



INYO NATIONAL FOREST

WHITNEY PORTAL
Alternative
Transportation Study

2013

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14. ABSTRACT This study is a review of the potential for alternative modes of transportation (walking, bicycling and transportation services) to and within the Mt. Whitney Portal area of the Inyo National Forest. The Whitney Portal experiences high levels of summer season visitation and competition for a finite number of paved overnight parking spaces during peak periods. A comprehensive mobility plan, including improved circulation, parking and access management program and the development of alternative transportation routes and modes, may improve access and ease parking pressures at the Whitney Portal recreation area.					
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Whitney Portal Store

Thank you for your insight, hard work and patience.
Deborah Tyrone

EXECUTIVE SUMMARY

A comprehensive mobility plan, including improved circulation, parking and access management program and the development of alternative transportation routes and modes, may improve access and ease parking pressures at the Whitney Portal recreation area.

The Whitney Portal recreation area is the gateway to Mt. Whitney, the tallest mountain in the contiguous United States. The Portal area experiences high levels of summer season visitation when large numbers of backpackers descend on the mountain for single day and long-term Wilderness experiences. Though a trail quota limits the number of hikers per day, competition for a finite number of paved overnight parking spaces is great during the peak period. Data collected for this study shows that in the months of July and August overnight parking demand often exceeds the supply of overnight parking spaces. Day-use parking is not constrained by a lack of parking facilities. Permissible roadside parking along the entrance road, Whitney Portal Road, absorbs excess parking demand.

The remote location of the recreation area, with few alternative transportation routes or services, makes driving the predominant and most viable means of transportation. A parking management program may improve the efficiency of parking in the Whitney Portal recreation area through engineering design and access controls. The ease of automobile access and availability of parking may impact the need for and use of alternative transportation systems.

The provision of voluntary or compulsory mass transportation services may alleviate parking pressures in the Whitney Portal recreation area. Providing access to the area via transportation service may reduce the need for on-site parking by moving demand for parking to an off-site location. Avenues exist to support publicly or privately delivered transportation and parking services. Scenarios for the provision of public transportation explore opportunities to provide transit service to the Whitney Portal area. Due to the trail quota restriction, the provision of mass transportation services is not anticipated to provide access for additional visitor.

PEDESTRIAN

Strengths

- Hardened trail through picnic area
- Limited access
- Improved trail from Mt Whitney Family Campground to Whitney Portal area
- National Recreation Trail from Lone Pine Campground to Whitney Portal area

Challenges

- Limited wayfinding signage
- Limited access

Opportunities

- Improved wayfinding signage on existing trails
- Construct trail from Meysan Lakes trailhead roadside parking to Whitney Portal trailhead through the old Forest Service administrative site
- Support trail development from the Lone Pine Campground to the town of Lone Pine

BICYCLE

Strengths

- Challenging route limits users to experts

Challenges

- Significant roadway grade from the town of Lone Pine to the Whitney Portal recreation area
- Significant roadway grade from the Mt Whitney Family Campground to the Whitney Portal core recreation area
- No shoulders present on Whitney Portal Road
- High speed traffic on Whitney Portal Road

- Rock and sand debris on Whitney Portal Road
- Bicycles prohibited from using improved trails in the Whitney Portal recreation area

Opportunities

- Inyo County bike lane proposal on Whitney Portal Road to Lone Pine Campground
- Bicycle parking at lower terminus of National Recreation Trail (Lone Pine Campground)

AUTOMOBILE

Strengths

- Low speed limit within the Whitney Portal core recreation area
- Day-use parking generally available during most of the summer season
- Accessible parking spaces
- Overnight parking demand limited by Wilderness trail permit quota

Challenges

- Day-use parking lot capacity is exceeded during peak holiday weekends
- Overnight parking demand exceeds capacity during July and August
- Inadequate informational and directional signage
- Parked vehicles act as attractor for bear population

Opportunities

- Develop a parking management plan
- Improve roadway shoulders to provide designated overnight parking where feasible
- Redistribute parking between overnight and day-use

- Number of day-use spaces warranted or needed to support visitation
- Parking in underutilized areas behind the Whitney Portal Store
- Long term parking at Meysan Lakes Trailhead roadside parking
- Provide long term parking off-site
- Loading and unloading zone at Mount Whitney Trailhead
- Parking regulation enforcement
- Economic development opportunities in the provision of parking services

PUBLIC OR PRIVATE TRANSPORTATION SERVICE

Strengths

- Existing public transit service on US Highway 395 and demand response service in Lone Pine

Challenges

- No Forest Service permitted private transportation service
- Limited demand for voluntary transit service

Opportunities

- Encourage and support private shuttle operations
- Fund public transit service to area as new or spur service from existing transit route
- Economic development opportunities in the provision of transportation services

INFORMATION TECHNOLOGY

Strengths

- Existing technology pathways

Opportunities

- Alternative transportation system network map
- Parking map of areas and restrictions
- Rideshare program
- Social networking sites support the distribution of information regarding parking and carpooling opportunities

POLICY, PLANNING AND PARTNERSHIPS

Strengths

- Engaged local partners
- Forest Service authority over and responsibility for core recreation area

Opportunities

- Develop a parking management plan
- Economic development through private provision of alternative transportation systems
- Parking enforcement

Challenges

- Need to coordinate with Inyo County for implementation of parking restrictions on Whitney Portal Road
- May need to coordinate with Inyo County for access restrictions on Whitney Portal Road

INTRODUCTION

ALTERNATIVE TRANSPORTATION SYSTEM STUDY PURPOSE

In 2008 the Inyo National Forest received a Federal Transit Administration planning grant to research and study the alternative transportation system components best suited to provide enhanced mobility to the Whitney Portal recreation area. The alternative transportation system study is an effort to gather data to sufficiently inform transportation decision makers, identify potential funding strategies and facilitate inter-agency and stakeholder synchronization.

This study is a review of the potential for alternative modes of transportation (walking, bicycling and transit) to and within the Whitney Portal recreation area. The Whitney Portal location was highlighted as a potential transit node in transit reviews. This study analyzes existing regional and local alternative transportation systems and makes recommendations about the opportunities and challenges associated with connecting Whitney Portal recreation area with the community of Lone Pine, California. Information contained in this report is as of 2011.

PROJECT FUNDING SOURCE

Funding for this planning study was secured through a competitive grant selection process of the Paul S. Sarbanes Transit in Parks (TRIP) program. The TRIP program was established in the 2005 transportation bill Safe, Accountable, Flexible, Efficient

Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and codified in 49 U.S.C. 5320, to provide a discretionary funding source for alternative transportation planning and capital improvement projects on and to federal lands. The program was created by Congress to address increased vehicle congestion in and around federal lands where the effects of traffic, pollution and crowding threaten the unique environmental and cultural treasures of America’s national parks, wildlife refuges and national forests.

The Transit in Parks program is administered by the Federal Transit Administration (FTA) an operating administration of the US Department of Transportation (DOT). The FTA, in consultation with the Department of the Interior and the US Forest Service, makes merit based grant awards to alternative transportation system planning and capital improvement projects in or in the vicinity of national lands. Both federal agencies and their federal fund recipient partner agencies are eligible to receive funds under the program.

The purpose of the TRIP program as stated in SAFETEA-LU is, *“to enhance the protection of national parks and public lands and to increase the enjoyment of those visiting parks and public lands.”* The derived program goals are:

- To conserve natural, historical and cultural resources.
- To reduce congestion and pollution.
- To improve visitor mobility and accessibility.
- To enhance the visitor experience.
- To ensure access to all, including persons with disabilities.

The program supports alternative transportation including bus, rail or any other publicly available means of transportation, as well as, non-motorized transportation systems such as pedestrian and bicycle modes.

In the future, funding will not be available under the Transit in Parks program. In an effort to streamline a complex array of existing federal highway programs a 2-year transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21), was signed into law by President Obama in July 2012. The new transportation bill repealed 49 U.S.C. 5320 thereby eliminating the Transit in Parks program. Though many of the same type of alternative transportation system projects are supported under the newly created Transportation Alternatives (TA) program, there is no dedicated funding source for alternative transportation programs specifically serving federal lands.

PREVIOUS INYO NATIONAL FOREST TRANSPORTATION PLANNING

The Eastern Sierra region and the Inyo National Forest have been the subject of a variety of transportation planning efforts in recent years. The pressure of increased visitation with personal vehicles as the dominate mode of transportation has caused the Forest to seek local and regional alternative transportation solutions. A 2007 Inter-agency Technical Assistance Group (TAG) transit review of the Inyo National Forest was the impetus to seek grant funding for this alternative transportation system study.

2007 Inter-agency Technical Assistance Group (TAG) review

An Inter-agency Technical Assistance Group (TAG) review of the Inyo National Forest transportation system was completed in 2007. The TAG field investigation was conducted by an inter-agency team of Federal Transit Administration, Federal Highway Administration and US Forest Service staff members in cooperation with National Park Service and Bureau of Land Management staff. The TAG review was requested by the Inyo National Forest *“to explore partnering opportunities and strategies for enhancing alternative transportation access to public lands in the Eastern Sierra.”*

The TAG report recognized the need for recreational shuttle service to the Whitney Portal area as shown in the following observation.

“Save Paradise – Put Up a Transit Stop. Managing over-loaded parking lots is a topic that should be addressed at a number of locations. Strategies as to what should be done if there is limited parking and what policies should be in place need to be developed.

The need is most evident at Whitney Portal, where the District Ranger expressed a strong desire to consider alternatives to parking as the only option. Options to reduce the parking footprint and take pressure off the land in order to “save paradise” through the implementation of shuttle service from the Inter-agency Visitor Center (Lone Pine) to the Whitney Portal/Alabama Hills area merit

immediate study. As with the visitor center, this would require coordination with federal partners to determine how costs might be shared. A need exists as well to demonstrate the economic and long term resource preservation benefits of implementing a transit alternative. The time to do something at Whitney Portal is at hand, with or without partners. The issue goes beyond parking needs (i.e., day-use, multi-day, and extended term parking for long-distance hikers) to providing connectivity to allow hikers the ability to avoid having to position multiple vehicles to accommodate return to origin travel after a lengthy hike.”

The TAG report recognized that funding was the major challenge with the implementation of additional transit alternatives. The report noted that, not considering capital costs, passenger fares rarely covered more than 25 to 40 percent of operating costs in public transit. The TAG report suggests that since many Inyo National Forest visitors come from Southern California, where forest access fees are in place, and that visitors to the Devils Postpile National Monument, located within the Forest, are willing to pay to visit that location, user fees commensurate with the cost of supplying transportation services may be acceptable.

The TAG review proposed five interrelated transportation planning recommendations for the Inyo National Forest.

- *“Public land management agencies should work cooperatively with stakeholders to support an integrated regional transportation plan that creates a regional, seamless and sustainable transit system.*
- *The existing transportation system should be maximized through*

consolidation of transit routes, improved wayfinding signage, development of promotional materials and information technology resources, alternative funding sources and unified regional transit fares.

- *Research of a recreational shuttle, in conjunction with parking management strategies, for Whitney Portal.*
- *Research of recreational shuttle service to popular trailheads and recreation areas where parking demand exceeds capacity.*
- *Fund a Transit Extension Agent to work locally to integrate the transportation system planning on and off the Forest.”*

This alternative transportation system study in part fulfills recommendations of the TAG review. The Transit in Parks grant money was used to fund a transportation planner to review and synthesize local and regional transportation plans. Research conducted for this study will assess the need for recreational shuttle service to the Whitney Portal area from the host community of Lone Pine, California. Circulation and parking management strategies will be reviewed as part of a comprehensive access management program.

This study will review multimodal traffic movement at the macro and micro levels. At the macro level, origins at a regional level will be considered with Whitney Portal being the destination and attractor of travel. Review at the micro level includes travel within the Whitney Portal recreation area to and from campgrounds, parking areas, the Whitney Portal Store, trailheads and recreation facilities.

The limited focus by previous transportation reports to include only public transit in

the alternative transportation review will be expanded to include all traditional alternative transportation modes including pedestrian, bicycle, public and private transportation service and transportation related information technology. Since it may be necessary to use multiple routes or modes of travel to accomplish a single trip all reasonable transportation related routes and modes will be studied. In travel it may not always be possible to complete an entire trip with a single mode. A well designed and functioning transportation system should include a broad selection of routes and means to meet travelers' needs.

This study is a review of the potential for alternative modes of transportation (walking, bicycling, transit and others) to and within the Whitney Portal recreation area. The Whitney Portal area was identified in a previous transit review as a potential node suitable for development of an enhanced alternative transportation network. This study analyzes existing transportation systems and makes recommendations about the opportunities and challenges associated with making connections to and within the Whitney Portal recreation area. All traditional alternative transportation modes (pedestrian, bicycle, private and public transportation services and transportation related information technologies) and any identified area specific methods of travel will be reviewed.

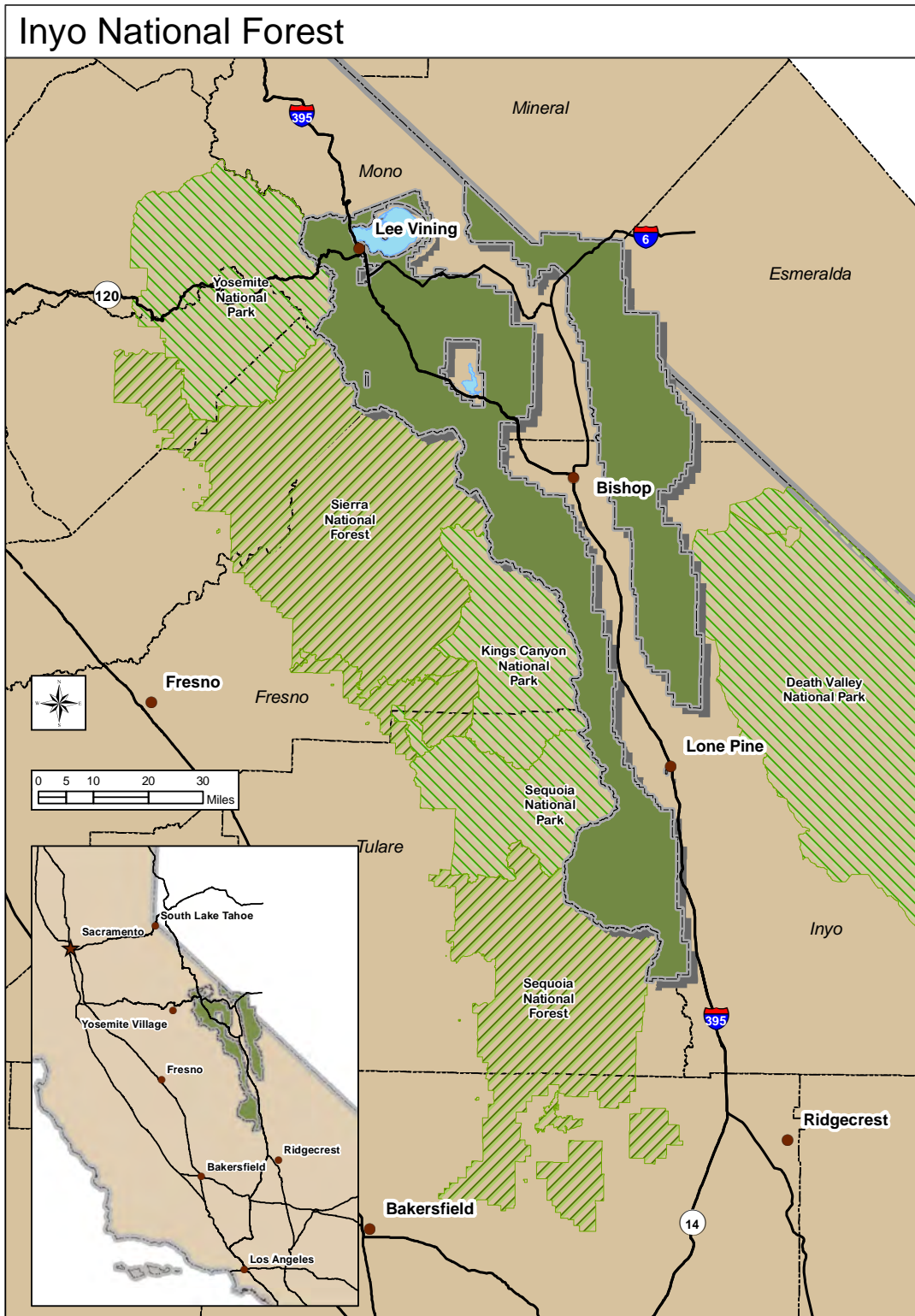
GOALS AND OBJECTIVES

The goal of this alternative transportation system study, as stated in the grant application, is to determine what kind, if any, alternative transportation system improvements would best suit the needs of visitors to the Whitney Portal recreation area.

Recognizing that a comprehensive transportation system provides as many routes and mode choices as possible, this alternative transportation study will review potential system improvements in pedestrian, bicycle, public and private transportation and transportation related information technology. An objective of the study is to provide a comprehensive review of the entire transportation network to and within the Whitney Portal recreation area and provide implementable proposals that would enhance overall access to and mobility within the site.

An objective of the study is to provide data substantiated analysis of the need for a shuttle service and reasonable estimates of operating expenses. Secondary and primary data will be used to assess the demand for transit service. Based on potential need and demand for transit, service scenarios will be developed. Cost projections will be provided to show the varying degrees of potential expenses for proposed service levels. Ridership estimates will be used to project self-supporting and subsidized fares.

Providing a financial basis from which to compare the cost of transit system proposals is an objective of this study. Financial review will be a key component to assessing the financial feasibility of proposed transit system improvements. The financial impact of proposals will provide a broad scale estimate of expenses. Potential traditional and innovative funding sources will be discussed as relevant to transit projects.



Map 1: Inyo National Forest boundaries

DESCRIPTION OF THE STUDY AREA

The Inyo National Forest was established in 1907 by proclamation of President Theodore Roosevelt as a means to set aside over 200,000 acres to prevent obstruction of lands needed to construct the Los Angeles Aqueduct. Over the years the Forest has grown to encompass 2.1 million acres with 7 Wilderness Areas, 7 Research Natural Areas and 2 Wild and Scenic Rivers.

The Inyo National Forest boundary stretches 165 miles along Eastern California and the western border of Nevada. The Sierra Nevada and White Mountain ranges make up much of the Forest which is divided in two by the Long Valley Caldera and Owens Valley. The Forest climbs from desert floors to mountain tops with an elevation range from the Owens Valley floor at 4,000 feet to Mt. Whitney, the highest peak in the contiguous United States, at 14,495 feet.

Climate varies widely on the Inyo National Forest. The large disparity in elevation contributes to the breadth of temperatures on the Forest. In the winter, deep snow often covers the mountains closing mountain roads and passes from November through May. Temperatures in the summer vary with elevation and while valley floors may swelter in daytime temperatures in excess of 100 degrees, the foothills and mountains offer a cool respite with temperatures seldom above 80 degrees. In the high country summer nighttime temperatures can dip into the 30's or even 20's. Precipitation generally falls in the form of snow between January and May but the occasional summer thunderstorm can produce torrents streaming from mountain sides.

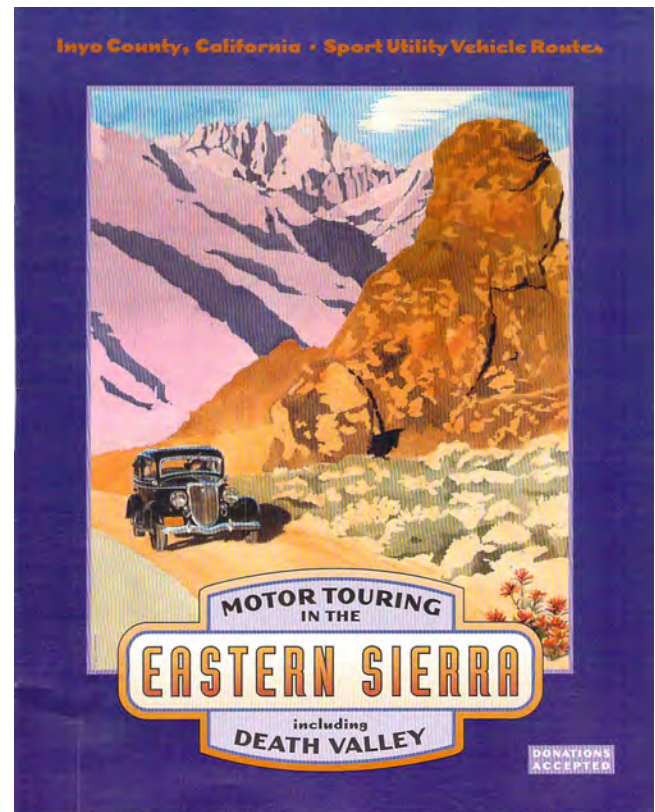


Figure 1: Eastern Sierra motor touring guide cover

A variety of natural and recreational attractions on the Inyo National Forest generate visitors from worldwide and domestic origins. The Inyo National Forest hosts unique natural wonders such as the Ancient Bristlecone Pine Forest, protecting the oldest trees in the world; Mono Basin Scenic Area, a highly mineralized volcanic lake nestled under towering cinder cones; Mt. Whitney, the highest peak in the contiguous United States; and, the Devils Postpile National Monument, managed by the National Park Service, is a unique geological formation of columnar basalt. The Forest maintains a number of recreational facilities to support visitor use



Figure 2: Historic photo of automobile use on the Inyo National Forest

including 70 campgrounds, over 2,100 miles of motorized off-highway routes, over 1,200 miles of trails, trout stocked lakes and streams and, under special use permits, developed ski areas. Recreation opportunities abound in the summer months when wilderness backpacking, day hiking, camping, fishing, mountain biking and off-road touring brings the entire Forest to life.

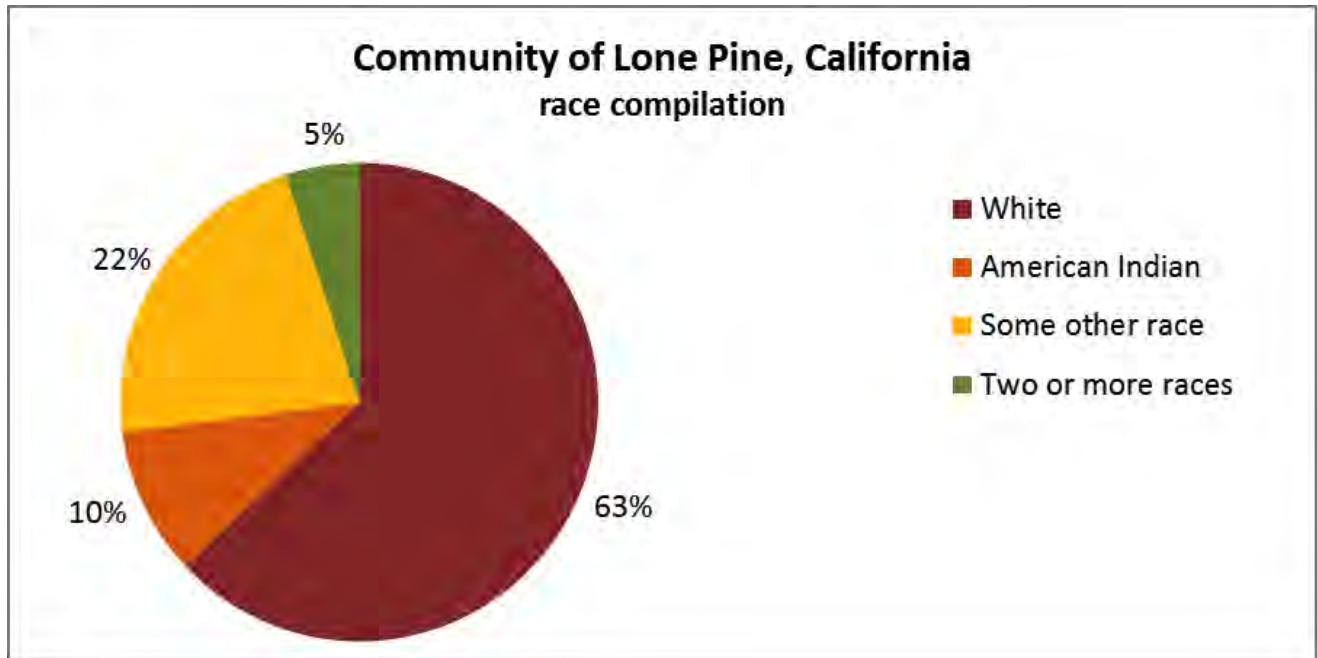
Though the Inyo National Forest produces a variety of natural resource commodities and continues to be a significant source of potable water, the predominant use of the Forest by visitors is outdoor recreation. The advent of the personal automobile accelerated visitation to the Forest and reports as early as 1924 showed that 88% of Forest visitors traveled via private automobile.

Mt. Whitney is located on the crest of the Sierra Nevada Mountains, its eastern face falling in the Inyo National Forest and the western in the Sequoia National Park. The mountain is located in the John Muir Wilderness. Wilderness areas offer opportunities for

unconfined recreation where restrictions on entrance, access improvements and mechanical means of transport are intended to preserve the natural experience.

The Whitney Portal recreation area is the gateway to Mt. Whitney. The recreation area hosts the Mount Whitney Trailhead, the main access point for the Mount Whitney Trail, and the most direct route to the summit of Mt. Whitney. Three (3) Forest Service campgrounds and a privately operated general store with restaurant, the Whitney Portal Store, are located within the recreation area. A day-use picnic area with tables, barbecues, a fire pit, restrooms and a man-made, stocked fishing pond are located within the Whitney Portal core recreation area. Hiking opportunities, aside from climbing the Mount Whitney Trail, include a National Recreation Trail that leads from the Portal through the Whitney Portal Group and Family Campgrounds to the Lone Pine Campground on the valley floor.

The Mount Whitney Trail, a non-technical hiking trail, leads to the summit of Mt. Whitney. The challenging climb is about 11 miles in length one-way with an elevation gain of over 6,000 feet. To alleviate strong seasonal demand for use of the trail and distribute visitation, a Wilderness trail permit quota was placed in effect from May 1st through October 31st for the Whitney Portal Zone. One hundred (100) single day and 60 overnight Wilderness trail permits are available daily during the quota season. Single day-use permits are issued for a single calendar date with both entry into and exit from the Whitney Portal Zone required on that date. Overnight hiking permits may be issued for one or more nights and may include exit through a trail other than the Mount Whitney Trail. Exit permits, for hikers entering the Whitney Portal Zone from another area and wishing to exit via the Mount Whitney Trail, are allocated at 25 exit permits per day during the quota season.

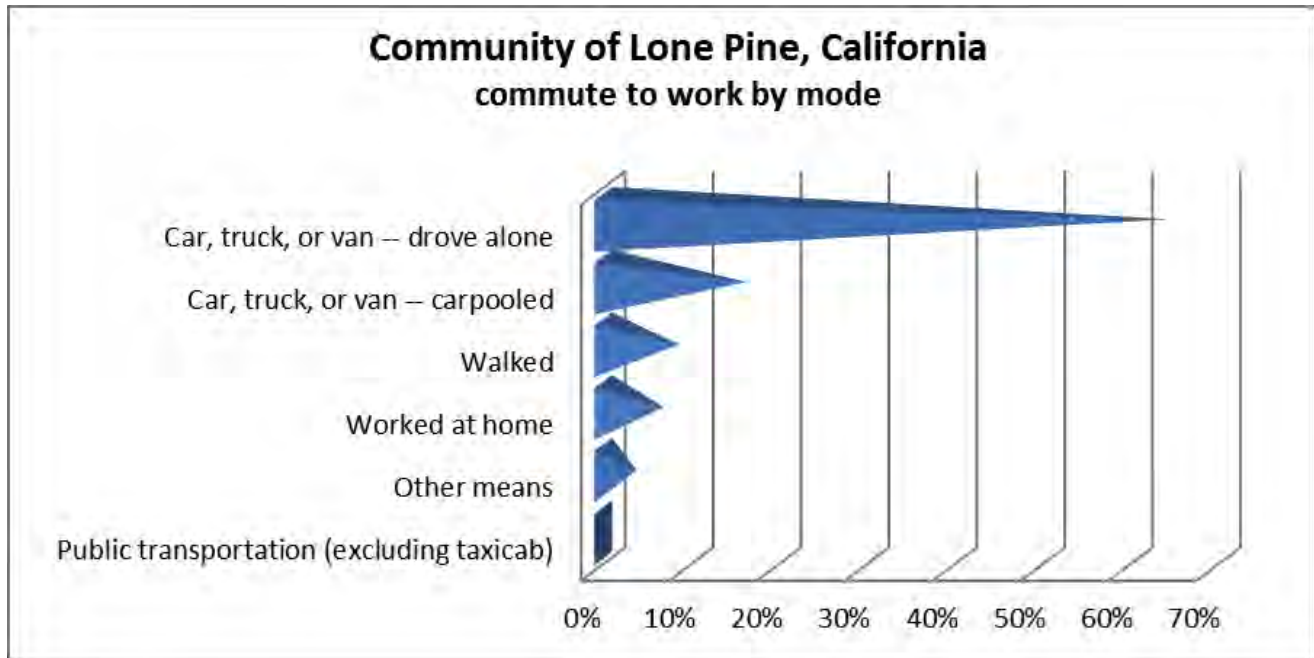


Graph 1: Community of Lone Pine, California race compilation (2010 US Census)

The unincorporated Inyo County town of Lone Pine, California is the host community for visitors to Mt. Whitney. Overnight lodging, dining and shopping opportunities are available in the town. A local hospital provides urgent and community care to residents and visitors. Contiguous to the town, the 237 acre Lone Pine Paiute-Shoshone Indian Reservation consists of approximately 350 residents (www.lppsr.org).

The median annual household income in the Lone Pine area was reported as \$35,938 with an estimated 19.8% of individuals living below the poverty level (2007-2011 American Community Survey). Of the population over 16 years of age, approximately 50%, or 800 people, were in the workforce. Unemployment for the area was estimated at almost 10%.

The town of Lone Pine recorded a population of 2,035 people in the 2010 US Census. The average age of the resident was 42 years old with 79% of the population over the age of 16 years old, the legal driving age. The multi-racial population was composed of 63% white, 10% American Indian and a varied compilation of other races (27%). Thirty-four percent (34%) of people identified themselves as Latino or Hispanic.



Graph 2: Community of Lone Pine, California commute to work by mode (2010 US Census)

The 2007-2011 American Community Survey estimates about 1,600 residents over the age of 16 years old with 832 reported in the labor force. The Survey estimated 515 vehicles available for commuters. Eighty percent (80%) of workers reported driving in a personal occupancy vehicle, either alone (64%) or as part of a carpool (16%) as their primary transportation method to work. The average commute to work was about 15 minutes.

EXISTING TRANSPORTATION SYSTEM

OVERVIEW

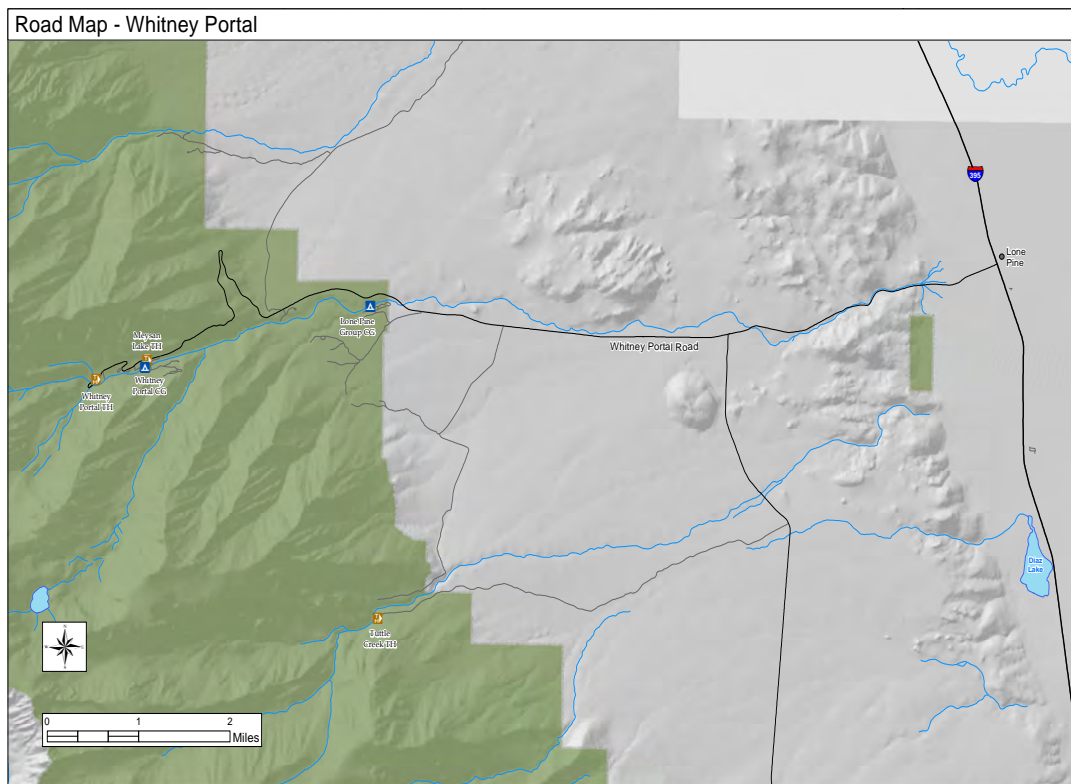
A review of the existing transportation system was conducted to determine the travel routes available to and within the Whitney Portal recreation area. Roads, foot paths, bicycle routes and public and private transportation services were examined at the regional, local and site level. Information provided in this report is as of 2011.

Roads

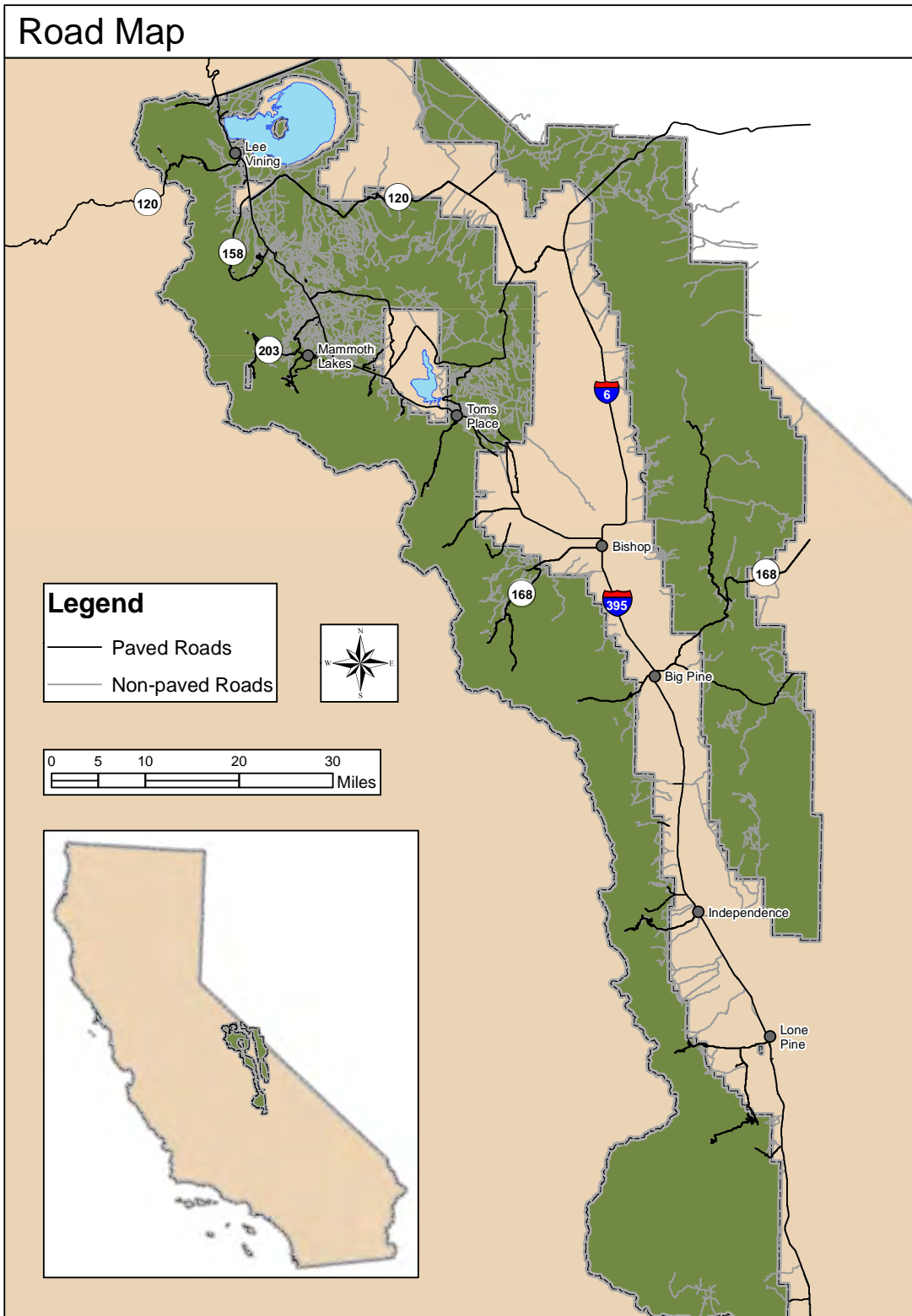
The regional road network to the Inyo National Forest is comprised of federal and state highways feeding a local transportation system. Federal highways create the backbone of the regional road network providing north-south access through Eastern California on US Highways 395 and 6. State, local and forest roads provide feeder routes off of the federal

highway system into the local communities and public lands. In many cases state and local roadways do not provide through routes and terminate due to impassable mountain topography creating one way in and out. Many roads, including state highways, are closed seasonally due to winter weather conditions.

Road improvements vary greatly throughout the region. The majority of US Highway 395 has been improved into a four lane divided highway. State roads are paved typically with a minimal shoulder, if any. County and forest roads may be paved, gravel or natural surface. An extensive network of unpaved roads is maintained in Inyo County for predominantly recreational purposes. Topography is generally the limiting factor in roadway design as many roads snake through deep canyons and along river beds or mountain sides.



Map 2: Whitney Portal area roadways



Map 3: Roadway network Eastern Sierra region

The Whitney Portal recreation area is accessed via a two lane paved Inyo County road, the Whitney Portal Road. The Portal is located approximately 13 miles west of the intersection between the Whitney Portal Road and US Highway 395 in the town of Lone Pine, California. The Whitney Portal Road provides the sole vehicular access route to the Whitney Portal recreation area.

The Whitney Portal Road climbs from the valley floor to the Whitney Portal recreation area at 8,360 feet. Parking is restricted on the serpentine curve immediately prior to entering the core Whitney Portal recreation area and on the mountain side of the inbound lane just after the curve. Roadside parking is permitted on all other road segments within the jurisdiction and maintenance responsibility of Inyo County. The Forest Service jurisdiction for the roadway begins near the lower overnight parking area and includes the parking lots and internal roads in the core recreation area.

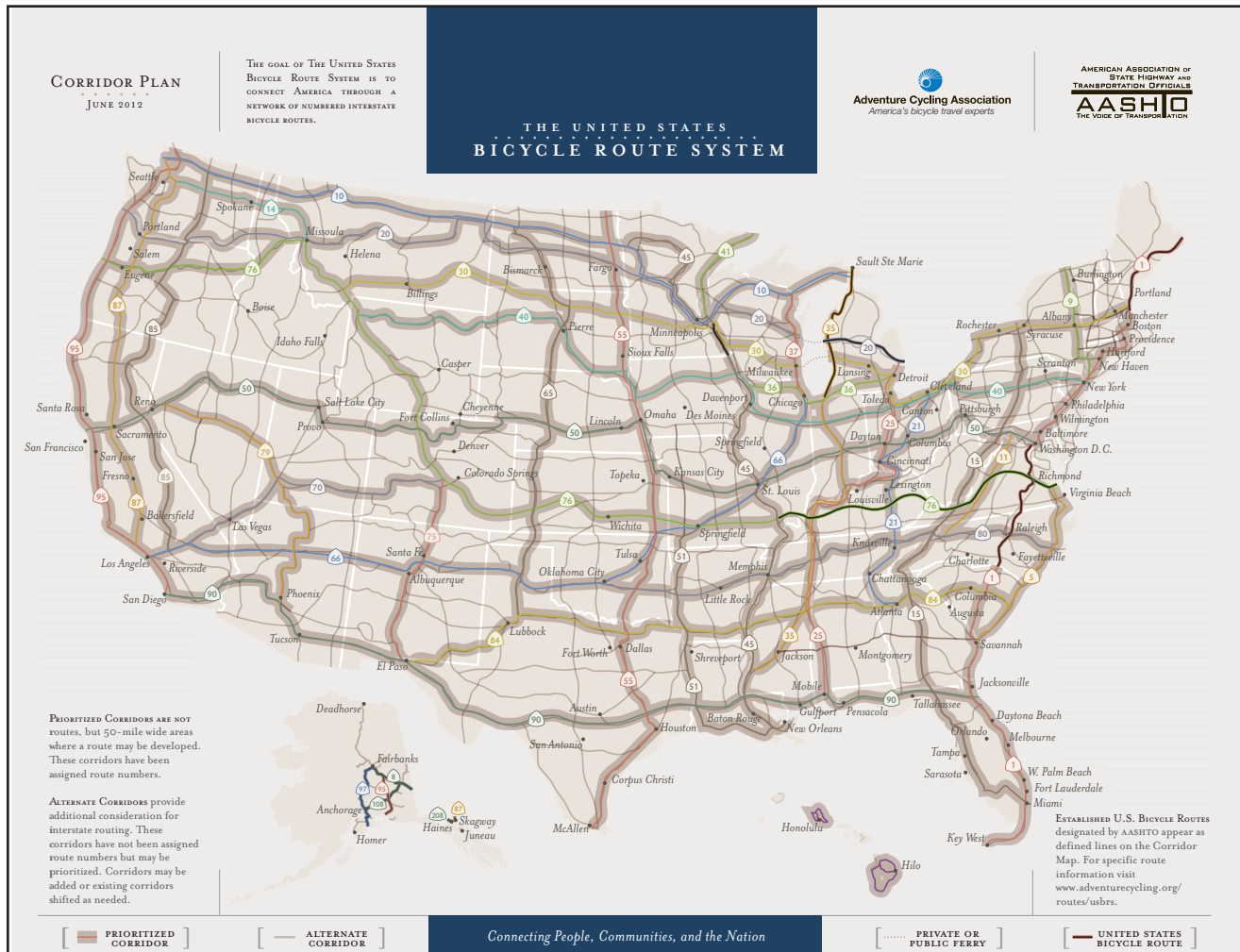
Foot paths

Pedestrian travel on a regional level is possible to the Whitney Portal area. Regional and long distance hiking trails are accessible from the Whitney Portal recreation area. The Mount Whitney Trail leads to the John Muir and Pacific Crest Trails, the backbones of the trail network in the Sierra Nevada mountain range. From its southern terminus at Mt. Whitney the 210 mile long John Muir Trail proceeds north over the Sierra Nevada mountain range to Happy Isles Trailhead in the Yosemite Valley of Yosemite National Park. The John Muir Trail shares about 160 miles of foot path with the 2,663 mile long Pacific Crest Trail. The Pacific Crest Trail traverses the Cascade and Sierra Nevada mountain ranges from the United States border with Canada in the north to the border with Mexico in the south.

Access to the Mount Whitney Trail is regulated by a Wilderness trail permit quota. One-hundred (100) single day, 60 overnight and 25 exit permits are available per day during the May 1st through October 31st quota season. Single day use trail permits are valid from 12:01am to 11:59pm on the calendar date issued. Overnight trail permits may be issued for overnight stays of varying durations where the entry trailhead was the Mount Whitney Trailhead. The exit trailhead for an overnight permit may be the Mount Whitney Trailhead or any other specified location. The 25 exit permits allow hikers to exit via the Mount Whitney Trail having entered the Wilderness area from another location.

A National Recreation Trail provides a local pedestrian route from the Whitney Portal recreation area to the Owens Valley floor below. On its path the trail connects the Whitney Portal Trailhead, Group and Family Campgrounds before ending at the Lone Pine Campground. The 4 mile trail has an elevation difference of about 2,700 feet between the Whitney Portal recreation area and the valley floor. The trailhead at the Lone Pine Campground is located about 7 miles from the town of Lone Pine. No formal trail exists between the terminus of the National Recreation Trail in the valley and the town of Lone Pine.

The Whitney Portal area has regional and local routes to support pedestrian travel; however, like many destinations within the Inyo National Forest, the Portal's remote location makes walking or hiking to it feasible for a select few. The 2011 National Visitor Use Monitoring survey conducted on the Inyo National Forest found that 1% of the Forest's 2.5 million estimated visitors reported backpacking as their main activity.



Map 4: US Bike Route System map taken from www.adventurecycling.org

Bicycle routes

The US Bike Route System is a national network of officially designated bicycle routes. The program began construction in 1982 and has gained momentum in the past few years with renewed interest from American Association of State Highway and Transportation Officials (AASHTO) and bicycle advocacy groups. The

bicycle system is meant to be a transportation network connecting urban, suburban and rural areas throughout the United States. The alignment of Bike Route 85 is consistent with US Highway 395 as it travels through the Eastern Sierra region.

Bicycle traffic is permitted on all of US Highway 395 and portions have been formally designated as a bicycle route with roadway signage. The road has wide paved shoulders for most of its length through the Inyo National Forest. Though the roadway has a 65 miles per hour posted speed limit, the outside edge of lane marking and rumble strip help to define the space between bicyclists and motorists.

Inyo County encourages bicycling as a mode of transportation and recreation. A County proposed Forest Highways roadway reconstruction design supported bicycle lanes on Whitney Portal Road to the foothills. The relatively flat topography of Whitney Portal Road as it leaves the town of Lone Pine and passes through the Bureau of Land Management lands in the Alabama Hills make it conducive to road bicycling. However, no bicycle improvements are present on the Whitney Portal road. The area of the Alabama Hills, with multiple unpaved roads and trails, may be conducive to mountain bicycling.

Bicycle access to the Whitney Portal recreation area from the town of Lone Pine is available using the Whitney Portal Road. The terrain, though relatively flat in the valley, becomes very steep as the road switchbacks up the side of the mountain. The mountain segment of the road is often littered with road debris from falling rocks that may create road hazards for bicyclists. No other reasonable bicycle routes exist to the Whitney Portal area. The National Recreation Trail that leads from the Lone Pine Campground to the Portal prohibits the use of mechanized equipment such as bicycles.

Public and private transportation services

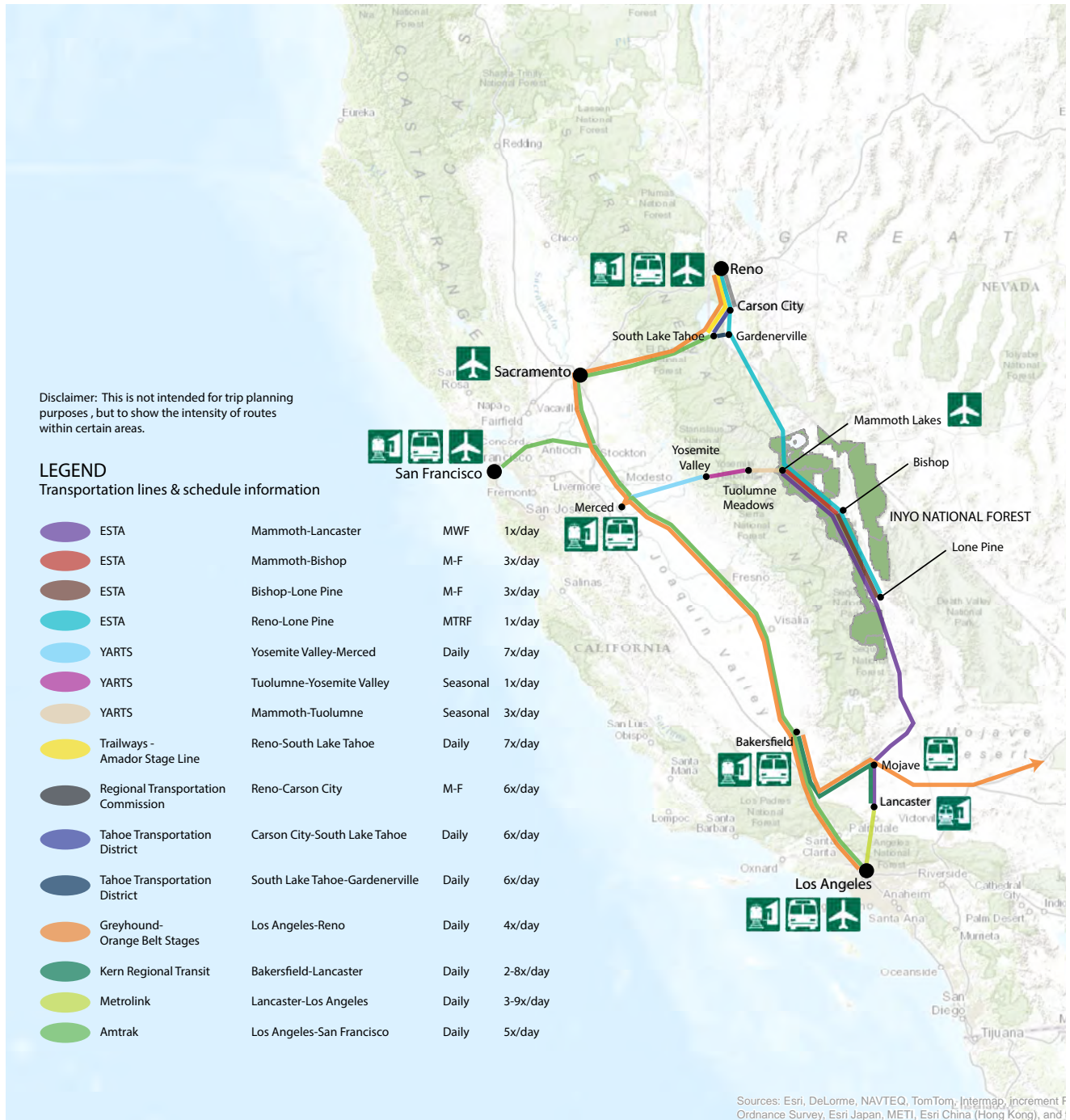
Public transit service to the Inyo National Forest is available through Eastern Sierra Transit Authority (ESTA).

Eastern Sierra Transit Authority (ESTA) provides regional and local public transit service throughout Inyo and Mono Counties and along the US Highway 395 corridor between Reno, Nevada and Lancaster, California. Intercity trunk service on US Highway 395 is divided between US 395 North and US 395 South route segments.

The US 395 North route operates Monday, Tuesday, Thursday and Friday from the town of Lone Pine, California to the Reno-Tahoe Airport and Greyhound station in Reno, Nevada. Travel time for the route is approximately 6 hours.

The US 395 South route operates Monday, Wednesday and Friday from the Town of Mammoth Lakes with a stop in Lone Pine before continuing on to its final destination, the Metrolink train station in Lancaster, California. Metrolink provides light rail access to the greater Los Angeles area. An additional connection to nationwide transportation service exists in Mojave, California where ESTA stops at the Carl's Jr. restaurant three blocks to the south of the Greyhound stop at the McDonald's restaurant. Travel time for the entire route is approximately 5 hours and 10 minutes.

The US 395 North and US 395 South transit routes service the town of Lone Pine. ESTA offers dial-a-ride on demand public transit service within the town of Lone Pine weekdays between 7:00am and 4:00pm. No public transit service is available to the Whitney Portal recreation area.



Map 5: Transportation services connections to the Eastern Sierra region
(A compilation of routes and schedules for transportation service providers with connections to the Eastern Sierra region is provided in Appendix F)



Figure 3: Eastern Sierra Shuttle Service van

Public transportation service is available from regional locations to the Eastern Sierra area and Inyo National Forest. Eastern Sierra Transit Authority (ESTA) public transit service on the US Highway 395 corridor connects with local and regional transportation services. Yosemite Area Regional Transportation System (YARTS) provides public transit service from the Town of Mammoth Lakes to the Yosemite Valley with continuing service to Merced, California. Regional and interstate transportation system networks are accessible from the major transportation hubs of Lancaster and Merced, California and Reno, Nevada. Direct connections to the nationwide transportation network of Amtrak trains or Greyhound buses are possible in the Town of Mammoth Lakes, Merced and Mojave, California and Reno, Nevada.

A variety of private transportation service providers are available to and within the Inyo National Forest. Forest Service permit holders may receive approval to provide transportation service to their guests and patrons through the terms of their Forest Service permit. Sightseeing operators and private bus charter companies make stops in the Forest on the popular route between San Francisco, California through Yosemite National Park, the Inyo National Forest and Death Valley National Park before continuing to Las Vegas, Nevada. Operation of transportation service on or to locations in the Inyo National Forest may be permitted through a special use permit or agreement with the Forest.

Air carriers

The closest public airport to the town of Lone Pine, with commercial passenger airline service, is Inyokern Airport located in Inyokern, California. The airport is located about 72 miles, a 1 hour and 15 minute drive, south of Lone Pine off of US Highway 395. The airport has limited commercial passenger service to Los Angeles International Airport.

The Mammoth Yosemite Airport is located approximately 95 miles north of Lone Pine on US Highway 395. Commercial air carriers Alaska Airlines and United Airlines serve the Mammoth Yosemite Airport. Year-round, non-stop service is offered from Los Angeles, California and non-stop winter service is available from San Francisco, San Diego and Orange County, California. Flying time to all California locations is under 1 hour and 20 minutes. Airfare prices vary by carrier and seasonal demand.

Major international airports are located a distance from the Inyo National Forest. Airports in the greater Los Angeles, California area are approximately 213 miles from the town of Lone Pine, about a 4 hour drive. The Reno-Tahoe Airport is located in Reno, Nevada approximately a 5 hour, 260 mile drive from Lone Pine. The airport is serviced by public transit from the Eastern Sierra area through ESTA’s US 395 North route. Airports in the San Francisco Bay, California area are located approximately 450 miles from the town of Lone Pine with a drive time estimate of 7 and 1/2 hours. McCarran International Airport in Las Vegas, Nevada is approximately 240 miles distance and a 4 and 1/2 hour drive through Death Valley. Mountain pass road closures and adverse winter weather may extend driving times or cause travel delays in the winter season.


The availability of transportation modes and routes greatly impacts where and the way people travel. Continuous routes, with limited breaks in time or space, provide the most efficient means of transportation. In general, the easier a path is to travel the more likely it will be used over other comparable paths.



Map 6: Passenger airport locations

GOALS AND POLICIES REPORT

for the
Inyo County General Plan



Prepared for:
Inyo County

Prepared by:
Jones & Stokes
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Mintier & Associates
Applied Development Economics

Cover photographs:
 Background Inyo County Courthouse
 Top inset Aberdeen
 Middle inset Shoshone
 Bottom inset West Bishop

December 2001

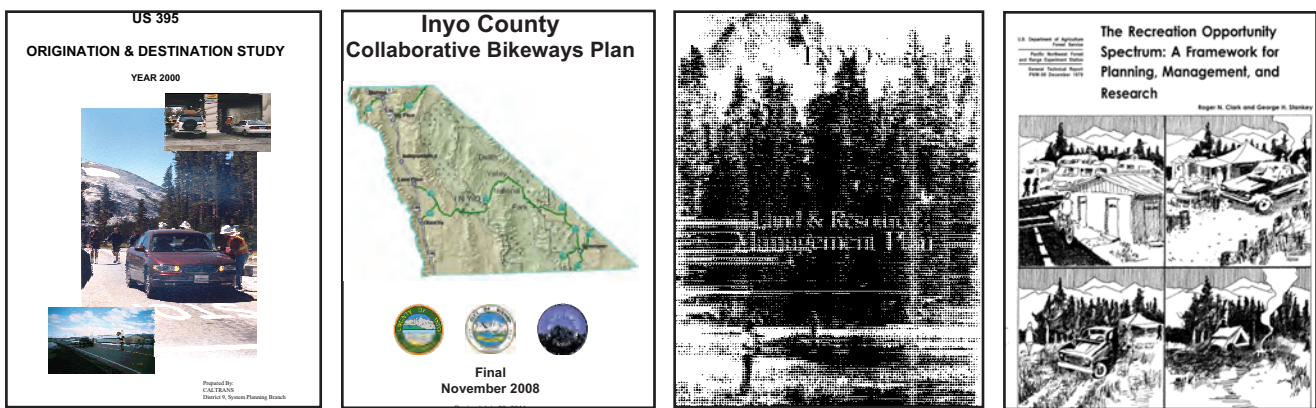


Figure 4: Covers of secondary data sources

DATA COLLECTION AND ANALYSIS

A combination of secondary data review and primary data collection was conducted to inform this study.

SECONDARY DATA REVIEW

Forest, state and local planning and transportation studies and plans were reviewed for information relevant to this study. Aside from the 2007 Interagency Technical Assistance Group review referenced in the grant application, transportation related documents from state and local jurisdictions were reviewed for direction on local and regional alternative transportation system goals and priorities. Applicable studies and plans are summarized in the Secondary Data Review section.

GENERAL AND COMMUNITY PLANS

Inyo National Forest Land and Resource Management Plan

The Inyo National Forest Land and Resource Management Plan or Forest Plan, as it is commonly known, provides direction for the management of all lands and resources administered by the Inyo National Forest. The Forest Plan contains forestwide goals, objectives, standards and guidelines to guide resource management. Management Prescriptions prescribe how areas on the Forest will be managed and Area Direction provides specific directives for twenty defined management areas on the Forest. The Forest Plan was drafted in 1988 and is currently in the revision process. The Inyo National Forest expects to complete the plan revision over next 3 years.

The Forest Plan does not specifically address transportation or access issues as a Forest Service resource. The Forestwide Standards and Guidelines for Facilities and Recreation contain directives related to transportation issues. The Facilities section includes the following minimum conditions to ensure protection and enhancement of the Forest's facilities.

- *“Provide additions to the transportation system for resource development. Provide public access to public land and developed recreation sites, consistent with Forest Goals and Objectives.*
- *Consider mass transit options when vehicle use exceeds the capacity of existing roads or threatens to damage resource values or when public facilities can best be served by a community-wide system proposed by another entity.*
- *Provide trails for hikers, skiers, equestrians, bicyclists, snowmobilers, the handicapped and off-highway vehicle users when compatible with user needs, level of development, and Forest Goals and Objectives.*
- *Coordinate trail construction, rerouting improvement, and maintenance with cooperating or affected agencies.*
- *Separate incompatible trail uses where feasible.*
- *Utilize existing developed facilities, roads, and trails for both summer and winter recreation activities, whenever possible, before developing new ones for exclusive seasonal use.”*

Standards and Guidelines for the Recreation section include the following minimum conditions to ensure protection and enhancement of the recreation opportunities of the Forest.

- *“Develop associated day-use facilities and interpretive and informational sites and trails, together with overnight campgrounds, to achieve a balanced facility package.*
- *Maintain activities and developments at levels that meet prescribed Recreation Opportunity Spectrum (ROS) classes as defined in the ROS Users Guide.*
- *Incorporate the increasing demand for mountain bike, equestrian, bicycle and Nordic opportunities into composite plans, community plans, trail plans, and programs.”*

Management Prescriptions included in the Forest Plan serve to specify how forest resources will be managed. Each Prescription has a different resource emphasis. There are 18 Management Prescriptions. The Prescription for Concentrated Recreation Area (#12) is the most applicable to this study as the Whitney Portal recreation area falls within this designation. Areas within this classification may experience high levels of use and act as attractors for visitor traffic. The emphasis of the directive for Concentrated Recreation Area is *“on providing a broad range of facilities and opportunities that will accommodate large numbers of people safely, conveniently, and with little resource damage.”* The Recreation element management direction states, *“Maintain Roaded Natural and Rural ROS classes.”*

Area Direction provides individualized management prescriptions for 20 areas on the Inyo National Forest. The areas are defined for their unique characteristics. The Area Direction addresses the management situations and resource conditions that are specific to that area. The Whitney Portal recreation area is within the Owens Valley Escarpment (Management Area #17).

The Owens Valley Escarpment is made up of 188,360 acres. A total of 6,396 acres are designate Concentrate Recreation Area (Prescription #12) including the Whitney Portal recreation area. The directives found in the Area Direction for the Owens Valley Escarpment that are pertinent to this study included the following.

Facilities

- *“Coordinate with Inyo County to minimize the vegetative disturbance on roadsides in the area in Prescription #12.”*

Recreation

- *“Develop all overnight and day-use opportunities in the area in Prescription #12 (Big Pine, Independence, and Lone Pine Creek drainages).”*

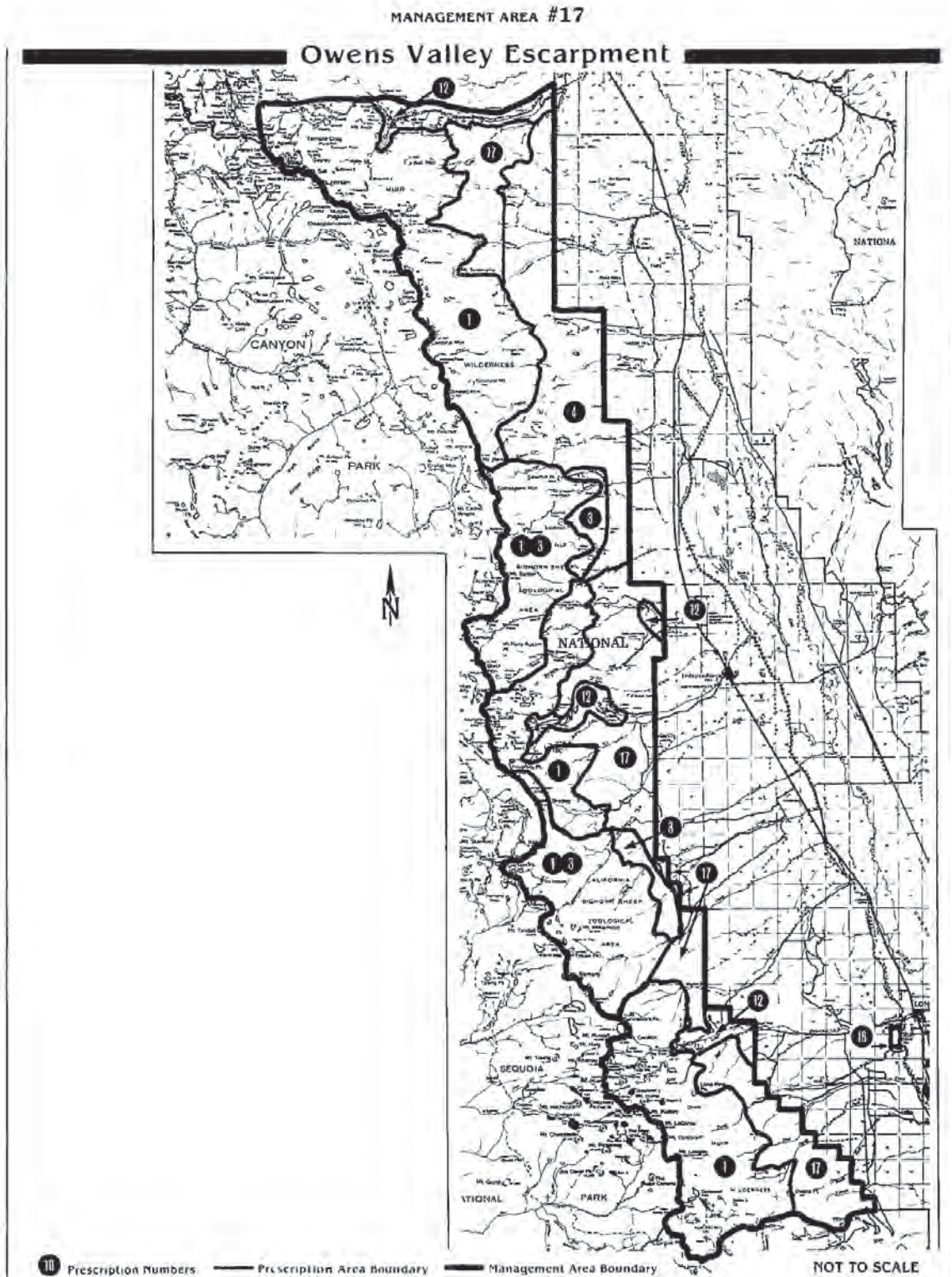


Figure 5: Owens Valley Escarpment (Management Area #17) map taken from the Inyo National Forest 1988 Forest Plan

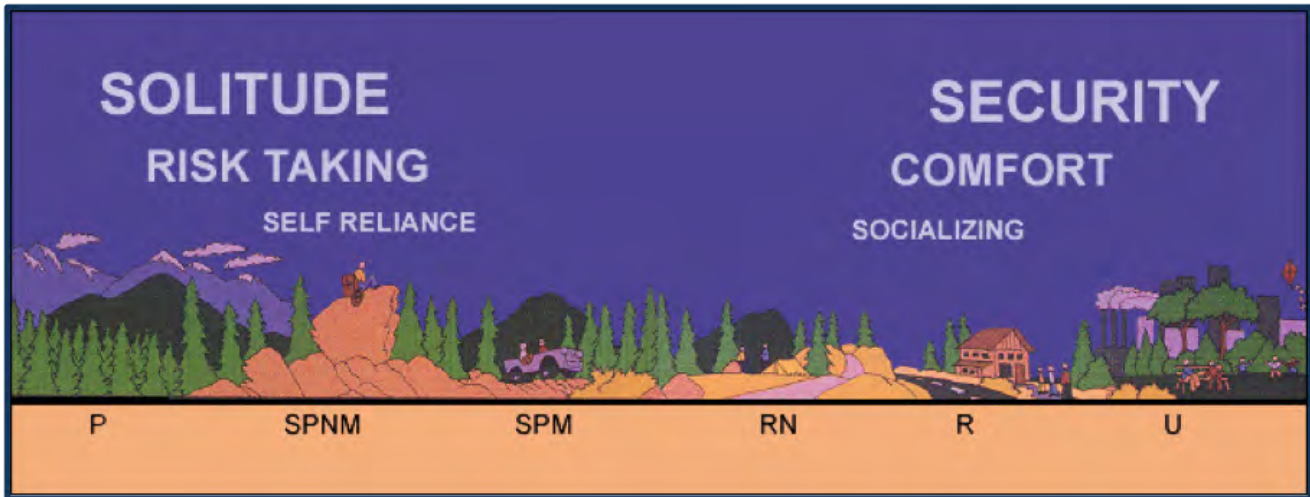


Figure 6: US Forest Service Recreation Opportunity Spectrum continuum taken from http://www.fs.fed.us/cdt/carrying_capacity/rosfieldguide/ros_primer_and_field_guide.htm

Recreation Opportunity Spectrum (ROS)

The Recreation Opportunity Spectrum (ROS) is a recreation planning tool used by the Forest Service. The ROS offers a framework for developing a diverse array of recreational experiences. A rationale for creating the ROS planning tool was the recognition that recreation is one of the principal services provided by forests and that *“non-recreation related decisions in forest settings are often the major influence on the nature of the recreation opportunities supplied.”*

The ROS is divided into 6 major classifications for Forest Service use: Primitive (P), Semi-Primitive Non-Motorized (SPNM), Semi-primitive Motorized (SPM), Roaded Natural (RN), Rural (R) and Urban (U). The ROS classes fall along an intensity continuum of experiences from high use and high interaction in Urban settings to the sparsest use in the Primitive classification. Please refer to chart on opposite page.

Accessibility plays an important role in the Recreational Opportunity Spectrum categories. Six (6) factors are used to judge the opportunity setting of an area: access, other nonrecreational resource uses, onsite management, social interaction, acceptability of visitor impacts and acceptable level of regimentation. Accessibility may be described by the quantity and quality of routes provided and by the permitted modes of transport.

The Recreational Opportunity Spectrum uses access strategies based on the type of transportation facility provided to maintain the desired ROS experience at a location. Limited or more difficult pathways supply access to Primitive areas while highly improved transportation systems provide ease of access to Urban locations. Norm is the normal type of access conditions to be found in the physical setting. Compatible conditions are acceptable but more restrictive than normal. Inconsistent conditions are not generally compatible with the norm but may

Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural	Rural	Urban
Area is characterized by essentially unmodified natural environment. Interaction between users is minimal. Motorized use within the area is not permitted.	Area is characterized by predominantly natural environment. Interaction between users is low, but there is often evidence of other users. Motorized use is not permitted.	Area is characterized by a predominantly natural or natural-appearing environment. Opportunity to have a high degree of interaction with the environment. Motorized use is permitted.	Area is characterized by predominantly natural appearing environments with moderate sights and sounds of man. Conventional motorized use is provided for in construction standards and design of facilities.	Area is characterized by substantially modified natural environment. A considerable number of facilities are designed for use by large number of people. Opportunities for wildland challenges and risk taking are generally unimportant. Facilities for intensified motorized use and parking are available.	Area is characterized by substantially urbanized environment, although the background may have natural-appearing elements. Sights and sounds of humans are predominant. Large numbers of users can be expected. Facilities for highly intensified motor use and parking are available with forms of mass transit often available.

Figure 7: Recreational Opportunity Spectrum setting and experience characterizations

ROS designation/Roadway type	Cross-Country Travel	Non-Motorized Trails	Motorized Trails and Primitive Roads	Controlled	Full Access
Primitive	Norm	Norm	Unacceptable	Unacceptable	Unacceptable
Semi-Primitive Non-Motorized	Compatible	Norm	Inconsistent	Unacceptable	Unacceptable
Semi-Primitive Motorized	Compatible	Compatible	Norm	Inconsistent	Unacceptable
Roaded Natural	Compatible	Compatible	Compatible	Norm	Norm
Rural	Compatible	Compatible	Compatible	Compatible	Norm
Urban	Compatible	Compatible	Compatible	Compatible	Norm

Figure 8: Recreation Opportunity Spectrum access strategies

be necessary under certain circumstances. Unacceptable conditions should not be permitted under any circumstances. A combination of transportation related design and maintenance standards and regulations for determining and enforcing ease of access may be used to facilitate the desired experiences at a particular location.

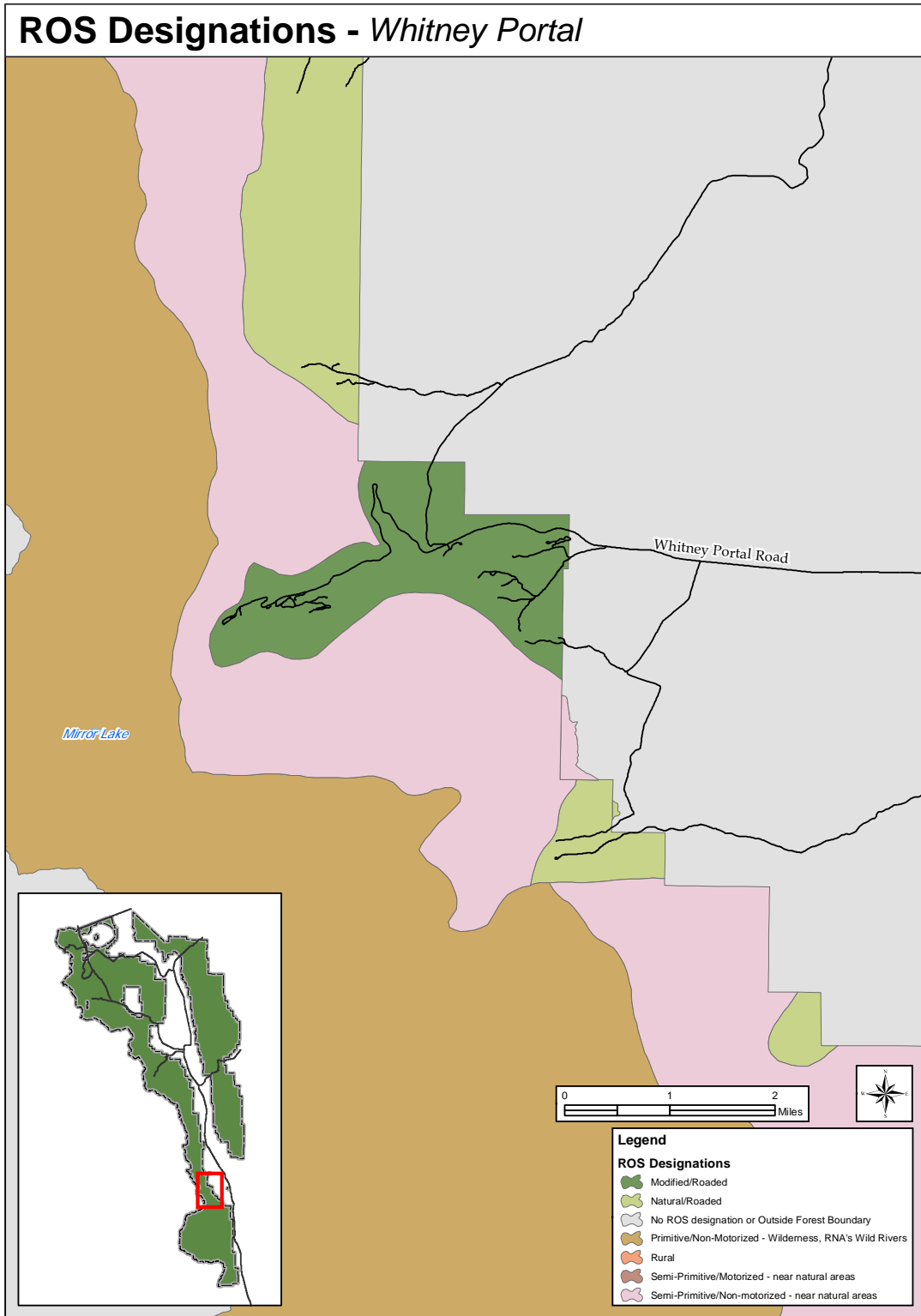
The Urban, Rural and Roaded Natural ROS classifications afford the highest degree of access. Though the intensity of transportation routes and modes expected in each class varies, the classes all support moderate to high automobile use through improved roads and parking lots. Mass transit service is an acceptable travel mode in the Urban classification.

The Urban ROS class is the most intense setting. In these locations one would expect large numbers of people and developed facilities sufficient to support their use placed in a condensed area. The sights and sounds of man are integral to the experience offered in this classification. Access is ubiquitous with a multitude of improved pathways supplying access by multiple modes. Mass transit service to move the large groups of people is an appropriate transportation mode in the Urban classification.

In the Rural class the sights and sounds of man are readily evident though less pronounced and less concentrated than in the Urban class. A high degree of social interaction is expected between the large numbers of people present in these areas. The physical environment may be dominated by infrastructure improvements. Improved roads and developed parking lots make accessing locations in the Rural class by automobile easy and convenient.

The Roaded Natural ROS class, though on the more intense end of the spectrum, offers a more real outdoor experience. Opportunities for social contact are balanced with the chance to experience isolation. Improvements and facilities are scattered throughout the area. Access to these sites may be over improved paved or gravel roads. Construction and design standards incorporate conventional motorized use.

The 6 primary ROS classifications may be further divided to meet local and regional needs. The Whitney Portal area is in a sub-classification of the Roaded Natural category titled Roaded Modified. The Roaded Modified category is similar to the Roaded Natural class except the area may have been heavily modified with roads and facilities. The area is intended to offer a high degree of interaction with the natural environment.



Map 7: Whitney Portal Recreation Opportunity Spectrum designations

US Forest Service National Visitor Use Monitoring (NVUM)

The National Visitor Use Monitoring (NVUM) program provides a standardized metric of quantity and quality of visitation to national forests. The information gathered in the NVUM program is required by Executive Order 12862 for development of Forest Plans and implementation of the National Recreation Agenda. The program has 2 main goals. First, to produce estimates of the volume of recreation visitation to national forests and grasslands and second, to produce descriptive information about that visitation, including activity participation, demographics, visit duration, measures of satisfaction and trip spending connected to the visit. NVUM data collection is forestwide and findings may be extrapolated to the entire visitor population for a forest. The visitor survey is conducted on each forest once every 5 years. The most recent NVUM survey was conducted on the Inyo National Forest in 2011.

Inyo County General Plan

The 2001 Inyo County General Plan provides the county with a consistent framework for land use decision making. California state law requires each county and city to prepare and adopt a comprehensive long-range general plan to guide the community’s physical development. Required elements of a general plan include such topics as land use and transportation planning. In addition to the 7 required elements, communities may include locally important topics. Inyo County chose to include an economic development component in its General Plan.

The Economic Development Element of the General Plan recognizes tourism as the most important component in Inyo County’s economy. The element notes the importance of working closely with public land management agencies and private landowners to ensure expanded tourism opportunities.

“Policy ED-1.2: Visitor Capacity on Public Lands. The County shall encourage public agencies to develop new tourist serving facilities or otherwise enhance their capacity to serve visitors on the public lands they manage.”

Implementation Measures:

2.0 Encourage public land management and service agencies, including BLM, USFS, National Park Service (NPS), Caltrans, and LADWP to increase their capacity to serve visitors on properties they manage.

3.0 Encourage air and bus carriers, tour operators, and charter services to increase trips and stops throughout the County.”

Transportation systems are included in the Circulation Element of the General Plan. The General Plan notes that *“the provision of an adequate and functional circulation system is vitally important to the economic vitality and quality of life within Inyo County.”* Roads, public transportation, bicycles and trails are included in the Circulation Element.

Roadway and highway implementation measures contained in the Inyo County General Plan that support a comprehensive alternative transportation system are cited below.

“Implementation Measure:

5.0 Encourage voluntary reduction of vehicle miles traveled to promote energy conservation and reduce air pollution.

6.0 Assist with development of alternatives, including use of ridesharing, vanpooling, park and ride lots, flex time, telecommuting, and/or staggered work hours.”

The Public Transportation section of the General Plan strives to provide effective, economically feasible and efficient public transportation in Inyo County. Key policies and an implementation measure contained in the General Plan are relevant to this study.

“Policy PT-1.6: Encourage Interregional and Intercity Bus Lines. Encourage the development, expansion, and maintenance of interregional and intercity bus lines within Inyo County.

Policy PT-1.7: Promote Public Transportation. Actively promote public transportation through mass media, personal contact, and other marketing techniques, improve marketing and information programs to assist current ridership and to attract potential riders.

Implementation Measure:

4.0 Encourage continued development of a transit system that will provide access to major tourist attractions.

7.0 Work with regional bus transportation providers and state regulators in order to establish and/or maintain regional bus service with stops in the County.”

The goal of the Bicycle and Trails section of the General Plan is to *“encourage and promote greater use of non-motorized means of personal transportation within the region.”* The policies and implementation measure pertinent to this study are cited below.

“Policy BT-1.1: Consider the Non-motorized Mode in Planning. Consider the non-motorized mode as an alternative in the transportation planning process.

Policy BT-1.2: Bikeway and Trail System in the Region. Plan for and provide a continuous and easily accessible bikeway and trail system within the region.

Policy BT-1.3: Multi-Modal Use of Road and Highway System. Support plans that propose multimodal use of the state highway and County roadway system.

Policy BT-1.4: Minimize Cyclist/Motorist Conflicts. Develop a regional bicycle system that will minimize cyclist/motorist conflicts.

Implementation Measure:

1.0 As appropriate, include bicycle trails and parking facilities with the development of new major streets, large commercial/industrial developments, and public facilities.

2.0 Design and develop routes to accommodate bikeways, equestrian trails, and pedestrian facilities.

9.0 Work with federal land management agencies and LADWP to coordinate trail efforts and ensure connections between trail systems in federally managed lands and Inyo County communities and locations of interest.”

Inyo County Regional Transportation Plan

The Inyo County Regional Transportation Plan was updated by the Local Transportation Commission in 2009. The Transportation Plan provides policies, objectives, improvements and funding strategies for regional transportation movement of people and goods in Inyo County. The City of Bishop, communities of Big Pine and Lone Pine, and the Bishop Paiute Tribe and Lone Pine Reservation are within the purview of the Transportation Plan. The Action Element includes recommended transportation improvements for roadways, public transit, bicycle and pedestrian modes, as well as, information technology solutions. The Transportation Plan provides clearly defined justifications for its transportation projects and programs, identifying the transportation deficiency or problem and the objectives to meet them. Many of the policies and objectives of the Regional Transportation Plan are similar to those contained in the Inyo County General Plan.

Inyo County Collaborative Bikeways Plan

The 2008 Inyo County Collaborative Bikeways Plan is the official bicycle plan for Inyo County, the City of Bishop and the Bishop Paiute Tribe. The Bikeways Plan describes existing bicycle facilities and programs, evaluates and prioritizes the need for future bicycle system improvements and the development of new routes. The Bikeways Plan acknowledges that the compact design of all communities within Inyo County makes bicycling a viable alternative for local trips but recognizes that the long distances between communities may limit the use of bicycles for intercity travel.

The goals, objectives, policies and implementation measures found in the Bikeways Plan support a well-connected bikeway system within Inyo County. The Bikeways Plan intends to integrate bicycle planning efforts with other county and community planning, including land use and transportation planning. Specific initiatives pertinent to this study are cited below.

“Policy B4: Evaluate development of recreational opportunities that combine bicycling and camping.

Implementation Measure B4.a: With appropriate land management agencies, evaluate the feasibility of implementing and promoting a “campground-to-campground” bicycle touring/camping network as a tourist attraction.

Policy C2: Accommodate bicycling needs in future roadway and development projects.

Implementation Measure C2.a: Provide for bicyclists as part of resurfacing and maintenance, road widening, new developments, and redevelopment.

Policy D4: Provide bicycling information for the public.

Implementation Measure D4.a: Periodically publish a Bicycle Map showing bike lanes, shoulders, paths, and routes throughout Inyo County, with detailed views of developed areas.

Implementation Measure D4.b: Expanding on Caltrans District 9 bicycling webpage and other existing bicycling websites, create and maintain a bicycling webpage for the County, listing all printed and online materials available to residents and tourists, contacts for reporting roadway problems, and online and downloadable bicycle user maps. Encourage Chambers of Commerce, Indian Reservations, and other applicable organizations to link to this webpage.

Policy F3: Support state and federal policy that supports bicycling.

Implementation Measure F3.b: Support bicycle-friendly transportation policy at all levels government."

The Southern Inyo Heritage Trail and Park System

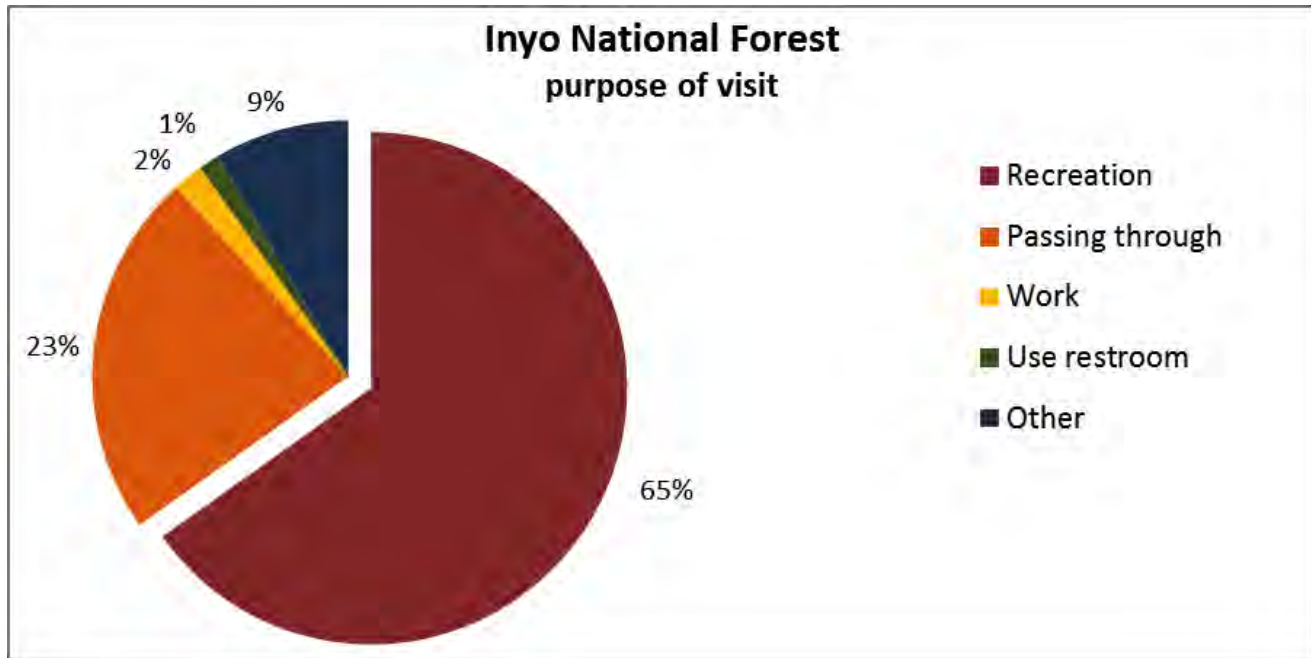
In 2007 the Lone Pine Economic Development Corporation (LPEDC) drafted a walking and bicycling heritage trail plan proposal to connect points of interest in and around the town of Lone Pine. The multi-phase project is intended to provide improved pedestrian and bicycle access to downtown Lone Pine and surrounding historical sites for both residents and tourists through sidewalk, safety and trail improvements. When complete the heritage trail is envisioned to interconnect the Lone Pine downtown, the Lower Owens River, the Alabama Hills, the Lone Pine Indian Reservation, the Lone Pine Airport, the Eastern Sierra Interagency Visitor Center and Diaz Lake recreation area.

Eastern Sierra Transit Authority Short Range Transit Plan

Eastern Sierra Transit Authority (ESTA) was established in 2006 as a Joint Powers Authority between Inyo and Mono Counties, the City of Bishop and the Town of Mammoth Lakes. The mission of the Eastern Sierra Transit Authority is "to provide excellent public transportation services in an entrepreneurial style within the Eastern Sierra Region." ESTA provides public transit services including a vanpool program, deviated fixed routes, local in-town dial-a-ride, inter-county service and interstate service on the US Highway 395 corridor extending from Reno, Nevada to Lancaster, California.

The ESTA Short Range Transit Plan was drafted in 2008 to guide the development of public transit services in Mono and Inyo Counties. The Transit Plan documents transit needs, establishes goals and performance standards and provides service plan recommendations for a 5-year period. Four (4) key goals are recommended in the Transit Plan to achieve the Authority's mission.

- *Goal #1: Continue to provide safe and convenient transportation services to the residents and visitors of Mono and Inyo Counties for employment, shopping, education, medical, recreation and social service trips, while improving cost-effectiveness.*
- *Goal #2: Ensure that all transit programs can be provided at a high quality and are seamless to the user.*
- *Goal #3: Generate increased ridership among both residents and visitors, while retaining the existing ridership base.*
- *Goal #4: Provide public transportation services that are financially sustainable within existing and future potential private, local, state and federal funding programs and regulations in a cost-efficient manner.*



Graph 3: Inyo National Forest purpose of visit (2011 NVUM survey)

INYO NATIONAL FOREST VISITOR STATISTICS OVERVIEW

The Inyo National Forest provides a wide spectrum of recreational opportunities and hosts a broad mix of international, nationwide, regional and local visitors. In an effort to quantify visitor use and satisfaction of forests and grasslands the US Forest Service conducts visitor surveys every 5 years. Forestwide visitor statistics presented here were gleaned from the most recent National Visitor Use Monitoring (NVUM) survey conducted on the Inyo National Forest during 2011.

Total National Forest visits were estimated at 2,530,000 for the Inyo National Forest, a 35% decrease from the 2006 NVUM survey. A National Forest visit is defined as the entry of one person onto a national forest to participate in one or more recreational activities. A single National Forest visit may include multiple site visits.

2013

The NVUM survey estimates total Inyo National Forest visitation of 5,495,000 site visits per year. A site visit is one person participating in one or more recreation activities on the forest.

- Total estimated site visits 5,495,000
- Developed day use site visits 2,524,000
- Designated Wilderness visits 252,000

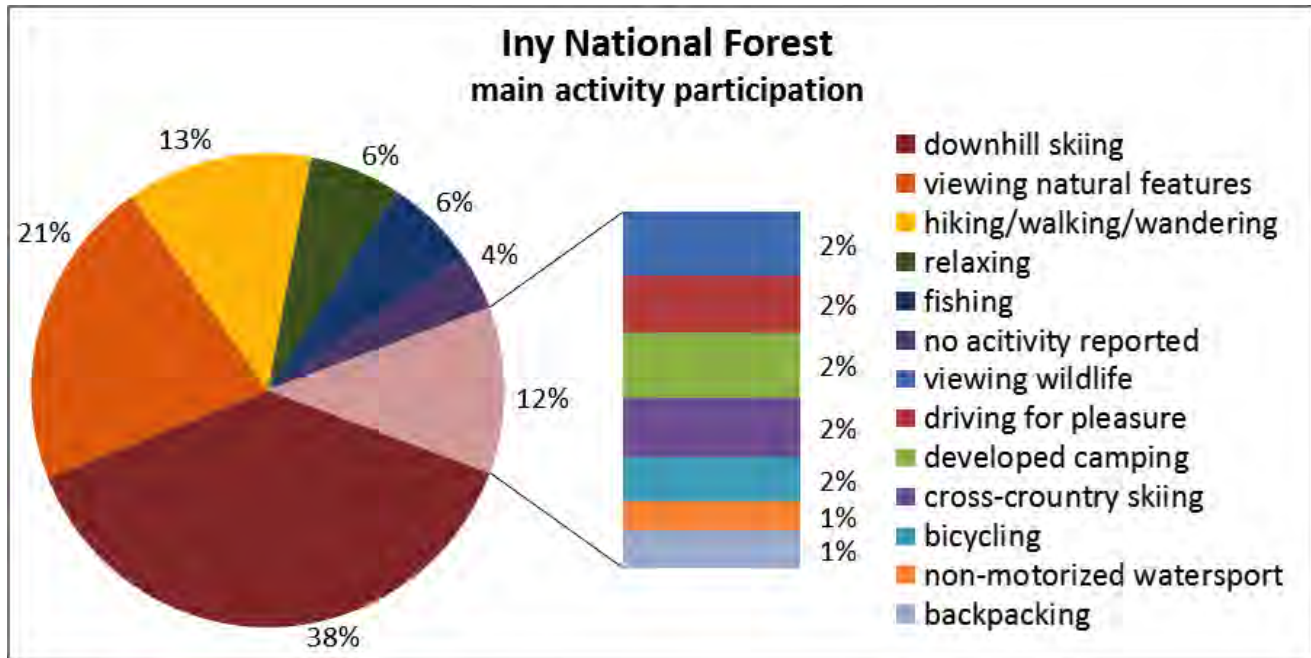
The 2011 NVUM survey data estimates of site visits represent a 9% increase in site visits from the 2006 NVUM survey. The 2011 developed day use site visits represent a 10% decrease in visits to developed recreational sites while estimated designated Wilderness visits increased 78%. This data may suggest that a fewer number of people are visiting the Forest but making more trips to discrete sites within the Forest.

The main purpose of visits to the Inyo National Forest was for recreation. Sixty-five percent (65%) of visitors reported “recreation” as the main purpose of their visit to the Forest. The Forest offers recreational activities for all four seasons of the year including, skiing, hiking, photographing nature, fishing and camping. Though the shoulder seasons of spring and fall may see fewer visitors, visitation during both the winter and summer seasons is high. In the winter, visitation is concentrated in proximity to winter recreational activities such as the developed Alpine and Nordic skiing areas of Mammoth Mountain Ski Area and June Lake Mountain Ski Area, while summer visitation is more widely dispersed across the many recreational areas of the Forest. See Graph 3 to the left.



Photo: Inyo National Forest staff member collecting data

The Inyo National Forest is conveniently located along US Highway 395, the only major north-south highway in Eastern California and a convenient route between the greater Los Angeles, California region and Western Nevada. The popular recreation sites and attractions of the Forest are located within easy access of the highway. The Forest is also located on a popular sightseeing route from the San Francisco, California Bay Area to Las Vegas, Nevada that includes attractions in Yosemite National Park, the Inyo National Forest and Death Valley National Park. Convenient automobile access to the Forest and to many of its most popular attractions may account for in-route stops reported as “passing through” (23%) by Forest visitors.



Graph 4: Inyo National Forest main activity participation

The main activity participated in by visitors shows a combination of active and passive recreation as shown above in Graph 4. Downhill skiing, the highest reported main activity, is a winter season sport concentrated in the 2 developed ski areas located near the Town of Mammoth Lakes and the village of June Lake. Many of the other activities such as hiking, fishing, viewing nature and wildlife may happen throughout the Forest at developed day-use sites, in the backcountry or in Wilderness areas. Backpacking, as a main activity, accounted for 1% of all visitor activities.

For the purposes of this report, the use areas of the Forest are broadly divided into three activity zones: developed day-use sites, backcountry and designated Wilderness areas. Developed day-use sites may be interpreted as the higher use areas of the Forest where

attractions, either natural or built, encourage and support a greater level of visitation. Day-use sites often have amenities such as paved access roads and parking lots, restrooms, hardened trails, picnic tables, boat ramps, etc. to sustain higher use levels. Backcountry areas may be considered more remote and less accessible than developed day-use areas. Improved trails may still provide access; however, recreation is expected to be more dispersed than in developed areas so improvements are limited. Wilderness is a formal designation under the Wilderness Act of 1964 which defines Wilderness as:

“A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and community of life are untrammelled by man, where man himself is a visitor who does not remain.”



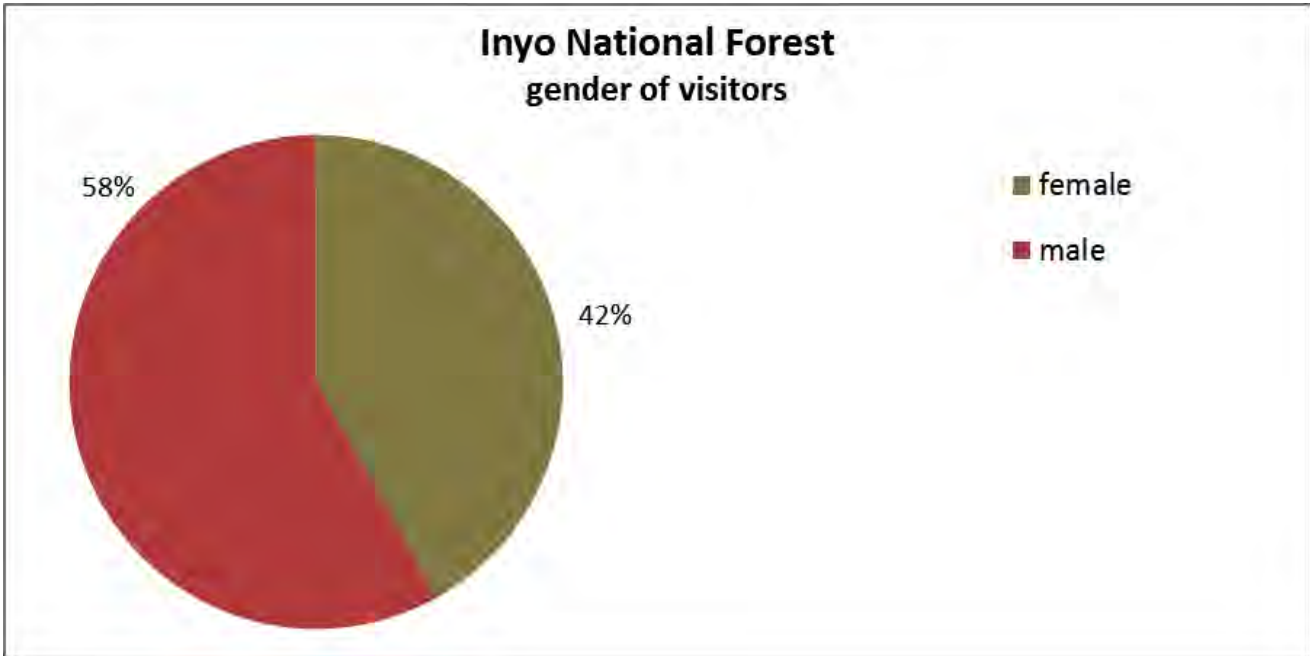
Photo: Fishing at pond

Entrance restrictions and limitations on roadway construction and the use of mechanical devices may significantly limit access to wilderness areas for the general public. The Whitney Portal recreation area is a developed day-use site that acts as a primary access point to backcountry and Wilderness areas.

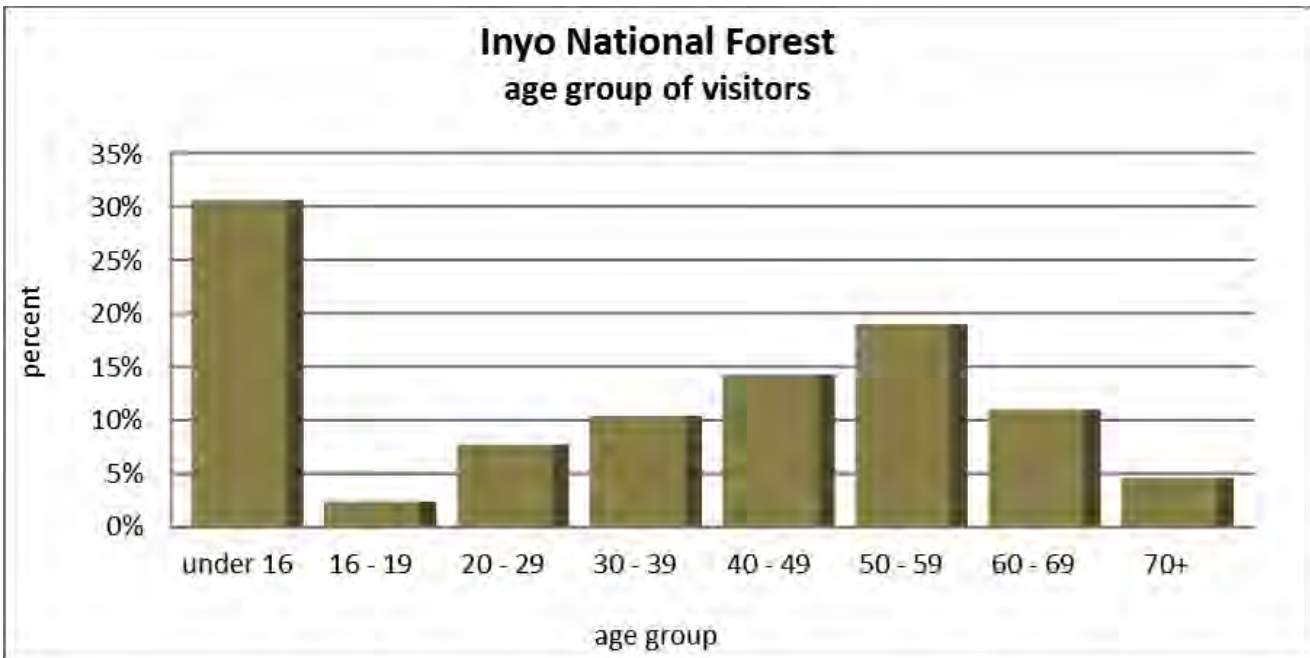
Visitor length of stay varies greatly depending on the use area. Developed day-use sites on the Inyo National Forest reported an average length of stay of 2.9 hours. The average length of stay was over 5 times greater for designated Wilderness areas which had an average length of stay of 15.6 hours. Visitor length of stay can be a significant variable in allocating limited resources such as parking spaces or designing mass transportation systems to accommodate visitation periods.

The average group size of the Inyo National Forest is 3.5 people. Though it may be technically difficult to account for half a visitor, the number is useful as a general gauge of group size. A group of 4 people may fit into a standard automobile with the potential for unoccupied seat space.

Visitation to the Inyo National Forest by persons with disabilities was low. The 2011 NVUM survey reported that 2.5% of visits included a group member with a disability. Of this group, 86.8% found sites visited to be accessible. Though challenges associated with mobility are often readily recognized and considered, an individual with a disability is defined by the Americans with Disabilities Act (ADA) as a person who has a physical or mental impairment that substantially limits a major life activity. The ADA does not specifically name all of the impairments that are covered. The 2010 US Census estimated that 18.7% of the general population had a disability with 12.6% a severe disability. The persons with disabilities visitor population of the Inyo National Forest appears to differ significantly from national population estimates.



Graph 5: Inyo National Forest gender of visitors (2011 NVUM survey)



Graph 6: Inyo National Forest age group of visitors (2011 NVUM survey)



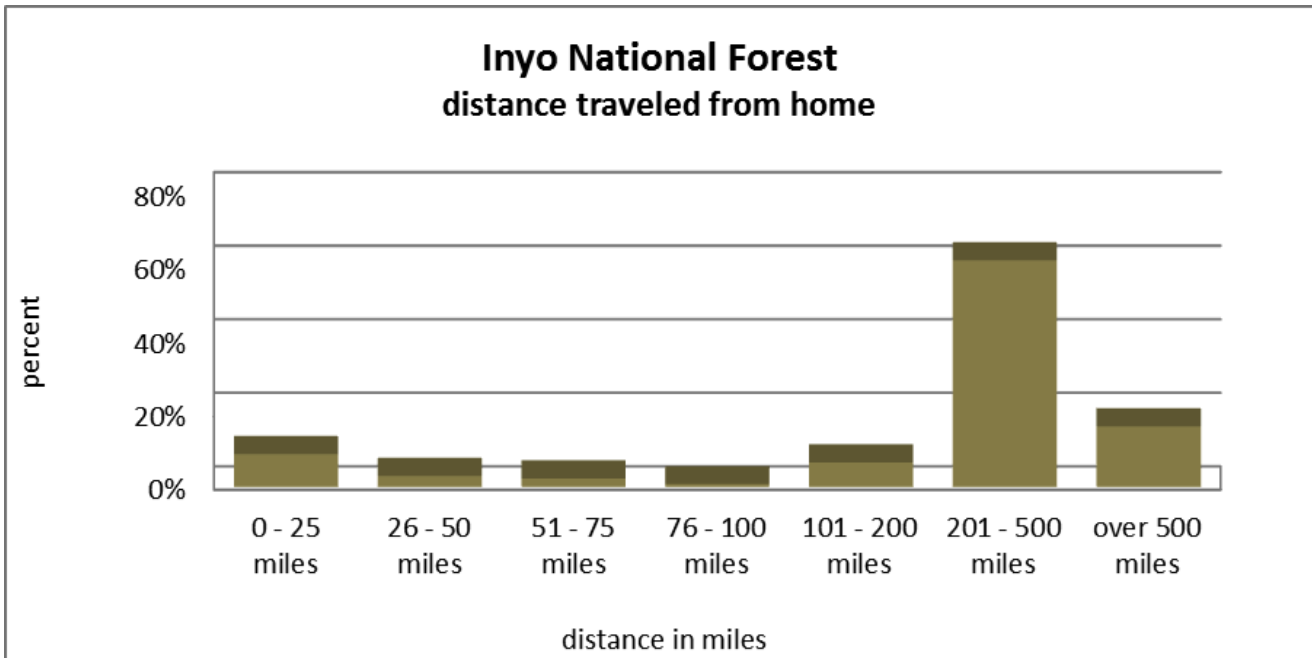
Graph 7: Inyo National Forest visitor household income (2011 NVUM survey)

The gender breakdown of visitors to the Inyo National Forest is fairly evenly divided between males (58%) and females (42%). See Graph 5 to the left.

Demographics such as age may be used as an indicator of group compilation. The large percent of visitors to the Inyo National Forest under the age of 16 years may indicate that groups are made up of families. Visitors under the legal driving age are dependent on other people or transportation modes, besides personally driving an automobile, to move them. This age group may be inclined to use alternative transportation means to travel. See graph 6 to the left.

The Inyo National Forest 2011 NVUM survey reported that 93.3% of visitors were of the white race. The question of ethnicity found that 10.3% of survey respondents reported being of Hispanic background.

Visitor household income showed that the \$50,000 to \$74,999 and \$150,000 and up categories were the largest reported categories with 23% and 22%, respectively. Those reporting an income of under \$25,000 accounted for only 7% of visitors. The American Community Survey conducted in 2011 by the US Census Bureau reported a median household income bracket of \$50,000 to \$59,999 for the State of California. Income characteristics of visitors to the Inyo National Forest moderately exceed those of State of California population in general. See graph 7 above.



Graph 8: Inyo National Forest distance traveled from home (2011 NVUM survey)

The Inyo National Forest is predominantly located within 2 of the more sparsely populated counties of the State of California. Public lands consume much of Inyo and Mono Counties. The 2010 US Census reported a total population of 14,202 for Mono County and 18,546 for Inyo County giving a population density for the counties of 4 and 2 persons per square mile, respectively. The predominant and closest visitor markets for the Forest are Southern California, the San Francisco Bay Area and to a lesser extent Western Nevada. These locations are between 201 and 500 miles distance from the Forest, and therefore, would correlate with over 60% of visitors reporting traveling that distance from home. Foreign travelers accounted for 6.6% of visitors. See graph 8 above.

The NVUM maps show pictorially, by county, where visitors are traveling from. Transportation factors such as direct highway access and airline service can greatly impact the origin of travelers to an area.

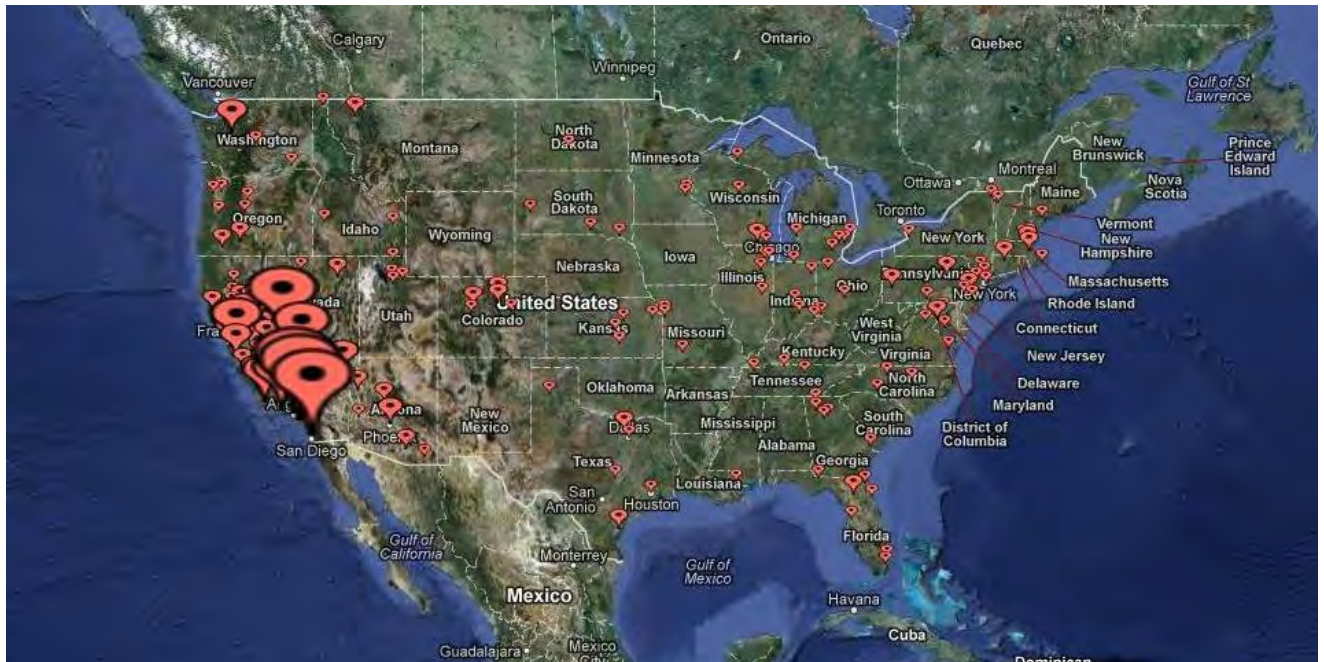


Figure 11: Inyo National Forest visitation by county for entire United States (2011 NVUM survey) taken from www.fs.fed.us/recreation/programs/NVUM

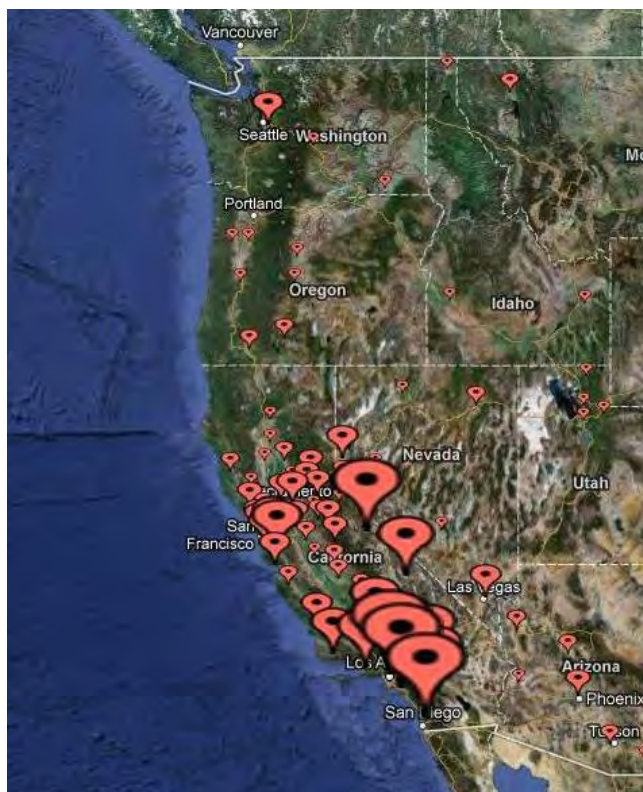


Figure 13: Inyo National Forest visitation by county for the Western United States (2011 NVUM survey)

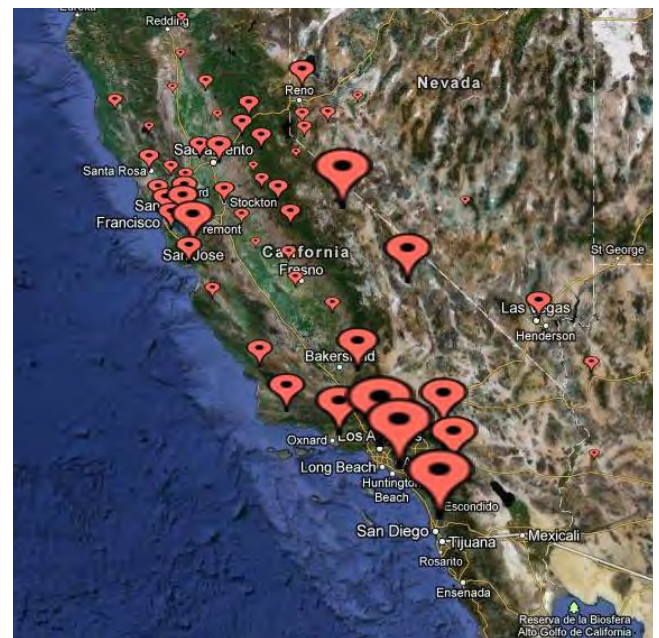
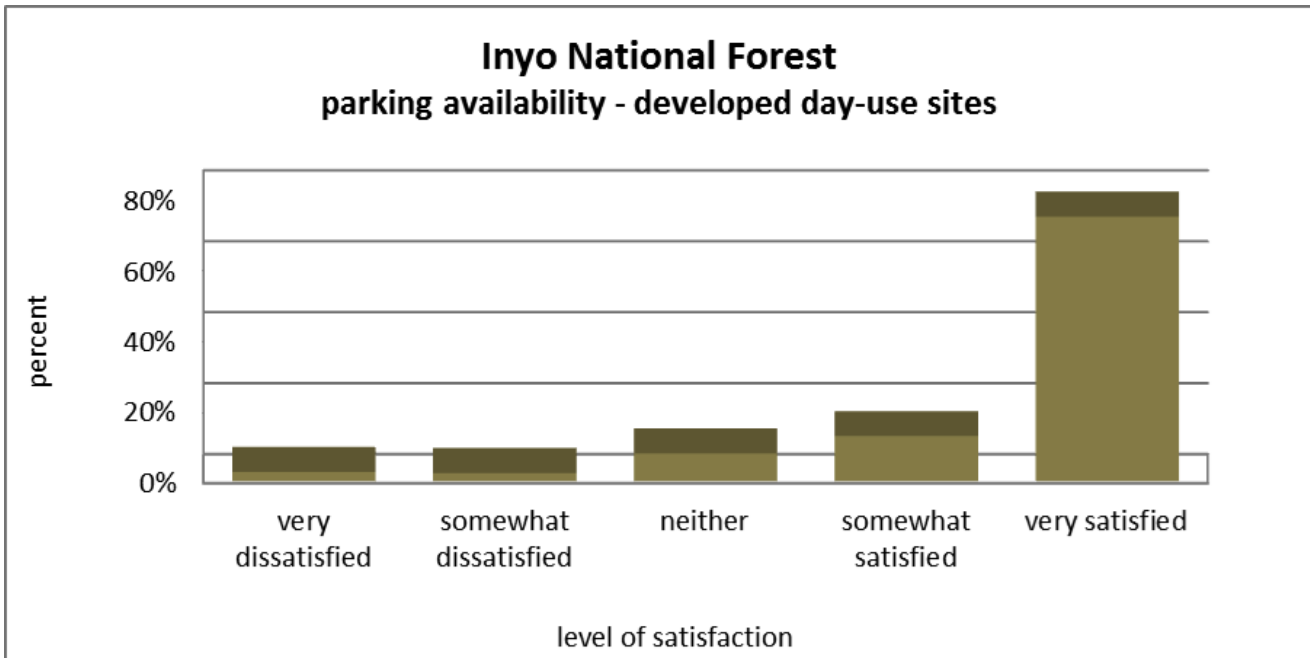


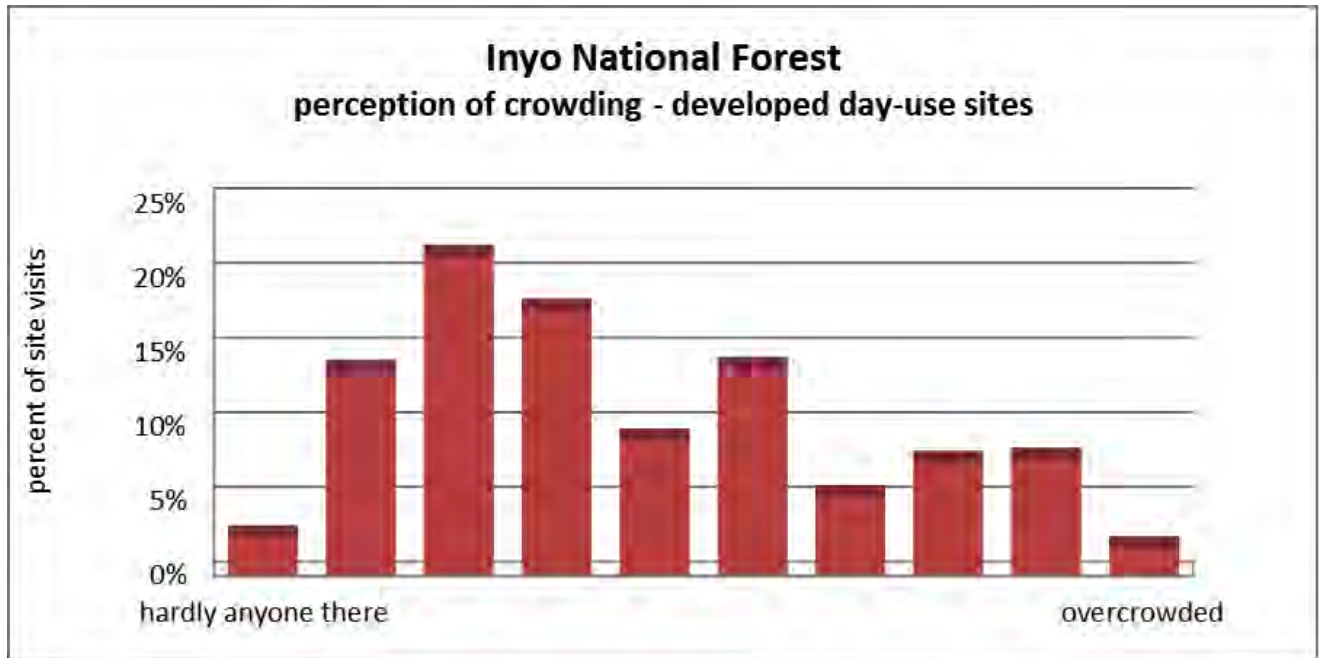
Figure 12: Inyo National Forest visitation by county for California (2011 NVUM survey)



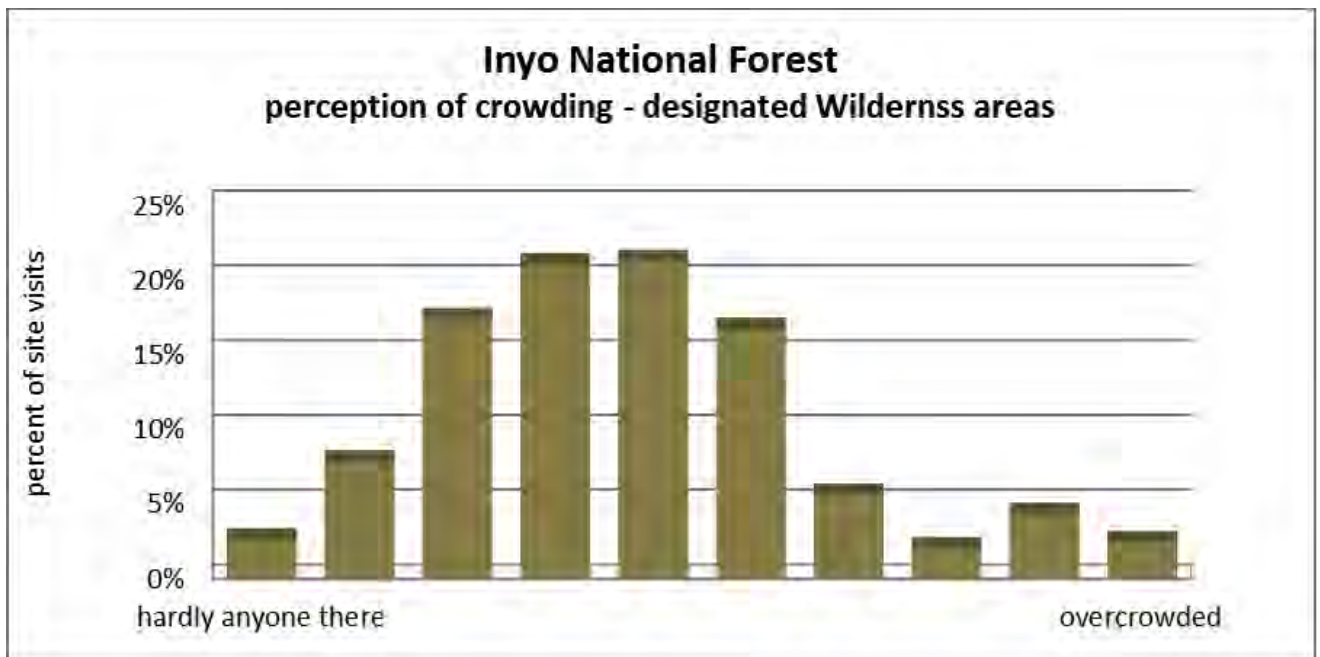
Graph 9: Inyo National Forest parking availability at developed day-use sites (2011 NVUM survey)

The necessary amount and type of parking in the appropriate locations is important to providing adequate access. In some areas of the Forest, where developed day-use sites are also the ingress and egress points for backcountry and Wilderness visitors, competition for parking by day-use and overnight users may present conflicts. The 2011 NVUM survey found 88% of visitors “somewhat” to “very satisfied” with parking availability at developed day-use sites forestwide. The performance rating for parking availability by Wilderness users was “keep up the good work” indicating that the Forest is performing quite well in this area. See Graph 9 above.

The 2011 NVUM survey queried perceptions of crowding for developed day-use site visitors and designated Wilderness users. Perceptions of crowding are highly subjective and dependent on an individual’s personal expectations and goals. As feelings of crowding are difficult to quantify, responses are generally reported in descriptive terms. The significance of the graphs is the skewing of the responses between the end points of “hardly anyone here” and “overcrowded;” therefore, no intermediary qualifying labels were provided.



Graph 10: Inyo National Forest perception of crowding at developed day-use sites (2011 NVUM survey)



Graph 11: Inyo National Forest perception of crowding in designated Wilderness areas (2011 NVUM survey)

Visitors may have different expectations of and sensitivity to crowding dependent on the experience they are seeking. An acceptable level of crowding at developed sites may be completely different than that for backcountry or Wilderness areas. Visitors at developed day-use sites reported minimal levels of crowding considering the presumably more consolidated and intense use at these locations. See Graph 10 on previous page.

Visitors to designated Wilderness areas reported a moderate degree of crowding. Visitors to these areas may be more susceptible to feelings of crowding, possibly having a higher expectation for solitude, than visitors in developed recreation sites. See Graph 11 on previous page.

General visitor profile and use data may be used to review existing transportation systems and act as indicators for the design of new or improved transportation networks. Demographic characteristics such as age or disability may imply the likelihood of a visitor to use a particular transportation mode or route. The activity participated in by a visitor may indicate a desired recreation level, passive or active, or show the need to consider necessary recreational equipment such as skis, fishing poles or backpacks in transportation services. Visitor reported satisfaction and crowding data may support or refute perceptions by managers of the level of use at an area and the need to restrict access to the location. Throughout the balance of this report, the overview data from the 2011 National Visitor Use Monitoring survey will be combined with location specific data to formulate context appropriate alternative transportation system proposals for the Whitney Portal recreation area.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS)

The Inyo National Forest is included within the State of California Department of Transportation (Caltrans) District 9. See map on opposite page.

Origin and Destination Study 2000

The State of California Department of Transportation (Caltrans) conducts a roadside intercept study every 10 years on US Highways 395 and 6 to obtain relevant data about trip movement and travel patterns. Survey locations included the principal arterials of US Highways 395 and 6 and minor arterial feeders into and within Inyo and Mono Counties. The survey period included both winter and summer season dates. The study conducted in 2000 was the third such survey. The 2010 survey results were not available at the time this report was drafted.

The Caltrans survey queried trip purpose and found that almost 55% of people were traveling for recreational reasons. The percent responses for recreational travel were highly dependent on survey location with 87.1% of those surveyed at Tioga Pass (State Route 120), an entrance and exit point to Yosemite National Park, citing recreational purposes, while only 22.7% at the Sweetwater survey station near Benton, California stated such. Work, as a trip purpose, was reported as the second highest reason for travel with 13.2%.



Map 8: Caltrans District 9

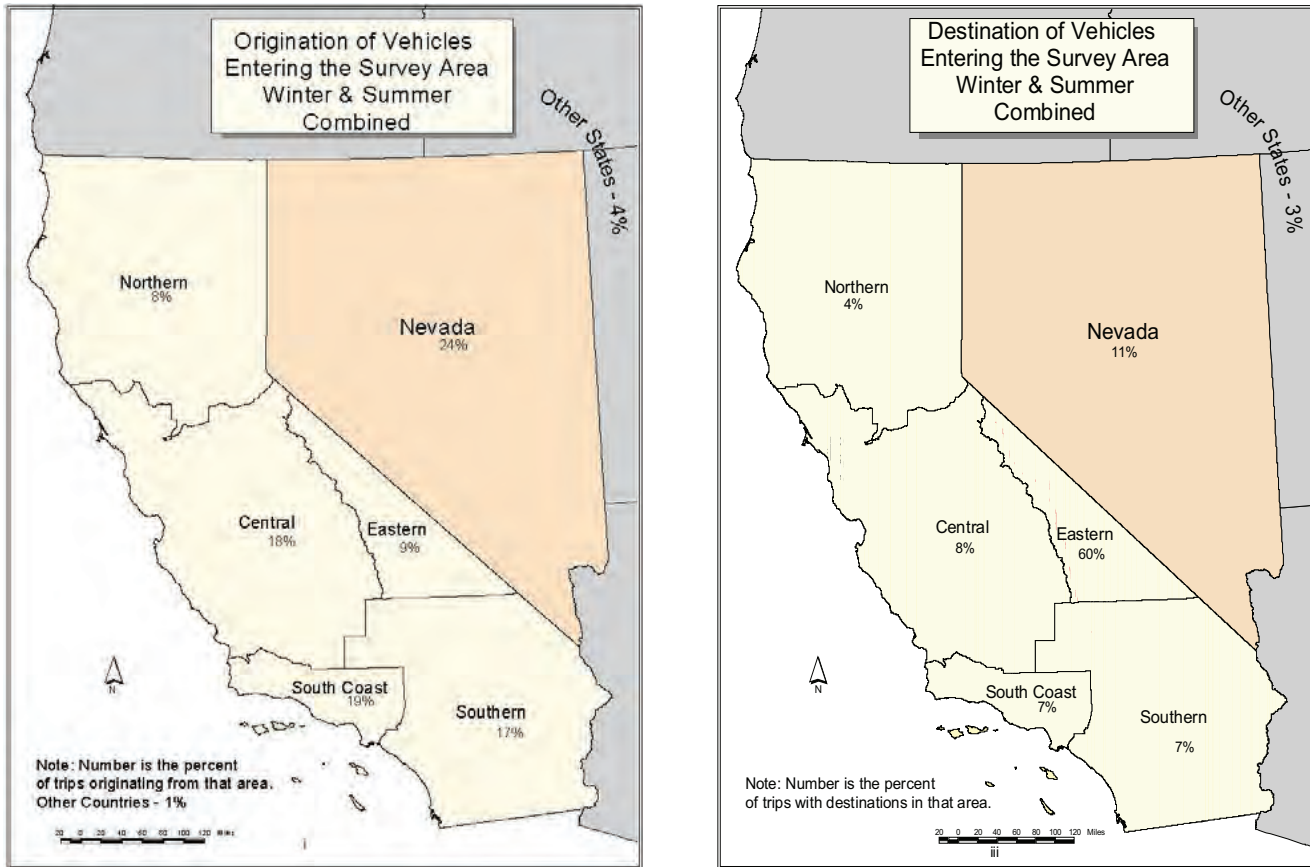


Figure 14: Origin and destination of vehicles (2000 Caltrans Origin and Destination study)

The main origin of travelers into the Eastern Sierra region was the combined Southern California region which produced 36% of vehicles entering the survey area. The State of Nevada accounted for 24% of respondents. The balance of respondents was fairly evenly divided between the Inyo and Mono Counties area, northern and central California.

The main destination for travelers staying in the Eastern Sierra region was highly concentrated in the Town of Mammoth Lakes with 41% of respondents giving that location as a final destination. Forty percent (40%) of travelers reported they were driving through the area in route to their final destination.

While many travelers reported to simply be passing through the region, 31% of the respondents stated they “always stop” and 48% stated they “sometimes stop” in small communities.

The average number of passengers per vehicle was 2.18 and the predominant vehicle type was the passenger automobile at 33.5%. Combined with other consumer automobiles; the SUV, 20%; pick-up truck, 17.2%; and van, 10.2%, personal occupancy vehicles accounted for 80.9% of vehicles surveyed. Commercial truck traffic made up 11.5% of vehicular traffic on the US Highway 395 corridor.

PRIMARY DATA COLLECTION AND ANALYSIS

The primary data collection effort for this project included visitor use, trail permit data, parking demand, traffic counts and GPS locations. Primary data on visitor use, vehicular traffic counts and parking lot utilization was collected to ascertain travel patterns and parking and visitor demand. Field data was collected between May 1st and October 31st of 2011. This time period corresponds with Wilderness trail permit quota restrictions and the peak period demand for trailhead access in the Whitney Portal area.

Data was collected and analyzed temporally. Presentation of a single average or

percentage number, compiled for the entire data collection period, is often presented for simplicity reasons. However, due to significant differences in visitation over time, both monthly and daily, a more detailed review may show significant variations in data. When feasible, richer data is presented by month and time of day. All raw data is available to interested parties in Excel spreadsheet format for further analysis.

A comprehensive field data collection calendar was drafted to allow for concurrent collection of visitor use and parking data. Parking lot occupancy and visitor use data was collected on 44 randomly selected days between May 1st and October 31st, 2011. The number of data collection days represents 24% of the total days in the survey period.

Traffic and Visitor Use Data Collection Schedule

Location	Date																														
	July																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Reds Meadow Valley	Minaret Vista Station	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	north of Upper Soda Springs																														
Convict Lake	CR07	x	x	x	x	x																									
Rock Creek	Rock Creek Road	x	x	x	x	x	x	x	x	x	x	x	x																		
Bishop Creek	SR168																														
	South Lake Road																														
Whitney Portal	Whitney Portal Road	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	west of group campground	x	x	x	x	x	x																								
Bristlecone Forest																															
	White Mountain Road																														

Traffic counter movement

Date	July 6-7 remove Convict Lake Whitney Portal	install Bishop Creek (2)	
Date	July 14 remove Rock Creek	install Convict Lake	DL to move
Date	July 20-21 remove Bishop Creek	install Rock Creek Whitney Portal-Campground	
Date			

15 weekend

□ site visit
□ counter remove
■ counter install
■ parking study date

Figure 15: Whitney Portal field data collection calendar

Day of week	Date	Survey Site
Friday	May 6, 2011	Whitney Portal
Wednesday	May 11, 2011	Whitney Portal
Thursday	May 19, 2011	Whitney Portal
Thursday	May 26, 2011	Whitney Portal
Wednesday	June 1, 2011	Whitney Portal
Friday	June 10, 2011	Whitney Portal
Monday	June 13, 2011	Whitney Portal
Tuesday	June 21, 2011	Whitney Portal
Thursday	June 30, 2011	Whitney Portal
Saturday	July 2, 2011	Whitney Portal
Wednesday	July 6, 2011	Whitney Portal
Tuesday	July 12, 2011	Whitney Portal
Friday	July 15, 2011	Whitney Portal
Monday	July 18, 2011	Whitney Portal
Thursday	July 21, 2011	Whitney Portal
Sunday	July 24, 2011	Whitney Portal
Wednesday	July 27, 2011	Whitney Portal
Thursday	July 28, 2011	Whitney Portal
Tuesday	August 2, 2011	Whitney Portal
Wednesday	August 3, 2011	Whitney Portal
Monday	August 8, 2011	Whitney Portal
Tuesday	August 9, 2011	Whitney Portal
Wednesday	August 17, 2011	Whitney Portal
Friday	August 19, 2011	Whitney Portal
Tuesday	August 23, 2011	Whitney Portal
Thursday	August 25, 2011	Whitney Portal
Saturday	August 27, 2011	Whitney Portal
Monday	August 29, 2011	Whitney Portal
Wednesday	August 31, 2011	Whitney Portal
Wednesday	September 7, 2011	Whitney Portal
Saturday	September 10, 2011	Whitney Portal
Thursday	September 15, 2011	Whitney Portal
Friday	September 16, 2011	Whitney Portal
Sunday	September 18, 2011	Whitney Portal
Thursday	September 22, 2011	Whitney Portal
Monday	September 26, 2011	Whitney Portal
Tuesday	September 27, 2011	Whitney Portal
Friday	September 30, 2011	Whitney Portal
Saturday	October 8, 2011	Whitney Portal
Tuesday	October 11, 2011	Whitney Portal
Friday	October 14, 2011	Whitney Portal
Sunday	October 23, 2011	Whitney Portal
Monday	October 24, 2011	Whitney Portal
Friday	October 28, 2011	Whitney Portal

Figure 16: Whitney Portal parking and visitor use survey data collection dates

Visitor Use Survey

Visitor use data was collected at the Whitney Portal recreation area. The compact nature of the area allowed for observation and recordation of visitor activities. Data on visitor activity participation was gathered to demonstrate, in general, the type of activities people were engaged in at the location, with the understanding that some activities may lend themselves to utilization of alternative transportation system modes better than others. For instance, people engaged in an active form of recreation may be more inclined to participate in an active form of transportation. Various activities also have a variety of equipment requirements (e.g. fishing poles, backpacks, coolers) that may need consideration in the provision of transportation services.

A visitor use survey including written protocol instructions and a survey instrument was created specifically for the Whitney Portal recreation area. Data was collected on 44 randomly selected days during the May 1st to October 31st, 2011 survey period. Observations were conducted 13 times, at half-hour intervals, between 9:00am and 3:00pm on data collection days. Data collection time intervals maximized the number of observations per day given the travel time limitations to the location and around the site.

The written survey protocol instructions were designed to maintain consistency in data collection methods between research staff members. The explicit instructions specified data collection locations and the appropriate

way to record observations on the survey instrument. Experienced team members conducted data collection field training. This measure ensured the understanding and accuracy of the survey protocol by first time research assistants.

A data collection instrument was developed to capture the predominant visitor activities observed within the day-use area. A tally sheet format with observations by activity and over time was designed. The list of activities included resort use, fishing, hiking/walking/wandering (day-use), backpacking/climbing/skiing, viewing nature/photography, picnicking, relaxing and other. The categories were selected from the highest responses reported in the 2006 National Visitor Use Monitoring survey results for visitor activities. The “other” category required a written description by the research assistant of the activity observed, such as, bicycling or ceremony, that was not a typical use or not able to be classified under any of the predefined activities.

Observed visitor uses were recorded on the tally sheet. During each discrete data collection time interval an individual could be categorized as participating in only one activity; however, over the course of time, from one data collection period to another, a person’s activity could change. Therefore, an individual labeled as “fishing” at 11:30am may be categorized as “resort use” on the 12noon observation if their behavior pattern had changed to that activity.

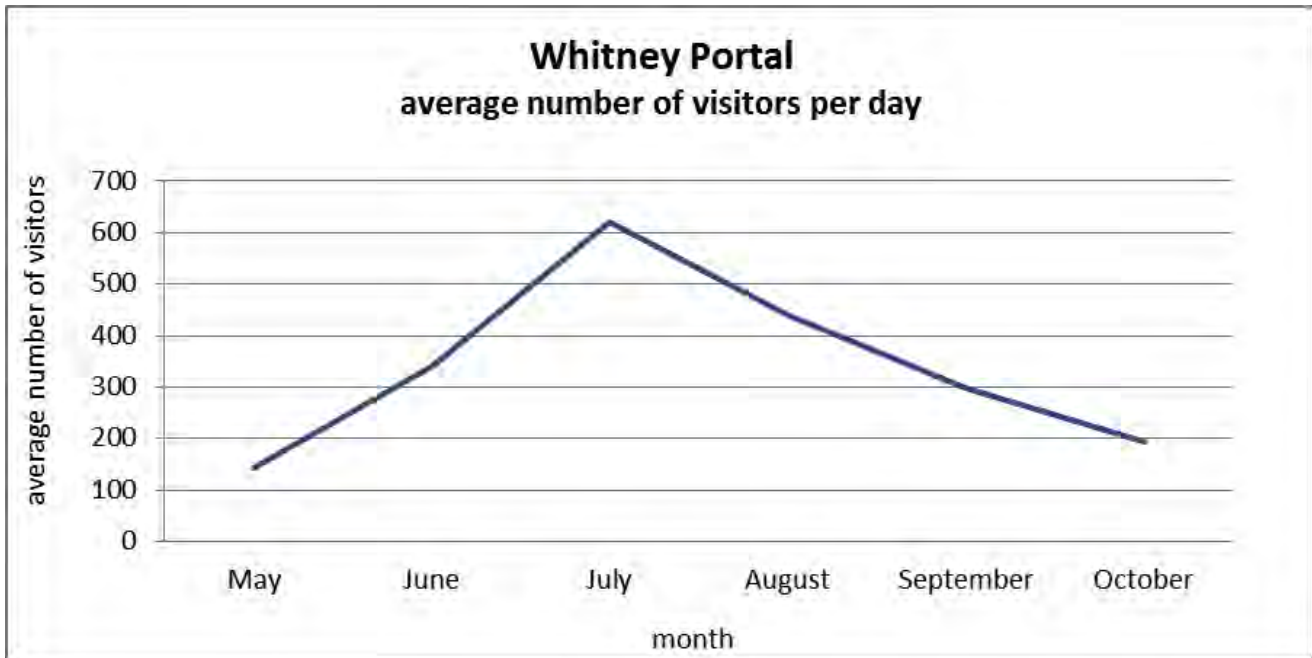
The Whitney Portal visitor use survey protocol and data collection instrument are provided

The form is a 'Whitney Portal Visitor Survey' data collection sheet. It includes fields for Location (Whitney Portal), Weather (Sunny), Date (2/11/11), and Staff ID (Lyle Hays). The main data area is a grid with columns for time intervals: 9:00am, 9:30am, 10:00am, 10:30am, 11:00am, 11:30am, and 12:00noon. Rows list various activities such as resort use, fishing, hiking/walking/wandering, backpacking/climbing/skiing, viewing nature/photography, picnicking, and relaxing. Handwritten numbers in the cells represent the number of people observed for each activity during each time interval. For example, at 11:00am, there were 15 people fishing and 2 people relaxing. At 12:00noon, there were 18 people resorting and 11 people relaxing.

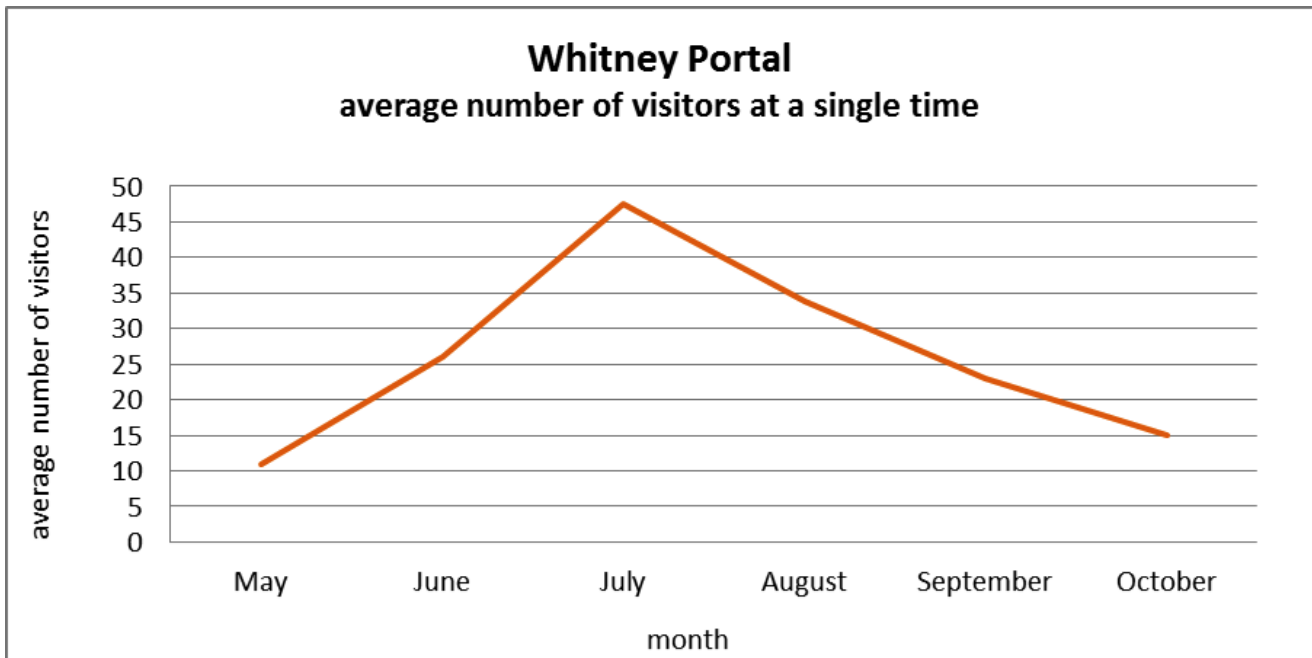
Figure 17: Whitney Portal visitor use survey data collection sample form

in Appendix D.

Visitor use data was compiled into an Excel spreadsheet format for analysis. Visitor counts by activity and time of day were entered for each data collection day. The data was analyzed to produce broad estimates of visitor attendance and use, as well as, refined estimates by month and time of day. The results are presented below in the “Visitor use data analysis” section of this report.



Graph 12: Whitney Portal average number of visitors per day



Graph 13: Whitney Portal average number of visitors at a single point in time

Visitor use data analysis

Visitor use data was analyzed to estimate number of visitors, temporal distributions and visitor activities.

Visitation at the Whitney Portal recreation area varied greatly over time, by day and month. The estimation of average number of visitors by month varied from a low of 141 people per day in May to a high of 619 people per day in the peak month of July. The seasonal average was 339 people per day. Multiplying the seasonal average of visitors per day by the 184 days in the survey period calculates an estimated 62,315 total visitors in the Whitney Portal recreation area for the 2011 summer season. See Graph 12 to the left.

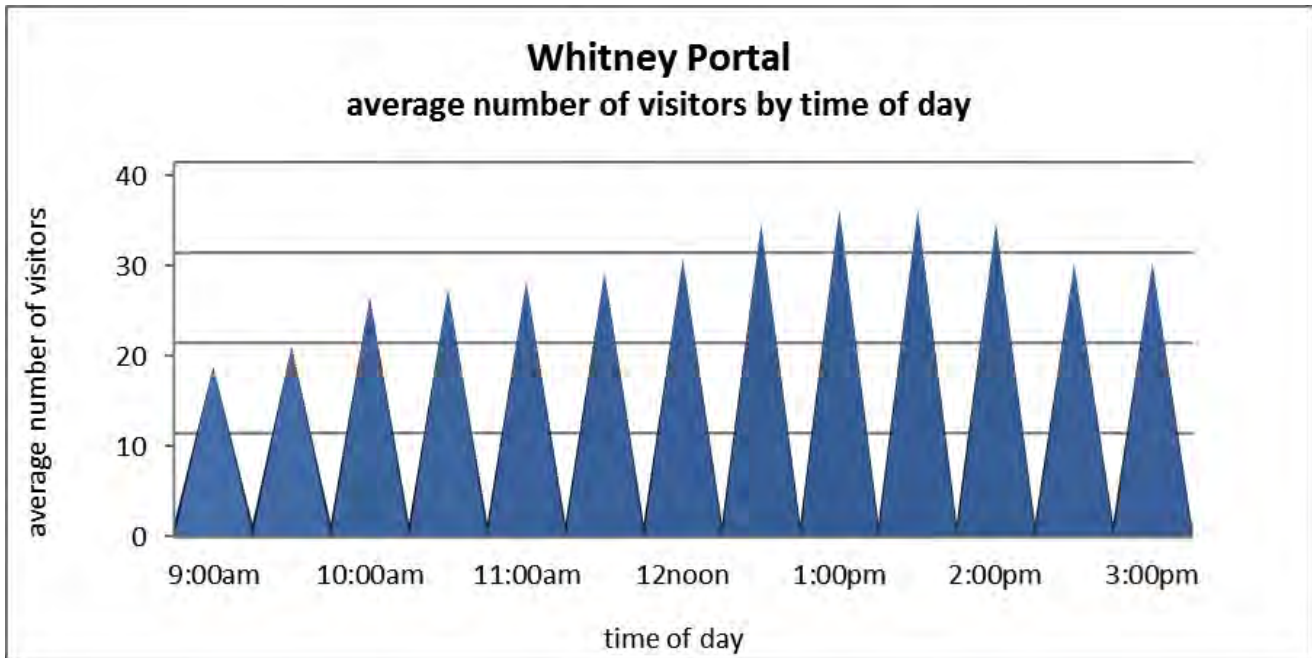
The month of July represents a dramatic peak in visitation to the Whitney Portal recreation area. July accounts for 30% of total visitation for the summer season. The combined months of June, July and August account for nearly 70% of total visitation.

Distilling overall average visitation numbers down to a point in time shows an estimation of the average number of visitors present in the Whitney Portal recreation area at a single point in time. The overall visitation trend line remains the same between average visitation by month and visitors at a single point in time by month.

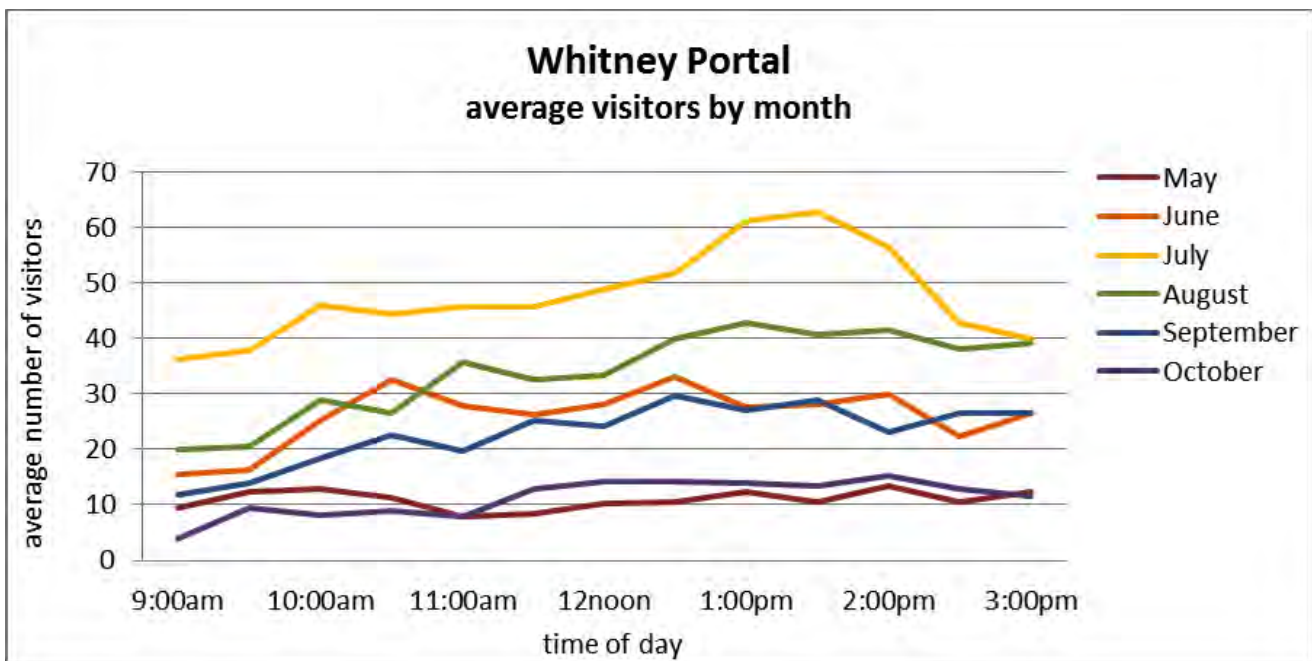


Figure 18: Pedestrians in roadway

The estimation of a seasonal average number of visitors in the Whitney Portal recreation area at a single point in time is 26 people. The great variation in visitation between months makes the individual monthly estimates potentially more accurate numbers. For the peak month of July, an estimated 48 people could be found at the Whitney Portal at any one time. While in the low visitation months of May and June one would expect to encounter only 11 and 15 visitors, respectively. See Graph 13 to the left.



Graph 14: Whitney Portal average number of visitors by time of day



Graph 15: Whitney Portal average visitation by months

2013

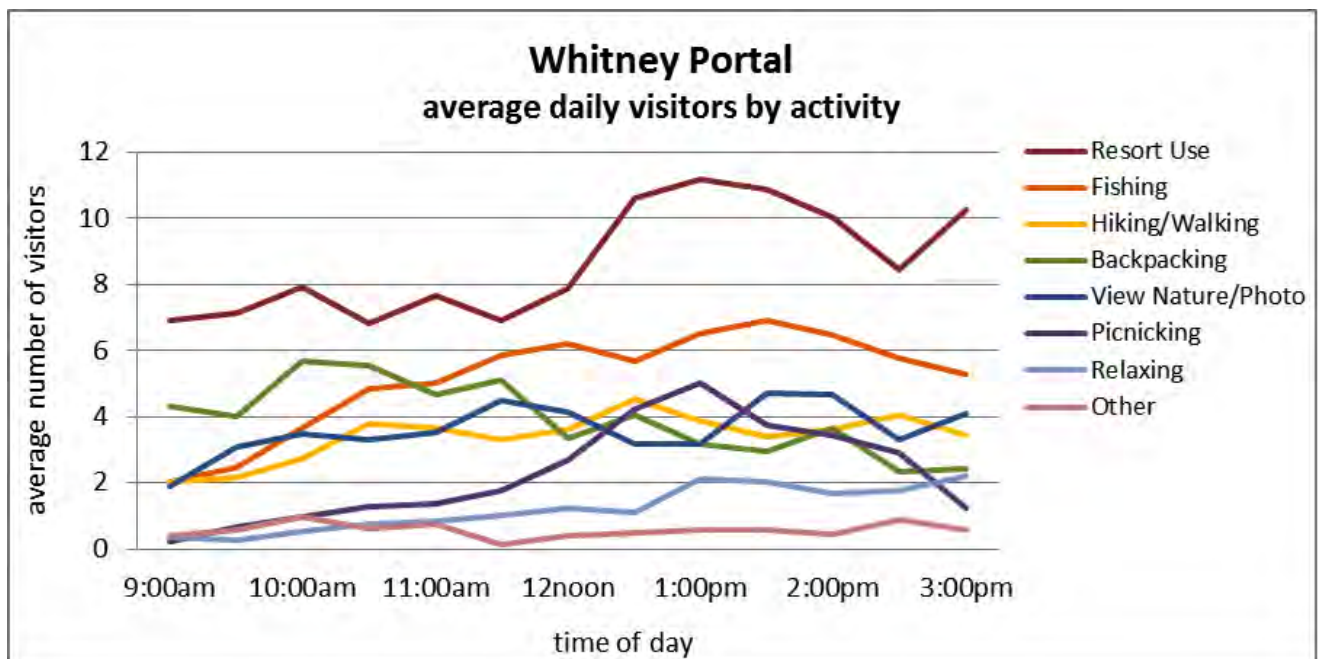
Graphing average number of visitors by time of day can show patterns in daily visitation. The Whitney Portal recreation area experiences two inflows of visitors during the day around 10:00am and 12:30pm. Visitors begin departing from the area around 2:00pm. Average daily visitation is highest at mid-day around 1:00pm. See Graph 14 to the left.

Average visitation by time of day for the individual months in the survey period shows the variation in daily trends between months. May, June and October show generally flat visitation throughout the day. Visitation trends for June and September show a greater number of visitors in the afternoon hours. July, the peak visitation month, displays a significant peak in visitors around the 1:00pm time. See Graph 15 to the left.

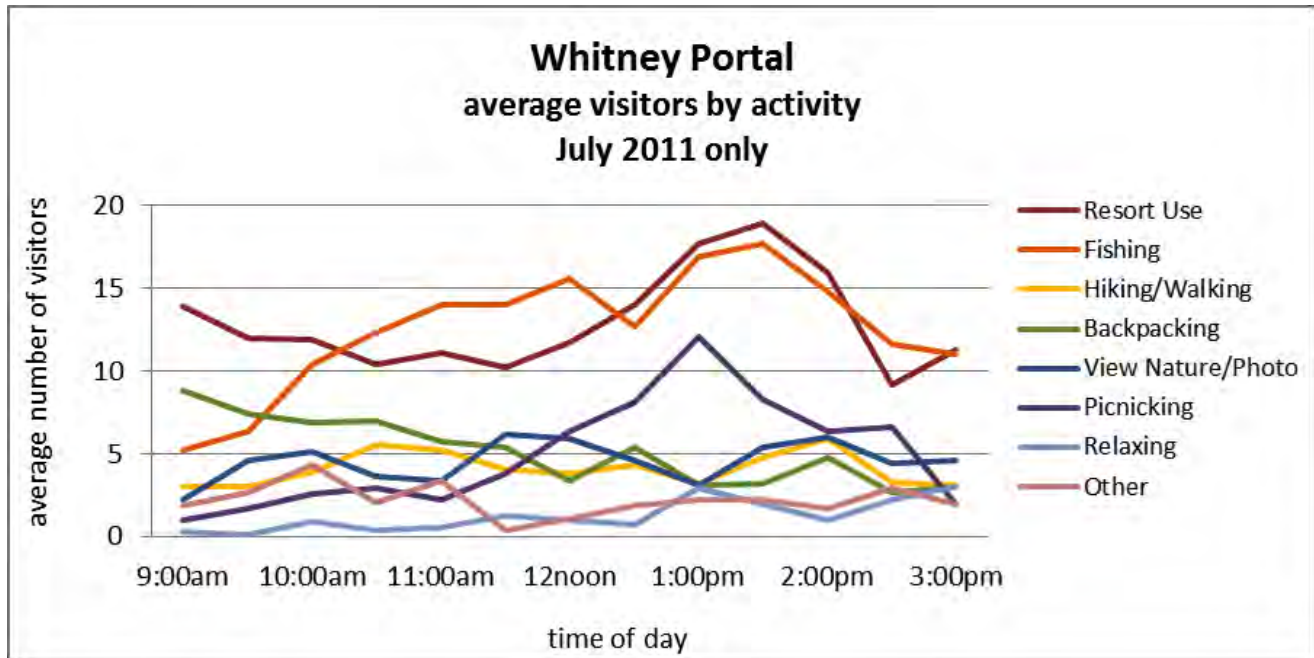
A graph of average daily visitation over time by activity shows the temporal distribution

of visitor activities throughout a typical day. Elevated “Backpacking” use in the mid-morning may account for the peak seen in the “Whitney Portal average visitation by time of day” graph above. Early afternoon peaks in “Resort Use” and “Picnicking” activity may account for the afternoon peak seen in that graph as well. See Graph 16 below.

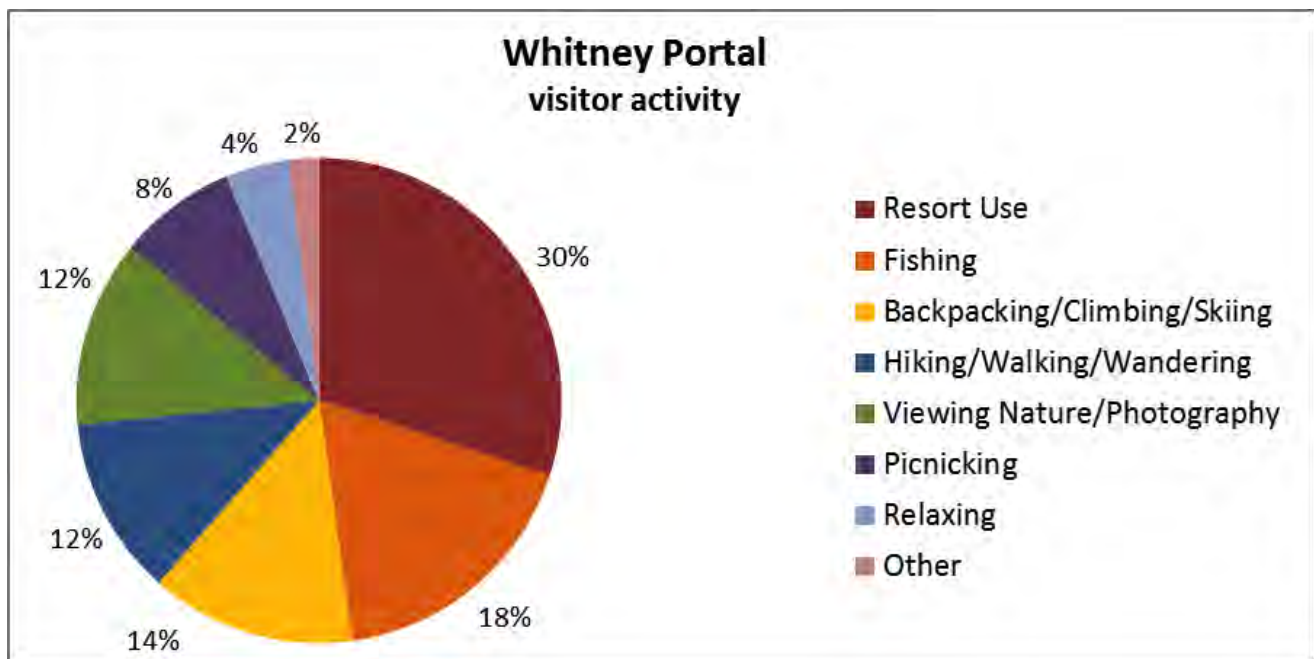
Each data collection time interval in a day was a discrete observation. An individual visitor could be classified in multiple categories over time if their behavior changed between observations. Backpackers observed stopping at the Whitney Portal Store for provisions or a meal would be classified as “Resort Use” if they were participating in that activity at the time of data collection. Therefore, individuals classified as “Backpacking” at the 11:30am time interval may go to the Whitney Portal Store for lunch before their journey and be thus reclassified as “Resort Use” at the 12:00noon observation.



Graph 16: Whitney Portal average daily visitors by activity



Graph 17: Whitney Portal average visitation by activity



Graph 18: Whitney Portal visitor activity participation percentage

2013

Visitor activity by time of day was extracted for the peak visitation month of July. “Resort Use” and “Fishing” follow similar trend lines as seen in previous analyses with average visitor number peaks after noon for “Resort Use” and growth over time of “Fishing.” “Picnicking” shows a dramatic peak at the 1:00pm observation. The higher than average “Picnicking” behavior may account for the greater number of picnic tables in use for the month of July. See Graph 17 to the left.

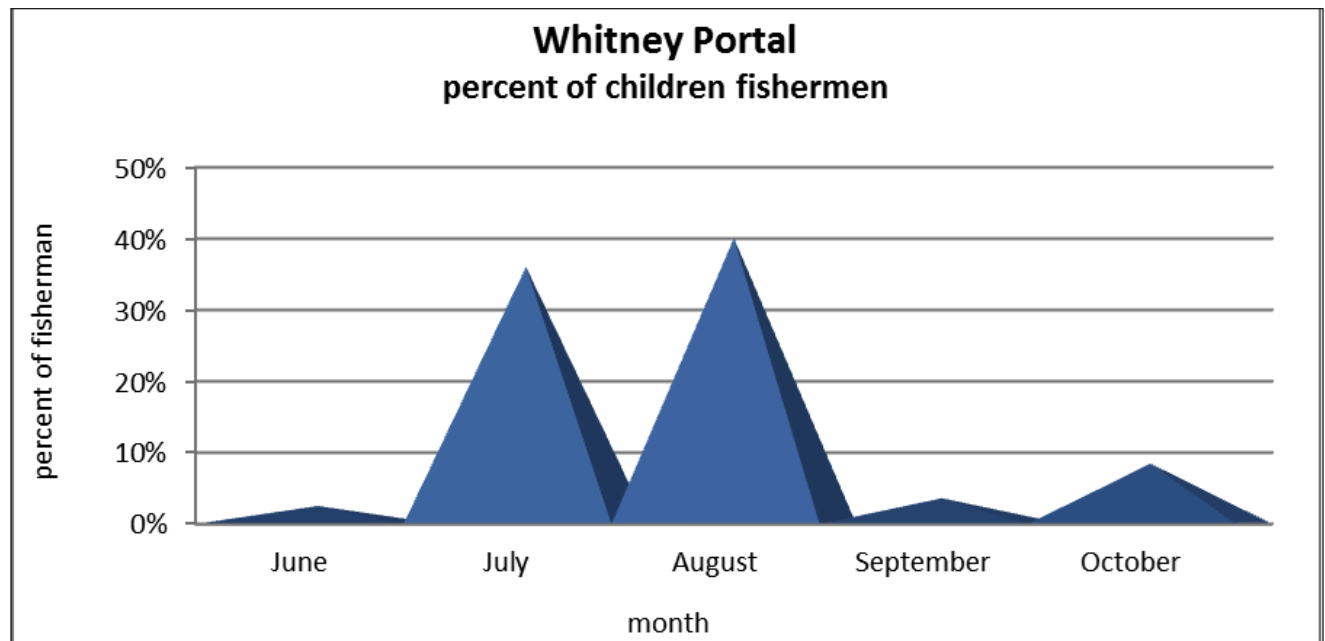
Data on the activity visitors participated in was collected in the Whitney Portal core recreation area beginning at the s-curve in Whitney Portal Road and extending through the parking lots and day-use area. Defined visitor activity categories captured 98% of visitor use with only 2% of activities falling into the miscellaneous “Other” category.

“Resort Use” accounted for the dominant visitor use at the Whitney Portal recreation area with 30% of observed visitor activity. The category included patrons of the Whitney Portal Store either shopping in the store or

dining on the patio. The Whitney Portal Store is open seasonally with variable hours to meet visitor demand. The Store’s simple menu with quality food and large serving sizes has become an area attraction itself. Recorded visitation numbers support this view. See Graph 18 to the left.

“Fishing” was the second highest use category with 18% of observations. The man made trout stocked pond in the day-use area offers easy shoreline fishing and an accessible fishing dock. The fish are clearly visible through the water’s surface of the small shallow pond making fishing less challenging than in other areas of the Inyo National Forest.

Children make up a large portion of the fishing public at the Whitney Portal recreation area. The summer season average for children fishermen is 29% of the total fishing population. In the peak visitation month of July, 36% of fishermen observed were children. The peak month for children fishing was August when they accounted for 40% of fishermen. See Graph 19 below.



Graph 19: Whitney Portal percent of children fishermen



Graph 20: Whitney Portal picnic table occupancy

Though the Mount Whitney Trailhead is the most popular trail on the Inyo National Forest, the presence of backpackers in the Whitney Portal recreation area is relatively low. “Backpacking/climbing/skiing” ranked third on the visitor activities and accounted for 14% of observations. As shown in the Trail Permit Data Analysis section of this report, single day hiking permits for the Mount Whitney Trail account for 57% of issued permits. The long duration of the single day hike of the Mount Whitney Trail may necessitate that hikers arrive prior to and exit after the 9:00am to 3:00pm daily data collection period. On-site observations showed that returning hikers often arrived back to the Whitney Portal recreation area in the early afternoon. This pattern may account for the 1:00pm peak in daily visitation.

“Hiking/Walking/Wandering” and “Viewing Nature/Photography” were the fourth and fifth highest observed activities, with 12% of observations each. The “Hiking/Walking/Wandering” category consisted of day-use

visitors not climbing the Mount Whitney Trail but instead hiking in the general vicinity of the recreation area. When combined, the top five categories (Resort Use, Fishing, Backpacking, Hiking and Viewing Nature) account for 86% of visitor activity observations in the Whitney Portal recreation area.

The “Picnicking,” “Relaxing” and “Other” categories account for the remaining 14% of visitor use observations in the Whitney Portal recreation area with 8%, 4% and 2% of observations.

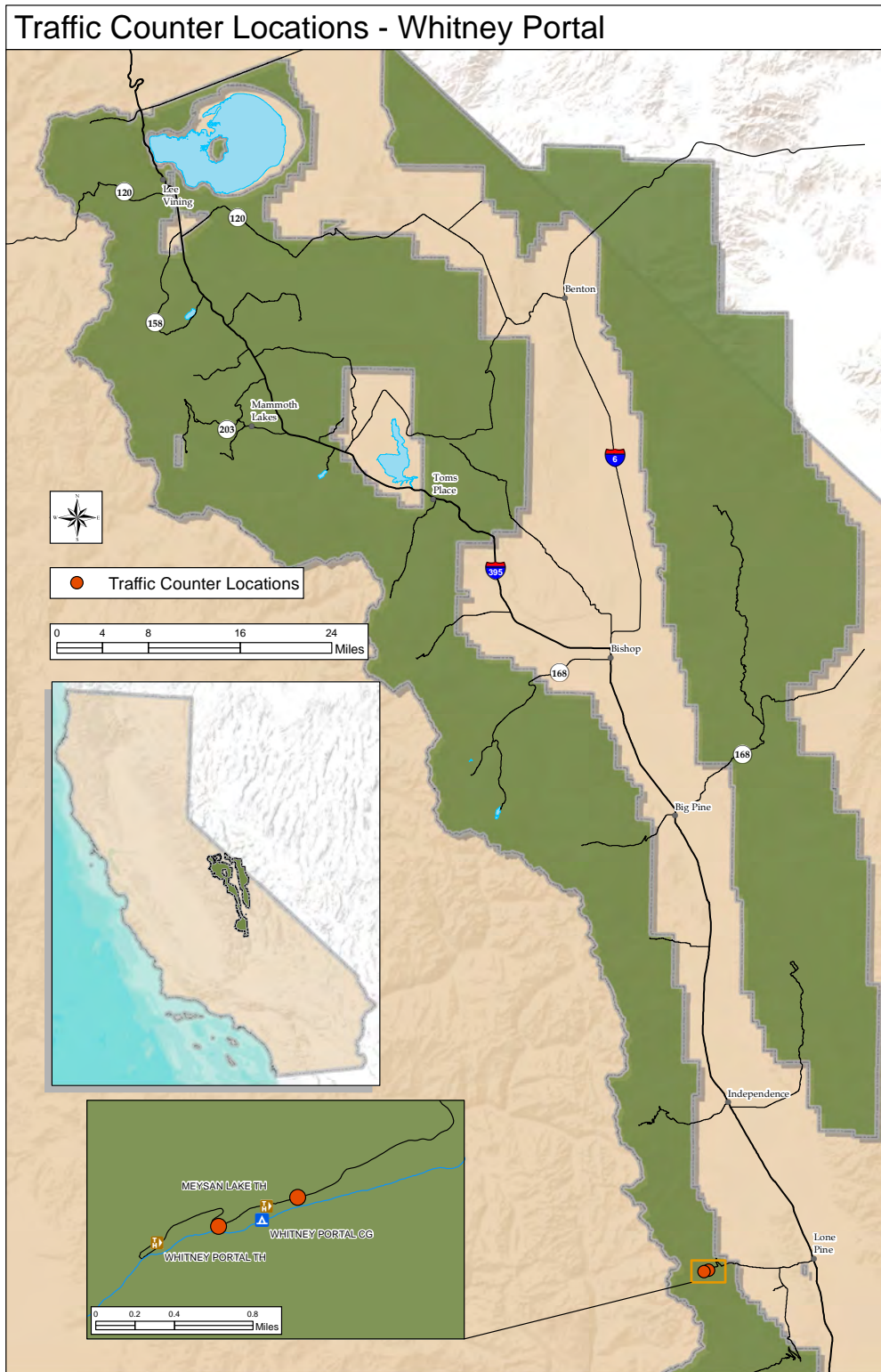
Data was collected on picnic table usage and occupancy levels were calculated. The peak visitation month of July had the highest observed picnic table usage with an average of 15% of tables occupied. Picnic table occupancy rates in other months did not exceed 8%. It may be interpreted from the picnic table occupancy rates that demand for picnic facilities in the Whitney Portal recreation area has not exceeded supply. See Graph 20 above.

Traffic data survey

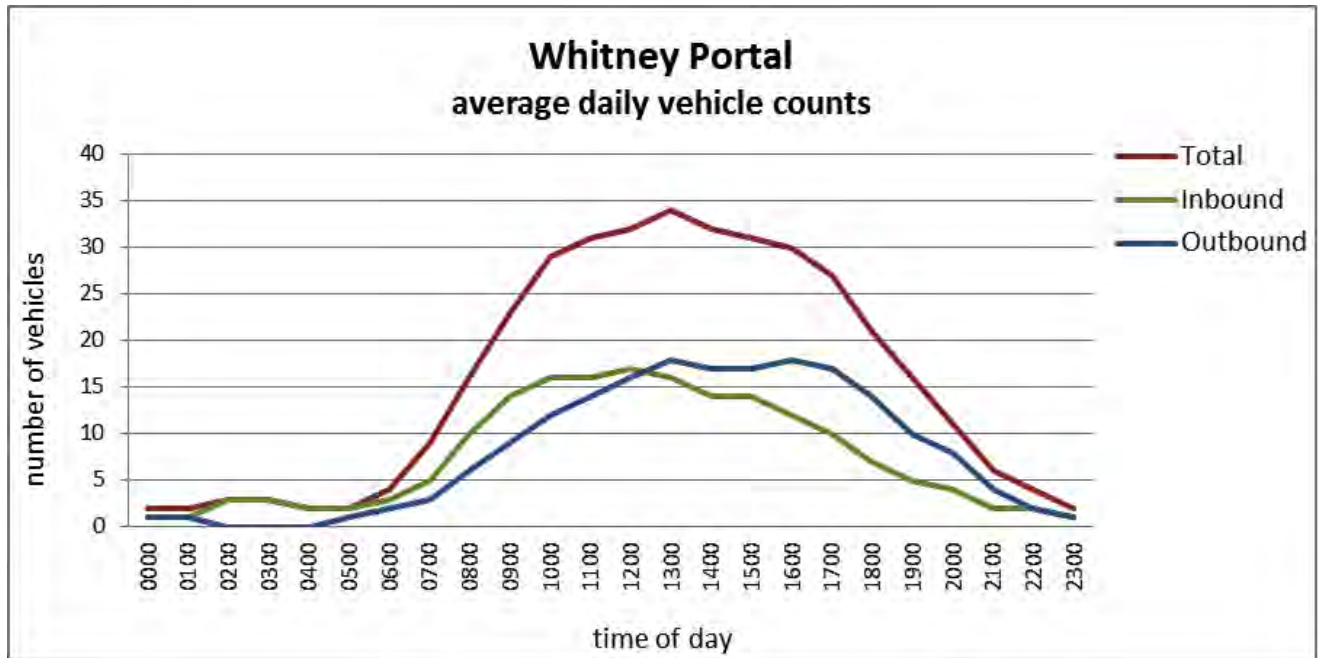
When planning for alternative transportation systems the impact of personal occupancy vehicles is considered as it affects the functioning of the greater transportation system. Any proposed modifications to the traditional roadway system are typically suggested in the framework of making improvements for an alternative transportation mode. Vehicular traffic patterns and parking demand were researched in this study as a means to make informed decisions about alternative transportation routes and modes.

Traffic data was collected to determine level of vehicular traffic and directional peak period vehicular demand. Daily traffic counts for the entire study period of May 1st through October 31st, 2011 were collected on Whitney Portal Road using MetroCount 5600 vehicle classification equipment. The vehicle classifier equipment collects rich data that may be mined to produce custom analyses. The firmware associated with the equipment can distill traffic volume, speed, gap between vehicles, type of vehicle, direction, time of day and date from the vehicle axle hits collected on the vehicle classification equipment. Data may be analyzed using any of these characteristics.

Traffic data was collected in 2 locations on the Whitney Portal Road. A primary traffic counter was placed at the entrance sign to the Whitney Portal recreation area before the Whitney Portal Family and Group Campgrounds. The traffic count data for this location includes all vehicles entering (inbound) and exiting (outbound) the Whitney Portal recreation area including campground guest, recreational residence residents and employees of the Whitney Portal Store as well as hikers and day-use recreational visitors. A secondary traffic counter was intermittently placed after the entrance to the recreational residences and campgrounds to survey vehicles leaving the campground headed for the Whitney Portal recreation area.



Map 9: Whitney Portal traffic counter locations



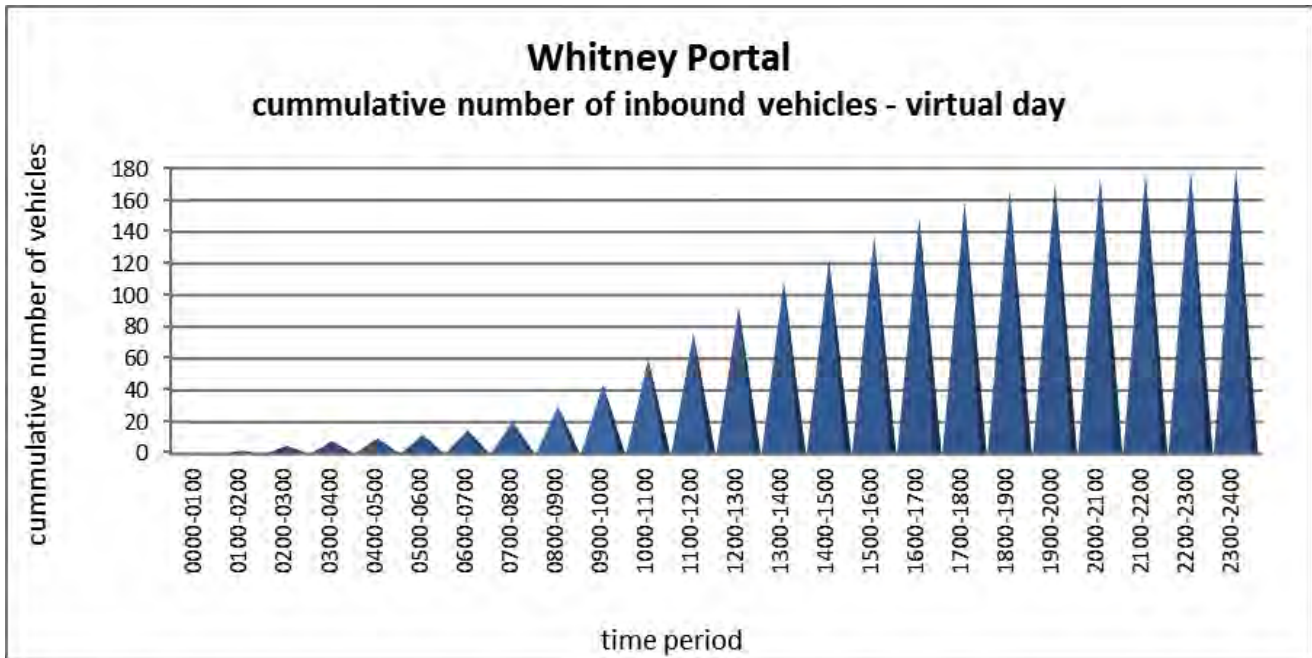
Graph 21: Whitney Portal average daily vehicle counts

Traffic data analysis

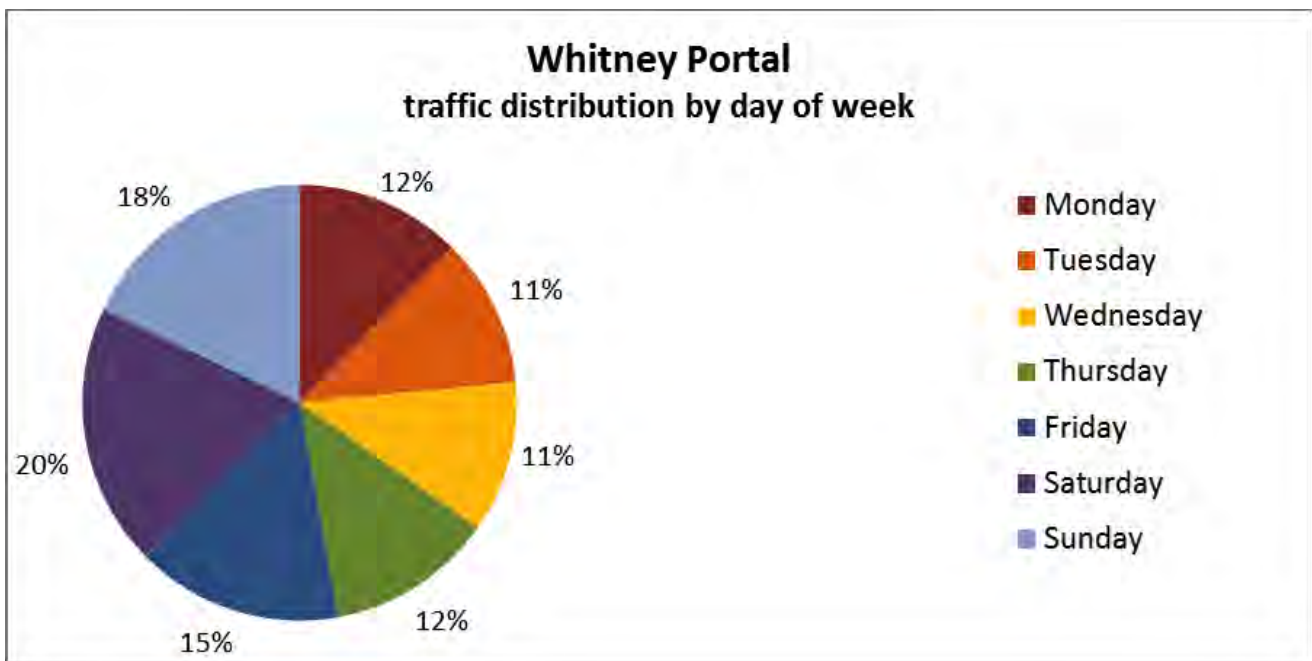
Vehicle count data was analyzed to determine volume and temporal distribution of traffic. The data provides an indication of the level of user demand over time.

A total of 68,400 vehicles were counted for both directions during the survey period. The calculated seasonal average daily traffic (ADT) was 372 vehicles. The inbound peak hour was between 11:30am and 12:30pm with an

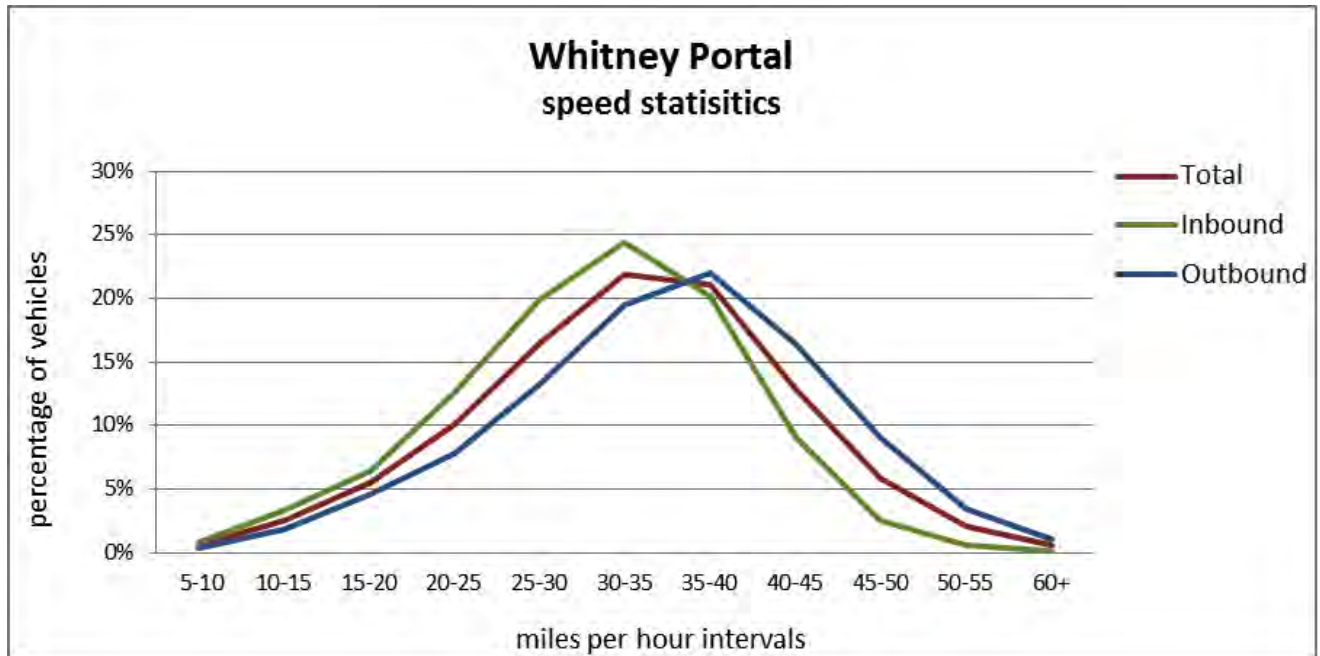
average of 17 vehicles. The outbound peak hour was between 3:30pm and 4:30pm with an average of 18 vehicles leaving the Whitney Portal area during that hour. The division between inbound and outbound vehicles was even with an average daily traffic count of about 185 vehicles in each direction. The temporal distribution for the average day of inbound, outbound and total vehicles at the Whitney Portal area is shown in Graph 21 above.



Graph 22: Whitney Portal cumulative number of inbound vehicles on a virtual day



Graph 23: Whitney Portal traffic distribution by day of week



Graph 24: Whitney Portal speed statistics

The cumulative vehicle count for an average day at the Whitney Portal area shows a steady growth in inbound vehicle counts between 7:00am and 1:00pm with a waning growth rate until 7:00pm. By 7:00pm 92% of all vehicles expected to arrive on an typical day have entered the Whitney Portal recreation area. See Graph 22 to the left.

Traffic distribution by day of week is fairly even for the Whitney Portal recreation area. No particular day of the week or combination of days dominates the traffic distribution. Individually, neither weekend day commands a strong proportion of the vehicular traffic. Weekend days (Saturday and Sunday) combined account for approximately 38% of total weekly traffic. See Graph 23 to the left.

The posted speed on the segment of Whitney Portal Road where traffic data was collected is 35 miles per hour. The average speed of vehicles entering the Whitney Portal recreation area was 33 miles per hour. Outbound vehicles had an overall higher average rate of speed than inbound vehicles. Eighty-five percent (85%) of vehicles were traveling at or below 42 miles per hour. See Graph 24 above.

Parking survey methodology

Parking data was collected to determine the demand for parking. Demand for parking was noted in the 2007 Interagency Technical Advisory Group review as the measure for visitor demand and an indicator of areas ready for enhanced alternative transportation initiatives. Formal parking areas, as well as roadside parking areas were inventoried and counted. Roadside parking is permitted along much of the Whitney Portal Road. Roadside parking provides overflow parking to congested parking lots in this high demand area at peak periods.

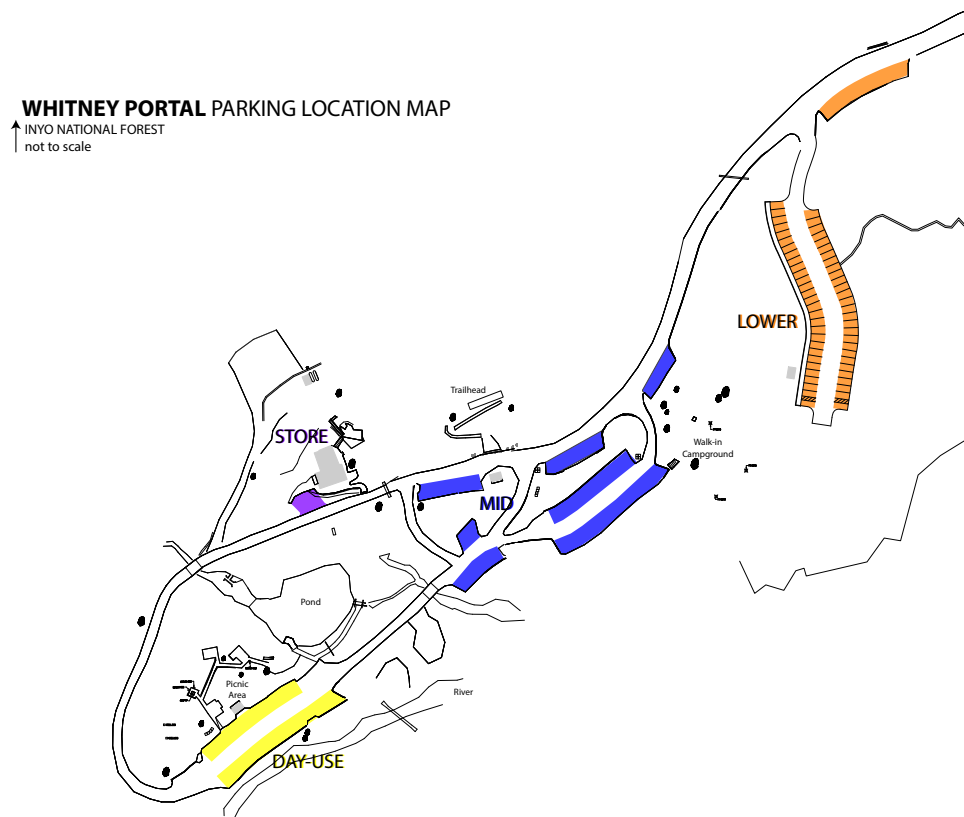
A parking lot survey including written protocol instructions, parking location map and a survey instrument was created specifically for the Whitney Portal recreation area. Data was collected on 44 randomly selected days during the May 1st to October 31st, 2011 survey period. Vehicle counts were performed 13 times, at half-hour intervals, between 9:00am and 3:00pm on data collection days. Data collection time intervals maximized the number of data collection points per day given the travel time limitations to the location and around the site.

The written survey protocol instructions were designed to maintain consistency in data collection methods between research staff members. The explicit instructions specified data collection locations and the appropriate way to record observations on the survey instrument. Experienced team members conducted data collection field training. This measure ensured the understanding and accuracy of the survey protocol by first time research assistants.

A parking data collection instrument was developed for the Whitney Portal recreation area.

The Whitney Portal recreation area offers parking specific to day-use and overnight users. The area has 161 generally available parking spaces that are divided by parking restriction into day-use only and overnight parking areas. The single day-use parking lot has 32 standard and 2 accessible designated parking spaces available for use between 8:00am and 8:00pm daily. Overnight parking is prohibited in the day-use parking lot. One-hundred and twenty-nine (129) overnight paved parking spaces are scattered along the Whitney Portal entrance road, amongst the trees in the recreation area and in a large paved lot. Two (2) accessible designated parking spaces are available in the Lower parking lot. The Whitney Portal Store has 3 parking spaces reserved for patrons.

Vehicle parking was inventoried in marked paved parking spaces using a tally sheet format. Any off pavement parking or roadside parking along Whitney Portal Road was attributed to unmet demand for parking spaces in that location and credited to the nearest parking lot. A diagram of the parking lot locations corresponded with the parking lot names on the data collection instrument is shown to the right in Map 10.



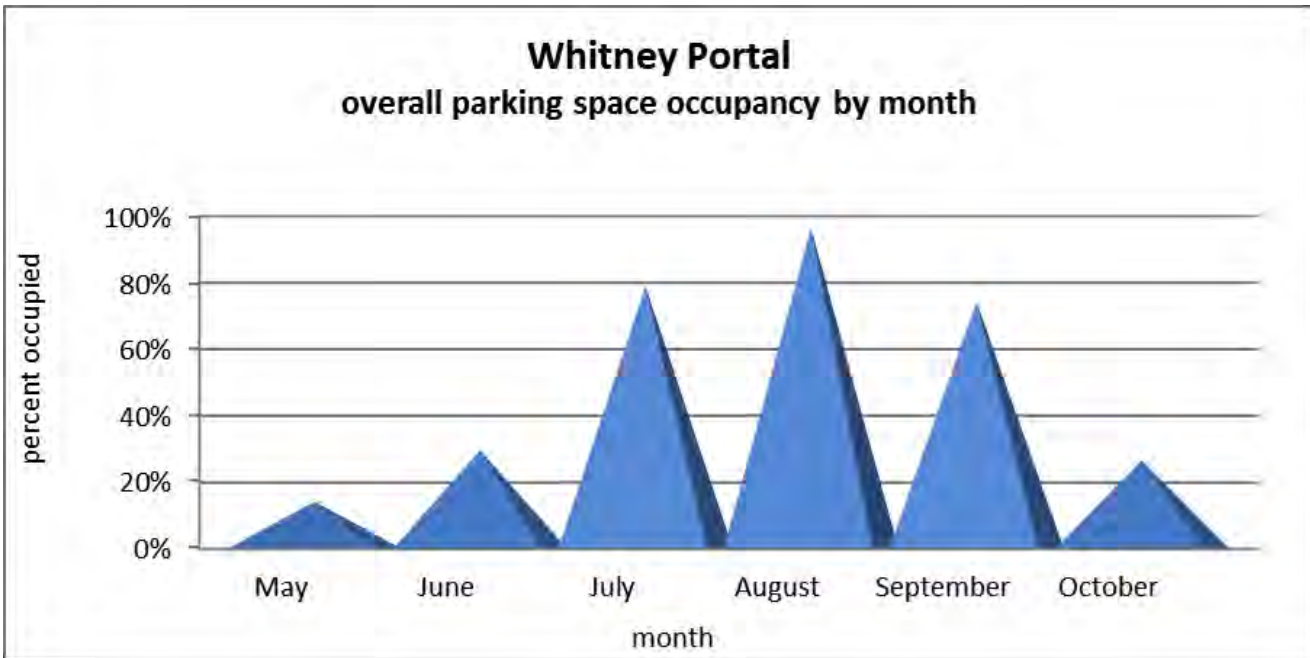
Map 10: Whitney Portal parking location map

Location:	Whitney Portal		Parking Survey						
Weather:	Hot/Sunny								
Date:	6/26								
Time:	9:00am	9:30am	10:00am	10:30am	11:00am	11:30am	12:00noon		
Parking lot:	Store P1	POV (1)							
# POVs:	0	1	1	0	2				
# off pavement:									
Comments:	1 space occupied by store employee								
Parking lot:	Day-Use P2	POV (3), HC (2)							
# POVs:	1	2	2	2	2	5	16		
# off pavement:									
# dirt parking:									
Comments:									
Parking lot:	Mid P3 P1	POV (6)							
# POVs:	25	25	27	29	30	31	30	103	
# off pavement:									
Comments:									
Parking lot:	Lower P3 P2	POV (6), HC (2)							
# POVs:	2	2	2	1	1	1	1		
# off pavement:									
Comments:									

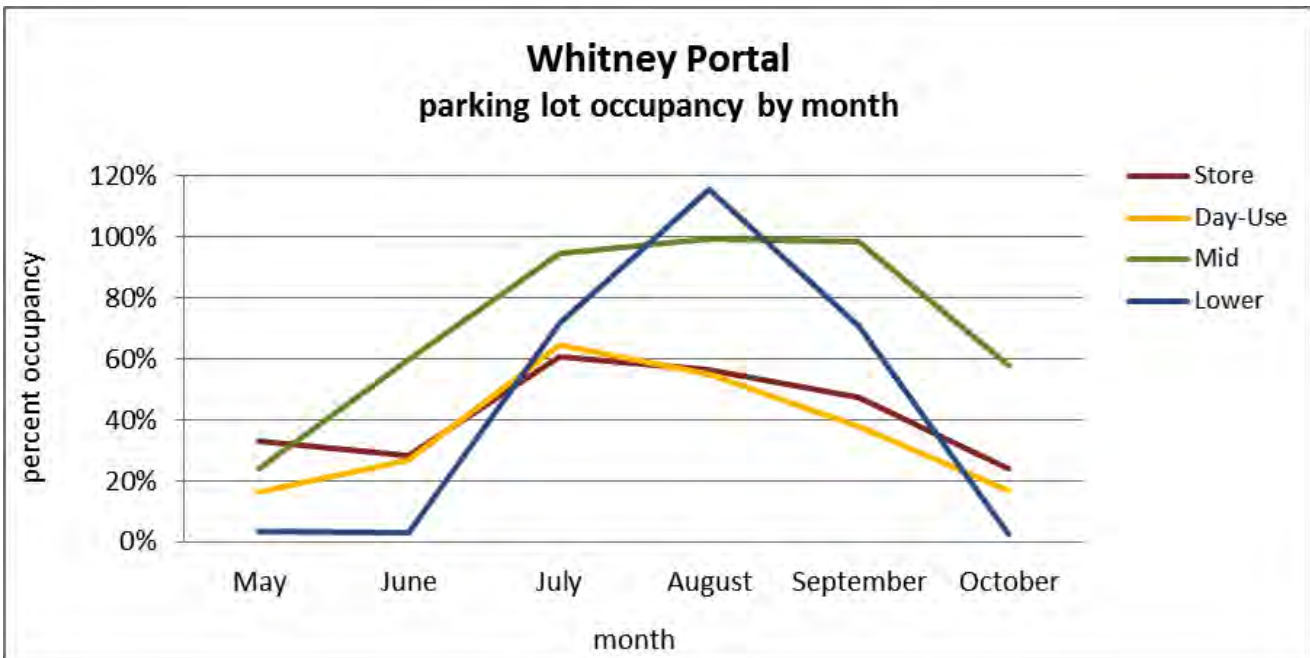
Figure 19: Parking data collection sample form

Survey areas included parking lots and roadways within the Whitney Portal recreation area. Parking lots were divided into defined parking areas based on their location and any parking restriction and titled with descriptive names. Parking lot locations included the Store, Day-Use, Mid and Lower parking areas. All parking lots were paved and striped with a specific number of parking spaces. The number of personal occupancy vehicle (POV) and accessible (HC) parking spaces available in each parking area was noted on the survey instrument.

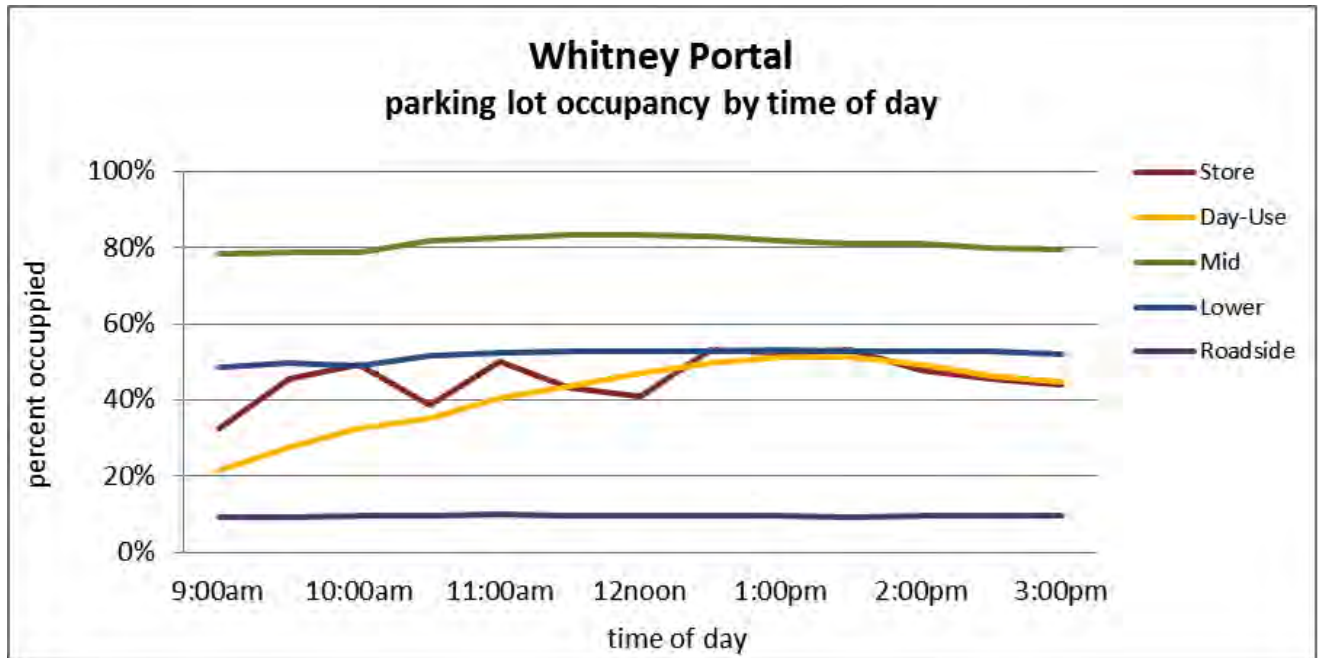
The Whitney Portal parking survey protocol and data collection instrument are provided in Appendix D.



Graph 25: Whitney Portal overall parking space occupancy rate by month



Graph 26: Whitney Portal parking lot occupancy by month by parking area



Graph 27: Whitney Portal parking lot occupancy by time of day by parking lot

Parking data analysis

Parking lot occupancy in the Whitney Portal recreation area was analyzed to determine the demand for parking. Average occupancy levels at each parking lot were calculated by month and for time of day. The consumption of parking spaces by parking restriction shows the demand for day-use versus overnight parking spaces.

The overall seasonal parking space occupancy rate, including day-use and overnight parking spaces, for the Whitney Portal recreation area was 64% of parking spaces occupied. Parking demand varied greatly by month. Separating parking demand by individual month shows the high demand in July, attributed to significant day-use demand in the beginning of the month and demand for overnight parking later in the month; and August, when the demand for overnight parking spaces exceeds supply. Overall parking space

occupancy was near capacity for the month of August; however, if all the vehicles needing a parking space were parked in a paved marked spot, there would still be excess parking spaces during the peak period. See Graph 25 to the left.

When viewed by individual parking area, the occupancy rates vary greatly. Though July was the peak visitation month by number of visitors counted, August was the peak month for parked vehicles. The occupancy rate of the Mid parking lots is nearly 100% from July through September. Additional demand for overnight parking spaces filters to the Lower parking lot where by August parked vehicles exceed the parking space capacity. Occupancy rates in excess of 100% are attributable to vehicles parked roadside or in non-designated areas of parking lots such as between marked spaces, off pavement or in no parking areas. See Graph 26 to the left.

Occupancy rates for individual parking areas when viewed by time of day are rather flat. The Store lot parking occupancy waives between 30% and 50% but never exceeds 50% occupancy. The Day-Use parking lot shows growth in usage throughout the day with maximum demand of 51% in early afternoon. The Mid, Lower and Roadside parking lots areas are stagnant throughout the day with 80%, 50% and 10% occupancy rates. See Graph 27 on previous page. (Note: The Roadside parking lot is combined into the Lower parking area for all subsequent analyses.)

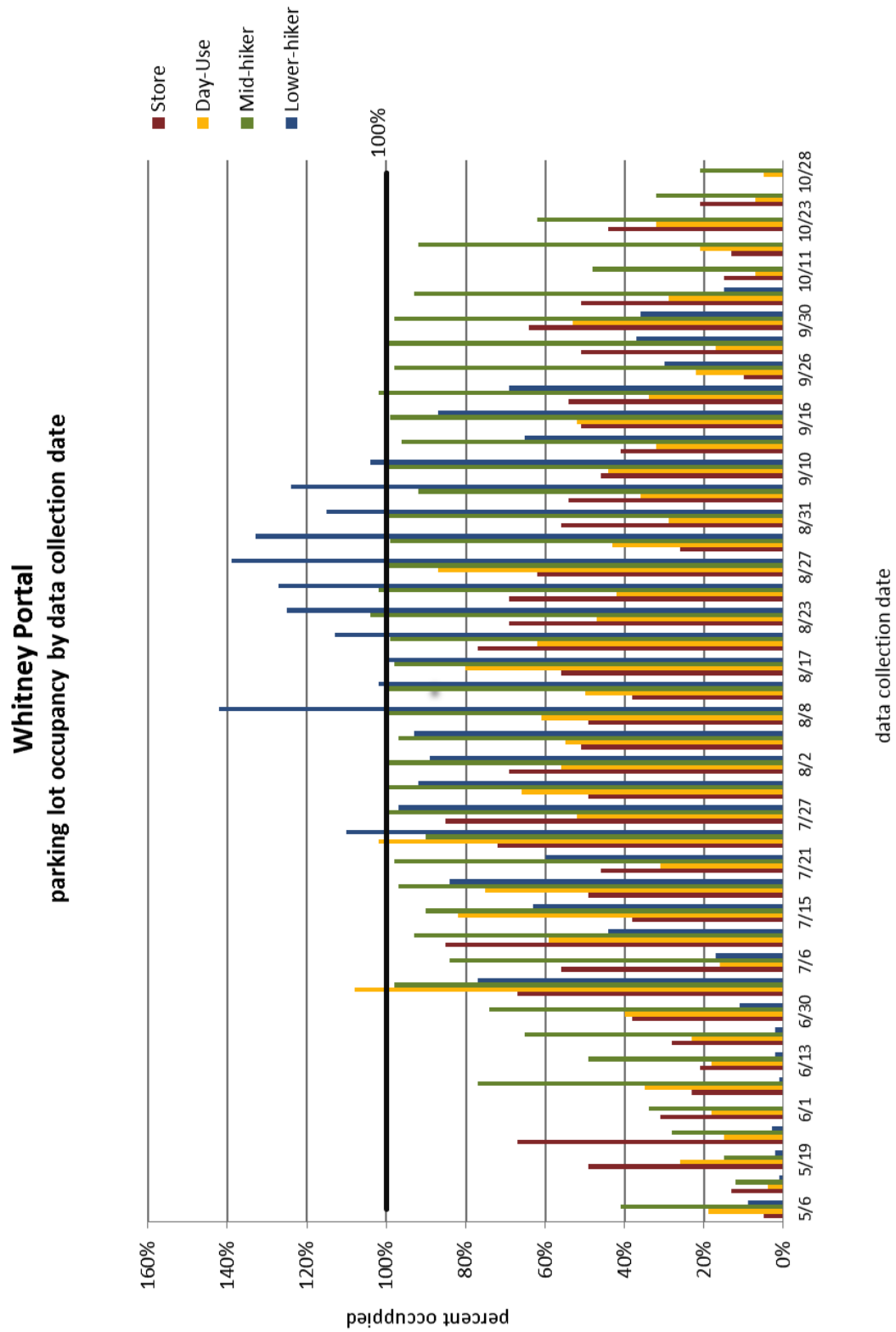
The complete data set for the parking survey is graphed in the “Whitney Portal parking lot occupancy by data collection date” graph. The data shows that the Day-Use parking lot exceeded capacity on 2 data collection days. On days when demand for day-use parking spaces exceeded the supply of spaces excess parking capacity was available in the Mid and Lower parking areas. The overnight parking lots can absorb the excess demand for day-use parking. See Graph 28 to the right.

Overnight parking is restricted to the Mid and Lower parking areas. By the end of July the Mid parking area is consistently at maximum capacity through the end of September. The Lower parking area reaches capacity at the beginning of August and exceeds capacity through the beginning of September due to inclusion of roadside parking. Parking along the roadside acts as an overflow for excess overnight parking demand. Though there may be surplus supply of day-use only parking spaces in the times of peak overnight parking demand, the spaces cannot be utilized by overnight visitors due to the parking restriction.

Parking restrictions apply in various locations within the Whitney Portal recreation area. Overnight parking is restricted in the Day-Use parking lot with parking prohibited between 8:00pm and 8:00am. Overnight parking is permitted in the Mid and Lower parking areas and on certain segments of the Whitney Portal Road. Signage at the Store parking lot designates parking for customers of the Whitney Portal Store only. Red curbing and no parking signs restrict roadside parking in various locations along the Whitney Portal Road and within the recreation area. No parking pavement markings prohibit parking in areas of the Day-Use and Mid parking lots.

Parking restrictions can create competition for parking when types of parking spaces (overnight and day-use) are not appropriately proportioned. A day-use visitor may park in a parking space designated as overnight; however, an individual needing to park overnight may not legally park in a day-use restricted parking space. When a gross number of parking spaces is provided at a location, the balance between the types of spaces provided should be consistent with the demand for those types of spaces.

Parking spaces were distributed by parking restriction into day-use only and overnight permissible parking. The Day-Use parking lot permits parking between 8:00am and 8:00pm only. The Mid and Lower parking areas allow overnight parking as does the roadside along the Whitney Portal Road.



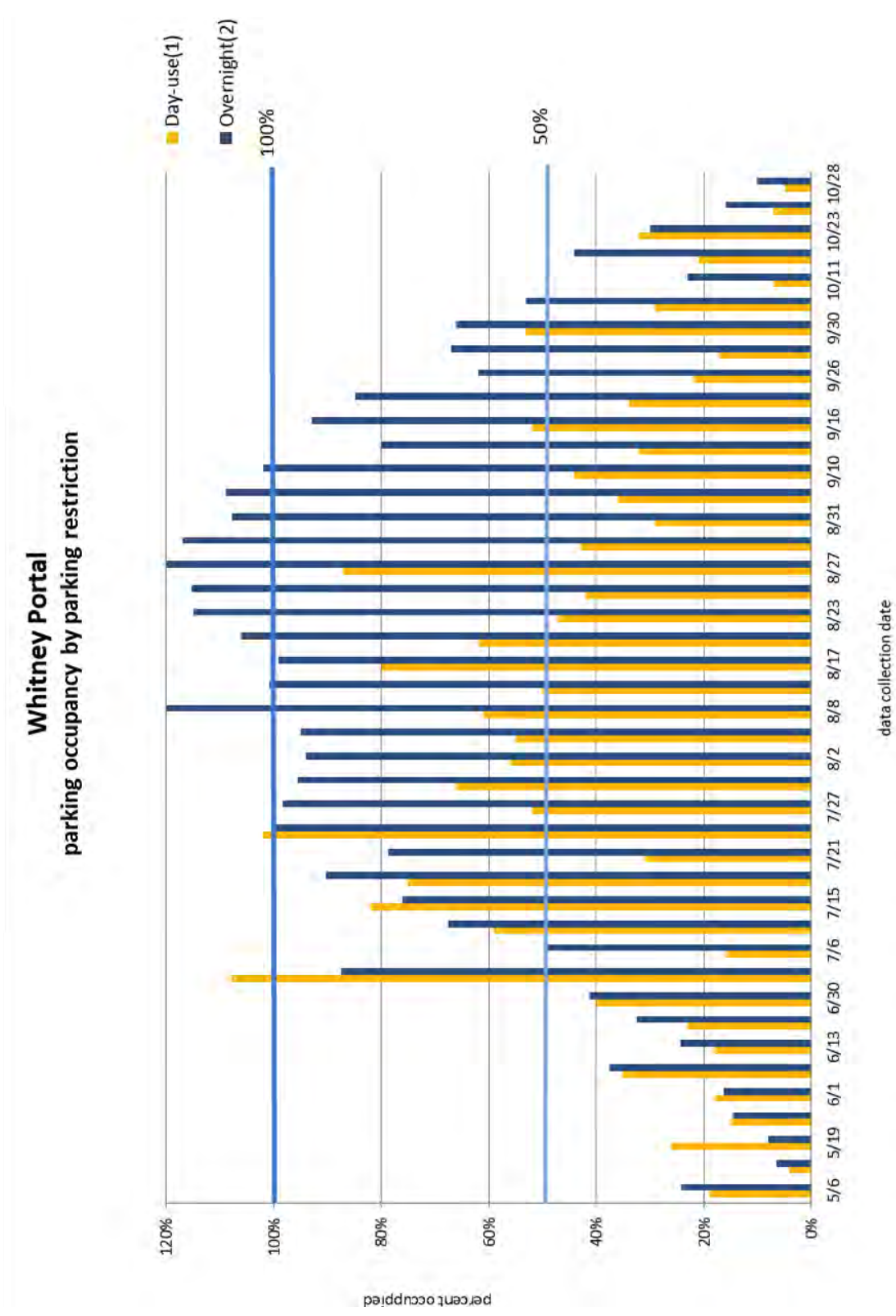
Graph 28: Whitney Portal parking lot occupancy by data collection date



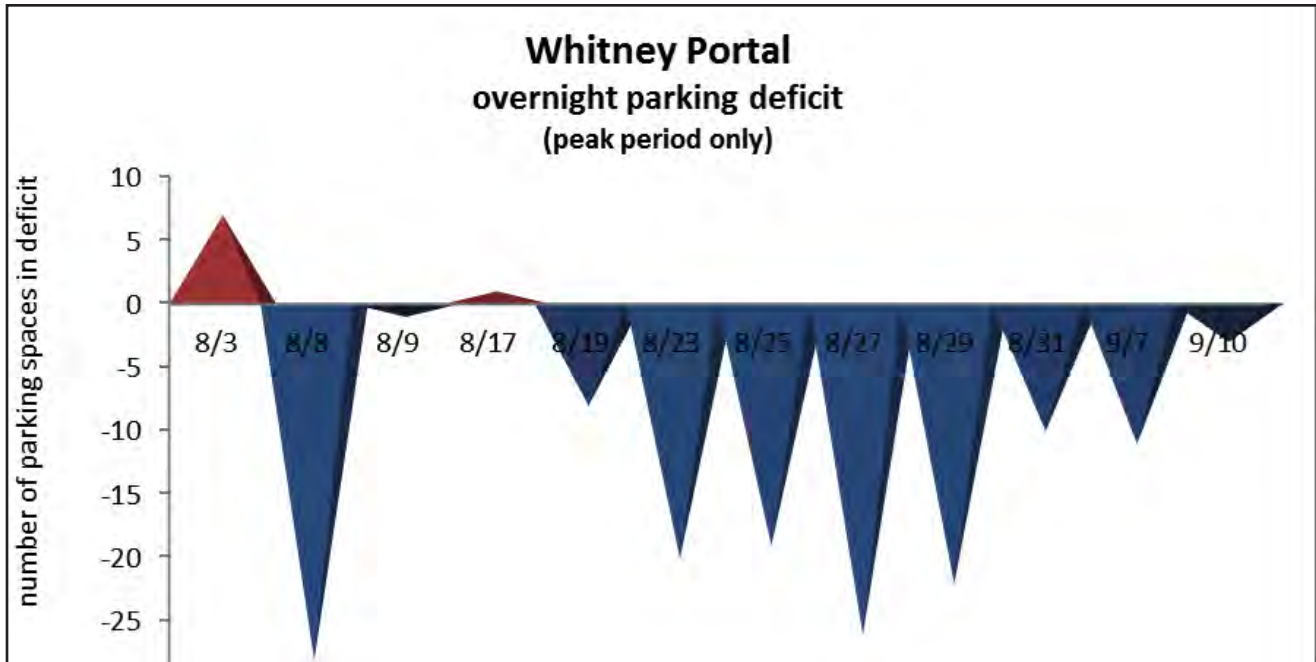
Graph 29: Whitney Portal parking lot occupancy by parking restriction

The parking occupancy rate for day-use type parking was greatest in July when a maximum monthly occupancy rate of 65% was achieved as shown in Graph 29 above. The overnight parking occupancy rate for the month of July was 83%. In August, the overnight parking occupancy rate peaked at an average of 108% while the day-use occupancy level fell to 55%. During the peak visitor and parking periods of July and August nearly 40% of day-use restricted parking spaces went underutilized while demand exceeded capacity for overnight spaces.

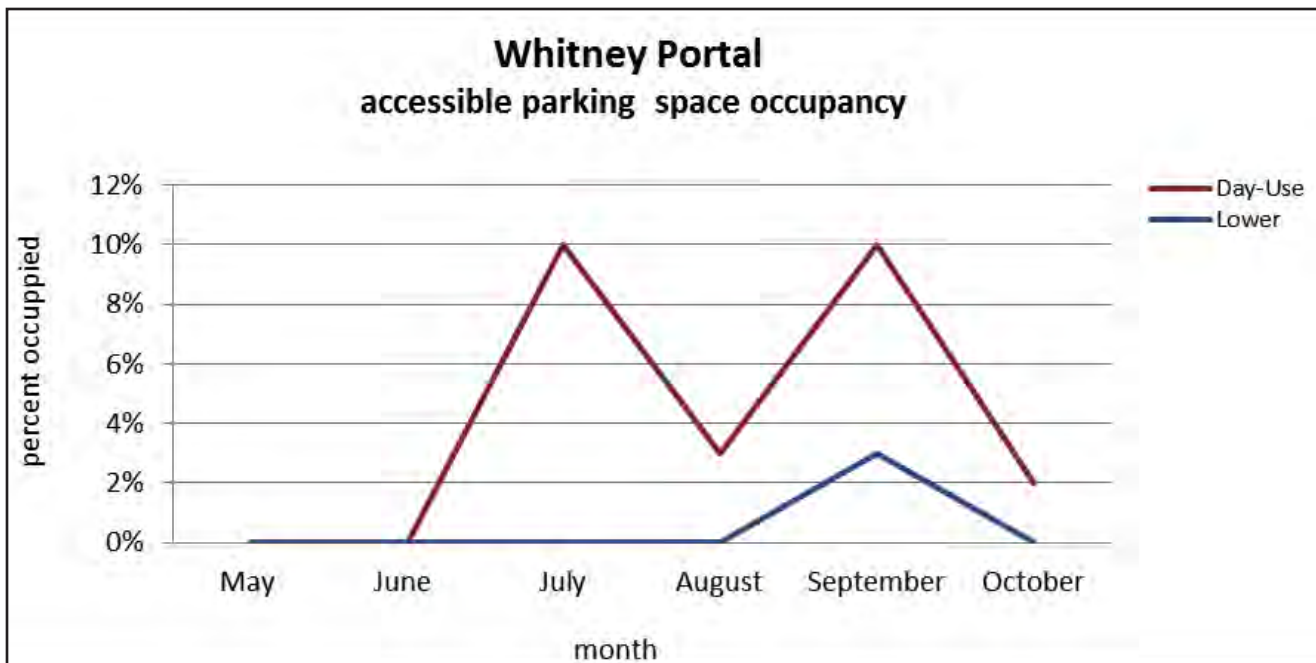
The “Whitney Portal parking occupancy by parking restriction” graph shows the total data set distribution of day-use and overnight parking counts. A line at the 100% and 50% cutoffs has been added to the graph to highlight dates when parking occupancy exceeds those thresholds. Overnight parking space capacity is nearly reached by the end of July and fully exceeded throughout August. Day-use parking space occupancy consistently reaches 50% for the peak months of July and August but only exceeds an 80% rate on a few occasions. Generally, in the Whitney Portal recreation area there is a surplus of day-use restricted parking spaces and a deficit of overnight parking spaces. See Graph 30 to the right.



Graph 30: Whitney Portal parking occupancy by parking restriction



Graph 31: Whitney Portal overnight parking deficit



Graph 32: Whitney Portal accessible parking space occupancy

A detailed review of the overnight parking deficit yielded the results shown in the “Whitney Portal overnight parking deficit” graph. Parking demand for paved marked overnight spaces exceeded capacity for approximately 4 weeks in August and the beginning of September. The maximum number of additional overnight parking spaces needed to meet peak parking demand was 28. The average number of deficit parking spaces was 15. See Graph 31 to the left.

Parking shortages of paved marked parking spaces are met with roadside parking along the Whitney Portal Road. The unpaved shoulder of the entrance road to the Whitney Portal recreation area allows roadside parking on the downhill/outbound side.

Accessible parking spaces are designated in the Day-Use and Lower parking lots. Each parking lot has 2 restricted spaces. The Day-Use accessible parking spaces were rarely used and the spaces in the Lower lot were used on a single day in September. See Graph 32 to the left.

Trail permits data analysis

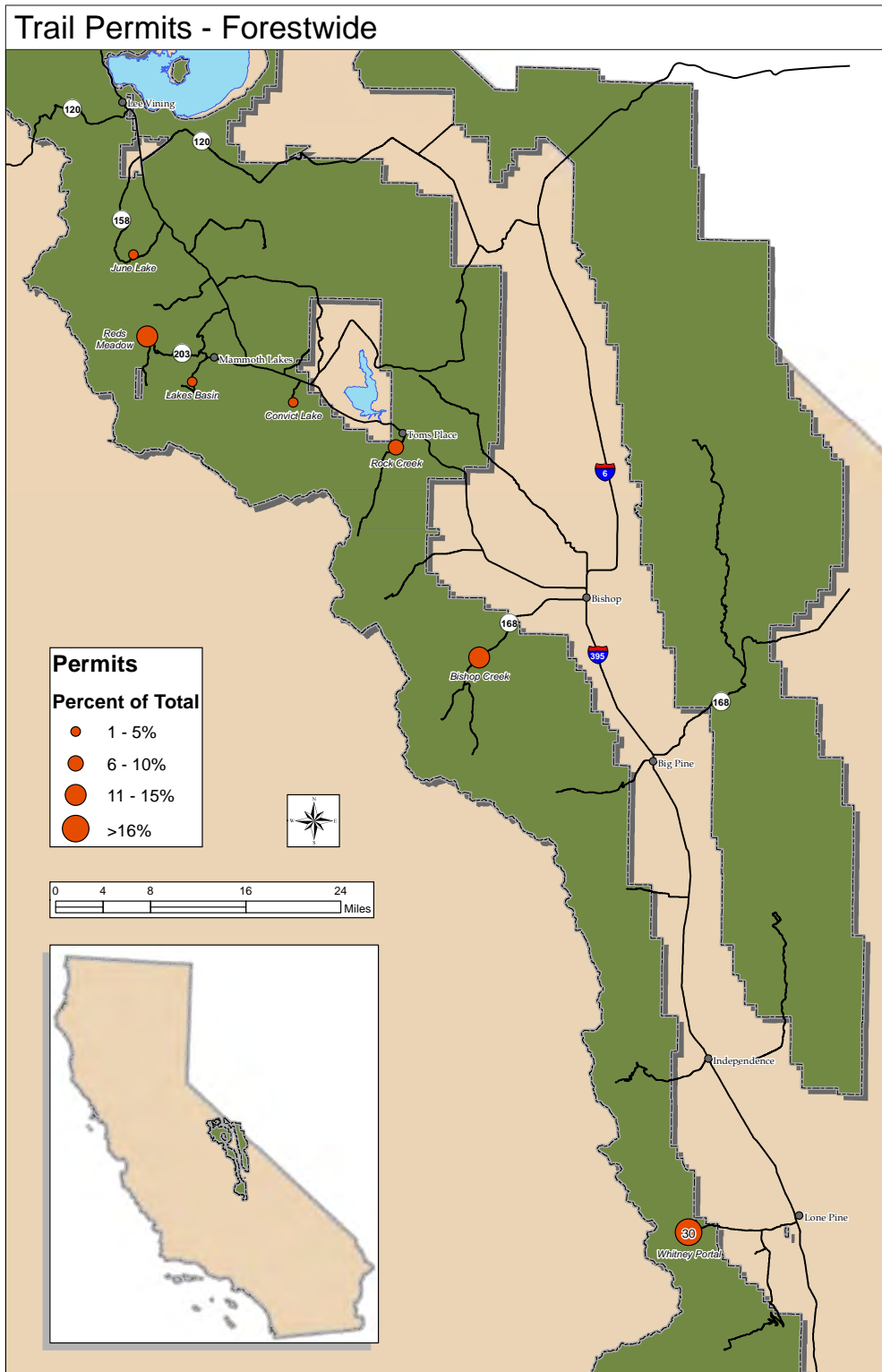
Trail permit data was mined to access demand at entrance and exit points, length of backcountry stay and party size. Trail permit data for the Inyo National Forest spanned the years 2006 through 2010 for the Wilderness trail permit quota period May 1st through October 31st. Yosemite and Sequoia and Kings Canyon National Parks supplied data relevant to the Inyo National Forest for the same period. Please see next page for forestwide trail permit map.

The Mount Whitney Trail is the most popular Wilderness hiking trail on the Inyo National Forest. The Whitney Portal Basin, including the Mount Whitney, North Fork Lone Pine and Meysan Lakes Trails, accounts for 32% of all hiking permits issued on the Forest.

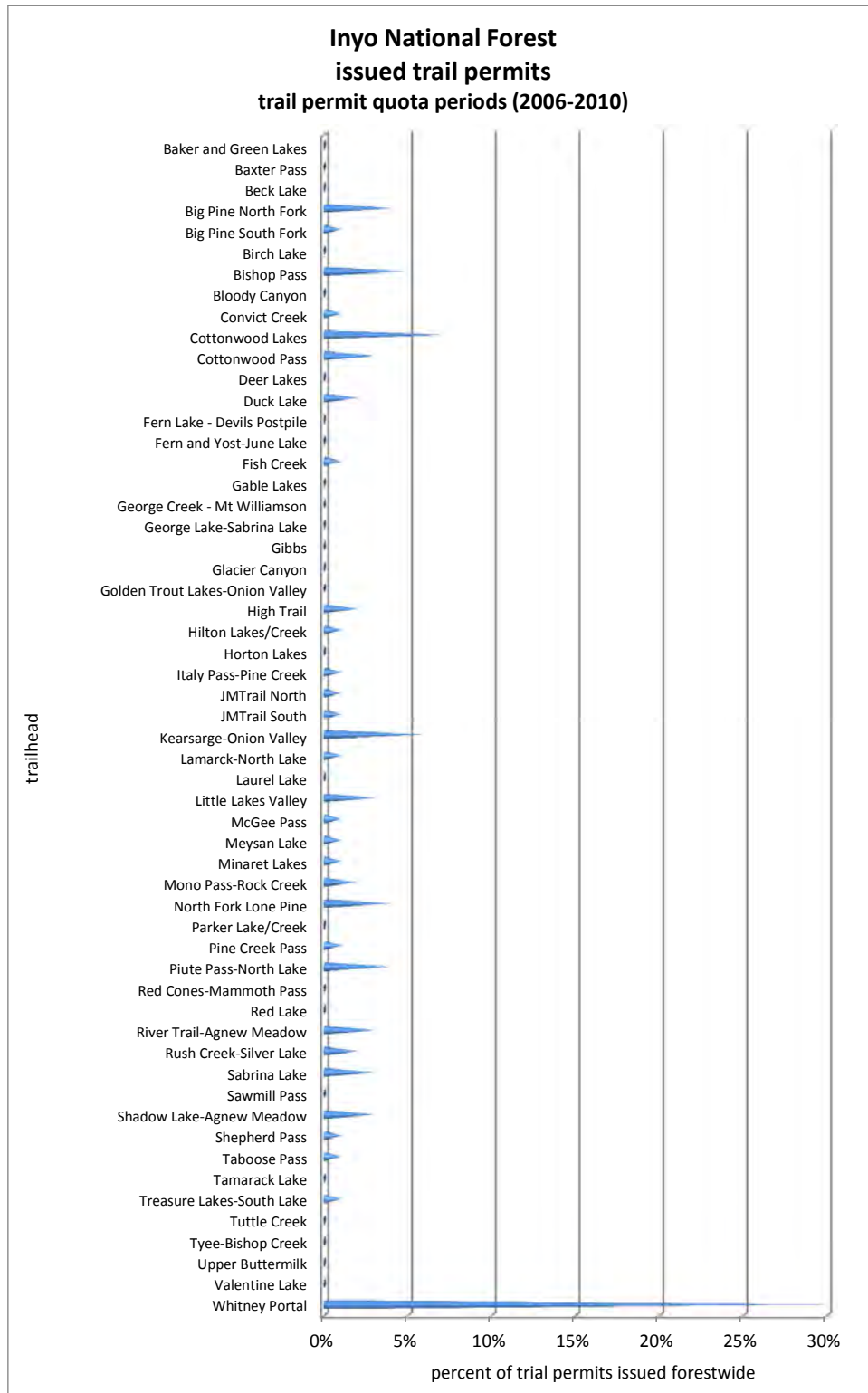
Inyo National Forest issued trail permits for trail permit quota periods (2006-2010)	
basin	% of total
<i>Whitney Portal</i>	32%
Bishop Creek	15%
Reds Meadow	12%
Rock Creek	6%
June Lake	3%
Lakes Basin	3%
Convict Lake	1%
Other locations	28%
Total	100%

Graph 33: Inyo National Forest trail permit distribution by basin (multiple trails may be included in a single basin location)

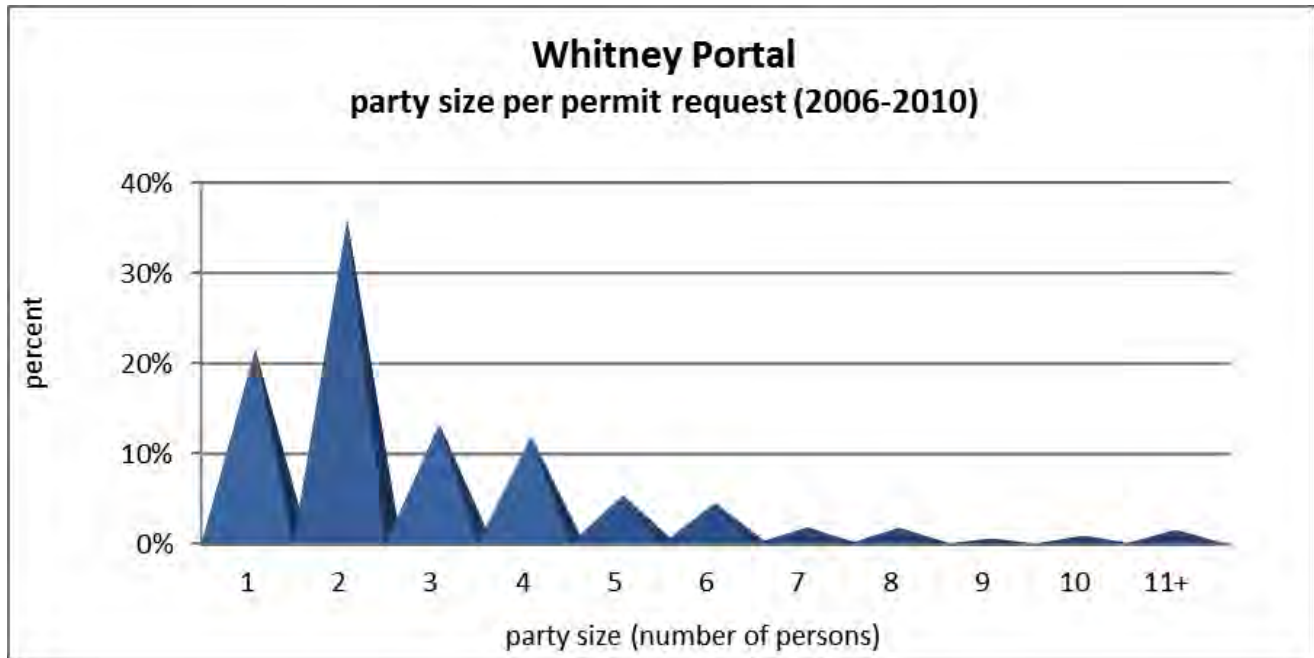
Hiking demand at the Mount Whitney Trail dwarfs all other entry points on the Inyo National Forest. The trail alone accounts for 29% of all issued trail permits. On average about 5,500 permits are issued per year for the Mount Whitney Trail.



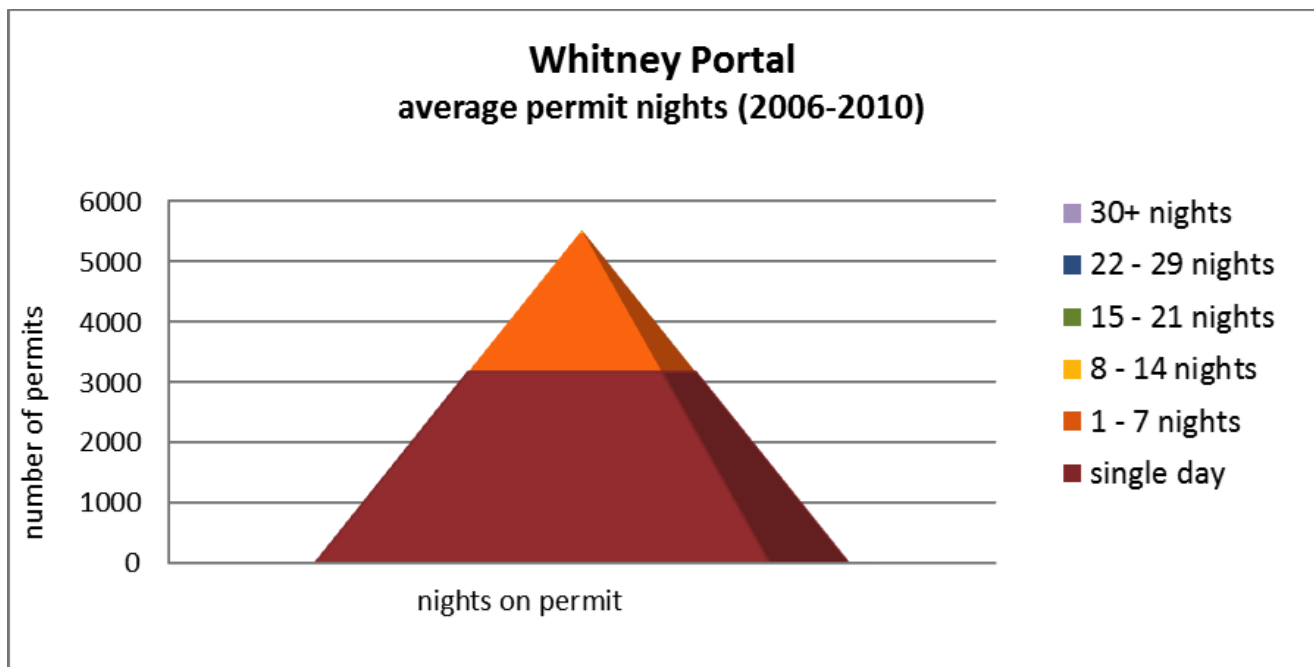
Map 11: Inyo National Forest trail permits issued by location



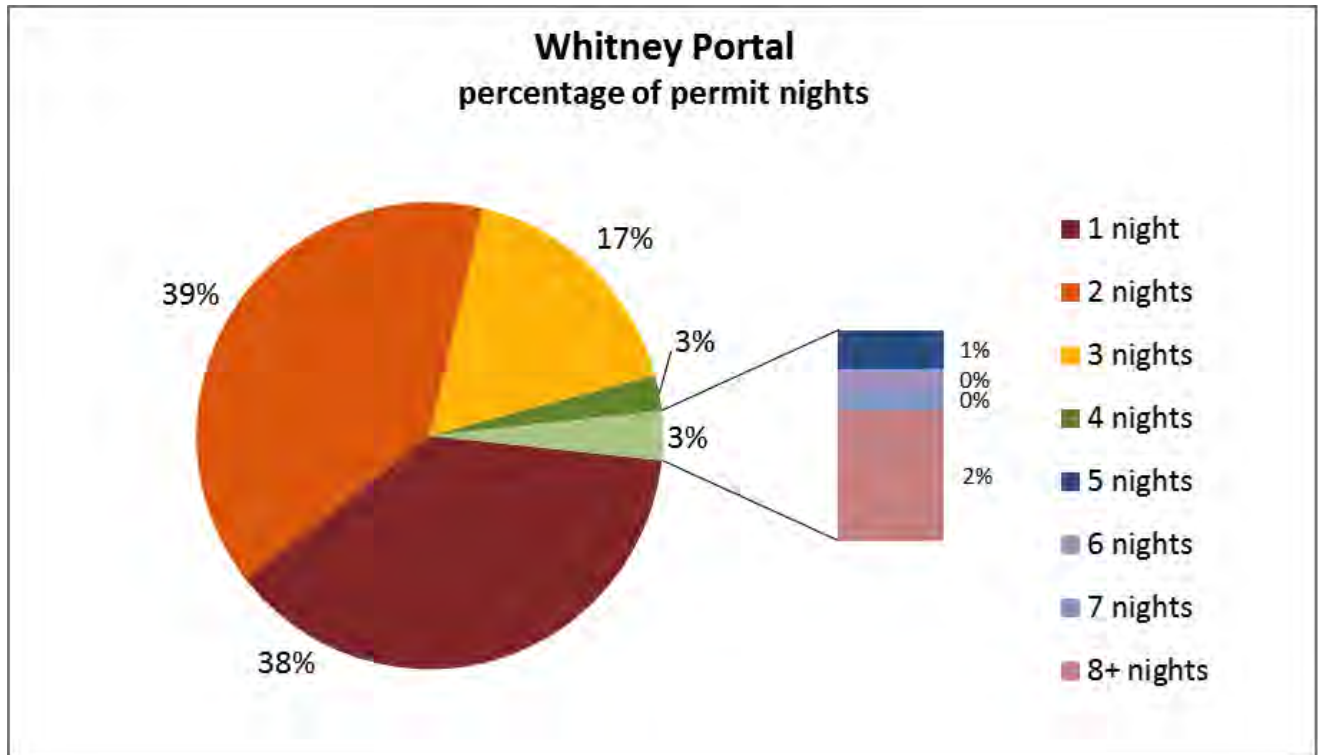
Graph 34: Inyo National Forest trail permit distribution by trailhead



Graph 35: Whitney Portal party size per permit request



Graph 36: Whitney Portal average permit nights

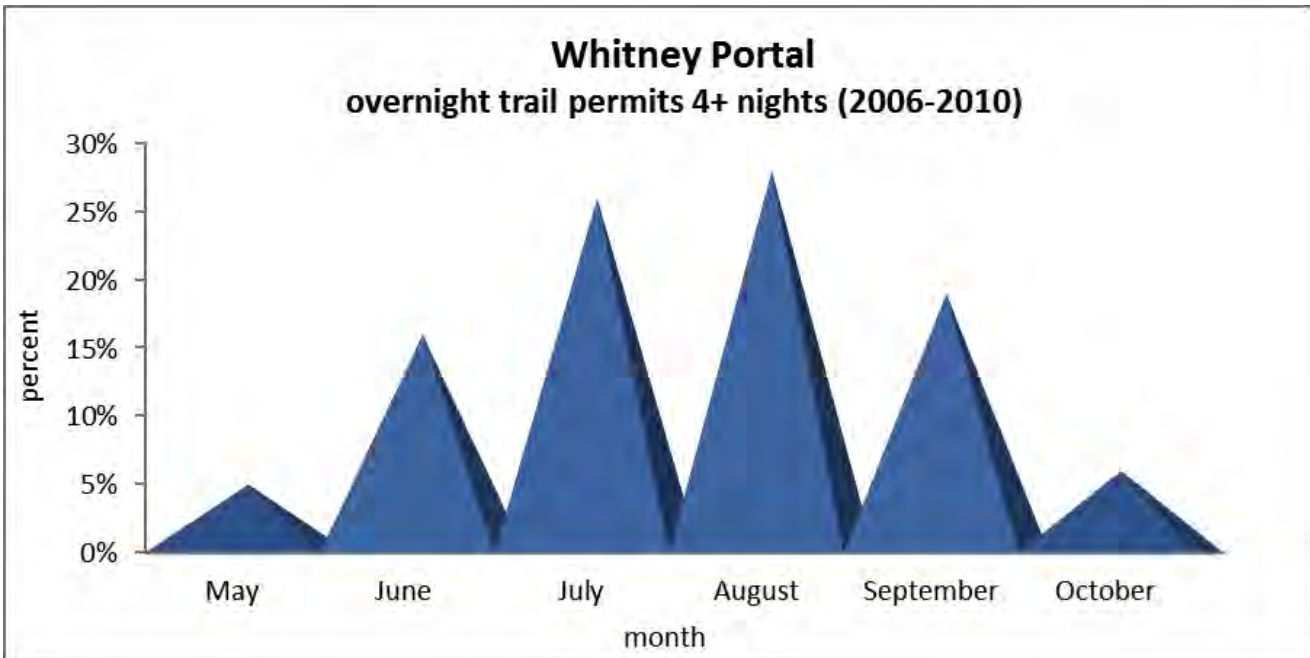


Graph 37: Whitney Portal length of stay for overnight permits

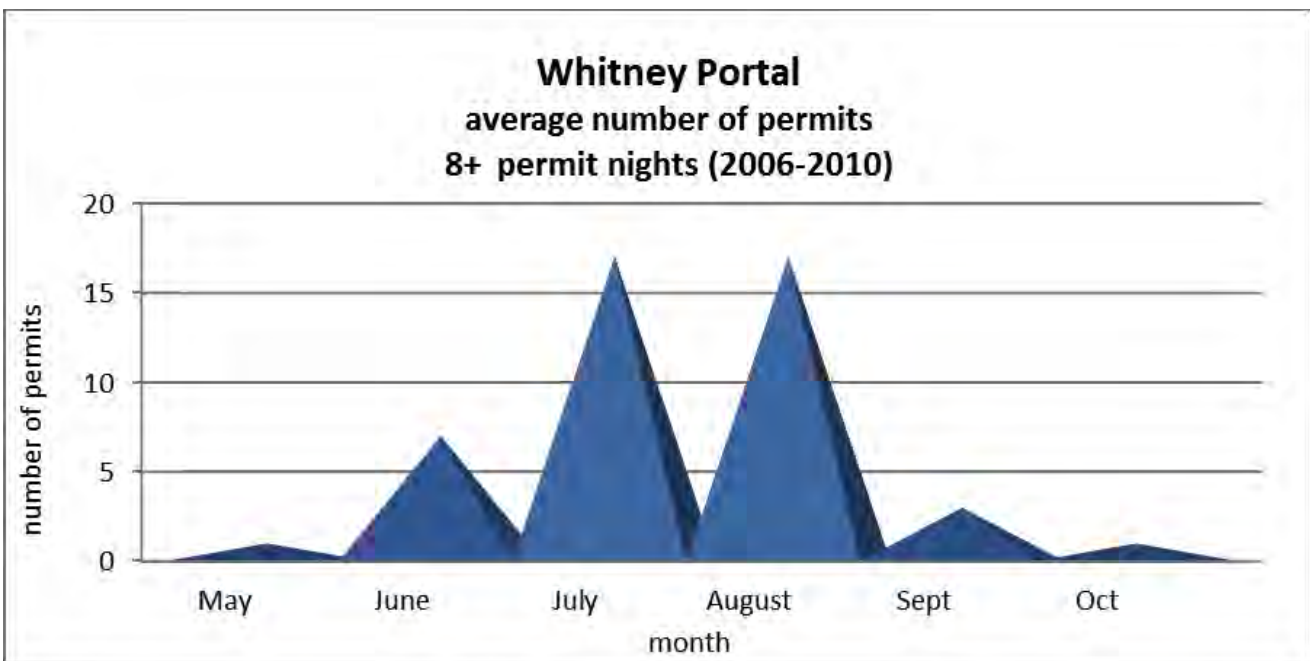
Despite the large number of people hiking the Mount Whitney Trail, the average party size per group is small. The average party size, regardless of length of stay, for groups hiking the Mount Whitney Trail was 3 people. The average party size for single day permits was 3 people. For groups staying for long periods of time (4 or more nights) the average party size dropped to an average of 2 people. See Graph 35 to the left.

Most of the groups hiking the Mount Whitney Trail are single day users. Fifty-nine percent (59%) of issued permits are for a single day trip with entry and exit on the same calendar day and no overnight stay. And of all permits issued, including single day permits, 94% are for 3 or less nights. On average about 138 overnight trail permits per year are issued for stays of 4 nights or more. See Graph 36 to the left.

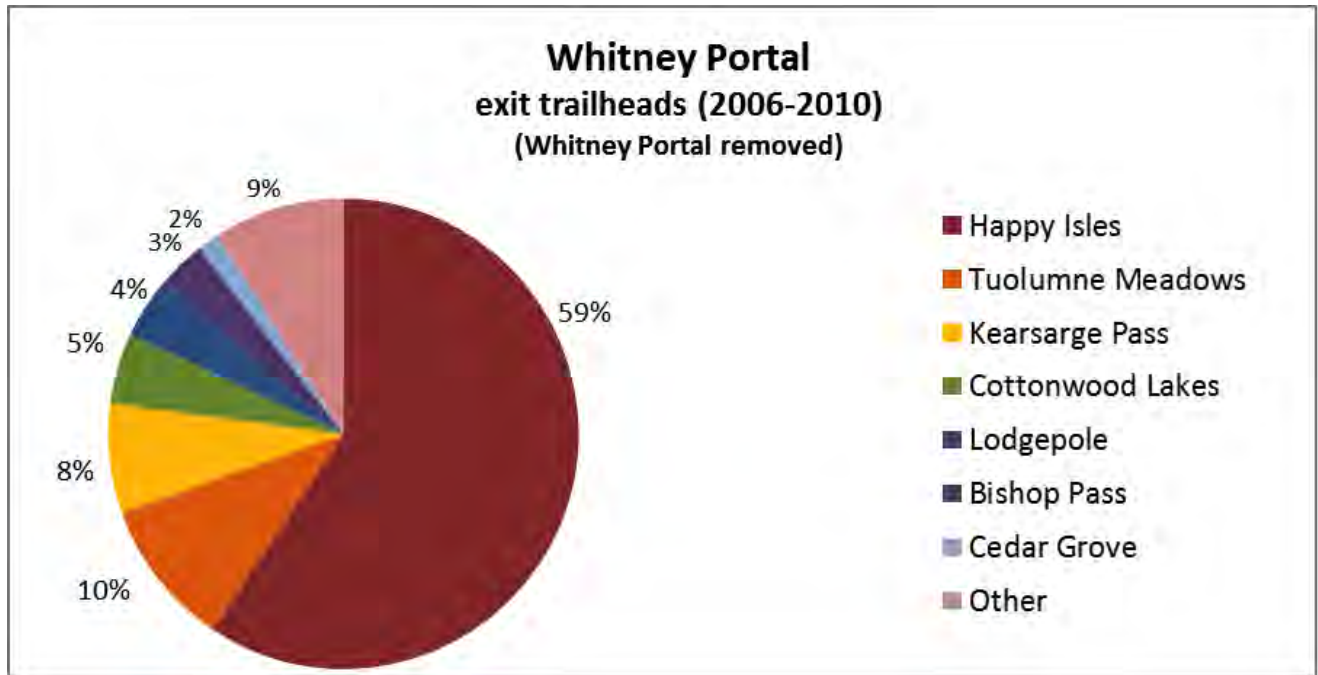
Single day permits were removed from the data set and trail permits that included an overnight stay were analyzed. Issued trail permits with an overnight stay account for 41% of all Mount Whitney Trail permits or about 2,200 permits per trail quota season. Single night stays averaged about 880 permits per year, 2 nights averaged about 920 permits and 3 night stays about 400 permits issued per trail quota period. Overnight trail permits with a 1 to 3 night stay account for 94% of all overnight trail permits. The balance of issued permits for 4 or more nights averages about 138 permits per year. The average number of nights stay for all overnight trips is 2 nights. See Graph 37 above.



Graph 38: Whitney Portal average number of permits 4 or more nights



Graph 39: Whitney Portal average number of permits 8 or more nights



Graph 40: Whitney Portal exit trailheads
N=271 permits 2006-2010

Three (3) night stay appears to be the break point between short term round trip hikes of Mt. Whitney and long term one-way hikes to other locations. Though only 6% of overnights permits are issued for greater than 4 night stays, the trips were lengthy in time and distance. For trail permits of 4 or more nights, the overall average length of stay was 9 nights. The overall average number of permit nights for permits with 8 or more nights was 18 nights. See Graph 38 to the left.

Hikers that entered at the Whitney Portal area and stayed in the backcountry for extended periods of time began their journeys in July and August. The 2 months combined accounted for nearly 54% of permits issued for 4 or more nights. See Graph 39 to the left.

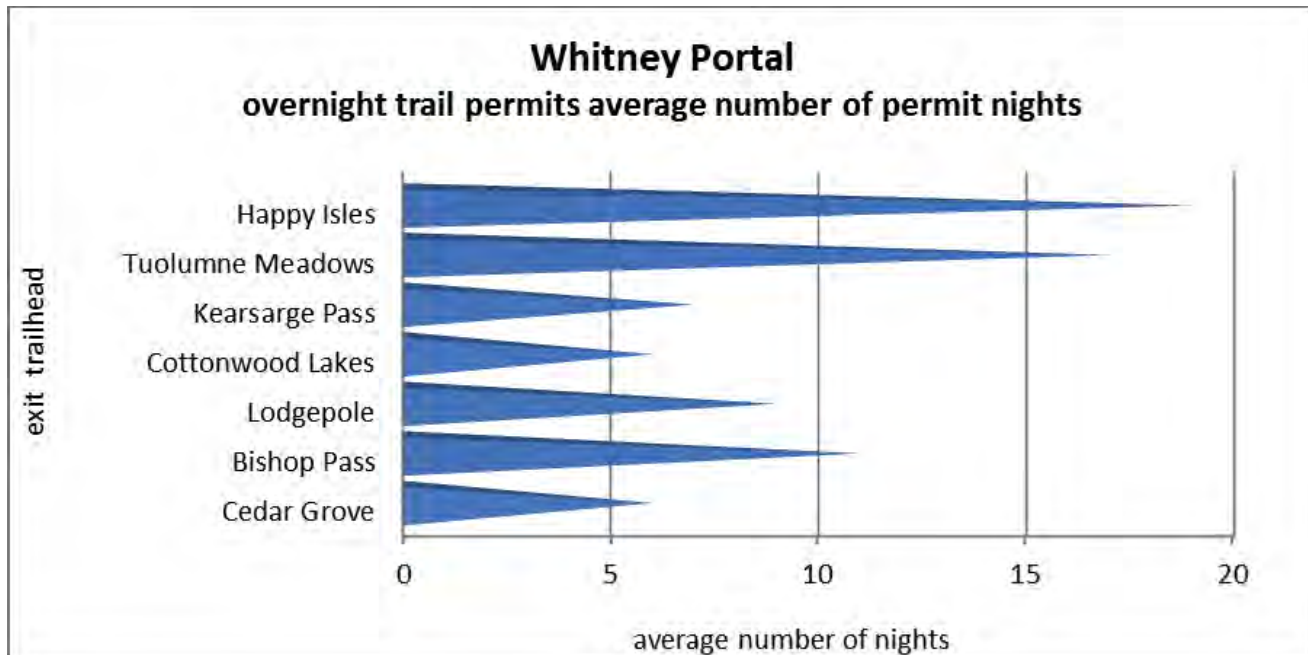
The data for issued permits with 8 or more permit nights shows that 68% were issued in July and August. Though the average number of permits issued for 8 or more nights was small, at 17 permits each for July and August, the trip duration averaged 18 nights.

Exit destinations were researched for overnight hikers entering at the Mount Whitney Trailhead. Nearly all Mount Whitney Trail overnight hikers, 98% of issued overnight trail permits, entered and exited in the Whitney Portal area. The balance of overnight permits, an average of 54 trail permits per year, entered at the Whitney Portal area and exited elsewhere on the Inyo National Forest or another neighboring public lands trailhead. By removing permits exiting at the Mount Whitney Trailhead a more detailed analysis of exit locations may be performed.

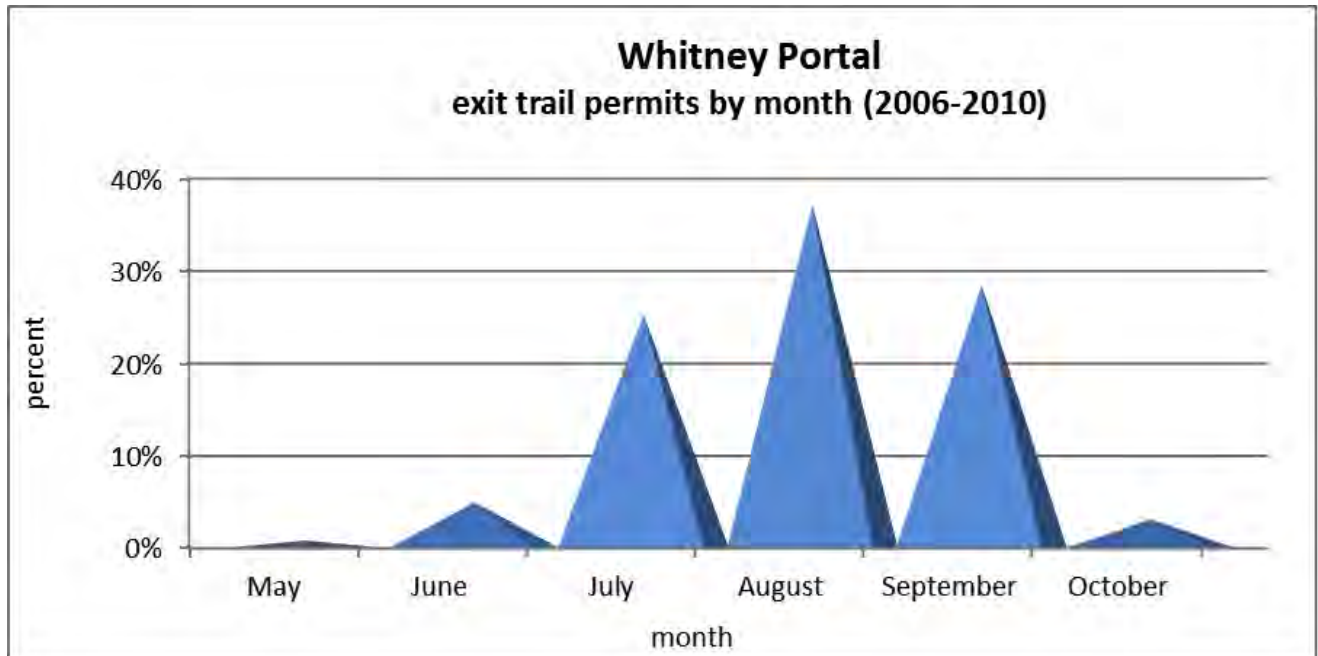
One-way hikers exited at locations on both the western and eastern sides of the Sierra Nevada mountain range. Of the average 54 trail permits per trail quota season that entered at the Mount Whitney Trailhead and exited at another location, about 30 permit groups (59%) exited at Happy Isles Trailhead located on the western side of the Sierra Nevada mountain range in the Yosemite Valley of Yosemite National Park. The second most popular exit trailhead, with 5 permit groups per year or about 10% of exit permits, was the Tuolumne Meadows area of the Yosemite National Park located near Tioga Pass (State Route 120). About 4 permit groups (8%) exited at the Kearsarge Pass Trailhead located north of the Whitney Portal area with vehicle access from Independence, California located about 15 miles north of the town of Lone Pine. The balance of exit locations accounted for about 2 overnight trail permits per year each. The

top 3 exit trailheads (Happy Isles, Tuolumne Meadows and Kearsarge Pass) accounted for 77% of exit locations outside the Whitney Portal area. See Graph 40 on the previous page.

As shown below in Graph 41, the average number of permit nights varied greatly by exit trailhead location. Hikers that traveled from the Mount Whitney Trailhead to Yosemite Valley took an average of 19 nights to complete their trip. Similarly, hikers to Tuolumne Meadows took an average of 11 nights. Kearsarge Pass and Cottonwood Lakes, locations in close proximity to the Whitney Portal area, had average overnight stays of 6 and 7 nights each. The Cedar Grove Trailhead in Sequoia and Kings Canyon National Park had one of the shortest overnight stays with an average of 6 nights.



Graph 41: Whitney Portal overnight trail permits average number of permit nights by exit trailhead

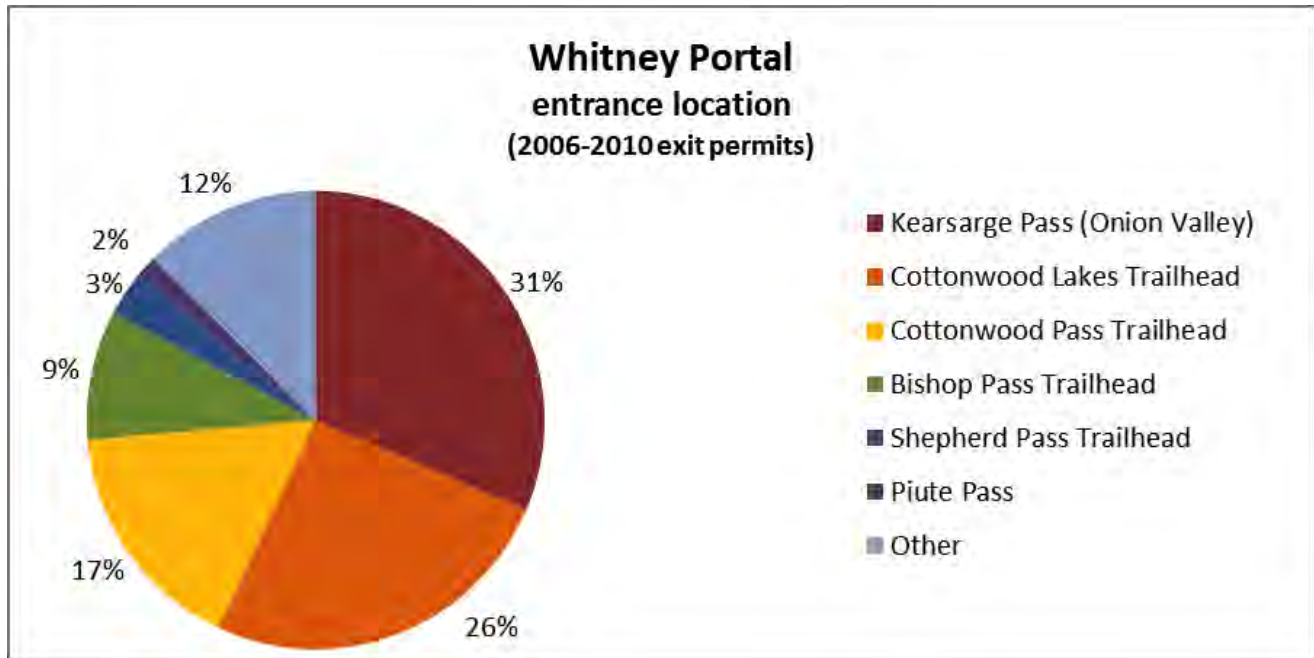


Graph 42: Whitney Portal exit trail permits by month

The Mount Whitney Trail has an exit permit quota for hikers entering at another location and exiting at the Mount Whitney Trailhead. A party may enter the backcountry at any location, however, if they desire to exit at the Mount Whitney Trailhead, an exit permit, in addition to any necessary entrance trailhead permit, is required. A total of 25 exit permits are available per day during the trail permit quota period from May 1st to October 31st.

An average of 493 exit trail permits was issued per trail quota season. Approximately 450 exit permits or 90% are utilized in July, August and September. During the peak month of August on average about 183 parties completed a one-way hiking trip by exiting at the Whitney Portal. The average party size for exit permits was 3 people. See Graph 42 above.

Entrance trailhead data shows the origin of hiking trips that exited via the Mount Whitney Trail. Unlike exit trailhead locations that reported destinations on both sides of the Sierra Nevada mountain range, entry locations were predominantly within the Inyo National Forest. Kearsarge Pass Trailhead is the most popular entry location for hikers exiting at the Whitney Portal, with 31% of permits, or about 140 permits, originating a trip at that location. Cottonwood Lakes and Cottonwood Pass Trailheads are located in the Horseshoe Meadow area accessible via a paved entrance road off of the Whitney Portal Road. The 2 entry trailheads combined accounted for 43% of Mount Whitney Trail exit trailhead permits or about 194 permits per quota period. Bishop Pass and Piute Pass Trailheads are located in the Bishop Creek basin and account for 11% of exit permits,



Graph 43: Whitney Portal entrance location for exit permits (N=2297)

about 50 permits per year. Shepherd Pass Trailhead with 3% of exit permits, about 14 exit permits per year, is located off the Onion Valley Road near the Kearsarge Pass Trailhead. See Graph 43 above for graphic illustration.

Trail permits to hike the Mount Whitney Trail must be picked up at the Eastern Sierra Interagency Visitor Center located on State Route 136 about a mile south of the community of Lone Pine, California. Unclaimed trail permits are redistributed the day before their permit date. On average there were about 810 no shows (490 overnight and 320 single day) for Mount Whitney Trail hiking permits per quota period. Unclaimed permits are reissued at the Visitor Center to walk-up visitors the day prior to the permit date.

Whitney Portal Trailhead Campground					Occupancy	
	May	June	July	August	September	October
2009	14%	33%	48%	47%	43%	16%
2010	14%	26%	45%	47%	39%	20%

Whitney Portal Family Campground					Occupancy	
	May	June	July	August	September	October
2009	33%	76%	90%	81%	75%	35%
2010	36%	65%	91%	96%	86%	37%

Whitney Portal Group Campground					Occupancy	
	May	June	July	August	September	October
2009	37%	64%	76%	76%	55%	16%
2010	48%	57%	86%	79%	80%	29%

Lone Pine Campground					Occupancy	
	May	June	July	August	September	October
2009	23%	37%	34%	36%	32%	17%
2010	19%	25%	32%	37%	32%	17%

Graph 44:
Whitney Portal area
campground
occupancy data

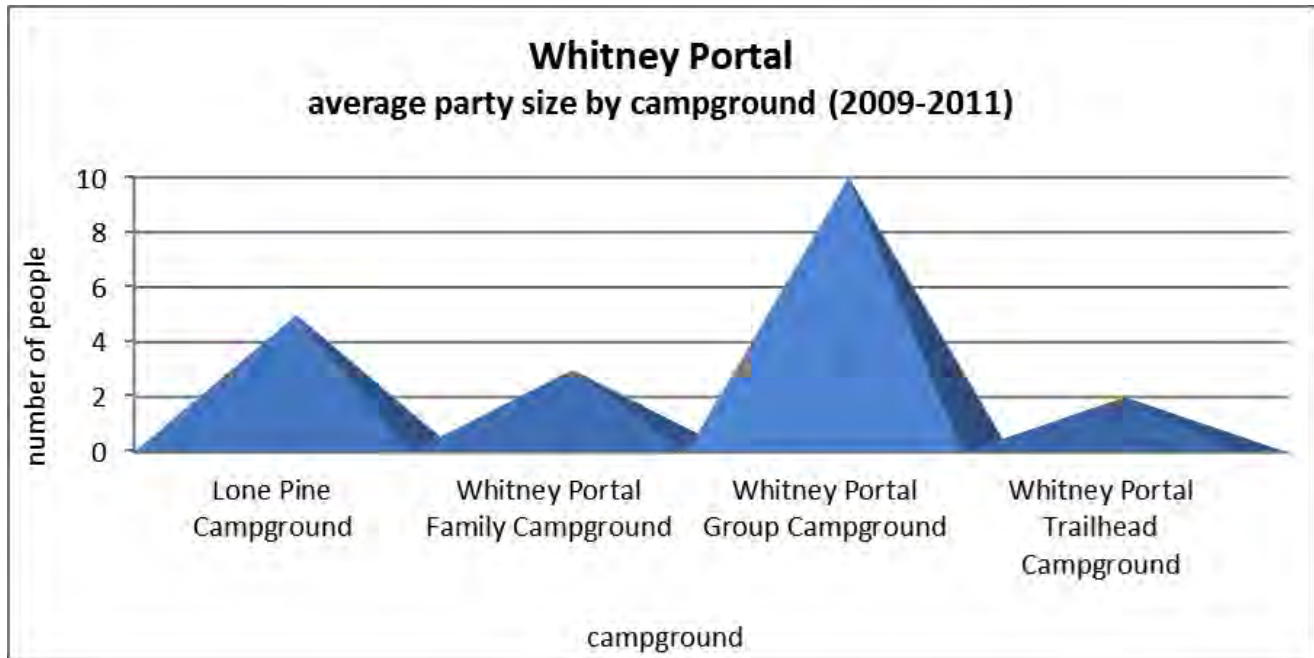
Campground data analysis

Limited campground data was examined for the Whitney Portal area. Campgrounds in the Whitney Portal recreation area are open seasonally from the end of May through the middle of October, weather permitting. Each of the 3 Forest Service concessionaire operated campgrounds is open to the public.

The Whitney Portal Trailhead Campground is located within the core Whitney Portal recreation area steps from the Mount Whitney Trailhead. The campground’s walk-in campsites are available on a first come, first serve basis. Campsites are available to the public; however, the campground was intend as a base camp for Mount Whitney Trail hikers. Seasonal utilization at the campground is low with peak months of July and August having the highest occupancy rates at below 50%. The average party size for the campground is 2 people.

The Whitney Portal Family and Group Campgrounds are co-located at the entrance to the Whitney Portal recreation area. Advanced reservations may be made for sites at the campgrounds. The Family Campground has 43 campsites available and the Group Campground has 3 campsites with a maximum of 15 people at each site. Both campgrounds had relatively high occupancy rates in July and August with the Family Campground near capacity during the months of July and August.

The Lone Pine Campground is located off of Whitney Portal Road on the valley floor prior to the ascent to the Whitney Portal recreation area. The campground has 43 family campsites and 1 group campsite. The campground is open seasonally from the end of April through the middle of October.



Graph 45: Whitney Portal average party size by campground

Campsite occupancy rates at the Lone Pine Campground are low even during the peak summer visitation months of July and August. Maximum occupancy rates are below 40%.

The campgrounds that serve the Whitney Portal recreation area have different average group sizes. The Whitney Portal Group Campground has a large average group size of 10 people. This large group size indicates the sites, with a maximum occupancy of 15 people, are well utilized. The Whitney Portal Family Campground has an average party size of 3 people, a figure consistent with other campgrounds on the Inyo National Forest. The party size is large at the Lone Pine Campground with an average of 5 people. Again, the average party size is 2 people at the Whitney Portal Trailhead Campground.

GPS data

A comprehensive GPS data collection effort inventoried signage and amenities (e.g. bathrooms, picnic areas, etc.) in the Whitney Portal recreation area and on the Whitney Portal Road leading from the town of Lone Pine. The data provides a baseline record for the location of existing infrastructure improvements and was used in the development of project proposals in this report. See sample illustration of GPS data collected in Map 12.

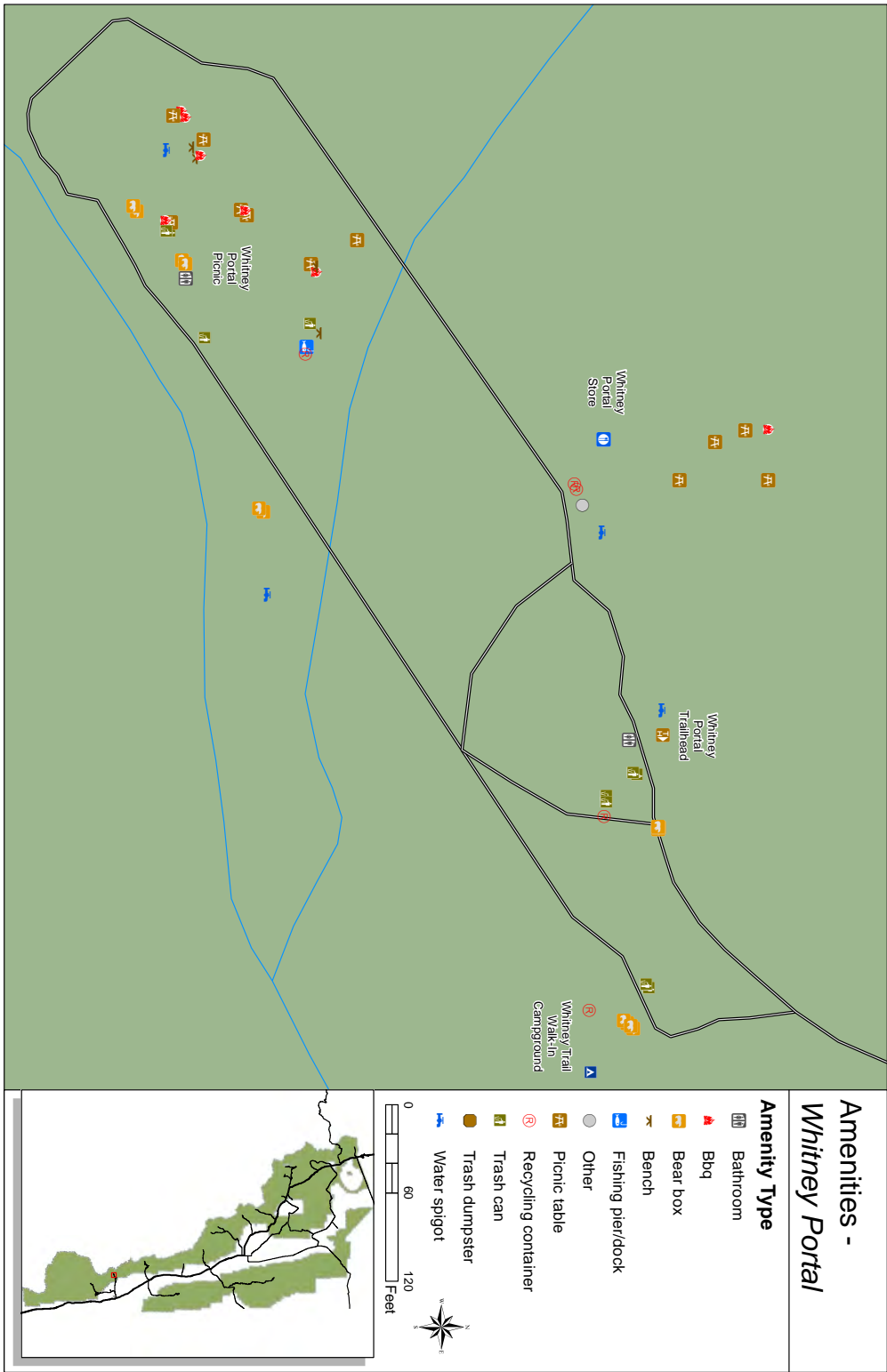
Secondary and primary data collections efforts for this study were a group effort. Partner agencies facilitated the compilation of a transportation studies and reports reference list by providing applicable material. The State of California Department of Transportation supplied GPS equipment. Neighboring National Park Service staff provided trail permit data. Inyo National Forest staff from a variety of departments participated in interdisciplinary team reviews and actively assisted in primary data collection. All raw data and data analyses produced for this report were shared widely with partner agencies and interested parties in an effort to disseminated information and knowledge to the greatest audience possible.



Figure 20: Inyo National Forest staff member collecting GPS data

NOTE REGARDING DATA

Data for visitor use, parking and traffic counts was collected through a convenience sample. The data collection effort was limited by the personnel and equipment resources available to the project team, and therefore, data was collected on dates most advantageous to the study goals and objectives. The data collected is site specific and cannot be extrapolated to the entire Inyo National Forest or to other individual sites throughout the Forest. Using the data analysis to make inferences beyond the convenience sample should be done with care. The purpose of the primary data collection was to provide general information regarding visitor use and parking demand and to demonstrate areas for future in-depth research.



Map 12: Sample of GIS data

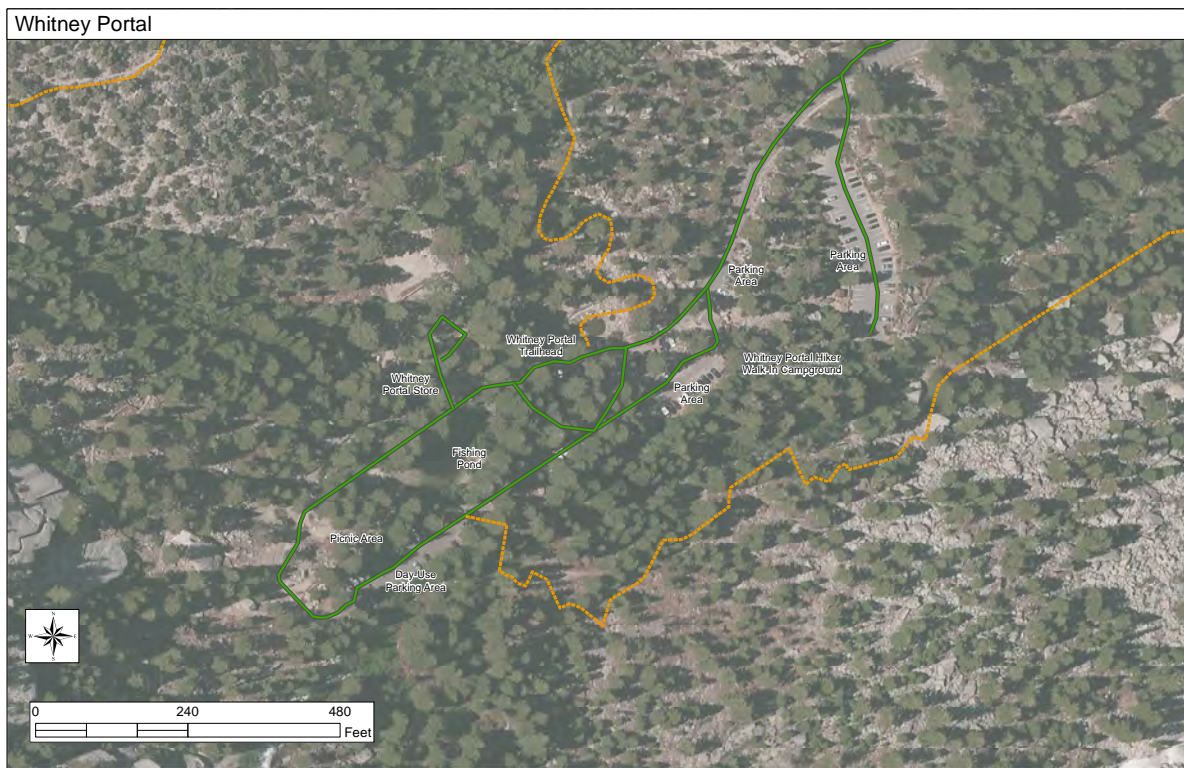
STRENGTHS, CHALLENGES AND OPPORTUNITIES

The strengths, challenges and opportunities in creating a comprehensive alternative transportation system in the Whitney Portal area were reviewed at the regional and site level by individual transportation mode. Data collected during the May 1st through October 31st survey period, including traffic counts, parking lot occupancy, visitor activity, trail permits issued and campground data was analyzed to ascertain travel patterns and areas of visitor use and parking demand. Based on field observations, data analysis, detailed reviews of existing conditions and user demand, a comprehensive list of achievable alternative transportation system improvements for the Whitney Portal recreation area was developed.

PEDESTRIAN

Pedestrian travel to the Whitney Portal area from distant locations is possible for a select few. The John Muir and Pacific Crest Trails provide regional trail ways for hikers traveling to or from the Whitney Portal recreation area. The Mount Whitney Trail feeds into these long distance hiking trails. A Wilderness trail permit quota restriction limits access to hiking routes into and out of the Whitney Portal area.

Travel by foot is also possible to the Whitney Portal recreation area from the Owens Valley floor. A National Recreation Trail leads from the Lone Pine Campground, located about



Map 13: Whitney Portal recreation area aerial (yellow lines denote pedestrian trails, green lines denote vehicular roads)



Figure 21: Day-use hikers

7 miles from the town of Lone Pine, to the Whitney Portal recreation area. No designated trail connection exists between the National Recreation Trail’s lower terminus at the campground and the town of Lone Pine. An additional trail segment between the Lone Pine Campground and the community of Lone Pine would make travel by foot possible from the town to the Whitney Portal recreation area.

A variety of routes give hikers options to access the Whitney Portal recreation area; however, like many destinations within the Inyo National Forest, the remote location makes walking to the Portal feasible for a select few. Most visitors, whether hiking the Mount Whitney Trail or simply visiting for the day, drive to the Portal.



Figure 22: Backpackers

The geographically consolidated layout of the Whitney Portal recreation area, with closely located generators and attractors of visitor traffic, is well suited for pedestrian travel; however, breaks in the pedestrian transportation network may make travel by foot difficult. A hardened trail from the Day-Use parking lot travels through the picnic area and to the fishing pond before it ends abruptly. The improved path does not complete the connection to the Whitney Portal Store. The trail between the Lower and Mid parking lots that accesses the Mount Whitney Trailhead Campground is unmarked and obstructed. The route, though ideal, fails to make a much needed connection.

The lack of clearly delineated, maintained and marked pedestrian paths within the Whitney Portal recreation area may cause visitors to walk along the parking lots and roadway as the most obvious and achievable travel route. Parking spaces integral to the roadway may entice visitors to select the road

as their foot path. Providing separate paths, when possible, with clearly visible wayfinding signage may improve pedestrian circulation in the Whitney Portal recreation area. Limited pedestrian wayfinding signage provides few clues to the location of key attractions in the recreation area such as the waterfall viewing area, the National Recreation Trail trailhead and the Whitney Portal Store. Traffic conflicts may occur as pedestrians linger in the roadway while they attempt to orient themselves. Circulation improvements for both pedestrian and vehicle traffic, including a master signage plan, may improve mobility for all users within the Whitney Portal recreation area.

Vehicular traffic calming and roadway signage may be used to make the existing roadway more compatible to the mixed traffic it supports. Mixed traffic of motorists and pedestrians in the roadway is common in many areas of the Inyo National Forest where the road may be the most obvious or only path. Motorized and non-motorized traffic in a shared space is not incompatible; however, conflicts may arise when there is a great disparity between the travel speeds of users. A solution may be to slow vehicular traffic to a minimum travel speed. Roadway design techniques are used frequently to modify driver behavior. Engineering treatments may be used to slow the speed of traffic thereby making the roadway more conducive to mixed traffic. Reducing vehicle speeds and alerting drivers to the presence of other users in the roadway may make roads more hospitable for alternative modes of transportation.

Improvements to vehicle circulation and wayfinding signage may help reduce traffic congestion by clearly directing drivers to their desired parking area. A one-way vehicular circulation pattern, that guides drivers into



Figure 23: Backpackers walking along Whitney Road

the appropriate location and makes entering others difficult, may encourage vehicular traffic to flow smoothly.

Vehicular wayfinding signage should provide terminology consistent with the parking restriction and not the type of user or activity. On site observations at the Whitney Portal recreation area found that visitors were confused by the “hiker” parking designations. Considering themselves “hikers,” day-use visitors felt obligated to park in the congested overnight parking lots due to the directional signage. The day-use parking lot, the appropriate location for these visitors to park, remained relatively vacant. While a user needing to park overnight is not legally able to park in the day-use parking area, a day visitor may park in any location without restriction. Day-use visitors parked in overnight parking spaces may consume limited overnight parking resources.

Site design and wayfinding signage may be used to make the appropriate path the easiest and most evident path to use.

SITE ANALYSIS: WHITNEY PORTAL RECREATION AREA PEDESTRIAN CIRCULATION IMPROVEMENTS

Simplified circulation patterns with a minimum number of decision points may improve pedestrian and vehicular flow within the Whitney Portal recreation area.

1. Create a visual cue, such as a gateway feature, with a vehicular traffic restriction to slow vehicles entering the core recreation area.
 - a. Install a gateway entrance feature on the Whitney Portal Road immediately prior to the lower parking lot to alert drivers of the reduced speed zone where roadway widths may be narrow, parking lots are integral to the roadway and pedestrians may be in the road.

A gateway feature at the entrance to a recreation zone may act as a cue to drivers that they have left the higher speed road segment and have entered an area where lower speeds and mixed roadway traffic prevail. Shrinking travel lane widths with a choke point of pavement markings, curbing or barriers, such as an entrance sign or a gateway feature, may causes drivers to naturally slow their speed. This traffic calming technique can be highly effective in reducing vehicular travel speeds.

The entrance road into the Whitney Portal recreation area provides an opportunity to apply a traffic calming technique. The integration of parking spaces into the roadway just below the lower overnight



Figure 24: Gateway feature design concept

parking lot makes this a strategic engineering and safety location to slow traffic. Slow moving vehicles maneuvering into and out of roadway parking spaces may create a conflict with faster moving thru traffic. Mixed traffic in the roadway as pedestrians enter the road to walk from parking areas to their destination may benefit from slower vehicular traffic speeds. The large trees along the roadway provide a natural location for a gateway feature.

2. Design a simplified vehicular circulation pattern with a one-way road.

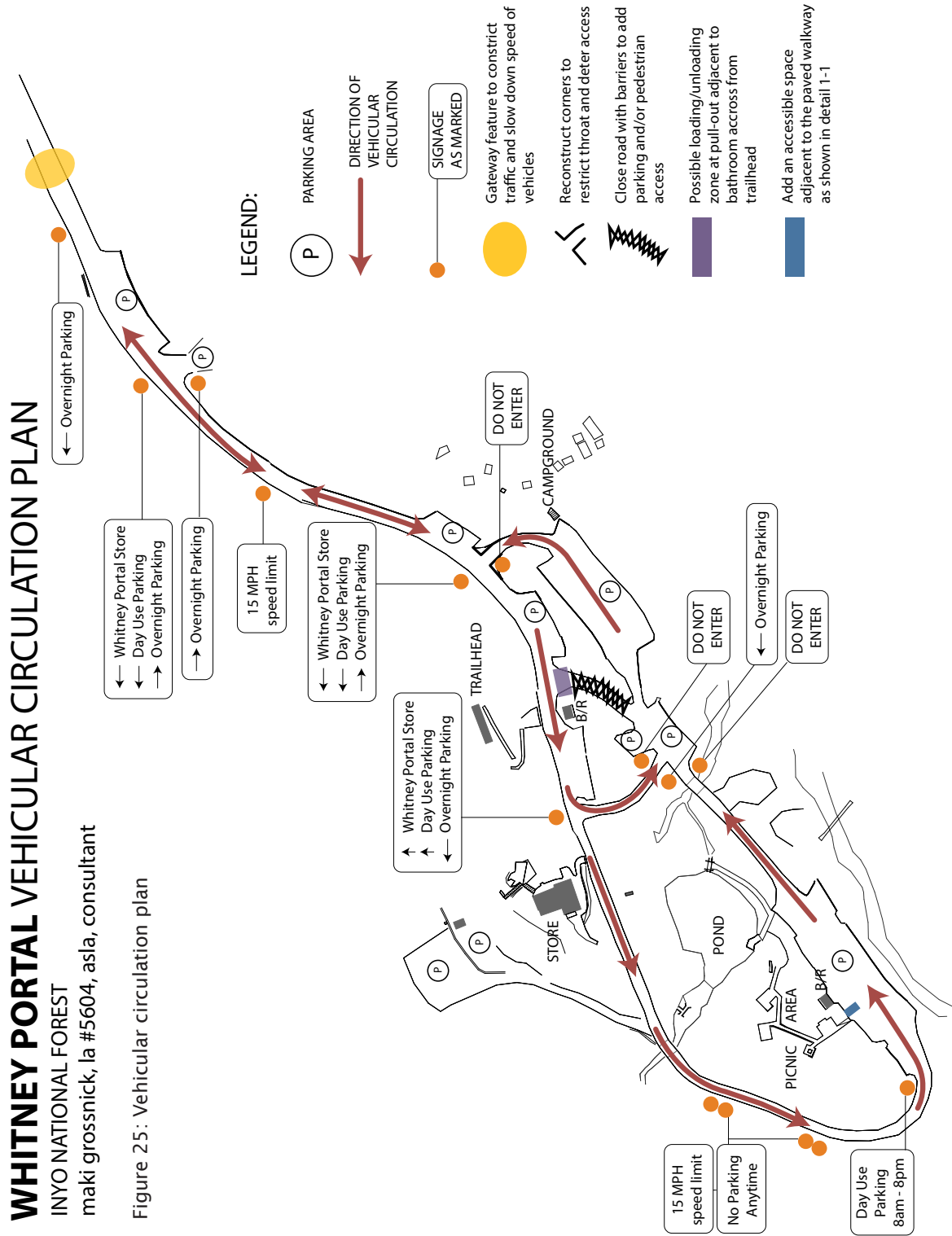




Figure 26: Whitney Portal traffic conflicts and decision points

- a. Limit conflicts between passing vehicles and between vehicles and pedestrians by limiting traffic flow to a single direction.
- b. Eliminate excess decision points so drivers have as few route choices as possible through the use of a one-way road. This can further be achieved by removing the second internal road from vehicle circulation and repurposing it to a pedestrian use area. By doing this vehicles have only one decision point upon entering the parking area.
- c. Place a directional sign at the turnoff for overnight parking that provides 2 mutually exclusive parking choices: day-use or overnight parking. The likelihood of visitors seeking overnight parking to enter the day-use parking area may be reduced. All visitors are routed past the Mount Whitney Trailhead feature and in view of the Whitney Portal Store as they enter the area. Day-use visitors are routed past the key attractions of the picnic area, the fishing pond and the waterfall as they are guided to the appropriate parking lot.
- d. Place natural barriers, such as large boulders from the site, along the internal roadways to eliminate the ability to park outside of a designated parking space.
- e. Install “no parking” signs, as needed, in areas where engineering and design techniques do not or cannot fully obstruct off pavement parking.

3. Make pedestrian improvements that provide separate well-marked and maintained pedestrian paths and direct visitors to them with simple wayfinding signage.
 - a. Complete the hardened trail around the fishing pond to provide access from all sides of the pond.
 - b. Delineate a crosswalk with pavement markings, between the Whitney Portal Store and the trail that leads to the day-use area, to guide pedestrians on a continuous route and alert drivers of pedestrian cross traffic.
 - c. Redesign the parking space layout in the Day-Use parking lot so as not to block the entrance to the hardened walking trail. (See Site Analysis: Parking management plan)
 - d. Repurpose the single lane exit road to a pedestrian use area. Use large boulders to bollard the roadway and restrict vehicle access but not impede foot traffic. Place bear box food storage containers in the newly created pedestrian area to act as attractors to visitor traffic.
 - e. Clear developed trails of vegetation encroachment that may cause a danger to pedestrians and to create an obvious and attractive pedestrian environment.
 - f. Install visitor wayfinding signage from the parking areas to pedestrian routes and key attractions. Particular attention should be paid in areas where the appropriate route or intended destination may not be clearly visible from the parking lot such as between the Day-Use parking lot and the Whitney Portal Store and the access trail to/from the Lower parking lot. Wayfinding signage may be more successful if it is part of a hierarchy of signs in a master signage plan.
- Site specific design techniques may improve pedestrian and vehicular circulation within the Whitney Portal recreation area by slowing vehicle traffic, presenting simplified route choices and providing comprehensive wayfinding signage. A combination of pedestrian and vehicular traffic improvements may improve circulation and create a safer environment for all users in the Whitney Portal recreation area.



Figure 28: Bicycling on Whitney Portal Road

BICYCLE

Regional travel by bicycle to the Whitney Portal recreation area may be feasible but is not recommended as a viable alternative transportation mode. The steep terrain of the Whitney Portal Road as it climbs nearly 4,000 feet from the Owens Valley floor to the Whitney Portal recreation area may present a significant challenge to road bicycling. Road debris of fallen rocks and dirt on the mountainside segment of the road may create a hazard to safe travel by bicycle.

Future roadway rehabilitation projects may include designated bicycle lanes or a paved shoulder on Whitney Portal Road to the base of the mountain. Such improvements may create opportunities for bicycle travel between the Lone Pine Campground, Alabama Hills scenic area and the town of Lone Pine. Expansion of bicycle routes through designation and roadway enhancements, where feasible, will improve the bicycle transportation system network.

AUTOMOBILE

Automobile access to the Whitney Portal recreation area is convenient via a paved 2 lane road that makes the most direct route feasible from the town of Lone Pine to the recreation area. Whitney Portal Road is open seasonally once the roadway conditions allow safe passage. The road is cleared daily of road debris in the form of fallen rocks by the Inyo County Public Works Department.

Roadside parking restrictions on the Whitney Portal Road are instituted by the Inyo County government. The County has prohibited parking for safety reasons on the sharp serpentine curve prior to entrance into the Whitney Portal core recreation area and along the inbound travel lane where topography and falling rocks present natural hazards. Roadside parking is permitted on all other segments of the Whitney Portal Road within the control of Inyo County. The Forest Service has restricted roadside parking on the internal roads within the Whitney Portal recreation area.

The data collected as part of this study showed that the Whitney Portal recreation area experiences considerable demand for parking during peak periods in the summer season. July is the peak month for day-use parking demand. The demand for day-use parking peaks in the month of July and is highest on the July 4th holiday and weekends when day-use parking space occupancy rates may reach 100%. To relieve the excess day-use parking demand, visitors may park in the overnight parking lots. In July the average occupancy rate for overnight parking areas was 80%. Sufficient capacity exists in the overnight parking areas to meet excess parking demand for day-use spaces during periods of peak demand. There is no restriction on day-use visitors utilizing overnight parking spaces.

Data also revealed that demand for overnight parking in the Whitney Portal recreation area peaks in the month of August. Overnight parking spaces begin to reach capacity by the end of July and by August the demand for overnight parking spaces exceeds supply while the day-use parking lot goes underutilized. The parking restrictions in the Whitney Portal recreation area are causing a shortage of parking spaces for the overnight visitor.

Opportunities to shift the location of overflow overnight or long-term parking to near-site locations, which are not directly in the core recreational area but within reasonable walking distance, may provide the additional parking spaces needed in the Whitney Portal recreation area. A review of the roadside parking area estimated the number of standard parallel and perpendicular (front in) parking spaces achievable with proper design. On the road segment above the serpentine curve an estimated 37 parking spaces could

be located in areas where shoulder width was sufficient to accommodate a parked vehicle out of the travel lane. Further down the Whitney Portal Road, past the serpentine curve, an estimated 58 parking spaces may be located in the roadway shoulder adjacent to the Whitney Portal Group and Family Campgrounds. This near-site parking location currently acts as the trailhead parking area for the Meysan Lakes Trail. (See Appendix C: Engineering report.)

The existing parking space configuration in the Whitney Portal recreation area parking lots exacerbates parking shortages. Parking lot pavement markings are intended to act as a guide for drivers to park vehicles in an efficient manner and a lack of them may cause drivers to park indiscriminately where they find it most convenient. Competing pavement markings in some locations within the Whitney Portal parking lots may confuse drivers with some drivers parked diagonally and others parked perpendicular (front in). The lack of clear pavement markings allows drivers to park in an arbitrary fashion. Parking lots should be striped to maximize vehicle parking.

The number of potential parking spaces in the Whitney Portal recreation area is limited by “no parking” restrictions on paved areas of parking lots that could support a viable parking space. Paved sections of the Day-Use parking lot are striped with “no parking” restrictions. Visitors regularly park in these areas that are conveniently located close to attractions. A paved area in the Mid parking area has similar restrictions, as well as, results.



Figures 29, 30 & 31: Whitney Portal parking space pavement markings (no striping and competing perpendicular and diagonally marked spaces) above

Figures 32, 33 & 34: Whitney Portal vehicles parked in areas with "no parking" pavement markings above



Figure 35: Whitney Portal bear boxes placed in parking spaces and signed "no parking"

The placement of equipment in paved areas of parking lots reduces the number of parking spaces available. In the Mid parking area, the parking location with the highest occupancy rate in the Whitney Portal recreation area, bear box food storage containers take up valuable overnight parking spaces. Equipment and storage sited in parking spaces may consume limited parking resources.

Parking lot configuration and utilization should maximize the number of parking spaces. Pavement markings should support efficient parking. Parking restrictions should be instituted only after engineering and design techniques to control parking have been exhausted. Parking restrictions that are not warranted should be removed to increase overall parking capacity. Parking facilities within the Whitney Portal area should be exploited to provide the greatest number of parking spaces possible.

The Whitney Portal recreation area provides a unique location on the Inyo National Forest to access Mt. Whitney. There are no other comparable experiences or reasonable ingress

or egress points to shift visitor demand. Unless trail quota restrictions are relaxed, the number of permits will not increase, and therefore, the demand for overnight parking, once known, should be fairly consistent from year to year. A parking management plan, that maximizes the use of existing parking areas and restricts parking when and where necessary, may provide relief to the pressure for overnight parking in the Whitney Portal area.

SITE ANALYSIS: DEMAND FOR OVERNIGHT PARKING

As shown in the data collection, the demand for overnight parking facilities at the Whitney Portal recreation area exceeds the supply of paved marked parking spaces from the end of July through the beginning of September. Currently, there are 129 paved marked overnight parking spaces available in the Whitney Portal area. To quantify the number of additional overnight parking spaces needed an analysis of the parking lot occupancy and trail permit data was performed.

Mount Whitney Trail hikers are the predominant user of overnight parking spaces in the Whitney Portal area. Currently, these hikers, either single day or overnight stay; compete for the same overnight parking spaces. Single day hikers, whose intent is to make it to the summit and back in a day, may begin their journey up the Mount Whitney Trail in the very early morning hours and not return until late. A calculated estimate of

a one-way trip to the summit may be more than 12 hours with 6 hours for the 6,000 feet elevation gain (6,000 feet/1,000 feet per hour) plus 5.5 hours for the 11 miles distance at 2 miles per hour (Source: Mount Whitney Mountain Lore From The Whitney Portal Store, Thompson and Newbold). The return trip down the mountain may be considerably shorter. Field observations by seasoned Forest Service staff place a reasonable estimate of a typical round trip hike duration at 13 to 14 hours (Source: Marty Hornick, US Forest Service). Overnight hikers may begin their trip at any time and stay in the backcountry for multiple nights but would be required to use overnight parking.

The allotment of trail permits may create a large portion of the competition for overnight parking spaces in the Whitney Portal area. On average about 5,500 Wilderness entrance trail permits are issued annually during the trail permit quota season (May 1st to October 31st) for the Mount Whitney Trail. With an average party size of 3 people per permit and using Caltrans Origin and Destination study finding of 2 passengers per vehicle, an estimated 8,250 vehicles may be used to transport hikers to the Whitney Portal recreation area during a quota season.

These statistics show that more permits to hike the Whitney Portal Trail are issued per day than there are parking spaces to support users. The 100 single day trail permit quota would equate to approximately 150 vehicles, using the calculation above (100 permits x 3 people average party size / 2 persons average vehicle occupancy). The estimated parking demand from single

day trail permits alone would exceed the overnight parking supply in the Whitney Portal recreation area by 21 parking spaces. The trail quota of 60 overnight trail permits per calendar day equates to approximately 60 automobiles (60 permits x 2 people average party size / 2 persons average vehicle occupancy). The 25 exit trail permits would account for 38 vehicles (25 permits x 3 people average party size / 2 persons average vehicle occupancy). The calculated minimum number of parking spaces needed to support the maximum estimated Mount Whitney Trail hiker population may be more than 248 parking spaces. This estimate equates to an additional 119 overnight parking spaces needed.

However, on-site observations found that the deficit number of overnight parking spaces was much less than the calculated estimate. The parking lot occupancy research showed that a maximum of 28 additional overnight parking spaces was needed to sufficiently meet existing demand (See Graph: Whitney Portal overnight parking deficit). On average, an additional 15 overnight parking spaces would meet the majority of the unmet demand. The supply of additional overnight parking spaces may be created through the development of a parking management plan that includes the strategic location and design of the needed parking spaces.

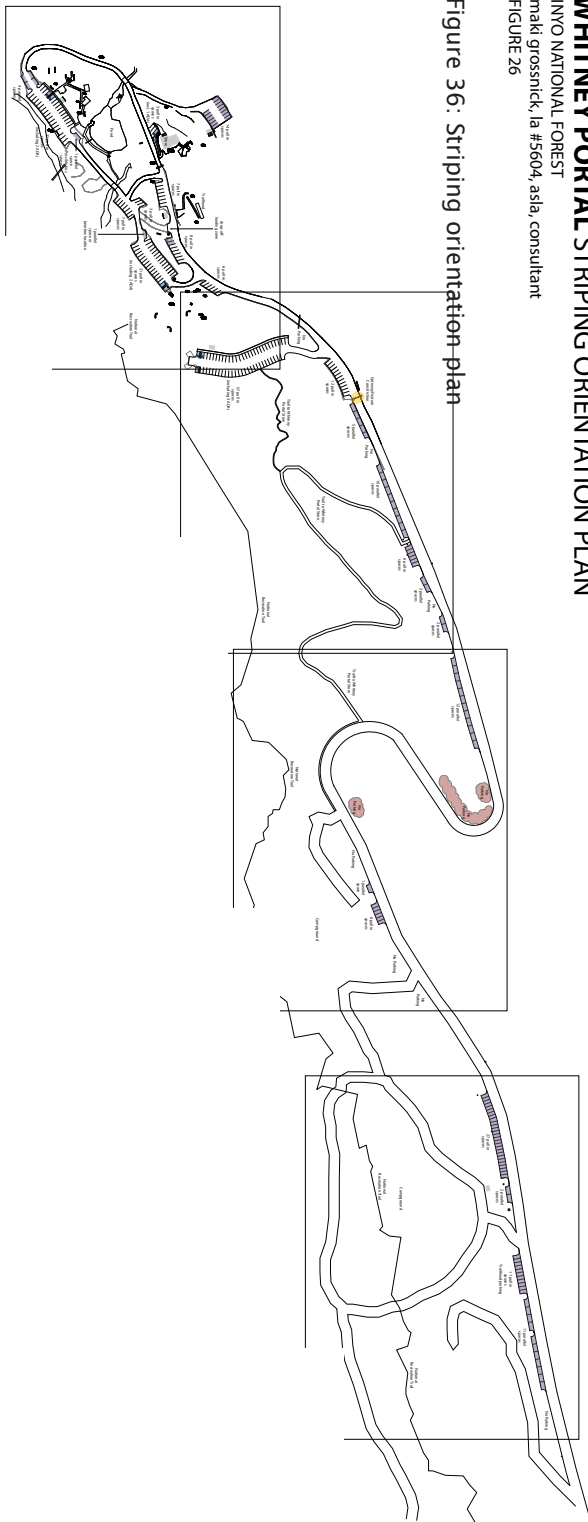


Figure 36: Striping orientation plan

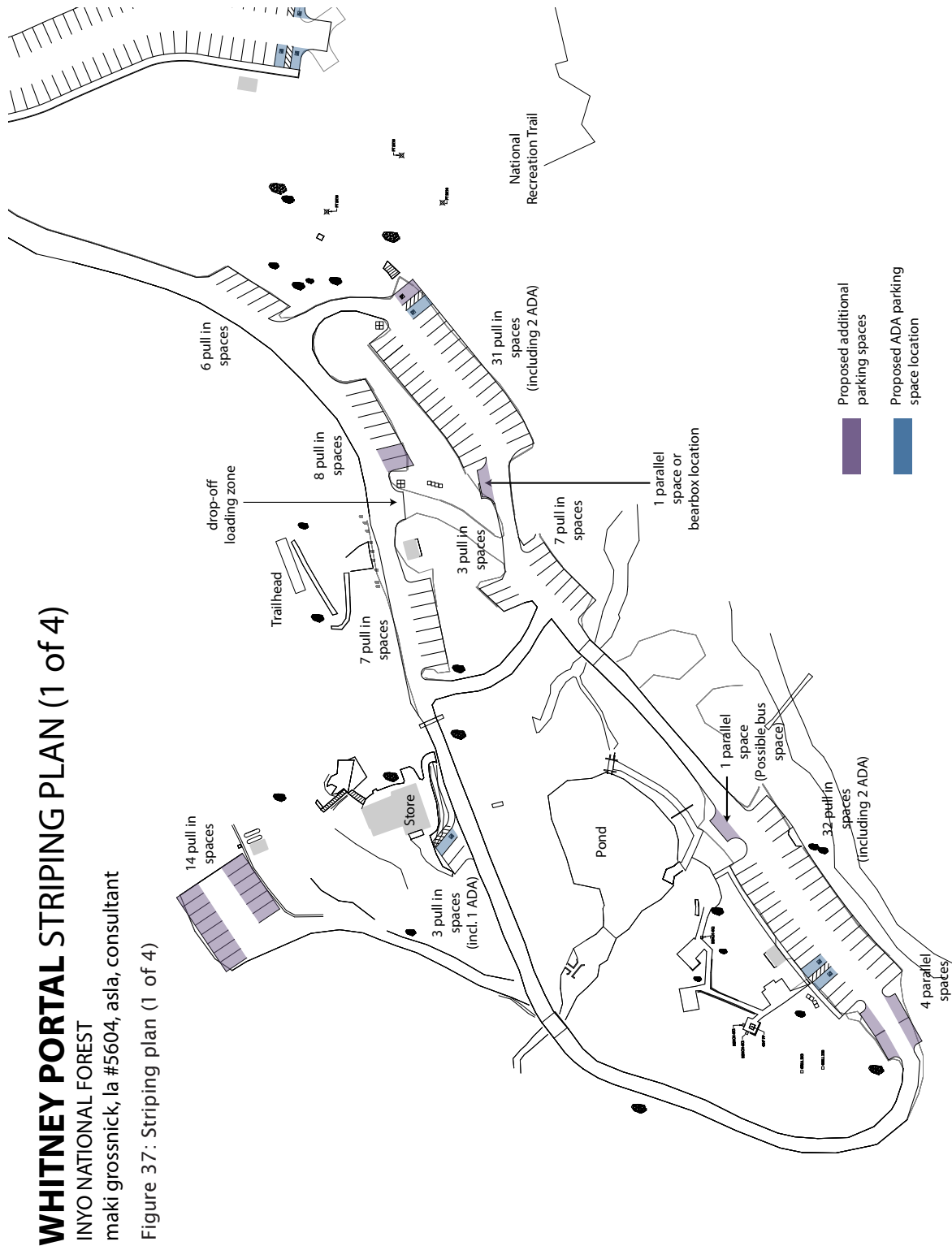
WHITNEY PORTAL STRIPING ORIENTATION PLAN
INYO NATIONAL FOREST
maki grossnick, la #5604, asfa, consultant
FIGURE 26

SITE ANALYSIS: PARKING MANAGEMENT PLAN

A parking management plan may improve the efficiency of parking through specific site design as well as engineering and access controls. A parking management plan should be comprehensive in nature considering the impact of any proposed changes to the existing transportation system. The parking plan should efficiently use parking areas, restrict parking when necessary, clearly communicate parking directives through signage and may include alternatives to driving such as transportation services or ridesharing.

1. Maximize the supply of parking spaces on existing paved surfaces and in parking areas.
 - a. Use minimum parking space design standards to create an efficient layout of pavement markings.
 - b. Stripe parking spaces on all paved surfaces that will safely accommodate a parking space.
 - c. Remove equipment located in parking spaces.
 - d. Support the creation of a premium or long-term parking lot in the parking area behind the Whitney Portal Store.

On existing paved surfaces within the Whitney Portal recreation area, 10 additional parking spaces may be marked. Removing the “no parking” pavement markings at the entrance to the Day-Use parking lot will create 4



parking spaces. Parallel parking at this location will have an added effect of acting as a choke point to slow incoming traffic by narrowing the travel lane.

Five (5) additional parking spaces may be created through efficient pavement marking in the Mid parking lot and by removing the bear box food storage containers placed in the parking spaces adjacent to the Whitney Portal Trailhead Campground. The bear boxes are proposed to be moved to the pedestrian space created by closing the internal exit road. (See Site Analysis: Whitney Portal recreation area pedestrian circulation improvements)

The large graded unpaved staff parking lot behind the Whitney Portal Store may represent an opportunity to supply premium or long-term paid parking. Though the parking area is part of the Forest Service permit holder’s facility, and accommodates employee parking and equipment storage, it may be a source for a few critical parking spaces. The location provides the opportunity for economic development in the form of permit holder administered paid parking. The access road to the parking lot is substandard and improvements to the entrance intersection and roadway may be necessary to provide adequate access for a limited number of vehicles. The graded area behind the Whitney Portal Store is estimated to support approximately 14 parked vehicles as shown in the Engineering Report.

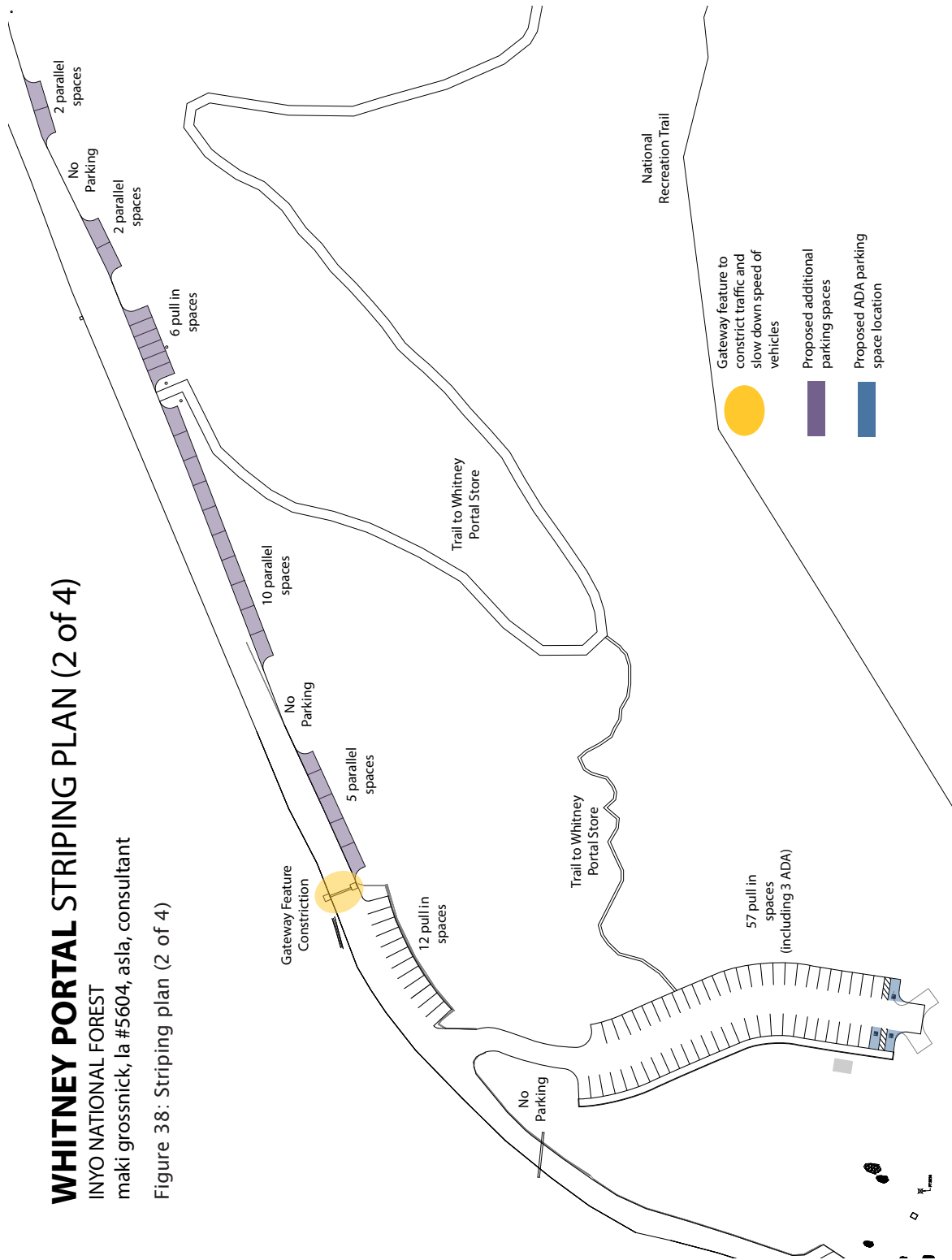
2. Manage roadside parking to areas where it is safe for pedestrians and vehicles and minimizes adverse environmental impacts. These areas should meet all of the following criteria.

- a. Areas where the roadway shoulder width is wide enough to support a parked vehicle.
- b. Areas where parked vehicles do not block roadway signage.
- c. Areas where vehicle and pedestrian traffic will not cause significant adverse environmental impacts.

Roadside parking is permitted in most areas of the Inyo National Forest, on state, county and forest roads. In appropriate locations, roadside parking may provide convenient parking near attractions and act as overflow relief to seasonally congested parking lots during peak periods. In some areas, roadside parking may create a safety hazard or have adverse environmental impacts and may need to be restricted (See Appendix C, Soil and Hydrology Report).

Overnight or long-term parking is not restricted on the outbound side of Whitney Portal Road above the serpentine curve. In areas conducive to roadside parking an estimated 37 total parking spaces, 31 parallel and 6 perpendicular (front in), may be accommodated. Roadside parking in this area is currently on the existing natural surface; however, applying gravel or paved surface may alleviate roadway edge damage and further storm water erosion (See Appendix C, Soil and Hydrology Report).

Generally, unmarked parking areas do not provide as great efficiency in number of spaces due to dispersed parking patterns with drivers parking where it is convenient and comfortable. Parking barriers and specific parking signage may assist drivers in properly locating their vehicle in unmarked roadside parking areas.



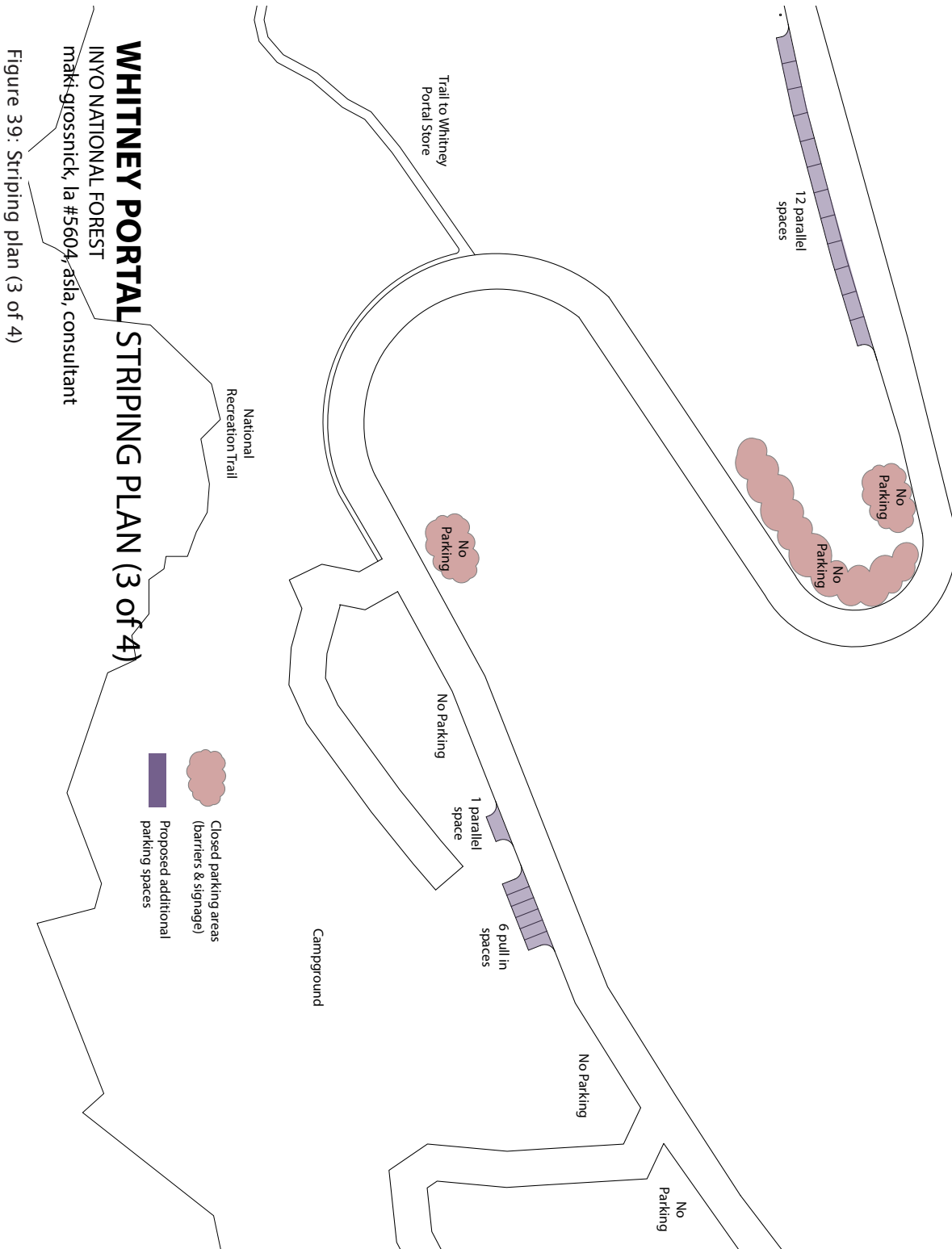


Figure 39: Striping plan (3 of 4)

3. Shift overnight and/or long-term parking to near-site locations.
 - a. Long-term parking could be located in the lower portion of the Whitney Portal recreation area below the serpentine curve and adjacent to the Whitney Portal Group and Family Campgrounds.
 - b. Create an obvious pedestrian pathway from the lower roadside parking area through the old administrative site to the Mount Whitney Trailhead using a well maintained trail and visible wayfinding signage.
 - c. Additionally, use conspicuous pedestrian wayfinding signage to direct users to the segment of the National Recreation Trail that connects the Whitney Portal Group and Family Campgrounds with the Whitney Portal recreation area. This signage should be a part of the hierarchy included in the master signage plan.

Near-site parking, is defined as parking that is not in the core recreation area, but still within walking distance to the attractions at the Whitney Portal. It may be created below the serpentine curve near the Whitney Portal Group and Family Campgrounds and Meysan Lakes Trailhead roadside parking. This roadside parking area may accommodate approximately 58 parallel and perpendicular (front in) parking spaces (See Appendix C, Engineering Report). This additional parking may satisfy the overnight parking needs at the Whitney Portal recreation area.

Access from this near-site location to the Mount Whitney Trailhead may be possible via numerous pedestrian routes

such as an unmaintained trail through the old Forest Service administrative site, the decommissioned access road or the National Recreation Trail.

4. Restrict parking when necessary.
 - a. Restrict parking in areas where the shoulder width is not sufficient to support a parked vehicle.
 - b. Restrict parking in areas where a parked vehicle will obstruct the view of roadside signage.
 - c. Restrict parking in areas where it may have an adverse environmental impact.
 - d. Create natural barriers to off-highway parking in areas where parking is prohibited.
 - e. Coordinate a “no parking” signage plan with Inyo County Public Works Department for Inyo County Board of Supervisors approval.
 - f. Develop a parking permit program for overnight parking that limits the number of vehicles or nights parking is allowed per issued Wilderness trail permit.

Restriction of parking on roadways is authorized by the agency with jurisdictional control over the road. On state roads Caltrans is responsible for siting and installing roadway signage. Roads maintained by Inyo County, such as Whitney Portal Road, require approval from the Board of Supervisors for installation of signage restricting parking. In parking lots and internal roads within the Whitney Portal core recreation areas the Forest Service has authority to manage roadside parking. Parking management on state and county roadways requires coordination with the responsible authority.

A parking permit program may assist in limiting demand for overnight and long-term parking in the Whitney Portal recreation area. The program may target solo drivers or long-term hikers to encourage efficient use of overnight parking. Parking permits, similar to those issued by campground concessionaires, could be distributed to group leaders by the Eastern Sierra Interagency Visitor Center when the Wilderness trail permit is picked up.

For example, each trail permit may be accompanied by a single parking permit. For groups of 4 or more an additional parking permit may be issued. As the average group size for permits to hike the Mount Whitney Trail is 3 people, most groups would be accommodated under a single parking permit.

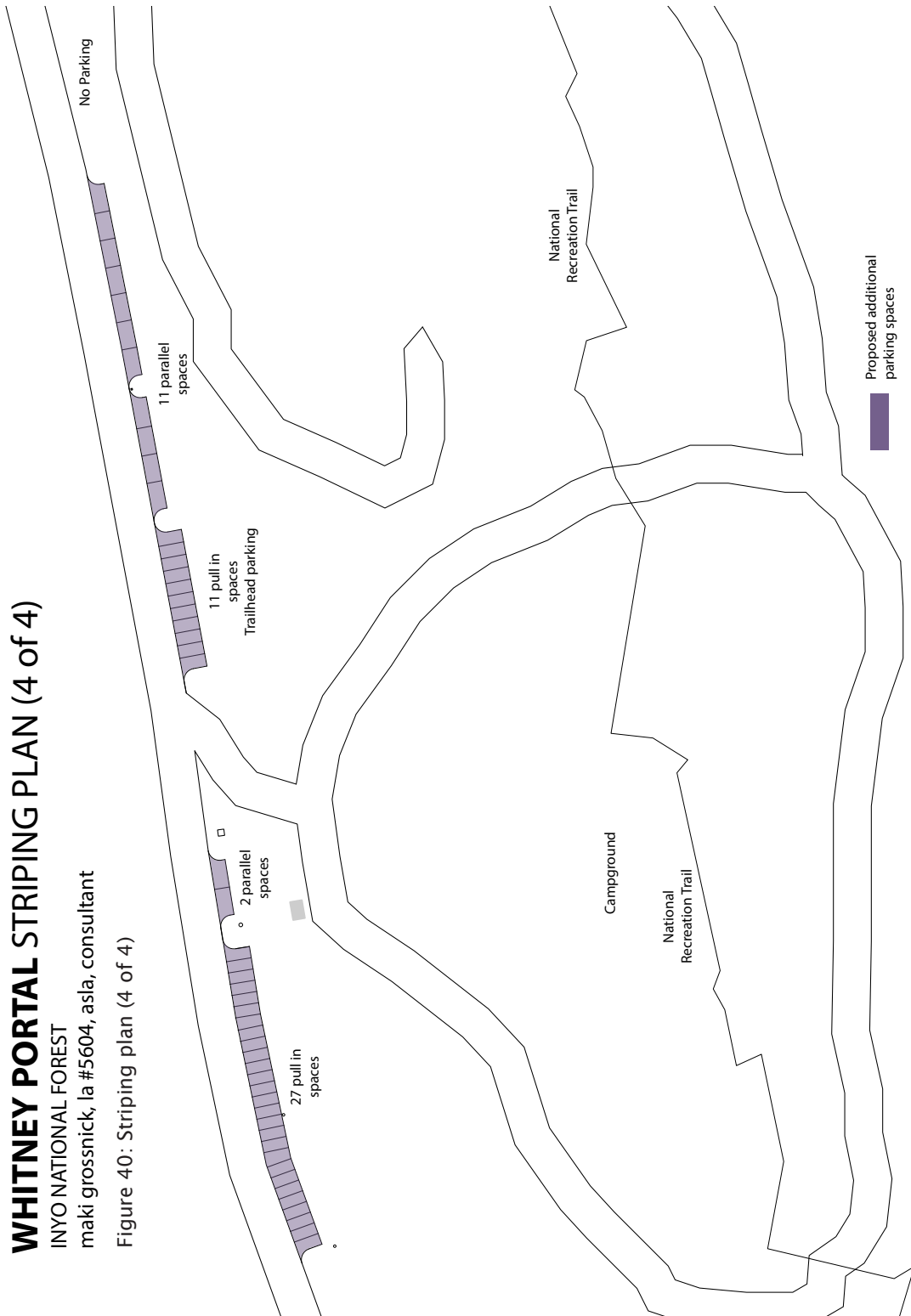
Parking locations for long-term hikers may be restricted to the near-site roadside parking areas or off-site locations. Though 96% of overnight permits are issued for 3 or less nights, the relocation of the approximately 90 permits per season issued for stays of 4 nights or greater, may provide sufficient relief for overnight parking demand within the Whitney Portal core recreation area. Long-term hikers may consume scarce overnight parking spaces for extended periods during the peak months of July and August when their trips generally originate. Data shows that permits issued for trips of 8 or more nights had an average duration of 18 nights with 74% beginning in July and August.

It is important to note that suitable alternate parking locations for extra vehicles or long-term parking should be in place prior to any limitations on parking

in the Whitney Portal area. The near-site roadside parking location on the Whitney Portal Road adjacent to the Whitney Portal Family and Group Campgrounds may provide a suitable location. Approximately 58 parking spaces would be possible along this section of road. Off-site parking locations at the Eastern Sierra Visitor Center or in the town of Lone Pine may also be appropriate.

5. Clearly communicate parking directives to user groups through specific and simple signage.
 - a. Revise vehicular wayfinding signage to read “day-use” and “overnight” parking.
 - b. Revise parking restriction signage in the Day-Use parking lot to read “Day-use parking only 8:00am to 8:00pm – no overnight parking.”
 - c. Mark wheel stops in the Day-Use parking area “no overnight parking.”
 - d. Develop a Whitney Portal recreation area parking map to direct visitors to the appropriate parking location for their desired activity and length of stay.
 - e. Promote alternatives to single occupancy vehicles such as carpooling and other transportation services.

Clear communication of parking directives may assist visitors in making the best mode and parking choices for their visit. Alerting users to the parking management challenges and providing them with reasonable alternatives to driving may encourage visitors to be a part of the solution. The Mount Whitney Trail hiker community has many well developed communication forms on which to



disseminate information such as the Forest Service, Whitney Portal Store and hiking group websites.

6. Provide alternatives to driving.
 - a. Support a rideshare program for the Mount Whitney Trail hiker community.
 - b. Create an overnight and long-term park and ride lot at the Eastern Sierra InterAgency Visitor Center.
 - c. Support public or private provision of hiker shuttle service to the Whitney Portal recreation area.
 - d. Support development of off-site parking by the private sector.
 - e. Support a continuous trail from the town of Lone Pine to the Whitney Portal recreation area.

Alternatives to driving may alleviate excess overnight parking demand at the Whitney Portal recreation area and provide economic development opportunities in the town of Lone Pine.

Key Inyo National Forest visitor characteristics may support regional and local rideshare programs as an alternative transportation mode to the Inyo National Forest and the Whitney Portal recreation area. Visitors to the Inyo National Forest originate predominantly from a few focused metropolitan areas. The Caltrans 2000 Origin and Destination Study and the Inyo National Forest National Visitor Use Monitoring survey found that trips to the Eastern Sierra region originated in a few metropolitan areas. The NVUM data shows Southern California and San Francisco Bay Area are significant generators of visitors to the Inyo National Forest.

Surplus vehicle seating capacity may be available in personal occupancy vehicles traveling to the Inyo National Forest and Whitney Portal recreation area. The Caltrans 2000 Origin and Destination Study found an average vehicle occupancy rate of 2 people. The NVUM survey found an average party size of visitors to the Inyo National Forest of about 4 people. The average party size of a group hiking the Mount Whitney Trail was 3 people for trips of 3 or fewer nights and 2 people for trips of 4 more nights with 22% of all Mount Whitney Trail permits issued to a single individual.

Virtual bulletin boards and blogs on key websites may provide a forum for communication of rideshare needs and opportunities. Dynamic rideshare programs can match drivers with riders in real time through smartphone technology. Connecting travelers with an interest in sharing transportation may reduce traffic to the Inyo National Forest or to congested recreation locations on the Forest such as Whitney Portal.

The provision of public or private hiker shuttle service may expand the transportation alternatives to the Whitney Portal recreation area, as well as to other destinations and neighboring communities. The provision of off-site parking may be necessary to support transportation services. (See Site Analysis: Whitney Portal transportation service – public and Site Analysis: Whitney Portal transportation service – private below for additional information and considerations.)

PUBLIC OR PRIVATE TRANSPORTATION SERVICE

Public transit service is available to and within the town of Lone Pine, the gateway community to the Whitney Portal recreation area. Public transit services operated by Eastern Sierra Transit Authority (ESTA) and Yosemite Valley Area Regional Transportation Service (YARTS) make travel between the Western and Eastern Sierra Nevada regions possible. ESTA provides year round weekday interstate and intercity public transportation service on the US Highway 395 corridor, the main arterial through the town of Lone Pine. ESTA also provides on demand dial-a-ride transit service weekdays within the town.

Seasonal public transit service is available between popular hiking destinations in Yosemite National Park and the Eastern Sierra region. YARTS offers seasonal public transit service between the Town of Mammoth Lakes, located in the northern half of the Inyo National Forest, and the Yosemite Valley, with connecting service to Merced, California. In June and September round trip service is provided on weekends only while in the peak visitation months of July and August daily round trip service is available between the locations. YARTS is a thruway bus operator for Amtrak and passengers may arrange services, including purchase of tickets and longer distance travel, through Amtrak.

Happy Isles Trailhead in the Yosemite Valley is the most popular destination for one-way Mount Whitney Trail hikers. Fifty-nine percent (59%) or about 160 one-way hiking permits reported Happy Isles Trailhead as the intended destination. About 27 permits per quota season reported Tuolumne Meadows in Yosemite National Park as a final destination. YARTS Route 120 provides public transit service between these locations and the Town of Mammoth Lakes. The estimated number of hikers traveling to these locations is 374 people per year, about 70% of the one-way hiker population.

Travel between one-way hiking destinations in Yosemite National Park and the town of Lone Pine may be completed on public transit. During July and August, the peak months for long-distance hiking from Whitney Portal, daily transit service is available between Yosemite Valley and the Town of Mammoth Lakes on YARTS. ESTA provides public transit service between the Town of Mammoth Lakes and Lone Pine. The use of transit service from locations in Yosemite National Park to the town of Lone Pine would require a single or multiple night stay in the Town of Mammoth Lakes as the YARTS and ESTA bus routes do not meet in time; the YARTS bus arrives in the evening and the ESTA route departs in the morning on Monday, Wednesday and Friday.

Predominant entrance locations for hikers with a Mount Whitney Trail exit permit were all located on the Inyo National Forest. Approximately 77% of Whitney Portal Trail exit permit holders, or about 380 permits per trail quota period, enter at a trailhead (Kearsarge Pass, Cottonwood Lakes, Cottonwood Pass and Shepherd Pass) located within the vicinity of the town of Lone Pine. The estimated number of hikers is 760 people.

Public transit service is not available from the town of Lone Pine to the Whitney Portal recreation area. The missing segment of transit route represents a break in the transit mode of the alternative transportation system. Public transit service could be provided to the Whitney Portal recreation area by ESTA through 3 potential methods: a route deviation of the US 395 North and South bus routes, the inclusion of the area in the existing town of Lone Pine dial-a-ride service area or through the addition of a dedicated route from the town of Lone Pine.

The provision of transportation services by private sources is an option in the Whitney Portal area. Operation of an independent shuttle or taxi service to Forest Service lands requires a special use permit from the Inyo National Forest. A Forest Service permit holder must meet the requirements and regulations of the Forest when establishing service. Currently no Forest Service permitted transportation services operate to the Whitney Portal recreation area.

Any voluntary or compulsory transportation service to the Whitney Portal recreation area, that moves vehicle parking from the site, must be supported by off-site parking. The Eastern Sierra Interagency Visitor Center on State Route 136 was noted in the Inyo National Forest grant application as a potential park and ride site for a proposed shuttle service. Locations within the town of Lone Pine may also provide potential overnight and long-term parking facilities. Close coordination between the Forest Service and Inyo County may be necessary to ensure the most advantageous results for the gateway community in the provision of transportation services or off-site parking.

On street parking is permitted within the town of Lone Pine. US Highway 395, the main thoroughfare through the downtown, includes linear curb space for an estimated 110 parallel parking spaces. Individual curbside parking spaces on US Highway 395 are not striped. Locations where parking is not permitted are denoted with a red curb. Side streets in the downtown core have approximately 118 marked standard parking spaces and 1 accessible designated space. The parking spaces provided in the downtown area are intended to support the businesses and residences of that area.

Parcels within the town of Lone Pine may be suited for an off-site park and ride lot location. A sample of vacant parcels or properties with underutilized parking lots found a number of locations in the downtown core that may be conducive to overnight or long-term parking. Ownership was not a consideration in the review and parcels may be publicly or privately held land.

The provision of shuttle supportive parking in the downtown may provide an opportunity for economic development in the town of Lone Pine. Aside from revenues gained from parking fees, bringing visitors to the downtown may encourage patronage of local businesses. The approval of a parcel of land for use as a parking lot is within the jurisdiction of Inyo County zoning and land use. See next page for Lone Pine sample parcel availability.



Map 14: Lone Pine on-street parking

SITE ANALYSIS: WHITNEY PORTAL TRANSPORTATION SERVICE – PUBLIC

There are many reasons that public transportation service may be provided. It may be provided as a public service or to meet a community need. Rural public transit service often acts as a lifeline service to necessary services for transportation disadvantaged individuals. Mass transportation may meet a safety need when challenging roadway conditions are more suited to fewer vehicles operated by professional drivers. Environmental conditions may be improved using mass transit by controlling travel routes, eliminating indiscriminate parking and setting the locations where visitors can access an area. Mass transportation may also provide additional capacity to an overloaded transportation system by transporting people to areas where congested roadways or parking lots would have otherwise limited access. The need for transportation services may be unique to a location or population.

The Whitney Portal recreation area serves mainly 2 discrete user groups with distinctly different transportation related needs: day visitors who visit the area for the day and hikers/backpackers that may stay for extended periods and require overnight parking facilities. The day-use visitor may be attracted to the Whitney Portal area to dine at the resort, fish in the pond, wander the local trails, view the natural landscape or a host of other reasons. Day-use visitors may arrive and depart throughout the day. Backpackers are predominantly drawn to the area to hike the Mount Whitney Trail, some for a single day and others for

extended sojourns. Single day hikers may arrive at the Whitney Portal very early to begin their hike and exit the trail late in the evening. Overnight backpackers may be more flexible in their arrival and departure schedule.

Parking accommodations within the Whitney Portal recreation area are provided to support the user groups with day-use only and overnight parking. A day-use parking lot is available from 8:00am to 8:00pm daily. The day-use parking lot experiences moderate demand during the summer season with peak periods on the July 4th holiday and weekends in July. For periods when day-use parking is at or near capacity, sufficient parking surplus exists in the overnight parking lots to absorb excess day-use parking demand.

Overnight parking areas are intended to accommodate the Mount Whitney Trail hiker population. All visitors wanting to park earlier than 8:00am, later than 8:00pm or overnight must park in an unrestricted overnight parking area. Demand for overnight parking spaces exceeds the supply of paved marked parking spaces from the end of July through the beginning of September.

Transportation services may provide an alternate means of accessing the Whitney Portal recreation area. Three simple public transportation service scenarios were developed to demonstrate the ridership potential and estimated operating costs for public transit service to the Whitney Portal recreation area from the Eastern Sierra Interagency Visitor Center. Three different daily periods of operation were selected for review: 24 hours, 6:00am to 7:00pm and 7:00am to 4:00pm.

The following assumptions were used for each scenario:

- » The peak period for overnight parking demand was July through the middle of September, therefore, seasonal transit service is proposed for the 77 day peak period of July 1st through September 15th. Traffic count data utilized was exclusively for that 77 day period.
- » Vehicle occupancy rate of 2 persons per automobile based on Caltrans 2000 Origin and Destination Study.
- » The 5% ridership estimate for free choice transit options based on 2010 US Census mode of transportation data for the State of California.
- » The estimated fully allocated operating cost of \$65 per hour per vehicle was supplied by Eastern Sierra Transit Authority (ESTA).
- » The farebox recovery of 11% used in subsidized scenarios is consistent with ESTA’s systemwide statistic.
- » To negotiate the geometry of the Whitney Portal Road a 15 passenger cutaway style transit vehicle is proposed.

**Hiker 24 hour shuttle service
12:01am – 11:59pm scenario**

A 24 hour shuttle service may be necessary to provide comprehensive access to Mount Whitney Trail hikers. Single day hikers may arrive on the mountain very early or not depart until very late. The area where parking demand exceeds the supply of parking spaces is for overnight parking, indicating that individuals that are in need of parking are arriving in the Whitney Portal area prior to 8:00am or intend on staying later than 8:00pm or overnight. A 24 hour shuttle service may be necessary to capture the single day hiker population.

Single day trail permit holders account for 57% of all issued trail permits. These users may start their journey on the Mount Whitney Trail any time after 12:01am on the permit issue date. Travel duration for hiking the trail may vary greatly between visitors. A reasonable round trip travel time estimate for the Mount Whitney Trail may typically be around 14 hours with single day hikers beginning their journey as early as 3:00am (Source: Marty Hornick, US Forest Service). A shuttle service may be needed for the entire day to capture inbound and outbound hikers.

Hiker 24 hour shuttle service 12:01am – 11:59pm

Vehicle counts by time of day

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
3	3	5	6	4	3	6	12	20	29	36	39	41	43	40	40	39	36	30	25	17	9	5	4

Total vehicles 12:01am - 11:59pm: 494

Percent of average daily traffic captured: 100%

Potential number of riders

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
6	6	10	12	8	6	12	18	32	46	58	62	64	68	64	62	60	72	60	50	34	18	10	8

Estimated number of riders (5% transit ridership rate for State of California, 2010 US Census)

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
0	0	0	1	0	0	1	1	2	2	3	3	3	3	3	3	3	4	3	3	2	1	0	0

Number of 15 passenger vehicle trips need to accommodate estimated number of visitors

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Number of 15 passenger vehicles need to serve the estimated number of trips (1 hour round trip route)

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

A general cost estimate to provide a 24 hour shuttle service for the peak period of July 1st through September 15th would be approximately \$120,000 calculated using one hour headways (\$65 per hour x 24 hours with 1 trip per hour x 77 days). Ridership may be limited without entry restrictions to the Whitney Portal area imposed by the Inyo National Forest. Provision of the service may require approximately an 89% or a \$106,800 subsidy per year.

The potential number of transit riders for the July 1st through September 15th period is estimated at 41 total passengers per day for both inbound and outbound directions. The study period estimate of total passengers is 3,157 (41 total passengers per day x 77 operating days). The estimated full price fare would be \$38.00 if passengers paid the entire cost to provide the service. The estimated subsidized passenger fare, with the Forest Service financing 89% of the cost to provide service, would be \$4.20.

Daily shuttle service 6:00am – 7:00pm

Vehicle counts by time of day

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
3	3	5	6	4	3	6	12	20	29	36	39	41	43	40	40	39	36	30	25	17	9	5	4

Total vehicles 6:00am - 7:00pm: 436

Percent of average daily traffic captured: 88%

Potential number of riders (compulsory transportation service)

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
-	-	-	-	-	-	12	24	40	58	72	78	82	86	80	80	78	72	60	50	-	-	-	-

Number of 15 passenger vehicle trips need to accommodate estimated number of visitors

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
-	-	-	-	-	-	1	2	3	4	5	6	6	6	6	6	6	5	4	4	-	-	-	-

Number of 15 passenger vehicles need to serve the estimated number of trips (1 hour round trip route)

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
-	-	-	-	-	-	1	2	3	4	5	6	6	6	6	6	6	5	4	4	-	-	-	-

**Daily shuttle service
6:00am – 7:00pm scenario**

The grant application alluded to a compulsory shuttle service between 6:00am and 7:00pm daily. On average, for the July 1st to September 15th period, 436 vehicles per day enter and exit the Whitney Portal recreation area between these hours. This traffic accounts for 88% of inbound and outbound vehicles on an average day.

The potential number of transit riders for this time period is estimated at 872 total passengers per day for both inbound and outbound directions. The study period estimate of total passengers is 67,144 (872 total passengers per day x 77 operating days). Maintaining the same temporal distribution for transit ridership as was seen in vehicle counts, this number of passengers would necessitate 64 trips per day utilizing a maximum of 6 vehicles.

The estimated cost of this service would be \$4,160 per day or a total of \$320,320 for the July 1st through September 15th period. The estimated self-supporting round trip fare, with the passenger fare financing 100% of operating expenses, would be \$4.80 per person. The large number of passengers, due to the mandatory nature of the service, offsets the high operating costs making the estimated passenger fare under \$5.00 per passenger.

On-demand shuttle service 7:00am – 4:00pm

Vehicle counts by time of day

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
3	3	5	6	4	3	6	12	20	29	36	39	41	43	40	40	39	36	30	25	17	9	5	4

Total vehicles 7:00am - 4:00pm: 339

Percent of average daily traffic captured: 78%

Potential number of riders

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
-	-	-	-	-	-	-	18	32	46	58	62	64	68	64	62	60	-	-	-	-	-	-	-

Estimated number of riders (5% transit ridership rate for State of California, 2010 US Census)

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
-	-	-	-	-	-	-	1	2	2	3	3	3	3	3	3	3	-	-	-	-	-	-	-

Number of 15 passenger vehicle trips need to accommodate estimated number of visitors

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-

Number of 15 passenger vehicles need to serve the estimated number of trips (1 hour round trip route)

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
-	-	-	-	-	-	-	1	1	1	1	1	1	1	1	1	1	-	-	-	-	-	-	-

**On-demand shuttle service
7:00am – 4:00pm**

Service between 7:00am and 4:00pm would be consistent with the existing dial-a-ride program operated by Eastern Sierra Transit Authority (ESTA) in the town of Lone Pine. Eastern Sierra Transit Authority (ESTA) currently operates an on-demand weekday only dial-a-ride transit service in the town of Lone Pine. The service is available to the public from 7:00am to 4:00pm Monday through Friday. Transit service is not available weekends or holidays. The Forest Service may gain synergy in the provision of transportation services by offering transit service to the Whitney Portal recreation area during this time.

On average 339 vehicles per day enter and exit the Whitney Portal recreation area between the hours of 7:00am and 4:00pm during the July 1st to September 15th period. This traffic accounts for 78% of inbound and outbound vehicles in an average day.

A voluntary transit option is expected to garner substantially fewer riders than a compulsory service. The potential number of free choice transit riders for the time period is estimated at 26 total passenger trips per day for both inbound and outbound directions. The study period estimate of total passengers is 1,430 (26 total passenger trips per day x 55 weekday operating days). Maintaining the same temporal distribution for transit ridership as was seen in vehicle counts, this number of riders would necessitate 10 trips per day utilizing 1 transit vehicle.

The estimated cost of this service would be \$585 per day or \$32,175 for weekday only service during the July 1st through September 15th period. The self-supporting estimated round trip passenger fare, with passenger fares financing 100% of operating costs for the shuttle service would be \$22.50 per person. Should the Forest Service elect to finance the shuttle service at an 89% subsidy, the cost to the Forest would be \$28,636 per season. A subsidized fare at an 11% farebox recovery, with passenger fares paying 11% of the operating costs and the Forest Service financing the other 89% of the costs, is \$2.50 per person.

These single dimension transit scenarios do not begin to address the capital costs and complementary components necessary to provide a dedicated transit service to the Whitney Portal recreation area. Transit vehicles may be needed to provide the service in scenarios. Compulsory transit service may necessitate a staffed entrance station, in an appropriate location on Whitney Portal Road, to regulate vehicular traffic into the Whitney Portal area. Off-site parking may be needed to store visitor's vehicles and for the compulsory transportation scenario off-site parking for about 436 vehicles per day would be needed. Additional parking facilities may need to be constructed at the Eastern Sierra Interagency Visitor Center to accommodate vehicles for day, overnight and long-term users of a shuttle service.



Figure 41: Typical shuttle

Cost estimations are provided for exploratory purposes and to demonstrate the cost differences in types of service. Any change in ESTA's service, routes or stop locations would require approval of the ESTA Board of Directors.

SITE ANALYSIS: WHITNEY PORTAL TRANSPORTATION SERVICE – PRIVATE

The provision of transportation services and its supporting industries may contribute to economic development in local communities of the Inyo National Forest. The Forest could encourage and support private provision of transportation service through Forest Service permit holders or special use permits. Aside from any regulations and requirements of the Forest Service, a transportation provider may need to meet those of state and local authorities.

The provision of transportation services in the State of California is regulated by either state or local jurisdictions depending on the type of service offered. Transportation services may be provided through charter-party or taxi service providers. Charter-party transportation service within the State of California is regulated by the California Public Utilities Commission (CPUC). Fares for charter-party type service must be based on mileage or time of use or a combination of the two and may not charge individual fares. The services provided by charter passenger companies must be prearranged.

The operating requirements for charter-party service provides is based on the seating capacity of the vehicles in their fleet. Transportation service providers utilizing vehicles with a seating capacity of less than 10 people, including the driver, are not required to obtain a California Highway Patrol bus safety inspection or a commercial driver's license. The seating

capacity of the largest vehicle in an operator's fleet also determines the level of public liability and property damage insurance required.

Charter-party carriers operate under the CPUC while taxis are licensed and regulated by city or county ordinance. Taxis may provide either on-demand curbside or prearranged transportation services. Taxi vehicles must be designed to carry not more than 9 persons including the driver. A commercial driver's license is not needed to operate a taxi. Insurance requirements for taxi providers are prescribed by the authorizing agency.

Fares for transportation services to destinations on the Inyo National Forest could be charged at fair market value or a Forest Service subsidized rate. In areas where transportation services are highly desired by the Forest, but the fare necessary to garner riders may be insufficient to cover the cost of providing the service, the Forest may consider utilizing authorities under a Granger-Thye fee offset agreement to finance the service. The Forest may use reinvestment of permit fees to financially support permit holder supplied transportation services.

The private provision of transportation supportive services such as off-site parking facilities may be possible within the town of Lone Pine. Parcels of land of sufficient size to support overnight and long-term parking for a voluntary Whitney Portal shuttle service are available in various areas of the town. The private provision of transportation and parking services may provide economic development opportunities for the gateway communities of the Inyo National Forest.

RIDESHARING

Technology is an underutilized resource that may be used to expand the transportation network to and within the Inyo National Forest. Individuals may find or share information related to transportation routes and modes from Internet based programs and websites. Technologies such as dynamic ridesharing programs and social media make it possible to connect people. Mobile devices such as smartphones and portable computers have made access to internet based information ubiquitous, from any location.

Dynamic ridesharing programs make it possible to connect drivers and riders in real-time. Personalized programs may be developed for specific communities, such as backcountry hikers on the Inyo National Forest, or worldwide programs match rideshare partners in any location. State of the art computer programs use GPS enabled cellphones to match individuals in need of a ride with drivers in their immediate area. Rideshare services may be offered free of charge, or for some programs, drivers may be reimbursed for expenses.



Real-time Ridesharing

Share a ride whenever you want, from wherever you are

Figure 42: Sample ridesharing technology taken from <http://www.avego.com/products/real-time-ridesharing/>

Real-time Ridesharing

1. Share a ride.

Download the free Avego iPhone app or Android app to start saving money on your commute by offering the vacant seats in your car to others in real time. You'll automatically receive payment from riders at the end of the journey.

2. Get a Ride.

The new Avego Ride Board makes it easy to discover available rides around you using any smartphone. Create your free Avego account today to start booking rides.

3. Learn more.

Learn more about Real-time Ridesharing by watching some videos, or keep in touch with us by signing up to our newsletter, reading our blog, following us on Twitter, or becoming a fan on Facebook.

Social media websites or websites that support visitor interaction may provide a forum for individuals to share information regarding transportation to and within the Inyo National Forest. Key stakeholders in the visitor community may host discussion boards for visitors to exchange transportation related information or arrange to share transportation services. These forums offer an opportunity to support alternative transportation services by disseminating pertinent information.

Ridesharing may be done on a long-distance or local scale. The consolidated origins of visitors to the Inyo National Forest in a few key markets may support the use of ridesharing. The predominant visitor markets of Southern California, the San Francisco Bay Area and Western Nevada (2011 NVUM survey) mean visitors are coming from large metropolitan areas and traveling on one of the few highways leading to the Forest. The Whitney Portal Road is the sole vehicular

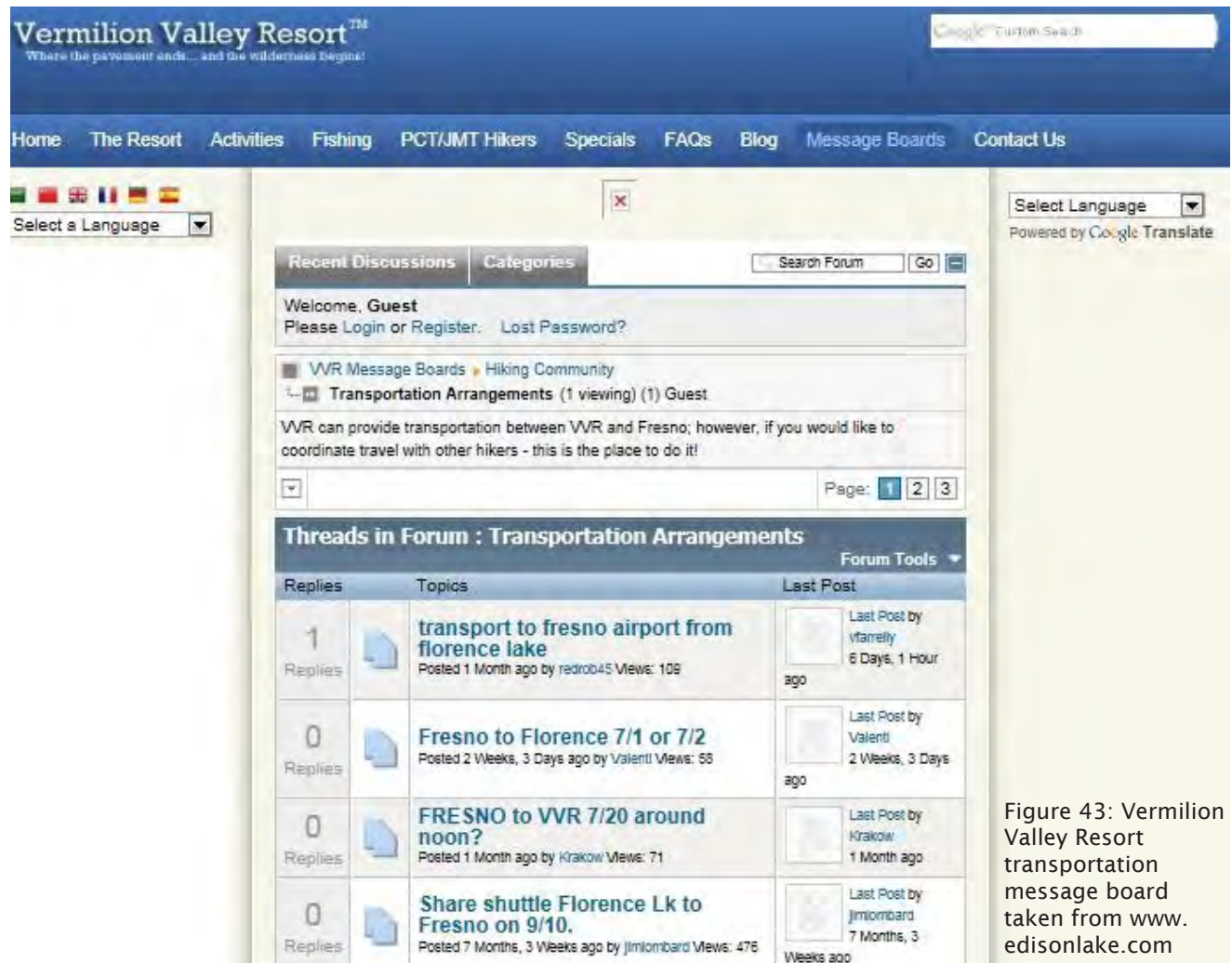


Figure 43: Vermilion Valley Resort transportation message board taken from www.edisonlake.com

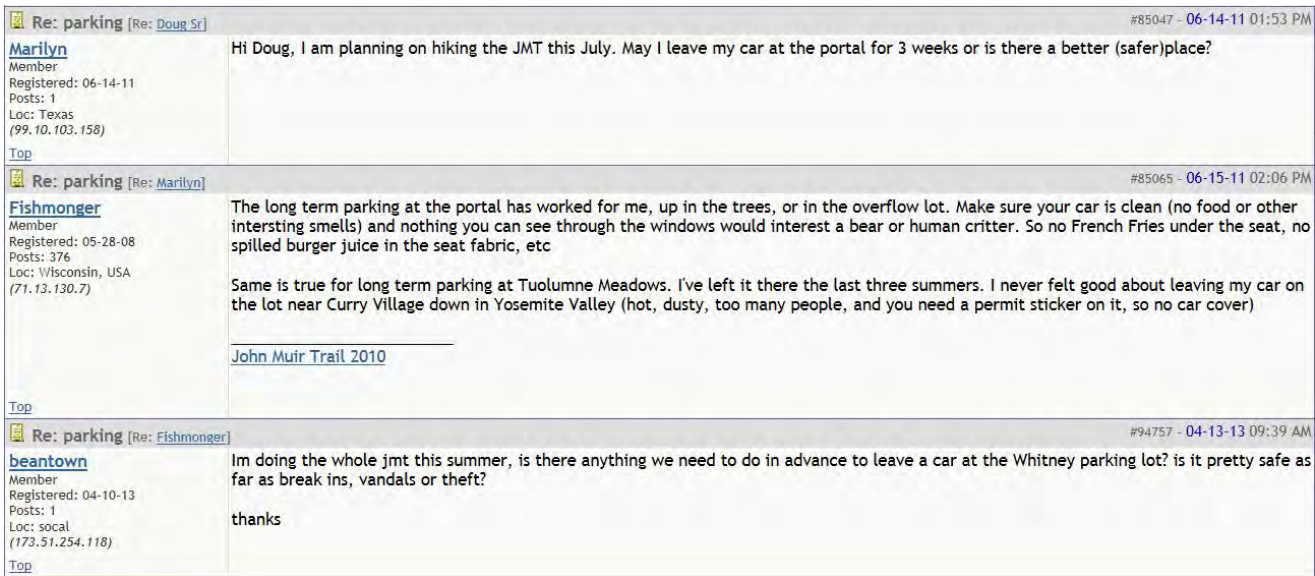


Figure 44: Whitney Portal Store message board taken from www.whitneyportalstore.com

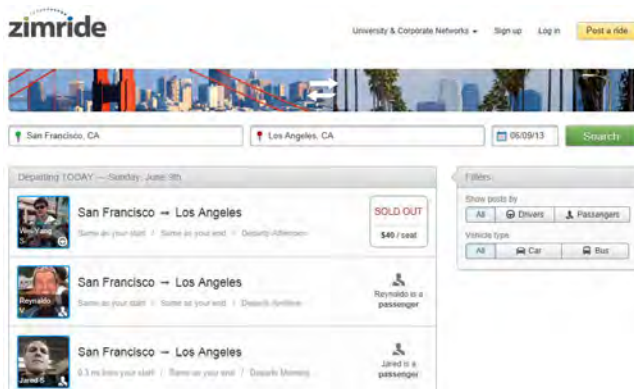


Figure 45: Sample rideshare program Zimride taken from www.zimride.com

route to the Whitney Portal recreation area and visitors must pass through the town of Lone Pine on their journey to the Portal. Both visitors coming from distant locations and individuals from the local community may participate and benefit from a rideshare program. The limited number of vehicle travel routes to and within the Inyo National Forest may support ridesharing.

Ridesharing may add capacity to the Inyo National Forest transportation system by utilizing empty seats in existing vehicles. Caltrans 2000 Origin and Destination Study found that the average vehicle occupancy was 2.18 people and the Mount Whitney Trail permit data showed that average party size is between 2 and 3 persons, potentially leaving empty seats in vehicles. Vehicles traveling to the Inyo National Forest may have surplus seating capacity that could be filled through a rideshare program.

FUEL CONSUMPTION AND VEHICLE EMISSIONS

Alternative transportation modes may have a positive impact on fuel consumption and air pollution. Depending on the mode of travel the level of impact may vary greatly. Transportation services that move individuals from one vehicle type to another must produce a net positive result to have positive benefits. Trips that were shifted from automobile to an active transportation form of transportation, such as walking or bicycling, would eliminate all fuel consumption and emissions for that particular trip. The net impact of a shift in transportation modes must be analyzed to determine if an alternative mode of transportation has a positive environmental outcome.

The use of alternative transportation modes may have a positive impact on fuel consumption and motor vehicle emission

rates. While active forms of transport such as walking and bicycling would eliminate the use of fuel and the resultant production of vehicle emissions completely, the use of transit also has the ability to have positive impacts on fuel consumption and emissions.

Transit vehicles consume more fuel per mile than passenger vehicles. Demand response type transit vehicles use about 15,111 Btu (British thermal unit) of energy per vehicle mile while a passenger car averages about 5,342 Btu per vehicle mile. Mile for mile passenger automobiles are more fuel efficient than buses. A transit vehicle may become more fuel efficient than a personal automobile when it moves a large number of people thereby having a lower average energy usage per passenger mile than a passenger vehicle.

Table 2.12
Passenger Travel and Energy Use, 2010

	Number of vehicles (thousands)	Vehicle-miles (millions)	Passenger-miles (millions)	Load factor (persons/ vehicle)	Energy intensities		Energy use (trillion Btu)
					(Btu per vehicle- mile)	(Btu per passenger- mile)	
Cars	130,892.0	1,551,457	2,404,758	1.55	5,342	3,447	8,288.2
Personal trucks	90,810.3	924,556	1,701,183	1.84	7,081	3,848	6,547.0
Motorcycles	8,212.3	18,462	21,416	1.16	2,881	2,484	53.2
Demand response ^a	68.9	1,529	1,477	1.0	15,111	15,645	23.1
Buses	b	b	b	b	b	b	190.2
Transit	66.8	2,425	21,172	8.7	35,953	4,118	87.2
Intercity ^c	b	b	b	b	b	b	29.9
School ^e	1,970.1	b	b	b	b	b	73.2
Air	b	b	b	b	b	b	1,740.8
Certificated route ^d	b	5,499	555,653	101.0	276,329	2,735	1,519.5
General aviation	223.4	b	b	b	b	b	221.2
Recreational boats	13,392.9	b	b	b	b	b	245.2
Rail	20.8	1,400	35,874	25.6	66,378	2,590	92.9
Intercity (Amtrak)	0.3	295	6,420	21.8	49,453	2,271	14.6
Transit	13.6	760	18,580	24.5	61,645	2,520	46.8
Commuter	6.9	345	10,874	31.5	91,242	2,897	31.5

Figure 46: Passenger travel and energy use taken from Transportation Energy Data Book: Edition 31 - 2010

compulsory Whitney Portal Shuttle fuel consumption estimate			
mode	shuttle	person automobile	net impact
Btu per mile	15,111	5,342	
miles per trip	26	26	
Btu per trip	392,886	138,892	
trips per day	64	218	
Btu per day	25,144,704	30,278,456	
days per season	77	77	
Btu per season	1,936,142,208	2,331,441,112	(395,298,904)

Figure 47: Whitney Portal compulsory shuttle scenario fuel consumption estimate

Transit trips may provide environmental benefits if the impact from the number of personal occupancy vehicles removed from the road is greater than the level of impact from the addition of a transit vehicle to the road. The voluntary shuttle service scenarios presented above are not anticipated to achieve reductions in overall fuel consumption and emissions versus driving personal vehicles to the Whitney Portal recreation area; however, the compulsory shuttle service may have positive impacts.

Over the course of the summer season it is estimated that a compulsory transit service to Whitney Portal could save approximately 395,298,904 Btu of energy. This equates to a reduction in energy usage of about 3,162

gallons (395,298,904 Btu / 125,000 Btu per gallon of gas) of gasoline. Use of the small size shuttle vehicles and a relatively high shuttle passenger occupancy rate makes the shuttle service more energy efficient than visitors driving personal vehicles.

A compulsory shuttle service may have positive environmental impacts. As a result of the net reduction in fuel consumption from the provision of transit service, approximately 3,162 gallons of gasoline may be saved. The estimated pollutant reduction from the reduced fuel usage equates to over 56,000 less pounds of CO2 emitted into the atmosphere. Using less fuel creates fewer emissions.

compulsory Whitney Portal Shuttle emission reduction estimate			
pollutant	emissions rates (per gallon of gasoline) in	3,162 gallon reduction in gasoline	total reduction in emissions in
	grams (g)*		
VOC	24.92	(24.92 g/gal x 3,162 gal x 1 lb/454 g)	157.59
THC	25.96	(25.96 g/gal x 3,162 gal x 1 lb/454 g)	164.17
CO	226.56	(226.56 g/gal x 3,162 gal x 1 lb/454 g)	1,432.77
NOx	16.70	(16.70 g/gal x 3,162 gal x 1 lb/454 g)	105.61
PM10	0.11	(0.11 g/gal x 3,162 gal x 1 lb/454 g)	0.70
PM2.5	0.10	(0.10 g/gal x 3,162 gal x 1 lb/454 g)	0.63
CO2	8,879.18	(8,879.18 g/gal x 3,162 gal x 1 lb/454 g)	56,151.93

* US Environmental Protection Agency, Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks 2008

Figure 48: Whitney Portal compulsory shuttle scenario emission reduction estimate

FUNDING SOURCES

Funding alternative transportation system projects on the Inyo National Forest may require a multi-jurisdictional effort to develop a broad spectrum of revenue sources. The Forest may need to exploit an array of funding opportunities and cultivate crucial partnerships to build a comprehensive multi-modal network. Dedicated funding streams readily available to the Inyo National Forest for alternative transportation system projects are limited.

The Federal Lands Recreation Enhancement Act (REA) provides the Forest Service with a mechanism to levy and retain recreation fee revenues to maintain, operate and enhance recreation sites and areas to quality standards. A business plan is required for all recreation sites or areas where a fee will be charged. A Regional Fee Board provides review and approval of proposed amenity fees.

Recreation fees may be charged in locations where a high level of facilities, services or activities, with a direct benefit to the user, are provided. Developed high-intensity areas ripe for the authorization of a recreation fee must include designated developed parking, toilets, trash receptacles, interpretative information, picnic tables and security services. Locations that offer facilities or service directly to an individual such as highly developed boat launches, sanitary dump stations or transportation services may be self-supporting with user fees. A minimum of 95% of recreation fee revenue collected under REA remains on the forest. Concessionaire operated sites are not included in the REA authority.

The federal government has programs that could fund alternative transportation projects on the Inyo National Forest. The Federal Lands Transportation Program funds projects that improve access within federal lands on designated transportation facilities owned and maintained by the federal government. Funding is allocated competitively to the U.S. Forest Service, Bureau of Land Management and U.S. Army Corps of Engineers, using a performance management model.

The Federal Lands Access Program administered by the Federal Highway Administration provides funding for federal lands access transportation facilities such as highways, bridges, trails or transit systems that are located on, adjacent to, or provide access to federal lands for which title or maintenance responsibility is vested in a state, local or tribal government. Funds are distributed by formula among states that contain federal lands.

The Transportation Alternatives Program (TAP), administered by the Federal Highway Administration, funds opportunities to expand transportation choices and enhance the transportation experience 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. TAP projects must relate to surface transportation and must qualify under at least 1 of the 12 eligible categories. Though the program is under the authority of the Federal

Highway Administration, it is implemented by the states that have flexibility in how the Transportation Alternatives Program is administered.

The Highway Safety Improvement Program is another Federal Highway Administration program administered at the state level. The program purpose is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including local roads and roads on tribal lands. Highway safety improvements funded include strategies, activities or projects on a public road that are consistent with the data-driven State Strategic Highway Safety Plan (SHSP) and corrects or improves a hazardous road location or feature or addresses a highway safety problem. High risk rural roads with a significant number of server accidents are identified in the program as an area of interest. Pedestrian and bicycle safety improvements are eligible for funding.

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) provides a flexible funding source for transportation projects and programs that help meet the requirements of the Clean Air Act. Eligible activities include such projects as transit improvements, travel demand management strategies and fleet conversions to cleaner burning fuels. Jointly administered by Federal Highway Administration and the Federal Transit Administration, the CMAQ program was reauthorized under the Moving Ahead for Progress in the 21st Century Act (MAP-21) in July, 2012. Funding is available in National Ambient Air Quality Standards non-attainment areas.

The State of California has many programs designed to build and maintain a comprehensive multimodal transportation system. The Transportation Improvement Program is a State of California work program adopted by the California Transportation Commission for future allocations of certain state transportation funds for state and regional highway and transit improvements. The Local Assistance Program administers federal and state funds for multimodal system improvements to state and local roadways. The Bicycle Transportation Account (BTA) provides funds for county and city projects that improve safety and convenience for bicycle commuters. The Transportation Enhancement Activities (TEA) provides funding for projects with a direct intermodal transportation system connection. Many of the state administered programs were amended with the passage of Moving Ahead for Progress in the 21st Century Act (MAP-21) transportation bill in 2012 and implementation of the new legislation is still in progress.

Forest Service revenues received from the sale of forest products are paid to local counties to support schools and roadways. Title 16 Chapter 2 subchapter I, section 500 of the US Code titled "Payment and evaluation of receipts to State or Territory for schools and roads; moneys received; projections of revenues and estimated payments" states that 25% of all amounts received for a fiscal year in connection with timber sales or other forest products shall be returned to the state for the benefit of public schools and roads of the county or counties in which the national

forest is situated. Funds available under this program may be targeted to transportation improvements to or within the Inyo National Forest.

Partnerships may be a key component to creating and funding a comprehensive multimodal transportation system to and within the Inyo National Forest. Many locations and services in need of improvement are outside of the Forest's authority. A concerted effort between organizations may be necessary to develop all possible funding sources to support alternative transportation system improvements on the Forest.

State and local governments have access to unique alternative transportation funding sources that are unavailable to the Inyo National Forest. The Forest Service, as a federal agency, has limited ability to seek funding sources outside of those provided directly for federal agencies. State and local governments, as well as not for profit organizations, may be able to solicit funding from organizations and programs not within the reach of the Forest. By forming a partnership with the local community, the Inyo National Forest may broaden the financial resources available for alternative transportation projects.

Public-private partnerships may be a tool to provide and promote transportation services to and within the Inyo National Forest. Forest Service permit holders are an ideal candidate for the provision of transportation to key locations on the forest. The highly seasonal need for transportation services coincides with many permit holders seasonal operations. A permit holder may already have a physical presence in an area where transportation services are needed, eliminating the long drive to many remote locations on the forest. Transportation services on the forest may be provided under an existing or new permit. Financial support for the private provision of transportation services may be supported by permit fee reinvestment.

Though the Inyo National Forest may not have the direct ability to construct or provide some alternative transportation system improvements, the Forest could foster an environment of partnership building to accomplish them. A partnership with a local organization may be a means to expand the alternative transportation system and the funding sources that support it. Funding alternative transportation system improvements to and within the Inyo National Forest may require a joint effort between vested parties.

PROJECT MATRIX

MULTIMODAL TRANSPORTATION SYSTEM PROJECT PROPOSAL MATRIX

Preliminary multimodal transportation projects were developed that may improve access and mobility to and within the Whitney Portal area. Field observations, data analysis and detailed reviews of existing conditions and user demand lead to the creation of a list of key alternative transportation system project proposals. Multimodal transportation system improvements included in the list were selected based on need and achievability. The diverse list of projects was distilled by mode of transportation.

Pedestrian improvement proposals focus on making the existing internal trail network attractive, functional and identifiable to visitors. The geographically consolidated layout of the Whitney Portal recreation area, with closely located generators and attractors of visitor traffic, is well suited for pedestrian travel; however, breaks in pedestrian routes may impede travel by foot or move pedestrian into the roadway. Providing separate paths, when possible, with clearly visible wayfinding signage may enhance pedestrian mobility. Slowing vehicular travel speeds may improve safety when mixed traffic shares the road.

Bicycle improvements are not recommended for the Whitney Portal core recreation area. The route and roadway conditions that lead to the area are not conducive to travel by bicycle for the general public. Roadway conditions in the valley may prove more suitable to bicycle traffic and the Inyo National Forest may support bicycle initiatives proposed by Inyo County.

Travel by automobile is the most prevalent and convenient means to access the Whitney Portal recreation area. Improvements to vehicle circulation and parking may make overnight and long-term parking more convenient while dampening any adverse impacts. A simplified vehicle circulation plan for the core recreation area may alleviate conflicts between day-use and overnight parking by directing users to the appropriate parking area for their length of stay. Improvements to roadside parking areas and development of near-site parking lots may provide the additional overnight parking capacity needed in a safe and environmentally sound manner.

Public or privately provided transportation services may improve access to the Whitney Portal recreation area for some visitors or offer an alternative to driving for others. A compulsory shuttle service may eliminate overnight parking pressures from the Whitney Portal area; however, any transportation service, voluntary or compulsory, must be supported by off-site parking. The provision of transportation service to the Whitney Portal recreation area would close the gap in the mass transit network between the location and the town of Lone Pine.

multimodal transportation system project matrix				
mode of transport	project description	use level	cost estimate	partnering opportunity
Pedestrian				
	Develop pedestrian wayfinding signage as part of a master signage plan	H	L	
	Install crosswalk pavement markings in front of the Whitney Portal Store to the hardened trail	H	L	
	Conduct trail maintenance on existing trails	H	L	
	Complete the hardened trail around the lake connecting the day-use are to the Whitney Portal Store	H	M	
	Construct bridge over stream from day-use area to the Whitney Portal Store	H	M	
	Construct a bridge to connect the middle parking area with the picnic area and the waterfall feature	H	M	
	Improve wayfinding signage on existing trails	H	M	
	Construct trail from Meysan Lakes trailhead roadside parking to the Whitney Portal core recreation area	L	M	
	Encourage development of a trail connection from Lone Pine Campground to the town of Lone Pine	L	M	Bureau of Land Management, Inyo County
Bicycle				
	Support construction of proposed bicycle lane on Whitney Portal Road to the Lone Pine Campground area	L	H	Inyo County
	Support installation of "Bicycles may use full lane" signage at key points along Whitney Portal Road	L	L	Inyo County
Automobile				
	Develop vehicular directional signage as part of a master signage plan	H	L	Inyo County
	Stripe parking lots to accommodate the greatest number of vehicles on the existing paved surface	H	L	
	Create long-term near-site parking in the Meysan Lakes Trailhead area	H	L	
	Improve roadway shoulders along Whitney Portal Road to support overnight roadside parking where feasible	H	M	Inyo County
	Create overnight parking area in underutilized dirt parking lot behind the Whitney Portal Store	H	H	Forest Service permit holder
	Create a gateway feature at the entrance to the core recreation area to act as a traffic calming device	H	M	
	Close the internal access road with boulders and repurpose it to a pedestrian zone.	H	L	
	Relocate bear box food storage containers from parking spaces to newly created pedestrian zone.	H	L	
	Designate overnight parking at the Eastern Sierra Interagency Visitor Center	L	L	
	Install "no parking" signage, in support of a master signage plan, along segments of Whitney Portal Road where roadside parking is deemed inappropriate	H	L	Inyo County
Transportation Services				
	Fund compulsory recreation shuttle service from the Eastern Sierra Interagency Visitor Center to Whitney Portal	H	H	Eastern Sierra Transit Authority
	Fund voluntary public transportation service from the Eastern Sierra Interagency Visitor Center to Whitney Portal	L	H	Eastern Sierra Transit Authority
	Encourage development of private sector transportation services to Whitney Portal	L	L	Forest Service permit holders, private enterprise
Information Technology				
	Create a transportation system network map showing routes, modes and connections for all transportation modes to and within the Inyo National Forest	H	L	Caltrans, Inyo County
	Create a parking map showing day-use only and overnight permissible parking areas in the Whitney Portal recreation area	H	L	
	Support creation of a dynamic rideshare program	M	L	Caltrans, Inyo County, private enterprise

Figure 49: Whitney Portal multimodal transportation system project proposals

Improvements to the transportation system may be accomplished through communication of information and with readily available technological applications. The ubiquitous nature of the Internet and mobile devices make communication regarding available transportation routes, modes and services instantly accessible. Social media outlets, websites and dynamic ridesharing applications make it possible to connect drivers and riders in advance of a trip or in real-time. These technology forums offer a quickly implementable opportunity to enhance the alternative transportation system.

Funding source availability and partnership building opportunities may dictate the implementation timing of multimodal transportation project proposals to and within the Whitney Portal area. A definitive timing schedule is not proposed due to the understanding that limited funds may be available to accomplish projects. To assist the Inyo National Forest in selecting improvements, as funds and opportunities arise, the project proposal list was developed to demonstrate areas for potentially high, medium and low enhancement to the transportation network and to provide a broad estimate of cost.

Though many of the proposed projects are within the jurisdiction of the Inyo National Forest, projects may benefit from the orchestrated efforts of multiple agencies. Partnering with public or private organizations to accomplish the needed improvements to the transportation system may allow parties to combine expertise and funding sources and create a synergy in the completion of projects. Potential partnership building opportunities are supplied in the matrix.

CONCLUSION

The Whitney Portal recreation area is the gateway to Mt. Whitney, the tallest mountain in the contiguous United States. The Portal experiences high levels of summer season visitation when large numbers of hikers descend on the mountain for single day and long-term Wilderness experiences. The remote location of the recreation area, with few continuous alternative transportation routes or services, makes driving the predominate means of transportation to the area. In the peak backpacking months, data shows that competition for a finite number of paved overnight parking spaces may be great. Currently, legal roadside parking along the Whitney Portal Road provides relief to congested overnight parking facilities.

A comprehensive mobility initiative including a parking management plan and improvements to the alternative transportation system network may enhance access to and within the Whitney Portal recreation area. Circulation modifications to simplify vehicle movement and guide pedestrians may improve the flow of traffic within the area. Development of near-site overnight permissible parking facilities, with attractive and functional pedestrian paths leading to visitor destinations, may also relieve parking pressures in the core recreation area.

The addition of transportation services to the Whitney Portal recreation area may offer an alternative to driving and improve access for transportation disadvantaged individuals but may not necessarily increase visitation. Day-use visitation is not constrained by a parking shortage as visitors may park in any parking area, including along the roadside. During periods of peak day-use visitation, overall parking lot occupancy is below capacity. The number of Whitney Portal Trail hikers is limited by Wilderness trail permit quotas and the number of trail permits issued by the Inyo National Forest fixed. It is important to note that the provision of transportation services to the Whitney Portal may improve access opportunities for the hiker community, but cannot increase the number of users in that group.

The provision of voluntary or compulsory mass transportation services may alleviate parking pressures in the Whitney Portal recreation area. Providing access to the area via transportation services, with parking facilities at an off-site location, may reduce the demand for parking at the Portal. Avenues exist to support publicly or privately delivered transportation and parking services.

A comprehensive transportation plan, including parking management and the development of alternative transportation routes and modes with supporting infrastructure and services, may enhance access and ease parking pressures at the Whitney Portal recreation area.