements to existing roadways, pedestrian trails, and recreational facilities, relatively few projects directly related to ATS appears to have been funded.

FHWA, Transportation Enhancement Program

FHWA Transportation Enhancement (TE) activities are intended to expand transportation choices and enhance the transportation experience of users. Eligible TE activities related to surface transportation, including pedestrian and

bicycle infrastructure and safety programs, scenic and historic highway programs, landscaping and scenic beautification, historic preservation, and environmental mitigation.

TE funds are administered through a process established by each state. Funds are typically programmed through the statewide or metropolitan transportation planning process. TE projects are funded with an 80 percent Federal share and a required 20 percent non-Federal share. Relevant ATS projects which are eligible for TE funds could include:

- Provision of pedestrian and bicycle facilities and safety activities;
- Acquisition of scenic or historic easements and sites;
- Scenic or historic highway programs, including tourist and welcome centers;
- Landscaping and scenic beautification;
- Rehabilitation and operation of historic transportation buildings, structures, or facilities;

A recent example of the use of TE funding in support of ATS is the Zion shuttle service of Zion National Park. The Town of Springdale obtained Federal TE funds through the Utah DOT for the bus shuttle stops and related streetscape improvements. The Town of Springdale and the Zion National History Association provided the local matching funds.

5.2 FEDERAL TRANSIT ADMINISTRATION

Paul Sarbanes Transit in Parks Program

Section 3021 of SAFETEA–LU, as amended, established the Paul S. Sarbanes Transit in Parks Program. The Transit in Parks Program is intended to enhance visitor experience and access, in part by addressing challenges of vehicle congestion in national parks. The program provides funding for a variety of alternative transportation studies and systems, such as shuttle buses, rail connections, pedestrian and bicycle trails, and intelligent transportation systems implementation.

The program is administered by the U.S. Department of Transportation through the Federal Transit Administration (FTA), together with the Department of the Interior and the U.S. Forest Service. Eligible recipients include Federal land management agencies (FLMA), including the National Park Service (NPS) and U.S. Forest Service (USFS). Eligible project areas include any Federally owned or managed park, refuge or recreational area open to the general public including National Parks and National Forests.

Program funds support planning and capital expenses for new or enhancements to existing ATS including: transportation by tram, shuttle, bus, rail, or any other public transportation means and includes sightseeing and recreational services. Eligible strategies also include non-motorized transportation systems such as

pedestrian and bicycle trails and intelligent transportation systems that significantly improve connectivity.

Eligible planning activities include alternative transportation studies, including evaluation of alternatives, traffic, visitor, feasibility, and environmental studies. Eligible capital projects include all aspects of acquiring and developing public transportation equipment or facilities, including design, engineering, right-of-way, construction, and leasing. Capital projects may include those projects operated by an outside entity, such as a public transportation agency, state or local government, private firm, or non-profit organization. Project sponsors must present comparative analysis of costs of alternative transportations systems and implementation mechanisms. Ongoing operating costs, such as fuel and drivers' salaries, are not eligible expenses. Project proposals may include maximum budget allocation of 15 percent of total costs for project administration, contingency, and oversight.

Recently announced fiscal year 2010 awards for the Transit in the Parks Program ranged from $33,000 to $3,000,000. Relevant applicants selected in Utah for FY 2010 included: planning study and enhancements to Zion NP shuttle system; ATS feasibility study at Arches NP; replacement of Utah Transit Authority buses and repairs to Cottonwood Canyons Park and Ride within the Wasatch-Cache National Forest; and, a multi-modal transportation plan at Bryce Canyon NP.

A recent example of an ATS using Transit in the Parks funding, in combination with other sources, is the North Moab Recreation Area's (NMRA) Alternative Transportation System plan and development. The goal of the NRMA project was to link the city of Moab to the National and State Parks and the Bureau of Land Management public lands through both non-motorized pathways and transit systems. Planned components of the project included a bicycle/pedestrian bridge, shuttle stations and private shuttle service, construction of underpasses allowing safe crossings of roads for bicyclists and pedestrians and development of trails and bike lanes.

5.3 NATIONAL PARK SERVICE, TRANSPORTATION FUNDING SOURCES

The NPS relies on Federal appropriations to fund core activities, although alternative revenues such as user-fees are increasingly used to supplement operations. The NPS requests Congressional funding through an annual budget justifications request, popularly known as the "Green Book". Three key NPS funding sources include:

Federal Lands Recreation Enhancement Act (FLREA)

FLREA provides NPS the authority (which expires in 2014), as part of an interagency program, to collect, retain, and expend recreation fees. Park units may

apply a portion of fee-generated funds for certain purposes within that park unit, including transportation projects.

Commonly, fee-generated revenues are used to repair, maintain and enhance facilities; provide interpretation, information, or services; restore habitat directly related to wildlife-dependent recreation; and provide law enforcement related to public use and recreation. FLREA Legislation authorizes 100 percent of fee-generated revenue to be returned to the NPS, while NPS policy established that 80 percent of receipts remain at the site where collected and 20 percent may be used across all service units.

Implemented in fiscal year 2000, the NPS was authorized by P.L. 105-391 to collect transportation fees for the use of public transportation services to all or part of any park unit. All Transportation Systems Fund monies must be spent on costs associated with the transportation systems at the park unit where the fee is collected. Currently, 13 park units have the approval to collect a transportation fee. For fiscal year 2010, transportation fee receipts were $14.4 million with expenditures at $13.7 million. For both fiscal year 2011 and 2012, annual receipts are estimated at $14.6 million.

National park units that charge user fees for transportation services include the National Mall and Memorial Parks, Denali National Park and Sleeping Bear Dunes National Lakeshore. Fares were initially charged users of the transit system developed for the Acadia National Park but these fares were discontinued when it was determined to have impacted ridership. The Island Explorer shuttle bus system in Acadia is now financed through alternative sources.

NPS Repair/Rehabilitation (R/R) Program

Funding for minor repairs to roads and bridges is occasionally provided through the Repair/ Rehabilitation Program (R/R). Repair and Rehabilitation projects address deferred repair needs that arise when scheduled maintenance is no longer sufficient to improve the condition of the facility or infrastructure. Typical projects may include: campground and trail rehabilitation; roadway pavement overlays; roadway reconditioning; bridge repair; and wastewater and water line replacement. Funds are approved through each fiscal year's appropriations to the NPS operating budget. R/R funds are on a two-year cycle and expire at the end of the second fiscal year. There is a $500,000 funding cap per project.

NPS Line Item Construction Program

The Line-Item Construction program provides for the construction, rehabilitation, and replacement of assets necessary to accomplish park management objectives. NPS Five-Year Line Item Construction Program provides a strategic approach for capital improvements to address the highest priority projects. The Program plan directs 62 percent of funding towards deferred maintenance needs and 38 percent of funding to resource protection and visitor safety and services

capital improvements. Projects are scored according to the Five-Year Deferred Maintenance and Capital Improvement Plan criteria.

Funds from this program are appropriated by line item action within the NPS Greenbook. The Line-Item Construction Program budget request for FY 2012 equaled $70.3 million, more than $70 million less than FY 2011 and FY 2010 levels. There are no critical health/safety/life projects for TICA included within the current Five Year plan submitted in the FY 2010 NPS Operating Budget.

5.4 STATE OF UTAH, UTAH DEPARTMENT OF TRANSPORTATION, LOCAL GOVERNMENTS, AND UTAH TRANSIT AUTHORITY

State and local transportation funding sources have been successfully applied to projects within Federal lands. However, the variety and mix of possible funding sources within Utah is diverse and will require discussion with the Utah Department of Transportation (UDOT), Utah County, and the Utah Transit Authority (UTA).

The Utah Department of Transportation maintains the Timpanogos Highway (State Highway 92) which is the main east-west corridor for the communities of Alpine, Highland, Cedar Hills and northeast Lehi, as well as the primary access road for American Fork Canyon, TICA, and the Alpine Loop within the Wasatch-Cache National Forest. UDOT's current project to widen SR92 at the mouth of the canyon as well as construction of segments of multi-use trails to enhance the existing trail system in the area was funded with $148 million of state and Federal funds. UDOT is responsible for routine and winter maintenance on SR 92. Funds available through UDOT from the FHWA and other sources could be applied to scenic, beautification, safety, and other transportation enhancements along SR 92.

The Utah Transit Authority has been in operation since 1970 and now serves the largest segment of population in the State of Utah and operates in one of the largest geographical service areas of any transit agency in the U.S. Local and express bus service is provided to American Fork, Alpine, Lehi, and other communities adjacent to the American Fork Canyon. In addition, the southern extension of UTA's FrontRunner commuter rail service began construction in 2008 and is expected to be operational by 2015. UTA is primarily funded through local option sales taxes (71 percent in 2009).

The Mountainland Association of Governments serves the three county region of Summit, Wasatch and Utah Counties. The Mountainland Metropolitan Planning Organization (MMPO) is involved in a wide range of transportation planning and improvement activities within the adjacent communities of the American Fork Canyon. The MMPO accepts applications for federal funds through local and regional government jurisdictions. Project sponsors must work with a local

municipality, the Utah Department of Transportation, the Utah Department of Air Quality, or the Utah Transit Authority to sponsor a project. Transportation related projects are selected for funding every two years by the MPO Technical Advisory and Regional Planning committees. The next selection cycle will start in January 2012.

The North Moab Recreation Area (NRMA) ATS implementation provides a case study for partnerships and diverse state and local funding for ATS solutions in the State of Utah. The total project cost of NMRA ATS implementation was estimated at approximately $13 million. Primary capital costs for construction and equipment were federally funded through two Federal Transit Administration grants from the Transit in Parks Program. The Bureau of Land Management also applied to the state for FHWA federal transportation funds. UDOT contributed funding by means of construction of bicycle paths and other improvements. Capital costs were thus largely covered by Federal sources with contributions by state and local partners. Operating costs for a shuttle system will be supplied by a private vendor, which will set its own fees for transit service. Grand County created a transportation special services district in 2009 and will fund maintenance on paved trail infrastructure county-wide as well as maintenance services at transit hubs. The Moab City Recreation Department will coordinate with a local non-profit organization to provide additional trail maintenance services.

5.5 PRIVATE AND CIVIC ORGANIZATIONS

The National Park Service relies on donations to supplement federal funding and assist the agency in better fulfilling its mission and fostering a shared sense of stewardship. Donations generally come in the form of cash and in-kind goods and services. NPS reported receiving direct cash donations of $57.6 million in fiscal year 2008, about $30.3 million more than in fiscal year 2007.

Private sponsorships can be used as a means to raise funding for recreational or quasi-public purposes. Sponsorships may range from large donations from corporate entities (such as the Ford Foundation or Boeing, Inc.), to national civic organizations (such as the National Park Foundation) to individual contributions to support specific services (e.g. sponsorship of school field trip transportation to local parks).

Annual cash donations to individual parks nationwide ranged from less than $10 to more than $4.5 million, on average, over the last 10 fiscal years, with the great majority of parks receiving less than $50,000 a year. Within the broad Wasatch Front Range region and national philanthropic community, there may be potential sponsors who would consider underwriting the cost of a demonstration project or longer-term ATS services, providing private sponsorship of a potentially high-visibility service to the community. Several national parks rely on corporate sponsorships to help fund their transportation system. For example, Acadia National Park receives approximately $200,000 annually from L.L Bean to sponsor their Island Explorer Shuttle System.

Appendix B – Cost Calculations

- *Appendix B.1 – Operating Cost Summary Calculations*
- *Appendix B.2 – Class C Cost Estimates*
- *Appendix B.3 – Financial Pro Formas*

Appendix B.1 – Operating Cost Summary Calculations

Shuttle Operating Costs
Summary Tables

Service Levels per Season

Low Cost - UTA		
Headway	**Veh-miles**	**Vehicle-Hrs**
10-min	648	47.3
15-min	441	31.5

High Cost - Rocky Mountain Shuttle		
Headway	**Veh-miles**	**Vehicle-Hrs**
10-min	776	49.4
15-min	526	32.9

Unit Costs

	$/veh-mile	**$/veh-hr**
UTA	$1.20	$32.00
Rocky Mountain Shuttle	$9.36	$131.58
ESTA	$0.60	$45.75

Adjusted to account for year of expenditure

	$/veh-mile	**$/veh-hr**
UTA	$1.20	$32.00
Rocky Mountain Shuttle	$10.17	$143.02
ESTA	$0.63	$48.00

Operating Costs (2011$)

Alternative	**Headway**	**Days**	**Low**	**High**
Mandatory	10	145	$332,189	$1,144,185
Mandatory	15	145	$223,083	$776,559
Peak Shuttle	10	47	$107,675	$370,874
Peak Shuttle	15	47	$72,310	$251,712

Average Cost per ticket (2011$)

Alternative	**Headway**	**Low**	**High**
Mandatory	10	$4.43	$15.26
Mandatory	15	$2.97	$10.35
Peak Shuttle	10	$1.44	$4.94
Peak Shuttle	15	$0.96	$3.36

Assume =
Visitation 75,000

Annual Operating Costs (2015-2021) -- Inflation adjusted (4%)

Low Cost Operator	Headway	2015	2016	2017	2018	2019	2020	2021	2022
Alt 1. - Mandatory	10	$388,614	$404,159	$420,325	$437,138	$454,624	$472,809	$491,721	$511,390
Alt 1. - Mandatory	15	$260,976	$271,415	$282,272	$293,563	$305,305	$317,517	$330,218	$343,427
Alt 2 - Peak Shuttle	10	$125,965	$131,003	$136,243	$141,693	$147,361	$153,255	$159,385	$165,761
Alt 2 - Peak Shuttle	15	$84,592	$87,976	$91,495	$95,155	$98,961	$102,919	$107,036	$111,318

High Cost Operator	Headway	2015	2016	2017	2018	2019	2020	2021	2022
Alt 1. - Mandatory	10	$1,338,535	$1,392,076	$1,447,759	$1,505,669	$1,565,896	$1,628,532	$1,693,673	$1,761,420
Alt 1. - Mandatory	15	$908,464	$944,803	$982,595	$1,021,898	$1,062,774	$1,105,285	$1,149,497	$1,195,477
Alt 2 - Peak Shuttle	10	$433,870	$451,225	$469,274	$488,045	$507,566	$527,869	$548,984	$570,943
Alt 2 - Peak Shuttle	15	$294,468	$306,246	$318,496	$331,236	$344,485	$358,265	$372,595	$387,499

Appendix B.2 – Class C Cost Estimates

PROJECT INFORMATION

Project:	Alternative Transportation Feasibility Study - TICA 172474
Park:	Timpanogos Cave National Monument, Uinta National Forest
Park Alpha:	TICA
PMIS Number:	
Estimate Date:	1/11/2012
Prepared By:	Perry Palmer/Becky Smith
Company:	David Evans and Associates, Inc.
Address:	1331 17th Street, Suite 900
City, State Zip:	Denver, CO 80202
Phone:	720-946-0969

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

This Alternative Transportation Feasibility Study (study) has been undertaken to identify various transit and non- transit options for the Timpanogos Cave National Monument in Utah County (TICA), Utah. The ultimate goal of this project is to improve visitor access and safety in the Timpanogos Caves National Monument. Currently, traffic and parking congestion creates pedestrian and vehicle conflicts along State Highway (SR 92) especially when pedestrians cross the highway to access the visitor center or when parking is unavailable in designated parking areas. This project will present various transportation alternatives or set of related alternatives which would make TICA more accessible to visitors, relieve congestion, improve safety conditions, and enhance visitor experience.

SOURCE OF COST DATA:

UDOT bid items from all regions, Jan-Jun 2011. RSMeans CostWorks. Get-a-Quote.com - Utah Heavy Construction Cost Book. Fabricator estimate for shelters.

ESTIMATE ASSUMPTIONS:

Assume any VC demolition /remodling for all alternatives are covered in AGC estimate

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Not applicable.

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	0.0%	All mark-up and add-on data provided by NPS. A mark-up of -11% was provided, but RSMeans cost index for Provo as of 11Q4 has site and infrastructure work close to national average. Used 0% for this portion of the estimate.
Remoteness Factor:	0.00%	All mark-up and add-on data provided by NPS. Site is 20 miles from published commercial center (Provo).
Wage Rate Factor	7.50%	All mark-up and add-on data provided by NPS
State & Local Taxes:	4.75%	
Design Contingency:	15.00%	
Standard General Conditions:	14.00%	
Government General Conditions:	6.00%	
Historic Preservation Factor:	0.00%	
Contractor Overhead:	10.00%	
Contractor Profit:	7.00%	
Bonds and Permits:	2.00%	
Contracting Method Adjustment:	10.00%	
Annual Inflation Excalation Factor:	4.00%	
Time Until Project Midpoint (Months):	12	

OTHER COMMENTS:

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	1/11/2012
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 1	**Mandatory Shuttle**	**Total Cost:**	$15,910,824

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	16.6	Acre	$ 3,445.00	$57,187	
	Site grading	80340	SY	$ 5.95	$478,023	
	Highland Site Demo & Prep				**$535,210**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	5848	SF	$ 10.00	$58,480	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	0	EA	$ 120.00	$0	
	Tree Removal	16	EA	$ 570.00	$9,120	incl. stump 12"-24"
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	1	EA	$ 86.00	$86	
	-Park sign	2	EA	$ 86.00	$172	
	-One way	1	EA	$ 86.00	$86	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	0	LF	$ 1.00	$0	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	4322	SY	$ 5.95	$25,716	
	Canyon Site Demo & Prep				**$122,643**	
	Subtotal Site Demolition and Preparation Costs				**$657,853**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	+/- 170 spaces
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	Not included
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	5490	Ton	$ 50.00	$274,500	6" depth
	HACP (hot asphalt concrete pavement)	10060	Ton	$ 120.00	$1,207,200	8" depth
	Curb and gutter	9000	LF	$ 22.00	$198,000	
	Thermoplastic striping (4")	6876	LF	$ 0.91	$6,257	
	Thermoplastic handicap symbol	14	Ea	$ 39.37	$551	
	Thermoplastic cross-hatching	200	SY	$ 5.34	$1,068	
	Concrete Box Culvert	100	LF	$ 400.00	$40,000	4' high x 8' wide
	Drainage Ponds	1	LS	$ 75,000.00	$75,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	24215	SF	$ 4.71	$114,053	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 100,000.00	$100,000	
	Turf/Seeding	28500	SY	$ 0.64	$18,240	
G2020	**Site Development: Other**					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	No parking	10	EA	$ 65.00	$650	includes post
	ADA	14	EA	$ 58.00	$812	includes post
	Stop/Yield/miscellaneous	20	EA	$ 84.00	$1,680	includes post
	Highland Site Improvements				**$5,989,116**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ 200.00	$0	
	Maintenance Building	0	SF	$ 215.00	$0	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	300	Ton	$ 50.00	$15,000	6" subgrade
	HACP (hot asphalt concrete pavement)	550	Ton	$ 120.00	$66,000	8" pavement
	Curb and gutter	710	LF	$ 22.00	$15,620	
	Thermoplastic striping (4")	180	LF	$ 0.91	$164	
	Thermoplastic handicap symbol	1	Ea	$ 39.37	$39	
	Thermoplastic cross-hatching	18	SY	$ 5.34	$96	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	bench included with shelter above
	Trash Container	3	Ea	$ 450.00	$1,350	re-use one, one new at bus stop
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high, in front of bus stop
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	4465	SF	$ 4.71	$21,030	concrete
G2030	Asphalt Trail	0	SF	$ 2.00	$0	??
	Landscaping	1	LS	$ 30,000.00	$30,000	
	Turf/Seeding	2939	SY	$ 0.64	$1,881	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	224	LF	$ 0.91	$204	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	21	SY	$ 5.34	$112	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	10	EA	$ 65.00	$650	includes post
	ADA	1	EA	$ 58.00	$58	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$978,676**	
	Subtotal Site Development Costs				**$6,987,832**	
	Total Construction Costs				**$7,645,685**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
				Direct Cost Subtotal without GFP	**$7,645,685**	

	Contingencies				
	Published Location Factor	0.00%			$0
	Remoteness Factor	0.00%			$0
	Federal Wage Rate Factor	7.50%			$573,426
	State & Local Taxes	4.75%			$363,170
	Design Contingency	15.00%			$1,146,853
	Total Direct Construction Costs				**$9,729,134**
	Standard General Conditions	14.00%			$1,362,079
	Government General Conditions	6.00%			$583,748
	Historic Preservation Factor	0.00%			$0
	Subtotal NET Construction Cost				**$11,674,961**
	Overhead	10.00%			$1,167,496
	Profit	7.00%			$817,247
	Estimated NET Construction Cost				**$13,659,705**
	Bonds & Permits	2.00%			$273,194
	Contracting Method Adjustment	10.00%			$1,365,970
	Inflation Escalation	12	Months	4.00%	$611,955
	Total Estimated NET Cost of Construction				**$15,910,824**

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	1/11/2012
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 2	**Peak Period Shuttle**	**Total Cost:**	$15,282,117

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	Unit	$ -	$0	
	Clearing and grubbing	16.6	Acre	$ 3,445.00	$57,187	
	Site grading	80340	SY	$ 5.95	$478,023	
	Highland Site Demo & Prep				**$535,210**	
G1010	**Canyon Site Contact Station**					
	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	6,244	SF	$ 0.20	$1,249	North side of Hwy
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	2	EA	$ 120.00	$240	
	Tree Removal	22	EA	$ 570.00	$12,540	Single
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	2	EA	$ 86.00	$172	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	1	EA	$ 267.00	$267	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	5106	SY	$ 5.95	$30,381	
	Canyon Site Demo & Prep				**$153,054**	
	Subtotal Site Demolition and Preparation Costs				**$688,264**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	4500	Ton	$ 50.00	$225,000	
	HACP (hot asphalt concrete pavement)	8260	Ton	$ 120.00	$991,200	
	Curb and gutter	6860	LF	$ 22.00	$150,920	
	Thermoplastic striping (4")	5180	LF	$ 0.91	$4,714	
	Thermoplastic handicap symbol	10	Ea	$ 39.37	$394	
	Thermoplastic cross-hatching	110	SY	$ 5.34	$587	
	Concrete Box Culvert	42	LF	$ 100.00	$4,200	4' high x 8' wide
	Drainage Ponds	1	LS	$ 75,000.00	$75,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 75,000.00	$75,000	
	Turf/Seeding	3000	SY	$ 0.64	$1,920	
G2020	Site Development: Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	No parking	8	EA	$ 65.00	$520	includes post
	ADA	10	EA	$ 58.00	$580	includes post
	Stop/Yield/miscellaneous	18	EA	$ 84.00	$1,512	includes post
	Highland Site Improvements				**$5,565,430**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ 200.00	$0	
	Maintenance Building	0	SF	$ 215.00	$0	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	580	Ton	$ 50.00	$29,000	
	HACP (hot asphalt concrete pavement)	1050	Ton	$ 120.00	$126,000	
	Curb and gutter	735	LF	$ 22.00	$16,170	
	Remove 4" striping	486	LF	$ 2.36	$1,147	
	Thermoplastic striping (4")	1730	LF	$ 0.91	$1,574	
	Thermoplastic handicap symbol	4	Ea	$ 39.37	$157	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	13960	SF	$ 4.71	$65,752	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30.00	$30	
	Turf/Seeding	1495	SY	$ 0.64	$957	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	464	LF	$ 0.91	$422	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	4	EA	$ 58.00	$232	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$1,069,836**	
	Subtotal Site Improvement Costs				**$6,655,306**	
	Total Construction Costs				**$7,343,570**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
				Direct Cost Subtotal without GFP	$7,343,570	
	Contingencies					
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	7.50%			$550,768	
	State & Local Taxes	4.75%			$348,820	
	Design Contingency	15.00%			$1,101,536	
	Total Direct Construction Costs				**$9,344,693**	
	Standard General Conditions	14.00%			$1,308,257	
	Government General Conditions	6.00%			$560,682	
	Historic Preservation Factor	0.00%			$0	
	Subtotal NET Construction Cost				**$11,213,632**	
	Overhead	10.00%			$1,121,363	
	Profit	7.00%			$784,954	
	Estimated NET Construction Cost				**$13,119,949**	
	Bonds & Permits	2.00%			$262,399	
	Contracting Method Adjustment	10.00%			$1,311,995	
	Inflation Escalation	12	Months	4.00%	$587,774	
	Total Estimated NET Cost of Construction				**$15,282,117**	

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 17247	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Fores	**Date:**	1/11/2012
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 3	**Canyon Capacity Improvements**	**Total Cost:**	$15,494,993

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	SITE DEMOLITION & PREPARATION					Demolition includes haul awa
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	9.5	Acre	$ 3,445.00	$32,728	
	Site grading	44560	SY	$ 5.95	$265,132	
	Highland Site Demo & Prep				**$297,860**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	1220	SF	$ 0.20	$244	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	512	LF	$ 2.50	$1,280	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	1	EA	$ 120.00	$120	
	Tree Removal	48	EA	$ 570.00	$27,360	Single
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	4	EA	$ 86.00	$344	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	0	EA	$ 267.00	$0	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	9638	SY	$ 5.95	$57,346	
	Canyon Site Demo & Prep				**$193,892**	
	Subtotal Site Demolition and Preparation Costs				**$491,752**	
G20	SITE IMPROVEMENTS					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Mobilization	15%	LS	$600,650	$90,098	
	Excavation	12500	CY	$ 30.00	$375,000	
	Subgrade aggregate	649	Ton	$ 50.00	$32,450	
	HACP (hot asphalt concrete pavement)	360	Ton	$ 120.00	$43,200	
	Retaining walls	2000	SF	$ 75.00	$150,000	
	Roadway Improvements				**$710,788**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	3032	Ton	$ 50.00	$151,600	
	HACP (hot asphalt concrete pavement)	5560	Ton	$ 120.00	$667,200	
	Curb and gutter	5600	LF	$ 22.00	$123,200	
	Thermoplastic striping (4")	3400	LF	$ 0.91	$3,094	
	Thermoplastic handicap symbol	6	Ea	$ 39.37	$236	
	Thermoplastic cross-hatching	75	SY	$ 5.34	$401	
	Concrete Box Culvert	42	LF	$ 400.00	$16,800	4' high x 8' wide
	Drainage Ponds	1	LS	$ 60,000.00	$60,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 50,000.00	$50,000	
	Turf/Seeding	26175	SY	$ 0.64	$16,752	
G2020	Site Development: Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	6	EA	$ 65.00	$390	includes post
	ADA	6	EA	$ 58.00	$348	includes post
	Stop/Yield/miscellaneous	15	EA	$ 84.00	$1,260	includes post
	Highland Site Improvements				**$5,125,164**	

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ 200.00	$0	
	Maintenance Building	0	SF	$ 215.00	$0	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	690	Ton	$ 50.00	$34,500	
	HACP (hot asphalt concrete pavement)	1260	Ton	$ 120.00	$151,200	
	Curb and gutter	1262	LF	$ 22.00	$27,764	
	Thermoplastic striping (4")	1206	LF	$ 0.91	$1,097	
	Thermoplastic handicap symbol	3	Ea	$ 39.37	$118	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
	Arrows (42")	8	Ea	$ 19.72	$158	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	9131	SF	$ 4.71	$43,007	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30,000.00	$30,000	
	Turf/Seeding	2186	SY	$ 0.64	$1,399	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	384	LF	$ 0.91	$349	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	3	EA	$ 58.00	$174	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$1,118,162**	
	Subtotal Site Improvements Costs				**$6,954,113**	
	Total Construction Costs				**$7,445,865**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
				Direct Cost Subtotal without GFP	$7,445,865	

	Contingencies				
	Published Location Factor	0.00%			$0
	Remoteness Factor	0.00%			$0
	Federal Wage Rate Factor	7.50%			$558,440
	State & Local Taxes	4.75%			$353,679
	Design Contingency	15.00%			$1,116,880
	Total Direct Construction Costs				**$9,474,863**
	Standard General Conditions	14.00%			$1,326,481
	Government General Conditions	6.00%			$568,492
	Historic Preservation Factor	0.00%			$0
	Subtotal NET Construction Cost				**$11,369,835**
	Overhead	10.00%			$1,136,984
	Profit	7.00%			$795,888
	Estimated NET Construction Cost				**$13,302,707**
	Bonds & Permits	2.00%			$266,054
	Contracting Method Adjustment	10.00%			$1,330,271
	Inflation Escalation	12	Months	4.00%	$595,961
	Total Estimated NET Cost of Construction				**$15,494,993**

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	1/11/2012
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 4	**Canyon Safety Improvements**	**Total Cost:**	$13,871,808

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	9.5	Acre	$ 3,445.00	$32,728	
	Site grading	44560	SY	$ 5.95	$265,132	
	Highland Site Demo & Prep				**$297,860**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	6,244	SF	$ 0.20	$1,249	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381		$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	2	EA	$ 120.00	$240	
	Tree Removal	22	EA	$ 570.00	$12,540	Single
	Tree/Vegetation Removal	0.09	SF	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	2	EA	$ 86.00	$172	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	1	EA	$ 267.00	$267	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	5106	SY	$ 5.95	$30,381	
	Canyon Site Demo & Prep				**$153,054**	
	Subtotal Site Demolition and Preparation Costs				**$450,913**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	3032	Ton	$ 50.00	$151,600	
	HACP (hot asphalt concrete pavement)	5560	Ton	$ 120.00	$667,200	
	Curb and gutter	5600	LF	$ 22.00	$123,200	
	Thermoplastic striping (4")	3400	LF	$ 0.91	$3,094	
	Thermoplastic handicap symbol	6	Ea	$ 39.37	$236	
	Thermoplastic cross-hatching	75	SY	$ 5.34	$401	
	Concrete Box Culvert	42	LF	$ 400.00	$16,800	4' high x 8' wide
	Drainage Ponds	1	LS	$ 60,000.00	$60,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 50,000.00	$50,000	
	Turf/Seeding	26175	SY	$ 0.64	$16,752	
G2020	Site Development: Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G2040	*Signage*					
	No parking	6	EA	$ 65.00	$390	includes post
	ADA	6	EA	$ 58.00	$348	includes post
	Stop/Yield/miscellaneous	15	EA	$ 84.00	$1,260	includes post
	Highland Site Improvements				**$5,125,164**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ 200.00	$0	
	Maintenance Building	0	SF	$ 215.00	$0	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	580	Ton	$ 50.00	$29,000	
	HACP (hot asphalt concrete pavement)	1050	Ton	$ 120.00	$126,000	
	Curb and gutter	735	LF	$ 22.00	$16,170	
	Remove 4" striping	486	LF	$ 2.36	$1,147	
	Thermoplastic striping (4")	1730	LF	$ 0.91	$1,574	
	Thermoplastic handicap symbol	4	Ea	$ 39.37	$157	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	13960	SF	$ 4.71	$65,752	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30.00	$30	
	Turf/Seeding	1495	SY	$ 0.64	$957	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	464	LF	$ 0.91	$422	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	4	EA	$ 58.00	$232	includes post
	Stop/Yield/miscellaneous		EA	$ 84.00	$0	includes post
	Canyon Site Improvements				**$1,069,752**	
	Subtotal Direct Construction Costs				**$6,214,956**	
	Total Construction Costs				**$6,665,870**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
				Direct Cost Subtotal without GFP	$6,665,870	
	Contingencies					
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	7.50%			$499,940	
	State & Local Taxes	4.75%			$316,629	
	Design Contingency	15.00%			$999,880	
	Total Direct Construction Costs				**$8,482,319**	
	Standard General Conditions	14.00%			$1,187,525	
	Government General Conditions	6.00%			$508,939	
	Historic Preservation Factor	0.00%			$0	
	Subtotal NET Construction Cost				**$10,178,783**	
	Overhead	10.00%			$1,017,878	
	Profit	7.00%			$712,515	
	Estimated NET Construction Cost				**$11,909,176**	
	Bonds & Permits	2.00%			$238,184	
	Contracting Method Adjustment	10.00%			$1,190,918	
	Inflation Escalation	0	Months	4.00%	$533,531	
	Total Estimated NET Cost of Construction				**$13,871,808**	

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

Appendix B.3 – Financial Pro Formas

ATS Financial Planning Computation Sheet

NPS Financial ProForma	Alt:	1 - Mandatory	Headway:	10	Estimate:	High
Version 6-16-08						

Enter First Year of Operations → 2013

	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																
Sources																																
Carry Over:																																
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0
Users/Visitors:																																
User Fees and Fares			$0			$0		$1,338,535	$1,338,535		$1,392,076	$1,392,076		$1,447,759	$1,447,759		$1,505,669	$1,505,669		$1,565,896	$1,565,896		$1,628,532	$1,628,532		$1,693,673	$1,693,673		$1,761,420	$1,761,420	$0	$12,333,561	$12,333,561
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$1,338,535	$1,338,535	$0	$1,392,076	$1,392,076	$0	$1,447,759	$1,447,759	$0	$1,505,669	$1,505,669	$0	$1,565,896	$1,565,896	$0	$1,628,532	$1,628,532	$0	$1,693,673	$1,693,673	$0	$1,761,420	$1,761,420	$0	$12,333,561	$12,333,561
Enter Annual Inflation Percentage	0.00%																															
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$1,338,535	$1,338,535	$0	$1,392,076	$1,392,076	$0	$1,447,759	$1,447,759	$0	$1,505,669	$1,505,669	$0	$1,565,896	$1,565,896	$0	$1,628,532	$1,628,532	$0	$1,693,673	$1,693,673	$0	$1,761,420	$1,761,420	$0	$12,333,561	$12,333,561
EXPENSES																																
Uses:																																
Capital																																
Vehicles--*Up to* 3 Types																																
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$7,060,172		$7,060,172	$7,060,172		$7,060,172			$0			$0			$0			$0			$0			$0			$0			$0	$14,120,343		$14,120,343
Canyon Site	$1,191,771		$1,191,771	$1,191,771		$1,191,771			$0			$0			$0			$0			$0			$0			$0			$0	$2,383,542		$2,383,542
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$8,273,629		$8,273,629	$8,273,629		$8,273,629	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,547,257		$16,547,257
Enter Annual Cost Inflation Percentage	0.00%																															
Capital Uses Inflation-Adjusted	$8,273,629		$8,273,629	$8,273,629		$8,273,629	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,547,257		$16,547,257
Capital Balance Inflation Adjusted	-$8,273,629			-$8,273,629			$0			$0			$0			$0			$0			$0			$0			$0			-$16,547,257		
Surplus (Deficit)**																																
Uses:																																
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																
Option 1-																																
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:					
< 25 Passengers ($50.00/hour)	0	$0	$0	0	$0	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	0	$0.00	$0	$0	$0
Default Annual Operating Cost: 25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0	$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	$0	$0
*Park-Specific Cost Factors:*** (Calculation on "Option 2" Worksheet)		$0	$0		$0	$0		$1,338,535	$1,338,535		$1,392,076	$1,392,076		$1,447,759	$1,447,759		$1,505,669	$1,505,669		$1,565,896	$1,565,896		$1,628,532	$1,628,532		$1,693,673	$1,693,673		$1,761,420	$1,761,420	$12,333,561	$12,333,561
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$1,338,535	$1,338,535		$1,392,076	$1,392,076		$1,447,759	$1,447,759		$1,505,669	$1,505,669		$1,565,896	$1,565,896		$1,628,532	$1,628,532		$1,693,673	$1,693,673		$1,761,420	$1,761,420	$12,333,561	$12,333,561
Enter Annual Inflation Percentage	0.00%																															
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$1,338,535	$1,338,535		$1,392,076	$1,392,076		$1,447,759	$1,447,759		$1,505,669	$1,505,669		$1,565,896	$1,565,896		$1,628,532	$1,628,532		$1,693,673	$1,693,673		$1,761,420	$1,761,420	$12,333,561	$12,333,561
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0	$0	$0	
NET BALANCES																																
Capital and Operating	-$8,273,629	$0	-$8,273,629	-$8,273,629	$0	-$8,273,629	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$16,547,257	$0	-$16,547,257

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*

** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma | Alt: 1 - Mandatory | Headway: 10 | Estimate: Low

Version 6-16-08

Enter First Year of Operations → 2013

	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																	
Sources																																	
Carry Over:																																	
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0
Users/Visitors:																																	
User Fees and Fares			$0			$0		$388,614	$388,614		$404,159	$404,159		$420,325	$420,325		$437,138	$437,138		$454,624	$454,624		$472,809	$472,809		$491,721	$491,721		$511,390	$511,390	$0	$3,580,781	$3,580,781
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																	
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																	
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																	
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																	
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$388,614	$388,614	$0	$404,159	$404,159	$0	$420,325	$420,325	$0	$437,138	$437,138	$0	$454,624	$454,624	$0	$472,809	$472,809	$0	$491,721	$491,721	$0	$511,390	$511,390	$0	$3,580,781	$3,580,781
Enter Annual Inflation Percentage	0.00%																																
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$388,614	$388,614	$0	$404,159	$404,159	$0	$420,325	$420,325	$0	$437,138	$437,138	$0	$454,624	$454,624	$0	$472,809	$472,809	$0	$491,721	$491,721	$0	$511,390	$511,390	$0	$3,580,781	$3,580,781
EXPENSES																																	
Uses:																																	
Capital																																	
Vehicles--*Up to* 3 Types																																	
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$7,060,172		$7,060,172	$7,060,172		$7,060,172			$0			$0			$0			$0			$0			$0			$0			$0	$14,120,343		$14,120,343
Canyon Site	$1,191,771		$1,191,771	$1,191,771		$1,191,771			$0			$0			$0			$0			$0			$0			$0			$0	$2,383,542		$2,383,542
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Replacement Allowance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$8,273,629		$8,273,629	$8,273,629		$8,273,629	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,547,257		$16,547,257
Enter Annual Cost Inflation Percentage	0.00%																																
Capital Uses Inflation-Adjusted	$8,273,629		$8,273,629	$8,273,629		$8,273,629	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,547,257		$16,547,257
Capital Balance Inflation Adjusted	-$8,273,629			-$8,273,629			$0			$0			$0			$0			$0			$0			$0			$0			-$16,547,257		
Surplus (Deficit)**																																	
Uses:																																	
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																	
Option 1-																																	
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost: 25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:*** (Calculation on "Option 2" Worksheet)		$0	$0		$0	$0		$388,614	$388,614		$404,159	$404,159		$420,325	$420,325		$437,138	$437,138		$454,624	$454,624		$472,809	$472,809		$491,721	$491,721		$511,390	$511,390		$3,580,781	$3,580,781
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$388,614	$388,614		$404,159	$404,159		$420,325	$420,325		$437,138	$437,138		$454,624	$454,624		$472,809	$472,809		$491,721	$491,721		$511,390	$511,390		$3,580,781	$3,580,781
Enter Annual Inflation Percentage	0.00%																																
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$388,614	$388,614		$404,159	$404,159		$420,325	$420,325		$437,138	$437,138		$454,624	$454,624		$472,809	$472,809		$491,721	$491,721		$511,390	$511,390		$3,580,781	$3,580,781
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	
NET BALANCES																																	
Capital and Operating	-$8,273,629	$0	-$8,273,629	-$8,273,629	$0	-$8,273,629	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$16,547,257	$0	-$16,547,257

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*

** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma | Alt: 1 - Mandatory | Headway: 15 | Estimate: High

Version 6-16-08

Enter First Year of Operations 2013

	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																	
Sources																																	
Carry Over:																																	
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0
Users/Visitors:																																	
User Fees and Fares			$0			$0		$908,464	$908,464		$944,803	$944,803		$982,595	$982,595		$1,021,898	$1,021,898		$1,062,774	$1,062,774		$1,105,285	$1,105,285		$1,149,497	$1,149,497		$1,195,477	$1,195,477	$0	$8,370,793	$8,370,793
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																	
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																	
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																	
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																	
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$908,464	$908,464	$0	$944,803	$944,803	$0	$982,595	$982,595	$0	$1,021,898	$1,021,898	$0	$1,062,774	$1,062,774	$0	$1,105,285	$1,105,285	$0	$1,149,497	$1,149,497	$0	$1,195,477	$1,195,477	$0	$8,370,793	$8,370,793
Enter Annual Inflation Percentage	0.00%																																
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$908,464	$908,464	$0	$944,803	$944,803	$0	$982,595	$982,595	$0	$1,021,898	$1,021,898	$0	$1,062,774	$1,062,774	$0	$1,105,285	$1,105,285	$0	$1,149,497	$1,149,497	$0	$1,195,477	$1,195,477	$0	$8,370,793	$8,370,793
EXPENSES																																	
Uses:																																	
Capital																																	
Vehicles--*Up to* 3 Types																																	
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost -All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$7,060,172		$7,060,172	$7,060,172		$7,060,172			$0			$0			$0			$0			$0			$0			$0			$0	$14,120,343		$14,120,343
Canyon Site	$1,191,771		$1,191,771	$1,191,771		$1,191,771			$0			$0			$0			$0			$0			$0			$0			$0	$2,383,542		$2,383,542
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$8,273,629		$8,273,629	$8,273,629		$8,273,629	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,547,257		$16,547,257
Enter Annual Cost Inflation Percentage	0.00%																																
Capital Uses Inflation-Adjusted	$8,273,629		$8,273,629	$8,273,629		$8,273,629	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,547,257		$16,547,257
Capital Balance Inflation Adjusted	-$8,273,629			-$8,273,629			$0			$0			$0			$0			$0			$0			$0			$0			-$16,547,257		
Surplus (Deficit)**																																	
Uses:																																	
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																	
Option 1-																																	
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours :			Veh. Hours :			Veh. Hours :			Veh. Hours :			Veh. Hours :			Veh. Hours :			Veh. Hours :			Veh. Hours :			Veh. Hours :					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost:																																	
25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:***		$0	$0		$0	$0		$908,464	$908,464		$944,803	$944,803		$982,595	$982,595		$1,021,898	$1,021,898		$1,062,774	$1,062,774		$1,105,285	$1,105,285		$1,149,497	$1,149,497		$1,195,477	$1,195,477		$8,370,793	$8,370,793
(Calculation on "Option 2" Worksheet)																																	
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$908,464	$908,464		$944,803	$944,803		$982,595	$982,595		$1,021,898	$1,021,898		$1,062,774	$1,062,774		$1,105,285	$1,105,285		$1,149,497	$1,149,497		$1,195,477	$1,195,477		$8,370,793	$8,370,793
Enter Annual Inflation Percentage	0.00%																																
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$908,464	$908,464		$944,803	$944,803		$982,595	$982,595		$1,021,898	$1,021,898		$1,062,774	$1,062,774		$1,105,285	$1,105,285		$1,149,497	$1,149,497		$1,195,477	$1,195,477		$8,370,793	$8,370,793
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	
NET BALANCES																																	
Capital and Operating	-$8,273,629	$0	-$8,273,629	-$8,273,629	$0	-$8,273,629	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$16,547,257	$0	-$16,547,257

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*

** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma	Alt:	1 - Mandatory	Headway:	15	Estimate:	Low
Version 6-16-08						

Enter First Year of Operations → 2013

	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																
Sources																																
Carry Over:																																
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0
Users/Visitors:																																
User Fees and Fares			$0			$0		$260,976	$260,976		$271,415	$271,415		$282,272	$282,272		$293,563	$293,563		$305,305	$305,305		$317,517	$317,517		$330,218	$330,218		$343,427	$343,427	$0	$2,404,693	$2,404,693
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$260,976	$260,976	$0	$271,415	$271,415	$0	$282,272	$282,272	$0	$293,563	$293,563	$0	$305,305	$305,305	$0	$317,517	$317,517	$0	$330,218	$330,218	$0	$343,427	$343,427	$0	$2,404,693	$2,404,693
Enter Annual Inflation Percentage	0.00%																															
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$260,976	$260,976	$0	$271,415	$271,415	$0	$282,272	$282,272	$0	$293,563	$293,563	$0	$305,305	$305,305	$0	$317,517	$317,517	$0	$330,218	$330,218	$0	$343,427	$343,427	$0	$2,404,693	$2,404,693
EXPENSES																																
Uses:																																
Capital																																
Vehicles--*Up to* 3 Types																																
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		$0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$7,060,172		$7,060,172	$7,060,172		$7,060,172			$0			$0			$0			$0			$0			$0			$0			$0	$14,120,343		$14,120,343
Canyon Site	$1,191,771		$1,191,771	$1,191,771		$1,191,771			$0			$0			$0			$0			$0			$0			$0			$0	$2,383,542		$2,383,542
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$8,273,629		$8,273,629	$8,273,629		$8,273,629	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,547,257		$16,547,257
Enter Annual Cost Inflation Percentage	0.00%																															
Capital Uses Inflation-Adjusted	$8,273,629		$8,273,629	$8,273,629		$8,273,629	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,547,257		$16,547,257
Capital Balance Inflation Adjusted	-$8,273,629			-$8,273,629			$0			$0			$0			$0			$0			$0			$0			$0			-$16,547,257		
Surplus (Deficit)**																																
Uses:																																
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																
Option 1-																																
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost: 25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:*** (Calculation on "Option 2" Worksheet)		$0	$0		$0	$0		$260,976	$260,976		$271,415	$271,415		$282,272	$282,272		$293,563	$293,563		$305,305	$305,305		$317,517	$317,517		$330,218	$330,218		$343,427	$343,427		$2,404,693	$2,404,693
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$260,976	$260,976		$271,415	$271,415		$282,272	$282,272		$293,563	$293,563		$305,305	$305,305		$317,517	$317,517		$330,218	$330,218		$343,427	$343,427		$2,404,693	$2,404,693
Enter Annual Inflation Percentage	0.00%																															
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$260,976	$260,976		$271,415	$271,415		$282,272	$282,272		$293,563	$293,563		$305,305	$305,305		$317,517	$317,517		$330,218	$330,218		$343,427	$343,427		$2,404,693	$2,404,693
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	
NET BALANCES																																
Capital and Operating	-$8,273,629	$0	-$8,273,629	-$8,273,629	$0	-$8,273,629	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$16,547,257	$0	-$16,547,257

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*
** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma	Alt:	2 - Peak Shuttle		Headway:	10		Estimate:	High																										
Version 6-16-08																																		
Enter First Year of Operations																																		
→ 2013																																		
	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																		
Sources																																		
Carry Over:																																		
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Users/Visitors:																																		
User Fees and Fares			$0			$0		$433,870	$433,870		$451,225	$451,225		$469,274	$469,274		$488,045	$488,045		$507,566	$507,566		$527,869	$527,869		$548,984	$548,984		$570,943	$570,943	$0	$3,997,775	$3,997,775
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																		
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																		
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																		
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																		
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$433,870	$433,870	$0	$451,225	$451,225	$0	$469,274	$469,274	$0	$488,045	$488,045	$0	$507,566	$507,566	$0	$527,869	$527,869	$0	$548,984	$548,984	$0	$570,943	$570,943	$0	$3,997,775	$3,997,775
Enter Annual Inflation Percentage	0.00%																																	
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$433,870	$433,870	$0	$451,225	$451,225	$0	$469,274	$469,274	$0	$488,045	$488,045	$0	$507,566	$507,566	$0	$527,869	$527,869	$0	$548,984	$548,984	$0	$570,943	$570,943	$0	$3,997,775	$3,997,775
EXPENSES																																		
Uses:																																		
Capital																																		
Vehicles--*Up to* 3 Types																																		
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$6,601,688		$6,601,688	$6,601,688		$6,601,688			$0			$0			$0			$0			$0			$0			$0			$0	$13,203,377		$13,203,377
Canyon Site	$1,323,327		$1,323,327	$1,323,327		$1,323,327			$0			$0			$0			$0			$0			$0			$0			$0	$2,646,653		$2,646,653
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$7,946,701		$7,946,701	$7,946,701		$7,946,701	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$15,893,401		$15,893,401
Enter Annual Cost Inflation Percentage	0.00%																																	
Capital Uses Inflation-Adjusted	$7,946,701		$7,946,701	$7,946,701		$7,946,701	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$15,893,401		$15,893,401
Capital Balance Inflation Adjusted	-$7,946,701			-$7,946,701			$0			$0			$0			$0			$0			$0			$0			$0			-$15,893,401		
Surplus (Deficit)**																																		
Uses:																																		
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																		
Option 1-																																		
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost:																																		
25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:***		$0	$0		$0	$0		$433,870	$433,870		$451,225	$451,225		$469,274	$469,274		$488,045	$488,045		$507,566	$507,566		$527,869	$527,869		$548,984	$548,984		$570,943	$570,943		$3,997,775	$3,997,775
(Calculation on "Option 2" Worksheet)																																		
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$433,870	$433,870		$451,225	$451,225		$469,274	$469,274		$488,045	$488,045		$507,566	$507,566		$527,869	$527,869		$548,984	$548,984		$570,943	$570,943		$3,997,775	$3,997,775
Enter Annual Inflation Percentage	0.00%																																	
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$433,870	$433,870		$451,225	$451,225		$469,274	$469,274		$488,045	$488,045		$507,566	$507,566		$527,869	$527,869		$548,984	$548,984		$570,943	$570,943		$3,997,775	$3,997,775
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	
NET BALANCES																																		
Capital and Operating	-$7,946,701	$0	-$7,946,701	-$7,946,701	$0	-$7,946,701	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$15,893,401	$0	-$15,893,401

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*
** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma Alt: 2 - Peak Shuttle Headway: 10 Estimate: Low

Version 6-16-08

Enter First Year of Operations → 2013

	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																
Sources																																
Carry Over:																																
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0
Users/Visitors:																																
User Fees and Fares			$0			$0		$125,965	$125,965		$131,003	$131,003		$136,243	$136,243		$141,693	$141,693		$147,361	$147,361		$153,255	$153,255		$159,385	$159,385		$165,761	$165,761	$0	$1,160,667	$1,160,667
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$125,965	$125,965	$0	$131,003	$131,003	$0	$136,243	$136,243	$0	$141,693	$141,693	$0	$147,361	$147,361	$0	$153,255	$153,255	$0	$159,385	$159,385	$0	$165,761	$165,761	$0	$1,160,667	$1,160,667
Enter Annual Inflation Percentage 0.00%																																
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$125,965	$125,965	$0	$131,003	$131,003	$0	$136,243	$136,243	$0	$141,693	$141,693	$0	$147,361	$147,361	$0	$153,255	$153,255	$0	$159,385	$159,385	$0	$165,761	$165,761	$0	$1,160,667	$1,160,667
EXPENSES																																
Uses:																																
Capital																																
Vehicles--*Up to* 3 Types																																
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$6,601,688		$6,601,688	$6,601,688		$6,601,688			$0			$0			$0			$0			$0			$0			$0			$0	$13,203,377		$13,203,377
Canyon Site	$1,323,327		$1,323,327	$1,323,327		$1,323,327			$0			$0			$0			$0			$0			$0			$0			$0	$2,646,653		$2,646,653
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$7,946,701		$7,946,701	$7,946,701		$7,946,701	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$15,893,401		$15,893,401
Enter Annual Cost Inflation Percentage 0.00%																																
Capital Uses Inflation-Adjusted	$7,946,701		$7,946,701	$7,946,701		$7,946,701	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$15,893,401		$15,893,401
Capital Balance Inflation Adjusted	-$7,946,701			-$7,946,701			$0			$0			$0			$0			$0			$0			$0			$0			-$15,893,401		
Surplus (Deficit)**																																
Uses:																																
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																
Option 1-																																
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost:																																
25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:***		$0	$0		$0	$0		$125,965	$125,965		$131,003	$131,003		$136,243	$136,243		$141,693	$141,693		$147,361	$147,361		$153,255	$153,255		$159,385	$159,385		$165,761	$165,761		$1,160,667	$1,160,667
(Calculation on "Option 2" Worksheet)																																
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$125,965	$125,965		$131,003	$131,003		$136,243	$136,243		$141,693	$141,693		$147,361	$147,361		$153,255	$153,255		$159,385	$159,385		$165,761	$165,761		$1,160,667	$1,160,667
Enter Annual Inflation Percentage 0.00%																																
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$125,965	$125,965		$131,003	$131,003		$136,243	$136,243		$141,693	$141,693		$147,361	$147,361		$153,255	$153,255		$159,385	$159,385		$165,761	$165,761		$1,160,667	$1,160,667
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	
NET BALANCES																																
Capital and Operating	-$7,946,701	$0	-$7,946,701	-$7,946,701	$0	-$7,946,701	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$15,893,401	$0	-$15,893,401

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*

** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma	Alt:	2 - Peak Shuttle		Headway:	15		Estimate:	High																										
Version 6-16-08																																		
Enter First Year of Operations →	2013																																	
	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																		
Sources																																		
Carry Over:																																		
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Users/Visitors:																																		
User Fees and Fares			$0			$0		$294,468	$294,468		$306,246	$306,246		$318,496	$318,496		$331,236	$331,236		$344,485	$344,485		$358,265	$358,265		$372,595	$372,595		$387,499	$387,499	$0	$2,713,291	$2,713,291
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																		
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																		
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																		
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																		
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$294,468	$294,468	$0	$306,246	$306,246	$0	$318,496	$318,496	$0	$331,236	$331,236	$0	$344,485	$344,485	$0	$358,265	$358,265	$0	$372,595	$372,595	$0	$387,499	$387,499	$0	$2,713,291	$2,713,291
Enter Annual Inflation Percentage	0.00%																																	
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$294,468	$294,468	$0	$306,246	$306,246	$0	$318,496	$318,496	$0	$331,236	$331,236	$0	$344,485	$344,485	$0	$358,265	$358,265	$0	$372,595	$372,595	$0	$387,499	$387,499	$0	$2,713,291	$2,713,291
EXPENSES																																		
Uses:																																		
Capital																																		
Vehicles--*Up to* 3 Types																																		
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$6,601,688		$6,601,688	$6,601,688		$6,601,688			$0			$0			$0			$0			$0			$0			$0			$0	$13,203,377		$13,203,377
Canyon Site	$1,323,327		$1,323,327	$1,323,327		$1,323,327			$0			$0			$0			$0			$0			$0			$0			$0	$2,646,653		$2,646,653
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$7,946,701		$7,946,701	$7,946,701		$7,946,701	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$15,893,401		$15,893,401
Enter Annual Cost Inflation Percentage	0.00%																																	
Capital Uses Inflation-Adjusted	$7,946,701		$7,946,701	$7,946,701		$7,946,701	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$15,893,401		$15,893,401
Capital Balance Inflation Adjusted	-$7,946,701			-$7,946,701			$0			$0			$0			$0			$0			$0			$0			$0			-$15,893,401		
Surplus (Deficit)**																																		
Uses:																																		
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																		
Option 1-																																		
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost:																																		
25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:***		$0	$0		$0	$0		$294,468	$294,468		$306,246	$306,246		$318,496	$318,496		$331,236	$331,236		$344,485	$344,485		$358,265	$358,265		$372,595	$372,595		$387,499	$387,499		$2,713,291	$2,713,291
(Calculation on "Option 2" Worksheet)																																		
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$294,468	$294,468		$306,246	$306,246		$318,496	$318,496		$331,236	$331,236		$344,485	$344,485		$358,265	$358,265		$372,595	$372,595		$387,499	$387,499		$2,713,291	$2,713,291
Enter Annual Inflation Percentage	0.00%																																	
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$294,468	$294,468		$306,246	$306,246		$318,496	$318,496		$331,236	$331,236		$344,485	$344,485		$358,265	$358,265		$372,595	$372,595		$387,499	$387,499		$2,713,291	$2,713,291
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	
NET BALANCES																																		
Capital and Operating	-$7,946,701	$0	-$7,946,701	-$7,946,701	$0	-$7,946,701	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$15,893,401	$0	-$15,893,401

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*

** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma Alt: 2 - Peak Shuttle Headway: 15 Estimate: Low

Version 6-16-08

Enter First Year of Operations → ***2013***

	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																
Sources																																
Carry Over:																																
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0
Users/Visitors:																																
User Fees and Fares			$0			$0		$84,592	$84,592		$87,976	$87,976		$91,495	$91,495		$95,155	$95,155		$98,961	$98,961		$102,919	$102,919		$107,036	$107,036		$111,318	$111,318	$0	$779,452	$779,452
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$84,592	$84,592	$0	$87,976	$87,976	$0	$91,495	$91,495	$0	$95,155	$95,155	$0	$98,961	$98,961	$0	$102,919	$102,919	$0	$107,036	$107,036	$0	$111,318	$111,318	$0	$779,452	$779,452
Enter Annual Inflation Percentage	0.00%																															
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$84,592	$84,592	$0	$87,976	$87,976	$0	$91,495	$91,495	$0	$95,155	$95,155	$0	$98,961	$98,961	$0	$102,919	$102,919	$0	$107,036	$107,036	$0	$111,318	$111,318	$0	$779,452	$779,452
EXPENSES																																
Uses:																																
Capital																																
Vehicles--*Up to* 3 Types																																
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$6,601,688		$6,601,688	$6,601,688		$6,601,688			$0			$0			$0			$0			$0			$0			$0			$0	$13,203,377		$13,203,377
Canyon Site	$1,323,327		$1,323,327	$1,323,327		$1,323,327			$0			$0			$0			$0			$0			$0			$0			$0	$2,646,653		$2,646,653
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$7,946,701		$7,946,701	$7,946,701		$7,946,701	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$15,893,401		$15,893,401
Enter Annual Cost Inflation Percentage	0.00%																															
Capital Uses Inflation-Adjusted	$7,946,701		$7,946,701	$7,946,701		$7,946,701	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$15,893,401		$15,893,401
Capital Balance Inflation Adjusted	-$7,946,701			-$7,946,701			$0			$0			$0			$0			$0			$0			$0			$0			-$15,893,401		
Surplus (Deficit)**																																
Uses:																																
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																
Option 1-																																
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				*Veh. Hours:*			*Veh. Hours:*			*Veh. Hours:*			*Veh. Hours:*			*Veh. Hours:*			*Veh. Hours:*			*Veh. Hours:*			*Veh. Hours:*			*Veh. Hours:*					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost:																																
25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:***		$0	$0		$0	$0		$84,592	$84,592		$87,976	$87,976		$91,495	$91,495		$95,155	$95,155		$98,961	$98,961		$102,919	$102,919		$107,036	$107,036		$111,318	$111,318		$779,452	$779,452
(Calculation on "Option 2" Worksheet)																																
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$84,592	$84,592		$87,976	$87,976		$91,495	$91,495		$95,155	$95,155		$98,961	$98,961		$102,919	$102,919		$107,036	$107,036		$111,318	$111,318		$779,452	$779,452
Enter Annual Inflation Percentage	0.00%																															
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$84,592	$84,592		$87,976	$87,976		$91,495	$91,495		$95,155	$95,155		$98,961	$98,961		$102,919	$102,919		$107,036	$107,036		$111,318	$111,318		$779,452	$779,452
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	
NET BALANCES																																
Capital and Operating	-$7,946,701	$0	-$7,946,701	-$7,946,701	$0	-$7,946,701	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$15,893,401	$0	-$15,893,401

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*

** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma Alt: 3 - Canyon Capac

Version 6-16-08

Enter First Year of Operations 2013

	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																
Sources																																
Carry Over:																																
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0
Users/Visitors:																																
User Fees and Fares			$0			$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	$0	$0	$0
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Enter Annual Inflation Percentage	0.00%																															
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
EXPENSES																																
Uses:																																
Capital																																
Vehicles--*Up to* 3 Types																																
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$5,868,419		$5,868,419	$5,868,419		$5,868,419			$0			$0			$0			$0			$0			$0			$0			$0	$11,736,837		$11,736,837
Canyon Site	$1,419,813		$1,419,813	$1,419,813		$1,419,813			$0			$0			$0			$0			$0			$0			$0			$0	$2,839,626		$2,839,626
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$769,165		$769,165	$769,165		$769,165			$0			$0			$0			$0			$0			$0			$0			$0	$1,538,330		$1,538,330
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$8,057,397		$8,057,397	$8,057,397		$8,057,397	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,114,793		$16,114,793
Enter Annual Cost Inflation Percentage	0.00%																															
Capital Uses Inflation-Adjusted	$8,057,397		$8,057,397	$8,057,397		$8,057,397	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$16,114,793		$16,114,793
Capital Balance Inflation Adjusted	-$8,057,397			-$8,057,397			$0			$0			$0			$0			$0			$0			$0			$0			-$16,114,793		
Surplus (Deficit)**																																
Uses:																																
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																
Option 1-																																
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0	$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost:																																
25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:***		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
(Calculation on "Option 2" Worksheet)																																
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Enter Annual Inflation Percentage	0.00%																															
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
NET BALANCES																																
Capital and Operating	-$8,057,397	$0	-$8,057,397	-$8,057,397	$0	-$8,057,397	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$16,114,793	$0	-$16,114,793

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*

** Estimated factors or balances are inflation-adjusted.

ATS Financial Planning Computation Sheet

NPS Financial ProForma Alt: 4 - Canyon Safety

Version 6-16-08

Enter First Year of Operations 2013

	2013			2014			2015			2016			2017			2018			2019			2020			2021			2022			Cumulative 10 Years (or as Applicable)		
	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total	Capital	Operating	Total
INCOME																																
Sources																																
Carry Over:																																
from Previous Year:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0
Users/Visitors:																																
User Fees and Fares			$0			$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0	$0	$0	$0
Entrance and Tour (I.e. Transportation) Fees			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Concession Revenues			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
America the Beautiful Pass			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
ATPPL / FLHP:																																
ATPPL			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category I			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category II			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Category III			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
NPS Sources:																																
Line Item			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Line Item Construction			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Appropriated Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Fee Demo Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Park Base Funds			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
WASO			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other NPS Source(s):			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1) Congressional Earmark			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Government Sources:																																
FTA Section 5307			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5309			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5310			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
FTA Section 5311			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
CMAQ			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Transportation Enhancements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Surface Transportation			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
State Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other State Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Local Govt. Partnership			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other Local Sources:			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Other			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Private Sources:																																
specify (1)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(2)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
(3)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0	$0	$0
Sources Subtotal	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Enter Annual Inflation Percentage	0.00%																															
Sources Inflation-Adjusted	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
EXPENSES																																
Uses:																																
Capital																																
Vehicles--*Up to* 3 Types																																
Enter Unit Cost -Vehicle Type 1 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 1	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 2 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - All Type 2	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Enter Unit Cost -Vehicle Type 3 →			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
X No. of Vehicles =			0			0			0			0			0			0			0			0			0			0	0		0
Vehicle Cost - Type 3	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
- Vehicle Cost - Total	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0
Equipment (e.g. computers)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Facilities (where applicable)			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Highland Visitor Center	$5,868,419		$5,868,419	$5,868,419		$5,868,419			$0			$0			$0			$0			$0			$0			$0			$0	$11,736,837		$11,736,837
Canyon Site	$1,323,236		$1,323,236	$1,323,236		$1,323,236			$0			$0			$0			$0			$0			$0			$0			$0	$2,646,471		$2,646,471
Maintenance			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Garage/Layover-Staging Area			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Fueling stations			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Stations/shelters			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Right of Way/Pavement			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Improvements			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Signage			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Roadways	$21,686		$21,686	$21,686		$21,686			$0			$0			$0			$0			$0			$0			$0			$0	$43,372		$43,372
Debt Service/Finance Cost			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
★ ***Capital Replacement Allowance*** ★			$0			$0			$0			$0			$0			$0			$0			$0			$0			$0	$0		$0
Capital Uses Subtotal	$7,213,340		$7,213,340	$7,213,340		$7,213,340	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$14,426,680		$14,426,680
Enter Annual Cost Inflation Percentage	0.00%																															
Capital Uses Inflation-Adjusted	$7,213,340		$7,213,340	$7,213,340		$7,213,340	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$14,426,680		$14,426,680
Capital Balance Inflation Adjusted	-$7,213,340			-$7,213,340			$0			$0			$0			$0			$0			$0			$0			$0			-$14,426,680		
Surplus (Deficit)**																																
Uses:																																
Operations - ***Note: Choose Option 1, Option 2, or a combination of both.***																																
Option 1-																																
Enter No.of ***Annual*** *Vehicle Hours in Passenger Service (by Size Category)*				Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:			Veh. Hours:					
< 25 Passengers ($50.00/hour)	0	$0	$0		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Default Annual Operating Cost:																																
25+ Passengers ($60/hour)		$0	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0.00	$0		$0	$0
Total Operating Costs -Default Factors		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
*Park-Specific Cost Factors:***		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
(Calculation on "Option 2" Worksheet)																																
Total Operating Cost - Current Dollars		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Enter Annual Inflation Percentage	0.00%																															
Total Operating Cost - Inflation Adjusted		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
Operating Balance Inflation Adjusted		$0			$0			$0			$0			$0			$0			$0	$0		$0	$0		$0	$0		$0	$0		$0	$0
NET BALANCES																																
Capital and Operating	-$7,213,340	$0	-$7,213,340	-$7,213,340	$0	-$7,213,340	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	-$14,426,680	$0	-$14,426,680

Form Prepared by:	
Park ALPHA Code:	
Date:	

*Note: User should account directly for any anticipated changes in income sources that are *independent of inflation.*

** Estimated factors or balances are inflation-adjusted.

Appendix C

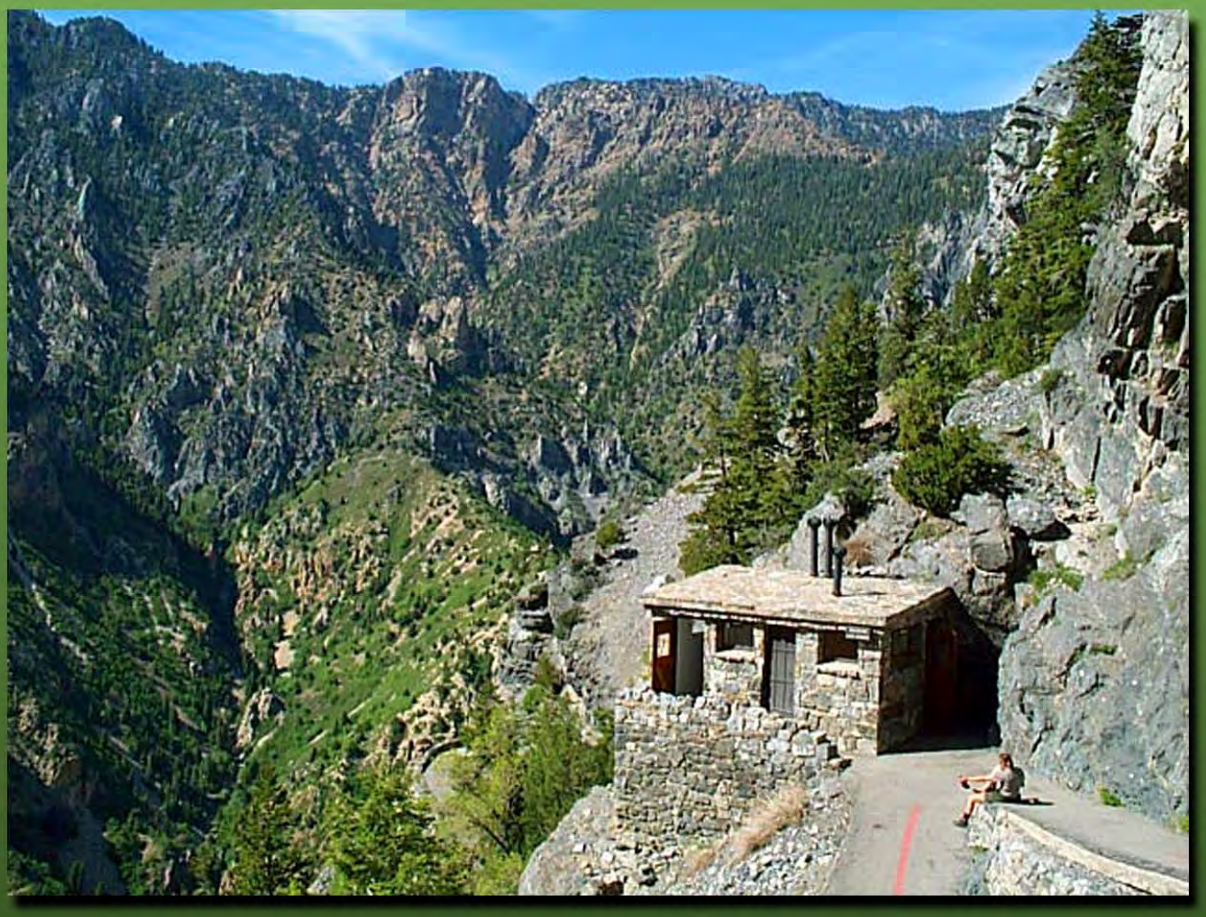
CBA/VA Report

Timpanogos Cave National Monument
Utah

National Park Service
U.S. Department of the Interior

Value Analysis Study for Timpanogos Cave National Monument

PMIS #172474



Alternative Transportation Feasibility Study

February 2012

Prepared for:
National Park Service
Timpanogos Cave National Monument

Prepared by:
Cambridge Systematics, Inc.

In Association with:
David Evans and Associates, Inc.
IBI Group

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EXECUTIVE SUMMARY

This report documents the results of the Value Analysis/Choosing-by-Advantages (VA/CBA) workshop for access and transportation alternatives for Timpanogos Cave National Monument (TICA) that was held at the Highland City Council Chambers in Highland, Utah on January 10-11, 2012. The VA/CBA was conducted to identify the preferred alternative for providing visitor access to the monument from a range of alternatives that were developed through the Timpanogos Cave National Monument Visitor Transportation Study. The separate *Timpanogos Cave National Monument Visitor Transportation Study Final Report* provides complete documentation of the study background, process and the basis for the alternatives that were evaluated in the VA/CBA. The Visitor Transportation Study was informed by another VA/CBA, conducted in December 2011. The earlier VA/CBA recommended program elements that were included in the alternatives considered during the January 2012 workshop, including the important decision to minimize development at the site of the existing TICA visitor center in American Fork Canyon to reduce the risks associated with rockfall hazards in the area.

The recommendations for access and transportation alternatives identified at the January 2012 VA/CBA are presented, along with the procedures used and information considered in the decision-making process. The recommended transportation alternative identified in this report and documented in the final report for the Timpanogos Cave National Monument Visitor Transportation Study would be further developed in the upcoming Timpanogos Facility Development Environmental Assessment.

Participants in the VA/CBA were from the NPS TICA, Denver Service Center, Capitol Reef National Park, and Northern Utah Group; the USFS Uinta-Wasatch-Cache National Forest Pleasant Grove Ranger District, UTA (invited), and a team of consultants (Cambridge Systematics, IBI Group, ajc architects, and Kleinfelder). The two-day workshop included a review of the current access and safety issues, previous decisions, functional requirements for improvements, project goals, a stakeholder analysis, and a functional logic diagram (FAST diagram). Four alternatives were then evaluated through the CBA exercise where the participants ranked the most important advantages of the alternatives relative to each other to determine the preferred alternative.

PROJECT GOALS

The primary purpose of the Timpanogos Cave Visitor Transportation Study project is to improve visitor access and safety. The project would make the monument more accessible to visitors by relieving traffic and parking congestion and reducing pedestrian/vehicle conflicts at the Canyon site parking lots and along SR 92. The solutions would result in the improvement of visitor circulation and the resulting improvement of the visitor experience. Protection of sensitive natural resources would be achieved by identifying solutions that demonstrate overall energy conservation and reduce the effects of the transportation system and visitor access on sensitive resources.

The scope of work for the study also identified a goal of enabling the monument to achieve enhanced intermodal interconnectivity with existing and planned regional networks by partnering with Utah Transit Authority (UTA) and the local communities.

To set the stage for decision-making the facilitator led the workshop participants through a review of the issues and background (visitation/operations, facilities.

ISSUES/BACKGROUND

Visitation/Operations

There are major safety and access issues to TICA, in particular in the vicinity of the visitor center/trailhead, referred to as the Canyon site. For six to eight weeks during the summer, the TICA monument visitor center parking area is full, the overflow parking areas located across SR 92 are full, and frequently all additional parking along the shoulders of SR 92 is also full. Visitors parking across and along SR 92 must cross the busy highway to access the monument visitor center and cave trailhead, which results in very dangerous pedestrian/vehicular conditions. In addition, vehicles parked along the road shoulders often back into traffic along the narrow and winding road.

The only access to the TICA monument is via private vehicle or for school field trips and occasional organized groups, chartered buses. The majority of Canyon site visitors are going on cave tours and parking demand is directly tied to that activity. A limited number of parking spaces are provided at and near the Canyon site. These stalls are used by visitors, concessioners, and staff (when designated staff parking across SR92 is full). Parking demand during peak times exceeds the amount of spaces available, with existing parking accommodating about half of the visitor accumulation during peak days. In order to address safety and visitor experience concerns associated with overflow parking at the Canyon site, either an adequate number of parking stalls to meet the peak demand must be provided or measures to limit parking demand must be implemented.

Facilities and Special Criteria

TICA is intending to move the majority of the monument visitor/administrative facilities out of the canyon, per the 1993 General Management Plan/Development Concept Plan/Environmental Impact Statement. The new location is intended to reduce the rockfall hazard for visitors and staff at the current visitor center and improve efficiencies by partnering with the USFS. The new administrative functions will be co-located with USFS facilities in a site just outside of the national forest in Highland (the Highland site). USFS is a major partner in this study as the development of the Highland site will affect important USFS facilities. These two efforts were coordinated through this process. The design of this new Highland facility is intended to take serve both TICA and USFS needs. In particular, if the alternative selected were to include a shuttle system, the Highland site would include parking and transit facilities to support that use.

The Interagency Visitor and Administration Complex would house both the US Forest Service and the TICA staff and operations and was brought about by P.L. 107-329, Title I, Timpanogos Interagency Land Exchange signed into law December 6, 2002. The project alternatives were developed to meet the functional operational needs of the interagency center at the preferred site outside of the Canyon (the Highland site) and meet the functional requirements of facilities that would need to remain near the existing TICA visitor center (the Canyon site).

Functional requirements for the Highland site include:

1. NPS/Forest Service Administration Functions
2. NPS/Forest Service Visitor Center with Exhibit Functions
3. Forest Service Fire and Maintenance Building Functions

Functional requirements for the Canyon site include:

1. Cave Tour and Trail Functions such as:
    a. Storage of SAR, EMS, and Cave Maintenance Equipment and Supplies
    b. Visitor Contact Station and Restrooms
2. Use of the Existing Rock House for Resource Management Functions
3. Demolition of the Existing Visitor Center and Existing Headquarters
4. Retention of the Existing Maintenance Building

Relocating trailhead facilities 100 feet or more to the east of present location would reduce the rock fall hazard and get the structures out of the 100-year floodplain.

Stakeholder Analysis/FAST Diagram

After establishing the issues, a stakeholder analysis was conducted and reviewed with the workshop participants understand and confirm the primary interests of the many stakeholders that would be affected. This exercise is intended to help participants keep varied stakeholder interests in mind when comparing alternatives. Major interests of the thirteen stakeholder groups identified included convenient access, safety, cost-effective solutions, reasonable fees, and adherence to schedule and budget.

A Function Analysis System Technique (FAST) diagram for the alternative transportation project and the development of visitor facilities at the Highland and Canyon sites was created to demonstrate how project goals could be met with by components of the different project alternatives. The FAST diagram helped to identify the key factors used in the Choosing-by-Advantages process to identify the preferred alternative.

ALTERNATIVES

The VA/CBA addressed alternative scenarios for providing access to TICA. The alternatives included operational and management components and accompanying site studies for the Highland site and the Canyon site. The alternative scenarios represented a range of feasible improvements and transportation solutions that address the overall project goals of improving the safety and experience of visitors to the Timpanogos Cave National Monument.

Alternatives were based on known project parameters, project assumptions, and data and observations of monument operations and conditions. The alternative concepts and their key elements were presented to project partners in October 2011 during an interagency and stakeholder work session to gather initial input on draft alternatives. The alternatives were then refined and presented for consideration in the VA/CBA workshop.

Four alternatives were evaluated in the workshop, providing a range of transit and non-transit alternative transportation solutions and strategies:

- Alternative 1: Mandatory Shuttle Service
- Alternative 2: Peak-Period Optional Shuttle Service

- Alternative 3: Canyon Site Safety Improvements with Realignment of SR 92 and Demand Management
- Alternative 4: Canyon Site Capacity Improvements with Demand Management

ALTERNATIVE 1: MANDATORY SHUTTLE SERVICE

This alternative would include the operation of shuttle service between the Highland and Canyon sites with dramatically reduced parking at the Canyon site and no parking for cave tours users provided there. Advance tour ticket sales and modified tour schedules would be utilized to spread demand in coordination with the planned parking supply and shuttle bus service. Shuttle service would operate 7 days a week to transport visitors from facilities at the Highland site to the cave trailhead at the Canyon site. The Highland site would provide parking for shuttle riders which would take a bus to the Canyon site with regular (10 to 15 minute service) between 6:30 a.m. and 9:30 p.m. The cost of the shuttle would be included in the cost of the cave tour tickets.

ALTERNATIVE 2: PEAK-PERIOD OPTIONAL SHUTTLE SERVICE

This alternative would provide some visitor parking at the Canyon site and an optional shuttle service from the Highland site on weekends and holidays in order to meet project objectives of improving visitor safety and experience on peak days. The shuttle would continue to provide visitors access to cave when Canyon site parking was full. The Highland site would provide parking for shuttle riders on weekends and holidays, along with shuttle boarding facilities.

The Canyon site parking would be redesigned and sized to meet the average weekday visitor demand. Advance tour ticket sales and modified tour schedules would be utilized to spread demand in coordination with the planned parking supply and shuttle bus service. On peak days, the shuttle would provide service between the Highland and the Canyon site with similar service as in Alternative 1 (10 to 15 minute frequency, between 6:30 a.m. and 9:30 p.m.). The cost of the shuttle would be included in the cost of the cave tour tickets.

ALTERNATIVE 3: CANYON SITE SAFETY IMPROVEMENTS WITH REALIGNMENT OF SR 92 AND DEMAND MANAGEMENT

This alternative would incorporate a realignment of SR 92 to maximize parking that could be provided adjacent to the Canyon site visitor contact station and cave trailhead in order to meet project objectives of improving visitor safety and experience. The reconfiguration would reduce the number of pedestrians needing to cross SR92 to access the caves trailhead. The total amount of parking that could be provided would be reduced by the realignment of the road, resulting in the need to implement visitor demand management strategies that reduce visitation at any time to match the available parking. Overall annual visitation would likely be substantially reduced with this alternative, even if visitation were to shift from busy days to less busy days.

Cave tour schedules and sales policies would be adjusted to maximize the total number of visitors that could be accommodated recognizing the limited available parking. All ticket sales would be by advance reservation to maximize average tour group size and encourage visitor use of early morning and late afternoon tour openings and to encourage visitor use on less busy days. Preliminary estimates of the

overall impact on visitation would be an 11 percent reduction in annual visitation and a 29 percent reduction in annual number of cave tours offered, if visitation did not shift to less busy days.

ALTERNATIVE 4: CANYON SITE CAPACITY IMPROVEMENTS WITH ADVANCED DEMAND MANAGEMENT

This alternative would maximize parking capacity at the Canyon site while providing pedestrian safety enhancements and demand management in order to meet the project objectives of improving visitor safety and experience. This alternative provides the maximum feasible visitor parking at the Canyon site without realigning SR 92. This alternative would include similar demand management with a modified tour schedule. Preliminary analysis showed a result in the an overall decrease in annual visitation of 12 percent and 5 percent decrease in the number of tours offered per year, assuming that here would be no shift in visitation to less busy days.

COST ESTIMATES

The table below provides the range of estimated shuttle bus annual operating costs for Alternatives 1 and 2 in 2011 dollars.

Alternative	Annual Operating Costs – 2011 Dollars	
	Low Range	High Range
1 – Mandatory Shuttle (10 min. headways)	$332,000	$1,444,000
1 – Mandatory Shuttle (15 min. headways)	$223,000	$777,000
2 – Peak Period Optional Shuttle (10 min. headways)	$108,000	$371,000
2 – Peak Period Optional Shuttle (15 min. headways)	$72,000	$252,000

The table below provides a summary of the Class C capital cost estimates by major component of the alternatives. The Class C estimates are provided in 2012 dollars assuming 4% escalation in construction costs from 2011.

Timpanogos Cave Alternative Transportation Class C Costs - 2012 Dollars @ 4% Escalation

	Alt 1	Alt 2	Alt 3	Alt 4
Highland Site Preparation	1,113,783	1,113,783	619,852	619,852
Highland Site Buildings	7,819,454	7,819,454	7,819,454	7,819,454
Highland Site Parking	3,751,197	3,021,672	2,127,907	2,127,907
Highland Site Amenities	816,057	664,986	643,826	643,826
Highland Site Utilities and Signage	76,763	75,660	74,382	74,382
Highland Site Total	**13,577,253**	**12,695,554**	**11,285,420**	**11,285,420**
Canyon Site Preparation	255,223	318,508	403,493	318,508
Canyon Site Buildings	4,453,050	4,453,050	4,453,050	4,453,050
Canyon Site Parking	201,691	362,621	447,503	362,621
Canyon Site Amenities	318,050	346,825	362,781	346,825
Canyon Site Safety, Signage and Util	90,572	90,573	90,301	90,399
Canyon Site Total	**5,318,586**	**5,571,577**	**5,757,129**	**5,571,403**
Roadway Improvements	**41,704**	**41,704**	**1,479,163**	**41,704**
Total Construction Cost	***18,937,543***	***18,308,835***	***18,521,712***	***16,898,527***

The revised Class C construction costs without the cost for a maintenance facility at the Canyon site range from $13.9 million for Alternative 4 to $15.9 million for Alternative 1. Since the revisions remove the maintenance facility costs from all four alternatives the relative capital cost differences did not change.

CHOOSING BY ADVANTAGES RESULTS/DECISION RATIONALE

Choosing by Advantages (CBA) is a process for identifying the preferred alternative that focuses on the importance of the advantages of the alternatives relative to one another. CBA is the adopted means of selecting the preferred alternative among a range of options for the National Park Service. CBA is based on the key concepts of **Factors, Attributes and Advantages**. A **Factor** is an element or component of a decision, which is important to the decision makers and for which there are differences across the alternatives. An **Attribute** is a characteristic or consequence of one alternative relative to one factor. An **Advantage** is a favorable difference in the attributes of one alternative compared to another alternative for one factor.

The attributes of the alternatives under consideration in a CBA are arrayed in a matrix, with the alternatives across the top of the matrix and the factors along the left side of the matrix. The attributes for each alternative are entered in the cells of the matrix where the alternatives and factors intersect. Advantages are determined by comparing the attributes of the alternatives across each factor and they are presented below the attribute statements. For every factor, the alternative with the least favorable attributes is identified as the **least preferred** alternative and advantage statements are developed that describe the advantages of the other alternative compared to the least preferred.

FACTORS FOR DECISION-MAKING

The following factors were identified for the evaluation of the alternatives for visitor transportation to TICA. The factors were confirmed in the VA workshop and any factors where there was no significant difference across the alternatives were ignored. The factors were organized into the National Park Service GPRA Goals. The CBA matrix created for and updated during the workshop appears in the Appendix.

Protect Natural, Cultural and Historic Resources

1. **Minimize Impacts to Natural Resources**
    a. Minimize disturbance (of previously undisturbed ground SF of area cleared for construction)
    b. Minimize vegetation and soil damage from roadside parking and social trails

Protect Public and Employee Health, Safety and Welfare

2. **Minimize Pedestrian/Vehicular Conflicts**
    a. Minimize pedestrian interaction with moving traffic on SR 92
    b. Minimize parking maneuvers on and adjacent to SR92

3. **Minimize Exposure to Natural Hazards**
    a. Minimize facilities and equipment located in rock fall and flood hazard areas
    b. Minimize number of employees and visitors and time spent in rock fall hazard areas

Provide for Visitor Enjoyment through Improved Educational and Recreational Opportunities

4. **Maximize Visitation Capacity Consistent with Resource Protection**
    a. Maximize management flexibility to manage visitor use for resource protection and visitor experience
    b. Minimize costs to visitors to access TICA

5. **Minimize Need to Displace Visitors from their Desired Visitation Patterns**
    a. Minimize share of visitors who would have to change the time/day of their visit due to transportation capacity limitations

6. **Minimize Visitor Confusion**
    a. Minimize mode changes and out of direction travel
    b. Provide consistent access across times of day and days of season

7. **Maximize Quality of Visitor Experience**
    a. Minimize exposure to crowding on cave trails and tours

Improve Operational Efficiency, Reliability and Sustainability

8. **Minimize Staffing Required for Visitor Transportation and Visitor Use Management**
    a. Minimize monument operational efficiency and effectiveness
    b. Minimize maintenance requirements on SR 92

Provide Other Benefits to the National Park Service and U.S. Forest Service

9. **Enhance USFS/NPS Partnership**
    a. Maximize flexibility for future USFS and NPS uses of Highland site as measured by minimizing the footprint of the potential developed area

RATIONALE FOR SELECTION OF PREFERRED ALTERNATIVE

Alternative 3 - Canyon Site Safety Improvements with Realignment of SR 92 and Demand Management was selected as the preferred alternative because it had the highest importance for its advantages and was determined to be the best value of the alternatives in meeting the project goals.

The primary advantages of Alternative 3 include:

Protect Natural, Cultural and Historic Resources

- Much less soil and vegetation damage associated with informal parking and social trails

Protect Employee and Public Health, Safety and Welfare

- Provides a major reduction in pedestrian conflicts with traffic on SR 92 (only 10 parking spaces across road)
- Provides a major reduction in parking conflicts with traffic on SR 92 (10 parking spaces back into SR 92)
- Provides the greatest reduction in rock fall hazards to facilities due to removal of buildings from hazard zone
- Provides the greatest reduction in time spent and numbers of people in rock fall zone

Provide for Visitor Enjoyment through Improved Educational and Recreational Opportunities

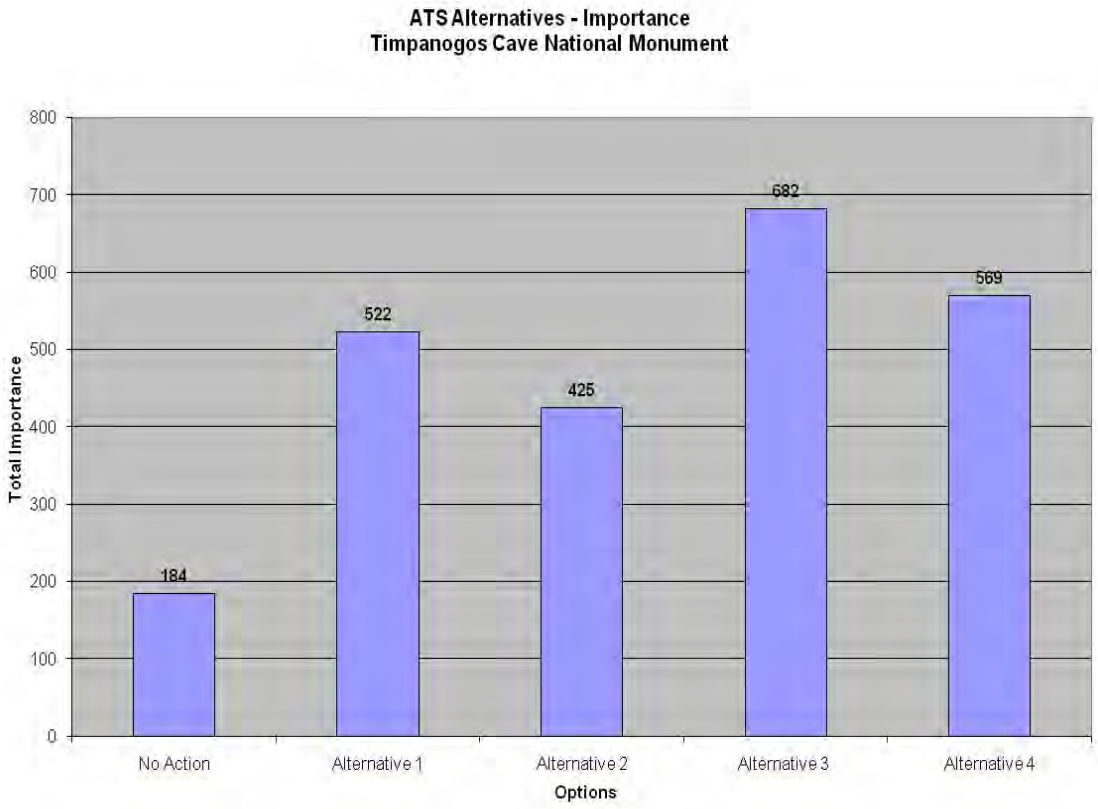
- Provides some additional flexibility to manage visitor use
- $3 to $10 lower ticket price for cave tours as compared to alternatives 1 and 2
- Much less need for mode changes and fewest visitors from the east required to travel out of direction
- Much more consistent access to TICA
- Much less crowding on cave trails and tours

Improve Operational Efficiency, Reliability and Sustainability

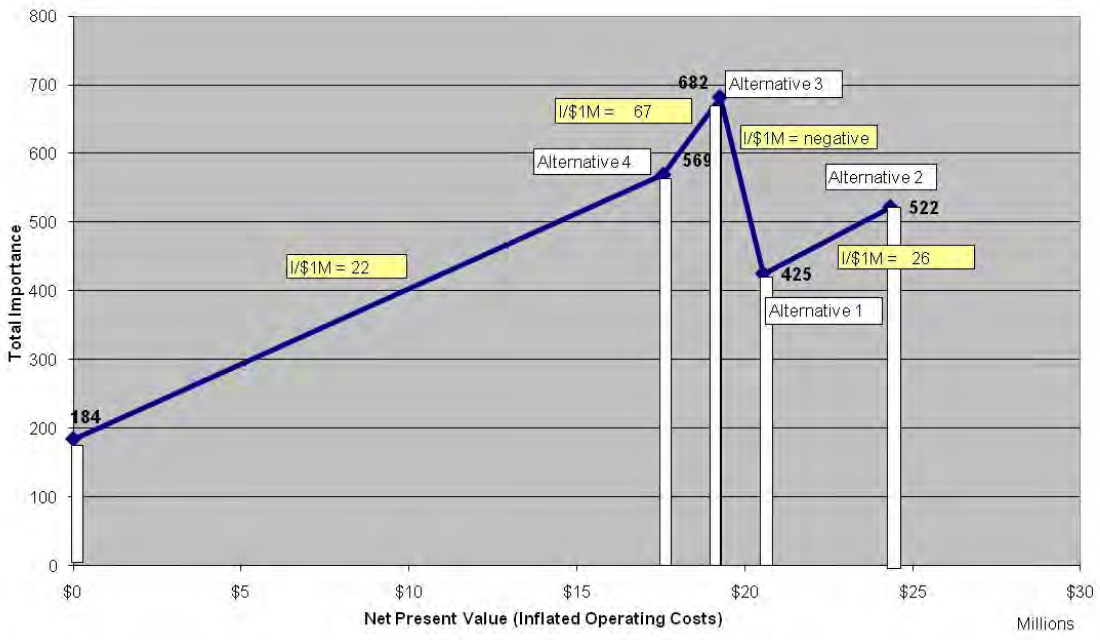
- Much lower ongoing maintenance requirements and much less need to direct traffic and manage parking
- Offers much more flexibility for future development

Although this alternative had the lowest visitation capacity, the above listed advantages outweigh this disadvantage. The design for the improvements would preserve the option to implement a shuttle system in the future, should this become more feasible.

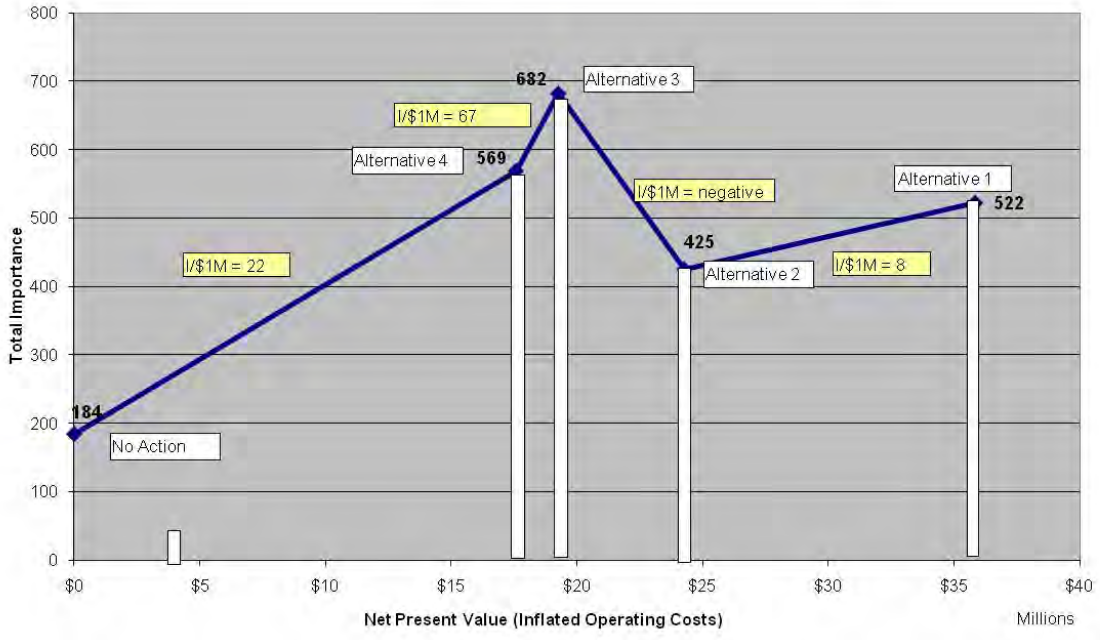
The VA/CBA workshop results are presented graphically below and on the following page. As shown, Alternative 3 has the highest importance of all of the alternatives. Alternative 3 also offers the greatest importance to cost ratio, with 67 additional importance points per million dollars of life-cycle cost compared to Alternative 4. Alternatives 1 and 2 have much higher life-cycle cost and lower importance than Alternative 3. The results are the same whether implementation of shuttle service is with a partner or with a contractor.



ATS Alternatives - Importance to Cost - Partner Operation
Timpanogos Cave National Monument



ATS Alternatives - Importance to Cost - Contractor Operation
Timpanogos Cave National Monument



INTRODUCTION

This report documents the Value Analysis/Choosing-by-Advantages (VA/CBA) workshop for access and transportation alternatives for Timpanogos Cave National Monument (TICA). The workshop was held at the Highland City Council Chambers in Highland, Utah on January 10-11, 2012. The VA/CBA was conducted to identify the preferred alternative for providing visitor access to the monument from a range of alternatives that were developed through the Timpanogos Cave National Monument Visitor Transportation Study. The separate *Timpanogos Cave National Monument Visitor Transportation Study Final Report* provides complete documentation of the study background, process and the basis for the alternatives that were evaluated in the VA/CBA. The Visitor Transportation Study was informed by another VA/CBA, conducted in December 2011. The earlier VA/CBA recommended program elements that were included in the alternatives considered during the January 2012 workshop, including the important decision to minimize development at the site of the existing TICA visitor center in American Fork Canyon to reduce the risks associated with rockfall hazards in the area. The recommendations for access and transportation alternatives identified at the January 2012 VA/CBA are presented in this report, along with the procedures used and information considered in the decision-making process. The recommended transportation alternative identified in this report and documented in the final report for the *Timpanogos Cave National Monument Visitor Transportation Study* would be further developed in the upcoming *Timpanogos Facility Development Environmental Assessment*.

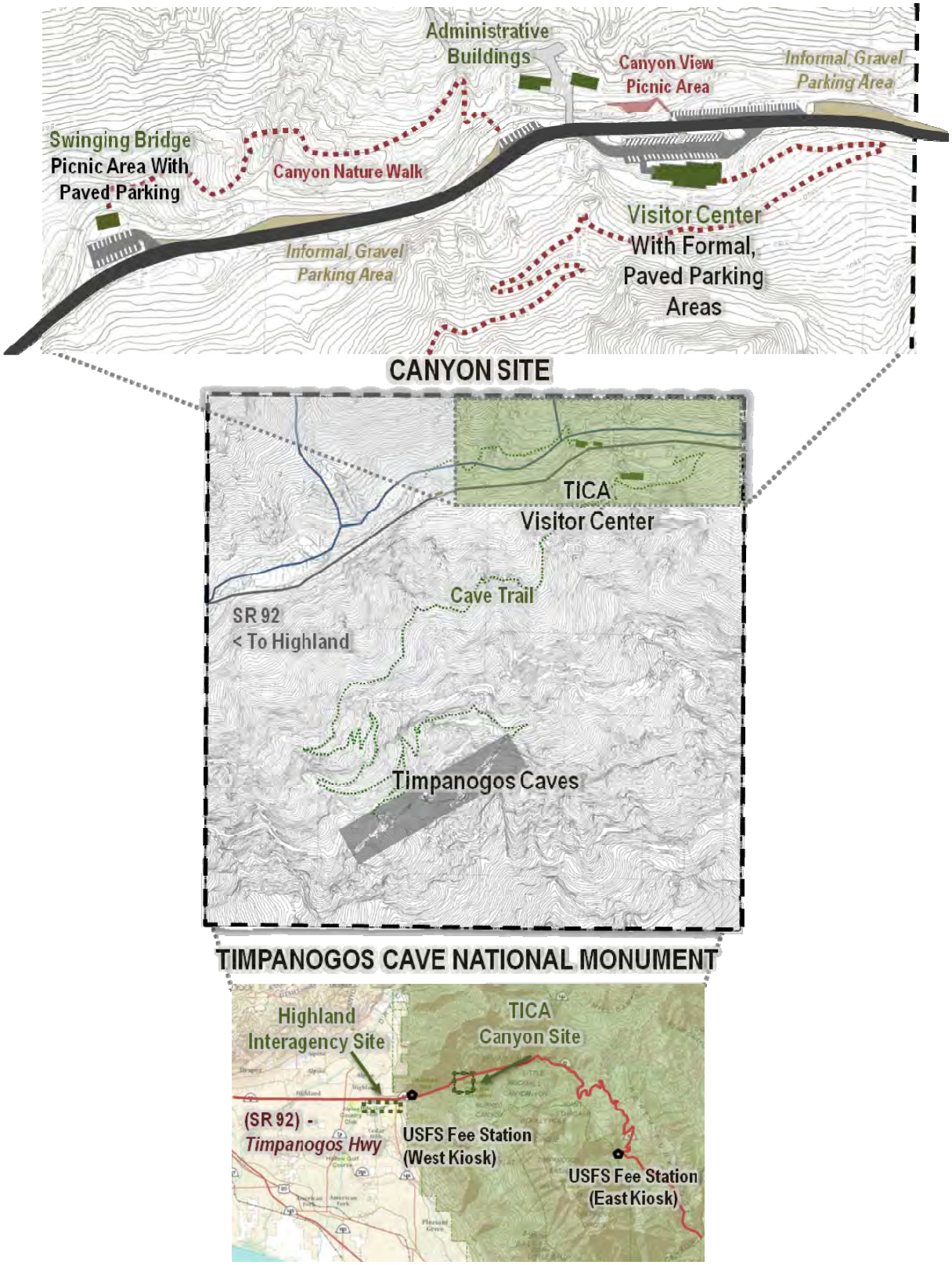
ACCESS

TICA is located in the Wasatch Mountains of northern Utah, approximately 40 miles south of Salt Lake City, surrounded by the Uinta-Wasatch-Cache National Forest. The monument is located on Utah State Route 92 (SR 92) in American Fork Canyon near the communities of Highland and Alpine. Access to the monument is via private vehicles and some tour groups in buses; there is currently no public transportation to TICA. Parking is provided in designated parking lots and along the sides of SR 92 near the TICA visitor center. The map on the next page shows an overview of the project area. The following page shows a closer view of the monument, parking areas, and transportation facilities.

OPERATIONS

The monument is typically open from the early May until mid-October, depending on weather and trail conditions. Access to the monument's facilities is closed during the winter months. The primary resource of the monument is Timpanogos Caves, which are reached by a 1.5 mile paved trail, climbing approximately 1,000 in elevation from the TICA visitor center. The round-trip hike typically requires 1 1/2 hours each way. Timpanogos Caves may only be entered with a ranger on a guided tour. Cave tours are offered daily throughout the summer season, and tickets must be purchased at the TICA visitor center. Cave tours are 45-60 minutes long and are limited to 20 persons per tour. Cave tours often sell out, especially on holidays and weekends. Tickets for the cave tour can be purchased up to 30 days in advance by telephone. The monument also provides ranger programs, and the cave trail is used for recreational hiking as well as access to the caves. The National Park Service (NPS) Public Use Statistics Office reports annual recreation visits ranging from about 104,500 to 138,500 over the period 2005 through 2010. In 2010, July had the highest visitation of any month with just over 37,500 recreational visits.

Timpanogos Study Area Overview


Administrative Buildings
Canyon View Picnic Area
Informal, Gravel Parking Area
Swinging Bridge
Picnic Area With Paved Parking
Canyon Nature Walk
Visitor Center With Formal, Paved Parking Areas
Informal, Gravel Parking Area
CANYON SITE
TICA Visitor Center
Cave Trail
SR 92
< To Highland
Timpanogos Caves
TIMPANOGOS CAVE NATIONAL MONUMENT
Highland Interagency Site
TICA Canyon Site
(SR 92) - Timpanogos Hwy
USFS Fee Station (West Kiosk)
USFS Fee Station (East Kiosk)

INFORMATION

For six to eight weeks during the summer, the monument visitor center parking area is full, the overflow parking areas located across SR 92 are full, and frequently all additional parking along the shoulders of SR 92 is also full. Visitors parking across and along SR 92 must cross the busy highway to access the monument visitor center and cave trailhead, which results in very dangerous pedestrian/vehicular conditions. In addition, vehicles parked along the road shoulders often back into traffic along the narrow and winding road.

Timpanogos Cave's Mission 66 headquarters and visitor center building was lost to fire in February 1991. The fire destroyed the administrative offices, visitor center and exhibit area, information and ticket sales area, Natural History Association sales area, museum, auditorium, rest rooms, building support and utility room, storage room, and attached tool storage structure. The temporary, modular visitor center currently used at Timpanogos Cave was placed in 1992 under emergency measures on the site of the destroyed building. Headquarters operations have been moved into a modified residence. The temporary monument visitor center is located below an active talus slope in the steep and narrow canyon. On several occasions rocks have gone through the roof of the visitor center and into the interior of the building. To date, luckily no one has been injured from these incidents. However other injuries from rock fall in the canyon are common; as recently as the 1990s rock fall caused visitor deaths ¼ mile up canyon from the TICA visitor center in the Uinta-Wasatch-Cache National Forest. In addition to the rock fall hazards, all of the monument visitor center parking is within the 100-year floodplain of American Fork Creek.

To resolve these and other issues, a 1993 General Management Plan/Development Concept Plan/Environmental Impact Statement recommended moving the majority of monument visitor/administrative facilities out of the canyon, constructing a new facility outside the canyon, and requiring a mandatory shuttle transportation system between the new facility and the cave trailhead.

FUNCTIONAL REQUIREMENTS

The administrative facility outside American Fork Canyon would be developed in partnership with the Uinta - Wasatch - Cache National Forest. The Interagency Visitor and Administration Complex would house both the US Forest Service and the TICA staff and operations and was brought about by P.L. 107-329, Title I, Timpanogos Interagency Land Exchange signed into law December 6, 2002. Its purposes are to authorize the acquisition of the land for the facilities via land exchange with Forest Service lands, direct the National Park Service to construct an administrative and visitor facility on that acquired land, and direct the Forest Service and National Park Service to cooperate in the development, construction, operation and maintenance of the facility. The Forest Service completed a land exchange in May 2005 for 37.5 acres at the mouth of American Fork Canyon fronting on SR 92, the highway that passes through American Fork Canyon and bisects the monument. This is the ideal and preferred site (the Highland site) for an interagency center.

To meet functional and operational needs the Highland site would require:

1. NPS/Forest Service Administration Functions
2. NPS/Forest Service Visitor Center with Exhibit Functions

3. Forest Service Fire and Maintenance Building Functions

The National Park Service and the US Forest Service partner in the administration of the American Fork Recreation Area Partnership and Fee Program. The program has been extremely successful and locating the Forest Service and TICA staff together would enhance this highly successful relationship. The proposed, interagency complex would also allow for efficiencies in providing for NPS and USFS visitor services and in overall building maintenance and operational costs. Exhibit space for both agencies would provide for interpretation and education opportunities not available in current facilities. Well-designed space for programs would serve visitors in comfort and enhance education, understanding, and appreciation for natural and cultural resources.

The Forest Service independently needs a Maintenance/Fire Cache Building of not more than 5,610 SF at a cost of not more than $1,250,000, which would be located at the Highland site. The National Park Service would not occupy any space in this building.

Visitor support and administrative functions would continue to require facilities near the existing TICA visitor center (the Canyon site). To meet functional and operational needs at the Canyon site the National Park Service would require:

1. Cave Tour and Trail Functions such as:
    a. Storage of SAR, EMS, and Cave Maintenance Equipment and Supplies
    b. Visitor Contact Station and Restrooms
2. Use of the Existing Rock House for Resource Management Functions
3. Demolition of the Existing Visitor Center and Existing Headquarters
4. Retention of the Existing Maintenance Building

Relocating trailhead facilities 100 feet or more to the east of present location would reduce the rock fall hazard and get the structures out of the 100-year floodplain.

GOALS

The primary purpose of the Timpanogos Cave Visitor Transportation Study project is to improve visitor access and safety. The project would make the monument more accessible to visitors by relieving traffic and parking congestion and reducing pedestrian/vehicle conflicts at the Canyon site parking lots and along SR 92. The solutions would result in the improvement of visitor circulation and the resulting improvement of the visitor experience. Protection of sensitive natural resources would be achieved by identifying solutions that demonstrate overall energy conservation and reduce the effects of the transportation system and visitor access on sensitive resources.

The scope of work for the study also identified a goal of enabling the monument to achieve enhanced intermodal interconnectivity with existing and planned regional networks by partnering with Utah Transit Authority (UTA) and the local communities. The study was intended to enable the monument and partners to work together to address the numerous transportation issues that are central to the improvement of visitor access.

The scope of work directed the development of innovative and feasible alternatives and thorough financial analysis to address the realities of transportation funding and present alternative scenarios on

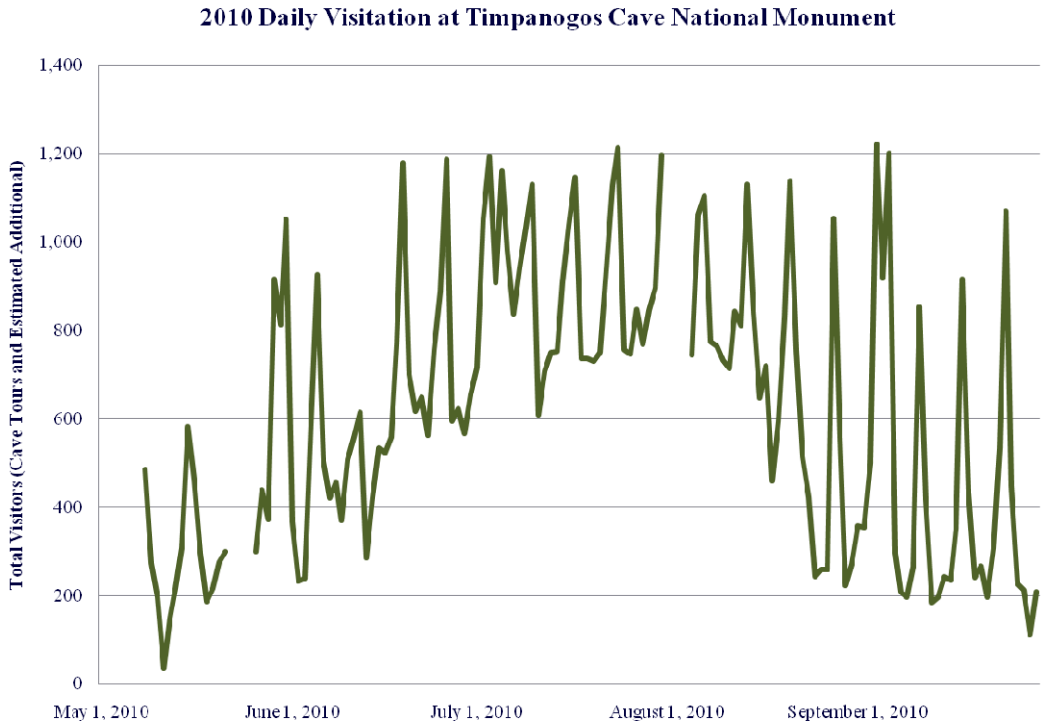
how to fund, operate, and implement the alternatives. Analysis of the fee program was conducted to identify the fee pricing/packaging structures that would be required to providing funding to cover the costs of the alternatives.

The study examined ways to achieve the National Park Service objective of minimizing the visitor and operational facilities located at the Canyon site. The study addressed options for vehicular and pedestrian circulation and examined site development options that could eliminate the need to realign SR 92 at the Canyon site. Site studies were conducted to identify ways that the denuded road shoulders of SR 92 could be rehabilitated and re-vegetated, and safety could be improved by reducing conflicts between pedestrians and visitors and reducing the time visitors spend in rock fall hazard areas at the Canyon site.

VISITATION AND PARKING ISSUES

In 2010, 120,241 people visited the monument - a 13 percent decrease in visitation from 2009. This may reflect sensitivity in demand to regional economic conditions. From 2005 to 2009 the monument experienced a 24 percent increase in annual visitation, or an additional 30,000 annual visitors. The figure below displays daily TICA recreational visitors for 2010. The highest estimated daily visitation of about 1,200 visitors occurred on 7 days in 2010.

National Park Service service-wide interpretive reports (SIRs) include statistics detailing total recreational visitors and visitor subset populations including cave and visitor center visits. These total numbers include estimates of visitation not supported by actual counts, as staff is not equipped to accurately count all visitors to monument property. For example, in July of 2011 an estimated 28,165 total recreational visitors visited the site utilizing the visitor center and for other visit purposes



(interpretative programs, junior ranger, etc.). Visitors embarking on cave tours numbered 23,471 persons.

A study completed in 2005 "Studying Cave Visitation Trends at Timpanogos Cave National monument and Nutty Putty Cave" by Jon Jasper, Resource Management Specialist at Timpanogos Cave National monument detailed typical visitation trends. Key observations, based on historical data, indicate that holiday weekends are peak visitation days, daily visitation is fairly consistent throughout the day except for a peak around noon, and that overall visitation peaks during the hottest time of the year.

The only access to the TICA monument is via private vehicle or, for school field trips and occasional organized groups, chartered buses. The TICA visitor center provides two paved parking lots with a total of 85 designated parking spots available on a first come, first served basis. An additional paved lot for the Swinging Bridge picnic areas provides a total of 22 additional spaces which are sometimes used by visitor center attendees. Signs indicate parking throughout the canyon is only allowed in designated areas or in gravel pullouts. Gravel pullouts along SR 92, which accommodate overflow parking, legally can accommodate up to approximately 70 vehicles – depending on parking patterns.

In addition to the parking lots provided for visitors, there is designated staff parking within Timpanogos Cave Administrative Offices area. This lot has approximately 15 designated parking spots that are filled during the work week by administrative staff. On the weekends, the lot is available to all NPS staff on a first come, first served basis. However, due to additional on-duty staff and concessions employees on weekends, this parking lot does not accommodate all employees and some staff members may occupy parking spaces otherwise intended for visitors.

Visitation demand during peak periods results in parking along SR 92 outside of the designated areas, infringing on natural resources, creating safety conflicts between vehicles and pedestrians, and impeding access for thru traffic on SR 92 and emergency response vehicles.

In order to address safety and visitor experience concerns associated with overflow parking at the Canyon site, either an adequate number of parking stalls to meet the peak demand must be provided or measures to limit demand must be implemented.

Visitation patterns and parking conditions were observed and analyzed over the 2011 Labor Day weekend. Total visitor estimates were determined from visitor data for the Timpanogos Cave National Monument between Saturday, September 3 and Monday, September 5, 2011. Visitors are defined as individuals who attended a cave tour. Based on ticket sales, Monday had the highest number of visitors with 928 on tours, Saturday was next with 902 visitors, and Sunday had 789 visitors. The daily counts do not include persons seeking refunds for not completing the hike and/or tour, persons simply hiking the trail, and persons waiting in the parking lot or using monument facilities. As a result, these estimates are conservative counts of visitor accumulation.

Data collection occurred during one of the highest visitation periods of the year, the Labor Day holiday weekend. Morning activity on Sunday was significantly lower than that of Saturday and Monday. (Sunday total visitation has been similar to weekday totals in past years.)

On both Saturday and Sunday, early morning tours were not sold out, but demand rose steadily by mid-morning. Monday's visitation represented nearly a maximum attendance (one less tour was offered this day than others due to ranger availability). Monday's visitor arrival patterns, based on hike time may

illustrate the effects of the 70/30 percent split on advance sales versus same-day sales. With greater advance sales, the popular time slots are likely to sell out most quickly, encouraging visitors to utilize early morning and late afternoon time slots. This may result in a constant and more efficiently managed stream of visitors using monument resources – and more manageable parking situations. The reverse of this situation may be reflected in Saturday's visitation patterns. Where fewer tickets are sold in advance, arriving visitors take the first available time slot for the size of their group. This means that early tours are not sold out, but by mid-morning four-hour wait times are common for visitors who purchase same day tickets. This pattern places greater strain on available parking capacity and increases the number of people at the monument at peak times – even though actual daily visitors may be fewer than in Monday's example. Based on observed ticket sales and an assumed average 3-hour stay at the monument, a maximum of about 430 cave visitors was at the monument at one time. This maximum accumulation, along with the assumed number of visitors not taking cave tours and the assumed average vehicle occupancy of three people, is the primary determinant of the parking supply needed to serve TICA visitors. A maximum of 175 parked vehicles was observed in the vicinity of TICA over the 2011 Labor Day holiday weekend. With visitors parked on shoulders and crossing SR92 to access the monument.

Based on ticket sales throughout the 2010 season, holidays saw an average peak visitor accumulation of about 480 visitors, while Saturdays saw an average peak accumulation of about 450 visitors. The existing paved parking lots at the TICA site would accommodate around half of this visitor accumulation, with the rest of the visitors parking in informal roadside locations. It is estimated that 165 visitor parking spaces would be needed at the Canyon site to meet typical visitor demand on peak holiday and weekend days assuming that tickets are distributed in such a way that visitors do not wait long periods prior to the start of their cave tour.

Traffic volumes were recorded at locations near TICA over the 2011 Labor Day weekend. An average of about 2,900 vehicles per day entered American Fork Canyon from the west, while an average of about 800 vehicles per day entered the area from the east. Peaks of 423 vehicles per hour entering the TICA area and 460 vehicles per hour exiting the area were observed over the 2011 Labor Day weekend.

INTERAGENCY ENTRANCE FEE PROGRAM

American Fork Canyon is a US Forest Service Fee Area. At the western and eastern ends of American Fork Canyon, the US Forest Service and National Park Service jointly operate and staff kiosks or fee stations, which collect a fee for all visitors entering the canyon (including visitors who are only visiting the monument). The American Fork Canyon Station is located at the western end of the canyon and the Aspen Grove Station is at the eastern end, both on SR 92. Both Forest Service and National Park Service employees staff the fee stations. Personnel assigned to fee collection include eight full-time Forest Service employees and two full-time and two part-time National Park Service employees. In addition, the Forest Service employs a compliance officer who randomly checks visitor passes throughout the canyon. During the summer visitor season, the fee stations operate from 7:00 am to 7:00 pm, 7 days a week. When the stations are not operating, fees are collected via self service fee tubes. Fees are as follows, with Golden Eagle, Golden Age, and Golden Access passports being honored: 3 Day .....$6.00, 7 Day .....$12.00, 12 Month .....$45.00. Visitors taking cave tours at TICA pay additional fees for the tours.

A remittance clerk employed by the National Park Service is responsible for counting, verifying, and depositing collected funds into a Forest Service account. Managed under Forest Service authority, fee revenue is distributed to the National Park Service, the Forest Service, and a number of recreation fee partners. There is no fixed distribution of fee revenues. The National Park Service, Forest Service, and recreation fee partners hold an annual meeting to determine the distribution of fees, and these amounts would vary from year to year depending upon receipts and needs.

SPECIAL CRITERIA/REFERENCE DOCUMENTS

1. 2007 NPS Management Policies

2. National Park Service, "Timpanogos Caves National Monument Environmental Impact Statement, General Management Plan, Development Concept Plan." August 1993.

3. National Park Service, "Timpanogos Cave National Monument Long-Range Interpretive Plan." December 2010.

4. National Park Service, "DRAFT Schematic Design Document: Interagency Center American Fork, Utah." August 2010.

5. National Park Service, "Timpanogos Interagency Center & Replace/ Relocate Unsafe/ Unhealthy/ Unsustainable Visitor Facility Value Analysis No. 1." Functional & Operational Elements Draft Report. January 2011.

6. Directors Order 12 – Environmental Impact Analysis

7. Council on Environmental Quality Regulations

8. NPS 12 - Conservation Planning, Environmental Impacts Analysis and Decision-making

9. Directors Order 20 – Agreements

10. Directors Order 22 – Recreation Fees

11. Alternative Transportation Eligibility Guidelines – Internal NPS Document

12. Directors Order 87B – Non-NPS Roads

13. Design Imperatives (Standard DSC Work Flow Items)
    - Appropriate Design Solutions for Park Use and Maintenance Capabilities
    - Integration of Facilities into the Park Environment
    - Compliance Consistency Reviews
    - Compliance with Architectural Barriers Act Accessibility Standards (ABAAS)
    - Constructability Strategies
    - Quality Control
    - Risk Analysis
    - Scope and Budget Consistency Reviews
    - Sustainable design practices
    - Value-based decision-making

14. Roadway Design Manual of Instruction, Utah Department of Transportation, 2011.

15. Project Design Criteria, Utah Department of Transportation, 2011

16. Utah Department of Transportation, 2012 Standard Specifications and 2012 Standard Drawings

STAKEHOLDER ANALYSIS

No.	Stakeholder	Primary Interest
1	TICA Visitors (Cave Tour users, hikers, group members, tour operators)	Convenient access to and from cave trail and cave tours (private vehicles and buses) Convenient access to parking Convenient scheduling of cave tours and purchasing of tour tickets Ability to visit other sites in American Fork Canyon Safe and secure conditions for TICA users Clear, logical, consistent wayfinding Pleasant conditions, including views, natural sounds, protection from weather, comfortable transportation, and freedom from crowding Freedom from conflicts with vehicular traffic when walking to monument sites Ability to visit at desired times Reasonable cost to access TICA and cave tours Minimal impacts from construction
2	American Fork Canyon Visitors	Continued access to American Fork Canyon Reasonable fees to access American Fork Canyon Freedom from congestion on roads Freedom from conflicts between through traffic and parked cars High quality visual environment Minimal impacts from construction
3	Park Staff/TICA VIPs	Convenient access to work sites Effective working conditions Efficient maintenance of facilities Safe traffic operations Minimal exposure to safety and security risks Minimal need for traffic management and other duties that distract from primary job functions Efficient ticket sales Rapid response to emergencies in cave Simple, efficient, and easy to explain visitor access Limited resource impacts/maximize restoration Minimal impacts to operations during construction

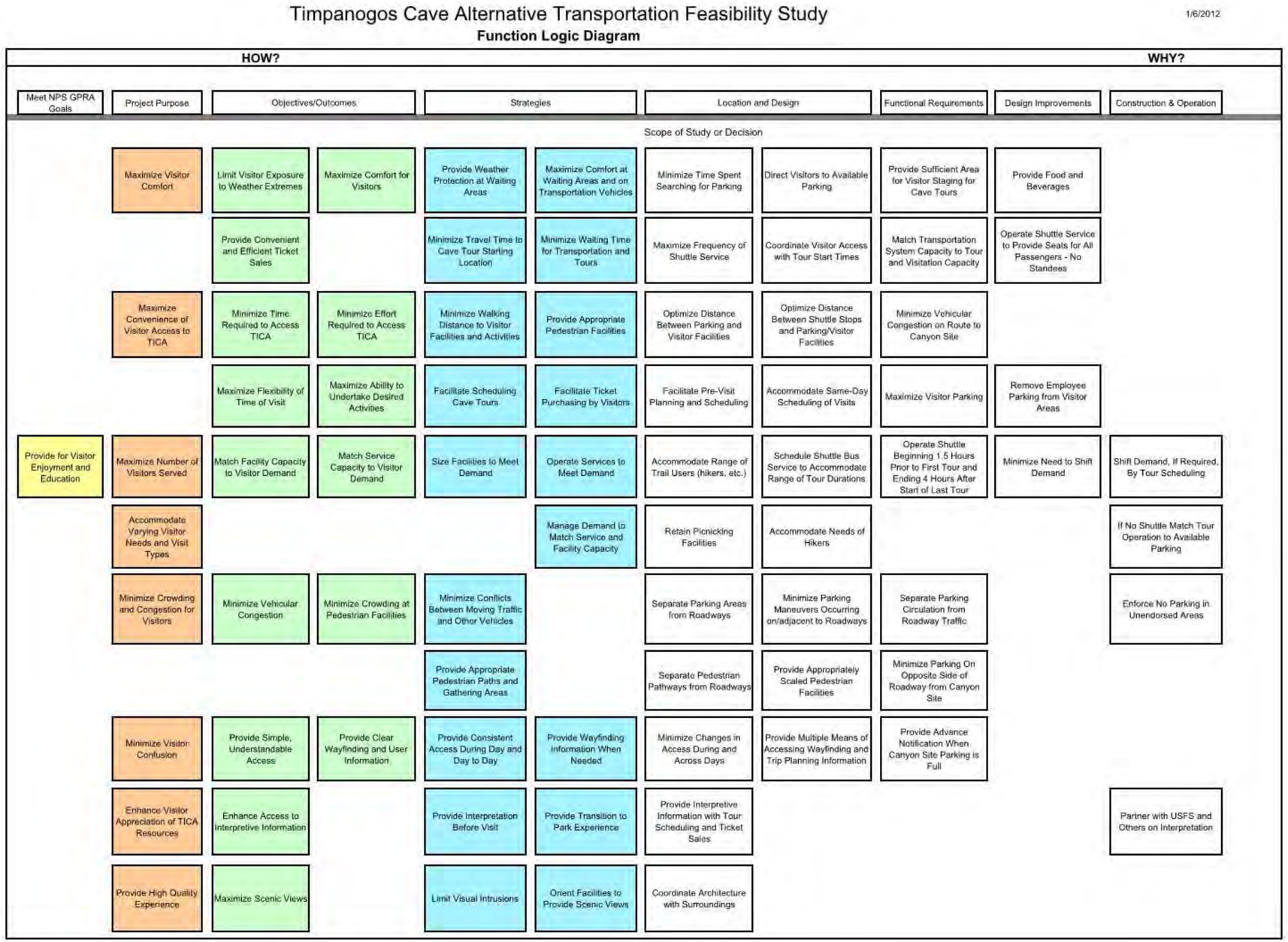
No.	Stakeholder	Primary Interest
4	US Forest Service	Convenient access to work sites Effective working conditions Efficient maintenance of facilities Efficient fee collection Convenient visitor access to recreation sites Resource protection
5	Western National Parks Association (cooperating association)	Effective venue for book sales Continued ability to attract support for association and park
6	General Public/Congress	Cost effective solution Appropriate solution Sustainable solution Quality solution Neutral impact to national, state, and local budgets Opportunity for job creation
7	Regulatory Agencies (local, state, federal) SHPO, EPA, UDEQ	Preserve historic resources: NHPA Section 106 Protect natural resources, water quality, air quality Maximize worker safety
8	Utah Department of Transportation	Adhere to standards Safe traffic operations High quality traffic flow Efficient design process Clear design documents supporting good contractor bids Efficient bidding process Cost-effective construction Minimize construction duration Minimize maintenance requirements Maximize life of roadway
9	Construction Contractors	Clear CDs Efficient construction access Efficient construction staging Minimal conflict from visitor use Straightforward construction process Maximize worker safety/health
10	Service Contractors/Partners	Efficient operations Maximize utilization of vehicles Attractive opportunities for potential employees Adequate facilities to support operation Opportunity for profit or cost recovery Maximize safety of operations Simple operations Good relations with riders
11	Concessioner	Continued opportunity to conduct business Minimal impact to visitor demand and operations

No.	Stakeholder	Primary Interest
12	Local Governments/Regional Government	Minimize required funding and resulting impact on regional and local transportation funding and financing Maximize tax revenues associated with monument visitation Maximize monument access and visitation Maximize local business potential
13	National Park Service • Service-wide • Region • DAB • Park • Superintendent • Interpretation • Public Affairs	Keep project on schedule and budget, meet all requirements for project development Flexibility to complete project Financial sustainability Cost effectiveness Resource protection, maximize visitor experience, safety/health/environment, Maximize learning opportunities Positive opinion of project

FAST DIAGRAM

This section of the report provides a Function Analysis System Technique (FAST) diagram for the alternative transportation project and the development of visitor facilities at the Highland and Canyon sites. In general the basic project goals appear of the left side of the diagram, with the objectives and strategies to meet the goals appearing to the right. Reading left to right reveals how the goals and objectives would be accomplished, while reading right to left reveals why a component of the project was proposed. The FAST diagram helps to identify the key factors used in the Choosing-by-Advantages process to identify the preferred alternative.

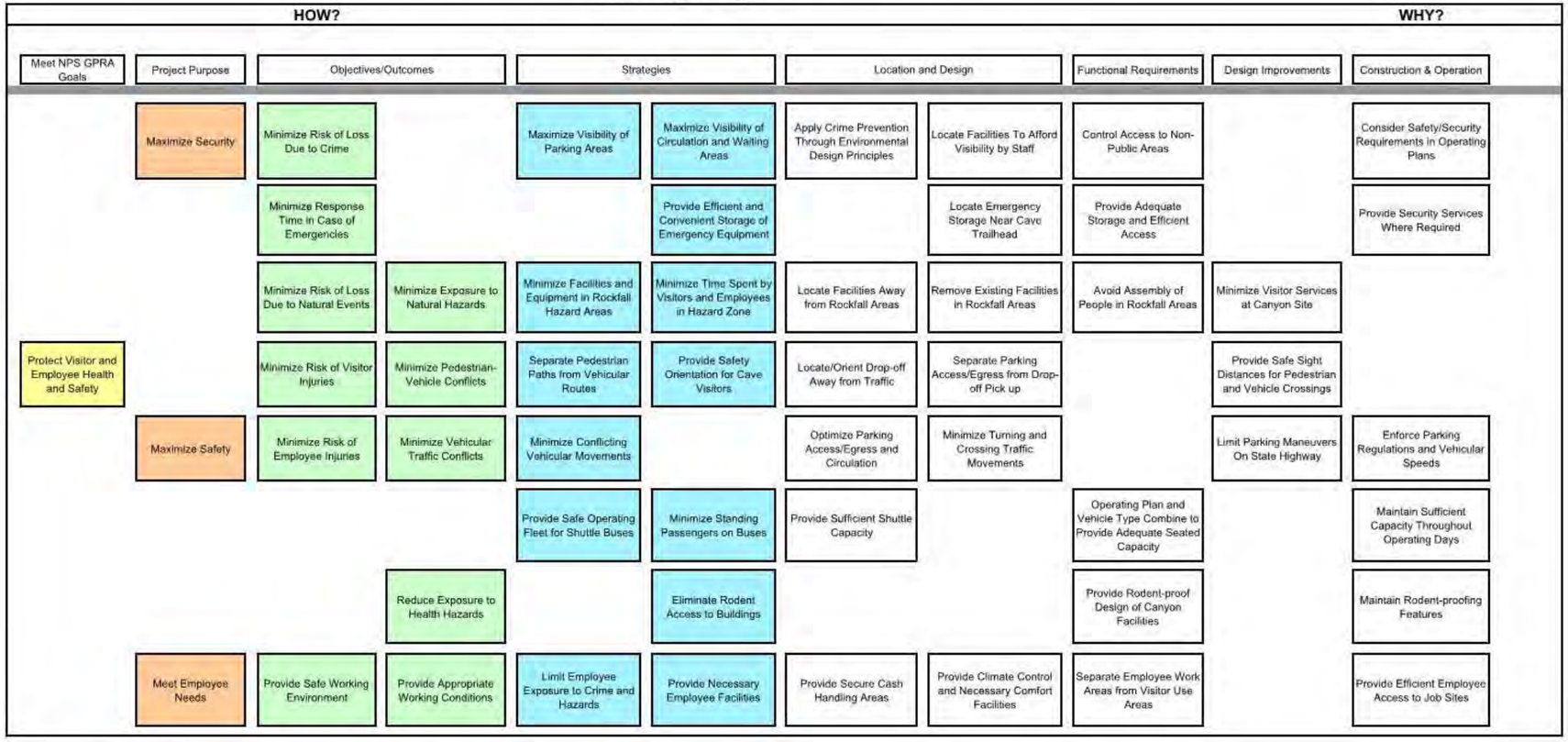
FAST DIAGRAM



Timpanogos Cave Alternative Transportation Feasibility Study

1/6/2012

Function Logic Diagram



Timpanogos Cave Alternative Transportation Feasibility Study

1/6/2012

Function Logic Diagram

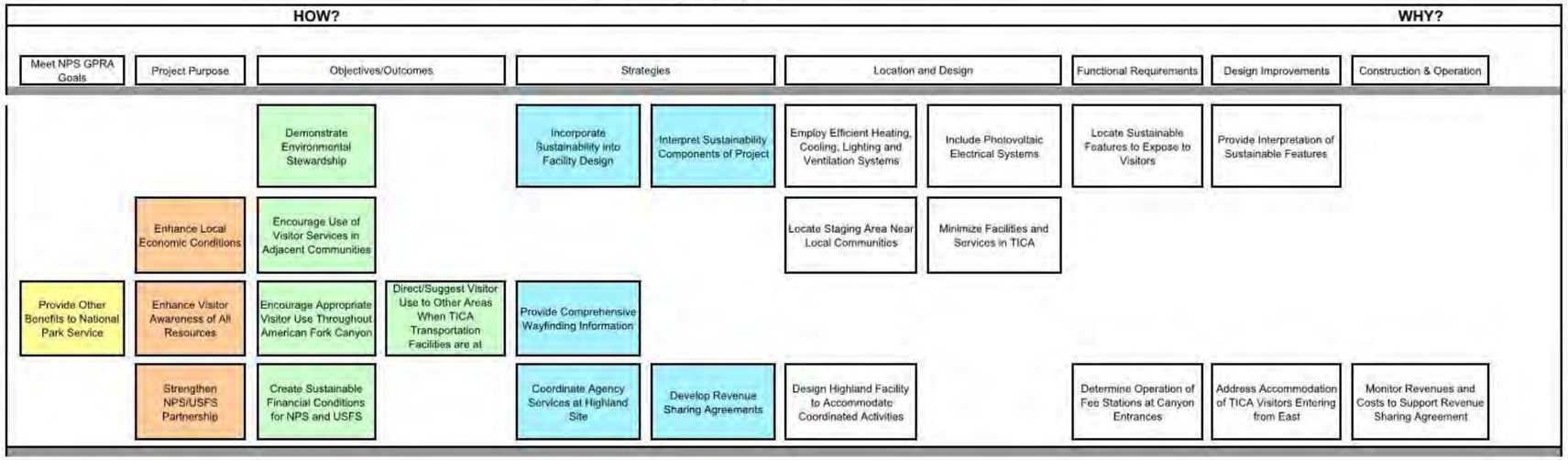
HOW? **WHY?**

Meet NPS GPRA Goals	Project Purpose	Objectives/Outcomes		Strategies		Location and Design		Functional Requirements	Design Improvements	Construction & Operation
Maximize Efficiency, Reliability and Sustainability	Maximize Staff Efficiency and Effectiveness	Provide Appropriate Facilities	Provide Efficient Working Conditions	Provide Sufficient Work and Storage Space	Minimize Unproductive Time	Locate Administrative Sites Near Visitor Use Areas	Separate Non-Visitor Related Functions from Visitor Use Areas	Minimize Distances Between Related Administrative Functions	Accommodate Maintenance Activities and Equipment	Contract for Specialized Maintenance Services
	Minimize Cost of Visitor Transportation	Minimize Cost of Required Facilities	Minimize Operating Requirements and Costs	Use Durable Materials	Minimize Need for Special Tools, Equipment and Skills	Minimize Staffing Needed for Operations and Maintenance	Minimize Need for Traffic and Parking Management Activities	Maximize Use of Existing Transportation Staff and Operating Resources	Consider Seasonal Nature of Needs in Design of Facilities	Deliver Shuttle Service Using Partnership or Contract Arrangements
		Minimize Maintenance Requirements and Costs	Maximize Efficiency of Maintenance	Re-use Materials on Site	Use Local Materials	Minimize Construction While Meeting Program Needs	Match Maintenance Facility Program to Needs	Design for Minimized Maintenance and Operating Staffing Needs	Provide Efficient Layout of Admin and Maintenance Facilities	Include Maintenance in Contract Requirements
	Minimize Energy and Other Resource Consumption	Minimize Vehicular Travel by Visitors and Employees	Maximize Efficiency of Vehicles Used in Park Transportation	Maximize Carpooling and Other Alternative Transportation for Employees	Include Fuel Economy Requirements in Contracts or Partnership Agreements	Minimize Building Envelope	Consider Resources and Energy Use in Facility Design			
		Minimize Energy Use in Buildings	Maximize Use of Renewable Energy	Maximize Natural Heating, Ventilation and Lighting	Minimize Energy Losses	Orient Buildings to Maximize Solar Energy	Maximize Natural Insulation	Provide Photovoltaic Facility		
	Maximize Opportunity for Future Development	Minimize Resource Use		Minimize Waste Production	Maximize Recycling	Use Recycled Materials	Accommodate Recycling	Provide Facilities for Waste Sorting and Recycling	Use Local Landscape Species	
Protect Natural and Cultural Resources	Enhance Natural and Cultural Resources	Limit Impacts to Existing Resources		Limit Overall Development Footprint	Limit Excavation	Limit Size and Extent of Constructed Facilities	Restore/Enhance Vegetation			Manage Run-off
		Restore/Enhance Existing Resources		Reduce Impacts from Inappropriate Use	Enhance Interpretation Regarding Resource Protection	Limit Roadside Parking	Limit Social Trails	Provide Sufficient Parking and/or Shuttle Capacity	Manage Demand to Match Parking and Access Capacity	Enforce Parking Regulations
		Reduce GHG and Other Emissions		Reduce Overall Travel and Fuel Use	Minimize Per VMT Emissions	Include Emissions Criteria in Operating Contracts or Partnership Agreements		Avoid Unnecessary Travel		Direct Visitors to Available Parking

Timpanogos Cave Alternative Transportation Feasibility Study

1/6/2012

Function Logic Diagram



ALTERNATIVES

The VA/CBA addressed alternative scenarios for providing access to TICA. The alternatives included operational and management components and accompanying site studies for the Highland site and the Canyon site. The alternatives are described below, with illustrations of the site studies showing potential arrangements for the facilities following the descriptions. The alternative scenarios represent a range of feasible improvements and transportation solutions that address the overall project goals of improving the safety and experience of visitors to the Timpanogos Cave National Monument.

Alternatives were based on known project parameters, project assumptions, and data and observations of monument operations and conditions. The alternative concepts and their key elements were presented to project partners in October 2011 during an interagency and stakeholder work session to gather initial input on draft alternatives. The alternatives were then refined and presented for consideration in the VA/CBA workshop.

Four alternatives were evaluated in the workshop, providing a range of transit and non-transit alternative transportation solutions and strategies:

- Alternative 1: Mandatory Shuttle Service
- Alternative 2: Peak-Period Optional Shuttle Service
- Alternative 3: Canyon Site Safety Improvements with Realignment of SR 92 and Demand Management
- Alternative 4: Canyon Site Capacity Improvements with Demand Management

ALTERNATIVE 1: MANDATORY SHUTTLE SERVICE

This alternative would include the operation of shuttle service between the Highland and Canyon sites with dramatically reduced parking at the Canyon site in order to meet project objectives of improving visitor safety and experience. Shuttle service would operate 7 days a week to transport visitors from facilities at the Highland site to the cave trailhead at the Canyon site (see map on the following page).

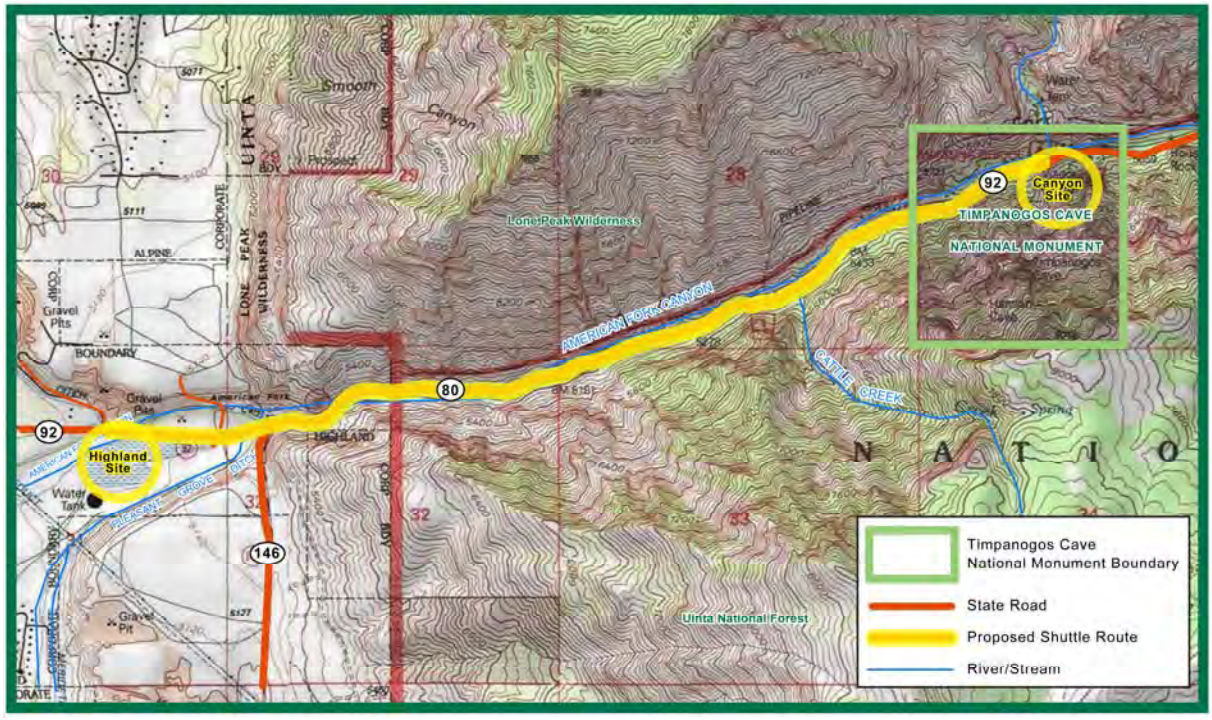
Key Elements

- Highland site would include interagency administrative functions and a visitor center. The visitor center would incorporate interpretation services, ticket sales, parking, shuttle staging and shelter areas.
- Canyon site would include a small visitor contact station, shuttle staging and shelter areas at the cave trailhead – consistent with National Park Service 2010 value analysis recommendations. Visitor parking areas would be significantly reduced and much of the area would be restored to natural conditions.

Alternative Building Blocks: Transportation Strategies and Solutions

Transit Operations:

- A mandatory shuttle would transport visitors along the SR 92 route between the Highland and Canyon sites, with no additional stops.
- Service would be provided seven days a week during the monument's operating season. Service hours would be from 6:30 a.m., leaving from the Highland site approximately two hours before first tour, to 9:30 p.m., leaving the Canyon site approximately 3.5 hours after last tour. The shuttle would operate on either 10- or 15-minute headways.



- Three vehicles would be required for 15-minute headways (two operating and one spare). Four vehicles would be required for 10-minute headways (three operating and one spare). Shuttle vehicle capacity should accommodate 30 to 35 passengers for 15-minute headways and 20 to 25 passengers for 10-minute headways. Vehicles would be in compliance with ADA requirements.
- For the purpose of selecting a preferred overall alternative for visitor access to TICA, the option with 15-minute headways was assumed. If an alternative incorporating shuttle access had been identified as the preferred alternative, the 10-minute and 15-minute headway options would have been evaluated in a mini-VA.
- It was assumed that the visitor fee for touring the cave would be increased by an amount sufficient to cover the cost of operating the shuttle system.
- It was assumed that the service would be provided through a contract with a private operator or a partnership agreement with Utah Transportation Authority (UTA) if no private operator were available. NPS would not purchase vehicles to provide the service.
- The type of vehicle used for the service and the type of fuel used by the vehicles would be dependent upon the fleet owned by the contractor or agency partner. Use of low-polluting and energy-efficient alternative fuels and vehicles would be encouraged and could be required as part of the contract or agreement terms. The cost estimates for all of the alternatives assumed

that vehicles would not be purchased expressly for the TICA service. It was assumed that the contractor or agency partner would use existing vehicles in their fleet or would acquire vehicles that would also be used for other service when the TICA service is not operating.

Parking Management and Operations:

- Sufficient visitor parking to meet the peak demand for cave tours would be provided at the Highland site. Oversize tour group vehicles would be required to drop off their passengers at the Canyon site and travel to the Highland site to park while their passengers were visiting TICA. The tour vehicles would return to the Canyon site to pick up passengers at a pre-arranged time. 205 visitor parking spaces and six large vehicle parking spaces would be provided at the Highland site for use by TICA visitors. An additional 37 parking spaces would meet the needs of visitors using the visitor center but not going to TICA.
- National Park Service seasonal staff parking would be provided at the Highland site. Employees would be encouraged or required to carpool or ride shuttle buses to their work locations at the Canyon site. Existing staff parking would be retained at Residences 8 and 9 for seasonal rangers and maintenance vehicles. A total of 20 parking spaces would be provided for staff use at the trailhead parking lot and a lot across SR 92 from the trailhead.
- Parking at the Canyon site would be substantially reduced and no parking for cave tour users would be provided. Ten existing spaces would be retained at the Canyon Nature Trail lot. Ten spaces would be provided in the main trailhead lot, including two for National Park Service staff emergency and maintenance use and one to accommodate disabled visitors. Swinging Bridge lot would be retained and would be utilized by early morning non-tour hikers, but signage and parking enforcement would prohibit extended parking by cave tour visitors at this location.

System Capacity and Safety Improvements:

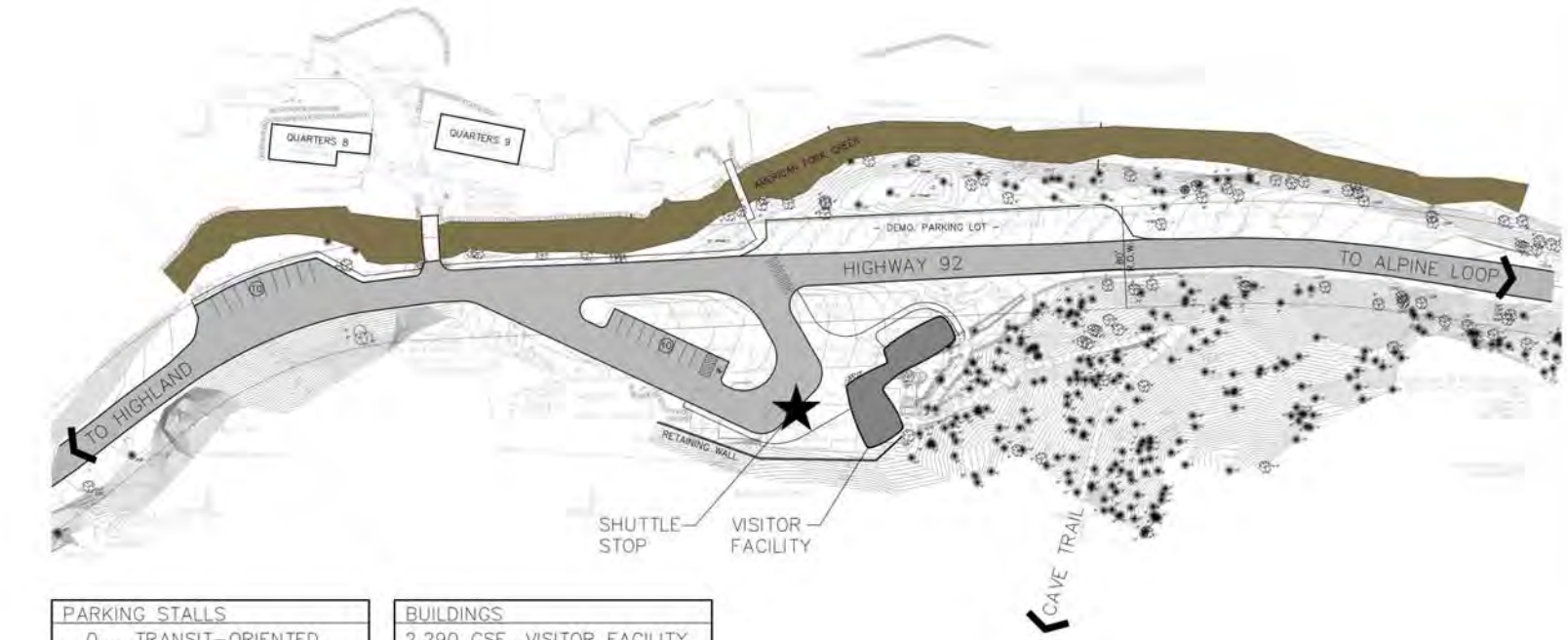
With the exception of the Swinging Bridge and Canyon Nature Trail lots, all existing paved and informal gravel parking areas within TICA boundaries and adjacent Forest Service property would be re-vegetated and parking would be prohibited. Safety improvements would be implemented, including installation of traffic calming devices and introduction of a regulatory speed limit to improve the safety of access to the Canyon View picnic area and Canyon Nature Trail across SR 92.

Demand Management:

- Ticket sales would be offered at the Highland site, but tickets would primarily be sold in advance to better manage peak visitor demand in coordination with the shuttle operations.
- The schedule of cave tours would be adjusted to coordinate with the shuttle service schedule, reduce spikes in demand, and to fulfill the monument's resource protection objectives by reducing visitor impacts. The proposed revision to the tour schedule would result in a reduction in annual visitation capacity of approximately 1.0 percent from 2010 visitation levels assuming there would be no shift in visitation from the current peak days to other, less busy days. If visitation demand shifts to less busy days, there could be a neutral to positive impact in overall annual visitation capacity.

Visitor Information:

- Wayfinding and informational signage improvements at both east and west entrances to Uinta – Wasatch – Cache National Forest, west of Highland on SR 92, and at the monument trailhead would be provided to better inform visitors about parking availability, shuttle bus service, and tour ticket purchasing options. The wayfinding signage would primarily direct TICA visitors to travel to the Highland site for ticketing and parking.



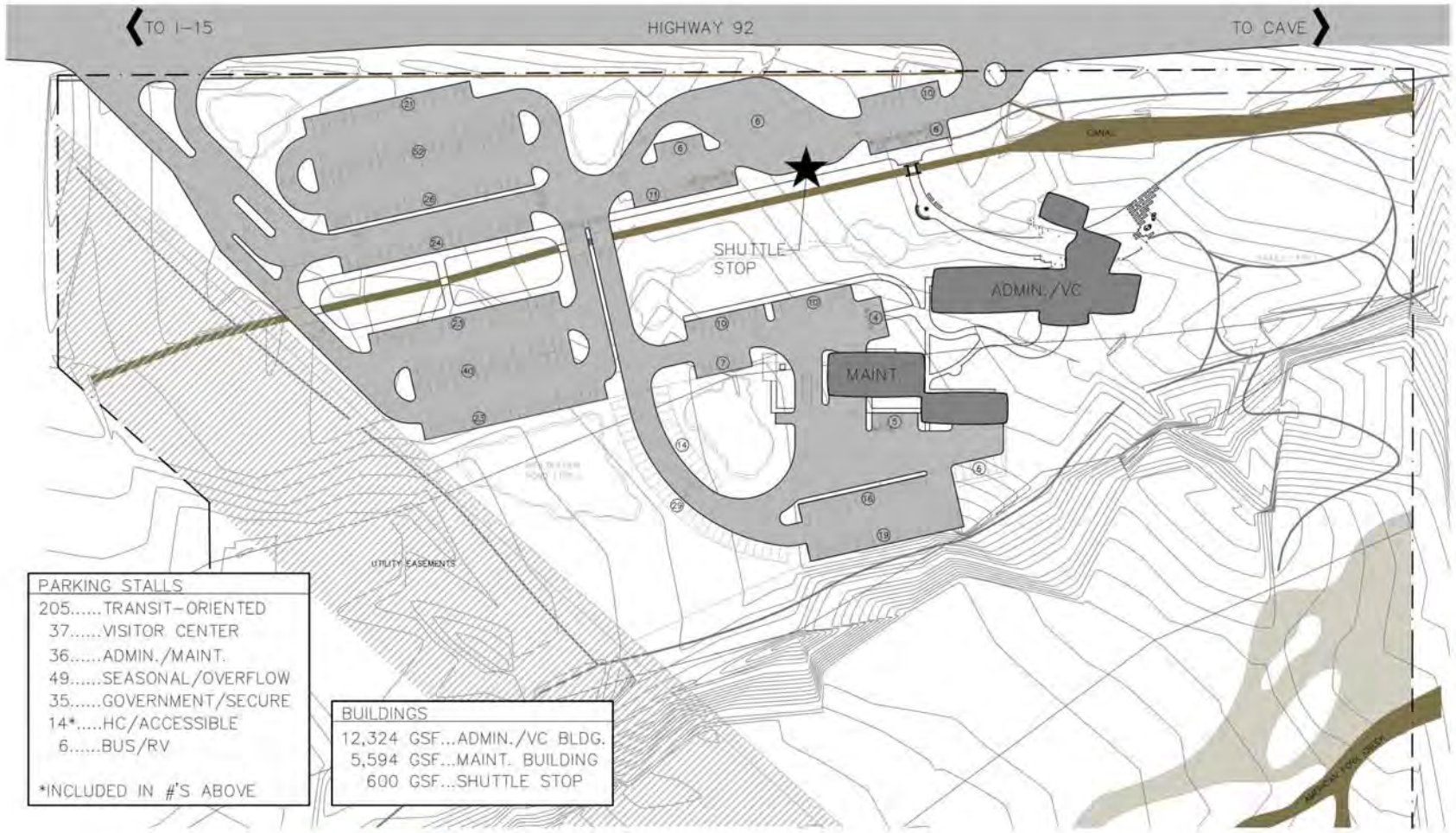
PARKING STALLS
0.....TRANSIT-ORIENTED
20.....PARK/STAFF
1*.....HC/ACCESSIBLE
*INCLUDED IN #'S ABOVE

BUILDINGS
2,290 GSF...VISITOR FACILITY
600 GSF...FREE-STANDING COVERED SHUTTLE STOP

GRAPHIC SCALE (IN FEET)
40 20 0 40 80

TIMPANOGOS CAVE NATIONAL MONUMENT

ALTERNATIVE 1
TRANSIT STUDY - CANYON SITE


TO I-15
HIGHWAY 92
TO CAVE
SHUTTLE STOP
ADMIN./VC
MAINT.
UTILITY EASEMENTS
PARKING STALLS
205.....TRANSIT-ORIENTED
37.....VISITOR CENTER
36.....ADMIN./MAINT.
49.....SEASONAL/OVERFLOW
35.....GOVERNMENT/SECURE
14*.....HC/ACCESSIBLE
6.....BUS/RV
*INCLUDED IN #'S ABOVE
BUILDINGS
12,324 GSF...ADMIN./VC BLDG.
5,594 GSF...MAINT. BUILDING
600 GSF...SHUTTLE STOP
GRAPHIC SCALE (IN FEET)
50 25 0 50 100
TIMPANOGOS CAVE NATIONAL MONUMENT
ALTERNATIVE 1
TRANSIT STUDY - HIGHLAND SITE

ALTERNATIVE 2: PEAK-PERIOD OPTIONAL SHUTTLE SERVICE

This alternative would provide some visitor parking at the Canyon site and an optional shuttle service from the Highland site on weekends and holidays in order to meet project objectives of improving visitor safety and experience on peak days. The Highland site would provide visitor parking for use by cave tour visitors on weekends and holidays, along with shuttle boarding facilities. The Canyon site parking would be redesigned and sized to meet the average weekday visitor demand. Advance tour ticket sales and modified tour schedules would be utilized to spread demand in coordination with the planned parking supply and shuttle bus service.

Key Elements

- The Highland site would include interagency administrative functions and a visitor center. The visitor center would incorporate interpretation services, ticket sales, weekend visitor parking, and shuttle staging and shelter areas.
- The Canyon site would include a small contact station and shuttle staging and shelter areas at the cave trailhead. Visitor parking areas would be redesigned and formalized to improve safety and traffic flow.

Alternative Building Blocks: Transportation Strategies and Solutions

Transit Operations:

- A shuttle would transport visitors along the SR 92 route between the planned Highland and Canyon sites during weekends and holidays, with no additional stops.
- Shuttle service would be provided on weekends and major holidays, during seasonal the monument's operating season. Service hours would be from 6:30 a.m., leaving from the Highland site approximately two hours before the first tour, to 9:30 p.m., leaving the Canyon site approximately 3.5 hours after the last tour. The shuttle would operate with either 10- or 15-minute headways.
- Three vehicles would be required for 15-minute headways (two operating and one spare). Four vehicles would be required for 10-minute headways (three operating and one spare). Shuttle vehicle capacity should accommodate 30 to 35 passengers for 15-minute headways and 20 to 25 passengers for 10-minute headways. Vehicles would be in compliance with ADA requirements.
- Fees to cover operating costs, the means of delivering the service, and the considerations for vehicle types and fuel would be the same as discussed for Alternative 1.

Parking Management and Operations:

- Sufficient visitor parking would be provided at the Highland site to meet the portion of holiday and weekend TICA visitor demand not accommodated at the Canyon site. Eighty-four regular parking spaces would be provided for shuttle bus users going to TICA and six large vehicle parking spaces would be provided for tour groups. Thirty-nine parking spaces would be provided for visitors to the visitor center who are not going to TICA. Similar to Alternative 1, tour groups to TICA would be required to drop off visitors at the Canyon site, travel to the Highland site to park, and return to the Canyon site to pick up their tour members.

- National Park Service seasonal staff parking would be provided at the Highland site. Employees would be encouraged or required to carpool or ride shuttle buses to their work locations at the Canyon site. Existing staff parking would be retained at Residences 8 and 9 for seasonal rangers and maintenance vehicles. A total of two parking spaces would be provided for staff use in the trailhead parking lot.
- Parking at the Canyon site would be redesigned and expanded to meet average weekday demand, with a total of 97 visitor parking spaces. Ten existing spaces would be retained at the Canyon Nature Trail lot. The parking spaces north of SR 92 and adjacent to American Fork Creek would be reoriented and a portion of the adjacent gravel lot would be paved to provide a total of 54 spaces. The trailhead parking lot would be redesigned to provide visitor parking, a shuttle and tour bus drop-off, two spaces for National Park Service staff emergency and maintenance use, and 4 spaces to accommodate disabled visitors. The Swinging Bridge lot would be retained for picnic use. Longer-term parking by tour visitors would be prohibited and enforced.

System Capacity and Safety Improvements:

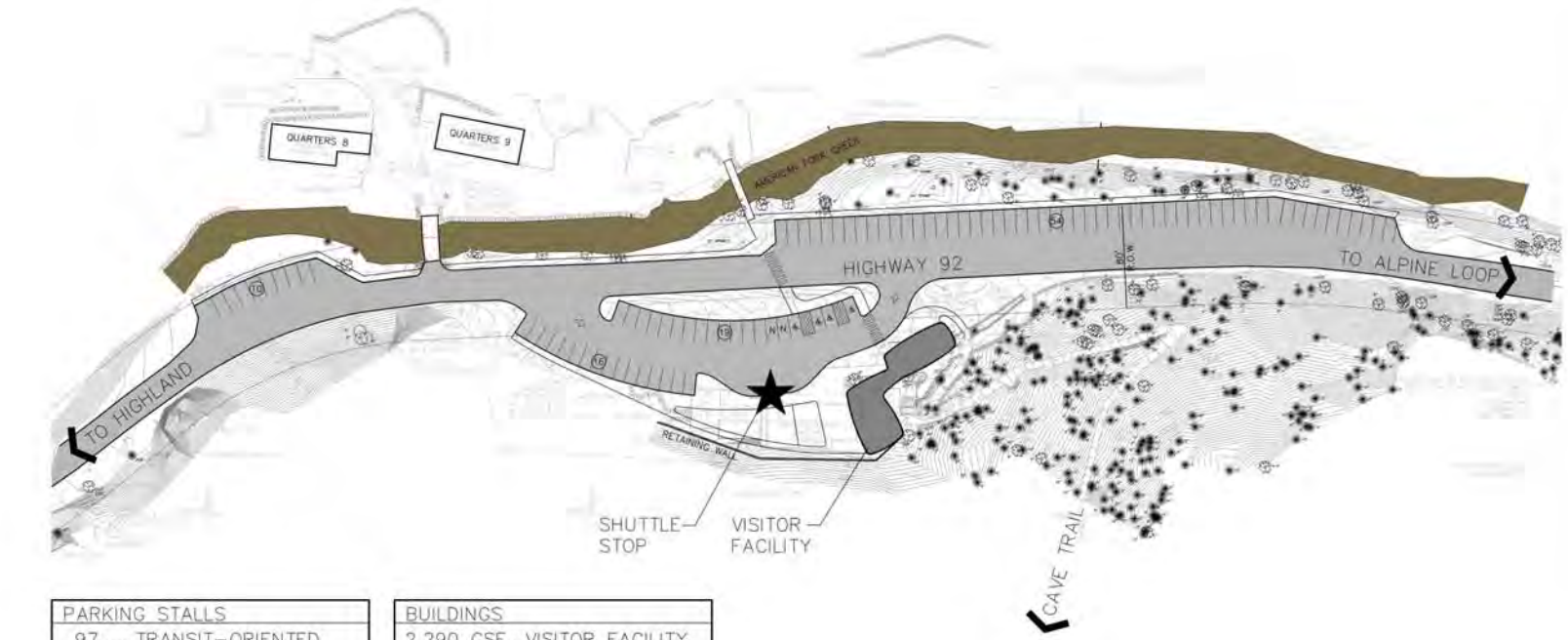
- With the exception of the redesigned parking areas, all informal gravel or roadside parking areas within TICA boundaries and adjacent Forest Service property would be re-vegetated and parking would be prohibited.
- Safety improvements including additional or better designed pedestrian crosswalks, installation of traffic calming signals and devices, and introduction of a regulatory speed limit would enhance safe access to parking areas, the Canyon View picnic area, and Canyon Nature Trail across SR 92.

Demand Management:

- Ticket sales would be offered at the Highland site, but tickets would be primarily sold in advance to spread demand and coordinate visitor use with the available parking on weekdays and the combined parking and shuttle system on weekends and holidays.
- The schedule of cave tours would be adjusted to coordinate with the shuttle service schedule, reduce spikes in demand, and to fulfill resource protection objectives by reducing visitor impacts. The proposed revision to the tour schedule would result in a reduction in annual visitation capacity of approximately 1.0 percent from 2010 visitation levels assuming there would be no shift in visitation from the current peak days to other, less busy days. If visitation demand shifts to less busy days, there could be a neutral to positive impact in overall annual visitation capacity.
- The availability of parking at the Highland site, entry to TICA without paying the Forest Service entry fee, and availability of interpretation services on shuttle and visitor services at the Highland site visitor center help to incentivize use of shuttle.

Visitor Information:

- Variable messaging and real-time information systems installed along SR 92 and at the Highland site would direct visitors to the Highland site overflow parking and shuttle service when parking nears capacity at Canyon site.



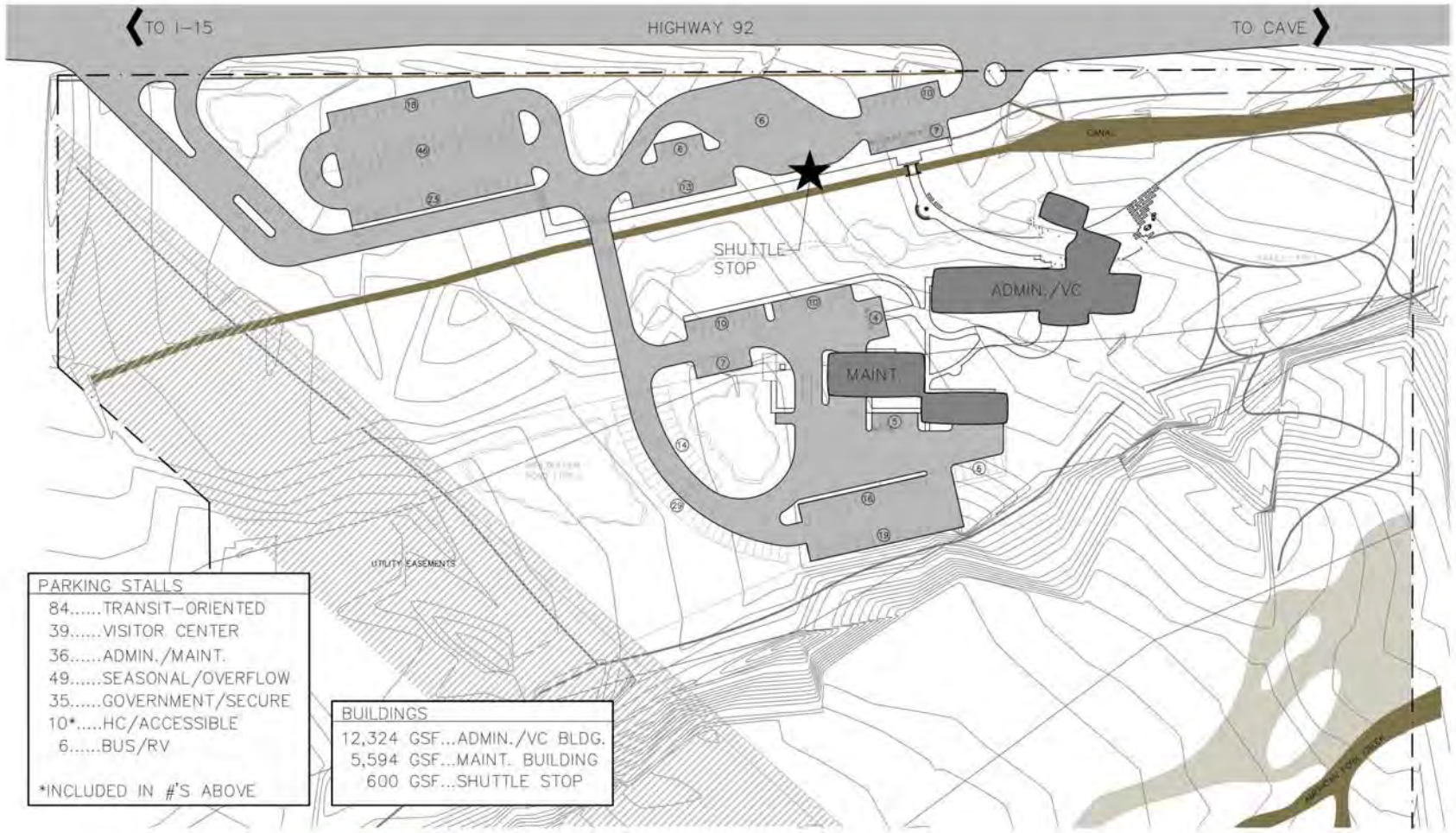
PARKING STALLS
97.....TRANSIT-ORIENTED
2.....PARK/STAFF
4*.....HC/ACCESSIBLE
*INCLUDED IN #'S ABOVE

BUILDINGS
2,290 GSF...VISITOR FACILITY
600 GSF...FREE-STANDING COVERED SHUTTLE STOP

GRAPHIC SCALE (IN FEET) 40 20 0 40 80

TIMPANOGOS CAVE NATIONAL MONUMENT

ALTERNATIVE 2
TRANSIT STUDY - CANYON SITE


TO I-15
HIGHWAY 92
TO CAVE
SHUTTLE STOP
ADMIN./VC
MAINT.
UTILITY EASEMENTS
PARKING STALLS
84.....TRANSIT-ORIENTED
39.....VISITOR CENTER
36.....ADMIN./MAINT.
49.....SEASONAL/OVERFLOW
35.....GOVERNMENT/SECURE
10*.....HC/ACCESSIBLE
6.....BUS/RV
*INCLUDED IN #'S ABOVE
BUILDINGS
12,324 GSF...ADMIN./VC BLDG.
5,594 GSF...MAINT. BUILDING
600 GSF...SHUTTLE STOP
GRAPHIC SCALE (IN FEET)
50 25 0 50 100
TIMPANOGOS CAVE NATIONAL MONUMENT
ALTERNATIVE 2
TRANSIT STUDY - HIGHLAND SITE

ALTERNATIVE 3: CANYON SITE SAFETY IMPROVEMENTS WITH REALIGNMENT OF SR 92 AND DEMAND MANAGEMENT

This alternative would incorporate a realignment of SR 92 to maximize parking that could be provided adjacent to the Canyon site visitor contact station and cave trailhead in order to meet project objectives of improving visitor safety and experience. The total amount of parking that could be provided is reduced by the realignment of the road, resulting in the need to implement visitor demand management strategies that reduce visitation at any time to match the available parking. Overall annual visitation would likely be substantially reduced with this alternative, even if visitation were to shift from busy days to less busy days.

Key Elements

- The Highland site would include interagency administrative functions and a visitor center with interpretation services and ticket sales.
- The Canyon site would include a small contact station and limited services at the cave trailhead. Roadway realignment and redesign consolidates parking on the same side of the highway as the visitor use area resulting in improved safety and traffic flow.

Alternative Building Blocks: Transportation Strategies and Solutions

Transit Operations:

- None

Parking Management and Operations:

- Parking at Canyon site would be redesigned to provide the maximum feasible number of parking spaces with the realignment of SR 92 to improve the safety of access to the trailhead and contact station. Tour groups would be managed as in Alternatives 1 and 2. Eighty parking spaces would be provided for cave tour visitors at the Canyon site.
- National Park Service seasonal staff parking and other administrative parking would be managed as in Alternatives 1 and 2, and two parking spaces would be provided in the trailhead parking lot for staff use.
- All existing parking spaces north of SR 92 would be removed to accommodate the realignment of SR 92. Ten existing spaces would be retained at the Canyon Nature Trail lot.
- The Swinging Bridge lot would be retained for picnic and cave tour use with signage installed at trailhead contact station directing visitors to access the lot via the Canyon Nature Trail route. The trailhead parking lot would be redesigned to maximize parking, as well as to provide two spaces for National Park Service staff emergency and maintenance use and three spaces to accommodate disabled visitors along with a loading and unloading area for oversized vehicles serving tour groups.

System Capacity and Safety Improvements:

- A segment of SR 92 roadway would be realigned to the north in order to accommodate redesign of Canyon site, to improve through traffic flow on SR 92, to consolidate available parking, and to improve pedestrian safety by reducing the number of pedestrians crossing SR 92.

- Safety improvements including installation of traffic calming devices and introduction of a regulatory speed limit would improve the safety of access to the Canyon View picnic area and Canyon Nature Trail across SR 92.
- Existing informal gravel and roadside parking areas within the TICA boundaries and adjacent USFS property would be re-vegetated and parking would be prohibited.

Demand Management:

- Cave tour schedules and sales policies would be adjusted to maximize the total number of visitors that could be accommodated recognizing the limited available parking. All ticket sales would be by advance reservation to maximize average tour group size and encourage visitor use of early morning and late afternoon tour openings and to encourage visitor use on less busy days.
- Preliminary estimates of the effects of the revised tour schedules and advance sales with this alternative indicate that a daily total of 680 tour visitors on 34 tours could be accommodated on weekend days and holidays and a daily total of 580 tour visitors on 29 tours could be accommodated on weekdays. This represents a reduction in daily weekend and holiday use of 26 percent from 2010 baseline levels and a potential increase in weekday visitation of 39 percent. The overall impact would be a reduction in annual visitation of 11 percent and a reduction of 29 percent in the annual number of tours offered if visitation did not shift from busy days to less busy days.

Visitor Information:

- Wayfinding and informational signage improvements at both entrances to Uinta - Wasatch - Cache National Forest, Highland site visitor center, and monument trailhead would inform visitors of appropriate, legal parking areas and the availability of parking at TICA.
- Expanded information in tourist publications and on the National Park Service TICA website would inform potential visitors of parking constraints, advance reservation and cave tour ticketing policies, and the availability of tours, encouraging visitors to come to TICA on less busy days.

ALTERNATIVE 4: CANYON SITE CAPACITY IMPROVEMENTS WITH ADVANCED DEMAND MANAGEMENT

This alternative would maximize parking capacity at the Canyon site while providing pedestrian safety enhancements and demand management in order to meet the project objectives of improving visitor safety and experience. This alternative provides the maximum feasible visitor parking at the Canyon site without realigning SR 92.

Key Elements

- The Highland site would include interagency administrative functions and a visitor center with interpretation services and limited ticket sales.
- The Canyon site would include a small contact station and limited services at the cave trailhead. Parking would be reconfigured to maximize the supply of parking for visitors while improving safety and reducing the resource impacts from informal roadside parking.

Alternative Building Blocks: Transportation Strategies and Solutions

Transit Operations:

- None

Parking Management and Operations:

- Parking at the Canyon site would be reconfigured to provide the maximum feasible amount of visitor access to the trailhead and contact station while improving safety over current conditions. Oversize vehicles serving tour groups would be accommodated as described in Alternatives 1, 2, and 3. A total of 97 visitor parking spaces would be provided at the Canyon site.
- National Park Service seasonal and regular staff parking would be accommodated as described in Alternative 3, with two staff parking spaces located in the trailhead lot.
- The Swinging Bridge lot would be retained for picnic and cave tour visitor use with signage directing visitors to access the lot via the Canyon Nature Trail route. 10 existing spaces would be retained at the Canyon Nature Trail lot. Parking spaces on the north side of SR 92 would be reconfigured as head-in spaces, and a portion of the adjacent gravel lot would be paved to provide a total of 54 spaces. The trailhead parking lot would be redesigned to increase capacity, improve traffic flow, and to provide two spaces for National Park Service staff emergency and maintenance use and four spaces to accommodate disabled visitors. The trailhead lot also would accommodate a loading and unloading area for oversized vehicles serving tour groups.
- Visitor parking at the Highland site would be limited to parking for visitors using the visitor center, with a total of 38 visitor spaces and six spaces for oversized vehicles serving tour groups.

System Capacity and Safety Improvements:

- The Canyon site would be reconfigured to maximize the available parking at the trailhead and across SR 92.
- Safety improvements including additional pedestrian crosswalks, the installation of traffic calming signals and devices, and the introduction of a regulatory speed limit would be implemented to improve the safety of access to the Canyon View picnic area, the Canyon Nature Trail, and the expanded visitor parking across SR 92.
- With the exception of designated parking areas, existing informal gravel and roadside parking areas within TICA boundaries and adjacent Forest Service property would be re-vegetated and parking would be prohibited.

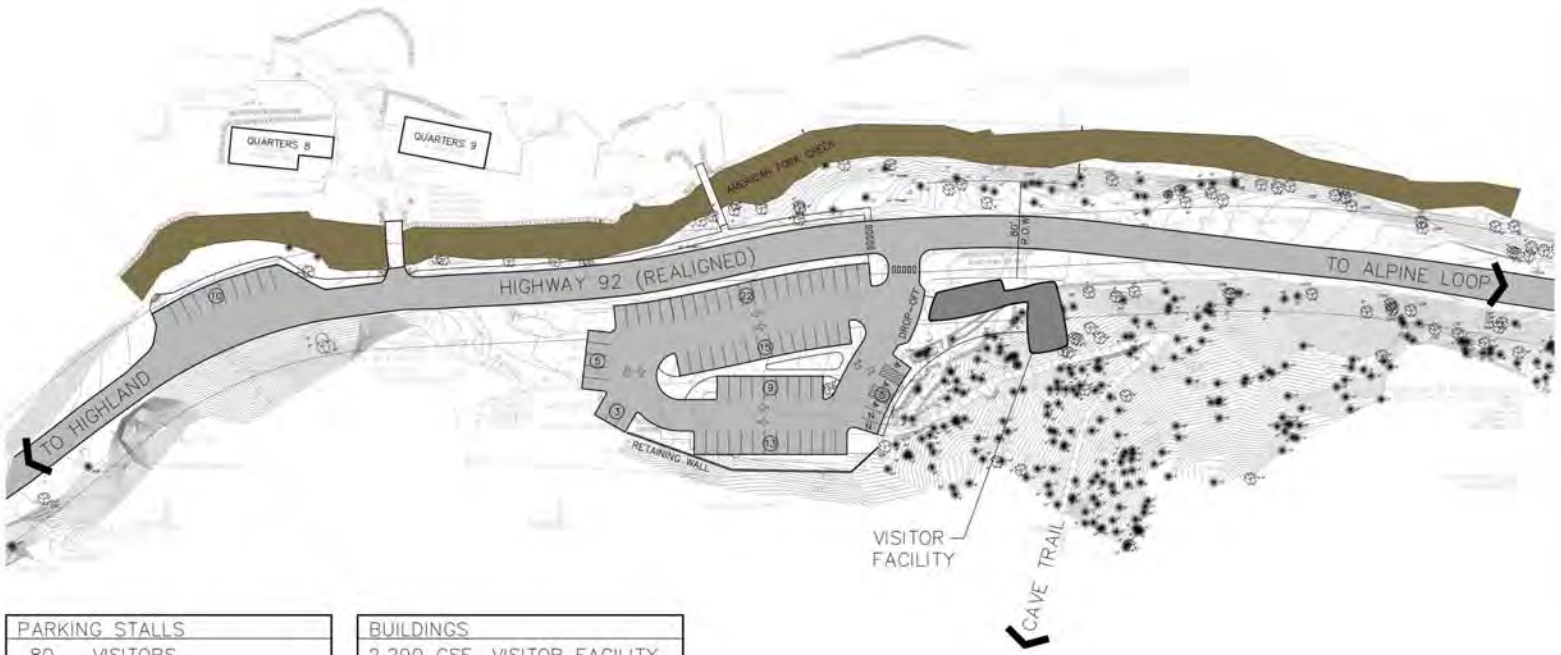
Demand Management:

Cave tour schedules and sales policies would be adjusted to maximize the number of visitors that may be accommodated recognizing the available parking. It is assumed that all cave tour ticket sales would be completed by advance reservation. This would maximize the average tour group size and would encourage visitor use of early morning and late afternoon tour openings and visitation on less busy days.

- Preliminary estimates of the effects of modified tour schedules and advance sales indicate that a daily total of 800 tour visitors on 40 tours could be accommodated during weekends and holidays and a daily total of 720 tour visitors on 36 tours could be accommodated on weekdays. This represents a reduction of 12 percent in daily visitation on weekends and holidays and a potential increase in daily visitation of 73 percent on weekdays. This would result in an overall decrease in annual visitation of 12 percent and a 5 percent decrease in the number of tours offered per year, assuming that there would be no shift in visitation from busy days to less busy days.

Visitor Information:

- Wayfinding and informational signage improvements at both entrances to Uinta - Wasatch - Cache National Forest, Highland site visitor center, and monument trailhead would inform visitors of appropriate, legal parking areas and the availability of parking at TICA.
- Expanded information in tourist publications and on the National Park Service TICA website would inform potential visitors of parking constraints, advance reservation policy, and would encourage utilization of tour openings at less busy times and on less busy days.



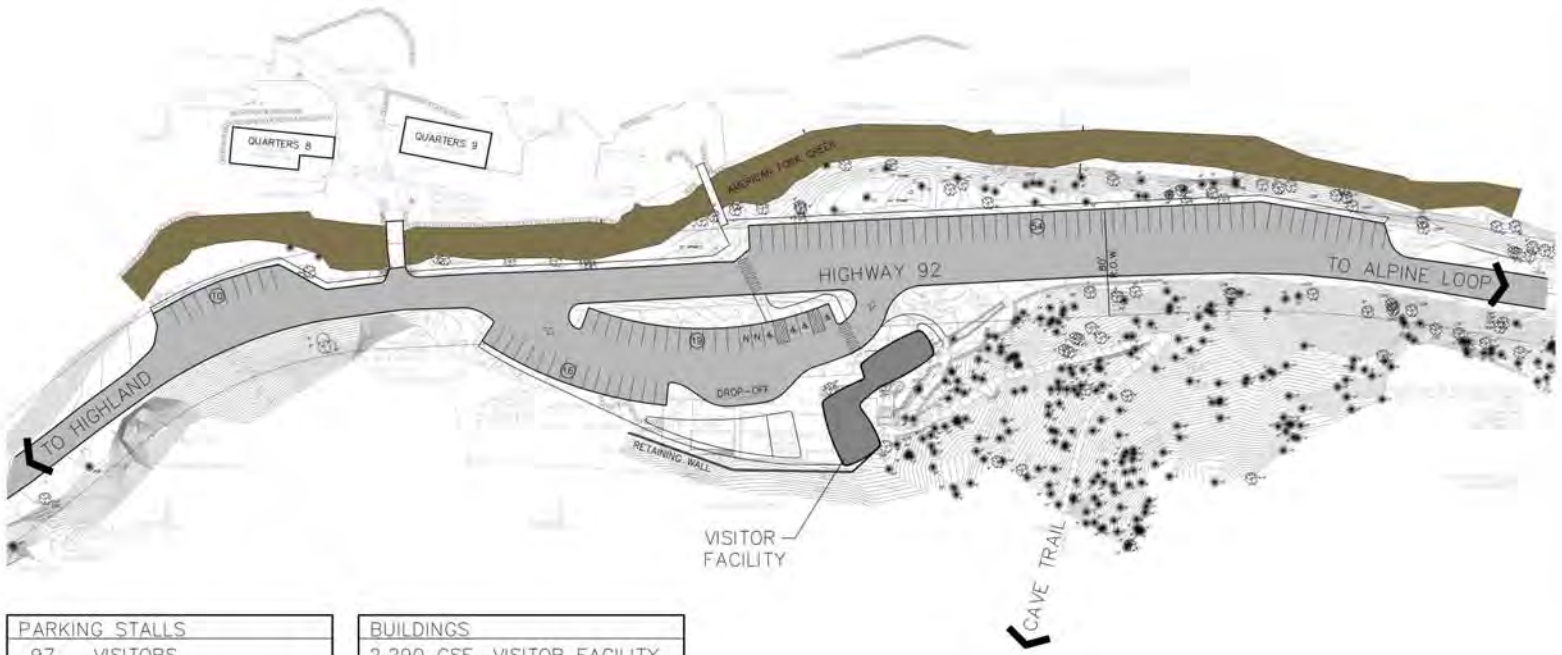
PARKING STALLS
80.....VISITORS
2.....PARK/STAFF
3*....HC/ACCESSIBLE
*INCLUDED IN #'S ABOVE

BUILDINGS
2,290 GSF...VISITOR FACILITY

GRAPHIC SCALE (IN FEET)
40 20 0 40 80

TIMPANOGOS CAVE NATIONAL MONUMENT

ALTERNATIVE 3
TRANSIT STUDY – CANYON SITE



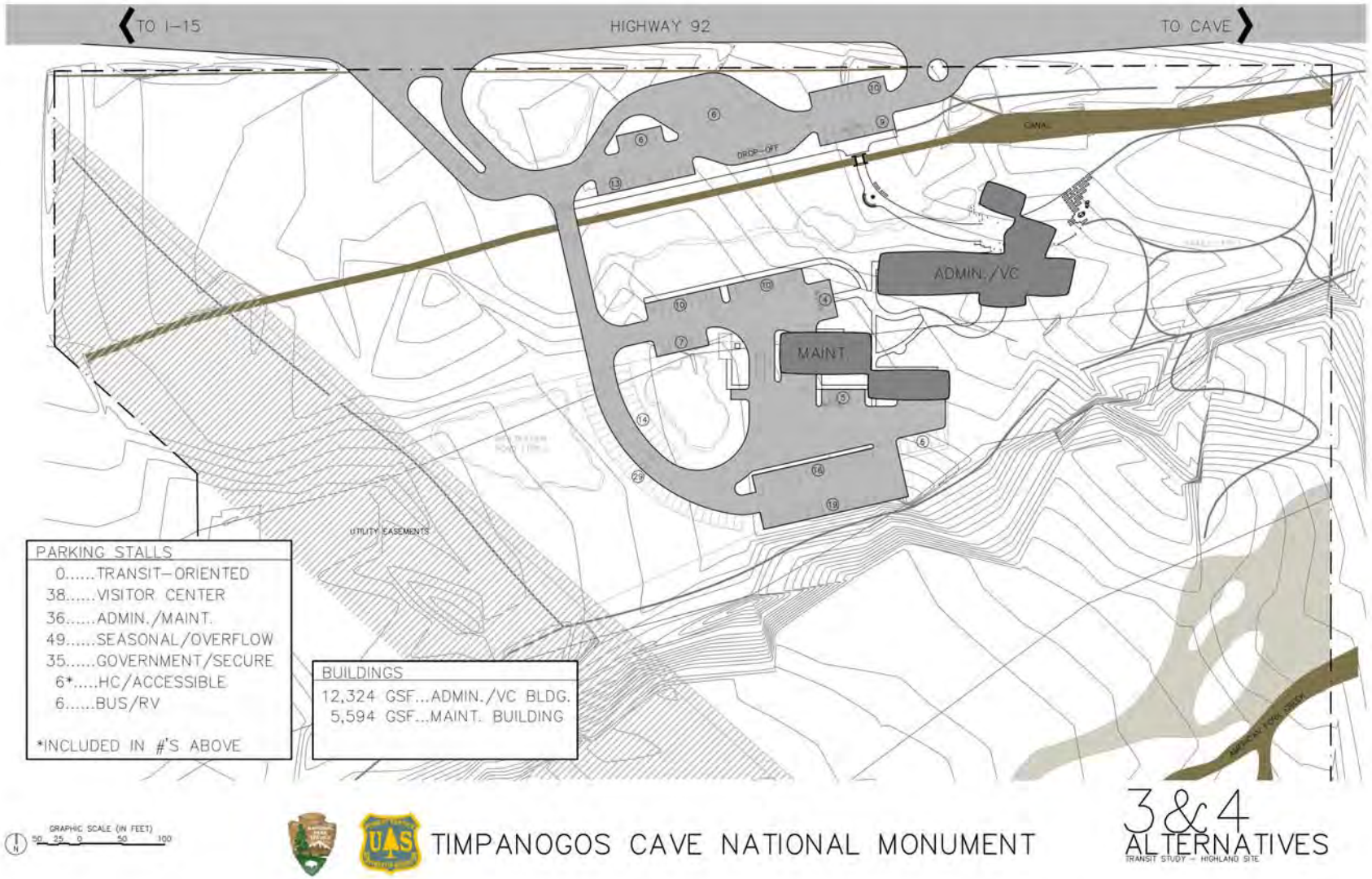
PARKING STALLS
97.....VISITORS
2.....PARK/STAFF
4*.....HC/ACCESSIBLE
*INCLUDED IN #'S ABOVE

BUILDINGS
2,290 GSF...VISITOR FACILITY

GRAPHIC SCALE (IN FEET)
40 20 0 40 80

TIMPANOGOS CAVE NATIONAL MONUMENT

ALTERNATIVE 4
TRANSIT STUDY – CANYON SITE


TO I-15
HIGHWAY 92
TO CAVE
CANAL
DROP-OFF
ADMIN./VC
MAINT.
UTILITY EASEMENTS
PARKING STALLS
0.....TRANSIT-ORIENTED
38.....VISITOR CENTER
36.....ADMIN./MAINT.
49.....SEASONAL/OVERFLOW
35.....GOVERNMENT/SECURE
6*.....HC/ACCESSIBLE
6.....BUS/RV
*INCLUDED IN #'S ABOVE
BUILDINGS
12,324 GSF...ADMIN./VC BLDG.
5,594 GSF...MAINT. BUILDING
GRAPHIC SCALE (IN FEET)
50 25 0 50 100
TIMPANOGOS CAVE NATIONAL MONUMENT
3&4
ALTERNATIVES
TRANSIT STUDY - HIGHLAND SITE

COST ANALYSIS

This section presents cost information for the alternatives as presented at the VA/CBA workshop. The cost estimates were preliminary and may not have included itemized amounts for every component of the project.

BASIS OF ESTIMATES

The costs of the alternatives include capital costs for construction of the proposed facilities for all of the alternatives and operating costs for the proposed transit services. The cost estimates presented here assume that the shuttle bus service would be delivered through a partnership agreement with a public transit provider or through a service contract with a private transit operator. Existing shuttle bus systems in the Intermountain Region of the National Park Service that are provided through service contracts include Rocky Mountain National Park and Bryce Canyon National Park. It is assumed that the partner or contractor would supply the vehicles, labor, and maintenance services required for the proposed operation. This type of arrangement results in higher operating costs than for other systems where the National Park Service provides the vehicles and maintenance facilities for the service and a contractor or partner provides the labor (Grand Canyon National Park, Zion National Park, and Glacier National Park).

The operating costs for the proposed shuttle bus service in Alternatives 1 and 2 were estimated based on cost information for the Rocky Mountain National Park shuttle bus service (service contract option) and cost information provided by the Utah Transit Authority (UTA - partnership option). UTA would only provide service to TICA if a private contractor were not available to provide the service. There is a substantial difference in cost between the partnership and service contract options due to the fact the a private operator would expect to earn a profit to run the service and the private operator would expect to include the cost of acquiring vehicles for the service in its overall cost structure. A range of potential operating costs is presented for Alternatives 1 and 2 reflecting uncertainty regarding how the service would be delivered. The detailed operating cost estimates for the shuttle bus service are shown in the Appendix. Additional maintenance costs and any changes in operating and administrative costs other than those directly related to the transit service have not been estimated for this Value Analysis.

Construction costs for the alternatives considered at the workshop were based on Class C estimates for the improvements illustrated on the site plans presented in the Alternatives section of this report. The detailed Class C estimates considered at the workshop are shown in the Appendix. After the workshop, the Class C estimates for all of the alternatives were refined. The updated cost estimates reduced the cost of each of the alternatives by eliminating the estimated cost of a maintenance facility at the Canyon site, which was mistakenly included in the estimates presented at the VA/CBA workshop. These refinements did not change the relative differences in cost between the alternatives and would not change the shape of the Importance to Cost charts or the incremental Importance per Dollar values presented in the charts in the next section of this report. The revised cost estimates for the alternatives are included in the Appendix of this report after the estimates that were considered at the workshop.

OPERATING COST ESTIMATES

The table below provides the range of estimated shuttle bus annual operating costs for Alternatives 1 and 2 in 2011 dollars.

Alternative	Annual Operating Costs – 2011 Dollars	
	Low Range	High Range
1 – Mandatory Shuttle (10 min. headways)	$332,000	$1,444,000
1 – Mandatory Shuttle (15 min. headways)	$223,000	$777,000
2 – Peak Period Optional Shuttle (10 min. headways)	$108,000	$371,000
2 – Peak Period Optional Shuttle (15 min. headways)	$72,000	$252,000

CAPITAL COST ESTIMATES

The table below provides a summary of the Class C capital cost estimates by major component of the alternatives. The Class C estimates are provided in 2012 dollars assuming 4% escalation in construction costs from 2011.

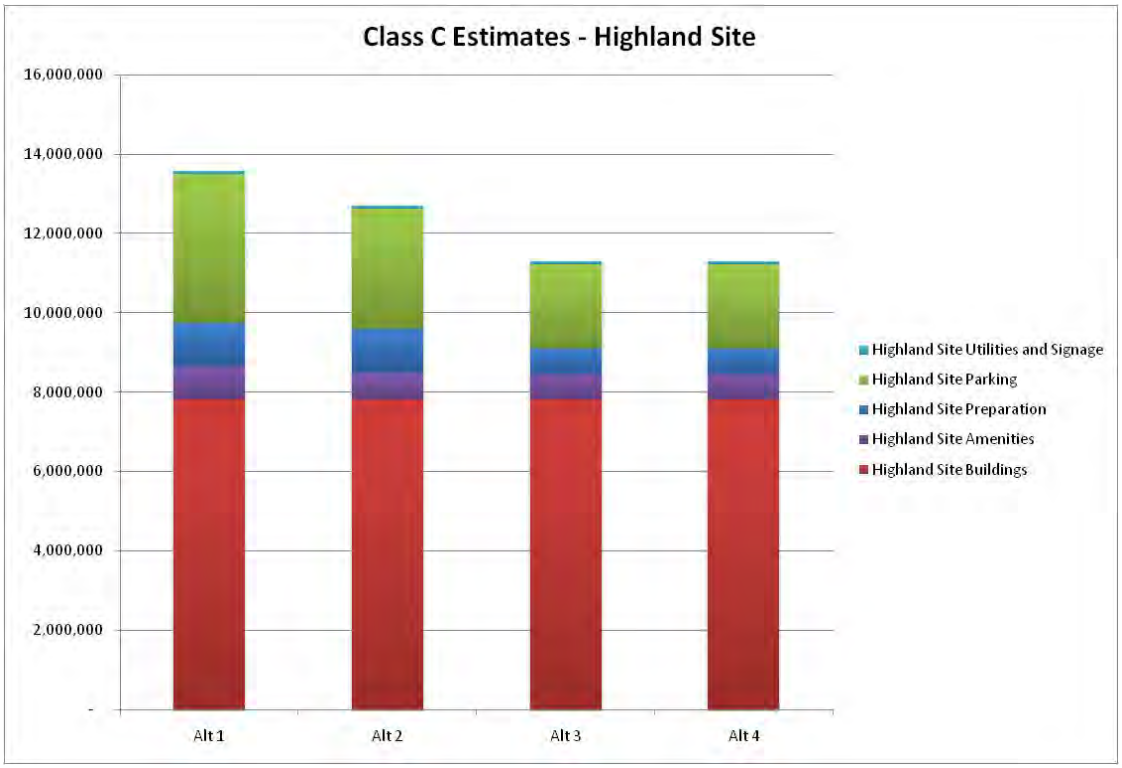
Timpanogos Cave Alternative Transportation Class C Costs - 2012 Dollars @ 4% Escalation

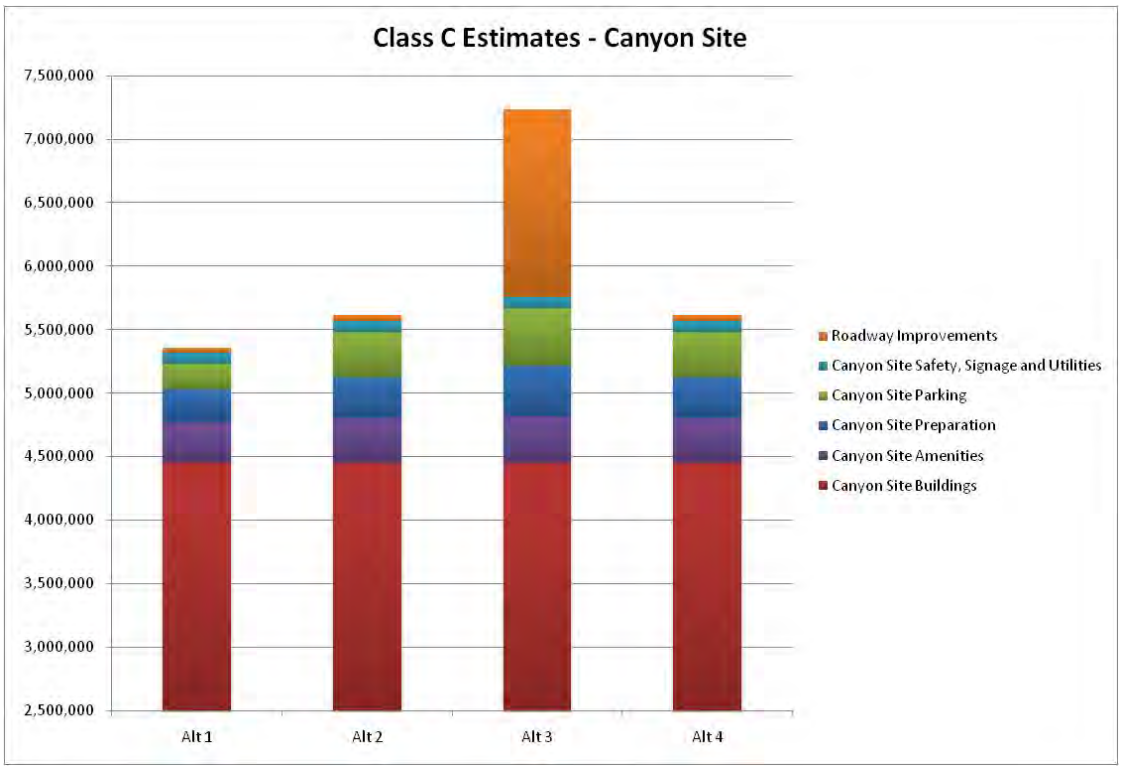
	Alt 1	Alt 2	Alt 3	Alt 4
Highland Site Preparation	1,113,783	1,113,783	619,852	619,852
Highland Site Buildings	7,819,454	7,819,454	7,819,454	7,819,454
Highland Site Parking	3,751,197	3,021,672	2,127,907	2,127,907
Highland Site Amenities	816,057	664,986	643,826	643,826
Highland Site Utilities and Signage	76,763	75,660	74,382	74,382
Highland Site Total	**13,577,253**	**12,695,554**	**11,285,420**	**11,285,420**
Canyon Site Preparation	255,223	318,508	403,493	318,508
Canyon Site Buildings	4,453,050	4,453,050	4,453,050	4,453,050
Canyon Site Parking	201,691	362,621	447,503	362,621
Canyon Site Amenities	318,050	346,825	362,781	346,825
Canyon Site Safety, Signage and Util	90,572	90,573	90,301	90,399
Canyon Site Total	**5,318,586**	**5,571,577**	**5,757,129**	**5,571,403**
Roadway Improvements	**41,704**	**41,704**	**1,479,163**	**41,704**
Total Construction Cost	***18,937,543***	***18,308,835***	***18,521,712***	***16,898,527***

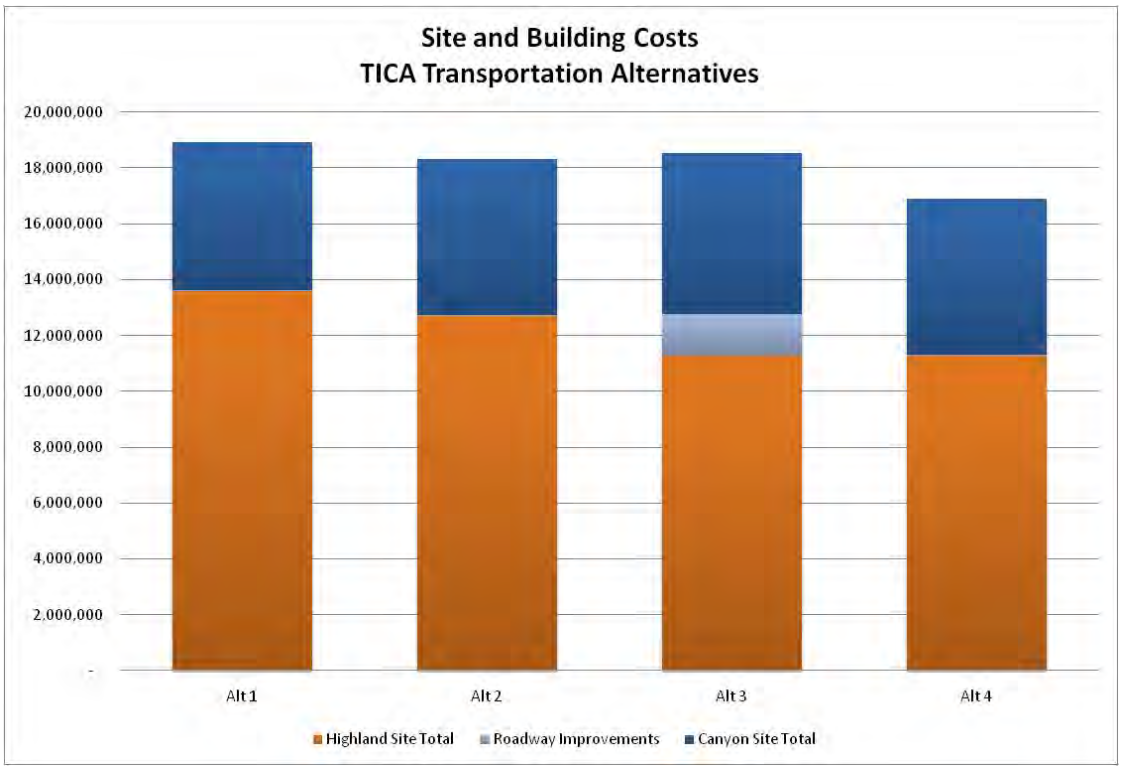
The revised Class C construction costs without the cost for a maintenance facility at the Canyon site range from $13.9 million for Alternative 4 to $15.9 million for Alternative 1.

The charts on the following page provide an illustration of the difference in cost for the primary elements of the alternatives. The largest cost elements of the alternatives are the building components, which do not change across the alternatives. The primary differences in cost for the

Highland site are site preparation and parking costs, with Alternative 1 having the highest cost for these components and Alternatives 3 and 4 having the lowest costs. The primary differences in cost for the Canyon site are in site preparation and parking and, for Alternative 3, roadway costs associated with realignment of SR 92.






Site and Building Costs
TICA Transportation Alternatives
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
Alt 1
Alt 2
Alt 3
Alt 4
Highland Site Total
Roadway Improvements
Canyon Site Total

CHOOSING BY ADVANTAGES RESULTS/DECISION RATIONALE

This section of the report documents the results of the VA/CBA decision process used to develop the preferred alternative.

OVERVIEW

Choosing by Advantages (CBA) is a process for identifying the preferred alternative that focuses on the importance of the advantages of the alternatives relative to one another. CBA is the adopted means of selecting the preferred alternative among a range of options for the National Park Service. CBA is based on the key concepts of **Factors, Attributes and Advantages**. A **Factor** is an element or component of a decision, which is important to the decision makers and for which there are differences across the alternatives. An **Attribute** is a characteristic or consequence of one alternative relative to one factor. An **Advantage** is a favorable difference in the attributes of one alternative compared to another alternative for one factor.

The attributes of the alternatives under consideration in a CBA are arrayed in a matrix, with the alternatives across the top of the matrix and the factors along the left side of the matrix. The attributes for each alternative are entered in the cells of the matrix where the alternatives and factors intersect. Advantages are determined by comparing the attributes of the alternatives across each factor and they are presented below the attribute statements. For every factor, the alternative with the least favorable attributes is identified as the **least preferred** alternative and advantage statements are developed that describe the advantages of the other alternative compared to the least preferred.

FACTORS FOR DECISION-MAKING

The following factors were identified for the evaluation of the alternatives for visitor transportation to TICA. The factors were confirmed in the VA workshop and any factors where there was no significant difference across the alternatives were ignored. The factors were organized into the National Park Service GPRA Goals. The CBA matrix created for and updated during the workshop appears in the Appendix.

Protect Natural, Cultural and Historic Resources

10. **Minimize Impacts to Natural Resources**
    a. Minimize disturbance (of previously undisturbed ground SF of area cleared for construction)
    b. Minimize vegetation and soil damage from roadside parking and social trails

Protect Public and Employee Health, Safety and Welfare

11. **Minimize Pedestrian/Vehicular Conflicts**
    a. Minimize pedestrian interaction with moving traffic on SR 92
    b. Minimize parking maneuvers on and adjacent to SR92

12. **Minimize Exposure to Natural Hazards**
    a. Minimize facilities and equipment located in rock fall and flood hazard areas
    b. Minimize number of employees and visitors and time spent in rock fall hazard areas

Provide for Visitor Enjoyment through Improved Educational and Recreational Opportunities

13. **Maximize Visitation Capacity Consistent with Resource Protection**
    a. Maximize management flexibility to manage visitor use for resource protection and visitor experience
    b. Minimize costs to visitors to access TICA

14. **Minimize Need to Displace Visitors from their Desired Visitation Patterns**
    a. Minimize share of visitors who would have to change the time/day of their visit due to transportation capacity limitations

15. **Minimize Visitor Confusion**
    a. Minimize mode changes and out of direction travel
    b. Provide consistent access across times of day and days of season

16. **Maximize Quality of Visitor Experience**
    a. Minimize exposure to crowding on cave trails and tours

Improve Operational Efficiency, Reliability and Sustainability

17. **Minimize Staffing Required for Visitor Transportation and Visitor Use Management**
    a. Minimize monument operational efficiency and effectiveness
    b. Minimize maintenance requirements on SR 92

Provide Other Benefits to the National Park Service and U.S. Forest Service

18. **Enhance USFS/NPS Partnership**
    a. Maximize flexibility for future USFS and NPS uses of Highland site as measured by minimizing the footprint of the potential developed area

RATIONALE FOR SELECTION OF PREFERRED ALTERNATIVE

Alternative 3 - Canyon Site Safety Improvements with Realignment of SR 92 and Demand Management was selected as the preferred alternative because it had the highest importance for its advantages and was determined to be the best value of the alternatives in meeting the project goals.

The primary advantages of Alternative 3 include:

Protect Natural, Cultural and Historic Resources

- Much less soil and vegetation damage associated with informal parking and social trails

Protect Employee and Public Health, Safety and Welfare

- Provides a major reduction in pedestrian conflicts with traffic on SR 92 (only 10 parking spaces across road)
- Provides a major reduction in parking conflicts with traffic on SR 92 (10 parking spaces back into SR 92)
- Provides the greatest reduction in rock fall hazards to facilities due to removal of buildings from hazard zone
- Provides the greatest reduction in time spent and numbers of people in rock fall zone

Provide for Visitor Enjoyment through Improved Educational and Recreational Opportunities

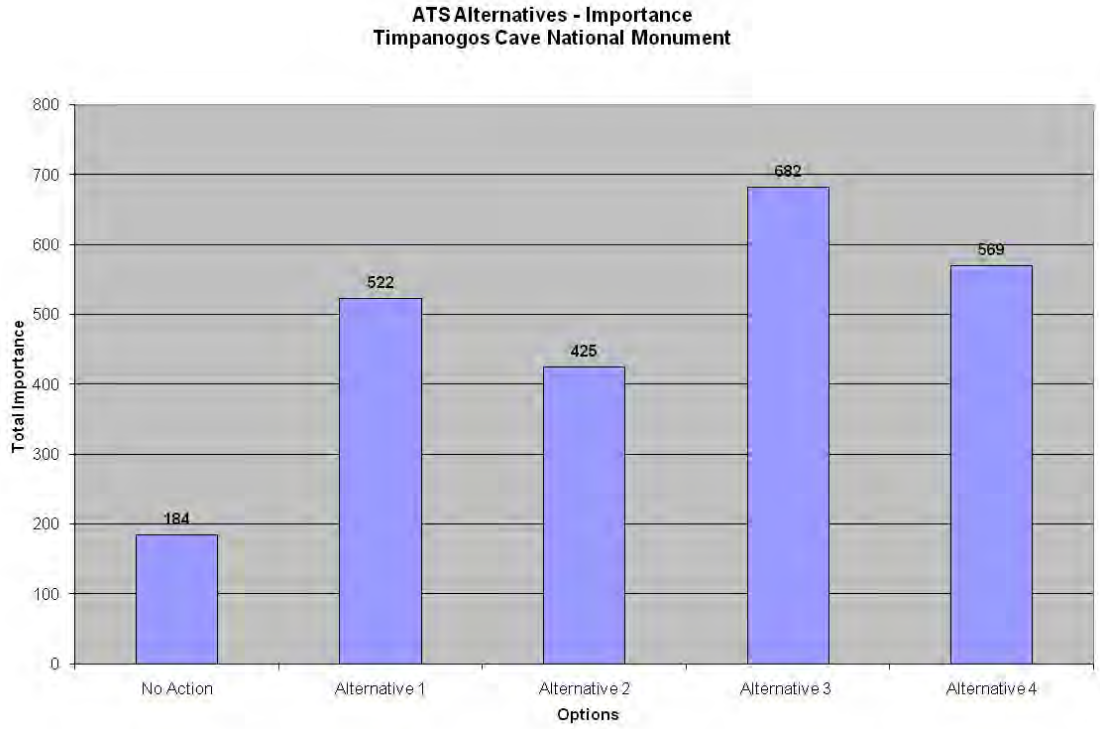
- Provides some additional flexibility to manage visitor use
- $3 to $10 lower ticket price for cave tours as compared to alternatives 1 and 2
- Much less need for mode changes and fewest visitors from the east required to travel out of direction
- Much more consistent access to TICA
- Much less crowding on cave trails and tours

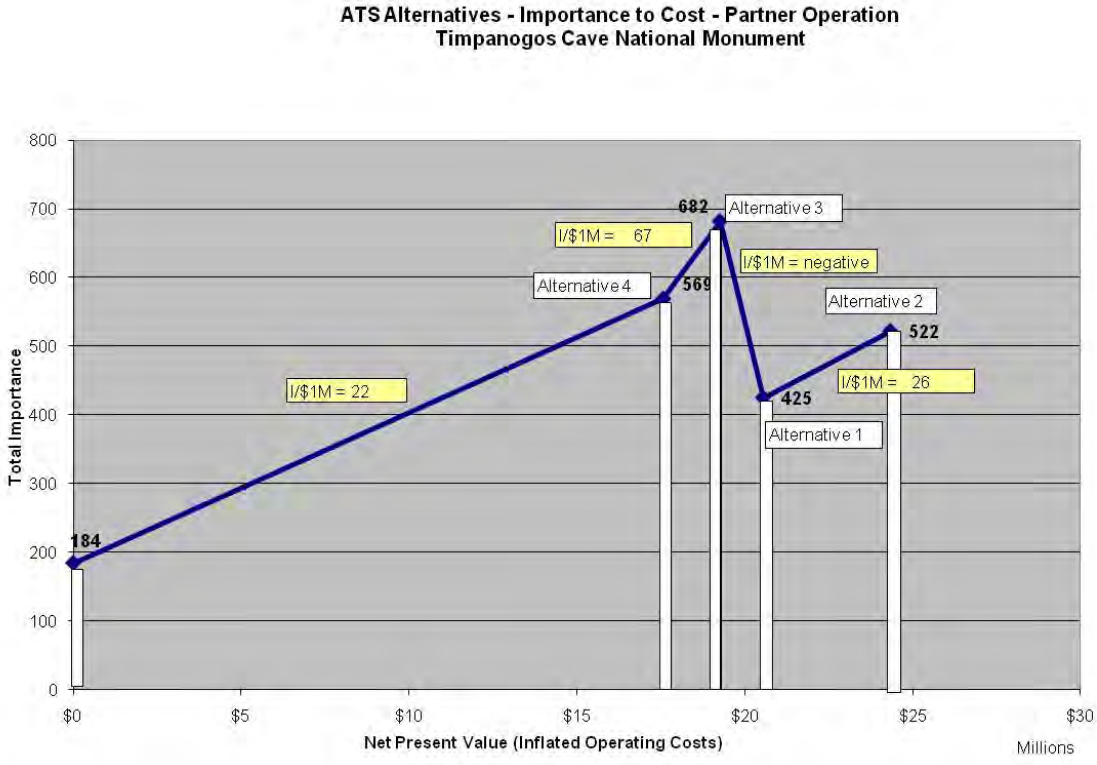
Improve Operational Efficiency, Reliability and Sustainability

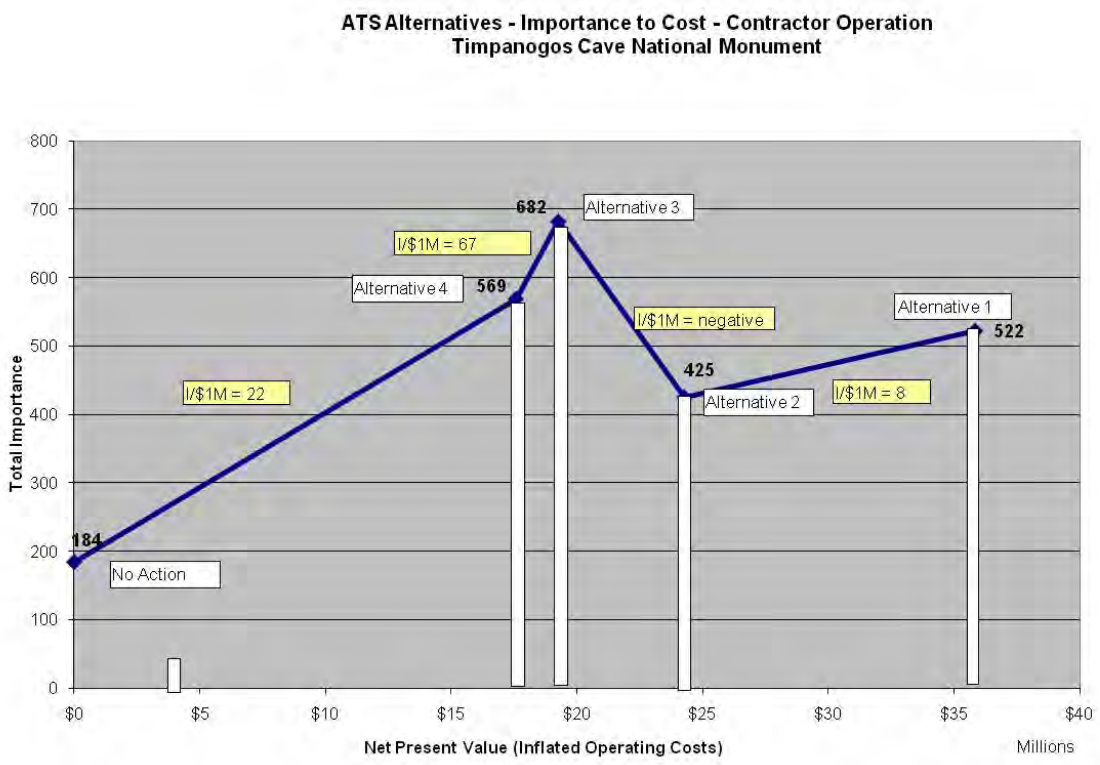
- Much lower ongoing maintenance requirements and much less need to direct traffic and manage parking
- Offers much more flexibility for future development

Although this alternative had the lowest visitation capacity, the above listed advantages outweigh this disadvantage. The design for the improvements would preserve the option to implement a shuttle system in the future, should this become more feasible.

The VA/CBA workshop results are presented graphically on the following page. As shown, Alternative 3 has the highest importance of all of the alternatives. Alternative 3 also offers the greatest importance to cost ratio, with 67 additional importance points per million dollars of life-cycle cost compared to Alternative 4. Alternatives 1 and 2 have much higher life-cycle cost and lower importance than Alternative 3. The results are the same whether implementation of shuttle service is with a partner or with a contractor.


ATS Alternatives - Importance
Timpanogos Cave National Monument
Total Importance
800
700
600
500
400
300
200
100
0
184
522
425
682
569
No Action
Alternative 1
Alternative 2
Alternative 3
Alternative 4
Options


ATS Alternatives - Importance to Cost - Partner Operation
Timpanogos Cave National Monument
Total Importance
800
700
600
500
400
300
200
100
0
184
I/$1M = 22
Alternative 4
569
I/$1M = 67
682
Alternative 3
I/$1M = negative
425
Alternative 1
Alternative 2
522
I/$1M = 26
$0
$5
$10
$15
$20
$25
$30
Net Present Value (Inflated Operating Costs)
Millions


ATS Alternatives - Importance to Cost - Contractor Operation
Timpanogos Cave National Monument
Total Importance
800
700
600
500
400
300
200
100
0
$0
$5
$10
$15
$20
$25
$30
$35
$40
Net Present Value (Inflated Operating Costs)
Millions
184
No Action
I/$1M = 22
569
Alternative 4
I/$1M = 67
682
Alternative 3
I/$1M = negative
425
Alternative 2
I/$1M = 8
522
Alternative 1

Appendix A: Class C Cost Estimates

ESTIMATES USED FOR THE CBA ANALYSIS

PROJECT INFORMATION

Project:	Alternative Transportation Feasibility Study - TICA 172474
Park:	Timpanogos Cave National Monument, Uinta National Forest
Park Alpha:	TICA
PMIS Number:	
Estimate Date:	12/22/2011
Prepared By:	Perry Palmer/Becky Smith
Company:	David Evans and Associates, Inc.
Address:	1331 17th Street, Suite 900
City, State Zip:	Denver, CO 80202
Phone:	720-946-0969

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

This Alternative Transportation Feasibility Study (study) has been undertaken to identify various transit and non- transit options for the Timpanogos Cave National Monument in Utah County (TICA), Utah. The ultimate goal of this project is to improve visitor access and safety in the Timpanogos Caves National Monument. Currently, traffic and parking congestion creates pedestrian and vehicle conflicts along State Highway (SR 92) especially when pedestrians cross the highway to access the visitor center or when parking is unavailable in designated parking areas. This project will present various transportation alternatives or set of related alternatives which would make TICA more accessible to visitors, relieve congestion, improve safety conditions, and enhance visitor experience.

SOURCE OF COST DATA:

UDOT bid items from all regions, Jan-Jun 2011. RSMeans CostWorks. Get-a-Quote.com - Utah Heavy Construction Cost Book. Fabricator estimate for shelters.

ESTIMATE ASSUMPTIONS:

Assume any VC demolition /remodling for all alternatives are covered in AGC estimate

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Not applicable.

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	0.0%	All mark-up and add-on data provided by NPS. A mark-up of -11% was provided, but RSMeans cost index for Provo as of 11Q4 has site and infrastructure work close to national average. Used 0% for this portion of the estimate.
Remoteness Factor:	0.00%	All mark-up and add-on data provided by NPS. Site is 20 miles from published commercial center (Provo).
Wage Rate Factor	7.50%	All mark-up and add-on data provided by NPS
State & Local Taxes:	4.75%	
Design Contingency:	15.00%	
Standard General Conditions:	14.00%	
Government General Conditions:	6.00%	
Historic Preservation Factor:	0.00%	
Contractor Overhead:	10.00%	
Contractor Profit:	7.00%	
Bonds and Permits:	2.00%	
Contracting Method Adjustment:	10.00%	
Annual Inflation Excalation Factor:	4.00%	
Time Until Project Midpoint (Months):	12	

OTHER COMMENTS:

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	12/22/2011
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 1	**Mandatory Shuttle**	**Total Cost:**	$18,937,543

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	16.6	Acre	$ 3,445.00	$57,187	
	Site grading	80340	SY	$ 5.95	$478,023	
	Highland Site Demo & Prep				**$535,210**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	5848	SF	$ 10.00	$58,480	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	0	EA	$ 120.00	$0	
	Tree Removal	16	EA	$ 570.00	$9,120	incl. stump 12"-24"
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	1	EA	$ 86.00	$86	
	-Park sign	2	EA	$ 86.00	$172	
	-One way	1	EA	$ 86.00	$86	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	0	LF	$ 1.00	$0	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	4322	SY	$ 5.95	$25,716	
	Canyon Site Demo & Prep				**$122,643**	
	Subtotal Site Demolition and Preparation Costs				**$657,853**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	+/- 170 spaces
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	Not included
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	5490	Ton	$ 50.00	$274,500	6" depth
	HACP (hot asphalt concrete pavement)	10060	Ton	$ 120.00	$1,207,200	8" depth
	Curb and gutter	9000	LF	$ 22.00	$198,000	
	Thermoplastic striping (4")	6876	LF	$ 0.91	$6,257	
	Thermoplastic handicap symbol	14	Ea	$ 39.37	$551	
	Thermoplastic cross-hatching	200	SY	$ 5.34	$1,068	
	Concrete Box Culvert	100	LF	$ 400.00	$40,000	4' high x 8' wide
	Drainage Ponds	1	LS	$ 75,000.00	$75,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	24215	SF	$ 4.71	$114,053	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 100,000.00	$100,000	
	Turf/Seeding	28500	SY	$ 0.64	$18,240	
G2020	**Site Development: Other**					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	10	EA	$ 65.00	$650	includes post
	ADA	14	EA	$ 58.00	$812	includes post
	Stop/Yield/miscellaneous	20	EA	$ 84.00	$1,680	includes post
	Highland Site Improvements				**$5,989,116**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ -	$0	
	Maintenance Building	5594	SF	$ 260.00	$1,454,440	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	300	Ton	$ 50.00	$15,000	6" subgrade
	HACP (hot asphalt concrete pavement)	550	Ton	$ 120.00	$66,000	8" pavement

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Curb and gutter	710	LF	$ 22.00	$15,620	
	Thermoplastic striping (4")	180	LF	$ 0.91	$164	
	Thermoplastic handicap symbol	1	Ea	$ 39.37	$39	
	Thermoplastic cross-hatching	18	SY	$ 5.34	$96	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	bench included with shelter above
	Trash Container	3	Ea	$ 450.00	$1,350	re-use one, one new at bus stop
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high, in front of bus stop
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	4465	SF	$ 4.71	$21,030	concrete
G2030	Asphalt Trail	0	SF	$ 2.00	$0	??
	Landscaping	1	LS	$ 30,000.00	$30,000	
	Turf/Seeding	2939	SY	$ 0.64	$1,881	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	224	LF	$ 0.91	$204	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	21	SY	$ 5.34	$112	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utility Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	10	EA	$ 65.00	$650	includes post
	ADA	1	EA	$ 58.00	$58	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$2,433,116**	
	Subtotal Site Development Costs				**$8,442,272**	
	Total Construction Costs				**$9,100,125**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
		Direct Cost Subtotal without GFP			**$9,100,125**	
	Contingencies					
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	7.50%			$682,509	
	State & Local Taxes	4.75%			$432,256	
	Design Contingency	15.00%			$1,365,019	
	Total Direct Construction Costs				**$11,579,909**	
	Standard General Conditions	14.00%			$1,621,187	
	Government General Conditions	6.00%			$694,795	
	Historic Preservation Factor	0.00%			$0	
	Subtotal NET Construction Cost				**$13,895,891**	
	Overhead	10.00%			$1,389,589	
	Profit	7.00%			$972,712	
	Estimated NET Construction Cost				**$16,258,193**	
	Bonds & Permits	2.00%			$325,164	
	Contracting Method Adjustment	10.00%			$1,625,819	
	Inflation Escalation	12	Months	4.00%	$728,367	Markup
	Total Estimated NET Cost of Construction				**$18,937,543**	**2.081020032**

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	12/22/2011
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 2	**Peak Period Shuttle**	**Total Cost:**	$18,308,835

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	Unit	$ -	$0	
	Clearing and grubbing	16.6	Acre	$ 3,445.00	$57,187	
	Site grading	80340	SY	$ 5.95	$478,023	
	Highland Site Demo & Prep				**$535,210**	
G1010	**Canyon Site Contact Station**					
	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	6,244	SF	$ 0.20	$1,249	North side of Hwy
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	2	EA	$ 120.00	$240	
	Tree Removal	22	EA	$ 570.00	$12,540	Single
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	2	EA	$ 86.00	$172	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	1	EA	$ 267.00	$267	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	5106	SY	$ 5.95	$30,381	
	Canyon Site Demo & Prep				**$153,054**	
	Subtotal Site Demolition and Preparation Costs				**$688,264**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ -	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	4500	Ton	$ 50.00	$225,000	
	HACP (hot asphalt concrete pavement)	8260	Ton	$ 120.00	$991,200	
	Curb and gutter	6860	LF	$ 22.00	$150,920	
	Thermoplastic striping (4")	5180	LF	$ 0.91	$4,714	
	Thermoplastic handicap symbol	10	Ea	$ 39.37	$394	
	Thermoplastic cross-hatching	110	SY	$ 5.34	$587	
	Concrete Box Culvert	42	LF	$ 100.00	$4,200	4' high x 8' wide
	Drainage Ponds	1	LS	$ 75,000.00	$75,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 75,000.00	$75,000	
	Turf/Seeding	3000	SY	$ 0.64	$1,920	
G2020	Site Development: Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	8	EA	$ 65.00	$520	includes post
	ADA	10	EA	$ 58.00	$580	includes post
	Stop/Yield/miscellaneous	18	EA	$ 84.00	$1,512	includes post
	Highland Site Improvements				**$5,565,430**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ -	$0	

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Maintenance Building	5594	SF	$ 260.00	$1,454,440	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	580	Ton	$ 50.00	$29,000	
	HACP (hot asphalt concrete pavement)	1050	Ton	$ 120.00	$126,000	
	Curb and gutter	735	LF	$ 22.00	$16,170	
	Remove 4" striping	486	LF	$ 2.36	$1,147	
	Thermoplastic striping (4")	1730	LF	$ 0.91	$1,574	
	Thermoplastic handicap symbol	4	Ea	$ 39.37	$157	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	13960	SF	$ 4.71	$65,752	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30.00	$30	
	Turf/Seeding	1495	SY	$ 0.64	$957	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	464	LF	$ 0.91	$422	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	4	EA	$ 58.00	$232	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$2,524,276**	
	Subtotal Site Improvement Costs				**$8,109,746**	
	Total Construction Costs				**$8,798,010**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
	Direct Cost Subtotal without GFP				$8,798,010	
	Contingencies					
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	7.50%			$659,851	
	State & Local Taxes	4.75%			$417,905	
	Design Contingency	15.00%			$1,319,702	
	Total Direct Construction Costs				**$11,195,468**	
	Standard General Conditions	14.00%			$1,567,366	
	Government General Conditions	6.00%			$671,728	
	Historic Preservation Factor	0.00%			$0	
	Subtotal NET Construction Cost				**$13,434,562**	
	Overhead	10.00%			$1,343,456	
	Profit	7.00%			$940,419	
	Estimated NET Construction Cost				**$15,718,437**	
	Bonds & Permits	2.00%			$314,369	
	Contracting Method Adjustment	10.00%			$1,571,844	
	Inflation Escalation	12	Months	4.00%	$704,186	
	Total Estimated NET Cost of Construction				**$18,308,835**	2.081020032

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	12/22/2011
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 3	**Canyon Capacity Improvements**	**Total Cost:**	$18,521,712

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	9.5	Acre	$ 3,445.00	$32,728	
	Site grading	44560	SY	$ 5.95	$265,132	
	Highland Site Demo & Prep				**$297,860**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	1220	SF	$ 0.20	$244	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	512	LF	$ 2.50	$1,280	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	1	EA	$ 120.00	$120	
	Tree Removal	48	EA	$ 570.00	$27,360	Single
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	4	EA	$ 86.00	$344	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	0	EA	$ 267.00	$0	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	9638	SY	$ 5.95	$57,346	
	Canyon Site Demo & Prep				**$193,892**	
	Subtotal Site Demolition and Preparation Costs				**$491,752**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Mobilization	15%	LS	$600,650	$90,098	
	Excavation	12500	CY	$ 30.00	$375,000	
	Subgrade aggregate	649	Ton	$ 50.00	$32,450	
	HACP (hot asphalt concrete pavement)	360	Ton	$ 120.00	$43,200	
	Retaining walls	2000	SF	$ 75.00	$150,000	
	Roadway Improvements				**$710,788**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ -	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	3032	Ton	$ 50.00	$151,600	
	HACP (hot asphalt concrete pavement)	5560	Ton	$ 120.00	$667,200	
	Curb and gutter	5600	LF	$ 22.00	$123,200	
	Thermoplastic striping (4")	3400	LF	$ 0.91	$3,094	
	Thermoplastic handicap symbol	6	Ea	$ 39.37	$236	
	Thermoplastic cross-hatching	75	SY	$ 5.34	$401	
	Concrete Box Culvert	42	LF	$ 400.00	$16,800	4' high x 8' wide
	Drainage Ponds	1	LS	$ 60,000.00	$60,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 50,000.00	$50,000	
	Turf/Seeding	26175	SY	$ 0.64	$16,752	
G2020	Site Development: Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	6	EA	$ 65.00	$390	includes post
	ADA	6	EA	$ 58.00	$348	includes post
	Stop/Yield/miscellaneous	15	EA	$ 84.00	$1,260	includes post
	Highland Site Improvements				**$5,125,164**	
G2020	**Canyon Site Development**					

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ -	$0	
	Maintenance Building	5594	SF	$ 260.00	$1,454,440	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	690	Ton	$ 50.00	$34,500	
	HACP (hot asphalt concrete pavement)	1260	Ton	$ 120.00	$151,200	
	Curb and gutter	1262	LF	$ 22.00	$27,764	
	Thermoplastic striping (4")	1206	LF	$ 0.91	$1,097	
	Thermoplastic handicap symbol	3	Ea	$ 39.37	$118	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
	Arrows (42")	8	Ea	$ 19.72	$158	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	9131	SF	$ 4.71	$43,007	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30,000.00	$30,000	
	Turf/Seeding	2186	SY	$ 0.64	$1,399	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	384	LF	$ 0.91	$349	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utility Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	3	EA	$ 58.00	$174	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$2,572,602**	
	Subtotal Site Improvements Costs				**$8,408,553**	
	Total Construction Costs				**$8,900,305**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
	Direct Cost Subtotal without GFP				$8,900,305	

	Contingencies				
	Published Location Factor	0.00%			$0
	Remoteness Factor	0.00%			$0
	Federal Wage Rate Factor	7.50%			$667,523
	State & Local Taxes	4.75%			$422,764
	Design Contingency	15.00%			$1,335,046
	Total Direct Construction Costs				**$11,325,638**
	Standard General Conditions	14.00%			$1,585,589
	Government General Conditions	6.00%			$679,538
	Historic Preservation Factor	0.00%			$0
	Subtotal NET Construction Cost				**$13,590,765**
	Overhead	10.00%			$1,359,077
	Profit	7.00%			$951,354
	Estimated NET Construction Cost				**$15,901,195**
	Bonds & Permits	2.00%			$318,024
	Contracting Method Adjustment	10.00%			$1,590,120
	Inflation Escalation	12	Months	4.00%	$712,374
	Total Estimated NET Cost of Construction				**$18,521,712**

2.081020032

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	12/22/2011
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 4	**Canyon Safety Improvements**	**Total Cost:**	$16,898,527

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	SITE DEMOLITION & PREPARATION					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	9.5	Acre	$ 3,445.00	$32,728	
	Site grading	44560	SY	$ 5.95	$265,132	
	Highland Site Demo & Prep				**$297,860**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	6,244	SF	$ 0.20	$1,249	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381		$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	2	EA	$ 120.00	$240	
	Tree Removal	22	EA	$ 570.00	$12,540	Single
	Tree/Vegetation Removal	0.09	SF	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	2	EA	$ 86.00	$172	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	1	EA	$ 267.00	$267	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	5106	SY	$ 5.95	$30,381	
	Canyon Site Demo & Prep				**$153,054**	
	Subtotal Site Demolition and Preparation Costs				**$450,913**	
G20	SITE IMPROVEMENTS					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ -	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	3032	Ton	$ 50.00	$151,600	
	HACP (hot asphalt concrete pavement)	5560	Ton	$ 120.00	$667,200	
	Curb and gutter	5600	LF	$ 22.00	$123,200	
	Thermoplastic striping (4")	3400	LF	$ 0.91	$3,094	
	Thermoplastic handicap symbol	6	Ea	$ 39.37	$236	
	Thermoplastic cross-hatching	75	SY	$ 5.34	$401	
	Concrete Box Culvert	42	LF	$ 400.00	$16,800	4' high x 8' wide
	Drainage Ponds	1	LS	$ 60,000.00	$60,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 50,000.00	$50,000	
	Turf/Seeding	26175	SY	$ 0.64	$16,752	
G2020	Site Development Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	6	EA	$ 65.00	$390	includes post
	ADA	6	EA	$ 58.00	$348	includes post
	Stop/Yield/miscellaneous	15	EA	$ 84.00	$1,260	includes post
	Highland Site Improvements				**$5,125,164**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ -	$0	
	Maintenance Building	5594	SF	$ 260.00	$1,454,440	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	580	Ton	$ 50.00	$29,000	
	HACP (hot asphalt concrete pavement)	1050	Ton	$ 120.00	$126,000	
	Curb and gutter	735	LF	$ 22.00	$16,170	
	Remove 4" striping	486	LF	$ 2.36	$1,147	
	Thermoplastic striping (4")	1730	LF	$ 0.91	$1,574	
	Thermoplastic handicap symbol	4	Ea	$ 39.37	$157	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
G2040	*Site Amenities*					

United States Deparment of the Interior
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LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	13960	SF	$ 4.71	$65,752	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30.00	$30	
	Turf/Seeding	1495	SY	$ 0.64	$957	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	464	LF	$ 0.91	$422	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	4	EA	$ 58.00	$232	includes post
	Stop/Yield/miscellaneous		EA	$ 84.00	$0	includes post
	Canyon Site Improvements				**$2,524,192**	
	Subtotal Direct Construction Costs				**$7,669,396**	
	Total Construction Costs				**$8,120,310**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
				Direct Cost Subtotal without GFP	$8,120,310	
	Contingencies					
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	7.50%			$609,023	
	State & Local Taxes	4.75%			$385,715	
	Design Contingency	15.00%			$1,218,046	
	Total Direct Construction Costs				**$10,333,094**	
	Standard General Conditions	14.00%			$1,446,633	
	Government General Conditions	6.00%			$619,986	
	Historic Preservation Factor	0.00%			$0	
	Subtotal NET Construction Cost				**$12,399,713**	
	Overhead	10.00%			$1,239,971	
	Profit	7.00%			$867,980	
	Estimated NET Construction Cost				**$14,507,664**	
	Bonds & Permits	2.00%			$290,153	
	Contracting Method Adjustment	10.00%			$1,450,766	
	Inflation Escalation	0	Months	4.00%	$649,943	
	Total Estimated NET Cost of Construction				**$16,898,527**	2.081020032

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

Revised Cost Estimate

PROJECT INFORMATION

Project:	Alternative Transportation Feasibility Study - TICA 172474
Park:	Timpanogos Cave National Monument, Uinta National Forest
Park Alpha:	TICA
PMIS Number:	
Estimate Date:	1/23/2012
Prepared By:	Perry Palmer/Becky Smith
Company:	David Evans and Associates, Inc.
Address:	1331 17th Street, Suite 900
City, State Zip:	Denver, CO 80202
Phone:	720-946-0969

BACKGROUND SUPPORTING MATERIAL (Scope of Work):

This Alternative Transportation Feasibility Study (study) has been undertaken to identify various transit and non- transit options for the Timpanogos Cave National Monument in Utah County (TICA), Utah. The ultimate goal of this project is to improve visitor access and safety in the Timpanogos Caves National Monument. Currently, traffic and parking congestion creates pedestrian and vehicle conflicts along State Highway (SR 92) especially when pedestrians cross the highway to access the visitor center or when parking is unavailable in designated parking areas. This project will present various transportation alternatives or set of related alternatives which would make TICA more accessible to visitors, relieve congestion, improve safety conditions, and enhance visitor experience.

SOURCE OF COST DATA:

UDOT bid items from all regions, Jan-Jun 2011. RSMeans CostWorks. Get-a-Quote.com - Utah Heavy Construction Cost Book. Fabricator estimate for shelters.

ESTIMATE ASSUMPTIONS:

Assume any VC demolition /remodling for all alternatives are covered in AGC estimate

MAJOR CHANGES FROM PREVIOUS ESTIMATE:

Not applicable.

DESCRIPTION OF MARK-UP & ADD-ONS:

Location Factor:	0.0%	All mark-up and add-on data provided by NPS. A mark-up of -11% was provided, but RSMeans cost index for Provo as of 11Q4 has site and infrastructure work close to national average. Used 0% for this portion of the estimate.
Remoteness Factor:	0.00%	All mark-up and add-on data provided by NPS. Site is 20 miles from published commercial center (Provo).
Wage Rate Factor	7.50%	All mark-up and add-on data provided by NPS
State & Local Taxes:	4.75%	
Design Contingency:	15.00%	
Standard General Conditions:	14.00%	
Government General Conditions:	6.00%	
Historic Preservation Factor:	0.00%	
Contractor Overhead:	10.00%	
Contractor Profit:	7.00%	
Bonds and Permits:	2.00%	
Contracting Method Adjustment:	10.00%	
Annual Inflation Excalation Factor:	4.00%	
Time Until Projed Midpoint (Months):	12	

OTHER COMMENTS:

Revised Cost Estimate

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	1/23/2012
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 1	**Mandatory Shuttle**	**Total Cost:**	$15,910,824

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	16.6	Acre	$ 3,445.00	$57,187	
	Site grading	80340	SY	$ 5.95	$478,023	
	Highland Site Demo & Prep				**$535,210**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	5848	SF	$ 10.00	$58,480	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	0	EA	$ 120.00	$0	
	Tree Removal	16	EA	$ 570.00	$9,120	incl. stump 12"-24"
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	1	EA	$ 86.00	$86	
	-Park sign	2	EA	$ 86.00	$172	
	-One way	1	EA	$ 86.00	$86	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	0	LF	$ 1.00	$0	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	4322	SY	$ 5.95	$25,716	
	Canyon Site Demo & Prep				**$122,643**	
	Subtotal Site Demolition and Preparation Costs				**$657,853**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	+/- 170 spaces
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	Not included
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	5490	Ton	$ 50.00	$274,500	6" depth
	HACP (hot asphalt concrete pavement)	10060	Ton	$ 120.00	$1,207,200	8" depth
	Curb and gutter	9000	LF	$ 22.00	$198,000	
	Thermoplastic striping (4")	6876	LF	$ 0.91	$6,257	
	Thermoplastic handicap symbol	14	Ea	$ 39.37	$551	
	Thermoplastic cross-hatching	200	SY	$ 5.34	$1,068	
	Concrete Box Culvert	100	LF	$ 400.00	$40,000	4' high x 8' wide
	Drainage Ponds	1	LS	$ 75,000.00	$75,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	6" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	24215	SF	$ 4.71	$114,053	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 100,000.00	$100,000	
	Turf/Seeding	28500	SY	$ 0.64	$18,240	
G2020	**Site Development: Other**					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utility Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	10	EA	$ 65.00	$650	includes post
	ADA	14	EA	$ 58.00	$812	includes post
	Stop/Yield/miscellaneous	20	EA	$ 84.00	$1,680	includes post
	Highland Site Improvements				**$5,989,116**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ 200.00	$0	
	Maintenance Building	0	SF	$ 215.00	$0	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	300	Ton	$ 50.00	$15,000	6" subgrade
	HACP (hot asphalt concrete pavement)	550	Ton	$ 120.00	$66,000	8" pavement

Revised Cost Estimate

United States Deparment of the Interior
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Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Curb and gutter	710	LF	$ 22.00	$15,620	
	Thermoplastic striping (4")	180	LF	$ 0.91	$164	
	Thermoplastic handicap symbol	1	Ea	$ 39.37	$39	
	Thermoplastic cross-hatching	18	SY	$ 5.34	$96	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	bench included with shelter above
	Trash Container	3	Ea	$ 450.00	$1,350	re-use one, one new at bus stop
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high, in front of bus stop
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	4465	SF	$ 4.71	$21,030	concrete
G2030	Asphalt Trail	0	SF	$ 2.00	$0	??
	Landscaping	1	LS	$ 30,000.00	$30,000	
	Turf/Seeding	2939	SY	$ 0.64	$1,881	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	224	LF	$ 0.91	$204	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	21	SY	$ 5.34	$112	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	10	EA	$ 65.00	$650	includes post
	ADA	1	EA	$ 58.00	$58	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$978,676**	
	Subtotal Site Development Costs				**$6,987,832**	
	Total Construction Costs				**$7,645,685**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
				Direct Cost Subtotal without GFP	**$7,645,685**	
	Contingencies					
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	7.50%			$573,426	
	State & Local Taxes	4.75%			$363,170	
	Design Contingency	15.00%			$1,146,853	
	Total Direct Construction Costs				**$9,729,134**	
	Standard General Conditions	14.00%			$1,362,079	
	Government General Conditions	6.00%			$583,748	
	Historic Preservation Factor	0.00%			$0	
	Subtotal NET Construction Cost				**$11,674,961**	
	Overhead	10.00%			$1,167,496	
	Profit	7.00%			$817,247	
	Estimated NET Construction Cost				**$13,659,705**	
	Bonds & Permits	2.00%			$273,194	
	Contracting Method Adjustment	10.00%			$1,365,970	
	Inflation Escalation	12	Months	4.00%	$611,955	
	Total Estimated NET Cost of Construction				**$15,910,824**	

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

Revised Cost Estimate

United States Department of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	1/23/2012
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 2	**Peak Period Shuttle**	**Total Cost:**	$15,282,117

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	Unit	$ -	$0	
	Clearing and grubbing	16.6	Acre	$ 3,445.00	$57,187	
	Site grading	80340	SY	$ 5.95	$478,023	
	Highland Site Demo & Prep				**$535,210**	
G1010	**Canyon Site Contact Station**					
	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	6,244	SF	$ 0.20	$1,249	North side of Hwy
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	2	EA	$ 120.00	$240	
	Tree Removal	22	EA	$ 570.00	$12,540	Single
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	2	EA	$ 86.00	$172	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	1	EA	$ 267.00	$267	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	5106	SY	$ 5.95	$30,381	
	Canyon Site Demo & Prep				**$153,054**	
	Subtotal Site Demolition and Preparation Costs				**$688,264**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	4500	Ton	$ 50.00	$225,000	
	HACP (hot asphalt concrete pavement)	8260	Ton	$ 120.00	$991,200	
	Curb and gutter	6860	LF	$ 22.00	$150,920	
	Thermoplastic striping (4")	5180	LF	$ 0.91	$4,714	
	Thermoplastic handicap symbol	10	Ea	$ 39.37	$394	
	Thermoplastic cross-hatching	110	SY	$ 5.34	$587	
	Concrete Box Culvert	42	LF	$ 100.00	$4,200	4' high x 8' wide
	Drainage Ponds	1	LS	$ 75,000.00	$75,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia , 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 75,000.00	$75,000	
	Turf/Seeding	3000	SY	$ 0.64	$1,920	
G2020	Site Development Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utility Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	8	EA	$ 65.00	$520	includes post
	ADA	10	EA	$ 58.00	$580	includes post
	Stop/Yield/miscellaneous	18	EA	$ 84.00	$1,512	includes post
	Highland Site Improvements				**$5,565,430**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ 200.00	$0	

Revised Cost Estimate

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Maintenance Building	0	SF	$ 215.00	$0	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	580	Ton	$ 50.00	$29,000	
	HACP (hot asphalt concrete pavement)	1050	Ton	$ 120.00	$126,000	
	Curb and gutter	735	LF	$ 22.00	$16,170	
	Remove 4" striping	486	LF	$ 2.36	$1,147	
	Thermoplastic striping (4")	1730	LF	$ 0.91	$1,574	
	Thermoplastic handicap symbol	4	Ea	$ 39.37	$157	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	13960	SF	$ 4.71	$65,752	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30.00	$30	
	Turf/Seeding	1495	SY	$ 0.64	$957	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	464	LF	$ 0.91	$422	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	4	EA	$ 58.00	$232	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$1,069,836**	
	Subtotal Site Improvement Costs				**$6,655,306**	
	Total Construction Costs				**$7,343,570**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
	Direct Cost Subtotal without GFP				$7,343,570	
	Contingencies					
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	7.50%			$550,768	
	State & Local Taxes	4.75%			$348,820	
	Design Contingency	15.00%			$1,101,536	
	Total Direct Construction Costs				**$9,344,693**	
	Standard General Conditions	14.00%			$1,308,257	
	Government General Conditions	6.00%			$560,682	
	Historic Preservation Factor	0.00%			$0	
	Subtotal NET Construction Cost				**$11,213,632**	
	Overhead	10.00%			$1,121,363	
	Profit	7.00%			$784,954	
	Estimated NET Construction Cost				**$13,119,949**	
	Bonds & Permits	2.00%			$262,399	
	Contracting Method Adjustment	10.00%			$1,311,995	
	Inflation Escalation	12	Months	4.00%	$587,774	
	Total Estimated NET Cost of Construction				**$15,282,117**	

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

Revised Cost Estimate

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	1/23/2012
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 3	**Canyon Capacity Improvements**	**Total Cost:**	$15,494,993

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	**SITE DEMOLITION & PREPARATION**					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	9.5	Acre	$ 3,445.00	$32,728	
	Site grading	44560	SY	$ 5.95	$265,132	
	Highland Site Demo & Prep				**$297,860**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	1220	SF	$ 0.20	$244	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381	LF	$ 2.50	$953	
	Rock Curb @ Landscaping	512	LF	$ 2.50	$1,280	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	1	EA	$ 120.00	$120	
	Tree Removal	48	EA	$ 570.00	$27,360	Single
	Tree/Vegetation Removal	0.09	Acre	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	4	EA	$ 86.00	$344	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	0	EA	$ 267.00	$0	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	9638	SY	$ 5.95	$57,346	
	Canyon Site Demo & Prep				**$193,892**	
	Subtotal Site Demolition and Preparation Costs				**$491,752**	
G20	**SITE IMPROVEMENTS**					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Mobilization	15%	LS	$600,650	$90,098	
	Excavation	12500	CY	$ 30.00	$375,000	
	Subgrade aggregate	649	Ton	$ 50.00	$32,450	
	HACP (hot asphalt concrete pavement)	360	Ton	$ 120.00	$43,200	
	Retaining walls	2000	SF	$ 75.00	$150,000	
	Roadway Improvements				**$710,788**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	3032	Ton	$ 50.00	$151,600	
	HACP (hot asphalt concrete pavement)	5560	Ton	$ 120.00	$667,200	
	Curb and gutter	5600	LF	$ 22.00	$123,200	
	Thermoplastic striping (4")	3400	LF	$ 0.91	$3,094	
	Thermoplastic handicap symbol	6	Ea	$ 39.37	$236	
	Thermoplastic cross-hatching	75	SY	$ 5.34	$401	
	Concrete Box Culvert	42	LF	$ 400.00	$16,800	4' high x 8' wide
	Drainage Ponds	1	LS	$ 60,000.00	$60,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 50,000.00	$50,000	
	Turf/Seeding	26175	SY	$ 0.64	$16,752	
G2020	Site Development: Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	6	EA	$ 65.00	$390	includes post
	ADA	6	EA	$ 58.00	$348	includes post
	Stop/Yield/miscellaneous	15	EA	$ 84.00	$1,260	includes post
	Highland Site Improvements				**$5,125,164**	
G2020	**Canyon Site Development**					

Revised Cost Estimate

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ 200.00	$0	
	Maintenance Building	0	SF	$ 215.00	$0	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	690	Ton	$ 50.00	$34,500	
	HACP (hot asphalt concrete pavement)	1260	Ton	$ 120.00	$151,200	
	Curb and gutter	1262	LF	$ 22.00	$27,764	
	Thermoplastic striping (4")	1206	LF	$ 0.91	$1,097	
	Thermoplastic handicap symbol	3	Ea	$ 39.37	$118	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
	Arrows (42")	8	Ea	$ 19.72	$158	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	9131	SF	$ 4.71	$43,007	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30,000.00	$30,000	
	Turf/Seeding	2186	SY	$ 0.64	$1,399	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	384	LF	$ 0.91	$349	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	3	EA	$ 58.00	$174	includes post
	Stop/Yield/miscellaneous	1	EA	$ 84.00	$84	includes post
	Canyon Site Improvements				**$1,118,162**	
	Subtotal Site Improvements Costs				**$6,954,113**	
	Total Construction Costs				**$7,445,865**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
				Direct Cost Subtotal without GFP	$7,445,865	

	Contingencies				
	Published Location Factor	0.00%			$0
	Remoteness Factor	0.00%			$0
	Federal Wage Rate Factor	7.50%			$558,440
	State & Local Taxes	4.75%			$353,679
	Design Contingency	15.00%			$1,116,880
	Total Direct Construction Costs				**$9,474,863**
	Standard General Conditions	14.00%			$1,326,481
	Government General Conditions	6.00%			$568,492
	Historic Preservation Factor	0.00%			$0
	Subtotal NET Construction Cost				**$11,369,835**
	Overhead	10.00%			$1,136,984
	Profit	7.00%			$795,888
	Estimated NET Construction Cost				**$13,302,707**
	Bonds & Permits	2.00%			$266,054
	Contracting Method Adjustment	10.00%			$1,330,271
	Inflation Escalation	12	Months	4.00%	$595,961
	Total Estimated NET Cost of Construction				**$15,494,993**

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

Revised Cost Estimate

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Project:	Alternative Transportation Feasibility Study - TICA 172474	**Estimate By:**	Perry Palmer/Becky Smith
Park:	Timpanogos Cave National Monument, Uinta National Forest	**Date:**	1/23/2012
Park Alpha:	TICA	**Reviewed By:**	Reviewer
PMIS Number:	0	**Date:**	Review Date
Alternate 4	**Canyon Safety Improvements**	**Total Cost:**	$13,871,808

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
G10	SITE DEMOLITION & PREPARATION					Demolition includes haul away
G1010	**Highland Visitor Center**					
G1020	Existing Structure Demolition	0	SF	$ 10.00	$0	
	Clearing and grubbing	9.5	Acre	$ 3,445.00	$32,728	
	Site grading	44560	SY	$ 5.95	$265,132	
	Highland Site Demo & Prep				**$297,860**	
G1010	**Canyon Site Contact Station**					
G1020	Existing Structure Demolition	7878	SF	$ 10.00	$78,780	Add'l bldg N of Hwy
	Gravel Paving	6,244	SF	$ 0.20	$1,249	
	Asphalt Parking	17,824	SF	$ 0.85	$15,150	
	Asphalt Trail	525	SF	$ 0.85	$446	
	Concrete Paving	3847	SF	$ 2.00	$7,694	Sidewalks/Plaza
	Rock Curb @ Parking Lot	381		$ 2.50	$953	
	Rock Curb @ Landscaping	403	LF	$ 2.50	$1,008	
	Concrete Curb	319	LF	$ 2.75	$877	
	Retaining Walls	125	LF	$ 4.50	$563	
	Man hole lid/rims	2	EA	$ 120.00	$240	
	Tree Removal	22	EA	$ 570.00	$12,540	Single
	Tree/Vegetation Removal	0.09	SF	$ 3,445.00	$310	
	Signage				$0	
	-No Parking	2	EA	$ 86.00	$172	
	-Park sign	4	EA	$ 86.00	$344	
	-One way	1	EA	$ 86.00	$86	
	-Flashing Ped	1	EA	$ 267.00	$267	
	Bollards	2	EA	$ 320.00	$640	
	Benches	1	EA	$ 100.00	$100	
	Trash Container	1	EA	$ 100.00	$100	
	Drinking fountains	1	EA	$ 67.00	$67	
	Fire Hydrant	1	EA	$ 181.50	$182	
	Water Spigot	1	EA	$ 67.00	$67	
	Flag Pole	1	EA	$ 320.00	$320	
	Wood Fence	12	LF	$ 1.00	$12	
	Chainlink Fence	203	LF	$ 2.50	$508	
	Site grading	5106	SY	$ 5.95	$30,381	
	Canyon Site Demo & Prep				**$153,054**	
	Subtotal Site Demolition and Preparation Costs				**$450,913**	
G20	SITE IMPROVEMENTS					
G2010	**Roadways**					
	Highway Signage	320	SF	$ 47.00	$15,040	
	Re-seeding removed pull-offs along SR92	1	LS	$ 5,000.00	$5,000	
	Roadway Improvements				**$20,040**	
G2020	**Highland Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	12324	SF	$ 200.00	$2,464,800	
	Maintenance Building	5594	SF	$ 215.00	$1,202,710	
	Trailhead Visitor Center	0	SF	$ 260.00	$0	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
	Parking lot					
	Subgrade aggregate	3032	Ton	$ 50.00	$151,600	
	HACP (hot asphalt concrete pavement)	5560	Ton	$ 120.00	$667,200	
	Curb and gutter	5600	LF	$ 22.00	$123,200	
	Thermoplastic striping (4")	3400	LF	$ 0.91	$3,094	
	Thermoplastic handicap symbol	6	Ea	$ 39.37	$236	
	Thermoplastic cross-hatching	75	SY	$ 5.34	$401	
	Concrete Box Culvert	42	LF	$ 400.00	$16,800	4' high x 8' wide
	Drainage Ponds	1	LS	$ 60,000.00	$60,000	
G2040	*Site Amenities*					
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	10	Ea	$ 750.00	$7,500	
	Trash Container	10	Ea	$ 450.00	$4,500	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	10	Ea	$ 505.50	$5,055	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	17575	SF	$ 4.71	$82,778	
G2030	Asphalt Trail	24500	SF	$ 2.00	$49,000	
	Landscaping	1	LS	$ 50,000.00	$50,000	
	Turf/Seeding	26175	SY	$ 0.64	$16,752	
G2020	Site Development: Other					
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ 730.00	$730	
	Utilitity Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	6	EA	$ 65.00	$390	Includes post
	ADA	6	EA	$ 58.00	$348	Includes post
	Stop/Yield/miscellaneous	15	EA	$ 84.00	$1,260	Includes post
	Highland Site Improvements				**$5,125,164**	
G2020	**Canyon Site Development**					
G2020	*Buildings*					
	Administration/Visitor Center	0	SF	$ 200.00	$0	
	Maintenance Building	0	SF	$ 215.00	$0	
	Trailhead Visitor Center	2290	SF	$ 260.00	$595,400	
	Bus shelter w/bench	600	SF	$ 150.00	$90,000	
G2020	*Parking Lot*					
	Subgrade aggregate	580	Ton	$ 50.00	$29,000	
	HACP (hot asphalt concrete pavement)	1050	Ton	$ 120.00	$126,000	
	Curb and gutter	735	LF	$ 22.00	$16,170	
	Remove 4" striping	486	LF	$ 2.36	$1,147	
	Thermoplastic striping (4")	1730	LF	$ 0.91	$1,574	
	Thermoplastic handicap symbol	4	Ea	$ 39.37	$157	
	Thermoplastic cross-hatching	38	SY	$ 5.34	$203	
G2040	*Site Amenities*					

Revised Cost Estimate

United States Deparment of the Interior
National Park Service
Class C Construction Cost Estimate
LINE ITEM COST SUMMARY

Uniformat II WBS Code	Description	Quantity	Unit	Cost/Unit	Total Cost	Remarks
	Retaining walls	1200	SF	$ 75.00	$90,000	
	Benches	3	Ea	$ 750.00	$2,250	
	Trash Container	3	Ea	$ 450.00	$1,350	
	Drinking Fountain	1	Ea	$ 1,250.00	$1,250	
	Bollards	5	Ea	$ 505.50	$2,528	8" dia., 4' high
	Flag Pole	1	Ea	$ 2,545.00	$2,545	25' aluminum
G2030	Pedestrian Paving (4") (Visitors' Center)	13960	SF	$ 4.71	$65,752	
G2030	Asphalt Trail	0	SF	$ 2.00	$0	
	Landscaping	1	LS	$ 30.00	$30	
	Turf/Seeding	1495	SY	$ 0.64	$957	
G2020	**Site Development: Other**					
G2040	*Safety Improvements*					
	Ped Crosswalks-Thermoplastic striping (4")	464	LF	$ 0.91	$422	
	Ped Crosswalks - Solar ped signals	2	Ea	$ 4,700.00	$9,400	
	Thermoplastic cross-hatching	45	SY	$ 5.34	$240	
G2040	*Entrance Signage*					
	Wayfinding/Information		LS	$ 5,000.00	$0	
	Monument Sign		LS	$ 50,000.00	$0	
G2040	*Utilities*					
	Fire hydrant relocation	1	LS	$ 3,015.00	$3,015	
	6" main water line- Fire Hydrant	100	LF	$ 45.00	$4,500	Includes trenching, pipe and backfill
	Water Spigot	1	EA	$ -	$0	
	Utility Connections	1	LS	$ 25,000.00	$25,000	
	Man hole lid/rim adjustment	1	LS	$ 500.00	$500	
G2040	*Signage*					
	No parking	2	EA	$ 65.00	$130	includes post
	ADA	4	EA	$ 58.00	$232	includes post
	Stop/Yield/miscellaneous		EA	$ 84.00	$0	includes post
	Canyon Site Improvements				**$1,069,752**	
	Subtotal Direct Construction Costs				**$6,214,956**	
	Total Construction Costs				**$6,665,870**	
	Value of Government Furnished Property (GFP) included in Direct Cost (see footnote)*				$0	
				Direct Cost Subtotal without GFP	$6,665,870	
	Contingencies					
	Published Location Factor	0.00%			$0	
	Remoteness Factor	0.00%			$0	
	Federal Wage Rate Factor	7.50%			$499,940	
	State & Local Taxes	4.75%			$316,629	
	Design Contingency	15.00%			$999,880	
	Total Direct Construction Costs				**$8,482,319**	
	Standard General Conditions	14.00%			$1,187,525	
	Government General Conditions	6.00%			$508,939	
	Historic Preservation Factor	0.00%			$0	
	Subtotal NET Construction Cost				**$10,178,783**	
	Overhead	10.00%			$1,017,878	
	Profit	7.00%			$712,515	
	Estimated NET Construction Cost				**$11,909,176**	
	Bonds & Permits	2.00%			$238,184	
	Contracting Method Adjustment	10.00%			$1,190,918	
	Inflation Escalation	0	Months	4.00%	$533,531	
	Total Estimated NET Cost of Construction				**$13,871,808**	

* GFP costs are only used when the Government pre-purchases items, or provides other materials out of Government inventory, to be installed by contractor. Adjustments and Markup on GFP only include Inflation Escalation; No other adjustment factors or O&P markup have been applied.

Appendix B: Choosing By Advantages Matrix

Choosing by Advantages – Alternative Factors, Attributes and Advantages for Alternative Transportation System

Timpanogos Cave National Monument

		CBA Factors	No Action Alternative	Score	Alternative 1 - Mandatory Visitor Shuttle, Minimal Parking at Canyon Site (20 staff spaces)	Score	Alternative 2 - Optional Shuttle During Peak Visitation Periods (99 visitor and staff spaces at Canyon)	Score	Alternative 3 - Realignment of SR 92, Maximum Parking at Canyon Site (82 visitor and staff spaces at Canyon)	Score	Alternative 4 - Safety Improvements at Canyon Site, with Visitor Use Management (99 visitor and staff spaces at Canyon)	Score
Factor 1 - Protect Natural, Cultural and Historic Resources												
1		**Minimize Impacts to Natural Resources**										
	a.	*Minimize disturbance (of previously undisturbed ground SF of area cleared for construction)*	No new ground disturbance from development.		Development at Highland and Canyon Sites is built on previously disturbed land.		Development at Highland and Canyon Sites is built on previously disturbed land.		Development at Highland Site on previously disturbed ground. Visitor facility at Canyon displaces existing forested land (away from rock fall zone).		Development at Highland and Canyon Sites is built on previously disturbed land.	
		Advantage	**Involves no development on previously undisturbed ground**	5	**Involves no development on previously undisturbed ground**	5	**Involves no development on previously undisturbed ground**	5	**Least Preferred**	0	**Involves no development on previously undisturbed ground**	5
	b.	*Minimize vegetation and soil damage from roadside parking and social trails*	Soil and vegetation damage from roadside parking and social trails continues and may expand. No opportunity to restore Canyon Site to natural conditions.		Soil and vegetation damage from roadside parking is nearly eliminated; social trails minimized by eliminating access via private vehicle. Offers greatest potential for restoration of Canyon Site to natural conditions.		Soil and vegetation damage from roadside parking is reduced; social trails reduced by removing informal parking and providing some access via shuttle buses. Offers some potential for restoration of Canyon Site to natural conditions.		Soil and vegetation damage from roadside parking is greatly reduced; social trails greatly reduced by locating most visitor parking to south of SR 92. Offers moderate potential for restoration of Canyon Site to natural conditions.		Soil and vegetation damage from roadside parking is reduced; social trails greatly by removing informal parking. Offers some potential for restoration of Canyon Site to natural conditions.	
		Advantage	**Least Preferred**	0	**Very Much less soil and vegetation damage, greatest potential for restoration**	10	**Moderately less soil and vegetation damage associated with informal parking and social trails**	8	**Much less soil and vegetation damage associated with informal parking and social trails**	9	**Moderately less soil and vegetation damage associated with informal parking and social trails**	8
Factor 2, 3 - Protect Public and Employee Health, Safety and Welfare												
2		**Minimize Pedestrian/Vehicular Conflicts**										
	a.	*Minimize pedestrian interaction with moving traffic on SR 92*	Retains current high levels of pedestrian-vehicle interaction and conflicts associated with roadside parking and large numbers of visitors crossing SR 92 between parking and visitor use locations.		Virtually eliminates pedestrian-vehicle conflicts at the Canyon Site by eliminating roadside parking and providing all visitor access by shuttle bus and dropping passengers adjacent to the cave trailhead.		Reduces pedestrian-vehicle conflicts at the Canyon Site by eliminating roadside parking and providing some visitor access by shuttle bus and dropping passengers adjacent to the cave trailhead. 64 visitor parking spaces located across SR 92 from cave trailhead.		Greatly reduces pedestrian-vehicle conflicts at the Canyon Site by eliminating roadside parking and locating most visitor parking on the same side of SR 92 as the cave trailhead. 10 visitor parking spaces located across SR 92 from cave trailhead.		Reduces pedestrian-vehicle conflicts at the Canyon Site by eliminating roadside parking. 64 visitor parking spaces located across SR 92 from cave trailhead. Minimal pedestrian interaction with moving traffic at the Highland Site.	
		Advantage	**Least Preferred**	0	**Provides the greatest reduction in pedestrian conflicts with traffic on SR 92**	100	**Provides the least reduction in pedestrian conflicts with traffic on SR 92 (65 parking spaces plus shuttle bus traffic on road)**	40	**Provides a major reduction in pedestrian conflicts with traffic on SR 92 (10 parking spaces across road)**	95	**Provides the third most reduction in pedestrian conflicts on SR 92 (65 spaces across road)**	50
	b.	*Minimize parking maneuvers on and adjacent to SR 92*	Retains current high levels of parking maneuvers along SR 92 that disrupt moving traffic.		Major reduction in parking maneuvers that disrupt moving traffic on SR 92 - 10 head-in parking spaces used only by administrative staff require backing into/near SR 92 traffic. Very low parking turnover and traffic into/out of cave trailhead lot, with transit vehicles operating every 15 minutes on all days of the season.		Slight to some reduction in parking maneuvers that disrupt moving traffic on SR 92 through elimination of informal roadside parking. 64 head-in parking spaces require backing into/near SR 92. 35 parking spaces in cave trailhead lot result in some traffic that interacts with SR 92 traffic at the parking entrance. Transit vehicles would operate every 15 minutes on weekends and holidays.		Moderate reduction in parking maneuvers that disrupt moving traffic on SR 92 - 10 head-in parking spaces require backing into/near SR 92 traffic. 70 visitor parking spaces in cave trailhead lot result in moderate volume of traffic that interact with SR 92 traffic at the parking entrance.		Some reduction in parking maneuvers that disrupt moving traffic on SR 92 through elimination of informal roadside parking. 64 head-in parking spaces require backing into/near SR 92. 35 parking spaces in cave trailhead lot result in some traffic that interacts with SR 92 traffic at the parking entrance.	
		Advantage	**Least Preferred**	0	**Provides the greatest reduction in parking conflicts with traffic on SR 92**	95	**Provides the least reduction in parking conflicts with SR 92 traffic**	35	**Provides a major reduction in parking conflicts with traffic on SR 92 (10 parking spaces across road)**	90	**Provides the third most reduction in pedestrian conflicts on SR 92 (65 spaces across road)**	45
3		**Minimize Exposure to Natural Hazards**										
	a.	*Minimize facilities and equipment located in rock fall and flood hazard areas*	Retains current temporary visitor facility and parking in rock fall hazard and flood hazard zones.		New visitor facility and transit stop located in rock fall zone. Lowest levels of other development and vehicle parking near rock fall and flood hazard zones (10 parking spaces on south side of SR 92).		New visitor facility and transit stop located in rock fall zone. Results in moderate level of other development and vehicle parking in or near rock fall and flood zones (35 vehicles on south side of SR 92, 64 vehicles on north side).		Removes VC building from rock fall zone but results in high level of development and location of vehicles near rock fall zone (70 vehicles on south side of SR 92. 10 vehicles located on north side of SR 92).		New visitor facility located in rock fall zone. Results in moderate level of other development and vehicle parking in or near rock fall and flood zones (35 vehicles on south side of SR 92, 64 vehicles on north side)	
		Advantage	**Least Preferred**	0	**Provides the third most reduction in hazards to facilities (least parking, but includes shuttle stop)**	50	**Provides the least reduction in hazards to facilities (most parking and shuttle bus stop in hazard area)**	45	**Provides the greatest reduction in rock fall hazards to facilities due to removal of buildings from hazard zone**	90	**Provides the second most reduction in hazards due to removal of parking from the hazard area**	60
	b.	*Minimize number of employees and visitors and time spent in rock fall hazard areas*	Retains current conditions, where large numbers of visitors may congregate in the trailhead vicinity waiting for tour start times. Employees would continue to have primary work locations in the rock fall zone.		Reduces level of employee and visitor exposure in the rock fall zone by locating all visitor parking at Highland Site and coordinating shuttle bus service with tour times to limit waiting at the Canyon Site. Visitors would congregate at shuttle bus stop within hazards area while waiting for bus. Visitors may spend more time in area waiting for bus.		Reduces numbers of visitors in the rock fall zone by providing ticket sales at the Highland Site. Visitors would be more likely to travel to Canyon Site near tour departure times due to remote ticket sales and the provision of shuttle bus service coordinated with tour times on weekends and holidays. Visitors would congregate at shuttle bus stop within rock fall zone while waiting for bus. Visitors may spend more time waiting for bus.		Reduces numbers of visitors in the rock fall zone by providing ticket sales in advance and at the Highland Site. Visitors would be more likely to travel to Canyon Site near tour departure times due to remote ticket sales. Peak accumulation of visitors would be significantly reduced due to lowest visitation capacity. Visitors would be dispersed in parking areas and would not need to wait for buses. Reduces employee exposure by removing facilities from rock fall zone.		Reduces numbers of visitors in the rock fall zone by providing ticket sales at in advance and at the Highland Site. Visitors would be more likely to travel to Canyon Site near tour departure times due to remote ticket sales. Peak accumulation of visitors would be reduced due to lower visitation capacity. Visitors would be dispersed in parking areas and would not need to wait for buses.	
		Advantage	**Least Preferred**	0	**Provides the third most reduction in time spent and number of people in rock fall zone**	70	**Provides the least reduction in time spent and number of people in rock fall zone (close to Alt 1)**	65	**Provides the greatest reduction in time spent and numbers of people in rock fall zone**	98	**Visitors would be dispersed in parking areas and would not need to wait for buses**	90
Factors 4 - 7 - Provide for Visitor Enjoyment through Improved Educational and Recreational Opportunities												
4		**Maximize Visitation Capacity Consistent with Resource Protection**										
	a.	*Maximize management flexibility to manage visitor use for resource protection and visitor experience*	No change in management flexibility, minimal ability to manage visitor use, through tour ticket distribution only.		Visitor arrival patterns can be completely controlled through operation of shuttle bus system. Shuttle capacity can be added or decreased to meet future needs. Shuttle bus system must be operated at all times - no opportunity to provide access by private vehicle.		Visitor arrival patterns can be influenced through operation of shuttle bus system on weekends and holidays. Shuttle capacity can be added or decreased to meet future needs. 99 visitor parking spaces provides flexibility to serve existing visitor demand on most weekdays and on weekends in the shoulder seasons.		Provides least flexibility for managing amount visitor use due to the smallest number of parking spaces and no provision for shuttle bus service. Provides ability to inform visitors of conditions at the Highland Site.		99 visitor parking spaces provides flexibility to serve existing visitor demand on most weekdays. Hourly visitor arrivals cannot be increased beyond capacity supported by the available parking.	
		Advantage	**Least Preferred**	0	**Provides slightly more flexibility to manage visitor use (due to no option to shuttle bus system)**	20	**Provides much more flexibility to manage visitor use**	70	**Provides some additional flexibility to manage visitor use**	50	**Provides moderately more flexibility to manage visitor use**	55
	b.	*Minimize costs to visitors to access TICA*	No change in costs to visitors. Tour visitors pay $7 Cave Tour Fee and $6.00 per vehicle fee to enter American Fork Canyon ($2 per person at 3 per vehicle); or a total of about $9 per visitor, not considering longer term USFS passes.		Cave Tour TICA visitors pay the $7 tour fee, plus a shuttle fee of $3.00 - $10.00; for total cost of $10 - $17, depending on public or private operator. Does not include potential cost of on-line ticketing.		Cave Tour TICA visitors who ride shuttle buses pay the $7 tour fee, plus a shuttle fee of $1.00 to $3.40; for total cost of $8 - 10.40, depending on public or private operator. Does not include potential cost of on-line ticketing. Visitors who drive to TICA would pay the same tour fee as shuttle riders, plus an additional $2 per person for the USFS entry fee, for a total of $10 to 12.40.		No change in costs to visitors. Tour visitors pay $7 Cave Tour Fee and $6.00 per vehicle fee to enter American Fork Canyon ($2 per person at 3 per vehicle); or a total of about $9 per visitor, not considering longer term USFS passes. Does not include potential cost of on-line ticketing.		No change in costs to visitors. Tour visitors pay $7 Cave Tour Fee and $6.00 per vehicle fee to enter American Fork Canyon ($2 per person at 3 per vehicle); or a total of about $9 per visitor, not considering longer term USFS passes. Does not include potential cost of on-line ticketing.	
		Advantage	**$3 to $10 lower ticket price**	40	**Least preferred**	0	**$2 to $6.80 lower ticket price**	25	**$3 to $10 lower ticket price**	40	**$3 to $10 lower ticket price**	40
5		**Minimize Need to Displace Visitors from their Desired Visitation Patterns**										
	a.	*Minimize share of visitors who would have to change the time/day of their visit due to transportation capacity limitations*	No visitors would need to change the time or day of their visit.		No visitors would need to change the day of their visit and very few visitors would need to change the time of their visit.		A few visitors would need to change the time of their visit, because 5% fewer tours would be offered. A very few visitors would have to change the day of their visit (less than 1%).		To accommodate the same number of annual visitors as in 2010, 11 percent of visitors would need to change the day of their visit. A moderate number of visitors would need to change the time of their visit due to 26% fewer tours being offered.		To accommodate the same number of annual visitors as in 2010, 5 percent of visitors would need to change the day of their visit. A small number of visitors would need to change the time of their visit due to 12% fewer tours being offered.	
		Advantage	**Transportation capacity would not cause displacement, but lack of reservation system causes**	40	**Least need to displace visitors due to transportation capacity limitations (1st)**	50	**Fewer visitors (10 percent of total) would need to change the day of their (2nd)**	45	**Least Preferred**	0	**Somewhat fewer visitors (6% of total) would need to change the day of their visit. (4th)**	20

Choosing by Advantages – Alternative Factors, Attributes and Advantages for Alternative Transportation System

Timpanogos Cave National Monument

		CBA Factors	No Action Alternative	Score	Alternative 1 - Mandatory Visitor Shuttle, Minimal Parking at Canyon Site (20 staff spaces)	Score	Alternative 2 - Optional Shuttle During Peak Visitation Periods (99 visitor and staff spaces at Canyon)	Score	Alternative 3 - Realignment of SR 92, Maximum Parking at Canyon Site (82 visitor and staff spaces at Canyon)	Score	Alternative 4 - Safety Improvements at Canyon Site, with Visitor Use Management (99 visitor and staff spaces at Canyon)	Score
6		**Minimize Visitor Confusion**										
	a.	*Minimize mode changes and out of direction travel*	Visitors do not need to change modes. Some out of direction travel may occur to seek available parking.		All visitors would be required to ride shuttle buses and all visitors entering from the east would experience out of direction travel.		Some visitors would be required to ride shuttle buses and all visitors entering from the east would experience out of direction travel.		Visitors from the west would not need to change modes or travel out of direction and all visitors entering from the east would experience out of direction travel.		Visitors from the west would not need to change modes or travel out of direction and all visitors entering from the east would experience out of direction travel.	
		Advantage	**Least mode changes and out of direction travel**	30	**Least preferred**	0	**Less need for mode changes, most visitors continue to drive to TICA**	15	**Much less need for mode changes and fewest visitors from the east required to travel out of direction**	25	**Less need for mode changes and fewer visitors from the east required to travel out of direction**	24
	b.	*Provide consistent access across times of day and days of season*	Visitor access to TICA would be by the same mode for all visitors regardless of time of day or day of week but parking conditions are haphazard.		Visitor access to TICA would be the same for all visitors regardless of time of day or day of week.		Visitor access to TICA would change depending on the time of day on weekends and holidays. Visitor access would be consistent during weekdays.		Visitor access to TICA would be the same for all visitors regardless of time of day or day of week.		Visitor access to TICA would be the same for all visitors regardless of time of day or day of week.	
		Advantage	**More consistent access to TICA**	64	**Much more consistent access to TICA**	65	**Least preferred**	0	**Much more consistent access to TICA**	65	**Much more consistent access to TICA**	65
7		**Maximize Quality of Visitor Experience**										
	a.	*Minimize exposure to crowding on cave trails and tours*	Results in the most crowding at TICA due to some visitors waiting long periods of time for tours.		Groups of visitors arriving on shuttle buses may cause brief periods of crowding at the Canyon Site. Retains current levels of visitation.		Groups of visitors arriving on shuttle buses may cause brief periods of crowding at the Canyon Site. Visitation levels slightly lower than current.		Results in very low levels of at the Canyon Site. Has the lowest level of visitation at the Canyon Site.		Results in low levels of crowding at the Canyon Site. Has somewhat lower levels of visitation at the Canyon Site.	
		Advantage	**Least Preferred**	0	**Somewhat less crowding on cave trails and tours**	15	**Moderately less crowding on cave trails and tours**	40	**Much less crowding on cave trails and tours**	55	**Less crowding on cave trails and tours**	47
Factor 8 - Improve Operational Efficiency, Reliability and Sustainability												
8		**Minimize Staffing Required for Visitor Transportation and Visitor Use Management**										
	a.	*Minimize park operational efficiency and effectiveness*	No change to existing operating and enforcement staffing requirements. Requires continued intensive maintenance and repair of temporary and outdated facilities at Canyon Site.		Requires staff resources to administer shuttle bus operation and agreement. Would result in shifts of staff duties among functions. Retains current staffing required for tours. Results in reduced maintenance requirements at the Canyon Site. New facilities at the Highland Site would require shared maintenance activities with USFS. Largest parking areas would require the most pavement maintenance of the alternatives.		Requires staff resources to administer shuttle bus operation and agreement. Would result in shifts of staff duties among functions. Requires 5% less staffing for tours due to demand management strategies. Results in reduced maintenance requirements at the Canyon Site. New facilities at the Highland Site would require shared maintenance activities with USFS. Large parking areas would require significant pavement maintenance.		Would result in shifts of staff duties among functions. Would require the least staffing for tours due to lowest visitation levels and 26% fewer tours. Results in reduced maintenance requirements at the Canyon Site. New facilities at the Highland Site would require shared maintenance activities with USFS. Smallest parking area would require the least pavement maintenance of the alternatives.		Would result in shifts of staff duties among functions. Would require lower levels of staffing due to reduced visitation and 12% fewer tours. Results in reduced maintenance requirements at the Canyon Site. New facilities at the Highland Site would require shared maintenance activities with USFS. Small parking area would require the relatively little pavement maintenance.	
		Advantage	**Least preferred**	0	**Less maintenance of Canyon Site offset by increased maintenance of parking and administration of transit system**	42	**Less maintenance of Canyon Site offset by increased maintenance of parking and administration of transit system, and additional visitor information needs**	30	**Much less ongoing maintenance requirements and much less need to direct traffic and manage parking**	60	**Less ongoing maintenance requirements and much less need to direct traffic and manage parking**	55
	b.	*Minimize maintenance requirements on SR 92*	No significant differences between alternatives.		No significant differences between alternatives.		No significant differences between alternatives.		No significant differences between alternatives.		No significant differences between alternatives.	
		Advantage										
Factor 9 - Provide Other Benefits to the National Park Service and U.S. Forest Service												
9		**Enhance USFS/NPS Partnership**										
	a.	*Maximize flexibility for future USFS and NPS uses of Highland Site as measured by minimizing the footprint of the potential developed area*	Leaves all future options open for future development - no development.		Provides the least flexibility for future development - 16.6 acres of development.		Provides some flexibility for future development - 15.8 acres of development.		Provides great flexibility for future development - 9.5 acres.		Provides great flexibility for future development - 9.5 acres of development.	
		Advantage	**Offers total flexibility for future development of site**	5	**Least preferred**	0	**Provides somewhat more flexibility for future development**	2	**Offers much more flexibility for future development**	5	**Offers much more flexibility for future development**	5
Total Advantage				**184**		**522**		**425**		**682**		**569**

Appendix C: Agenda/List of Participants

Timpanogos Cave National Monument
Alternative Transportation Feasibility Study
Value Analysis/Choosing By Advantages

Location: Highland City Council Chambers, 5400 West Civic Center Drive, Highland, UT

AGENDA

Day 1 – January 10, 2012

1. Welcome and Introductions – 8:30 – 8:40 am — ALL
2. Workshop Overview – 8:40 – 8:50 am — IBI
3. Information (Background, Previous Decisions, Other Improvements) – 8:50 – 9:10 am — IBI
4. Review/Confirm Special Criteria
   (Planning Directives, Adopted Park Plans, Codes, etc.) – 9:10 – 9:20 am — IBI
5. Stakeholder Analysis (Stakeholders and their interests) – 9:20 – 9:40 am — IBI
6. Functional Analysis (FAST) Diagram (combined for all components) – 9:40 – 10:00 am — IBI
7. Project Components and Recommended Decision Process – 10:00 – 10:15 am — IBI

Break – 10:15 – 10:30 am

8. Overview of Transportation Alternatives – 10:30 – 11:15 am — CS
   a. Visitation Characteristics
   b. Overall Transportation Strategies
   c. Parking by Location
   d. Shuttle Bus Service, Facilities, Vehicles and Service Delivery
   e. Visitor Demand Management
9. Overview of Site Development for Alternatives – 11:15 - Noon — CS/AJC
   a. Canyon Site
   b. Highland Site

Lunch – Noon – 1:00 pm

10. Creativity for Alternatives – Additional Concepts/Alternatives – 1:00 – 1:45 pm — ALL
11. Overview of CBA Process – 1:45 – 2:00 pm — IBI
12. CBA Process for Transportation and Site Alternatives – 2:00 – 4:45 pm — IBI
    a. Factors
    b. Attributes

Break – 3:00 – 3:15 pm

c. Advantages
d. Paramount Advantage and Scoring of Primary Advantages

Adjourn – Approx. 4:30 pm

Day 2 – January 11, 2012

13. CBA Process for Transportation and Site Alternatives (continued) – 8:30 – 10:00 am — IBI
    a. Complete Scoring for All Advantages
    b. Life-Cycle Costs
    c. Importance to Cost Analysis

Break – 10:00 – 10:20 am

14. Review and Reconsideration – 10:20 – 11:20 am — ALL
    a. Adjustments to Preferred Alternative
    b. Decisions for each component (shuttle, parking, site development)
    c. Total project cost compared to budget
    d. Cost-saving Strategies

Lunch – 11:20 am – 12:30 pm

15. Rationale/Summary – 12:30 – 1:30 pm — ALL

16. Mini CBA for Shuttle Vehicle Size – 1:30 – 3:30 pm — IBI

    a. Factors for Decision-making
    b. Attributes
    c. Advantages
    d. Paramount Advantage and Scoring
    e. Life-cycle costs
    f. Importance to Cost
    g. Rationale

17. Risk Assessment – 3:30 – 4:00 pm — IBI

18. Close-out and Follow-on Activities – 4:00 – 4:30 pm — NPS

Adjourn – 4:30 - 5:00 pm

Attendees:
NPS – Timpanogos Cave National Monument
Jim Ireland, Superintendent
Rodney Larsen, Administrative Officer
Michael Gosse, Chief of Interpretation and Visitor Services
Craig Yow, Facility Manager
Cami McKinney, Chief of Integrated Resource Management
NPS – Denver Service Center
Ron Shields, Project Manager,
Nola Chavez, Project Specialist, RLA, Transportation Division
NPS – Intermountain Regional Office
Jayne Schaeffer, Landscape Architect
Rick Shireman, Line Item Construction Program Lead
NPS – Capitol Reef National Park
Al Hendricks, Superintendent
NPS – Northern Utah Group
Denis Davis, NPS Utah State Coordinator / General Superintendent
US Forest Service, Uinta National Forest, Pleasant Grove Ranger District
Sylvia Clark, District Ranger
Utah Department of Transportation
Steven Acerson (invited)
Utah Transit Authority
Ken Anson (invited)
Jarret Whickern (invited)
Cambridge Systematics
Evan Enarson-Hering, Associate
ajc architects
Jill Jones, Principal
Josh Green
Kleinfelder
Jenny Esker
IBI Group
Bill Byrne, Facilitator

File Name: ibishare:31074_NPS_Timpangos_Caves:5.0 Design (Work) Phase:31074-TTA-TICA VA Agenda FINAL 2012-01-06.docx