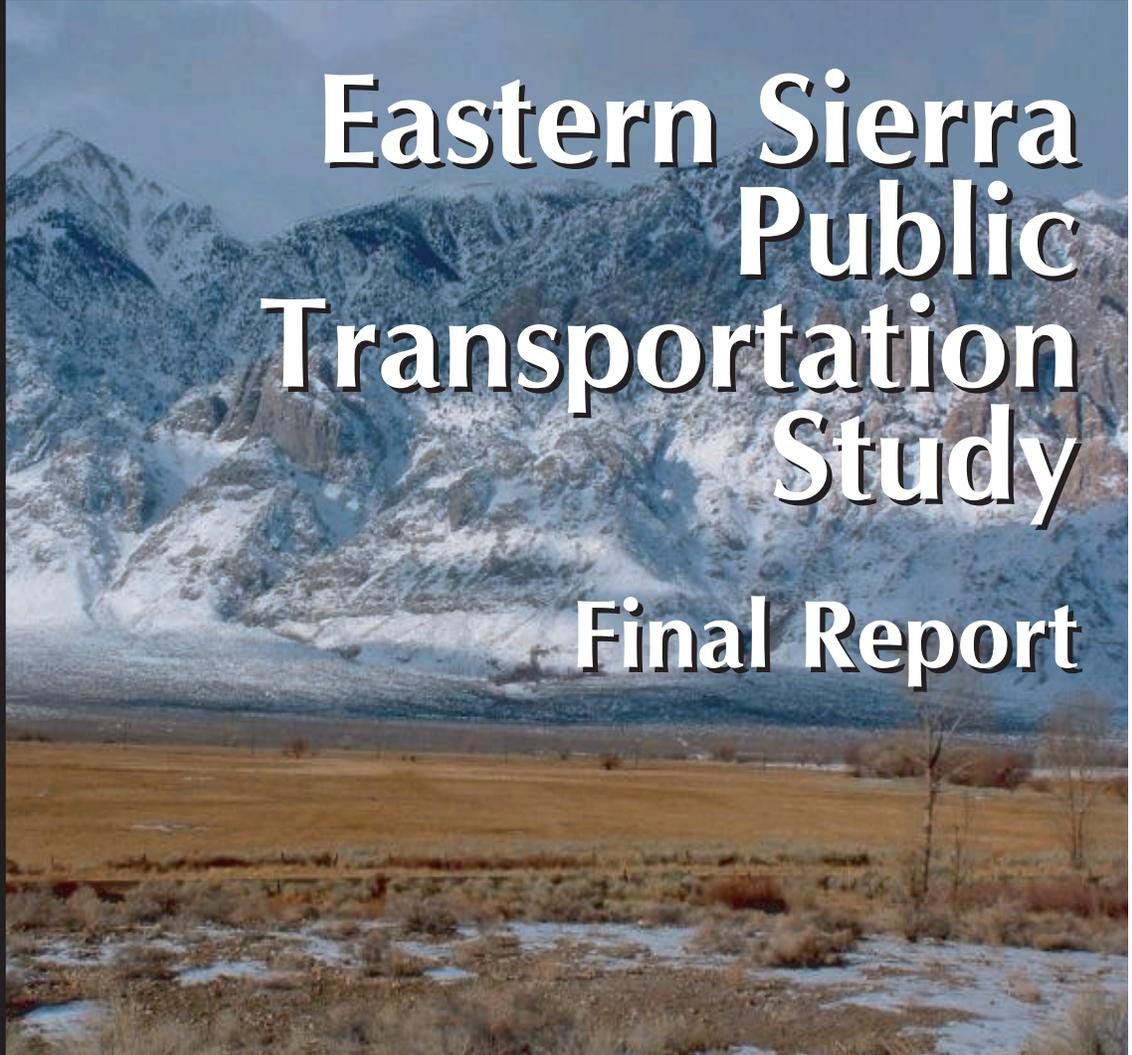




KernCOG



Eastern Sierra Public Transportation Study Final Report



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in association with

LTK
Engineering

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Executive Summary

Introduction

The Eastern Sierra Public Transportation Study represents a comprehensive effort to address short-term interregional transit demands, identify strategies to enhance intra-regional mobility, and present a preliminary feasibility analysis of longer-term passenger rail service between Mammoth Lakes and the Los Angeles region. This study, commissioned by the Kern Council of Governments (Kern COG) on behalf of the Eastern California Transportation Planning Partnership focuses on public transportation services in Mono, Inyo and eastern Kern Counties.

Study Area

The Eastern Sierra study area consists of several rural communities, resort towns, and a few small urban centers clustered along the Highway 395 corridor in Inyo and Mono counties, and along Highway 14 in Kern County, as well as a very small portion of San Bernardino County. Reno and Carson City, Nevada, and the Lake Tahoe area are in the north; the cities of Lancaster and Palmdale are located to the south, in Los Angeles County.

The area is home to numerous natural and tourist sites, including Mammoth and June Mountains, National Forests, and State and National Parks. Ridgecrest, the largest city in eastern Kern County is the largest city within the immediate study area. The other major communities include Bridgeport and Mammoth Lakes in Mono County, Bishop and Lone Pine in Inyo County, and California City and Rosamond in Kern County. The region is immense and has few activity centers. Services and medical facilities are limited to the largest communities. Many people must travel long distances to access major supermarkets, discount stores and hospitals.

Given the varied geography, sparse populations and long distances buses must travel, transit operations throughout the Eastern Sierra region provide exceptionally good coverage. Nearly all communities within the study area have some level of transit service, offering basic mobility to meet some travel demands.

Study Background

When Greyhound Bus Lines discontinued operations in August 2001, the regional transit connection between the communities of the Eastern Sierra ceased to exist. The study area no longer has any commercial transit operators providing interregional transit service.

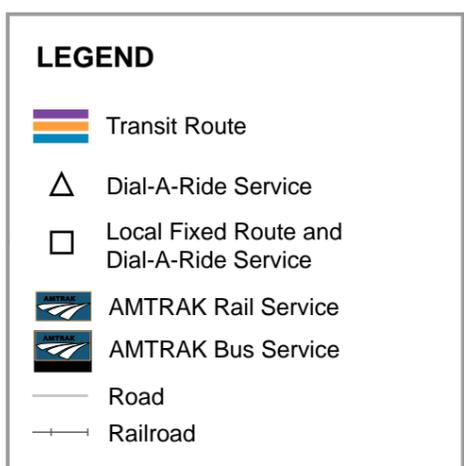
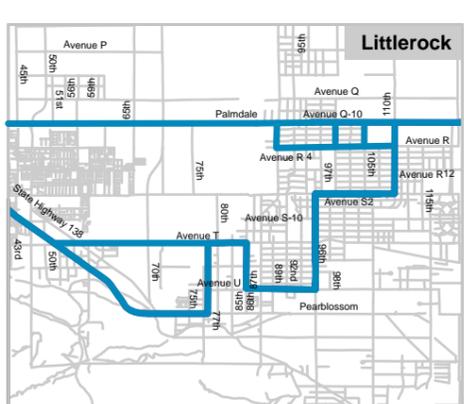
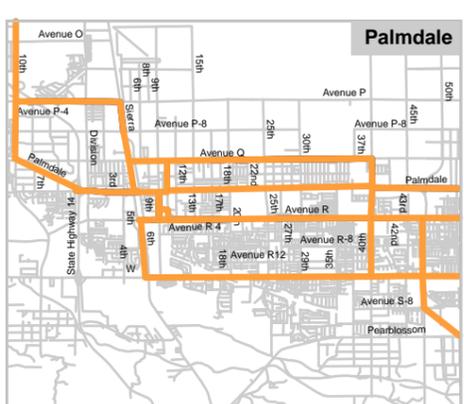
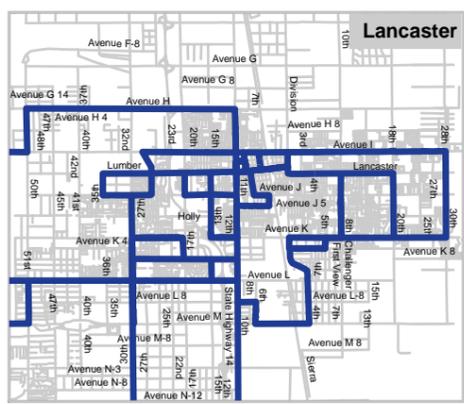
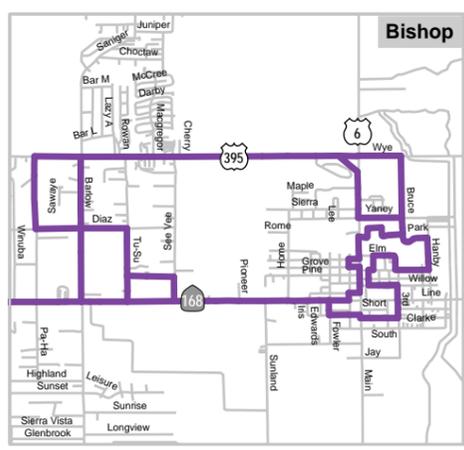
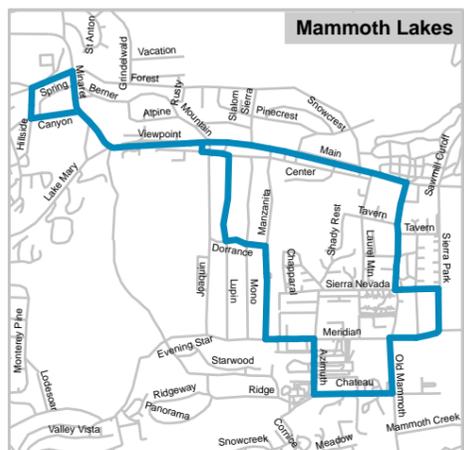
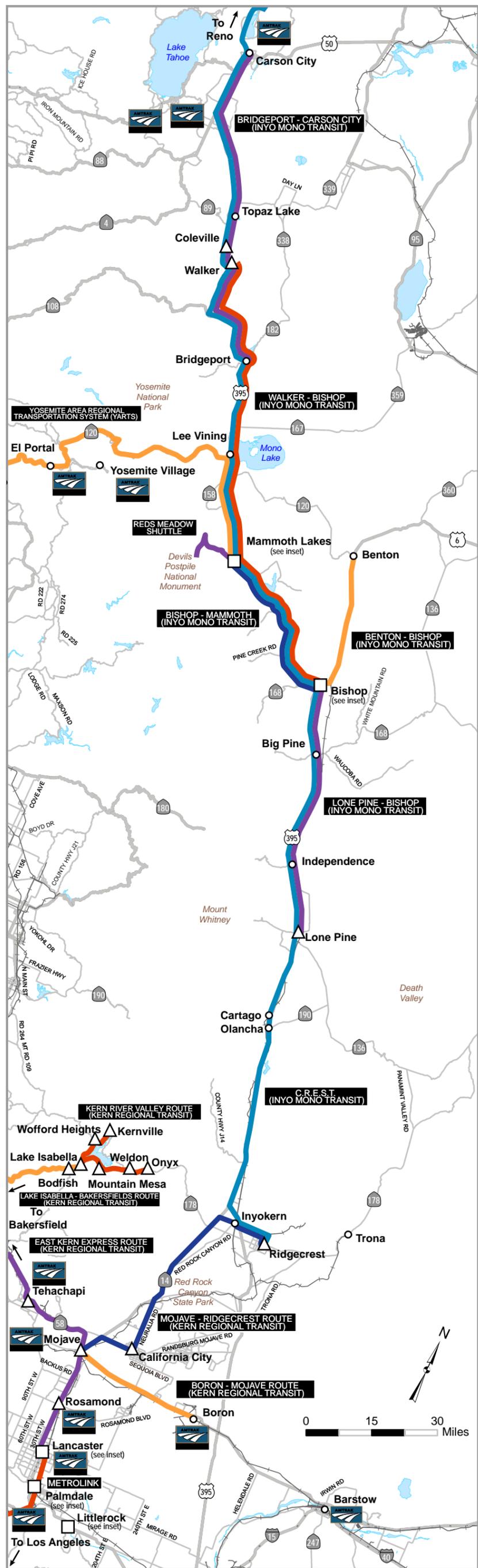
The end of Greyhound operations capped a long history of passenger transportation services in the Eastern Sierra, which included a passenger rail line between Los Angeles, Lone Pine and Owenyo through the first decades of the 20th Century. Carson Ridgecrest Eastern Sierra Transit (CREST) was created in early 2002 by a joint agreement with Kern County, Inyo County and Mono County to serve the communities that were previously served by Greyhound.

Today, seven transit providers operate throughout the Eastern Sierra region. Local services include California City Transit, Mammoth Transit, and Ridgecrest Transit System. Regional or specialized services include Inyo-Mono Transit (IMT), which operates CREST; Kern Regional Transit (KRT); the US Forest Service's Reds Meadow Shuttle; and the Yosemite Area Regional Transportation System (YARTS).

The largest of these operators are IMT and KRT. IMT provides regional fixed route transit service in Inyo and Mono Counties. IMT also offers dial-a-ride service in several communities in both counties.

KRT services connect incorporated cities and unincorporated communities within Kern County. Intercity service also connects Kern County to the cities of Lancaster and Palmdale in Los Angeles County, where passengers can access Metrolink, Santa Clarita Transit, or Antelope Valley Transit Authority (AVTA) bus lines. A map of existing local and regional transit services is presented in Figure ES-1.

Different transit operators charge different fares on the various services they operate. Although some transfers are coordinated, interjurisdictional fare arrangements are limited in the region. Fares can run as low as \$.50 for a local ride in Bishop to \$28.00 for a ride between Reno and Bishop. Likewise, service hours and service frequencies are coordinated to a small extent, but some buses operate many times each day while others run as infrequently as one day a week.



Source: ESRI, USGS, Kern COG, Caltrans, Federal Rail Administration, Metrolink, AVTA, Cruisers California

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Figure ES-1
Transit Routes within Eastern Sierra Corridor

Goals for the Study

Several goals were identified for the development of service alternatives and recommendations. The goals for this Study are as follows:

- Goal 1.** Develop a comprehensive, interregional transit service in the Eastern Sierra region.
- Goal 2.** Support the interregional transit system with intra-regional transit services to enhance mobility for existing and potential user groups in the Eastern Sierras.
- Goal 3.** Identify passenger rail alternatives that best serve the interests of Eastern Sierra residents and visitors to the region.

These goals, along with objectives and supporting policies, are presented in Chapter 2.

Interregional Service Recommendations

This Study identifies three primary short-term service strategies.

I. Interregional Transit Service Between Reno and Lancaster

Interregional transit, with four vehicles in service, is recommended to link Reno with Lancaster. Using a total of four vehicles to provide service affords all communities in the corridor access to two northbound and two southbound trips each day. This service would provide public access for residents and visitors to the Eastern Sierra region.

An interregional route with four vehicles would provide enhanced service for Inyo or Mono County residents who want to make a same-day return trip to Carson City or Ridgecrest. It would also offer same-day through-service (not necessitating an overnight stay in Bishop or Mammoth Lakes, as is currently required) between Reno and Lancaster in both northbound and southbound directions.

Although a four-vehicle service provides a much-improved public transit link throughout the region, a two-bus alternative would be less costly and would, nevertheless, offer a significant service improvement over current service in terms of service frequency, operating hours (span) and coverage. This service would either be an expansion of the current CREST service or a replacement of the service. It would also replace one or more runs of KRT's Ridgecrest-Mojave service and the Mojave-Lancaster portion of the route between Lancaster and Bakersfield. It could also replace some of IMT's current services.

Estimated annual operating costs range from \$245,000 for a two-bus interregional transit service operating five days per week to \$680,000 for a four-bus interregional transit service operating seven days per week.

Existing local bus services will be necessary to "feed" the interregional service. For the interregional service to operate effectively, local transportation providers may have to modify schedules and develop new service policies.

Chapter 3 provides information about the route configuration, proposed two-bus and four-bus options, estimated operating costs, and estimated service performance.

II. Joint Powers Authority

The current structure of transit governance in the Eastern Sierra region entails many different levels of oversight and multiple service agreements. These include a number of Memoranda of Understanding (MOUs), a Joint Powers agreement, and a Joint Powers Authority (JPA) for the Yosemite Area Regional Transit System (YARTS). In order for an interregional transit service to be implemented effectively and governed by representatives of the participating entities, a new governance and organizational structure is recommended. In the short-term, a JPA is the preferred alternative because it is relatively easy to implement and provides significant flexibility to develop and administer interregional transit service.

A JPA would have the power to employ staff, make and enter contracts, apply for grants, and receive and administer grant funds. A JPA can also own, maintain, operate, lease, and contract for services and facilities; incur debts, liabilities or obligations, including issuance of bonds; and exercise eminent domain. A JPA would have its own board to establish policy for the interregional transit service, and could include representatives of all participating counties and cities.

In the longer-term, the participating jurisdictions may find that formation of a special transit district provides more appropriate representation for the transit operation and offers a dedicated source for funding.

III. Marketing Program for Interregional Transit Services

To support the recommended interregional transit service and a new governance structure, a comprehensive marketing effort must be put into place. The result would be a single source for information about transit services in the Eastern Sierra. Key staff from participating transit agencies, or preferably the new JPA staff, would have responsibility for overseeing the program. Initial implementation should focus on intercity transit services, with the long-term goal that all providers participate in this regional cooperative program.

In addition to significant advertising within the region, as well as in Reno and Los Angeles County, several strategies are recommended including the following:

- A brand identity for the transit system to make bus stops, buses, and informational tools “recognizable.”
- A comprehensive map and information brochure with schedules, as well as information about recreational sites and other tourist destinations. A partnership with visitors’ bureaus and chambers of commerce is recommended for the distribution of the map and brochure.
- An effective regional transportation information web site with maps, transit schedules, links to visitor information, etc.

- Adding clear bus stop signs and bus shelters. All key bus stops should be marked with a bus stop sign with the “brand” of the interregional transit service and basic information about schedule and contact information.
- A telephone information service and a 511 program, which would allow callers from any telephone in the region to dial 511 to be connected to transit information, as well as roadway and travel information.

Intra-Regional Service Options

The recommended interregional service cannot address all mobility needs in the Eastern Sierra region. In order to be successful, intra-regional and local services should be considered to complement and support the interregional service.

Several transportation program options are provided for consideration by planners and policymakers in the region. These include the following:

- Car-Sharing Program
- Goods Delivery Program
- Regional Ridesharing Program
- Employer-Based Subscription Bus Services or Vanpools
- Volunteer Driver Program
- Shuttle Services

Most of these intra-regional and local programs would need to be implemented and administered by individual jurisdictions within the Eastern Sierra region. Thus, while no specific strategy is recommended in this Study, a menu of different strategies to address localized mobility needs is presented and evaluated in Chapter 4.

Passenger Rail Feasibility

In the longer-term, passenger rail service can be operated between Lancaster and Mammoth Lakes. To attract choice customers, a competitive passenger rail service would have to approximate or *beat* the perceived six-hour driving time between points in metropolitan Los Angeles and Mammoth Lakes. Historically, when passenger service was offered in this corridor, speeds never approached that level. Today, this can be achieved, but this level of performance implies new alignments in many locations, including along Highway 14 via Red Rock Canyon rather than the old railroad alignment through Searles, and an all-new alignment between Bishop and Mammoth. Regardless of alignment specifics, this would essentially be a completely new 240 mile-long railroad, much of it built in mountainous terrain.

Because potential customers of this service would be coming not only from the Eastern Sierra region, but also from a wide number of trip origins in the Los Angeles Basin, the most attractive and cost-effective way of providing service would be to operate between Lancaster and Mammoth Lakes, rather than incur the capital and operating costs associated with

running trains through to Union Station. At Lancaster, a large park-and-ride lot could collect customers from an immense area, and also provide a cross-platform transfer to and from Metrolink trains for those who want to use public transportation all the way, without a significant time penalty. Ample space in Lancaster would allow loading activity for an auto-train service, should that be desired. Trains could make the trip from Lancaster to Mammoth Lakes, with intermediate stops at Mojave, Ridgecrest, Lone Pine and Bishop, in less than 3½ hours, so that total travel time would be equivalent to or better than the perceived driving time.

Many assumptions are made in the development of a capital cost estimate, but based on the general assumption that any line justifying the investment would have to be time-competitive for people who have the choice of automobile use, this study assumes a line with certain basic characteristics:

- A “fast conventional” passenger service, with a maximum speed of 110 mph, typical of the faster railroad lines in the U.S. using standard technology, but not “high speed” in the international or “California High Speed Rail Project” sense;
- Trains would consist of a diesel locomotive and four bi-level coaches, offering room for skis, vacation and sports equipment, specialized “theme” cars or sections of cars, (such as an *Après-Ski Pub* or an on-board *Ski and Sports Shop*);
- Single-track with passing sidings furnished with 60 mph turnouts (switches) every 20 miles, and full Centralized Traffic Control (remote control of switches and signals from a system control center);
- Grade separation of major highway crossings (such as Highways 14 and 395), and four-quadrant gate treatment of secondary road crossings; and
- A maximum 2% grade.

Construction of this line would require an initial capital investment of about \$3.6 billion, including cars, locomotives and maintenance facility. Annual gross operating costs would be approximately \$70 million per year for high-frequency service, from which would be subtracted revenue from fares, and any other available sources. While no significant expenditures would be justified on the basis of this preliminary feasibility analysis alone, smaller steps can be taken to protect future options by preserving right-of-way and conducting focused analysis of selected issues.

The analysis of passenger rail feasibility is presented in Chapter 5.

Study Process and Analysis

To arrive at the recommendations, an extensive analysis of existing geography, demographics and transit services was conducted. Surveys and stakeholder interviews, as well as community workshops and meetings with stakeholders, also contributed to the development of the study recommendations. The appendices include significant background information regarding the analysis undertaken and the community involvement process.

Chapter 1. Eastern Sierra Public Transportation Study Overview

Introduction

Project Study Area

For purposes of this study, the Eastern Sierra is a vast region covering large portions of Inyo, Mono and Kern Counties, as well as Trona in San Bernardino County. The project study area consists of the rural communities, resort towns, and small urban centers along the Highway 395 and Highway 14 corridor in the counties. Reno and Carson City, Nevada, and the Lake Tahoe area are to the north of the study area; the cities of Lancaster and Palmdale in Los Angeles County are located at the southern end of the study area.

Purpose of this Study

The varied topography, climate, population densities and economic bases of the various communities in this corridor represent challenges to a comprehensive transit solution. The region cannot necessarily support a high-frequency public transportation service that covers long distances and addresses all of the transit markets well. The goal of this Study was to find the optimal set of transportation solutions, both traditional and nontraditional, to address the demand for transit services. The solutions were required to meet specific efficiency and effectiveness objectives.

Kern Council of Governments (Kern COG) identified three primary objectives for this study in the Regional Transportation Plan:

- To enhance the current lifeline intercity services available throughout the Eastern Sierra;
- To improve intercity connections and provide new services to expand the transportation alternatives in the Eastern Sierra; and
- To determine the feasibility of passenger rail service in the Eastern Sierra.

Project Organization

The Eastern Sierra Public Transportation Study is a tool for planning interregional transit service in the study area. This study, commissioned by Kern COG on behalf of the Eastern California Transportation Planning Partnership, included a number of components.

The first phase of the study resulted in the Existing Conditions Working Paper that provided an overview of existing transportation services in Mono, Inyo and Kern County, as well as connecting services. The first phase involved stakeholder interviews, surveys of transit riders and non-riders, and an analysis of transit data. The findings of the first report are in the appendices of this document and include an inventory of transit providers, demographics, land use, transit ridership and transportation demand.

The second phase of the study addressed goals and objectives. Community Transportation Planning workshops were conducted in the fall of 2004. The purpose of the workshops was to gather public input on regional transportation needs and develop a set of regional service and coordination goals for the Eastern Sierra Transportation Study.

The third phase of the study developed short-term transportation and coordination alternatives for the Eastern Sierra study area. The alternatives were presented at a stakeholder workshop in Ridgecrest on February 22, 2005. Based on feedback from stakeholders, these alternatives were modified and significantly reorganized, and then evaluated by the consulting team. Recommendations are presented in Chapter 3.

The final phase of the study looked at passenger rail service, a long-term alternative. The preliminary feasibility analysis is presented in Chapter 5.

Background

In the predominantly rural transit operating environments of Kern, San Bernardino, Inyo and Mono Counties, transit has many forms, operates at varied frequencies, and serves very different markets. Greyhound service, which in previous years connected the string of communities along Highway 395, was discontinued in August 2001, leaving a void to be filled by public transit operators in the region. Intercity services link some communities every day, several times each day, while other communities have once-a-week lifeline services. Some urban areas have fixed routes while others have general public dial-a-ride services.

The Reno-Eastern Sierra-Los Angeles Greyhound Link

One of the most critical reasons to undertake this study was to address the need for intercity connections in a region without a consistent commercial operator. In early 2002, Kern Regional Transit and Inyo-Mono Transit joined forces to establish the Carson Ridgecrest Eastern Sierra Transit system (CREST) to serve the communities that were previously served by Greyhound.

Greyhound service had been a fixture along Highway 395, operating between Reno and Los Angeles through the cities and small communities in Inyo, Mono and Eastern Kern County. When heavy flooding closed Highway 395 in January 1997, Greyhound temporarily discontinued its service.

Following the flood, Greyhound requested a funding subsidy from Kern, Inyo and Mono Counties. The operator received Section 5311 funds to reinstate the service for a three-year period. Section 5311 funds can be used for planning, capital, operating and administrative assistance to local governing bodies in non-urbanized areas, so the funds were used by the counties to support the Greyhound service. Greyhound also wanted assurances that funding would be continued beyond the three-year start-up period.

According to stakeholders familiar with Greyhound's operation, when service was reinstated in July 1997, ridership was lower than it had been due to the route schedule's omission from the reservation database. Greyhound customer service agents did not offer this routing to persons traveling between Los Angeles and Reno unless passengers specifically requested it. Ridership remained under 2,000 annual passengers for the following years.

Greyhound planned to terminate the service in 2000, at the end of the three-year funding period, unless the counties could guarantee funding support. Service continued to operate until June 2001, but the counties determined at that time that they would not provide additional funding to Greyhound, opting instead to develop their own regional link, CREST.

Transit Services

Seven transit providers operate most of the services in the Eastern Sierra study area. These operations include the following:

- California City Transit
- Inyo-Mono Transit, which operates CREST
- Kern Regional Transit
- Mammoth Transit, operated during winter by Mammoth Mountain
- Reds Meadow Shuttle
- Ridgecrest Transit System
- Yosemite Area Regional Transportation System

An overview of the transit operators, their services, and their performance is presented in the appendices.

Rail Service

No passenger rail service currently operates in the study area, although Amtrak provides thruway buses that serve as a rail connection in eastern Kern County. Metrolink service operates between downtown Los Angeles and the southern end of the study area (Lancaster-Palmdale).

Using existing railroads, abandoned railroad rights-of-way, and new construction, a railroad line linking the Eastern Sierra region to the Los Angeles Basin would fall into five distinct segments, as follows:

- Los Angeles to Lancaster, where an existing passenger route provides Metrolink service;
- Lancaster to Mojave, where a freight line could be adapted to passenger use;
- Mojave and Inyokern, where a branch line railroad could be used for passenger service;

- Inyokern to Lone Pine and Bishop, where an abandoned railroad line remains; and
- Bishop to Mammoth Lakes, where no railroad lines exist.

A history of rail service in the region and existing rights-of-way is included in the appendices.

Chapter 2. Public Transportation Goals and Objectives for the Eastern Sierra Region

Vision for Transit in the Eastern Sierra

Because existing services are fiscally constrained, developing a vision for transit service is a challenge. While some people in the Eastern Sierra said they would like to see local public bus routes operate at high frequencies and into the evening, the reality is that local frequency and service span improvements would do little to address interregional mobility demands.

Based on a wide range of input, the overall vision for transit in the Eastern Sierra is one of an effective corridor-long trunkline bus service with complementary local and regional transit services. These could be supplemented by a variety of transportation programs, such as volunteer driver programs or vanpools, which would be developed and managed at the local level. In the longer term, passenger rail can be implemented to provide interregional service.

What is the Role of Transit Services in the Eastern Sierra Region?

Based on stakeholder input and the analysis of demographics, ***public transit services in the Eastern Sierra must primarily meet the interregional travel needs of individuals with limited mobility options.*** Secondly, public transit should afford interregional and intra-regional mobility for both (1) visitors to the area and (2) persons opting to use the service because it provides a convenient and efficient alternative to driving or relying on others for transportation.

At public meetings conducted in the fall of 2004 throughout the study corridor, participants focused on the needs of tourists. However, the potential tourist market for public transportation is highly dependent on policies that encourage transit use and effective marketing. The region hosts many recreational tourists, including both international and out-of-state summer visitors. A large proportion of winter recreational visitors come from southern California. Visitors driving a



A billboard in Lone Pine beckons to passing tourists while a smaller sign points the way to a local medial clinic. Transit in the Eastern Sierra must address the needs of rural residents with limited transportation options as well as visitors to the region.

car to the region are unlikely to opt for transit once they arrive, unless parking limitations reduce access to places they want to go.

Development densities are usually strong indicators of potential transit use. Given the small populations and long distances between the communities and cities within the study area, no significant residential densities exist that could support extensive intra-regional resident-oriented transit service. On the other hand, employment sites such as hotels and other tourist-oriented services, as well as shopping and other services, are concentrated in Mammoth, Bishop, and Ridgecrest. In these communities, land-use patterns favor some form of local transit service.

Overall, residents in the Eastern Sierra tend not to be transit-dependent, with many having access to vehicles. However, with a greater number of individuals employed in the growing low wage tourist-oriented service sector, as well as many retirees moving into the area, a growing proportion of residents has relatively limited access to transportation. The phone survey found that the majority of residents feel that transit is a critical issue for the region and that it should be available to people with limited transportation options (e.g., seniors, persons with disabilities, low-income individuals, youth). Although transit services in the Eastern Sierra should address the needs of these markets, the region's transit network can be enhanced to build an expanded ridership base.

Goals for Public Transportation in the Eastern Sierra

Three primary goals and their associated objectives and policies are proposed for public transportation services and rail feasibility in the Eastern Sierra region. These are large-scale goals that focus on the primary mission of the study to address interregional transportation needs. Goals reflect input from participants at the community meetings, the stakeholder workshop, findings presented in the Existing Conditions Report, existing transportation goals in the Kern COG Destination 2030 Regional Transportation Plan, the General Plans for Inyo and Mono Counties, and several local and regional transportation studies.

Goal 1: Develop a comprehensive, interregional transit service in the Eastern Sierra region.

For both resident and tourist markets, a primary need is interregional access throughout the Eastern Sierra and to the cities of Los Angeles, Bakersfield, Reno, and to some extent, Las Vegas. Residents require access to these locations for employment, recreation, shopping, and educational and medical services. Visitors travel from these and other cities to the Eastern Sierra's resort areas or small towns for recreational purposes. Both groups demand access for travel between the Eastern Sierra and the airports in Reno and Los Angeles.

Based on a phone survey of households in the region, nearly 40 percent of respondents used the former Greyhound service at one time. Some attendees at the public meetings

said the former Greyhound bus was instrumental to meet their “everyday needs,” such as going to the bank or post office. Respondents to the surveys and participants at community workshops also said that many residents of the Eastern Sierra region are aware of existing transit services, but many do not know how they connect with each other and what steps are required to travel beyond their own community. Good public information is a significant component of a comprehensive interregional transit service.

Objectives – Operational

- 1A. Establish an interregional transit service from Los Angeles to Reno that works for both locals and tourists.
- 1B. Provide access to major activity centers with reliable, coordinated connections and service from smaller communities.
- 1C. Ensure logical points of entry to and exit from the interregional service to maximize connections and efficiency.

Policies

- Schedules and timed transfers should be developed to provide the greatest benefit for users.
- Construct waiting/transfer facilities that are visible, safe and comfortable.
- Consider premium transit services to meet the demands of visitors and tourists.
- Ensure vehicles are appropriate for the markets, weather, distances traveled, and cargo/baggage needs.
- Solicit interest for private sector operation of interregional transit service.
- Local providers should offer intra-regional transportation programs and services for travel that cannot be addressed via the interregional transit service.

Objectives – Regional Coordination

- 1D. Transit operators and planning agencies should work together to develop a comprehensive, coordinated interregional system rather than stringing individual services together.

Policies

- Develop an infrastructure for regional coordination of transit services (e.g., Joint Powers Authority, Transportation Management Agency, consortium, or a similar inter-jurisdictional body to coordinate and plan transit in the Eastern Sierra region).

- Identify the tools necessary for effective regional coordination. These may include passenger amenities, capital needs, and public information materials.
- Develop incentives for regional cooperation, including allocating funding to programs that most effectively provide for coordinated transit services in the Eastern Sierra region.
- Work toward coordinated fares to simplify fare payment or provide discounts to users (e.g., Ecopass, Smart Card, or discounted transfers when making connections).

Objectives – Marketing and Public Information

1E. Provide comprehensive, seamless marketing and public information for the interregional transit service.

Policies

- Design a comprehensive, creative marketing program to publicize widely the corridor’s interregional transit service.
- Identify marketing oversight responsibilities for the interregional public information program.
- Integrate transportation services and visitor information as part of a regional marketing effort (e.g., including hotels, recreation sites, attractions, etc.)
- Provide complete, accurate information in appropriate and accessible formats and languages.
- Distribute informational materials to transit markets.

Goal 2: Support the interregional transit system with intra-regional transit services to enhance mobility for existing and potential user groups in the Eastern Sierras.

Feeder services are required to provide access to the interregional service and to connect passengers on the interregional services with more localized destinations. Feeder services include local transit operations in the Reno-Carson City area, Mono County, Inyo County, Kern County, and the Los Angeles region. More efficient local service could be achieved through increasing some frequencies, identifying meaningful service policies, and better meeting the service span needs of residents in some corridors. It may also include more flexible scheduling of services to meet daily “peak” hour commuter transportation demands as well as seasonal variation.

In addition to traditional feeder bus services, a variety of mobility options were discussed at the public meetings, including flex-routes, subscription bus service, and volunteer driver programs. Many of these alternatives received favorable responses from participants, including a goods delivery program (whereby groceries or medication is delivered on the bus, not requiring individuals to drive or take the bus to the store), ridesharing, and tour operators. These various options are identified to complement the “backbone” interregional transit service that must serve the Eastern Sierra region.

Some of these strategies are already available, but the transit providers’ policies do not specifically mention them or they are poorly marketed. For example, IMT already picks up and delivers prescription drugs upon request, but a formal policy is not in place to provide this service. Already available in both Kern County and Mono County, commuter rideshare programs could be showcased and expanded.

Objectives – Operational

- 2A. Each MPO, county or transit agency should plan local transportation services in a manner that supports the interregional transit system.
- 2B. For origin-destination pairs that cannot be served by one transit agency, service span and transfers should be coordinated and timed, so that interagency connections and transfers are easily understood and hassle-free.

Policies

- In Kern County, implement recommendations from the Kern COG Regional Rural Transit Strategy.
- City and county agencies should conduct plans for local transit services that tie in with the interregional transit service.
- Work with the Eastern Sierra Expanded Transportation Service (ESETS) to schedule proposed local Forest Service shuttles.
- Modify service schedules and span as needed, based on demand and seasonal needs.

Objectives – Policy

- 2C. Develop policies at the regional and local level that support the interregional Eastern Sierra public transit service.

Policies

- Work with US Forest Service, Bureau of Land Management, National Park Service, State Park System, social service agencies, regional planning agencies and transportation providers to establish specific supportive policies (e.g., parking limitations, fees, incentives) to encourage ridership on public transit in the region.

- Individual planning agencies, counties or communities should identify non-traditional, innovative transportation strategies that will address their unique community needs. Encourage and support pilot or trial programs of the selected strategies.
- Identify strategies for transit operators to work with tour operators, economic development organizations, and others in the business community to inform visitors about the transit services in the Eastern Sierra region.

Objectives – Marketing and Public Information

- 2D. Improve the local and regional information strategy, including printed materials, to effectively market services.

Policies

- Provide information about major attractions/destinations and connections to other intra-regional transit services and in all transit providers' marketing materials.
- Provide different types of media to reach the diversity of transit markets.
- Provide complete, accurate information in appropriate, accessible formats and languages.

Goal 3: Identify passenger rail alternatives that best serve the interests of Eastern Sierra residents and visitors to the region.

Attendees at the public meetings explained that passenger rail service to the Eastern Sierra should not only provide access to their region from the Los Angeles area, but would be the desired alternative mode for travel to the airports, hospitals and shopping opportunities in the Los Angeles region for local residents and visitors. Many residents, as well as political and business leaders, expressed enthusiasm about the possibility of passenger rail service between the Los Angeles area and Mammoth Lakes; a number of policymakers and planners expressed doubt about the feasibility of such a service.

Objectives – Study and Analysis

- 3A. Identify a passenger rail option for the Eastern Sierra region and determine its financial feasibility.
- 3B. Consider passenger rail alternatives that offer travel times competitive with private automobile travel.
- 3C. Develop future passenger rail service that addresses the unique identity of the region.

- 3D. Determine how passenger rail can connect to and enhance the regional intermodal transportation network (e.g., a future airport, programmed high-speed rail, Metrolink, and bus services).

Policies

- Identify a new railway line between Lancaster and Mammoth Lakes.
- Define preferred railroad grades and station locations for the feasibility of such a line.

Objectives – Implementation

- 3E. Identify strategies for ensuring that land uses can support passenger rail.

Policies

- Take steps to secure lands that will be utilized by passenger rail.

Chapter 3. Short-Term: Interregional Transit Service Recommendations

Introduction

This chapter defines interregional short-term service scenarios and recommendations for improving transportation options in the Eastern Sierra. The alternatives were identified based on data analysis, input at community meetings, stakeholder interviews, the stakeholder workshop conducted in February 2005, and the goals, objectives, and policies described in Chapter 2.

Recommendations

This chapter identifies three primary interregional service recommendations:

- A regional one-system bus link between Reno and Lancaster
- A change in the governance/oversight structure for the expanded interregional service
- A comprehensive regional public information program.

Evaluation

Each service recommendation was evaluated based on a set of criteria developed by the consultant and project stakeholders. While the evaluation is somewhat subjective, it represents a qualitative review of each service. The evaluation criteria used for this analysis are slightly different for interregional and intra-regional services (presented in Chapter 4), and are shown in Figure 3-1. A summary matrix of the cost evaluation of these service recommendations is included in Figure 3-8 in the Conclusion.

Figure 3-1 Evaluation Criteria for Interregional and Intra-Regional Service Recommendations

Inter-regional Chapter 3	Intra-regional Chapter 4	Criterion
Comprehensiveness Criteria		
✓		Strategy addresses corridor-wide mobility. Does the strategy address service needs in all sections of the study area?
Community Support and Markets Served		
✓	✓	Has community support and advocacy. What level of support for this type of service is indicated in the surveys and from the stakeholders?
✓	✓	Provides benefit to primary transit markets: (1) trips within the corridor and (2) trips beyond the corridor. Does the strategy serve people traveling across the region as well as within the region?
✓	✓	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties. Does the strategy account for the unique characteristics of each sub-region?
Funding and Cost Criteria: Affordability		
✓		Is cost-effective strategy. Will the outcome merit the investment? Is the cost appropriate for the level of service to be provided? Is the cost per beneficiary appropriate?
✓	✓	Has potential to attract private funding/participation.
✓	✓	Has potential to attract new public funding sources.
✓		Has potential to maximize existing funding sources.
Transportation Service Criteria		
✓	✓	Has effective and measurable impact. Can the overall impact of the service strategy be evaluated and understood? Are the results likely to be effective?
✓		Facilitates more efficient travel to important destinations. Will this strategy provide an efficient transportation option for long-distance travel to top destinations?
✓	✓	Is easy to use and understand. Is the service concept familiar to residents and nonresidents? Does it provide service so people can access it? For example, buses and other modes to which people are accustomed are considered easy to use and understand.
✓	✓	Improves connectivity. Does the strategy make the intercity system more accessible? Does it improve connectivity for the entire region? Does the strategy enhance connectivity between services (e.g., seamless transfer)?
✓	✓	Improves access. Does the strategy make it easier to get to board transit or get information about transportation?
✓	✓	Increases transportation options. Does this alternative provide a new transportation option in the Eastern Sierra region? Do people traveling in the region have a choice?
Implementation Criteria		
✓		Ease of implementation. Is the strategy easy to carry forward? Are the technologies, organizational structures and tools necessary to implement this?
✓		Roles and responsibilities are clear and realistic. Is it clear who, or what organization, is responsible for implementation?
✓	✓	Implementation can piggyback on another service in the greater region.
	✓	Local services can be modified as needs change.
✓		Regional services can be modified as needs change.

Interregional Transit Recommendations

A. Fixed Route Interregional Bus Service

Recommended Implementation: A two- or four-bus alternative that provides public access across the region for intercounty travel for residents and visitors to the Eastern Sierra Region is recommended. Using two buses allows for one northbound and one southbound trip along the length of the corridor each day. A four-bus alternative allows for two northbound and two southbound trips each day. This would build upon the current CREST service.

Annual Operating Costs: Operating five days per week, \$245,000 for a two-bus interregional transit service; \$500,000 for a four-bus interregional transit service. Operating seven days per week, \$340,000 for a two-bus interregional transit service; \$680,000 for a four-bus interregional transit service. Up to \$260,000 annually in supplemental costs for improving the connectivity of local services in the region.

Capital Costs: Up to \$250,000 per bus, depending on type of vehicle.

Communities: All communities in the study area along the Highway 395/14 corridor in Inyo, Mono, and eastern Kern County.

Lead Agency: Inyo-Mono Transit, Kern Regional Transit, or a new JPA or transit district.

Funding: Potential funding sources include California TDA funds, Federal 5311 funds, and private funds.

A public intercity bus would operate the full length of the corridor currently served by CREST service, using a minimum of two buses to provide a connector across the entire region. Two buses in service would allow riders to complete a one-way trip in either direction each day, and in some scenarios would eliminate an overnight in Bishop.

Current Service in the Eastern Sierra Region

CREST bus service provides a good lifeline link throughout the communities in the Eastern Sierra. It is a locally operated service that provides the option to travel three days per week from Bishop/Mammoth Lakes in either a northbound direction or a southbound direction. Travel in the southern portion of the Eastern Sierra region is available on the bus that operates Monday, Wednesday and Friday, providing a round trip between Mammoth Lakes and Ridgecrest. Travel in the northern portion of the Eastern Sierra region is available on the bus that operates Tuesdays, Thursdays and Fridays, providing a round trip between Bishop and Reno-Tahoe International Airport. Based on the current operations, it is not possible to traverse the region in one day: all through-travel requires passengers to stay overnight in Bishop.

The emphasis of the current CREST operation is to allow for local residents to make a shopping or medical trip in one day and return home. This works successfully for trips

from the northern portion of the Eastern Sierra Region to shopping and medical facilities in Gardnerville and Carson City, Nevada. Persons riding CREST north from Mono County to Gardnerville have about 3½ hours in that area before the return bus passes en route from Reno. Day-tripping in the southern portion of the service area is more challenging, where travelers to medical appointments or shopping in Ridgecrest have about 1½ hours in town before the return trip. Persons choosing to travel beyond Ridgecrest to Lancaster on Kern Regional Transit are unable to make a same-day round trip, and must transfer twice.

The current CREST operation is also beneficial for visitors to the region who are traveling to any of the key recreational destinations served by CREST, primarily in Lone Pine, Bishop, Mammoth Lakes, June Lake and Bridgeport. The bus allows visitors access to and from the region, and may encourage longer visits to the area because at least one overnight stay is required to traverse the entire region.

Due to its current terminus in Ridgecrest, CREST service does not successfully provide good access to the Los Angeles region. To access Los Angeles County, a transfer to Kern Regional Transit's Mojave-Ridgecrest Express is required, as well as a subsequent transfer to the East Kern Express. Connections to Las Vegas via Greyhound and Amtrak rail destinations beyond Bakersfield (via the Amtrak bus) are available in Mojave. The current service is also inconvenient for most Mono County residents who wish to travel to the south (Mammoth Lakes, Crowley and Toms Place are the exceptions, where service is available) or for southern Inyo County residents who wish to travel north beyond Mammoth Lakes.

Application in the Eastern Sierra Region

Three scenarios are presented for improving this intercity transit connection, which is the backbone for all transportation services in the Eastern Sierra region. All scenarios are more costly than current service, but some significant improvements can be realized. Each scenario has a different service goal, described in the following sections.

For each scenario, a conceptual schedule was developed. The purpose of the schedule is to illustrate how buses could operate and how they could allow for connections to Metrolink and other connecting transit providers. Some stakeholders suggested shifting schedules later, which can be done. This should be considered during the implementation stage to ensure that important connections are maintained.

Alternative A1: Two-Bus Enhancement to Current Service

Under this first scenario, two buses are required to provide improved service, although the current one-bus operation could be maintained and some service improvements would be realized. This scenario essentially maintains CREST's practice of basing buses in the Bishop-Mammoth Lakes area, providing one route that serves the northern portion of the Eastern Sierra region as far as Reno-Tahoe International Airport and another route that serves the southern portion of the region. Under this scenario, however, service to the

south would be extended all the way to Lancaster, providing a connection to Metrolink. A conceptual schedule for this service scenario is shown in Figure 3-2.¹

Figure 3-2 Alternative A1: Conceptual Service Schedules

Northern Regional Route

City/Town	Stop Location	Interval	Time
Bishop	201 S. Warren		7:00 AM
Toms Place		0:30	7:30 AM
Crowley	Crowley Lake Store	0:05	7:35 AM
Mammoth	McDonald's	0:15	7:50 AM
June Lake	Fire House	0:25	8:15 AM
Lee Vining	Caltrans Yard	0:10	8:25 AM
Mono City		0:10	8:35 AM
Bridgeport	Bridgeport General Store	0:20	8:55 AM
Walker	Walker Sporting Goods	0:40	9:35 AM
Coleville	Across from Post Office	0:10	9:45 AM
Topaz	Trailer Park Entry	0:15	10:00 AM
Gardnerville		0:35	10:35 AM
Carson City	Nugget	0:10	10:45 AM
Reno Airport	-Arrive-	1:00	11:45 AM
Reno Airport	-Depart-	1:00	12:45 PM
Carson City	Nugget	1:00	1:45 PM
Gardnerville		0:10	1:55 PM
Topaz	Trailer Park Entry	0:35	2:30 PM
Coleville	Post Office	0:15	2:45 PM
Walker	Walker Sporting Goods	0:10	2:55 PM
Bridgeport	Bridgeport General Store	0:40	3:35 PM
Mono City		0:20	3:55 PM
Lee Vining	Caltrans Yard	0:10	4:05 PM
June Lake	Fire House	0:10	4:15 PM
Mammoth	McDonald's	0:25	4:40 PM
Crowley	Crowley Lake Store	0:15	4:55 PM
Toms Place		0:05	5:00 PM
Bishop	201 S. Warren	0:30	5:30 PM

(Continued on next page.)

¹ Schedule based on the route timing currently operated by Inyo-Mono Transit and Kern Regional Transit.

Southern Regional Route

City/Town	Stop Location	Interval	Time
Mammoth	McDonald's		8:10 AM
Crowley	Crowley Lake Store	0:15	8:25 AM
Toms Place		0:05	8:30 AM
Bishop	201 S. Warren	0:30	9:00 AM
Big Pine	Texaco Bench	0:15	9:15 AM
Aberdeen	Storefront	0:15	9:30 AM
Independence	Mair's Market	0:15	9:45 AM
Lone Pine	Statham Hall	0:15	10:00 AM
Olancho	Ranch House Restaurant	0:20	10:20 AM
Coso Junction	Rest Stop	0:20	10:40 AM
Pearsonville	Texaco Parking Lot	0:15	10:55 AM
Ridgecrest	City Hall	0:25	11:20 AM
Inyokern		0:15	11:35 AM
California City	Rite Aid/City Hall	0:45	12:20 PM
Mojave	Stater Brothers	0:22	12:42 PM
Rosamond	Hummel Hall	0:30	1:12 PM
Lancaster	Metrolink -Arrive-	0:17	1:29 PM
Lancaster	Metrolink -Depart-	0:30	1:59 PM
Rosamond	Hummel Hall	0:17	2:16 PM
Mojave	Stater Brothers	0:30	2:46 PM
California City	Rite Aid/City Hall	0:22	3:08 PM
Inyokern		0:45	3:53 PM
Ridgecrest	City Hall	0:15	4:08 PM
Pearsonville	Texaco Parking Lot	0:25	4:33 PM
Coso Junction	Rest Stop	0:15	4:48 PM
Olancho	Ranch House Restaurant	0:20	5:08 PM
Lone Pine	Statham Hall	0:20	5:28 PM
Independence	Mair's Market	0:15	5:43 PM
Aberdeen	Storefront	0:15	5:58 PM
Big Pine	Texaco Bench	0:15	6:13 PM
Bishop	201 S. Warren	0:15	6:28 PM
Toms Place		0:30	6:58 PM
Crowley	Crowley Lake Store	0:05	7:03 PM
Mammoth	McDonald's	0:15	7:18 PM

← 1:55 PM bus for Las Vegas
 ← 1:05 PM bus for Bakersfield

 ← 1:45 PM train departs for LA
 ← 1:30 PM train arrives from LA

 ← 2:00 PM bus from Las Vegas
 ← 1:55 PM bus from LA
 ← 1:12 PM bus from Bakersfield

Advantages of Alternative A1

Advantages of this alternative are as follows:

- It would allow bus riders to transfer to and from Metrolink Trains in Lancaster, providing a seamless connection from the Eastern Sierra to the Los Angeles area. It also provides an option for persons with medical appointments or errands in Ridgecrest to make a same-day trip and have nearly 4½ hours in town.
- The alternative provides much improved access from the southern end of the study area, allowing Los Angeles area residents a convenient bus service to recreational opportunities in Mammoth Lakes.
- The solution better integrates Kern County's service into the overall Eastern Sierra transportation network.

Challenges for Alternative A1

Challenges for this alternative are as follows:

- This alternative does not eliminate the overnight stay required in Bishop or Mammoth Lakes for persons traveling from the area north of Mammoth Lakes to locations south of Bishop or from the area south of Bishop to regions north of Mammoth Lakes.
- Available service remains a "lifeline" service, oriented primarily to residents making short trips for personal errands or medical needs. It does not offer the same flexibility for out-of-town trips offered by the former Greyhound service.
- Service would likely require expansion of the current JPA or a new organizational structure. It would require a schedule adjustment by Kern Regional Transit to avoid service duplication and "feed" this service.
- Service is more than twice as costly to operate as current service because service hours are increased.
- Due to the long driving distances, driver scheduling may require split shifts or additional vehicles.
- As opposed to other alternatives, such as a volunteer driver program, this alternative assumes this bus is the appropriate mode of travel for persons making shopping, medical and other personal trips to the larger urban areas at the northern and southern ends of the Highway 395 corridor.

Alternative A2: Cross-Region Intercity Transit Using Two Buses

If the purpose of Alternative A1 is to get residents in the northern part of the region to points to the north and residents in the southern part of the region to locations in the south, the purpose of this scenario is to move riders across the region. Whereas the operation of the first scenario allows for one-day round-trips beyond the region, but not to many points within the region, this scenario assumes all trips beyond the region require an

overnight stay, but some trips within the region can be made in one day. This alternative comes closer to restoring the cross-region link that had been served by Greyhound.

Under this scenario, two buses are required: one based in Reno and the other based in Lancaster. Drivers presumably would reside in these two locations. Each morning, one bus would leave from each location driving toward Bishop. The bus entering service in Lancaster would meet the outbound Metrolink train and would travel all the way to Reno and layover there for the night; the bus starting service in Reno would be driven all the way to Lancaster, and would allow riders to transfer to an inbound Metrolink train. To enhance the convenience of service to passengers, the drivers would switch buses in Bishop, though shift splitting could allow for additional drivers to be employed for portions of the route, possibly in conjunction with Kern Regional Transit shifts.

A conceptual schedule for this service scenario is shown in Figure 3-3.

Figure 3-3 Alternative A2: Conceptual Service Schedules

Northbound

City/Town	Stop Location	Interval	Time	
Lancaster	Metrolink		8:35 AM	← 8:27 AM train from LA
Rosamond	Hummel Hall	0:17	8:52 AM	
Mojave	Stater Brothers	0:30	9:22 AM	← 9:22 AM bus from Bakersfield
California City	Rite Aid/City Hall	0:22	9:44 AM	
Inyokern		0:45	10:29 AM	
Ridgecrest	City Hall	0:15	10:44 AM	
Pearsonville	Texaco Parking Lot	0:25	11:09 AM	
Coso Junction	Rest Stop	0:15	11:24 AM	
Olancho	Ranch House Restaurant	0:20	11:44 AM	
Lone Pine	Statham Hall	0:20	12:04 PM	
Independence	Mair's Market	0:15	12:19 PM	
Aberdeen	Storefront	0:15	12:34 PM	
Big Pine	Texaco Bench	0:15	12:49 PM	
Bishop	201 S. Warren	0:15	1:04 PM	
Toms Place		0:30	1:34 PM	
Crowley	Crowley Lake Store	0:05	1:39 PM	
Mammoth	McDonald's	0:15	1:54 PM	
June Lake	Fire House	0:25	2:19 PM	
Lee Vining	Caltrans Yard	0:10	2:29 PM	
Mono City		0:10	2:39 PM	
Bridgeport	Bridgeport General Store	0:20	2:59 PM	
Walker	Walker Sporting Goods	0:40	3:39 PM	
Coleville	Across from Post Office	0:10	3:49 PM	
Topaz	Trailer Park Entry	0:15	4:04 PM	
Gardnerville		0:35	4:39 PM	
Carson City	Nugget	0:10	4:49 PM	
Reno Airport		1:00	5:49 PM	

(Continued on next page.)

Southbound

Town	Stop Location	Interval	Time
Reno Airport			8:20 AM
Carson City	Nugget	1:00	9:20 AM
Gardnerville		0:10	9:30 AM
Topaz	Trailer Park Entry	0:35	10:05 AM
Coleville	Post Office	0:15	10:20 AM
Walker	Walker Sporting Goods	0:10	10:30 AM
Bridgeport	Bridgeport General Store	0:40	11:10 AM
Mono City		0:20	11:30 AM
Lee Vining	Caltrans Yard	0:10	11:40 AM
June Lake	Fire House	0:10	11:50 AM
Mammoth	McDonald's	0:25	12:15 PM
Crowley	Crowley Lake Store	0:15	12:30 PM
Toms Place		0:05	12:35 PM
Bishop	201 S. Warren	0:30	1:05 PM
Big Pine	Texaco Bench	0:15	1:20 PM
Aberdeen	Storefront	0:15	1:35 PM
Independence	Mair's Market	0:15	1:50 PM
Lone Pine	Statham Hall	0:15	2:05 PM
Olancha	Ranch House Restaurant	0:20	2:25 PM
Coso Junction	Rest Stop	0:20	2:45 PM
Pearsonville	Texaco Parking Lot	0:15	3:00 PM
Ridgecrest	City Hall	0:25	3:25 PM
Inyokern		0:15	3:40 PM
California City	Rite Aid/City Hall	0:45	4:25 PM
Mojave	Stater Brothers	0:22	4:47 PM
Rosamond	Hummel Hall	0:30	5:17 PM
Lancaster	Metrolink	0:17	5:34 PM

← 5:20 PM bus for Bakersfield

← 5:50 PM train for LA

Advantages of Alternative A2

Advantages for this alternative are as follows:

- As with Alternative A1, this alternative allows bus riders to transfer to and from Metrolink Trains in Lancaster, providing a seamless connection from the Eastern Sierra to the Los Angeles area.
- This alternative provides a good cross-regional link for people making long intercity trips. This alternative benefits residents traveling outside of the region making overnight trips.

- This alternative eliminates the overnight stay required in Bishop or Mammoth Lakes for persons traveling from the area north of Mammoth Lakes to locations south of Bishop or from the area south of Bishop to regions north of Mammoth Lakes.
- The alternative provides improved access from the southern end of the study area, allowing Los Angeles area residents a convenient bus service to recreational opportunities in Mammoth Lakes. The solution also better integrates Kern County's service into the overall Eastern Sierra transportation network.

Challenges for Alternative A2

Challenges for this alternative are as follows:

- Unlike Alternative A1, this scenario does not provide an option for persons with medical appointments or errands in Ridgecrest or Nevada to make a same-day trip, nor does it allow for same day trips to many locations in the Eastern Sierra region. For example, riders would not be able to make a same-day trip to Bishop (a delay of service in Bishop could be added to allow for short time for shopping, but this would be an inconvenience for through-riders).
- Service remains a "lifeline" service, oriented primarily to residents making multi-day overnight trips.
- The proposed schedule "misses" connections to Greyhound service to and from Las Vegas in Mojave.
- Service would likely require expansion of the current JPA or a new organizational structure. It would require a schedule adjustment by Kern Regional Transit to avoid service duplication and "feed" this service.
- Service is more than twice as costly to operate as current service because service hours are increased.
- Due to the long driving distances, driver scheduling may require split shifts or additional vehicles.
- This alternative assumes that special same-day long distance medical or shopping trips would be provided by an alternative transportation program, such as a volunteer driver program described in the intra-regional service concepts in Chapter 4.

Alternative A3: Optimal Service Scenario

The Optimal Service Scenario provides for enhanced service frequencies that significantly improve the level of regional bus service provided in the corridor. Although not as extensive as the service recommendation outlined as part of the Eastern Sierra Expanded Transportation System (ESETS) plan, under this scenario residents and visitors to the region would have better service options than those currently provided.

Implementing this service scenario would require two additional vehicles to be put into service on the proposed regional route. This would allow for a combination of cross-regional travel not available in Alternative A1 and same-day round trips not available in Alternative A2.

Under this scenario, one bus would depart from Reno, one from Lancaster, one from Mammoth, and one from Bishop each service day.

A conceptual schedule for this service scenario is shown in Figure 3-4.

Figure 3-4 Alternative A3: Conceptual Service Schedules

Northbound

City/Town	Stop Location	Trip 1	Trip 2	Trip 3	
Lancaster	Metrolink		8:35 AM	1:59 PM	← 8:27 AM train from LA ← 1:30 PM train from LA
Rosamond	Hummel Hall		8:52 AM	2:16 PM	
Mojave	Stater Brothers		9:22 AM	2:46 PM	← 9:22 AM bus from Bakersfield ← 1:12 PM bus from Bakersfield ← 2:00 PM bus from Las Vegas ← 1:55 PM bus from LA
California City	Rite Aid/City Hall		9:44 AM	3:08 PM	
Inyokern			10:29 AM	3:53 PM	
Ridgecrest	City Hall		10:44 AM	4:08 PM	
Pearsonville	Texaco Parking Lot		11:09 AM	4:33 PM	
Coso Junction	Rest Stop		11:24 AM	4:48 PM	
Olancha	Ranch House Restaurant		11:44 AM	5:08 PM	
Lone Pine	Statham Hall		12:04 PM	5:28 PM	
Independence	Mair's Market		12:19 PM	5:43 PM	
Aberdeen	Storefront		12:34 PM	5:58 PM	
Big Pine	Texaco Bench		12:49 PM	6:13 PM	
Bishop	201 S. Warren	7:00 AM	1:04 PM	6:28 PM	
Toms Place		7:30 AM	1:34 PM	6:58 PM	
Crowley	Crowley Lake Store	7:35 AM	1:39 PM	7:03 PM	
Mammoth	McDonald's	7:50 AM	1:54 PM	7:18 PM	
June Lake	Fire House	8:15 AM	2:19 PM		
Lee Vining	Caltrans Yard	8:25 AM	2:29 PM		
Mono City		8:35 AM	2:39 PM		
Bridgeport	Bridgeport General Store	8:55 AM	2:59 PM		
Walker	Walker Sporting Goods	9:35 AM	3:39 PM		
Coleville	Across from Post Office	9:45 AM	3:49 PM		
Topaz	Trailer Park Entry	10:00 AM	4:04 PM		
Gardnerville		10:35 AM	4:39 PM		
Carson City	Nugget	10:45 AM	4:49 PM		
Reno Airport		11:45 AM	5:49 PM		

(Continued on next page.)

Southbound

City/Town	Stop Location	Trip 1	Trip 2	Trip 3
Reno Airport			8:20 AM	12:45 PM
Carson City	Nugget		9:20 AM	1:45 PM
Gardnerville			9:30 AM	1:55 PM
Topaz	Trailer Park Entry		10:05 AM	2:30 PM
Coleville	Post Office		10:20 AM	2:45 PM
Walker	Walker Sporting Goods		10:30 AM	2:55 PM
Bridgeport	Bridgeport General Store		11:10 AM	3:35 PM
Mono City			11:30 AM	3:55 PM
Lee Vining	Caltrans Yard		11:40 AM	4:05 PM
June Lake	Fire House		11:50 AM	4:15 PM
Mammoth	McDonald's	8:10 AM	12:15 PM	4:40 PM
Crowley	Crowley Lake Store	8:25 AM	12:30 PM	4:55 PM
Toms Place		8:30 AM	12:35 PM	5:00 PM
Bishop	201 S. Warren	9:00 AM	1:05 PM	5:30 PM
Big Pine	Texaco Bench	9:15 AM	1:20 PM	
Aberdeen	Storefront	9:30 AM	1:35 PM	
Independence	Mair's Market	9:45 AM	1:50 PM	
Lone Pine	Statham Hall	10:00 AM	2:05 PM	
Olancha	Ranch House Restaurant	10:20 AM	2:25 PM	
Coso Junction	Rest Stop	10:40 AM	2:45 PM	
Pearsonville	Texaco Parking Lot	10:55 AM	3:00 PM	
Ridgecrest	City Hall	11:20 AM	3:25 PM	
Inyokern		11:35 AM	3:40 PM	
California City	Rite Aid/City Hall	12:20 PM	4:25 PM	
Mojave	Stater Brothers	12:42 PM	4:47 PM	
Rosamond	Hummel Hall	1:12 PM	5:17 PM	
Lancaster	Metrolink	1:29 PM	5:34 PM	

← 1:55 PM bus for Las Vegas
 ← 5:20 PM bus for Bakersfield

 ← 1:45 PM train departs for LA
 ← 5:50 PM train for LA

Advantages of Alternative A3

Advantages for this alternative are as follows:

- As with the previous alternatives, this alternative allows bus riders to transfer to and from Metrolink Trains in Lancaster, providing a seamless connection from the Eastern Sierra to the Los Angeles area.
- This alternative provides a very good cross-regional link for people making long intercity trips. This alternative benefits persons making both day trips and overnight trips outside of the region.
- The alternative provides improved access from the southern end of the study area, allowing Los Angeles area residents a convenient bus service to recreational opportunities in Mammoth Lakes. The solution also better integrates Kern County's service into the overall Eastern Sierra transportation network and enhances the overall transit services currently provided in the county.
- This alternative provides different travel time options with morning and afternoon runs in both directions.
- This alternative would allow for the elimination of the Bridgeport-Carson City route, the Ridgecrest-Inyokern-California City-Mojave service, selected Mammoth-Lakes-Bishop runs, and one Mojave-Lancaster run.

Challenges for Alternative A3

Challenges for this alternative are as follows:

- This alternative would cost more than four times that of the current CREST operation, although it provides significantly better service.
- Local services may need to be expanded to meet the later running times of this intercity service. For example, local dial-a-ride service hours may need to be expanded to afford connections to this interregional bus. Recommended service expansions are described later in this chapter.
- Service would likely require a new organizational/governance structure. It would require schedule adjustments by IMT and KRT to avoid service duplication and "feed" this service.
- This alternative does not allow for same day round trips for persons traveling from the area north of Mammoth Lakes to Bishop or from the area south of Bishop to Mammoth Lakes. Other IMT services, however, such as the Lone Pine-Bishop service would supplement the CREST service to allow for some of these trips.
- Due to the long driving distances, driver scheduling may require split shifts or more vehicles.

Performance Assumptions

According to Greyhound ridership data, daily passengers for both northbound and southbound routes combined averaged 22 passengers during the final years of service. The 2001 US 395 Corridor Intercity Transit Study estimated daily ridership at 21 passengers on the combined north and southbound routes. Data from CREST for 2003, however, found average daily ridership, if combining both northbound and southbound routes, is about 15. Nevertheless, a combination of other routes that are operated along the corridor in addition to the CREST route — Bishop-Mammoth, Walker-Bishop and Bishop-Lone Pine have an average daily ridership of 26 passengers (not including CREST). Furthermore, the Kern Regional Transit thrice-weekly service between Ridgecrest and Mojave averaged 12 passengers per day in 2003, many of whom continued on to Lancaster on the East Kern Route.

Based on the proposed service characteristics for a four-bus system (Alternative A3), daily ridership is estimated at 40 passengers per day or 10,200 annually. This assumes significant marketing of the service and buses with the amenities desired by riders, including storage space for skis and suitcases, comfortable seats and air conditioning.

General operating characteristics would need to include the following:

- Good marketing and public information,
- Marked bus stop locations
- Enhanced service frequencies
- Replacing some existing services with the proposed interregional service
- A mix of different fares, based on distance

Estimated costs, revenues and performance for a four-bus system providing weekday-only service are presented in Figure 3-5.

Figure 3-5 Summary of Estimated Operating Costs, Revenues, and Performance (Proposed Interregional Service – Alternative A3)

4-Bus Preferred Service Weekday-Only Operation	Projected 2006	Projected 2007	Projected 2008	Projected 2009	Projected 2010
Vehicle Service Hours	9,750	9,750	9,750	9,750	9,750
Operating Expenses	\$516,750	\$529,669	\$542,910	\$556,483	\$570,395
Ridership	10,200	10,353	10,508	10,666	10,826
Fare Revenue	\$61,200	\$62,118	\$63,050	\$63,996	\$64,955
Cost/Hour⁽¹⁾	\$53.00	\$54.33	\$55.68	\$57.08	\$58.50
Average Fare	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00
Passengers/Hour	1.05	1.06	1.08	1.09	1.11
Operating Cost/Passenger	\$50.66	\$51.16	\$51.66	\$52.17	\$52.69
Operating Subsidy/Passenger	\$44.66	\$45.16	\$45.66	\$46.17	\$46.69
Farebox Recovery Ratio	11.84%	11.73%	11.61%	11.50%	11.39%

(1) Based on current costs for CREST service factored to 2006.

All numbers represent annual totals

All costs inflated at 2.5% per year

Assumes modest ridership growth of 1.5% per year

Determining whether a two-bus or four-bus interregional service can be implemented depends on the availability of funds and the level of investment that can be made in the interregional service. While a four-bus service is preferred, a two-bus service could be implemented in the short-term as an expansion and reallocation of resources for CREST and KRT routes. Ultimately, weekend service is also desirable, and could be provided seasonally.

Other Considerations

Local bus service would be necessary to “feed” the interregional service. Expansion of local bus service is among the highest community priorities as determined through on-board bus survey findings, interviews with community stakeholders, and community telephone surveys.

For the interregional service to operate effectively, it will be necessary for local transportation providers to modify schedules and develop services that will appropriately connect with the interregional transit service. Suggested changes to existing schedules and dial-a-ride services are as follows:

California City Transit

Based on the proposed service schedule, to provide access to and from the interregional service’s 12:20 PM bus, California City Transit should operate an

additional hour of local dial-a-ride service from 12:00 PM to 1:00 PM. The additional cost for this weekday service would be approximately \$17,000 per year.² If interregional service is operated seven days per week, limited local weekend service is suggested in California City.

Inyo-Mono Transit

Dial-A-Ride service in June Lake, Bridgeport, and Lee Vining

IMT's Bridgeport-to-Carson City service on Fridays can be eliminated with the expansion of interregional service. Resources could then be used for local dial-a-ride services in and around Bridgeport. The need for better local mobility in the Bridgeport area, particularly in the late afternoon and early evening, was one of the issues noted during the stakeholder interview process. Feeder service, or a limited local dial-a-ride service in the June Lake Loop area and Lee Vining, should also be considered by Mono County, but is not critical to successfully support the interregional service.

Bishop Service

Fixed route service in Bishop operates from 7:00 AM to 6:00 PM, Monday through Friday. To serve as a feeder for the interregional service, buses should begin operation no later than 6:30 AM, and service should be extended until 7:00 PM. This would allow for 30 minutes of local service before and after the interregional route provides service to Bishop. General public local dial-a-ride service would be sufficient to provide access to persons using the interregional route. Because one route would begin and end service in Bishop, the interregional bus itself could operate as the local dial-a-ride bus to pick up and drop off persons making the connection to the interregional route. Additional costs for one additional hour of one-bus general public feeder service in Bishop operating weekdays only would be approximately \$8,000.³ If interregional service were operated seven days per week, limited local weekend service is suggested in Bishop.

Lone Pine Service

Service in Lone Pine is currently available from 7:00 AM to 4:00 PM on weekdays only. To provide access to and from the recommended interregional service, some type of local service could be offered until approximately 5:45 PM. Service could be provided by reservation only, which would need to be clearly marketed in the informational materials about the interregional service. Like Lee Vining, Lone Pine is relatively small and most residences, as well as all hotels, are within a short walk of Highway 395. Thus, extended local service is not required to successfully support the interregional service, but it is desirable. The exception to this is service between Whitney Portal and Lone Pine, where a shuttle connection is suggested (See Chapter 4).

² Based on FY 2003 cost per hour of \$67.45

³ Based on FY 2003 cost per hour of \$31.20

Mammoth Lakes Service

Summer service operates 7:00 AM to 7:00 PM. Based on the recommended interregional service schedule, where a bus would terminate service in Mammoth Lakes at 7:18 PM, local service should be extended to provide access to hotels and residential areas. Extending service until 8:00 PM would allow for persons arriving on the interregional service to take a bus to their destination within Mammoth Lakes. The increased cost would be \$4,900 annually for service that operates over the spring-summer period.⁴

Dial-a-Ride service is designed to complement the fixed route service and then provide access to areas beyond the fixed route service zone. Currently, service hours are 7:30 AM to 5:00 PM. This service should be operated over the same service span as the fixed route service, from 7:00 AM to the recommended 8:00 PM. To operate year-round dial-a-ride service during weekdays, these additional hours would cost about \$34,000 per year.

If weekend service is provided on the interregional route, local weekend service is also recommended.

Mammoth Lakes would benefit from a year-round bus service. Seasonal schedule changes could be made, but a year-round system would essentially provide the same level of service with the same service policies throughout the year, making it easier to understand for residents and visitors alike. The service could still be funded by Mammoth Mountain during the winter, with a combination of other public funds used to operate the spring and summer service. The 30-minute frequencies provided on the summer service are appropriate for the route, although winter service provided by Mammoth Mountain is much more comprehensive.

Kern Regional Transit

Mojave Dial-a-Ride

Service on Mojave's local dial-a-ride is provided Monday through Saturday from 7:00 AM to 6:00 PM. Under the proposed interregional service, no changes would be required to the service schedule for dial-a-ride operations in Mojave, although Sunday service should be considered if interregional service is operated seven days per week.

Intercity transit services operated by KRT stop at the Carl's Jr. at 7:05 PM, 7:18 PM and 8:33 PM, after local service has stopped operating. This means local connections to evening regional service in Mojave cannot be made using public transit. In addition, service on the regional route begins earlier than Mojave's local service. KRT should consider operating earlier and later local service to support existing regional bus schedules within Kern County.

⁴ Based on FY 2003 cost per hour of \$38.74

Rosamond Dial-a-Ride

Under the proposed schedule, the final interregional Rosamond Stop would be at 5:17 PM, 13 minutes before local dial-a-ride service stops operating in Rosamond. As a relatively small community, this may be sufficient time to drive interregional bus riders to their local destinations in Rosamond. Additional service time, perhaps as little as 15 minutes, may be required in Rosamond depending on Dial-a-Ride's reservations. This additional service could be provided on-call until 5:45 PM, if needed, for approximately \$3,220 per year.⁵ Service is currently provided Monday through Saturday, so additional service may be required Sunday if interregional service is offered seven days.

As in Mojave, KRT's East Kern route provides southbound service at 5:43 PM and 7:40 PM and northbound service at 6:40 PM and 8:11 PM to Hummel Hall. Early morning trips are also provided. This means that riders requiring a local bus connection from the East Kern Route in Rosamond cannot make that connection when Dial-a-Ride service is not offered. Earlier and later local service should be considered in Rosamond.

East Kern Route

KRT's East Kern Route operates as many as seven round trips each weekday between Bakersfield and Lancaster. Based on the proposed four-bus interregional service, KRT would continue to operate the East Kern Route, possibly eliminating one or two trips between Mojave and Lancaster.

Optimally only one of KRT's trips is replaced by the interregional service between Mojave and Lancaster. The bus that departs Bakersfield at 9:25 AM would terminate service in Mojave, where riders would connect with the proposed interregional service. A schedule change to the KRT route would be required whereby the bus would depart from its first stop in Bakersfield about 30 minutes earlier, at 8:55 AM.

In Mojave, riders headed to Lancaster would transfer to the interregional bus that departs Mojave at 12:42 PM. The same interregional bus would depart Lancaster at 1:59 PM, about 20 minutes earlier than the current KRT departure, and would head north toward Ridgecrest and Bishop. Passengers on that bus who are continuing to Tehachapi or Bakersfield would transfer in Mojave to a KRT bus. The KRT bus could depart Mojave as early as 2:50 PM, 15 minutes earlier than the current departure. This does not appear to affect other transfers in Tehachapi or Bakersfield. Kern County would have to determine an appropriate use for the idle East Kern Route bus in Mojave, but a driver-sharing arrangement could allow for the KRT driver to operate the Mojave-Lancaster portion on this run.

⁵ Based on FY 2003 cost per hour of \$50.54

Mojave/California City/Inyokern/Ridgecrest Intercity Service

Based on the proposed four-bus interregional service, the Ridgecrest-to-Mojave corridor would be served by two round-trip buses per day. This would be better service overall than the current service, which operates only three days each week, providing three round trips per day. Thus, Kern County, Ridgecrest, and California City could eliminate the KRT-operated Ridgecrest-to-Mojave service and shift resources from that service to the proposed interregional route.

If the current service is maintained by Kern County, at least one trip should be eliminated. Cutting the 11:25 AM departure from Mojave and the 1:30 PM departure from Ridgecrest, and allowing the two new interregional service round trips to take their place, would provide an additional service benefit to residents of Mojave, California City, Ridgecrest and Inyokern.

Boron Intercity Service

No changes are required to the Boron-Mojave Intercity Service. One trip from Boron allows for a timed transfer to the proposed interregional service (the 9:15 AM arrival in Mojave from Boron allows for a transfer to the 9:22 AM northbound departure of the interregional service). Southbound from Ridgecrest, the 4:47 PM arrival in Mojave affords a transfer to the 5:15 PM departure for Boron.

Schedules on this route could be shifted to allow for transfers to the proposed interregional service on more than one run, but that would disrupt timed connections with KRT routes and is unnecessary considering the limited level of transfer activity anticipated between the two services.

Reds Meadow Shuttle

No change is suggested for the Reds Meadow Shuttle. The interregional route would provide service to Mammoth Lakes during most of the hours the shuttle operates. Connections to the shuttle can be made via local transit in Mammoth Lakes.

Ridgecrest Transit System

The local dial-a-ride service that operates within the city and adjacent unincorporated areas of the county, including the China Lake Naval Air Weapons Station, provides service from 6:00 AM to 6:00 PM, Monday through Friday and from 9:00 AM to 5:00 PM on Saturday. Service is not provided on Sunday. Based on the proposed interregional schedule, RTS service requires no schedule change to successfully feed and distribute interregional riders within Ridgecrest. If interregional Sunday service is introduced, local Sunday service is recommended in Ridgecrest.

Yosemite Area Regional Transportation System

No change is suggested for YARTS. Interregional service would provide connections to Mammoth Lakes, June Lake and Lee Vining. An overnight stay would be required for anyone accessing YARTS via the interregional service.

Figure 3-6 presents a summary of suggested changes to the local transit services to better support the interregional service and provide for improved regional connectivity.

Figure 3-6 Summary of Local Service Modifications to Meet Proposed Interregional Bus Service Weekday Schedule

Service	Suggested Change	Additional Annual Cost (or Annual Cost Savings)
California City Transit ⁽¹⁾	Extend local dial-a-ride service by one hour.	\$17,000
Inyo Mono Transit		
Bishop ⁽²⁾	Additional one-hour of service using one vehicle.	\$8,000
Bridgeport ⁽³⁾	Implement new dial-a-ride service.	\$98,000
June Lake ⁽³⁾	Implement new dial-a-ride service.	\$98,000
Lee Vining ⁽³⁾	Implement new dial-a-ride service.	\$98,000
Lone Pine	No changes.	\$0,000
Mammoth Lakes ⁽⁴⁾	Additional one-hour fixed route using one bus for spring-summer season; Additional 3.5 hours for Dial-a-Ride service year-round.	\$38,900
Kern Regional Transit		
Boron	No changes.	\$0,000
East Kern ⁽⁵⁾	Delete Mojave-Lancaster segment on one round-trip each day.	(\$25,700)
Mojave	No changes.	\$0,000
Mojave-California City-Inyokern-Ridgecrest ⁽⁵⁾	Eliminate existing service. Replace with interregional route.	(\$76,500)
Rosamond ⁽⁵⁾	Additional 15 minutes of service as needed.	\$3,220
Reds Meadow Shuttle	No changes.	\$0,000
Ridgecrest Transit System	No changes.	\$0,000
YARTS	No changes.	\$0,000
TOTAL Estimated Costs for Implementing Local Service Changes ⁽⁶⁾		\$258,920

(1) Based on FY 2003 operating cost of \$67.45 per hour.

(2) Based on one-vehicle year-round feeder service at \$31.20 per hour (FY 2003 operating cost).

(3) Based on one-vehicle year-round bus operation based on FY 2003 operating cost of \$38.74 per hour.

(4) Based on FY 2003 operating cost of \$38.74 per hour for fixed-route and dial-a-ride vehicles.

(5) Based on FY 2003 cost per hour of \$50.54

(6) Based on FY 2003 operating costs.

Note: Additional cost savings could be gained through the elimination of the current Bishop-Lone Pine service.

Evaluation of Fixed Route Interregional Bus Service

The following table presents an evaluation of this service strategy.

Criteria		Evaluation High, Medium or Low	Comments
Comprehensiveness Criteria			
1	Strategy addresses corridor-wide mobility.	High	
Community Support and Markets Served			
2	Has community support and advocacy	High	Based on household survey/stakeholders
3	Provides benefit to primary transit markets: interregional and intra-regional	High	4-bus scenario benefits all markets
4	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	High	
Funding and Cost Criteria: Affordability			
5	Is cost-effective strategy	Medium	Interregional service is relatively cost-effective. Supportive transit services will require additional cost.
6	Has potential to attract private funding/participation	Low	
7	Has potential to attract new public funding sources	Low	Possible demonstration funding
8	Has potential to maximize existing funding sources	High	
Transportation Service Criteria			
9	Has effective and measurable impact	High	
10	Facilitates more efficient travel to important destinations	High	
11	Is easy to use and understand	High	
12	Improves connectivity	High	
13	Improves access	High	
Implementation Criteria			
14	Ease of implementation	Medium	
15	Roles and responsibilities are clear and realistic	Medium	Organizational changes required
16	Implementation can piggyback on another service in the greater region	High	
17	Regional services can be modified as needs change	High	

B. New Organizational Structure to Oversee Interregional Transit Service

Recommended Implementation: A new organizational structure is recommended to oversee the interregional transit service described in Section A. Based on the review of options, a Joint Powers Authority would be the most appropriate organizational structure in the short-term.

Annual Operating Costs: Costs are to be determined depending on type of structure. Staff time should include a minimum of one-quarter time of one FTE employee at a lead transit agency (assume \$15,000) to transition the regional service to a JPA or district.

Capital Costs: None in short-term, although separate operations/planning facilities could be required.

Communities: All communities in the study area along the Highway 395/14 corridor in Inyo, Mono, and eastern Kern County.

Lead Agency: Kern COG, Inyo County or Mono County would facilitate the formation of a new administrative structure.

Funding: Potential funding sources include TDA funds.

The current structure of transit oversight in the Eastern Sierra region entails many different levels of oversight and multiple service agreements. These include the agreement between Inyo and Mono Counties for Inyo County's operation of local and regional services; a Memorandum of Understanding (MOU) between Kern, Inyo and Mono Counties for the operation of CREST service by Inyo County; an MOU between Mammoth Lakes and Inyo County for cost-sharing on the IMT routes between Bishop and Mammoth Lakes; a Joint Powers agreement between Kern Regional Transit and the City of Ridgecrest for transit services in unincorporated areas of northeastern Kern County; a Joint Powers Authority for the operation of YARTS service, overseen by the Merced County Association of Governments; and transit services operated and overseen by the US Forest Service in Mono County, and the County of Kern in eastern Kern County. Even when Greyhound operated service, Inyo County administered the MOU operating agreement on behalf of Kern County, Ridgecrest, California City, Inyo County and Mono County. Other than the YARTS Joint Powers Authority, none of the current MOUs or agreements has specifically dedicated funding and staffing to oversee the requirements of the contract or agreement.

Critical for the implementation of an interregional transit system between Reno and Lancaster is to define an appropriate governance and organizational structure for the service.

Application in the Eastern Sierra Region

While almost an unlimited number of variations exist in the way organizations function, relatively few basic organizational models would be appropriate for administering a transit service in the Eastern Sierra. The three basic forms of governance that are feasible include the following:

- County or Municipal Agency
- Joint Powers Authority
- Special District

Descriptions of these alternatives follow. Each section outlines the model's level of authority, formation, dissolution, governing boards, and funding sources.

County or Municipal Agency

The simplest form of transit organization is through an already existing form of government. Inyo County, for example, is currently overseeing and administering the CREST service for all of the participating agencies. Transit services may be run by city or county agencies as a department, division, or a stand-alone agency. In cases in which the area served fits neatly into the geographic divisions of a city or county, this form of governance is common. Depending on the specific needs of the jurisdiction, the transit section or department can have a greater or lesser degree of autonomy, but final authority rests with the elected officials of the city or county overseeing the services. These same elected officials have control of forming, reforming, or dissolving the transit function. This form of organization does not have access to any unique funding sources to support transit services.

Given that transit in the Eastern Sierra region operates in three counties and several cities, this governance option would mean that transit services would be a function or unit of one of the counties. Inyo County has shown a willingness and interest to provide this service, as they have done for many years, although Kern or Mono County could also be responsible. At a policy level, if operated by a county, the County Board of Supervisors or the Local Transportation Commission or their designees would make all decisions.

Joint Powers Authority

The role of the Joint Powers Agreement

California Government Code provides for the joint exercise of powers of two or more public agencies, if authorized by their governing bodies. The enabling contract is called a Joint Powers agreement.

The Joint Powers agreement is relatively easy to create and provides the participating parties a tremendous amount of flexibility to meet the needs of any organization. The agreement must define how the organization will operate and how responsibilities will be divided and exercised. The agreement also identifies how it may be dissolved. Within these bounds, a Joint Powers agreement can establish a broad range of responsibilities between the partners to the agreement.

A Joint Powers agreement creates a mechanism to share authority between its signators, but it does not, in and of itself, create a new agency. For example, if the recommended expanded interregional service were to be an expansion of CREST Service, a Joint Powers agreement would likely establish that Inyo, Mono and Kern Counties, along with some cities, would dedicate a portion of their TDA funds to running a transit system that serves all participating jurisdictions. Based on current operations, the agreement would name Inyo County as the operator of the service, and would establish a Transit Services Commission comprised of representatives of the participating jurisdictions to provide budget and policy oversight for transit services and to establish transit service levels and fares.

Joint Powers Authority

A Joint Powers agreement may create a Joint Powers Authority (JPA) to be a distinct agency that is legally separate from the participating parties and is responsible for the administration of the agreement. Figure 3-7 illustrates the typical organization of a Joint Powers Authority.

If the Joint Powers agreement creates a JPA, the Authority must file notice of the agreement with the Secretary of State within 30 days of being signed by all of the participant parties. Until this filing is complete, no agency or entity administering the JPA can exercise any of its powers, nor issue bonds or incur indebtedness of any kind.

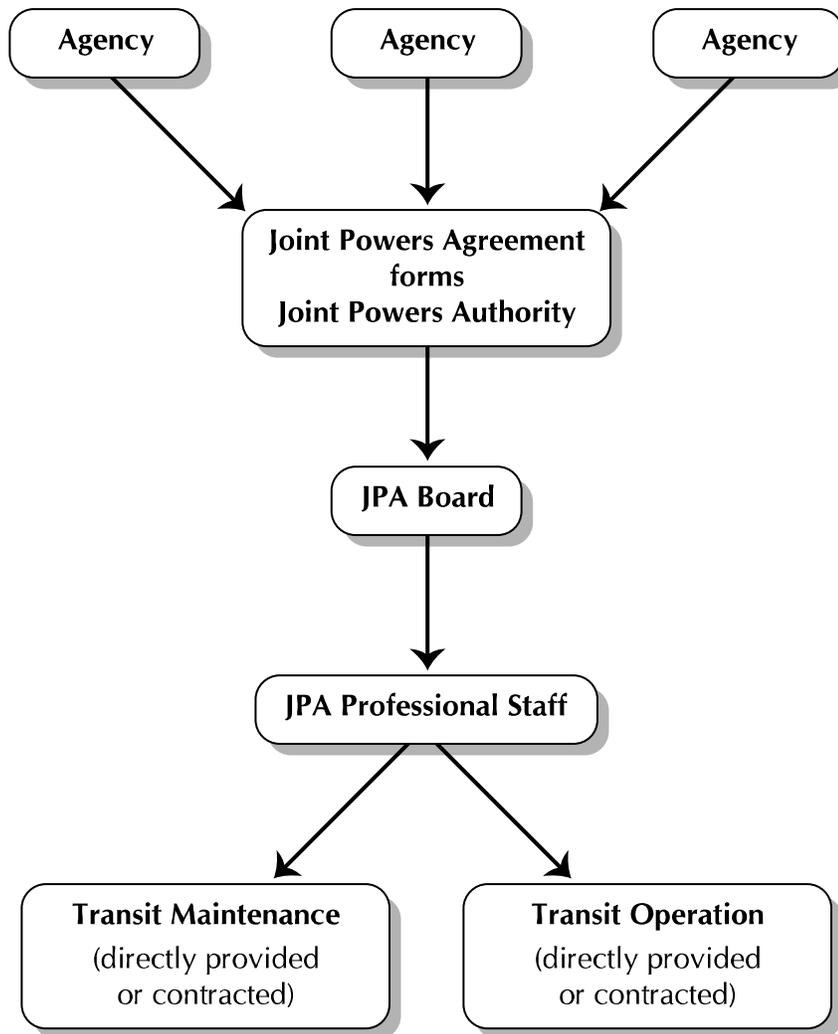
The Joint Powers agreement usually specifies the method of termination of the JPA. Many Joint Powers agreements contain clauses that make it difficult to cede at will, for instance by requiring a super-majority of two-thirds to allow a member to leave the JPA.

Power of a Joint Powers Authority

The powers of the entity resulting from a JPA agreement are specified by the agreement itself, and can be very broad or very limited. Generally, the statute restricts the powers of the entity resulting from a JPA to those activities common to the contracting parties. These may include power to:

- Employ agent and employees
- Make and enter contracts
- Apply for grants, and receive and administer grant funds
- Own, maintain, operate, lease, and contract for services and facilities within and outside the respective boundaries of the participating parties
- Acquire, construct, manage, maintain, or operate any building or improvements
- Acquire, hold or dispose of property
- Incur debts, liabilities or obligations, including issuance of bonds
- Exercise eminent domain

Figure 3-7 Joint Powers Authority Organization Chart



Governing Board

No requirements are stated under law regarding the formation or composition of a JPA’s governing boards, and many different examples of board structures exist. Law does allow for the service of elected officials on the board, but the board is not required to be limited to members who are elected representatives.

Funding

JPAs are allowed to incur debt and issue bonds, subject to its governing board’s approval and any other restrictions placed on the individual participating agencies. Unlike special districts, JPAs cannot propose tax measures, or levy taxes directly. JPAs can, however, expend tax revenues if appropriated from member entities through voluntary agreement.

Examples

The use of a Transit Authority formed by a Joint Powers agreement is extremely common in California. Most multi-jurisdictional transit systems use this form of governance. Systems vary substantially in how they organize themselves within a JPA. A JPA may have a small administrative staff, with operations contracted to either another public agency (e.g., one county) or to a private operator. Other systems are vertically integrated, running all administration, operations and maintenance “in-house” within the JPA. In either case, in smaller systems it is typical for administrative needs such as accounting and legal services to be provided by other public agency personnel or by private contract.

Mendocino County Transit Authority and **Humboldt County Transit Authority** are examples of “in-house” JPAs in which the Transit Authorities administer, operate and maintain the service. The **Yuba/Sutter Transit Authority** has a three-person administrative staff, and contracts with a private operator for bus service.

Special Districts

A transit district is a form of special district organized under the California Public Utilities Code. A special district is defined as “any agency of the State for the local performance of governmental or proprietary functions within limited boundaries.” It therefore requires state legislative approval; a special district may not be established by local action. Once formed, special districts are considered autonomous governmental entities and are accountable only to the voters or constituents they serve, and have the same governing powers as other local governments.

For multi-county districts, state legislation is required, and must be carried by a local member of the Assembly or Senate. Formal dissolution requires a second act of legislation, although it is possible for a special district to simply cease functioning without formally dissolving.

Powers

In addition to the powers available to JPAs, special districts can also issue debt, tax, levy assessments, and charge fees for their services. A special district may also be more specifically geographically tailored than a JPA. In the Eastern Sierra region, for instance, a special district could include all of Inyo and Mono Counties as well as eastern Kern County (instead of all of Kern County).

Governing Board

The District’s enabling legislation determines the composition of the governing board. About two-thirds of California’s special districts are independent, meaning they have independently elected or appointed boards of directors. Others share boards with another governmental agency, such as a County Board of Supervisors, which would not be applicable for a multi-county district.

Funding

Special districts may generate revenue from several sources, including sources not available to a JPA.

- **Fees and Assessments.** User fees or assessments can be charged only to pay for projects or services that directly benefit those paying the fee. The amount of the assessment must be directly related to the benefit they receive.
- **Bonds.** Districts can issue bonds to pay for capital improvements. Special districts' general obligation bonds are backed by property taxes and require two-thirds voter approval.
- **Taxes.** Special districts can introduce tax initiatives but cannot tax without the consent of two-thirds of the district voters.

Examples

A variety of transit districts are organized under state law as special districts. Most are large urban districts, such as the **Bay Area Rapid Transit District**, the **Alameda Contra Costa Transit District**, and the **Sacramento Rapid Transit District**. However, smaller urban areas such as **Santa Barbara** and **San Joaquin** have organized as transit districts.

Yolo County is perhaps the only predominantly rural transit district in the state. The Yolo district has chosen not to pursue new taxes or assessments. Practically speaking, it functions more like a transit authority.

Advantages of a New Governance Structure

A new governance structure can accomplish the following:

- Provide a framework for the planning, expansion, and marketing of interregional transit service in the Eastern Sierra.
- Strengthen, empower, and clarify the role of policymakers with regard to transit service decision-making in the Eastern Sierra.
- Better integrate Kern County into the Eastern Sierra regional service planning process.
- Create direct lines of authority between a JPA board and management.
- Be easier for the general public to understand how transit works.
- Maintain appropriate levels of control by the participating counties (and cities) through representation based on population and TDA funding.
- Enable greater control and attention to transit costs, and tie them more clearly to transit services.
- Create a structure that has flexibility to contract services such as maintenance or operations.

Challenges of a New Governance Structure

Some challenges to implementing a new governance structure for the Eastern Sierra Interregional transit service include the following:

- Will require a change in the way things are currently done. This includes a shift in the decision-making structure and potentially in the day-to-day oversight of interregional transit services.
- Cost savings may not result from a change in the governance structure.
- Requires leadership and negotiation with participating parties to implement the change.
- Requires an equitable cost-sharing model for the implementation of a JPA.

Summary

In the short-term, a Joint Powers Authority would be the appropriate model for the Eastern Sierra Region's interregional service, because it can be implemented more easily than a transit district and provides greater benefits for oversight management than a county-operated interregional service. Neither a county operation nor a special district offers any advantages in organizational structure, authority, or funding that would be a substantial benefit for a service operating across Inyo, Mono and Kern County.

Evaluation of a New Governance Structure

The following table presents an evaluation of this strategy. This assumes implementation of a JPA or special district rather than maintaining county-governed regional transit.

Criteria		Evaluation High, Medium or Low	Comments
Comprehensiveness Criteria			
1	Strategy addresses corridor-wide mobility.	High	
Community Support and Markets Served			
2	Has community support and advocacy	Medium	
3	Provides benefit to primary transit markets: interregional and intra-regional	Medium	
4	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	High	Provides better representation.
Funding and Cost Criteria: Affordability			
5	Is cost-effective strategy	High	
6	Has potential to attract private funding/participation	Low	
7	Has potential to attract new public funding sources	Medium	A special district could collect a tax
8	Has potential to maximize existing funding sources	High	
Transportation Service Criteria			
9	Has effective and measurable impact	N/A	
10	Facilitates more efficient travel to important destinations	N/A	
11	Is easy to use and understand	N/A	
12	Improves connectivity	N/A	
13	Improves access	N/A	
Implementation Criteria			
14	Ease of implementation	Medium	
15	Roles and responsibilities are clear and realistic	Medium	Would require reorganization of roles and oversight responsibilities
16	Implementation can piggyback on another service in the greater region	High	
17	Regional services can be modified as needs change	High	

C. Marketing Program for Interregional Transit Services

Recommended Implementation: To support the recommended interregional transit service and a new governance structure, a comprehensive marketing effort must be put into place. The result would be a single source for information about transit services in the Eastern Sierra. Key staff from participating transit agencies or the organizational body overseeing the interregional service would be involved. Initial implementation should focus on intercity transit services with the long-term goal that all providers that serve the Eastern Sierra area participate in this regional cooperative program.

Annual Operating Costs: Short-term: Staff time to include about one-quarter time of one FTE employee at each participating transit agency. Preliminary planning and development could include outside consulting assistance. Long-term: Staff time to include about one

half-time employee or one FTE employee at lead agency. Depending on marketing goals and plans, new materials (e.g., flyers, a web site, informational signs at bus stops) may need to be developed.

Capital Costs: None for most marketing efforts. Approximately \$250 for a basic bus stop sign on a pole. \$5,000 for an installed bus shelter on a concrete pad with a bench.

Communities: All communities in Inyo, Mono, northwestern San Bernardino and eastern Kern Counties; Yosemite Area Regional Transportation System (YARTS); and U.S. Forest Service' Reds Meadow Shuttle.

Lead Agency: New JPA, Special District, transit provider, COG or County planning department.

Funding: Potential funding sources include TDA funds, general funds, private foundations, chambers of commerce or local businesses.

A marketing program for the interregional transit system would provide comprehensive information about the interregional service link in combination with the region's various transit services and present it as an integrated suite of transportation alternatives for people living in or visiting the area. Such a program would provide information on a web site or in a booklet about each transit service's operating area, policies, and transfer points between them.

A comprehensive program could involve expanded use of "CREST" or develop a new interregional brand or logo to be incorporated in signs and schedules; regional trip-planning software; and a regional transportation telephone information line.

The Eastern Sierra region would benefit from a coordinated marketing program, which could showcase the area's various destinations and how to reach them on public transit. Participants at the community meetings suggested that the way transit information is currently provided could be improved. This includes having more visible and informative signage; "packaged" information for visitors and tour operators; and more user-friendly and versatile online web sites.

Application in the Eastern Sierra Region

Several marketing strategies are recommended for the interregional transit service. The implementation of these would be the responsibility of the lead agency. In addition to a significant advertising effort in the Eastern Sierra region, as well as Reno and Los Angeles County, the following public information elements are recommended:

Branding

Branding means creating an image for a product. The brand identity makes it easy to understand and recognizable. This applies not only to consumer products but also to services and facilities like transit systems and park-and-ride facilities. CREST, for example, is the current brand for the interregional transit service between Reno and Ridgecrest.

Transit providers in California develop their brand identity by creating an insignia or program logo, using standard colors, developing a tagline, etc. All of these elements, in combination, promote an image of the service.

The interregional service should have a brand identity for the transit system. CREST is an attractive one and could be used and expanded. The objective here is to make bus stops, buses, and informational tools “recognizable.” Branding should go beyond just the system, but should be a strategy to promote the system, meaning the brand should be promoted on all regional visitor information materials, web sites, promotional items, etc.

Web Site

An effective regional transportation information web site is needed. The web site should include a large map, with the cities and major landmarks on the map. Ideally, the site would include information about destinations, camping, hiking, transit amenities, etc. The map should allow users to easily identify their origin and destination. The map could include county boundaries and names. All connecting transit services should be shown on the map. All transit schedules should be available on the web site.

The web site should be dynamic and easy to use. Although several web sites currently provide information about the transit services in the Eastern Sierra region, members of the public said they found them confusing or difficult to use. Service information in Spanish is also recommended, and route information about the interregional service could also be provided in German and French.



Internet Web pages for Kern Regional Transit, YARTS, and Inyo-Mono Transit (left to right) all provide basic transit information. Each has a different interface and offers a different description about connecting services.

Map and Brochure

The map described above for use on the web site should also be developed for printed materials, including a comprehensive information brochure. The map and an information brochure with schedules would not only be for residents of the region, but also for visitors. Thus, the map and information brochure could include information about recreational sites and other tourist destinations. Lodging, casinos, ski resorts or other businesses could advertise on the brochure to cover costs for printing and distribution. Likewise, a barter agreement could be put into place where businesses include information about the interregional route in their own printed materials for free or reduced cost advertising in the brochure. A partnership with visitors’ bureaus and chambers of commerce is recommended for the distribution of the map and brochure.

Bus Stop/Shelter Improvement and Enhancement

Adding clear bus stop signs and bus shelters would be seen as a very tangible improvement in the quality of the public transit experience and thus would be a useful marketing strategy. The cost is low, and the program can be incrementally expanded depending on resources. Some bus shelters and amenities are already in place, but can be enhanced with improved marketing materials and better public information.



A new bus shelter in Mammoth Lakes facilitates more comfortable public access to the Mammoth Mountain ski area. It also highlights local investment in transit facilities as part of a community effort to enhance the pedestrian environment, making Mammoth Lakes an appealing tourist destination.

All key bus stops should be marked with a bus stop sign with the “brand” of the interregional transit service and basic information about schedule and contact information. Shelters should also be added, but due to cost constraints, shelters can be added incrementally — perhaps a few each year.

Even with an expanded interregional service, wait times between buses will be very long. Bus stop signs and shelters with transit schedule information provide an invaluable resource for users, letting them know how long their wait may be (and whether another bus is even coming in the next day or two). Bus shelters also provide a location for the installation of potential intelligent transportation systems (ITS) real-time information technologies. In some communities outside of the Eastern Sierra region, low-cost ITS technologies have been installed at bus stops that provide information about when the next bus will arrive and which direction it is headed.

Telephone Information Resources

A new JPA or transit district operating the interregional service should provide a single point of contact for all information about transit services in the Eastern Sierra region. Good customer service is important for marketing and public information to be successful. It is important that customer service personnel be trained and updated regularly with regard to changing policies of the interregional system as well as all of the intra-regional transit services.

Kern COG has held discussions with the provider of Southern California’s 511 telephone information system to be linked to them. Inyo and Mono Counties could also participate in a regional 511 program, which would allow callers from any telephone in the region to dial 511 to be connected to transit information as well as roadway and travel information.

Advantages of this Strategy

- Information is often the key to transit usage. A thoughtful, user-focused marketing program can help increase awareness of and access to the interregional transit in the Eastern Sierra. If the information is provided readily and clearly, it could easily facilitate an individual's decision to use transit.
- While the initial steps may be time-consuming, a well-designed marketing program would give transit users most of the necessary information to plan their trips, thereby reducing staff time that would have been used to field these inquiries.
- Good public information will also complement and build upon existing outreach efforts by the Forest Service, YARTS and various chambers of commerce and convention and visitors bureaus.

Challenges for this Strategy

- Marketing and public outreach requires discussions about the markets to be targeted, the messages to be conveyed, the "look" of marketing collateral, and so forth. Developing ideas and reaching agreement on these items may be time-intensive. Initial implementation would require genuine and consistent participation by multiple agencies and organizations, while marketing in later stages can be facilitated by a half- or full-time staff person, specifically designated to handle the regional marketing program.
- To be effective, this would require a new governance structure for the interregional transit system.

Evaluation of a Marketing Program

The following table presents an evaluation of this strategy.

Criteria		Evaluation High, Medium or Low	Comments
Comprehensiveness Criteria			
1	Strategy addresses corridor-wide mobility.	High	
Community Support and Markets Served			
2	Has community support and advocacy	High	
3	Provides benefit to primary transit markets: interregional and intra-regional	High	
4	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	High	Multiple languages, different ways to access information
Funding and Cost Criteria: Affordability			
5	Is cost-effective strategy	High	
6	Has potential to attract private funding/participation	High	
7	Has potential to attract new public funding sources	Low	
8	Has potential to maximize existing funding sources	High	
Transportation Service Criteria			
9	Has effective and measurable impact	N/A	
10	Facilitates more efficient travel to important destinations	N/A	
11	Is easy to use and understand	High	
12	Improves connectivity	N/A	
13	Improves access	N/A	
Implementation Criteria			
14	Ease of implementation	Medium	
15	Roles and responsibilities are clear and realistic	Medium	
16	Implementation can piggyback on another service in the greater region	High	
17	Regional services can be modified as needs change	N/A	

Conclusion

These interregional transit recommendations are generally reliant on one another for success. For example, a new organizational structure will facilitate the operation and marketing of a comprehensive interregional transit service. A comprehensive interregional transit service will require extensive marketing and a governance structure to carry it forward. Marketing of both transit service and the region's attractions is critical to successfully meet ridership goals.

Determining whether a two-bus or four-bus interregional service can be implemented depends on the availability of funds. Based on estimated costs for a four-bus scenario operating five days per week with estimated daily ridership of about 60 riders, a nearly 12 percent farebox recovery rate is assumed, with an average cost of over \$50.00 per passenger.

Figure 3-8 presents a summary of the interregional service recommendations, along with a review of their funding likelihood and cost characteristics.

Figure 3-8 Recommended Interregional Transit Strategies

Strategy	Operating Cost	Capital Cost	Likely Funding Sources	Cost effective?	New Public Funding?	New Private Funding?	Maximize Existing Funding?
Interregional Bus Service	\$245,000 to \$680,000 (based on hours of service). Recommended weekday strategy is \$520,000. ⁽¹⁾	\$250,000-\$1,000,000 (250K per bus)	TDA, 5311, private	High	Probably not, but high profile need could attract federal demonstration funding	No	Yes, but requires additional funding
New Governance Structure	\$15K in staff time	\$0	TDA	High	Under a special district, tax could be collected	No	Yes
Joint Marketing Program	\$30-60K (1/2 to 1 FTE)	\$0	TDA, General Fund	High	Probably not	High potential through partnerships and joint marketing efforts	Yes, adds riders to recommended route with same base funding

(1) May also require additional costs of up to \$260,000 annually to modify local transit services to provide better connectivity and complementary service hours throughout the region.

Public fixed route interregional bus service is the highest priority of this study. It would be costly, requiring new funds for the region, but it has the potential for state and federal funding due to high visibility, particularly if it can be carried forward with support of political representatives. An advantage of such a service is that it would most effectively leverage the existing investment by establishing better connections between local and regional transit services.

Under a new organizational structure, a marketing program that involves the tourism industry and chambers of commerce would be an effective strategy for providing public information about the interregional service. It would also serve as a valuable part of an economic development strategy for the region. Marketing does not need to be a costly effort, since it is mostly an issue of leadership and coordination between different public and private organizations. Funding for marketing, however, would need to come largely through local sources, although a private start up grant is possible.

Chapter 4. Short-Term: Intra-Regional Transit Service Strategies

Introduction

The focus of this Study is on interregional services (See Chapter 3). However, the interregional service, even with modifications to the local feeder bus network, cannot address all mobility needs in the Eastern Sierra region. In order to be successful, additional local/intra-regional services and programs should be developed to complement the interregional service.

This chapter identifies a number of service options to provide for improved intra-regional mobility. Not all of these service options have a wide application, and many are low-cost options developed to address other localized mobility needs that would not be served well by the recommended interregional service.

The following service options are discussed in this chapter:

- Car-Sharing Program
- Goods Delivery Program
- Regional Ridesharing Program
- Employer-Based Subscription Bus Services or Vanpools
- Volunteer Driver Program
- Shuttle Services

These are options that should be considered by the counties and regional planning entities to support the recommended interregional transit service. Ultimately, the implementation of many of these scenarios is reliant not only on the leadership of the agencies identified in the discussion, but most importantly on the availability of funding.

A. Car-Sharing Program

Recommended Implementation: Design and develop a trial program in one community in the study area. Integral to this initial program would be a point person that can be highly involved in implementation and monitoring.

Annual Operating Costs: Approximately \$10,000 to \$100,000 per year.

Capital Costs: Depends on type of and number of vehicles purchased (\$20,000 and up).

Communities: Could be implemented in any of the communities in Inyo, Mono, northwestern San Bernardino and eastern Kern Counties.

Lead Agency: Kern COG, county agency, a new JPA, or a new nonprofit organization to manage the program.

Funding: Potential funding sources include private foundations and Federal and State demonstration programs.

A car-sharing system allows a group of individuals and/or company to share vehicles on a reservation basis and pay for them on the basis of time or mileage. Car-sharing brings substantial benefits in terms of reduced vehicle ownership and travel, and improved mobility. Studies have shown that while formal car-sharing has been introduced in a limited range of market settings, it has attracted wide support from public- and private-sector partner organizations. In fact, some residential developments have incorporated shared cars for their tenants.

Formal car-sharing organizations typically charge an initial membership fee and collect a refundable deposit. Members are free to reserve and use a car for an hourly fee.

Informal car-sharing programs also exist. In many cases, neighbors, friends or family members can share a car, either through informal arrangements or more detailed agreements on cost-sharing, reservations, and maintenance. The main difference between informal car-sharing programs and their more formal counterparts relates to the incorporation of a separate car-sharing organization.

Application in the Eastern Sierra Region

Car-sharing can be one element of a larger menu of transportation alternatives for residents in the Eastern Sierra region. For some people, some trips may require a vehicle with enough room for multiple passengers or parcels. These are trips that are inefficient or financially impractical on public transit.

A preliminary trial program administered in one community would be advisable to assess local interest and potential success in other towns, especially considering the relatively high capital costs that can be involved.

Examples in Other Communities: Nelson Car-Share Cooperative, British Columbia, Canada

A good example of a small community served by a car-sharing organization can be found in Nelson, British Columbia (population 9,300). The program is a nonprofit venture that serves the City of Nelson, a rural town with forestry, mining, and tourism as its main industries.

Yearly costs for the user include an annual fee, time-based fees, and distance-based fees. The program is run completely on membership dues, which cover the cost of fuel, insurance, and vehicle maintenance. The program offers three levels of membership, as outlined below (shown in US dollars).

	Frequent Plan	Moderate Plan	Occasional Plan
Includes:	500 hrs + 4,660 mi	300 hours + 1,550 mi	150 hours + 930 mi
Annual Fee	\$336	\$96	\$40
Time-Based Fee	\$600	\$360	\$180
Distance-Based Fee	\$900	\$520	\$360
Total	\$1836	\$976	\$580

The program has two cars: a small pick-up truck and a sedan. A screening process is in place for interested applicants. All members must be licensed drivers who are at least 19 years of age and have a clean DMV record for at least five years.¹ Members can make reservations for a vehicle by using an online calendar program or by calling a 24-hour reservation hotline.

The Nelson Car-Share Cooperative administers the program. The Cooperative consists mostly of volunteers, but includes some paid staff members. The Cooperative also runs other unrelated programs in the City of Nelson.

Other Examples

Car-sharing has also been established in many small US cities, such as Aspen, Colorado, (population 5,900) and Rutledge, Missouri (population 100). Rural and small-town car-sharing appears to be characterized by a high degree of personal involvement by the members. In some cases, this is provided by volunteers, such as the program in Rutledge, or in Traverse City, Michigan, where the withdrawal of the volunteers led the program to close. According to studies in Britain, the presence of a strong local champion is more important in making rural car-sharing feasible than factors such as good public transportation.

Other programs, however, have had success through sharing administration with a “parent” car-sharing organization. Canada’s Cooperative Auto Network has five rural pods in Tofino, Nanaimo, Courtenay, Cortez and Whistler, operated through its Vancouver headquarters. It will place cars anywhere 16 “committed pioneers” are willing to both purchase shares in the cooperative and actively pursue other members.

Advantages of this Strategy

- Car-sharing can improve people’s mobility while containing costs that are associated with car ownership. Transit, taxicabs, cycling and walking can often cater to most mobility needs, but a private car may be required for other trips. Car-sharing can fulfill these needs, and allow users to do without their private car, or a second car. The idea of shared neighborhood cars is to provide the benefits of car ownership without having to bear all the costs.
- Car-sharing decreases the number of car trips made in an area by reducing the overall cost of using a car but increasing the marginal cost. Many households must

¹ This is different from the United States where usually car-share driver-participants must be at least 21 years of age.

decide whether owning another car is worth the expense. If the household decides to buy a car, the initial and overall cost is high, but once acquired, the marginal cost of using it is relatively low. In other words, if an extra car is around, people are more likely to use it.

- In a car-sharing program, a household can have access to a car when it needs it but does not have to pay the initial and ongoing expense of owning another car because that cost is pooled among its members. The marginal cost of using it is slightly higher. As a result, car-share members tend to make fewer car trips.

Challenges for this Strategy

- Starting up and maintaining a formal car-sharing program can be a resource-intensive effort.
- Despite the growing popularity of car-sharing organizations in the U.S., the small scale of shared-use vehicle organizations makes it challenging to obtain affordable insurance and cover the high capital costs of technology, vehicles, and labor. Cooperation could help organizations collectively address some insurance issues (i.e., development of risk-rating factors or support more aggressive strategies like captive self-insurance) or could aid in technology development by consolidating funding and providing a larger vehicle fleet base.

Evaluation of this Strategy

The following table presents an evaluation of this strategy.

Criteria		Evaluation High, Medium or Low	Comments
Community Support and Markets Served			
1	Has community support and advocacy	Low	
2	Provides benefit to primary transit markets: interregional and intra-regional	Low	
3	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	Medium	Serves small pockets of density to support it for certain types of trips
Funding and Cost Criteria: Affordability			
4	Has potential to attract private funding/participation	High	
5	Has potential to attract new public funding sources	Low	
Transportation Service Criteria			
6	Has effective and measurable impact	Medium	
7	Is easy to use and understand	Medium	
8	Improves connectivity	Low	
9	Improves access	Medium	
Implementation Criteria			
10	Implementation can piggyback on another service in the greater region	Low	
11	Local services can be modified as needs change	High	

B. Goods Delivery Program

Recommended Implementation: Develop and manage a pilot program for residents living in a relatively isolated community with limited or no services (e.g., no grocery stores or pharmacies). Or expand and enhance the informal delivery service that Inyo-Mono Transit currently provides.

Annual Operating Costs: \$15,000 to \$25,000 for implementation and oversight of the program, but assumes most operating costs are included in existing transit operating costs.

Capital Costs: Very minor equipment costs unknown.

Communities: Short-term: Smaller community that relies on services found in a somewhat larger city. Long-term: All communities in Inyo, Mono, northwestern San Bernardino and eastern Kern Counties.

Lead Agency: Inyo-Mono Transit or Kern Regional Transit, or social service agency, partnering with a local supermarket, drugstore, or other types of businesses.

Funding: Potential funding sources include TDA (as long as cost is a minor component of overall transit), private businesses (that participate in the goods delivery program).

A goods delivery program transports items from larger activity centers to smaller communities. The goal of is to save trips by bringing goods to residents who live in areas that do not have them. These goods are typically delivered on fixed-route services that are making the trip anyway. This type of program may be organized by a social service agency, medical facility, transit authority, or private business.

Application in the Eastern Sierra Region

A goods delivery program would be a convenient service for residents who live in communities that do not have supermarkets, pharmacies, or other types of businesses. The service could be provided for people with limited transportation options. It could also be provided for people who may not have the time to pick up these items for themselves, which in turn could reduce the number of vehicles on the road.

Users would make arrangements with the business to gather and package the goods for pick-up. They would also contact the transit provider to inform that a pick-up at that business needs to be made. The transit provider would charge the customer a nominal fee.

Different versions of this type of service already exist in the Eastern Sierra region. For example, Salvation Army in the Lone Pine/Independence area already runs a small-scale goods delivery for its clients. Mammoth VIP Concierge currently provides a grocery pick-up and delivery service, at a cost of \$50 per delivery plus 10% of the grocery bill. The Vons supermarket in Mammoth Lakes allows customers to refill prescriptions via phone or Internet, and they can later pick up the medication at no additional cost.

Examples in Other Communities: Trinity County, California

In the mid-1980s, Trinity County (population 13,300) worked with the local transit provider, Trinity Transit, to begin a goods delivery program as a means to increase revenue.

As a regular part of their routes, Trinity Transit bus drivers deliver auto parts, prescriptions, documents, and letters; return videos; and drop off weekly newspapers to newsstands. If advised by a customer to do so, drivers pick up the goods in Weaverville (population 3,600) prior to the start of the morning route and again before the start of the afternoon route. Bus drivers leave the vehicle unattended for a very short time, even with passengers aboard. The goods are delivered to Hayfork (population 2,300), approximately 30 miles away. All goods are left at a local video rental store in this town. A store employee accepts the goods and contacts the customer once their package has arrived and distributes the goods to the appropriate person as they arrive.

The store in Weaverville sending the goods pays a \$2.00 fee per package to be delivered. Letters or packages are billed at \$1.00 each, which is usually charged to the customers. No package can be sent that weighs over 25 pounds, and all packages must be able to fit onto the buses' luggage racks.

The program is administered through the transit agency, Trinity Transit. Residents coordinate with businesses to make deliveries. For example, a resident can call and order a prescription from the pharmacy. The resident tells the pharmacist to put the package on the 5:00 PM bus and then calls the transit agency to let it know that a package will be ready for pick up at the pharmacy.



Inyo-Mono Transit's very personalized service means that residents of Inyo and Mono County's smallest communities are able to enjoy a goods delivery service upon request. The transit system does not market the availability of this service.

The service is not a door-to-door delivery service. Having a bus traverse the 30 miles between towns provides a safe alternative for seniors and others who are unable or uncomfortable making the trip. The area's topography presents a barrier for safe travel, especially the winding mountain road between Weaverville and Hayfork.

The program has been very successful and carries more packages than passengers on an annual basis. Costs for administering the program are not separated out from the annual budget. Revenues are accounted for separately. In fiscal year 2003/04, \$5,110 was brought in from the program.

Examples in Other Communities: New Cuyama, California

Cuyama Transit provides a medical prescription pick-up service as part of its demand-responsive service to residents. The transit service transports people from the town of New Cuyama (population 1,000) to Santa Maria, a distance of about 56 miles. Passengers usually travel to Santa Maria for medical appointments or shopping trips.

Residents who want a medical prescription delivery make arrangements with the pharmacy at Longs Drugs to prepare their medication for pick-up by a Cuyama Transit driver. They contact the transit service to make the prescription pick-up request at least one day in advance. On the day requested, the driver goes to the person's home to get the prescription and picks up the medication in Santa Maria after he or she drops off all of the passengers. When the driver leaves the van to get the prescription at a pharmacy, the van has no passengers on board. Upon returning to New Cuyama, the driver delivers the medication to the person's home. A \$3.00 charge is assessed for the medical prescription delivery service.

Advantages of this Strategy

- A goods delivery program would be convenient and timesaving for residents who live in communities with limited services or who do not have their own means of transportation. It is likely that, from the customer's perspective, a small fee for this service would be worth the customer not having to make the trip, whether it is in his or her own vehicle or on public transit.
- A goods delivery program could reduce the number of vehicles on the road in the long-term.
- It would be optimal if the program used current fixed-route bus services. Important, short trips (for example, to pick up medication) could be completed using a vehicle that is already making a trip to that area. Also, using current fixed-route bus services as the pick-up and delivery vehicle would mean that the program's capital and operating expenses would be marginal.

Challenges for this Strategy

- Clear policies and guidelines would need to be created for this program to run effectively. This could include policies about the types of materials to be transported, limitations on the number of parcels that can be carried, and other considerations. Users would need to know precisely how the program works and the steps they are expected to make to request delivery, order the items from the business, and pay for the goods. Program administration would require solid partnerships with the transit provider and participating businesses.
- Some stakeholders noted that this should be a local service and that it could be provided by private business. They also noted that the service could be costly for users and cumbersome for the transit operator, depending how it is implemented.

- This service addresses the needs of poor and transportation-disadvantaged people in a community. But it does not create a greater mobility for the entire community as would be fostered through improved transit service.

Evaluation of this Strategy

The following table presents an evaluation of this strategy.

Criteria		Evaluation High, Medium or Low	Comments
Community Support and Markets Served			
1	Has community support and advocacy	Medium	
2	Provides benefit to primary transit markets: interregional and intra-regional	Low	
3	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	Medium	Serves people without access to goods
Funding and Cost Criteria: Affordability			
4	Has potential to attract private funding/participation	High	Private business could participate
5	Has potential to attract new public funding sources	Low	
Transportation Service Criteria			
6	Has effective and measurable impact	High	
7	Is easy to use and understand	High	
8	Improves connectivity	Low	
9	Improves access	Low	
Implementation Criteria			
10	Implementation can piggyback on another service in the greater region	High	
11	Local services can be modified as needs change	High	

C. Regional Ridesharing Program

Recommended Implementation: Expand regional ridesharing efforts through AlterNetRides.com, the effort undertaken by Mono County, or by joining the five-county partnership known as CommuteSMART.info that promotes commute alternatives in Southern California.

Annual Operating Costs: To be determined.

Capital Costs: To be determined.

Communities: All communities in Inyo, Mono, northwestern San Bernardino and eastern Kern County.

Lead Agency: Kern COG, Inyo LTC, or Mono LTC.

Funding: Potential funding sources include TDA, Transportation Enhancements (TEA) and grant funds available through the San Joaquin Valley Air Pollution Control District.

Regional ridesharing is a form of public transportation in which more than one person shares the use of the vehicle, such as a van or car, to make a trip. The most common types of ridesharing are "carpooling" and "vanpooling."

Carpooling is when two or more people share a ride, usually taking turns driving their own vehicles. Carpooling is a flexible and convenient way to travel with minimal commitment. Carpooling is California's primary alternative to driving alone and is the easiest, most flexible way to cut the high cost of commuting.

Vanpooling is more formalized than carpooling. Official vanpools have between seven and 15 passengers including the driver (who usually rides for free), and the vehicle may be owned by one of the vanpoolers or leased from a vanpool rental company.

Many counties and employers offer emergency rides home to employees who carpool, vanpool, bike or take transit to work. Guaranteed Ride Home (GRH) is a benefit to take the worry of being "stranded without a car" out of ridesharing. The program provides commuters who regularly carpool, vanpool, bike, walk or take transit to work with a reliable and free ride home – usually in a taxi or rental car – when unexpected emergencies arise.

Application in the Eastern Sierra Region

Kern County currently has a transportation demand management program known as the Kern Commuter Connection. It consists of various strategies such as ridesharing, vanpooling, bicycling, telecommuting and public transit. These strategies are promoted through employer ride match listing, employer outreach and public information activities. Other efforts in the county to promote commute alternatives consist of a billboard and radio campaign led by Kern COG to explain the benefits of alternative forms of transportation. This campaign, which began in 2003, also included glossy color posters that were sent to all employers in the San Joaquin Valley with 20 or more employees.

Mono County has been working with AlterNetRides.com, a nationwide program that uses the Internet to allow potential carpool drivers and riders to meet each other for ridesharing. Users sign up on the web site, input their destinations and arrival times, and the site connects users. The service is widely used by colleges as well as social service agencies and hospitals. Mono County, the first public agency the vendor worked with, contracted with AlterNetRides.com to be the county's ridematching service. The greatest challenge for Mono County is getting the word out and providing access for people without Internet service.

Significant ridesharing programming and management is not carried out by Inyo County. San Bernardino County is one of the participants in the multicounty CommuteSMART.info program.

Participation in a ridesharing program at the regional level would be more comprehensive than current efforts and has the potential to reach a greater number of residents, primarily in Kern County, but also Inyo and Mono County.

CommuteSMART.info is an established service in Southern California in partnership with five other counties. Given its current status and standing, it makes sense for the Eastern Sierra region to “piggyback” on this existing arrangement. CommuteSMART.info provides online and telephone information about a wide variety of commute alternatives including the basics of carpooling and vanpooling, bus and rail services, bicycle and pedestrian options and traffic updates. Most importantly, it provides on-line carpool and vanpool matches through its one-stop ridematching service, which has over 1,000 interested people in its database.

Kern COG would maintain its Kern Commuter Connection program or could expand it to include Inyo and Mono Counties. Mono County could maintain its affiliation with AlterNetRides.com.

The Southern California program’s existing five partners each have local programs that they maintain, which are supplemented by CommuteSMART.info. By partnering with CommuteSMART.info, Kern COG, the Inyo LTC and Mono LTC would expand their capabilities by offering a database of over 1,000 ride sharers from all over Southern California.

Before making a final decision on whether to participate, political leaders are encouraged to explore the requirements and costs of partnering with the five agencies, including start-up fees (if any) and ongoing operations. Staff should contact the other participating agencies to learn firsthand about the advantages and disadvantages of partnership, the major benefits of this arrangement and any problems or obstacles they encountered and how they overcame them.

Examples in Other Communities: San Francisco Bay Area (RIDES for Bay Area Commuters)

For more than 25 years, RIDES has provided comprehensive transportation information services through the nine-county Bay Area. It is a program of the Metropolitan Transportation Commission (MTC) and the Bay Area Partnership. The Partnership consists of transit operators, Congestion Management Agencies (CMAs), and other regional, State and Federal agencies. RIDES is a nonprofit corporation whose mission is “to promote transportation that protects the environment and improves quality of life.” It has been a leader in providing comprehensive transportation information services to regional agencies, local governments, businesses and individuals.

RIDES’ success is in part because the agency recognized that commutes vary by county, can require workers to travel long distances and can be complex. For these reasons, RIDES promotes a comprehensive array of commuter options and works closely with employers. RIDES employs Transportation Demand Management (TDM) Outreach

Specialists in each of the Bay Area Counties. These specialists work with employers, local governments and community groups to provide assistance in setting up transportation programs to promote commute alternatives.

As with CommuteSMART.info, one of RIDES' most important functions is to offer ride-match services for people who want to carpool or vanpool. This service is offered on-line or by telephone. The most recent service available through RIDES is "511," a regional on-line or telephone information number available throughout the Bay Area. It provides ride matches, a transit trip planner for all Bay Area transit agencies, traffic updates and tips on bicycling.

Advantages of this Strategy

- One of the major advantages of this alternative is that the Eastern Sierra region's potential carpoolers could "piggyback" on an existing arrangement with five other southern California agencies. By becoming a partner with CommuteSMART.info, commute alternatives services could be enhanced within the Eastern Sierra region. Likewise, AlterNetRides.com could prove to be a lower cost alternative that could be marketed substantially in the Eastern Sierra region.
- Information about carpooling and ridesharing in the region is limited. Improved partnerships and marketing of these programs would better serve the residents of the Eastern Sierra.

Challenges for this Strategy

- To enter into a partnership agreement with the five agencies and CommuteSMART.info will likely require negotiation and lead time. This could be a time-consuming process and staff resources are limited.
- The overall benefit of expanding rideshare services in such a rural area could be limited.
- It is difficult to find incentives for ridesharing in a rural area. While some incentives may be more readily found in portions of southeastern Kern County where traffic congestion can be a concern, few incentives may be identified in portions of Inyo and Mono Counties.

Evaluation of this Strategy

The following table presents an evaluation of this strategy.

Criteria		Evaluation High, Medium or Low	Comments
Community Support and Markets Served			
1	Has community support and advocacy	Low	
2	Provides benefit to primary transit markets: interregional and intra-regional	Medium	
3	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	Low	
Funding and Cost Criteria: Affordability			
4	Has potential to attract private funding/participation	Medium	
5	Has potential to attract new public funding sources	Low	
Transportation Service Criteria			
6	Has effective and measurable impact	Low	
7	Is easy to use and understand	High	
8	Improves connectivity	High	
9	Improves access	Medium	
Implementation Criteria			
10	Implementation can piggyback on another service in the greater region	High	
11	Local services can be modified as needs change	High	

D. Employer-Based Subscription Bus Services or Vanpools

Recommended Implementation: Public-private partnership with one or two major employers to implement subscription bus service. Alternately, regional public agencies would work closely with employers to implement employee vanpools.

Annual Operating Costs: For subscription bus service, depends on service volume and hours, but could be \$25,000 to \$50,000 per year for basic subscription bus services. For vanpools, the cost is usually \$25-150 per month per rider depending on the distance, size of the vehicle, type of subsidy, and level of employer participation.

Capital Costs: Up to \$250,000 per new bus for subscription bus service. For vanpools, if van purchase is required, \$20,000 - \$30,000 per van.

Communities: All communities in Inyo, Mono, northwestern San Bernardino and eastern Kern Counties.

Lead Agency: Major employers, with technical and/or financial assistance from counties or Kern COG.

Funding: Potential funding sources include JARC, TDA, 5311, TEA, and private funds.

A subscription bus service provides transit on a reservation basis from a specific origin or area to a specific destination. An employer-based subscription bus service would transport workers from a meeting point near their home to their place of work. Fares are based on distance or subsidized by the employer or a public entity. Such a service can be operated by a public or private organization.

Similar to a carpool, a vanpool consists of a group of people who regularly commute to and from work together in a van. The number of people traveling in a vanpool can range from seven to 15, depending on the size of the vehicle. Most vans are either owned or leased by individual commuters, and a few are operated directly by employers. Each driver commits to taking the other passengers to and from work each day. Each vanpool sets its own route and schedule. Most groups have common meeting points to reduce the overall travel time.

Application in the Eastern Sierra Region

IMT staff has been working with employers to encourage bus pass purchases. A high number of riders going to the same destination could ultimately suggest the need for vanpools or subscription bus services to those locations. IMT has also considered tax-incentive programs to encourage employer-based programs, which could be implemented by the Bureau of Land Management and the US Forest Service.

Subscription Bus

This alternative addresses the importance that workshop participants placed on getting commuters to work. It also recognizes that key areas in the Eastern Sierras serve as major employment centers (e.g., Mammoth Mountain, Ridgecrest NAWS, Edwards AFB, etc.) and would capitalize on the high numbers of people commuting to work there.

Similar to a vanpool, users of an employer-based subscription bus service would pay a set weekly or monthly fee to use the program to get to work. The employer would take the lead to purchase the vehicle, arrange for a driver, and set up boarding and alighting times and locations, possibly with financial subsidy and/or technical assistance from a public agency. Employers can also take the additional step of providing pre-tax Commuter Checks or free or subsidized subscription bus passes as part of its compensation package or as an incentive (e.g., a monthly awards program).

Vanpools

Vanpools help workers cut down on the time they spend commuting to and from work for long commutes (usually 40+ miles each way). They typically allow participants to save money on gas as well as wear and tear on their personal vehicles. External benefits to vanpools include reducing traffic congestion and improved air quality. Vanpools work best when they serve large employment centers, of which only a few are in the study area.

An active regional rideshare program could take a lead in developing a regional vanpool program (see Alternative C).

Maintaining a vanpool program requires ongoing work. The number of employee inquiries may vary on a monthly basis, especially if attrition occurs within an individual vanpool arrangement or if employees enter or leave an organization. It would be important to keep information as up-to-date as possible.

Advantages of this Strategy

- Employer-based subscription bus services and vanpools have many benefits. A well-run bus service or vanpool can become a comfortable, predictable experience for employees, which is usually desirable for commuting to work. Unlike transit buses, it drops passengers off at the doorstep of their workplace. Depending on the subsidy and users' costs, it could help workers save on commuting costs.
- Vanpools and subscription bus services reduce the number of vehicles used by employees commuting to work. This can reduce employers' costs to maintain current parking lots or build new parking facilities. Employers could also use the service as an incentive to recruit new workers.
- Lack of transportation can prevent people from finding and sustaining employment. Considering the limited transit service in the project area, subscription bus and commuter vanpools may provide a viable alternative to local workers and unemployed persons. Employers who may have difficulty maintaining a reliable workforce might be inclined to subsidize vanpools to address that problem.

Challenges for this Strategy

- For an employer-based subscription bus service to succeed, it must be competitive with a private vehicle in terms of cost and travel time. Pricing, including cost to the employee and subsidy, would have to be set so that it would be nearly the same or less expensive than driving to work.
- For vanpools, finding reliable drivers who are willing to take on the responsibility can be a challenge. Vanpool drivers are volunteers, not paid for their driving and coordination efforts other than the bonus of weekend and evening use of the van and sometimes reduced commute costs. Drivers can be difficult to retain and vanpools sometimes fall apart easily as a result.
- Time may be an even more decisive factor. The bus must serve the times that meet the employees' needs to be at work and to be at home. And, like cost, the travel time between origin and destination must not be significantly more than what it would take for an individual vehicle to travel the same distance. Time calculations should factor in the time that employees leave or arrive home and necessarily at the pick-up spot.
- This alternative also depends on the cooperation of the employers, the primary entity that would implement it. A public-private partnership would be conducive to maintaining the employers' interest, especially if the public agency is willing to provide technical or financial assistance.
- Set work start and end times are necessary to make vanpools and subscription buses work. However, sometimes people must work late or return home before the end of the day (due to illness, illness of a child, or other personal issues). To make it work for all riders, vanpools and subscription buses cannot accommodate any flexibility in schedule, which will make some workers more inclined to drive themselves if they have that option.

Evaluation of this Strategy

The following table presents an evaluation of this strategy.

Criteria		Evaluation High, Medium or Low	Comments
Community Support and Markets Served			
1	Has community support and advocacy	Low	
2	Provides benefit to primary transit markets: interregional and intra-regional	Low	
3	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	Low	Commuters to specific destinations
Funding and Cost Criteria: Affordability			
4	Has potential to attract private funding/participation	Medium	
5	Has potential to attract new public funding sources	Low	
Transportation Service Criteria			
6	Has effective and measurable impact	Medium	
7	Is easy to use and understand	High	
8	Improves connectivity	Low	
9	Improves access	Medium	
Implementation Criteria			
10	Implementation can piggyback on another service in the greater region	Low	
11	Local services can be modified as needs change	Medium	

E. Volunteer Driver Program

Recommended Implementation: A pilot program that serves residents in a limited number of communities in the Eastern Sierra region. Using their own cars, volunteers would drive individuals to medical, shopping and other appointments.

Annual Operating Costs: Can vary depending on size of the program, from \$10,000 to \$50,000 annually for a one-county volunteer program to cover administrative costs and driver reimbursement.

Capital Costs: Minor equipment costs to be determined.

Communities: All communities in Inyo, Mono, northwestern San Bernardino and eastern Kern County.

Lead Agency: Local social service agency; Inyo-Mono Transit or Kern Regional Transit; County government or Kern COG.

Funding: Potential funding sources include TDA, Older Americans Act funds, and private foundations.

Volunteer driver programs provide transportation services to people who do not have access to a car. The service is for occasional trips, such as medical or job training/placement appointments, as well as shopping for food and clothing. Formal volunteer driver programs have been very successful in the upper Midwest, but they have grown in popularity in California and are particularly appropriate for rural areas.

Application in the Eastern Sierra Region

Volunteer driver services would be appropriate for some of the Eastern Sierra's smaller communities to provide service to a regional supermarket, for treatments for a medical condition, or other needs. The service would be available for people unable to drive themselves, use the bus, or get a ride from someone else. Given limited transit service, volunteer drivers could fill a critical gap for important trips for highly transit-dependent people. Reimbursing drivers fosters higher recruitment and increased longevity of participation.

A volunteer driver program could be limited to particular geographic subregions of the Eastern Sierra, seniors or members of a particular organization, persons without a roadworthy automobile, eligibility based on trip-purpose, etc. A pilot program could be implemented within a single community, such as Independence or Rosamond. Volunteer drivers would be required to have a valid driver's license and submit to a background check, as well as maintain a required level of insurance.

A single organization would be the most appropriate lead agency for such a program in the Eastern Sierra region. Although many midwestern transit operators manage the regional volunteer driver program out of the transit agency, a local nonprofit or human services provider such as the Area Agency on Aging may be an appropriate administrator of such a program. The study area already has a program in place that could be expanded or serve as a model for other programs in the region. Although not a volunteer driver program, it provides services similar to those services that could be provided by a volunteer driver program.

The Inyo-Mono Area Agency on Aging has an Assisted Transportation Program. County personnel are paid to drive clients and are reimbursed for mileage. County vehicles are used to transport clients and drivers are insured through the County. Eligible clients include both seniors and non-seniors.

A screening process is required to qualify clients, which includes asking whether the client owns a vehicle, or has a family member, friend, clergy member or neighbor who can assist with transportation needs. Most non-senior clients are mental health patients.

No costs are assessed to seniors participating in the program, though donations are welcomed. Non-senior clients, however, are expected to pay for each trip. Non-senior clients are charged 40.5 cents per mile, plus they pay the hourly wage for the driver and any meals that are incurred. The program mandates that 10% of the cost of the trip be paid to the driver before departing on the trip, and 90% is billed after the trip is completed. Local trips are charged at a flat rate of \$2.00, and are only provided to senior clients.

Most trips provided by the service are for medical appointments, which on average, are in excess of 300 miles away. Very few rides are to local destinations, like clinics or grocery stores.

The County employs about 10 part-time drivers who provide service for a variety of programs including the County's meal delivery program. A site coordinator in each community organizes the schedule for each driver. In fiscal year 2003/04, the agency assisted 58 clients, and provided 1760 one-way trips (many of which were linked with multiple destinations). The service does not operate on weekends or holidays.

The program is funded through State and Federal grants, with County matching funds. California Department of Aging oversees the program, while the Agency on Aging administers it. The annual program budget for fiscal year 2003/04 was \$63,500 with \$5,400 collected in fares.

Examples in Other Communities: Waukesha County, Wisconsin

Waukesha County, in rural Wisconsin, provides a Volunteer Driver Program through the Department of Health and Human Services. A program manager recruits volunteers and books rides.

The program has seven to 12 volunteer drivers. Volunteers use their personal vehicle to transport clients and must carry their own insurance. The County provides additional insurance coverage. In the case of an accident, the volunteer's insurance is billed first, and then the County's.

The clientele base consists mostly of children in foster care. Vehicles are not lift-equipped or altered to be accessible. Most riders have mobility limitations, but are not disabled. Rather clients do not drive either due to age or other restrictions. A few senior clients are served, as well as a small number of developmentally delayed clients.

Most trips are made to take clients to court appointments, family visits or therapy. No work or school trips are made. County caseworkers contact the program manager directly to book rides.

Drivers are reimbursed for vehicle miles, and additionally are given a \$6 to \$8 stipend per day of service for additional car care.

The County funds the program, and Volunteer Services administers it. For FY 2003-04, the program budget was \$46,500, all of which was paid to volunteers' drivers in reimbursements.

The program provided 4,122 rides in the last fiscal year, with 4,583 hours spent in transportation. Total vehicle miles traveled was 107,098, with each round trip being about 50 miles.

Advantages of this Strategy

- A volunteer driver program would provide mobility for people without other basic transportation options. Such a program would allow for a community-based solution addressing the mobility needs of persons with the lowest incomes and greatest mobility limitations.
- Volunteer driver programs provide socialization opportunities for riders and lend a personal touch to addressing mobility. For example, a volunteer driver can provide a higher level of assistance than may be provided by most transit operators.

Challenges for this Strategy

- A volunteer driver program can be complicated to establish. A fundamental knowledge of and ability to afford different insurance coverage is needed as such a program should carry comprehensive general liability insurance, business auto liability insurance, volunteer dishonesty insurance, and directors and officers liability insurance.
- The success of the program relies on the program administrator. For example, recruiting safe drivers and monitoring driver ability is a challenge noted by several volunteer driver programs.
- The program depends a lot on volunteer driver participation and reliability. Attrition is inevitable, and as such, recruitment is an ongoing process. Sometimes recruiting drivers can be a challenge, but including a mileage reimbursement component to the program helps to provide an incentive for volunteers.
- According to stakeholders, a regional volunteer driver program may not be very appealing to people wary of riding with a stranger.

Evaluation of this Strategy

The following table presents an evaluation of this strategy.

Criteria		Evaluation High, Medium or Low	Comments
Community Support and Markets Served			
1	Has community support and advocacy	Medium	
2	Provides benefit to primary transit markets: interregional and intra-regional	Medium	
3	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	Medium	
Funding and Cost Criteria: Affordability			
4	Has potential to attract private funding/participation	Low	
5	Has potential to attract new public funding sources	Medium	
Transportation Service Criteria			
6	Has effective and measurable impact	Medium	
7	Is easy to use and understand	High	
8	Improves connectivity	Medium	
9	Improves access	Medium	
Implementation Criteria			
10	Implementation can piggyback on another service in the greater region	Low	
11	Local services can be modified as needs change	High	

F. Shuttle Services

Recommended Implementation: The ESETS identified the need for shuttle services in and around the Mammoth Lakes area, as well as other locations primarily throughout Mono County (some locations identified include Twin Lakes/Bridgeport, Bodie State Park, Virginia Lake, and the South Tufa/Scenic Area Visitor Center on Mono Lake). Based on this analysis, more limited shuttle services may be appropriate throughout the entire study area.

Annual Operating Costs: From \$25,000 for limited seasonal shuttle operation between Lone Pine and Whitney Portal to \$140,000 for year-round operation of a more extensive shuttle (eight hours per day, seven days per week).

Capital Costs: If additional vehicles or dispatching equipment is required, could be up to \$250,000 per vehicle.

Communities: Specific locations in Inyo, Mono and Kern Counties.

Lead Agency: Private operator, Inyo-Mono Transit, Kern Regional Transit, US Forest Service, or a new regional JPA.

Funding: Potential funding sources include TDA, Federal 5311 transit funds, National Parks, US Forest Service, private business/employers.

While shuttles actually mean many different things to many different people, in the context of the Eastern Sierra Region, shuttle services would provide scheduled transit access to a

limited number of destinations within a specific service area. Shuttles are assumed to be more oriented to the region's recreational users and visitors, but would also provide access to certain locations for local residents. Shuttles can be free or can charge a fare.

Application in the Eastern Sierra Region

The Eastern Sierra region currently has several shuttle services. For example, the Reds Meadow/Devils Postpile Shuttle Service helps the US Forest Service limit access, protect resources, and reduce congestion by providing this mandatory shuttle service that operates in this area. Within the Town of Mammoth Lakes, the Mammoth Mountain Ski Area Winter Shuttle provides free transit service throughout the town and to the Mammoth Mountain Ski Area, which operates the service. This is an example of a privately operated shuttle with specific service objectives: to bring skiers to the mountain, reduce parking needs, reduce traffic congestion, and to provide a good recreational experience for visitors to Mammoth Lakes.

Although the ESETS identifies many shuttle options, potential shuttle services that were noted most often by stakeholders and were identified in the community meetings include the following:

- **Shuttle to Whitney Portal.** Many visitors would like to access Mount Whitney, but no service is available. A limited shuttle service might connect Mount Whitney with nearby Lone Pine, providing access to the recommended interregional service stopping in Lone Pine. The local dial-a-ride bus could be used to provide this connection for a limited number of trips each day. A premium fare could be charged on this shuttle service.
- **Lee Vining-Mono Lake Shuttle.** Access to the South Tufa area on Mono Lake from the Visitors' Center in Lee Vining would provide for recreational trips at Mono Lake that are currently not being served. Such a shuttle should operate a minimum of four trips per day.
- **June Lake Loop Shuttle.** According to local residents, a shuttle service in the June Lake Loop area would provide better access to the area's visitor destinations, many lodging locations, June Mountain and local trailheads. Being a few miles off Highway 395, June Lake is underserved by regular transit connections. A local shuttle service could allow interregional services to remain on Highway 395, with the local connector serving June Lake.

Other locations may also be appropriate for shuttle services, such as connections to the Lake Isabella area or Death Valley.

Examples in Other Communities: Eureka Springs, Arkansas

In Eureka Springs, Arkansas, the local population numbers only about 2,200 residents, but the community is visited by about 10,000 tourists per month during the peak season from May to October. The shuttle system is very successful, thanks to the volume of visitors and a scarcity of parking downtown. To be successful, the shuttle system there formed

important partnerships with local businesses. For example, hotels buy tickets in bulk at a discount of \$0.25 per ticket. By selling tickets to guests, larger hotels can generate up to \$1,000 per year. At the same time, a large local shopping mall also offers free parking for visitors boarding the shuttle. The idea behind the agreement is that visitors will take advantage of the shopping center before or after riding the shuttle.

Advantages of this Strategy

- A shuttle service would provide recreational connections to locations that are currently unserved or underserved by regularly scheduled public transportation.
- Higher fares can be charged on these specialized services, which may result in a higher cost recovery.
- Mandated shuttle services, such as the Reds Meadow Shuttle can eliminate parking at trailheads and other environmentally sensitive areas.

Challenges for this Strategy

- Shuttle service can be costly to operate. Privately contracted shuttle bus service costs approximately \$50/revenue hour to run, and assuming only limited hours during summer months, service could be \$25,000 annually. Service using only one bus operating everyday for eight hours per day would run over \$140,000 per year. Overall, the cost per beneficiary is likely to be high.
- In order to facilitate shuttle use, somewhat stringent supportive policies often must be in place. For example, the Reds Meadow Shuttle is successful because no option is available.

Evaluation of this Strategy

The following table presents an evaluation of this strategy.

Criteria		Evaluation High, Medium or Low	Comments
Community Support and Markets Served			
1	Has community support and advocacy	High	
2	Provides benefit to primary transit markets: interregional and intra-regional	Medium	Connects regional with local
3	Incorporates the needs of diverse communities in Inyo, Mono, and Kern Counties	Low	
Funding and Cost Criteria: Affordability			
4	Has potential to attract private funding/participation	Medium	
5	Has potential to attract new public funding sources	Medium	Depends on funds from ESETS
Transportation Service Criteria			
6	Has effective and measurable impact	Medium	
7	Is easy to use and understand	High	
8	Improves connectivity	High	
9	Improves access	Medium	
Implementation Criteria			
10	Implementation can piggyback on another service in the greater region	Low	
11	Local services can be modified as needs change	Medium	

Conclusion

This report recommends the consideration of all of the strategies identified in this chapter. Because most of these are strategies that would most effectively be implemented at the local or sub-regional level, these strategies are viewed as complementary to the interregional service recommended in Chapter 3.

Car-Sharing Program

A car-sharing program would only be feasible at a small scale, with one or two cars within a village setting. Such a strategy would have modest set-up costs, insurance, and car costs. Urban programs have used both federal demonstration funds as well as foundation funds. To a limited extent, both of these sources are available in the Eastern Sierra for a compelling project. Nevertheless, this strategy would be most feasible if implemented via a determined organization of volunteers or a nonprofit sponsor. This is not necessarily a cost-effective strategy. It would be relatively easy to meet these transportation needs less expensively through informal networks and ridesharing.

Goods Delivery Program

This program has the potential for easy implementation and would have only a limited additional cost above current transit service. Although it could be costly for people who need it, it would fill a need that is not otherwise being met. Costs are modest enough to be met with existing resources. Such a program would be most feasible as a demonstration project or pilot project in one or two small communities.

Regional Ridesharing Program

AlterNetRides.com, a nationwide program, currently provides low/no cost service locally, but without a sophisticated ride matching system. A more comprehensive program, similar to those in urban counties, would be significantly more expensive, with staffing, software and hardware requirements. However, joining the Southern California regional program would be a good way to piggyback on a successful effort at modest cost because relatively few destinations locally justify substantial investment. Cost efficiency is modest at increased levels. Ridesharing efforts can be funded through federal flexible funds, particularly those targeted to pollution reduction, like CMAQ.

Employer-Based Subscription Bus Services or Vanpools

Only a few major employers in the region are clear candidates for such a program, including Mammoth Mountain, the Mojave Spaceport, China Lake NAWS and Edwards Air Force Base. Under a subscription bus program, the public transit operator or other public agency would have a coordinating role, working with employers, but much of the responsibility for the program's success rests with the employer. Funding for subscription bus services or employer-based vanpools is available through federal flexible funds (CMAQ, TEA, etc).

Volunteer Driver Program

Volunteer driver programs have been very successful in many parts of the country, including nearby Riverside County. To be successful in the Eastern Sierra, such a program would most likely operate as a community-based pilot project. Modest funds are required to administer and reimburse drivers. Funding would be available through federal flexible funds, and if successful, this program could be extended to the region.

Shuttle Service

The ESETS Study identified the need for feeder shuttles in the Eastern Sierra region to support CREST service. This strategy is encouraged again in this study, with funding potentially coming from federal funds, particularly through earmarks for National Parks and National Forests in specific locations in the Eastern Sierra. The cost efficiency of a shuttle service will depend on the type of service provided.

Figure 4-1 illustrates the strategies identified in this chapter and summarizes cost and funding opportunities.

Figure 4-1 Intra-Regional Transportation Strategies Summary of Funding Characteristics

Strategy	Operating Cost	Capital Cost	Likely Funding Sources	Cost Effective?	New Public Funding?	New Private Funding?
Car Sharing Program	\$10,000-100,000 (depending upon program)	\$20,000 per vehicle	Foundations, federal and state demonstration programs	Probably low in rural context	Potential for pilot project funds at federal level	Potential for foundation funding
Goods Delivery Program	\$15,000 - \$25,000 (minor)	\$0 (uses existing buses)	TDA, as long as cost is a minor component of overall transit purpose	Moderate effectiveness, but high impact for select individuals	No	Given small scale, foundations, businesses, or individuals could help subsidize
Bus or Vanpools (Employer)	Depends on scale - up to \$50,000 for 1 PT staff coordinator	\$250,000 per bus \$30,000 per van	JARC, TDA, 5311, TEA, private.	Moderate	Potential for JARC and other discretionary grants	Yes, through employers
Volunteer Driver Program	\$10,000 to \$50,000 in admin. and driver reimbursement (depends on scale of program)	Minor	TDA, Older Americans Act, foundations	Marginal, But valuable for dependent populations	As a pilot project, could attract some specialized sources	Yes, could be run by nonprofit, donations for operating expenses
Regional Ridesharing Program	\$0-75,000 (1/2 -1 FTE & computer support)	\$0-\$50,000	TEA, CMAQ (federal flexible funds), SJVAPCD	Moderate	No, but could use sources not currently used in Eastern Sierra	Employer participation
Shuttle Service	\$25,000 to \$140,000	Up to \$250K per bus, as required (may not require new vehicles)	TDA, 5311, CDBG, National Parks and Forests, private	Moderate to high in specific places	Yes, specialized sources for National Parks in Federal Transportation Bill	Unlikely

Chapter 5. Long-Term: Passenger Rail Feasibility Analysis

Introduction

The salient feature of the existing railroad link to Los Angeles, in considering a modern, time-competitive passenger link between the region and Los Angeles, may be summarized as follows:

- Metrolink commuter rail service is operated between Los Angeles Union Station, Palmdale and Lancaster, a distance of 77 miles. Trains operate daily except Sunday. Freight traffic is significant but not extraordinarily heavy as far as Palmdale Junction. North of Palmdale the Union Pacific railroad mainline is very busy. Separate, side-by-side tracks run between Palmdale and Lancaster: one for freight and one for passenger service.
- The most direct potential alignment from Lancaster to Mammoth Lakes would require a railroad 240 miles long. No passenger service exists north of Lancaster, and the Union Pacific infrastructure does not have adequate capacity for regular passenger operations without significant investment.
- The Union Pacific line from Mojave, which formerly ran through Ridgecrest and as far north as Lone Pine, is intact only as far as Searles. The minimal freight traffic is understood to consist almost entirely of interchange business at Searles with bulk mineral trains of the Trona Railway, a major carrier of potash, sulfuric acid, soda ash, salt cake, borax, coal, military equipment and minerals. Currently about three round-trips per week occur. While this relatively light level of freight traffic by itself would not represent insurmountable interference for passenger service, the freight line's present condition could not support a fast passenger service without significant upgrading.
- The Searles line runs in the same general direction as Highway 14 northeast of Mojave. At a point known as Cantil, the highway turns north and follows a direct but hilly route to Ridgecrest, while the railroad continues to the northeast along the base of the escarpment of the El Paso Mountains. It then begins climbing until it meets Highway 395 near the Kern County-San Bernardino County line. Here, the railroad turns north, passes through a tunnel ending at Searles, where a junction is made with the mineral-carrying Trona Railway.
- Beyond Searles, the right-of-way of the abandoned railroad is generally intact as far as Lone Pine, and can largely be used. In contrast, the former narrow gauge right-of-way north of Lone Pine is hardly distinguishable from the floor of the Owens Valley. While its alignment could be generally followed to approximately Aberdeen, north of Lone Pine it may be a better alternative to build a new railroad grade where it makes the most sense.

- Although an electric interurban railway was proposed from Bishop to Round Valley, it was not built, and the railroad has never linked Bishop and Mammoth. Consequently, an entirely new grade will be required. Not only is no abandoned right-of-way there to follow, but this segment would also be the most challenging part of the entire line, as it would have to accommodate the dramatic 3,000-foot elevation gain between Bishop and Tom's Place (the Highway 395 grade to Sherwin Summit). This could be done by beginning the climb well south of Bishop, so that the Bishop station would actually be above the city, and then continuously climbing the Sierra escarpment.

The history of railroad service and infrastructure in the Eastern Sierra region, and the current status of the region's railroad line, is described in Appendix A.

Design Principles and Conceptual Considerations

Running Time Target

To consider a new 240-mile railroad link to Mammoth is to consider a potential transportation investment of several billion dollars. Consequently, this analysis is conceptually rooted in the idea that the justification for any large investment must be based on its ability to perform a significant public function, meaning, in this case, the ability to attract customers. No demand forecast has been prepared for this conceptual-level study, so it is not possible to assert with certainty what ridership would be at different service levels, fares, and competitive highway conditions (congestion, weather, gasoline costs). However, some basic factors affecting all travel markets can be said to be as applicable in this corridor as they would be anywhere else. While other factors such as pleasant and clean equipment, friendly service and unique features clearly contribute to the overall ability to attract patronage, the single most important factor is that of travel time. A service that takes longer to use than driving at common highway speeds will probably not attract the patronage that can justify capital investment in a new 240-mile railroad. On the other hand, a service that equals driving time or is faster than driving can be attractive to many people who have a choice.

Whatever the criteria may be that are thought to justify a significant capital investment, worthwhile levels of ridership must be among them. Since the attractiveness of an intercity service is largely time-driven, absent a demand forecast, this conceptual report is based on the criterion that taking the train must equal or beat perceived driving time for the Los Angeles–Mammoth Lakes market. Intermediate travel markets would also benefit from faster trains.

Lancaster as a Southern Terminal

For planning purposes at this level, the driving time from typical locations in the Los Angeles Basin to Mammoth Lakes is assumed to be six hours — an estimate which assumes a trip that begins at a residence in Los Angeles and ends in central Mammoth. Scheduled Metrolink running time from Los Angeles Union Station to Lancaster is about 1:50, which means that a train running through from Union Station to Mammoth could probably meet a six-hour running time target. However, from the point of view of the customer, access time from trip origins (residences) to Union Station would have to be added to that running time, at least an hour or more for many trips, resulting in an overall trip time from the point of view of prospective customers, the target market, that exceeds the perceived driving time.

Similarly, automobile access for a recreation-based market would have to be taken into account. Skis, poles, boots, snowboards, and so forth in the winter, and backpacks, tents, mountain bikes and other summer paraphernalia all suggest that even if a train trip begins at Union Station, with its excellent transit access, the dominant travel market for this service will be auto-oriented at its trip-origin end. However, Union Station is a poor location to assemble and store large numbers of parked cars for a long weekend or a two-week vacation, or even to handle the process of loading and unloading automobile carriers for people who want to take their car with them.

An operating concern also exists in running more trains through to Union Station. While no operating simulation has been carried out at this conceptual level, operating capacity on the Metrolink “Antelope Valley” line is not unlimited, and a service pattern based on superimposing fairly frequent Eastern Sierra trains on commute operations could mean a significant investment in capacity upgrades. Therefore, the conclusion is that for many, and perhaps most potential customers belonging to the large base market of people who have a choice to drive or take the train, a passenger service oriented to Union Station alone probably does not meet the criterion of competitiveness.

Lancaster, however, could provide a cost-effective opportunity for a southern terminal for Eastern Sierra passenger service. Lancaster is reached by Metrolink trains from Union Station Monday through Saturday, and a cross-platform transfer to and from Metrolink, with a closely coordinated schedule, would provide service that would be almost as fast as a through-train for people wanting to use public transportation. To be successful, this strategy would require Metrolink Antelope Valley service to be provided on Sundays.

Moreover, room is ample at Lancaster for a large park-and-ride lot dedicated to this service, and since Lancaster can generally be reached by car from almost anywhere in the Los Angeles area in two hours, the main travel time competitiveness criterion could be met for the target market. In addition, enough space is available to stage loading and unloading of automobile carriers as part of an “auto-train” service for people wanting to take a car with them, and provide a wye or balloon track to turn trains. For purposes of this study, it is assumed that a maintenance facility for the Eastern Sierra service would be located at Lancaster. (An overnight layover and servicing facility for a single trainset at the Mammoth Station end of the line would be required).

Mammoth Station

At Mammoth, this concept envisions a terminal station at or near the Mammoth-Yosemite Airport. As is the case at Lancaster, enough space will be needed at the north end of the line to perform terminal functions and provide an overnight layover of at least one trainset. Should an auto-train feature be desired, space would also be required to accommodate loading and unloading of automobile carriers. While this could physically be done in the central area of the Town of Mammoth Lakes, in practice it would require significant takings of expensive real estate.

Furthermore, most destinations in the Mammoth area would still be more than a comfortable walking distance from the station for many people, indicating continued reliance upon automobile access and shuttles, but in a more congested area. The short segment along Highway 203 between Highway 395 and the town center area might also be an expensive and disruptive piece of construction. While not a perfect solution, it is assumed here for study purposes that the station would be located in the vicinity of the Mammoth Yosemite airport, where space is sufficient to accommodate operating and passenger needs. The Mammoth shuttle system could be extended to the station, at least at train times, to meet trains and provide the collection and distribution function for the rail service. As part of an overall accessibility package for the Eastern Sierra, interregional bus service between Mammoth Lakes, Carson City and Reno could also be maintained, with schedules coordinated to meet the passenger trains at Mammoth Station.

Technical Issues and Cost Estimation

Description and Assumptions: Example Alignment and Stations

For purposes of this study, and consistent with the assumptions and strategy described above, the assumed example alignment is as follows:

Segment 1. Lancaster to Cantil (43.2 miles)

From Lancaster Station, with a cross-platform transfer from Metrolink and extensive park-and-ride facilities, the passenger line would be constructed northward along the west side of the Union Pacific Railroad mainline, a treatment similar to that between Palmdale and Lancaster. About three miles south of central Mojave, the line would turn to the northeast, passing over the Union Pacific, continue to a grade separation over the BNSF mainline, and then on to the vicinity of the Highway 58 bypass, which the new railroad would follow around the east side of town. A station would be located near the Mojave Airport. The line would continue northward to the Union Pacific's freight-only Searles branch, then turn east and follow that line 22 miles to the vicinity of Neuralia Road, where Highway 14 turns north.

Segment 2. Red Rock Canyon Cutoff (Cantil to County Line) (38.3 miles)

To save 20 miles of relatively slow operations between this point and Ridgecrest, the line would turn north here and generally follow the route of Highway 14. Difficult grading and earthwork will be required, but a 2% grade appears to be feasible, climbing 550 feet to a summit at an elevation of 3,200 feet. The line would then descend to the Indian Wells Valley, and rejoin the original right-of-way of the Lone Pine branch, now abandoned north of Searles, near the Kern County/Inyo County line. A station for Ridgecrest could be located near Inyokern Airport.

Segment 3. County Line (Ridgecrest) to Big Pine (104.4 miles)

From Ridgecrest, the line would generally follow the original railroad right-of-way 71 miles to Lone Pine, where a station would be located to serve the southern Owens Valley. Though the line follows the Valley, a 1,400-foot elevation gain occurs in the next 71 miles. The line would continue north, probably along a new alignment, to approximately Aberdeen, then swing west and cross Highway 395 near the Tinemaha Reservoir and begin to climb the Sierra escarpment on the west side of the Owens Valley. A station for local service could be located at Big Pine, but has not been included in the study assumptions.

Segment 4. Big Pine via Bishop to Mammoth Station (52.0 miles)

The line would continue north, on a steady grade. Approaching Highway 168, the grade would level off, and the Bishop Station would be located near the Eastern Sierra Community College campus. Resuming a 2% grade, the line would continue north from Bishop Station, hugging the slope of the Tungsten Hills, and curving around the hillsides above Round Valley. Continuing west and then north again, the line would climb continuously, crossing Pine Creek Road above Rovana, and hugging the eastern slope of Wheeler Ridge. The seismic history and geology are likely to make this construction very difficult. Staying west of the Rock Creek Gorge, the line would reach the summit near Tom's Place, and rejoin Highway 395. It would follow the highway, then with a grade separation, cross to the eastern side and terminate near the Mammoth-Yosemite Airport. Mammoth Station would be located here, as described above.

Technical Assumptions

Engineering detail and cost estimation is provided in Appendix I.

To at least partially overcome the advantage of the automobile in the time competitiveness criterion's home origin and trip destination component, the passenger rail service must go as fast as reasonably possible between stops. The example alternative is geared to a maximum track speed of 110 mph, a speed that requires cab signals, reasonable grades and curvature, high speed turnouts, grade separation of major roads (Highway 395 for example), and other features. It has been assumed here, after some initial consideration of alternatives, that the technology would be based on standard railroad technology, and it is presumed that it would come under the regulatory purview of the Federal Railroad Administration (FRA).

Unlike passenger railroads, rail transit lines not part of the “general railroad system,” that is, completely disconnected from the regular railroad system, come under state regulation; in California, this means the California Public Utilities Commission. Under state oversight, local transit lines such as BART or light rail systems do not have to adhere to the many regulations applied by the federal government to the railroad system, and may use lightweight equipment, such as light rail vehicles, or even light European diesel multiple unit (DMU) cars. It is possible, in technological terms, to conceive of a completely independent light railway system, unconnected to the railroad network, and using fast lightweight equipment that might benefit from state regulation as a light rail line rather than federal regulation as a railroad. However, it is assumed here that the FRA would assert jurisdiction over the Eastern Sierra line in any event, even if the line had no track connection with the general railroad system, because of its length, the operation in railroad rights-of-way, high speeds and absence of complete grade separation.

Cost Estimates

Capital Cost

Track and Infrastructure

Construction costs calculated in Appendix I, and summarized in Figure 5-1 below, are based on typical costs in various construction categories for different types of terrain:

- **Flat Terrain**, as in the bottom of the Owens Valley
- **Rolling Terrain**, as in the lava flows in the Owens Valley
- **Heavily Rolling Terrain**, as in portions with moderate grades
- **Rugged Terrain**, where heavy grades and topography require deep cuts, high fills and a significant number of structures
- **Very Rugged Terrain**, where heavy grades and the most challenging topography exist

To develop construction costs for this alignment, the line was broken into sections, each section categorized, and then the unit costs applied. The results, including a contingency allowance, are shown in Figure 5-1. Note that on the relatively flat segments, the average costs per mile are lower, while on the two mountainous segments requiring heavy construction (Red Rock Canyon and the climb to Mammoth) they are much higher.

Figure 5-1 Capital Cost Summary for Alignment and Infrastructure

	Segment 1: Lancaster to Red Rock Canyon	Segment 2: Red Rock Canyon Cutoff	Segment 3: County Line to Big Pine	Segment 4: Big Pine to Mammoth	Total
Total Cost of Project (millions)	\$198.7	\$799.9	\$577.5	\$1,758.6	\$3,334.7
Length (miles)	43.2	38.3	104.4	52.0	237.9
Cost per Mile (millions)	\$4.6	\$20.9	\$5.5	\$33.8	\$14.0

Locomotive and Car Fleet

Fleet requirements and capital costs are shown in Figure 5-2 for the conceptual schedule presented in Figure 5-4. This would require five trainsets for basic service, plus two extra sets for Friday and Sunday nights. It is assumed here that spare equipment need to protect the basic service could be used to handle peak crowds on Fridays and Sundays, or, if unavailable, that it will be possible to borrow equipment on these non-work days from Metrolink. While train performance has been estimated for four-car trains, it is possible that three-car trains may be sufficient initially. However, this calculation provides for four-car bi-level trains, having three coaches and one coach/snack/lounge car. Locomotives with sufficient power to meet the demanding schedule are assumed.

Figure 5-2 Lancaster-Mammoth Passenger Train Service: Fleet Requirements and Capital Costs (in millions) for Bi-Level Passenger Cars

Item	Number of Trains	Number of Units	Unit Cost (\$mil)	Total Cost (\$mil)
Base Service, 2-Hr Headways:				
<i>(Number of Trains)</i>	5			
Diesel Loco (1/Train)	1	5	\$3.50	\$17.50
Coach (3/Train initially)	3	15	\$3.00	\$45.00
Coach/Snack Lounge (1/Train)	1	5	\$3.00	\$15.00
Subtotal				\$77.50
Fri-Sun Extra Trains & Spares				
<i>(Number of Trains)</i>	2			
Diesel Loco (1/Train)	1	2	\$3.50	\$7.00
Coach (3/Train)	3	6	\$3.00	\$18.00
Coach/Snack Lounge (1/Train)	1	2	\$3.00	\$6.00
Subtotal				\$31.00
Total Cost for Rolling Stock				\$108.50

Stations, and Maintenance and Layover Facilities

The service design illustrated below is a concept for a fast service between Lancaster and Mammoth, with four intermediate stops (Mojave, Ridgecrest, Lone Pine and Bishop). An assumed allowance is made here of \$10 million for the terminal stations, with their larger requirements for park-and-ride space and shuttle transfer facilities, while \$4 million is allowed for each of the intermediate stations.

A central maintenance and operating facility, including operations control center, for the Eastern Sierra service could be located in Lancaster. A facility with a yard, and a shop capable of maintaining seven locomotives and 28 cars could cost approximately \$40 million.

At the northern end of the line, one trainset may need to remain overnight at Mammoth Station, with a second set probable on weekends. This would mean a requirement for certain cleaning and servicing facilities, power connections, and other minor functions. A cost allowance of \$10 million could reasonably be made for this facility.

Capital Cost Summary

A capital cost summary for this scenario is shown in Figure 5-3.

Figure 5-3 Capital Cost Summary (in Millions)

Fleet Estimate	\$108.5
Fleet contingency (10%)	10.9
Maintenance Facility	40.0
Mammoth Station Layover	10.0
Contingency/engineering (25%)	10.0
Terminal Stations (2@\$10m)	20.0
Intermediate Stations (3@ \$4m)	12.0
Contingency/engineering (25%)	8.0
Track and Infrastructure	3,334.7
Total Estimate	\$3,554.1

Operations and Maintenance Cost

Service Concept

Figure 5-4 presents an illustrative timetable showing how a two-hour headway could operate between Lancaster and Mammoth, with extra trains operating on nights preceding and following weekends to handle peak loads. The basic service requires five trainsets; the extra service two additional trainsets. The capital cost for this fleet is reflected in Figure 5-2, above.

Figure 5-4 Conceptual Timetables for Service Every Two Hours + Fri/Sun Extras

Northbound Trains										
Station	Miles	A1	C1	B2	E2	D2	F1	A3	G1	C3
		<i>Daily</i>	<i>Daily</i>	<i>Daily</i>	<i>Daily</i>	<i>Daily</i>	<i>Fri only</i>	<i>Daily</i>	<i>Fri only</i>	<i>Daily</i>
Lancaster	0.0	7:00	9:00	11:00	13:00	15:00	16:00	17:00	18:00	19:00
Mojave	24.3	7:28	9:28	11:28	13:28	15:28	-	17:28	-	19:28
Ridgecrest	72.3	8:13	10:13	12:13	14:13	16:13	-	18:13	-	20:13
Lone Pine	142.6	9:08	11:08	13:08	15:08	17:08	-	19:08	-	21:08
Bishop	199.0	9:53	11:53	13:53	15:53	17:53	18:33	19:53	20:33	21:53
Mammoth Station	237.9	10:50	12:50	14:50	16:50	18:50	19:30	20:50	21:30	22:50
Southbound Trains										
Station	Miles	B1	E1	D1	A2	C2	B3	F2	E3	G2
		<i>Daily</i>	<i>Daily</i>	<i>Daily</i>	<i>Daily</i>	<i>Daily</i>	<i>Daily</i>	<i>Sun only</i>	<i>Daily</i>	<i>Sun only</i>
Mammoth Station	0.0	6:00	8:00	10:00	12:00	14:00	16:00	17:00	18:00	19:00
Bishop	38.9	6:57	8:57	10:57	12:57	14:57	16:57	17:57	18:57	19:57
Lone Pine	95.3	7:42	9:42	11:42	13:42	15:42	17:42	-	19:42	-
Ridgecrest	165.6	8:37	10:37	12:37	14:37	16:37	18:37	-	20:37	-
Mojave	213.6	9:22	11:22	13:22	15:22	17:22	19:22	-	21:22	-
Lancaster	237.9	9:50	11:50	13:50	15:50	17:50	19:50	20:30	21:50	22:30

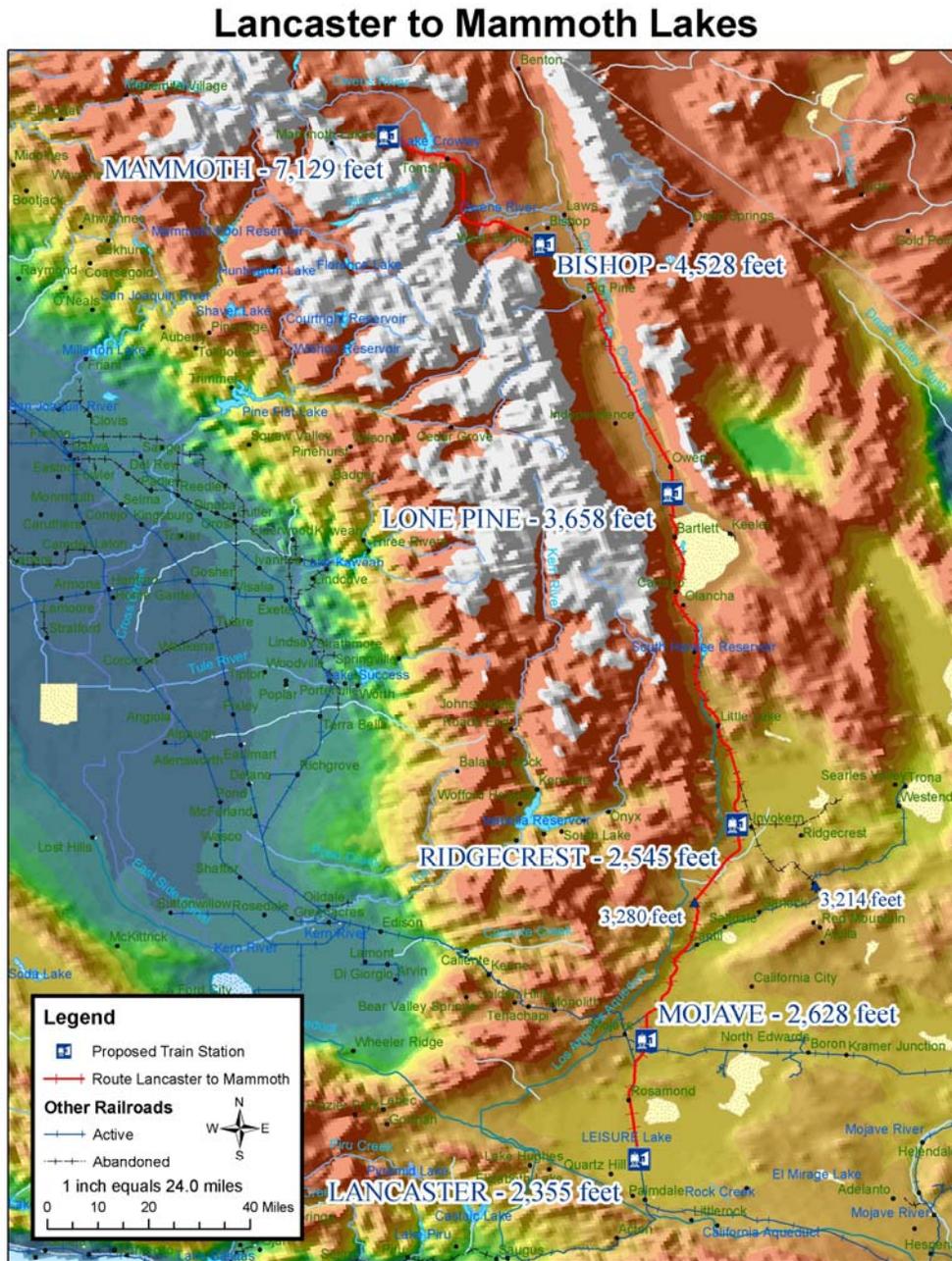
Operations and Maintenance Cost

An estimate of gross annual operating cost is provided in Figure 5-5, gross referring to the total cost of running the service described above over the assumed alignment, without considering revenue. The cost estimate is based on a calculation of annual train miles, multiplied by an average Amtrak west Coast Corridor cost per train mile of \$55, for year 2005.

Figure 5-5 Calculation of Lancaster- Mammoth Service Gross Operations and Maintenance Cost

Base Service, 2-Hour Headways from Lancaster & Mammoth				
RTs/Day	RT Miles	TM/Day	Days/Yr	TM/Yr
7	476	3,331	365	1,215,720
Extra Fri/Sun Service, 2-Hour Headways from Lancaster & Mammoth				
RTs/Week	RT Miles	TM/Week	Weeks/Yr	TM/Yr
2	476	952	52	49,485
Estimated Operations and Maintenance Costs Per Year (2005 \$mil)				
	TM/Yr	\$/TM	Cost/Year	
Base service	1,215,720	\$55.00	\$66,900,000	
Extra Fri/Sun Service	49,485	\$55.00	\$2,700,000	
Total Service	1,265,205		\$69,600,000	

Figure 5-6 Conceptual Passenger Rail Map



Other Considerations

Other Alignments

Scope limitations did not permit detailed analysis of alternative alignment options, but many options clearly exist. They should be considered if further evaluation of Eastern Sierra rail feasibility is pursued.

Among these is the topographically challenging Bishop-Mammoth segment. The concept described in this report climbs the west side of the Owens Valley, and uses the Sierra escarpment to gain the 3000-foot rise required in this segment. Significant engineering, construction, seismic and environmental issues would obviously need to be addressed with such a concept. As an alternative, it might be feasible to follow the general alignment concept of the narrow gauge line which remained on the east side of the Owens Valley, rather than re-crossing Highway 395 near Aberdeen. North from Bishop, this alternative might generally follow Highway 6 up the Hammil Valley toward Benton, then make a horseshoe turn to the left near Marble Creek, and, turning south, climb the volcanic tableland, circling back to the west on the south side of Casa Diablo Mountain. This line would bridge the Owens River Gorge below the power plant, then head northwest and rejoin Highway 395 near Tom's Place. No conclusion can be reached regarding the feasibility of this alternative, but in any further analysis it could be reviewed.

Trade-offs exist with alternate routes. In seeking a better grade (1%), two lines were examined, one rising out of the Owens Valley before Big Pine and one following the route described in the previous paragraph. The total distance of the 1% route via the Tungsten Hills and Round Valley did not change the length of the route significantly, but did add to the construction difficulty. By waiting until reaching Bishop on the narrow gauge alignment, however, that alternative added 28 miles to the total length of line.

Similarly, the Red Rock Canyon segment, obviously attractive to highway engineers as a direct route to the north, has its own challenges. In a more thorough study of alternatives, one possibility might be to consider an improved Searles alignment, which, though still longer, might not compromise achievement of the travel time criterion so badly that it would jeopardize project feasibility.

In the final analysis, the most realistic route could be dictated by seismic, geologic and environmental issues.

Through Service to Los Angeles

The project concept described above is based on the assumption that it would not be worthwhile to incur additional capacity improvement costs between Lancaster, Palmdale and Los Angeles Union Station, in view of the potentially limited benefits. For most potential customers, it will be faster to drive to a dedicated park-and-ride lot in Lancaster, included in the price of a train ticket, rather than drive to Union Station, pay to park, and take the train the additional distance, taking longer for the whole trip. Transit access is, of

course, very important, and good connections to and from Metrolink, with coordinated schedules, are assumed for people who do not want to drive to Lancaster. With good connections and a cross-platform transfer, these customers should not be at a disadvantage in comparison to the time required for a non-transfer trip.

However, capacity issues at Union Station and on Metrolink are primarily a weekday phenomenon. On weekends, it may be more feasible to operate trains through to and from Union Station, perhaps using the Eastern Sierra service to cover the Metrolink Antelope Valley route (Lancaster-Union Station) with a coordinated fare structure, rather than operate a separate Metrolink line, as is currently done on Saturdays. As the line would be longer, equipment implications of such an approach would result. No conversations have been held with Metrolink staff about this idea, but it may be worth exploring if further analysis of the Eastern Sierra service is carried forward.

Auto-Train Service

Stakeholders expressed interest in auto-train service. Properly designed auto carriers can be handled on FRA-compliant trains, and offering such a service would be plausible if it were desired. A potential market exists for this in the Los Angeles-Eastern Sierra corridor, but its size and robustness are not known.

The history of this niche market is spotty in North America. A well-known Amtrak Auto-Train service connects the Northeast and Florida with a separate, overnight train dedicated to this function. It is important to note that for logistical reasons, this service is not integrated into the regular Amtrak Northeast-Florida passenger schedule, does not handle passengers to or from intermediate stations, and that it originates and terminates in suburban areas where the automobile staging can be readily handled. In Canada, late in the Canadian National Railways “passenger renaissance” of the 1960s, regular transcontinental passenger trains handled autos between Toronto and Edmonton in the “Car-With-You” program, but it did not persist, and the service has not been offered in decades.

The appropriate model for such a service might be the Channel Tunnel auto ferry service between Britain and France, where specially designed railroad and wayside equipment permits rapid vehicle loading and unloading at facilities tied directly into the highway system. Motorists can drive up to a loading facility, and be on their way within 30 minutes. Customs and immigration formalities are integrated into the service. The travel time is short, however, only 35 minutes, and the auto carriers are not part of a general passenger train, which simplifies the operation. Passengers ride in their vehicles.

Lancaster-Mammoth trains could accommodate specialized automobile carriers with special loading facilities at the terminals. It would be possible to operate trains composed of four coaches and four auto carriers, each with a capacity of perhaps 10 automobiles. The train performance estimates in this report do not account for the additional train length or weight, so it is likely that the short travel time required would mean that a second locomotive would be required. If trainsets were essentially fixed, they might consist of a

locomotive + four coaches + four auto carriers + locomotive, operating with the carriers consistently at one end of the train. The exact mix of patrons wanting to take their vehicles and those wanting to leave their vehicles would be determined by a market analysis. Loading and unloading facilities at Lancaster and Mammoth could be designed to handle this fixed relationship with a correctly positioned train at the terminal, and, with a locomotive on each end, trains would not have to be turned. The additional locomotives and cars, and associated maintenance facility and yard enlargement are not included in the cost estimates presented here, but could be explored in any follow-up study.

Starter Line

More than half the initial capital cost for alignment and infrastructure is in the Big Pine-Mammoth segment. Any future work on this potential corridor should consider whether a starter line between Lancaster and Big Pine or Bishop might be worthwhile. An assessment of this kind would have to determine whether the demand for a foreshortened service would still be sufficiently robust to justify further consideration of the project. In the absence of any demand figures at all, it is not possible to comment further on this possibility in this report, other than to note that it is a potential way to make the first stage of an Eastern Sierra rail project more affordable.

Short-Term Possibilities

Clearly, a new fast passenger railroad line serving the Eastern Sierra, even if phased, would be a large undertaking requiring significant capital investment. This initial evaluation indicates that such a line is feasible in the technical sense, but whether it makes sense from the point of view of funding possibilities and public policy has not been addressed.

If Kern, Mono and Inyo Counties conclude that long-term interest in developing a passenger service for the Eastern Sierra exists, some small initial steps might reasonably be taken in the short term. One obvious step would be preservation of existing right-of-way, most importantly the abandoned railroad right-of-way between Searles and Lone Pine. While the segment from Searles to Ridgecrest might not be crucial to an eventual fast alignment, it could have potential during a construction phase, and for future incidental freight use. This study did not conduct a survey of right-of-way ownership, but it is believed that this abandoned line belongs to the city of Los Angeles, in which case conversations might be in order to discuss methods of preserving this potentially very valuable asset. Any consideration of “Rails-to-Trails” use of this segment should then definitely take into account the desire for future convertibility, and any trail installation should be engineered to permit reintroduction of railroad operations without hindrance.

North of Lone Pine, through Owenyo to Bishop, as the analysis shows, the former right-of-way of the narrow gauge line is possibly of less interest; however, if possible, it should also be preserved if it is in the public domain until a different alignment is selected. In particular, the possibility that a Bishop-Mammoth Lakes segment via the Volcanic Tablelands rather than via Round Valley might prove superior could favor an alignment along the east side of the Owens Valley, suggesting that some of the former narrow gauge

line might be useful. Keeping options open would be appropriate if little or no cost is required.

Finally, if decision-makers are interested in moving forward with the Eastern Sierra passenger rail concept, several additional steps should be taken in the short-term. These include a market and demand assessment, evaluations of alternative alignments, and discussions with Metrolink regarding a potential role or involvement in the ultimate development of such a system. The counties may, in that case, wish to consider whether it might be useful to bring Los Angeles County into some arrangement to pursue the next steps.

Conclusion

In the physical and engineering sense, construction of a railroad passenger line to connect a Los Angeles market to Mammoth Lakes and other Eastern Sierra communities is feasible. Whether it is worthwhile in a commercial sense, or from the standpoint of public policy, cannot be assessed without a demand forecast and additional market research. Such a line, using conventional railroad passenger technology, could offer travel times competitive with driving under average highway conditions. Under congested peak highway conditions, the rail service might be considerably better.

The project would involve construction of an essentially new railroad 240 miles long, with significant segments of difficult construction in mountainous, seismically active areas.

The concept presented here is based on a new line between Lancaster and Mammoth, with reliance on major park-and-ride access at Lancaster but also providing cross-platform transfers with the Metrolink Antelope Valley line. Intermediate stations are assumed at Mojave, Ridgecrest, Lone Pine, and Bishop. It is assumed that trains would initially consist of an express locomotive and four bi-level cars, capable of running between Lancaster and Mammoth in less than four hours, including the four intermediate stops. A one-stop express would make the run in 3½ hours.

If constructed all at once, it is estimated that the entire line would require a capital investment of \$3.54 billion, including all grading, tunneling, track, signals, maintenance and layover facilities, rolling stock and stations. Annual gross operating costs of the line at proposed service levels would be about \$69 million per year. Absent a demand forecast, passenger revenue has not been calculated. About half the capital cost would be incurred in constructing the 22% of the line north of Big Pine. This segment, with heavy grading, structures, and a significant tunneling allowance, climbs the eastern escarpment of the Sierra Nevada on the west side of the Owens Valley, and along Wheeler Ridge to the summit of the Sherwin Grade at Tom's Place. If a starter service could be justified to the vicinity of Big Pine or Bishop, capital costs for an initial line could be reduced considerably. Additional reductions on the order of \$400 million could be realized by avoiding the Red Rock Canyon cutoff, and making use of the longer, slower existing alignment through Searles; however, this would be at the expense of additional running

time, which would make the service somewhat less attractive to the market of choice customers. Without a demand forecast and sensitivity testing, it is not possible to state conclusively what the overall effects would be.

If interest in keeping options for future Eastern Sierra rail service open is maintained, the Counties may wish to consider steps to preserve the existing abandoned railroad rights-of-way, particularly where they are already publicly owned. Small-scale follow-up studies in several areas would be worthwhile if sufficient interest in this concept exists.

APPENDIX A

REGIONAL PROFILE

Appendix A. Regional Profile

Introduction

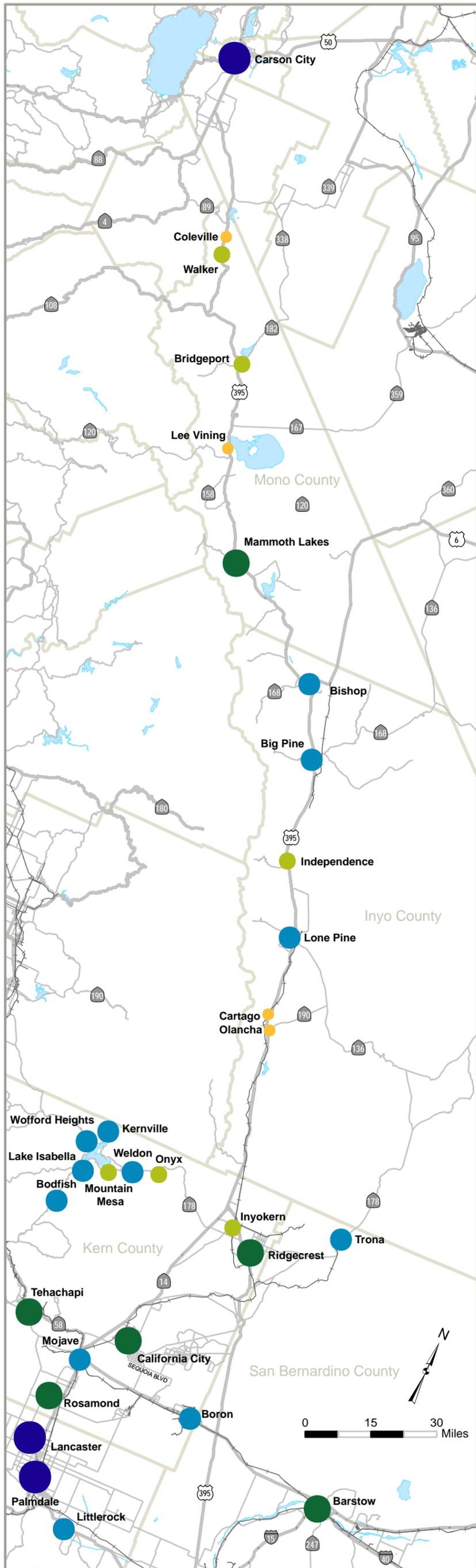
The study area consists of several rural communities, resort towns, and a few urban centers clustered along the Highway 395 corridor in Inyo and Mono Counties, and along Highway 14 in Kern County. The area is anchored by large cities at the north and south. Carson City, Nevada and the Lake Tahoe area are in the north, and the cities of Lancaster and Palmdale are located to the south, in Los Angeles County (see Figure A-1, Eastern Sierra Population Map).

Tourism contributes significantly to the economy of the Eastern Sierra. The dramatic natural landscape offers many attractions and activities for tourists. Tourists have destinations in the region, but many “pass through” as part of a larger trip to Reno, Lake Tahoe, Las Vegas, Yosemite, Death Valley National Park, or the San Francisco Bay Area. Primary tourist-oriented attractions in the Eastern Sierra include the following:

- Devils Postpile National Monument
- Inyo National Forest
- Mammoth Lakes and Mammoth Mountain Ski Area
- Mt. Whitney
- Red Rock Canyon State Park
- Toiyabe National Forest
- Yosemite National Park

The Eastern Sierra offers outdoor activities such as biking, hiking, camping, hunting, fishing, rock climbing, and winter recreation activities.

Inyo and Mono Counties have some of the lowest population densities in the state. Many people also consider them “remote” because (1) neither county has commercial air service and (2) winter road closures keep them seasonally isolated from counties to the west.



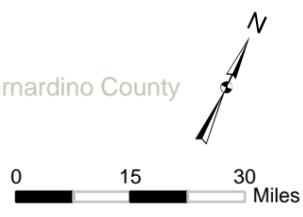
LEGEND

Population

- Less than 500
- 500 - 1,000
- 1,000 - 5,000
- 5,000 - 30,000
- More than 30,000

— Road
—+— Railroad

Source: ESRI, USGS, Kern COG, Caltrans, Federal Rail Administration, U.S. Census Bureau, desertusa.com, Mono County



**Figure A-1
Eastern Sierra - Population**

Overview of the Communities, Population and Growth

Mono County

Located in the northern part of the study area, Mono County is the sixth fastest-growing county in California, although it has a very small population. Mono County experienced a 29% increase in population from 1990 to 2000. The town of Mammoth Lakes is the largest community in the county, with 7,094 people in 2000. The population of Mammoth Lakes increased at an even higher rate than the county as a whole, with a 48% increase from 1990 to 2000. Eighty-four percent of residents are white; persons of Hispanic or Latino origin are a growing population group and represent nearly 18% of the total.

Mammoth Lakes is a mountain resort town with a popular ski area, Mammoth Mountain. The town is located near attractions in the Inyo National Forest via State Route 203. Inyo National Forest is one of the 10 most-visited national forests, and visitation is expected grow over the next 20 years. The Reds Meadow Shuttle runs from Mammoth Lakes to destinations within the Inyo National Forest such as Reds Meadow, Devils Postpile National Monument, and Rainbow Falls. Local fixed route transit service, operated by Inyo-Mono Transit, is offered in the town in the summer. Mammoth Mountain Ski Area provides a winter shuttle service for skiers, which also serves as the town's winter transit service.

June Lake is an increasingly important recreation area with a growing ski resort, spas and lodging, and fishing and boating. With a large retirement and seasonal population, residents have expressed interest in transit services from the June Lake Loop into Mammoth Lakes.

Lee Vining, on the shores of Mono Lake, is a gateway to Yosemite Park. The Yosemite Area Regional Transportation System (YARTS) connects Lee Vining to Yosemite.¹ Other communities along the Highway 395 corridor with fewer than 1,000 residents include Bridgeport, the county seat, and Walker and Coleville in the northern portion of the county.

Services, retail trade, and government are the major employers in Mono County. These are projected to remain the most important industries. The county's economy is heavily reliant on tourism, with three tourist job centers:

- Mammoth Lakes, which has the county's largest concentration of shopping and tourist-oriented services (hotels, ski resort, etc.)
- June Lake
- Bridgeport

As would be expected in a region where tourism is an important part of the economy, the service sector, including hotels and lodging, represents the largest industry in Mono County. Mono County has fewer than 12,000 housing units.

¹ YARTS also provides a connection to Mammoth Lakes.

Many Mono County residents work outside of the community in which they live. According to the US Census, approximately 25 percent of employees age 16 and older work outside of the county. According to the Mono County General Plan, large numbers of Mono County residents in the Antelope Valley at the northern end of the county have commutes into Nevada. In addition, many Long Valley/Wheeler Crest workers commute between 30 and 44 minutes. The mean travel time to work in Mono County is 16 minutes.

Inyo County

Inyo County's economy relies heavily on tourism, with most visits occurring in the summer months. Bishop is the largest community in Inyo County, and the only incorporated city, with 3,592 people in 2000. Lone Pine is located near a key tourist/recreational destination, Mt. Whitney, and has a population of 1,704. Big Pine is a similarly sized community with a population of 1,372, and is a gateway to the Ancient Bristlecone Pine Forest.

Inyo County's population is primarily white (80%), but the county has a significant Native American population (about 10%). The county also has a growing Latino population, representing nearly 13 percent of the total population.

Limited growth is expected for Inyo County. The population is projected to increase slightly every year to 2020. Retail trade, services, and government industries are expected to have the most growth over the next decade. These employment sectors are generally concentrated in and around the Bishop area, making it the hub of activity for the county. The agricultural employment sector is shrinking, but will remain important for the county's economic health.

The mean travel time to work for residents of Inyo County is just over 15 minutes. Commutes are shorter in and around the Bishop area, although many residents in the northern part of the county commute north to Mono County (primarily the Mammoth Lakes area). The communities of Inyo County are served by Carson Ridgecrest Eastern Sierra Transit (CREST). Operated by Inyo-Mono Transit, CREST links communities along the Highway 395 corridor to Carson City and the Reno airport in the north, and to Ridgecrest and Kern Regional Transit services in the south. Bishop also has a fixed route service operated by Inyo-Mono Transit.

Kern County

Eastern Kern County is vast, comprising both high desert and mountainous regions. Open space and public lands include the Sequoia National Forest lands, Red Rock Canyon State Park, the Desert Tortoise Natural Area and numerous parcels overseen by the Bureau of Land Management. Just as in Inyo and Mono Counties, long travel distances separate the population centers.

The communities of eastern Kern County are generally larger than the communities along the Highway 395 corridor in Mono and Inyo Counties. With a population of 25,195, Ridgecrest is the largest city not only in eastern Kern County, but also in the entire Eastern

Sierra region study area. The city serves as an urban center for the surrounding area. Ridgecrest's economy relies heavily on the China Lake Naval Air Weapons Station. The primary employment sector is government and public administrative employees.

Other cities in Kern County's portion of the study area include Tehachapi and California City. Tehachapi has 11,125 residents within the city limits, and approximately 30,000 residents reside in the greater Tehachapi area. Based on Census data, California City's population is 8,385 residents.

Larger unincorporated communities in east Kern County include Mojave, Rosamond and Boron.

Although some of the communities in the eastern part of the county had seen low growth or modest population declines in the 1990s, forecasts indicate growth through 2020. Rosamond is essentially an outpost of the greater Los Angeles area and is expected to grow rapidly, with nearly 1,200 housing units planned as part of a new residential development. California City is a master planned community, which is beginning to see growth after a period of population loss.

Edwards Air Force Base, south of California City and east of Rosamond, is the largest employer in the vicinity and is relatively disconnected geographically from the other eastern Kern communities. Nevertheless, many California City and Rosamond residents commute to the base.

In Ridgecrest, CREST connects to the Kern Regional Transit system. The East Kern Express Route connects Mojave and Rosamond to Lancaster in northern Los Angeles County.

Surrounding Areas

Trona, in northwestern San Bernardino County is less than 20 miles east of Ridgecrest, along Highway 178. The population of Trona is approximately 1,800. South of Ridgecrest, Highway 395 continues south through San Bernardino County.

Douglas County, Nevada, borders the study area to the north. Douglas County is one of the fastest growing counties in Nevada and is a large commercial center with numerous suburban-style shopping centers and large residential developments that serve the larger cities of Carson City and Reno. According to the 2000 Census, Douglas County's population was 41,259, 49.3% higher than the 1990 population (27,637).

The northern Los Angeles County cities of Palmdale and Lancaster are essentially bedroom communities for the greater Los Angeles area. The area is connected to Los Angeles via a good highway network and Metrolink rail. Housing developments expanded rapidly during the 1980s and the population increased nearly eightfold in the most recent 20-year period. The area is home to major business expansion and retail growth, including the large Antelope Valley Mall.

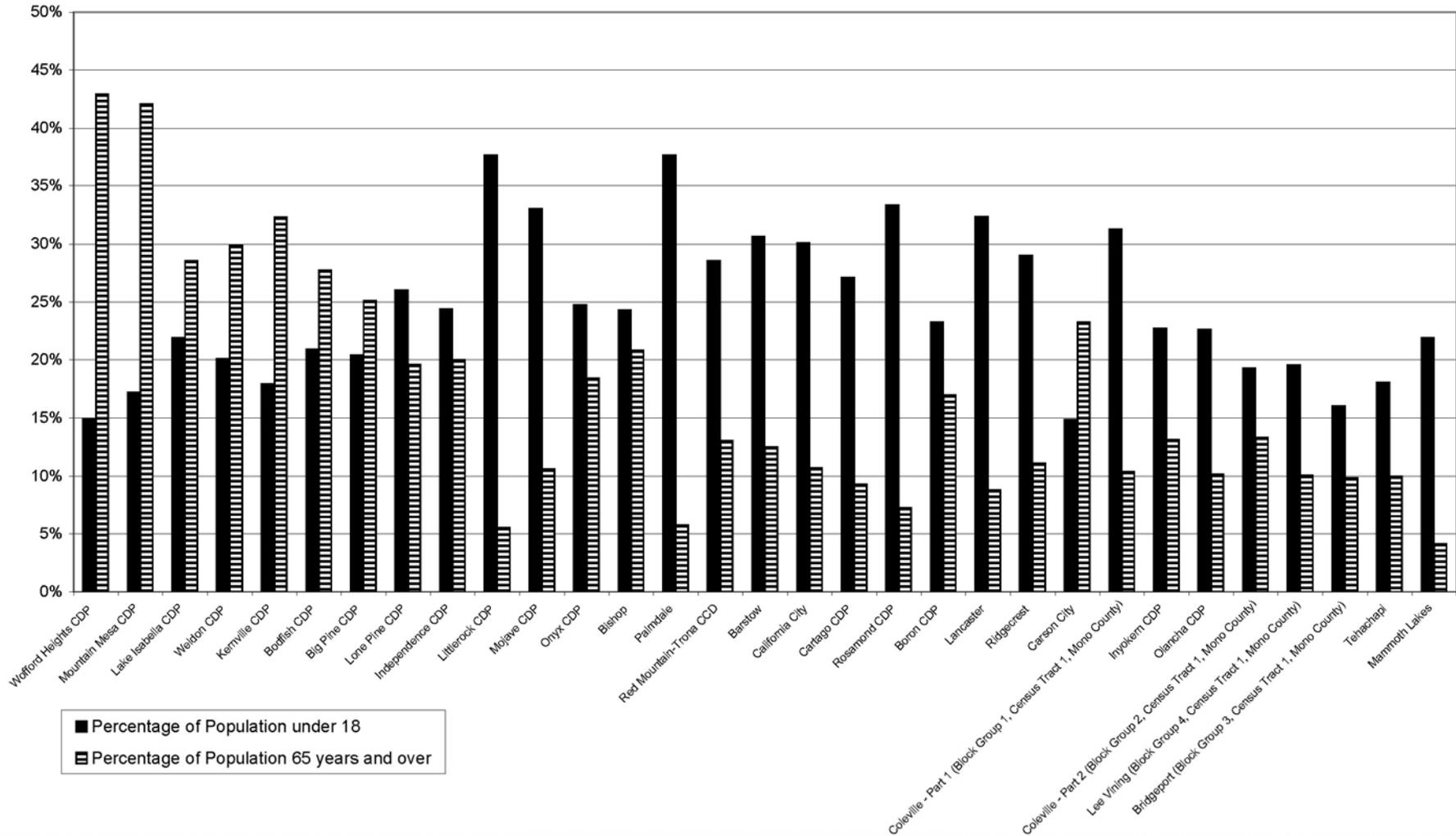
Transit-Dependent Populations

Those who depend most on transit for mobility are often youth populations, low-income populations, and certain members of the elderly and disabled population. Figure A-2 shows the percentages of the total population represented by youth and seniors. Coleville, Lone Pine, and Cartago, though small communities, have high concentrations of youth populations, with over 25% of the total population under the age of 18. The southern portion of the study area has the largest and most concentrated youth populations, in the communities of Ridgecrest, Red Mountain-Trona, California City, Mojave, and Rosamond, as well as Lancaster, Palmdale and Littlerock in northern Los Angeles County. Carson City, Barstow, Tehachapi, and Mammoth Lakes also have proportionally significant populations of young people. Concentrations of elderly residents are found in Bishop (21% over 65) and Big Pine (25%).

Figure A-3 shows the median household income in 2000. Low-income households are less likely to own a car, and more likely to need transit. In the southern part of the study area, Mojave residents have a median income under \$30,000. In Inyo County, Bishop has a median income of \$27,338 and Lone Pine has a median income of \$29,208.²

² The lowest median household incomes are found in the Lake Isabella area of Kern County, with incomes as low as \$16,058. Many of these households are comprised of retired persons.

Figure A-2 Eastern Sierra – Percentage Youth and Senior Population

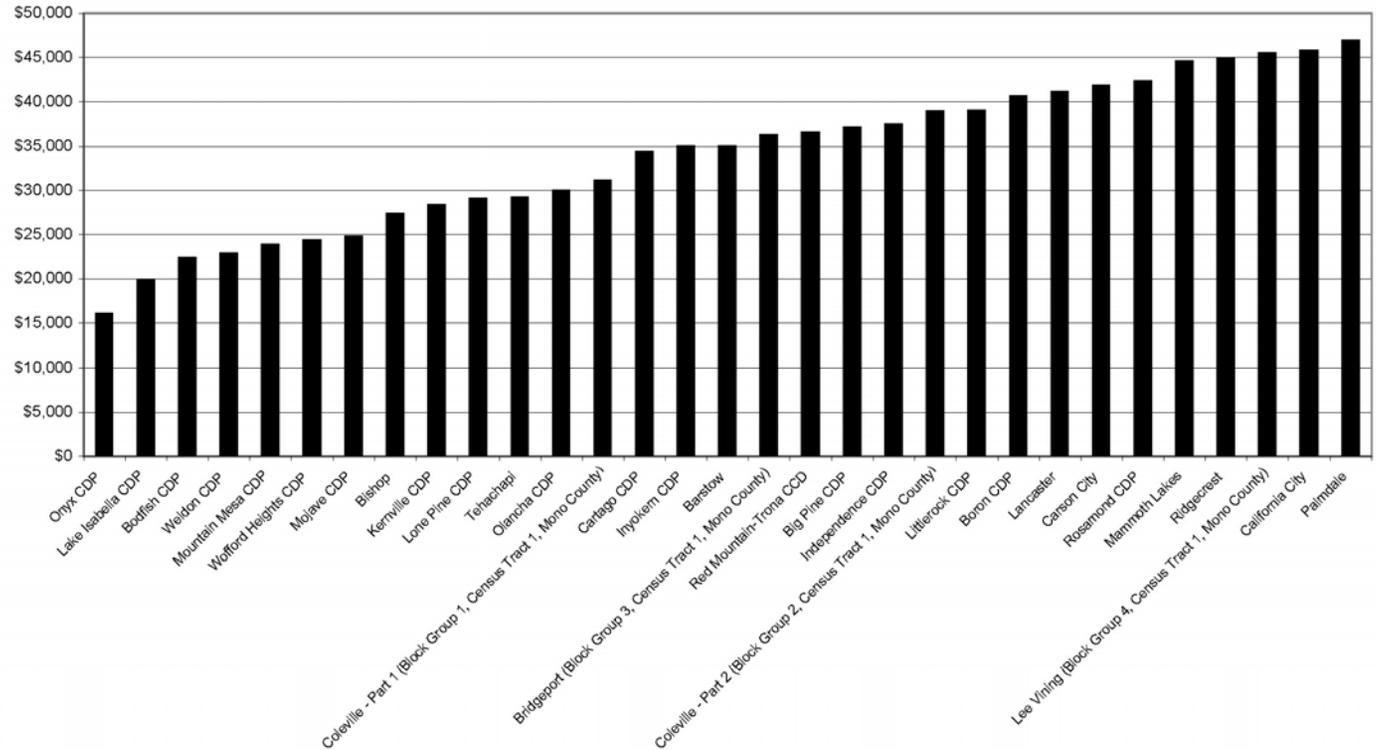


Source: US Census Bureau, 2000 US Census

Figure A-3 Eastern Sierra – Median Household Income

Eastern Sierra - Median Household Income

Geography	Households: Median household income in 1999
Onyx CDP	\$16,058
Lake Isabella CDP	\$19,813
Bodfish CDP	\$22,368
Weldon CDP	\$22,857
Mountain Mesa CDP	\$23,875
Wofford Heights CDP	\$24,326
Mojave CDP	\$24,761
Bishop	\$27,338
Kernville CDP	\$28,352
Lone Pine CDP	\$29,079
Tehachapi	\$29,208
Olancho CDP	\$30,000
Coleville - Part 1 (Block Group 1, Census Tract 1, Mono County)	\$31,125
Cartago CDP	\$34,375
Inyokem CDP	\$35,048
Barstow	\$35,069
Bridgeport (Block Group 3, Census Tract 1, Mono County)	\$36,281
Red Mountain-Trona CCD	\$36,602
Big Pine CDP	\$37,115
Independence CDP	\$37,500
Coleville - Part 2 (Block Group 2, Census Tract 1, Mono County)	\$38,929
Littlerock CDP	\$39,000
Boron CDP	\$40,625
Lancaster	\$41,127
Carson City	\$41,809
Rosamond CDP	\$42,307
Mammoth Lakes	\$44,570
Ridgecrest	\$44,971
Lee Vining (Block Group 4, Census Tract 1, Mono County)	\$45,500
California City	\$45,735
Palmdale	\$46,941



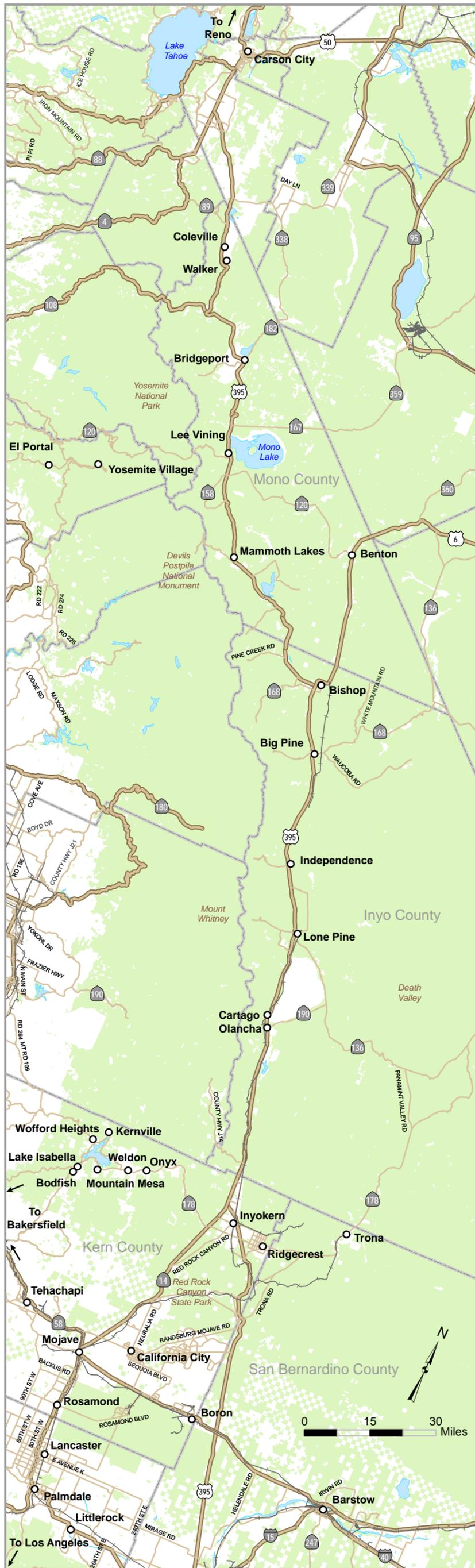
Source: US Census Bureau, 2000 US Census

Densities and Development

Overview of Land Ownership

Public Land

The vast majority of the land along the Highway 395 corridor is publicly owned (see Figure A-4). Major land managers in the region are the U.S. Forest Service, U.S. Bureau of Land Management, the City of Los Angeles Department of Water and Power, other local governments, the state, and the military. Along the northern part of the corridor, the U.S. Forest Service manages the Toiyabe National Forest: 6.3 million acres encompassing most of Mono County. The Forest Service also manages the Inyo National Forest, which includes 2 million acres stretching from Lee Vining to Olancho. The City of Los Angeles Department of Water and Power owns a significant amount of land within the region, including land near Mono Lake, between Lee Vining and Mammoth Lakes, and from north of Independence to south of Lone Pine. The Bureau of Land Management owns land throughout the study area: near Coleville, between Bridgeport and Lee Vining, and south of Mammoth Lakes.



LEGEND

- Primary Road
- Secondary and Connecting Road
- Railroad
- Publicly Owned Lands

Source: ESRI, USGS, Kern COG, Caltrans, Federal Rail Administration, Bureau of Land Management

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consulting associates

**Figure A-4
Eastern Sierra - Publicly Owned Lands**

Major Activity Centers

In Mono County, all of the communities have retailers and services for the local population and tourists, but only Mammoth Lakes has significant shopping and a large supermarket, as well as the Mammoth Mountain Ski Resort and an airport. Hotels are concentrated in Mammoth Lakes, although several roadside motels are found in Lee Vining for persons visiting Mono Lake or traveling on through Yosemite. Other small concentrations of hotels and campgrounds are found in and around June Lake and Bridgeport. Medical facilities are located in Mammoth Lakes (Mammoth Hospital) and Bridgeport (Mono General Hospital). The Department of Social Services is based in the county seat, Bridgeport, but many county services are also available in Mammoth Lakes. Through its Eastern Sierra College Center, Cerro Coso College offers classes in Mammoth Lakes and recently constructed a new campus in the town.

Bishop is the largest center of activity in Inyo County. Home to Inyo-Mono Transit, Bishop has a number of hotels, an airport and a casino. Bishop has supermarkets, drug stores, and a K-Mart store, the only large discount store in the Eastern Sierra region. Most of the activity in Bishop is centered in or very nearby Highway 395. Bishop also is home to Northern Inyo Hospital and Inyo County's social services. Through its Eastern Sierra College Center, Cerro Coso College offers classes in Bishop and has recently constructed a new campus in the city.

To the south, Lone Pine is the largest activity center in the southern portion of Inyo County. Lone Pine is the gateway to Whitney Portal, as well as Death Valley (from the north), so it has a small number of motels and services for tourists. Southern Inyo Hospital is located in Lone Pine. Independence, the county seat, has County offices and a small number of services.

As noted earlier, Ridgecrest is the largest city in eastern Kern County. The city has several hotels and shopping centers, including a Wal-Mart store, Home Depot and Mervyn's. The main campus of Cerro Coso College is located in Ridgecrest, as is Ridgecrest Regional Hospital. The major employer is the China Lake Naval Air Weapons Station. Nearby Inyokern Airport offers the only commercial air service to/from the study area.

To the south, Mojave is a key trucking hub and has several motels and a major regional supermarket. It is also the primary transfer point for transit services provided by Kern Regional Transit. The Mojave Spaceport is poised to become an even larger employment hub, but already is home to nearly 140 different businesses. East of Mojave, in Boron, the large US Borax plant has been operating for more than 130 years and is the largest private employer in this portion of the county. To the south is Edwards Air Force Base.

South of Mojave, Rosamond is primarily a residential community and outer suburb of the Los Angeles County area. A major supermarket is located in Rosamond.

Existing Road and Highway Network

Highway 395 is the primary north-south transportation link through Mono and Inyo Counties. Highway 14 in eastern Kern and Los Angeles Counties connects the Eastern Sierra region to the Los Angeles basin. Highway 6 in eastern Mono and northern Inyo Counties provides access to the Eastern Sierra from the east, and is a trucking route between the region and the western mountain states of Washington, Idaho, and Montana.

East-west transportation links connect the Highway 395 corridor to mountain communities and destinations. State Route 203 provides access west from Highway 395 to Mammoth Lakes, Reds Meadow and Devil's Postpile in the summer months. State Route 158, the "June Lake Loop," provides access from Highway 395 to the community of June Lake. West from Highway 395, State Route 120 provides access to Yosemite National Park and is one of the most important east-west connectors in the region.

Highways 120, 108, and 89 are closed in winter, which significantly limits east-west access to and from the Eastern Sierra. During winter months, the only way to access Inyo and Mono Counties from the west is to drive via Reno or Mojave.

In Kern County, State Highway 58 is the connection between Bakersfield and Mojave, where a freeway bypass was completed in 2004. Highway 58 provides access to Boron and Edwards Air Force Base, continuing on to Las Vegas.

Overview of Rail Network

History of Rail Network and Facilities

Early Connection to the North

Railroad development in the Eastern Sierra region was advocated as early as 1853 by the famed pioneer explorer, Captain Joseph Walker. At the time that transcontinental railroad policy was being debated by the federal government, he proposed a route from the San Joaquin Valley, which would cross the Sierra Nevada via Walker Pass. Near what is today Ridgecrest, Walker's "basic route" would have struck east across the Mojave Desert and then more or less followed the route later taken by the Santa Fe Railway across Arizona. Another "highly recommended" route would have turned north at the foot of the pass, and run through the Owens Valley, past Walker Lake and the Carson Sink, and headed east across Nevada to Salt Lake City. Much of this route was, in fact, studied as part of the great Pacific Railroad Surveys undertaken by the War Department in the mid-1850s.

When actually built some dozen years later, the first transcontinental railroad ran from Sacramento across Donner Pass and Northern Nevada, and its completion was achieved with the driving of the Golden Spike in Utah in 1869. Almost immediately thereafter, the "Big Bonanza" burst upon the Comstock, and a short-line railroad, the Virginia and Truckee, was built by the Bank of California to connect the new transcontinental line at Reno with Carson City and Virginia City, where the Bank held large investments in mining and ore processing. During the boom, Virginia City, its railroad and the Comstock were fabulously

wealthy, but silver production peaked in the late 1870s and began a long and steady decline, and so the owners of the Virginia and Truckee began to look south to the Nevada-California border region for new traffic prospects.

To reach into this area and bring its traffic to the banks of the Carson River, a new railroad, the Carson and Colorado, was incorporated, suggesting in its name the two rivers bracketing the geography it would traverse. In order to keep construction costs as low as possible, the line was built to a narrow gauge, a technology then enjoying a considerable vogue in the Rocky Mountains and elsewhere. Proposals were made for a narrow gauge transcontinental system, and the narrow gauge California and Nevada Railroad had actually started construction of a line in Emeryville that was headed for Sonora Pass, Bodie and the East. (It only got as far as Orinda, but its right-of-way is the one followed today by BART through El Cerrito and Richmond). In that spirit, the Carson and Colorado began at a connection with the Virginia and Truckee at a place called Mound House, a station located between Carson City and Virginia City. It ran east along the Carson River some 30 miles before turning south, following some of the route Capt. Walker had advocated thirty years earlier. It reached Hawthorne in 1880, and, via Mount Montgomery Pass and Benton, the Owens Valley in 1883. The southern terminal of the narrow gauge was at Keeler, on the east side of Owens Lake; it never got any closer than that to the Colorado River. Visiting that fairly remote spot upon completion of the line, D. O. Mills, one of its financiers, is reported to have remarked: "Gentlemen, it seems we have built this railroad either 300 miles too long or 300 years too soon." A proposed connection from Bodie was surveyed and partially graded, but the boom subsided before a link with the Bodie and Benton Railroad could be built.

Still, within 15 years of the completion of the first transcontinental line, the Eastern Sierra region, which had been rather isolated, was in fact connected to the national railroad network. The Carson and Colorado became part of the mighty Southern Pacific system in 1900, and connecting lines to serve the Tonopah and Goldfield mining region, and the agricultural and copper mining areas around Yerington, were built not long thereafter. A shorter connection to the Southern Pacific transcontinental mainline was constructed, bypassing the Virginia and Truckee, and the northern part of the line was converted to standard gauge. Through trains operated between Oakland Pier, Tonopah and Goldfield, and the Eastern Sierra's little narrow gauge trains connected with them at Mina. Until 1910, no connection was available to the south, from which the Owens Valley remained somewhat isolated, and service was oriented to the more northerly "Overland" transcontinental mainline connections, Reno, the Bay Area and Northern California.

A Mainline to Los Angeles

The growth of Los Angeles and the coming of the Los Angeles Aqueduct changed all that. The story of the aqueduct and its impact on the Owens Valley is well known. The project was an enormous one for its time. It was estimated that the city's construction plans would require the movement of 20 million ton miles of freight of various kinds. Absent a railroad, this would require intensive use of animal power, with many logistical problems in "...an unoccupied desert, in which very little forage or water could be obtained for teams." The

city took bids, evaluated the prospective transportation costs, and concluded that the possibility of building a railroad should be investigated. The subsequent engineering studies were positive. The limitations of the narrow gauge were addressed, transportation cost savings calculated, and it was concluded that a new standard-gauge line should be built to connect Los Angeles with the Owens Valley.

The city decided upon a policy of negotiating construction of the line with a mainline railroad, in preference to building the railroad itself. Following conversations with other railroads, the city entered into negotiations with the Southern Pacific for the construction and operation of the railroad. The city proposed a 100-mile line from Mojave to Olancho, using Red Rock Canyon, but the SP preferred a more circuitous concept that lengthened the line by about 14 miles. After some intermediate steps, the city entered into a contract with the Southern Pacific in April 1908 to build the railroad for \$1.3 million, plus an agreement to ship all aqueduct-related freight over the SP. The SP convinced the city to agree with its alignment preference, but the city nonetheless decided to include a separate temporary branch into the Red Rock Canyon area to support a segment of the aqueduct construction. The line was built quickly by the SP, and opened in 1910. To enhance the long-term usefulness of the railroad, the SP built an extension some 30 miles beyond the city-supported construction, and built through Lone Pine to a connection with the narrow gauge at a spot it christened Owenyo.

The opening of the Los Angeles line gave the Owens Valley a logical transportation outlet to the south. Passenger schedules were re-written to connect with an overnight train between Los Angeles, Lone Pine and Owenyo. Sleeping cars were operated between Owenyo/Lone Pine and Los Angeles through the 1920s, but after World War I the increased use of the automobile on better highways ate away at the passenger business. By the mid-1930s, the Owenyo-Mojave line had only a daily mixed train, and the narrow gauge only one weekly mixed train each way. With limited traffic, notions of standard-gauging the Owenyo-Mina link were forgotten. Narrow gauge service over Mount Montgomery Pass, at 7,141 feet the highest pass on the Southern Pacific system, was abandoned between Benton and Mina in 1938. In 1943, the rails were lifted between Benton and Laws. Passenger service was gone by World War II.

Remarkably, the Keeler-Laws section of the narrow gauge survived on mineral traffic (talc, perlite, pumice granules and lead) until 1960, interchanging with the standard gauge line at Owenyo. SP even bought a narrow gauge diesel locomotive in 1954 to “modernize” freight service. After the narrow gauge line was abandoned, and locomotives and cars were donated for display, the standard gauge line was cut back from Owenyo to Lone Pine station. The marginal freight traffic was not sufficient to keep the line to Lone Pine alive, and so it was cut back to Searles in the early 1990s, a difficult period in which the Southern Pacific was selling whatever surplus assets it could find, and abandoning lines thought to be uneconomic. At Searles, the connection to the 30-mile Trona Railway, a source of mineral traffic, generated enough business to justify retention of the line to Mojave. That part of the line, originally built at the expense of the City of Los Angeles, remains in operation today.

Existing Railroad Lines and Rights-of-Way

In making use of existing railroads and abandoned railroad rights-of-way, and completely new construction, a railroad line linking the Eastern Sierra region to the Los Angeles Basin would fall into five distinct segments: Los Angeles to Lancaster (existing passenger route with light freight traffic); Lancaster to Mojave (existing mainline freight railroad, heavily used); Mojave and Inyokern (existing branch line railroad, minor use, abandoned beyond Searles); Inyokern to Lone Pine and Bishop (abandoned railroad); and Bishop to Mammoth Lakes (completely new railroad).

Los Angeles to Lancaster (77 miles)

This part of the alignment is a very active railroad, with intensive freight service in some places, some multiple tracks, and commuter rail passenger service. It is generally in good physical condition, but the addition of new or additional passenger frequencies might present significant operational or capacity problems to present operators in some locations. From Los Angeles to Palmdale, the entire right-of-way is owned by the Los Angeles County MTA and operated by the Southern California Regional Rail Authority (SCRRA), doing passenger business as “Metrolink.” The Union Pacific retains freight operating rights over it. The line was acquired by the public in the early 1990s as part of a major purchase of Southern Pacific railroad lines in the Los Angeles Basin which made possible the establishment of the Metrolink network. Major funding came from the two statewide rail bond issues (Propositions 116 and 108).

The line begins at Los Angeles Union Station, and operates over trackage used by Amtrak, Metrolink commuter trains and some Union Pacific freight trains to Burbank Junction. The line is double track, signalized with full Centralized Traffic Control (CTC), and heavily used. At Burbank Junction, Union Pacific “Coast Line” freight, Amtrak intercity trains and Metrolink Ventura County line trains turn west, while a very modest volume of UP freight service and Metrolink Antelope Valley trains continue to the north. The line passes through northern suburbs of Los Angeles, Sylmar and San Fernando, and through the 7,000 foot Newhall tunnel, continuing to Santa Clarita, where it turns abruptly to the east. From here it follows Soledad Canyon, emerging at Palmdale, where a future station is planned. The line from Burbank Junction to Palmdale Junction is single track with passing sidings, but it is CTC-equipped, giving it sufficient capacity for current passenger service and modest freight traffic volumes. Palmdale Junction is about 58 miles from Union Station, and Metrolink commuter trains require about 1:40 to cover this distance, making 8 intermediate station stops.

Palmdale Junction is an important point on the Union Pacific Railroad, because it is here that a connection is made between the main Los Angeles-San Joaquin Valley line, and the UP’s southern transcontinental route between California, El Paso, Houston and the East. Traffic between Oregon, the Central Valley and Northern California, and the Southwest, the Deep South and the Southeast, passes through this point. Until the mid-1960s, such traffic followed what is now the passenger line described above through Santa Clarita and Burbank Junction to Los Angeles, then ran east through the LA Basin to Colton, a point near San

Bernardino. However, in the 1960s, the Southern Pacific Railroad, which then owned all of these lines, built a direct new connection (or “cutoff”) between Palmdale and Colton so that the heavy through-freight movements between Central and Northern California and the East could bypass Los Angeles and its congested terminals. Consequently, most of the Union Pacific freight tonnage passing through Bakersfield and over Tehachapi Pass turns east at Palmdale Junction.

From Los Angeles to this point, passenger train/freight train conflicts, while they exist, are minor, as freight volume is small, but north of Palmdale Junction the heavy freight traffic is an important factor that must be taken into account. Metrolink service between Palmdale Junction and Lancaster, at present its northern terminus, operates on a second, separate passenger-only track owned and maintained by the commuter system (technically, the Southern California Regional Railroad Authority). Thus, for about 9 miles, the “railroad” actually consists of two separate side-by-side single tracks, one privately owned for freight use (on the east side of the right-of-way), and one publicly owned for passenger use (on the west side of the right-of-way).

Lancaster to Mojave (25 Miles)

The passenger track ends at the Lancaster station, and the Union Pacific mainline continues on a fairly direct alignment north through Rosamond to Mojave, about 25 miles. Currently, no passenger service is available north of Lancaster, and, in fact, no regularly scheduled passenger service has been operated on the Lancaster-Mojave-Bakersfield segment since the 1971 abandonment of the “San Joaquin Daylight” with the advent of Amtrak. Just south of Mojave, or “east” in railroad terminology, another important junction exists, where the Burlington Northern Santa Fe Railway (BNSF) transcontinental mainline from the east joins the UP Tehachapi line. The BNSF has “trackage rights” here, the right to operate trains over the UP line between Mojave and Bakersfield as a link in its through transcontinental freight service.

Mojave to Searles and Inyokern (67 miles)

Today, the Union Pacific Railroad, successor to the Southern Pacific, retains in operation 48 miles of the former line to the Owens Valley, from Mojave to Searles. The line’s traffic consists almost entirely of interchange business at Searles with the Trona Railway, a major carrier of potash, sulfuric acid, soda ash, salt cake, borax, coal, military equipment and minerals. Typical traffic levels appear to be an every-other day freight service between Mojave and Searles (three round-trips per week).

The junction with the Union Pacific mainline is at the north (railroad “west”) end of Mojave, and crosses old highways 14 and 58 at grade. With the completion of the highway bypass around the east side of Mojave, this is a less significant grade crossing conflict than it once was. The railroad line itself is maintained as a 40 mph line with slag ballast and secondhand continuous welded rail ranging in weight from 112 to 136 pounds per yard. It is in reasonable shape for the fairly limited demands currently placed on it. The roadbed, constructed to branch line standards, is barely wide enough to accommodate a ballast

shoulder capable of restraining continuous welded rail. Signals for train movement and numerous grade crossings do not exist, and almost all crossings have only passive warning devices.

From Mojave, the UP line generally runs about 40 miles southwest-northeast along the foot of the mountains on the north side of the Fremont Valley, before turning north at Randsburg, near the point at which it intersects US 395. Tunneling under the El Paso Mountains, it comes out and terminates at the Trona Railway interchange junction at Searles, the end of track since about 1992. Wye and interchange tracks exist at this location.

The line from Searles to Inyokern, a distance of 19 miles, is now abandoned but the roadbed and many of the drainage structures are still intact. The railroad descended into the Indian Wells Valley on a long, gentle grade and at Inyokern, intersected the U. S. Government spur serving the Navy's China Lakes Weapons Test Center. This trackage has also been removed.

Along the existing branch line at Cantil siding, 22 miles northeast of Mojave, is the former junction point for the Los Angeles Aqueduct construction railroad that was built some miles up Red Rock Canyon. This railroad existed for only two years, approximately, and while one might imagine how and where it was located, and how it climbed the canyon, no visible traces of it remain, even to skilled observers of railroad rights-of-way. Whatever might remain of it, if anything, would at this point be archeological in nature. Red Rock Canyon is the more direct line to the Eastern Sierra region, and is used by Highway 14 as the direct route north to a junction with Highway 395 at Inyokern/Ridgecrest. This is the alignment originally proposed by the City of Los Angeles to the Southern Pacific in 1908, which the railroad rejected in favor of the longer, flatter route around the El Paso Mountains. While it clearly presents difficulties, it should not yet be ruled out of consideration as a possible alignment for a passenger line to the Owens Valley and Mammoth. The climb on the south side from the Fremont Valley to the summit would be too steep for heavy freight operations, but would not present significant problems for passenger trains. The north slope is remarkably even, a broad and gentle descent into the Indian Wells Valley leading to Inyokern that could offer a substantially shorter and faster alignment for passenger service.

Abandoned Railroad Lines

Inyokern to Owenyo (Lone Pine) (76 miles)

North of the abandoned China Lake government spur, the rails have also been removed. However, the right-of-way of the former standard gauge line continuing from Inyokern, 76 miles to Owenyo (the former junction with the narrow gauge just north of Lone Pine) is quite obvious along Highway 395, and crosses the highway in several places. The right-of-way is largely intact. The railroad grade, bridge abutments, concrete culverts, cuts, fills and other reminders of the railroad's course are quite visible. Signs on the fences on the right-of-way at several locations indicate ownership by the Los Angeles Department of Water and Power.

Owenyo (Lone Pine) to Laws (Bishop) (54 miles)

The narrow gauge was built along the eastern side of the Owens Valley, and originally had no crossing of the Owens River. The stations serving the towns were generally some miles away; for example, Laws was the station for Bishop. At Owenyo, the interchange point between narrow and standard gauge, some relics of former activity can be seen, but in general, the construction standards of the 1880s employed on the narrow gauge were such that little of significance remains. It may prove to be the case that little advantage is to be gained in using the abandoned alignment, as almost nothing is in the way of permanent structures or grade that is likely to be of significant material use in building a new, modern standard gauge railroad upon it. However, the alignment is generally straight, and can be followed for most of the distance between Lone Pine and Bishop. Relatively few major points of construction or development occupy the right-of-way, with the exception of the Owens Valley Radio Observatory near Big Pine.

The one significant re-alignment of the narrow gauge that did occur came in the 1920s when the Tinemaha Reservoir was built, flooding a short segment of the original railroad line. At that time, a new narrow gauge alignment, requiring two bridges over the Owens, was built around the west side of the reservoir, and it is this “new” segment of the railroad that is readily apparent to motorists on Highway 395 north of Aberdeen. Depending upon the conclusion of studies on a potential new alignment north of Bishop to Mammoth Lakes, in which the railroad will have to gain the altitude of the summit of the Sherwin Grade, it may prove desirable in any event to leave the narrow gauge alignment in this vicinity, and begin the climb to Sherwin Summit at a reasonable grade on the west side of the Owens Valley near this point.

Sources

Bureau of Land Management
Federal Highway Administration and Federal Transit Administration Field Report: Eastern Sierra Expanded Transit System
Inyo County Economic Forecast
Inyo County General Plan
Kern County Economic Forecast
Kern County General Plan
Mono County Economic Forecast
Mono County General Plan
U.S Census Bureau
www.countyofinyo.org
www.monocounty.org

APPENDIX B

EXISTING TRANSIT SERVICES

Appendix B. Existing Transit Services

This appendix provides an overview of transit operators that serve the Eastern Sierra corridor. A profile of each agency is given, including its service parameters, operating characteristics, performance, and funding sources. Operators profiled include:

- California City Transit
- Inyo-Mono Transit
- Kern Regional Transit
- Mammoth Transit
- Reds Meadow Shuttle
- Ridgecrest Transit System
- Yosemite Area Regional Transportation System

Transit Operators in the Eastern Sierra Corridor

California City Transit began transit service in 1979 and provides local dial-a-ride services within the city limits and to adjacent urbanized areas of Kern County. California City Transit operates throughout a very large service area because the California City is so large, geographically. California City Transit provides connections to and from Kern Regional Transit services in California City. Service operates weekdays only and includes a weekly trip to Mojave.

Inyo-Mono Transit (IMT) is the largest transit operator in the Eastern Sierra corridor. The agency runs local, intercity, and intra-city transit in and between Inyo and Mono Counties as well as the interregional CREST line. Its fixed route program includes a local line in Bishop as well as intercity runs from Bishop to Benton, Lone Pine, Mammoth, and Walker. Service is also provided from Bridgeport to Carson City. The CREST route travels about 380 miles along the Eastern Sierra corridor, with a north route running from Bishop to Reno and a south route running from Mammoth to Ridgecrest. CREST was established to replace Greyhound when it withdrew service from this region in 2001.

IMT offers dial-a-ride (DAR) service within the communities of Bishop, Lone Pine, and to a limited extent in Benton. DAR is also available for travel from Tecopa to Pahrump or Tecopa to Victorville in San Bernardino County; between Walker, Coleville, and Topaz on weekdays; and in the late evenings on Friday and Saturday in Bishop. IMT service is also available for special community events within either county, such as the annual Jazz Festival in Mammoth Lakes and the film festival in Lone Pine.

The County of Inyo created IMT to provide transit services within its jurisdiction in 1983. At that time, it also began operating transit services in Mono County. In 2000, a Memorandum

of Understanding (MOU) was developed between the two counties to formalize this relationship. A separate MOU was created in 2000 to institute IMT's service contract with the Town of Mammoth.

Like IMT, **Kern Regional Transit** (KRT) operates transit services connecting incorporated cities and unincorporated communities within Kern County. Intercity service also connects Kern County to the cities of Lancaster and Palmdale in Los Angeles County, where passengers can access Metrolink, Santa Clarita Transit, or Antelope Valley Transit Authority bus lines. Additionally, KRT provides dial-a-ride services within and between rural or small communities in unincorporated Kern County, including Rosamond, Mojave and the Lake Isabella area. Within the Eastern Sierra corridor, KRT has fixed-route, intercity services that travel through eastern Kern County, through the Kern River Valley, and city-to-city service between Lake Isabella and Bakersfield, Bakersfield and Mojave, Boron and Mojave, California City and Los Angeles County, and Mojave-California City-Ridgecrest.

KRT is a division of the Kern County Roads Department, which is part of the County's Resource Management Agency. All services in the eastern portion of Kern County are provided through contracts with First Transit, Inc. KRT has been operating since 1980.

Mammoth Transit, overseen by the Town of Mammoth Lakes, offers local fixed-route and demand-responsive transit on a seasonal basis. From November through April, daily shuttle bus service is operated and funded by the Mammoth Mountain Ski Area. This service shuttles skiers and other winter visitors between the town's ski facilities, accommodations, and restaurants and bars. From May to October, transit service is contracted out to Inyo-Mono Transit, with the Town of Mammoth subsidizing 10% of costs.¹ During these months of the year, one vehicle serves the fixed route program and a second vehicle provides dial-a-ride service on weekdays.

Reds Meadow Shuttle carries summer visitors from the Mammoth area to 10 spots within Inyo National Forest, including Reds Meadow, Devils Postpile National Monument, and other recreational attractions. Established in 1979, day visitors are required to use this shuttle in order to reach the Devils Postpile–Reds Meadow area. The shuttle runs on a daily basis from late June to early October. Funded by the U.S. Department of Interior's Fee Demonstration Authority, the U.S. Forest Service contracts with Cruisers of America to provide this service.²

The City of Ridgecrest, via the **Ridgecrest Transit System** (RTS), provides demand-responsive service within its boundaries and to neighboring Inyokern, as well as the Randsburg-Johannesburg area. Kern County reimburses the City for transit services to these adjacent areas of the county. Ridgecrest, California City and Kern County jointly fund a KRT-operated intercity transit service between Ridgecrest and Mojave, with intermediate stops in Inyokern and California City. This route commenced in 2003.

¹ Smith, G. (2004, July). "Reds Meadow Shuttle and Devils Postpile National Monument: Background Information and Regional Context." Unpublished paper. National Park Service.

² See section on Funding and Funding Sources on p. 3-19 for more information about the Fee Demonstration Authority.

The **Yosemite Area Regional Transportation System** (YARTS) provides regional transit service to and from Mariposa, Merced, and Mono Counties, transporting passengers to key destinations in Yosemite National Park. YARTS also connects riders to Inyo-Mono Transit's CREST service and on the west side of Yosemite, to the Amtrak station in Merced. The Highway 120/395 route runs between Mammoth Lakes and Yosemite. The Highway 140 route runs between Merced County and Yosemite. Each route operates daily and connects with shuttles within the Park. The YARTS service schedule is seasonal, with separate schedules for the high-tourist, summer season and for the fall-winter-spring season. Service between the Eastern Sierra and Yosemite is not provided during the winter when Tioga Pass is closed.

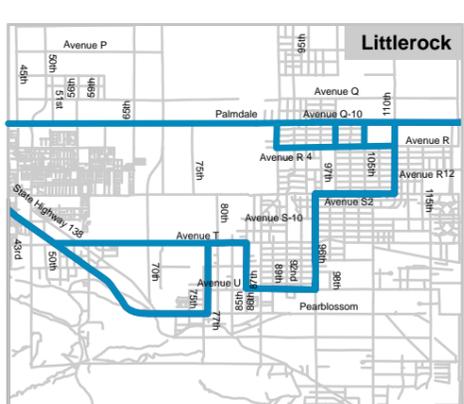
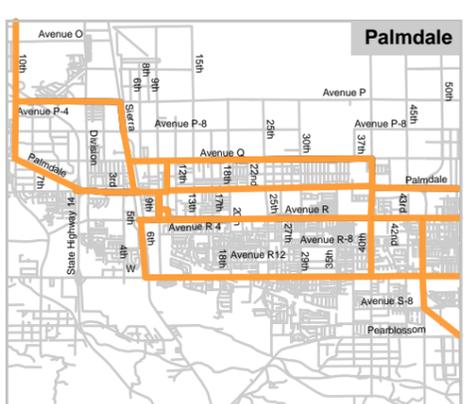
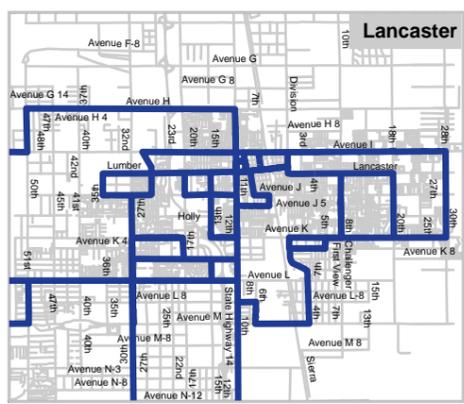
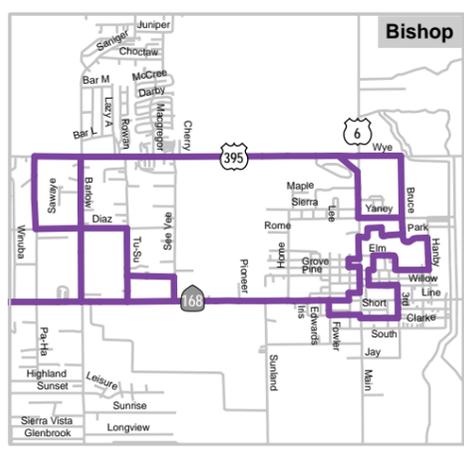
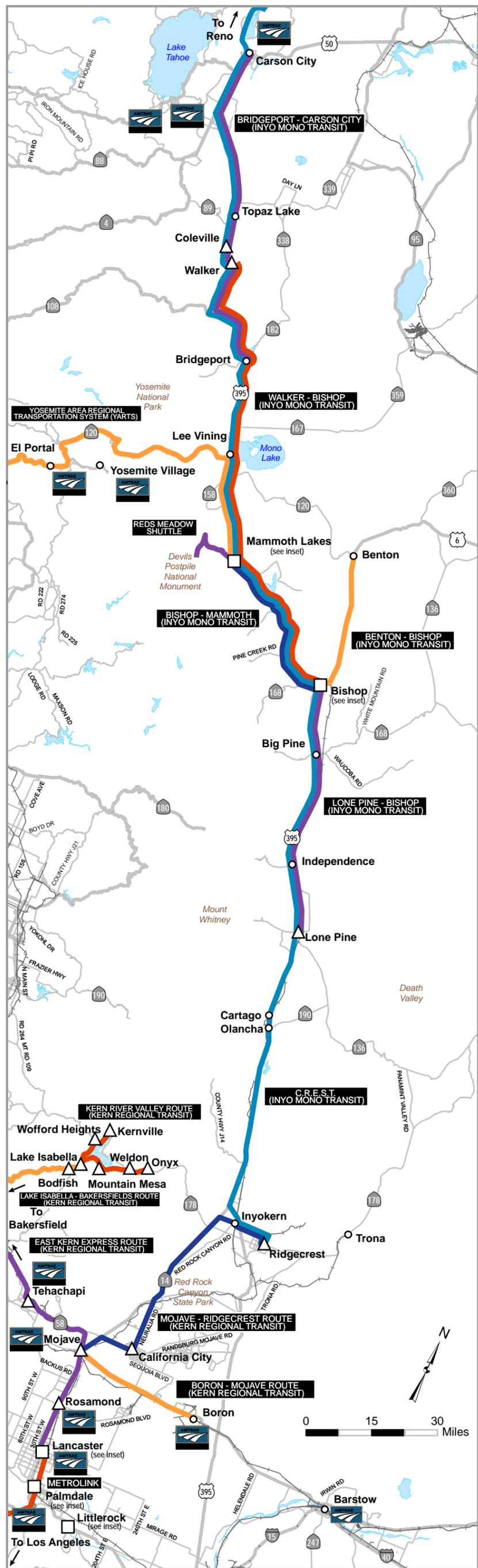
Figure B-1 details each of these operators' service areas, days and hours of operation, and other service parameters. Figure B-2 presents an area map with all the transit routes.

Figure B-1 Fixed Route Services in the Eastern Sierra Corridor

City/Area (or Route Name)	Service Areas	Operator	Days and Hours of Operation	Daily Trips or Headways
Inyo-Mono Transit (IMT)				
Benton – Bishop Route	Benton Bishop Hammil Valley Chalfant	IMT	Tue, Fri 8:45 am – 3:30 PM	One round trip
Bishop Local	Bishop	IMT	Mon – Fri 7:00 am – 6:00 pm	30 minutes
Bishop – Mammoth	Bishop Mammoth	IMT	Mon – Fri 7:00 am – 5:15 pm Sat 7:30 am – 3:30 pm	Two round trips
Bridgeport – Carson City	Bridgeport Carson City Coleville Gardnerville Walker	IMT	Fri 8:00 am – 4:30 pm	One round trip
CREST: Bishop – Reno	Bishop Bridgeport Carson City Coleville Crowley Lake June Lake Lee Vining Mammoth Tom’s Place Topaz Walker	IMT	Tue, Thu, Fri 7:00 am – 5:30 pm	One round trip
CREST: Mammoth– Ridgecrest	Aberdeen Big Pine Bishop Coso Junction Crowley Independence Lone Pine Mammoth Olancho Tom’s Place	IMT	Mon, Wed, Fri 8:00 am – 1:30 pm	One round trip
Lone Pine – Bishop	Aberdeen Big Pine Bishop Independence Lone Pine	IMT	Mon – Fri 6:30 am – 6:40 pm First Sat of every month 8:30 am – 4:00 pm	Two round trips

City/Area (or Route Name)	Service Areas	Operator	Days and Hours of Operation	Daily Trips or Headways
Walker – Bishop Service	Bishop Bridgeport Crowley Lake Lee Vining June Lake Mammoth Lakes Round Valley Tom’s Place Walker	IMT	Mon, Wed 9:00 am – 5:40 pm	One round trip
Kern Regional Transit (KRT)				
Boron – Mojave	Boron North Edwards Mojave	KRT	Wed only 4:40 am – 6:15 pm	4 round trips
East Kern Route	Bakersfield Keene Lancaster Mojave Rosamond Tehachapi	KRT	Mon – Fri 4:00 am – 10:00 pm Sat 4:00 am – 7:00 pm	Mon – Fri 7.5 round trips Sat 3 round trips
Kern River Valley (2 routes)	Bodfish Kernville Lake Isabella Mountain Mesa Onyx Southlake Weldon Wofford Heights	KRT	Mon – Sat 5:30 am-7:00 pm	10 round trips
Mojave – Ridgecrest	California City Inyokern Mojave Ridgecrest	KRT	Mon, Wed, Fri 4:25 am – 8:20 pm	3 round trips
Ridgecrest – Inyokern	Ridgecrest Inyokern	RTS	Monday-Saturday 6:00 am – 6:00 pm	3 round trips
Ridgecrest – Randsburg/Johannesburg	Ridgecrest Randsburg Johannesburg	RTS	Thursday 6:00 am – 6:00 pm	One round trip
Mammoth Transit				
Mammoth: Winter Schedule	Town of Mammoth	Mammoth Mountain Ski Area	Mon – Fri Nov – April only 7:00 am – 7:00 pm (Runs to midnight in some areas)	30 minutes

City/Area (or Route Name)	Service Areas	Operator	Days and Hours of Operation	Daily Trips or Headways
Reds Meadow Shuttle				
Reds Meadow Shuttle	Inyo National Forest	U.S. Forest Service Cruisers of America (Contractor)	Daily 7:00 am – 7:30 pm	20-30 minutes
YARTS				
Highway 120/395	Mono County Yosemite National Park	Merced County Association of Governments Cruisers of America (Contractor)	Daily, as of July 1 7:00 am – 5:00 pm Sat, Sun only in Sep 7:00 am – 5:00 pm	One round trip



LEGEND

- Transit Route
- Dial-A-Ride Service
- Local Fixed Route and Dial-A-Ride Service
- AMTRAK Rail Service
- AMTRAK Bus Service
- Road
- Railroad

Source: ESRI, USGS, Kern COG, Caltrans, Federal Rail Administration, Metrolink, AVTA, Cruisers California



Figure B-2
Transit Routes within Eastern Sierra Corridor

Local Demand-Responsive (Dial-A-Ride) Services

The services provided by the operators covered in this section fall in the demand-responsive category. Only two of the services presented in this appendix do not offer DAR service: Reds Meadow and YARTS shuttles. Demand-responsive service consists of curb-to-curb service in wheelchair-accessible vehicles that is available, in most cases, to both the general public and people with mobility impairments.

California City provides DAR service for all of its residents. The service includes local runs on weekdays and an intercity route to Mojave that runs once a week. Because of capacity constraints, trips are assigned with the following priority: people with disabilities and seniors are given first priority, with work-related and medical trips being second priority.

Except for CREST, all of **Inyo-Mono Transit's** lines operate as demand-responsive services. Its local Bishop and Mammoth Lakes services have a DAR counterpart for people with disabilities in Mammoth and for members of the general public whose trip locations fall outside the one-mile service area of the fixed route. IMT users can make reservations for appointments with set times (e.g. medical trips) up to a week in advance. Trips with more time flexibility (e.g. shopping) can be made the same day, with IMT staff advising of wait periods from 10 to 30 minutes. Because IMT operates **Mammoth Transit's** DAR service, these same policies apply to DAR transit within the Town of Mammoth Lakes.

Kern Regional Transit provides DAR transit for the Eastern Sierra communities of Mojave, Rosamond and Tehachapi. Each of these services travels within their respective communities. Demand-response service is also available on KRT's intercity Kern River Valley route, where the DAR service area is up to two miles off the fixed route. KRT requires that all DAR reservations be made at least one day in advance to guarantee service. Otherwise, DAR trips are made on a first-come, first served basis.

The **City of Ridgecrest's** DAR is a reservations-only service that carries passengers around the greater Ridgecrest area. This route also makes seven daily scheduled drop-offs and pick-ups at Cerro Coso College, with reservations being mandatory.

Figure B-3 summarizes DAR services available in the Eastern Sierra corridor.

Figure B-3 Local Demand-Responsive Services

Name	Service Areas	Operator	Days and Hours Of Operation	Reservations
California City				
California City	City of California	City of California City	Mon – Fri 8:00 am – 12:00 pm 1:00 pm – 5:30 pm	Advance or standing reservations are not accepted.
California City – Mojave	California City Mojave	City of California City	Thu only 8:30 am – 6:00 pm	Reservations must be made the Monday prior to the trip.
Inyo-Mono Transit				
Benton	Benton	IMT	Mon, Wed, Thu 11:00 am – 1:00 pm	This service takes seniors to the senior center for lunch only. Reservations can be made at senior center (209) 933-2272.
Bishop	Bishop	IMT	Mon, Fri 8:00 am – 6:00 pm Sat, 8:30 – 4:00	Reservations can be made up to a week in advance. Same-day reservations can be also be made. However, passenger must wait for next available driver.
Bishop – Night Rider	Greater Bishop area	IMT	Fri, 6:00 pm – 11:30 pm Sat, 4:00 pm – 11:30 pm	Reservations can be made up to a week in advance. Same-day reservations can be also be made. However, passenger must wait for next available driver.
Lone Pine	Lone Pine	IMT	Mon – Fri 7:00 am – 4:00 pm	Reservations can be made up to a week in advance. Same-day reservations can be also be made. However, passenger must wait for next available driver.
Mammoth Lakes: Spring – Summer Schedule	Town of Mammoth	IMT	Mon – Fri May – Nov only 7:00 am – 7:00 pm	30 minutes
Tecopa – Pahrump	Pahrump Shoshone Tecopa	IMT	Thu 12:30 pm – 6:15 pm	Reservations can be made up to a week in advance. Same-day reservations can be also be made. However, passenger must wait for next available driver.
Tecopa – Victorville	Shoshone Tecopa Victorville	IMT	Fourth Tue of each month 6:00 am – 4:00 pm	Reservations can be made up to a week in advance. Same-day reservations can be also be made. However, passenger must wait for next available driver.
Walker – Coleville	Coleville Topaz, Topaz Lake Walker	IMT	Mon – Fri 8:00 am – 4:30 pm	Reservations can be made up to a week in advance. Same-day reservations can be also be made. However, passenger must wait for next available driver.
Kern Regional Transit				
Kern River Valley	Bodfish Lake Isabella Kernville Mountain Mesa Onyx Wofford Heights	KRT	Mon – Fri 6:30 am – 6:30 pm Sat 7:45 am – 6:30 pm	Reservations required at least one day in advance to guarantee service.

Name	Service Areas	Operator	Days and Hours Of Operation	Reservations
Mojave	Mojave	KRT	Mon – Sat 7:00 am – 6:00 pm	Reservations required at least one day in advance to guarantee service.
Rosamond	Rosamond	KRT	Mon – Sat 6:30 am – 5:30 pm	Reservations required at least one day in advance to guarantee service.
Tehachapi	Golden Hills Old Towne Tehachapi	KRT	Mon – Fri 5:30 am – 7:00 pm	Reservations required at least one day in advance to guarantee service.
Mammoth Transit				
Mammoth (also see IMT)	Mammoth area	IMT	Mon – Fri 7:30 am – 5:00 pm	Reservations can be made up to a week in advance. Same-day reservations can be also be made. However, passenger must wait for next available driver.
Ridgecrest Transit System				
Ridgecrest	Ridgecrest Inyokern Randsburg Johannesburg	RTS	Mon – Fri 6:00 am – 6:00 pm Sat 9:00 am – 5:00 pm	Reservations can be made up to one week in advance (but at least two hours in advance). Standing reservations are also available. Same-day trip requests must be made at least two hours in advance.

Fares

Fare categories for transit operators in the Eastern Sierra include “regular” for adults and “discount” for seniors, people with disabilities, and youth (referring to children from age 5 to 15 or 16, depending on the agency). Children under a certain age ride free when accompanied by a fare-paying adult. For the most part, fares for this region are structured by zone, which means that prices are set for certain origin-destination pairs. Trips that cover longer distances result in higher fares.

Inyo-Mono Transit has a wide range of fares, with fixed route prices ranging from \$0.50 to \$9.00, depending on the route and distance. The interregional CREST fares vary from \$5.00 to \$28.00, again depending on the origin and destination. IMT offers a monthly pass for its local routes, and a bulk ticket package called the 10-punch card for its other lines.

Kern Regional Transit intercity fares range from \$0.75 to \$4.00, depending on the distance traveled. KRT’s fares for demand-responsive services are \$1.00 for the general public and \$0.75 for seniors, disabled, and youth. KRT does not offer monthly passes. However patrons can purchase tickets that have the same value as the cash fare but may be more convenient to use.

Ridgecrest Transit System, California City Transit, and the **Reds Meadow Shuttle** have one price for their adult and discount categories, regardless of origin-destination. **YARTS** fares are dependent on distance traveled and range from \$3.00 to \$20.00, depending on the route. **Mammoth Transit**’s fixed route shuttle services are free for all users, but dial-a-ride users pay \$1.25 adult fare for travel within one zone and \$1.50 for trips between zones.

Figures B-4 through B-7 outline fares for the operators’ fixed routes and DAR services.

Figure B-4 One-Way Fares for Fixed Route Services

Route Name	Fare		Fare Discount Eligibility
	Regular	Discount	
Inyo-Mono Transit			
Benton – Bishop *	\$2.00 – \$3.50	\$1.50 – \$2.50	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Benton – Mammoth Lakes	\$5.50	\$4.50	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Bishop	\$0.50	\$0.50	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Bishop – Mammoth, Commuter Service*	\$2.00 – \$2.50	\$1.50 – \$2.00	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Bishop – Mammoth, Saturday*	\$2.75 – \$3.50	\$1.75 – \$2.50	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Bridgeport – Carson City *	\$3.00 – \$5.50	\$1.00 – \$4.50	Seniors, disabled, youth (5-16). Children 4 and under ride free.
CREST: Bishop – Reno *	\$8.00 – \$28.00	\$6.00 – \$23.00	Seniors, disabled, youth (5-16). Children 4 and under ride free.
CREST: Mammoth – Ridgecrest *	\$5.00 – \$21.00	\$4.00 – \$17.50	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Lone Pine – Bishop*	\$2.00 – \$4.00	\$1.50 – \$3.50	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Walker – Bishop *	\$3.00 – \$9.00	\$2.00 – \$8.00	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Kern Regional Transit			
Boron – Mojave*	\$1.00 – \$3.00	\$0.75 – \$1.50	Seniors, disabled, youth (5-15). Children 4 and under ride free.
East Kern*	\$1.00 – \$5.00	None	N/A
Kern River Valley	\$1.00	\$0.75	Seniors, disabled, youth (5-15). Children 4 and under ride free.
Mojave – Ridgecrest *	\$0.75 \$4.00	\$0.50 \$3.00	Seniors, disabled, youth (5-15). Children 4 and under ride free.
Mammoth Transit			
Winter	Free	Free	N/A
Spring/Summer schedule	Free	Free	N/A
Reds Meadow			
Reds Meadow Shuttle	\$7.00	\$4.00	Youth, 3-15. Children 2 and under ride free.
Ridgecrest Transit System			
Ridgecrest – Inyokern	\$1.50	\$0.75	Seniors and disabled
Ridgecrest – Randsburg/Johannesburg	\$4.00	\$3.00	Seniors and disabled
YARTS			
Highway 120/395*	\$5 – \$20	\$3 – \$10	Seniors, youth (under 16).

*See Figure B-5 for detailed fare structure.

Figure B-5 Fare Structures for Fixed Routes with Zonal Fares (One-way, Regular/Discount)

Kern Regional Transit

Boron – Mojave	Boron	Mojave	N Edwards
Boron		\$3.00/\$1.50	\$2.00/\$1.00
Mojave	\$3.00/\$1.50		\$2.00/\$1.00
N Edwards	\$2.00/\$1.00	\$2.00/\$1.00	

East Kern	Bakersfield	Keene	Tehachapi	Mojave	Rosamond	Lancaster
Bakersfield		\$2.00	\$2.00	\$3.00	\$4.00	\$5.00
Keene	\$2.00		\$1.00	\$2.00	\$3.00	\$4.00
Tehachapi	\$2.00	\$1.00		\$1.00	\$2.00	\$3.00
Mojave	\$3.00	\$2.00	\$1.00		\$1.00	\$2.00
Rosamond	\$4.00	\$3.00	\$2.00	\$1.00		\$1.00
Lancaster	\$5.00	\$4.00	\$3.00	\$2.00	\$1.00	

(No discount fare on East Kern route)

Mojave – Ridgecrest	Mojave	California City	Inyokern	Ridgecrest
Mojave	\$0.75/\$0.50	\$1.00/\$0.50	\$3.00/\$2.00	\$4.00/\$3.00
California City	\$1.00/\$0.50		\$2.00/\$1.00	\$3.00/\$2.00
Inyokern	\$3.00/\$2.00	\$2.00/\$1.00		\$1.50/\$0.75
Ridgecrest	\$4.00/\$3.00	\$3.00/\$2.00	\$1.50/\$0.75	

Inyo-Mono Transit

Benton – Bishop	Benton	Hammil Valley	Chalfant	Bishop
Benton				\$3.50/\$2.50
Hammil Valley				\$2.50/\$2.00
Chalfant				\$2.00/\$1.50
Bishop	\$3.50/\$2.50	\$2.50/\$2.00	\$2.00/\$1.50	

Bishop – Mammoth (Commuter)	Bishop	Tom’s Place	Crowley	Mammoth
Bishop		\$2.50/\$2.00	\$3.00/\$2.50	\$5.50/\$4.50
Tom’s Place	\$2.50/\$2.00		\$0.75/\$0.50	\$2.50/\$2.00
Crowley	\$3.00/\$2.50	\$0.75/\$0.50		\$2.00/\$1.50
Mammoth	\$5.50/\$4.50	\$2.50/\$2.00	\$2.00/\$1.50	

Inyo-Mono Transit (continued)

Bishop – Mammoth (Saturday)	Bishop	Round Valley	Tom’s Place	Crowley	Mammoth
Bishop			\$2.75/\$1.75	\$3.00/\$2.00	\$3.50/\$2.50
Round Valley					\$3.00/\$2.00
Tom’s Place	\$2.75/\$1.75				\$2.50/\$1.50
Crowley	\$3.00/\$2.00				\$1.75/\$0.75
Mammoth	\$3.50/\$2.50	\$3.00/\$2.00	\$2.50/\$1.50	\$1.75/\$0.75	

Bridgeport – Carson City	Bridgeport	Coleville	Gardnerville	Walker	Carson City
Bridgeport		\$3.50/\$2.50	\$4.75/\$3.75	\$3.00/\$2.00	\$5.50/\$4.50
Coleville	\$3.50/\$2.50			\$2.00/\$1.00	
Gardnerville	\$4.75/\$3.75			\$3.50/\$2.50	
Walker	\$3.00/\$2.00	\$2.00/\$1.00	\$3.50/\$2.50		\$4.00/\$3.00
Carson City	\$5.50/\$4.50			\$4.00/\$3.00	

CREST: Mammoth – Ridgecrest	Ridgecrest
Mammoth	\$21.00/\$17.50
Crowley	\$18.50/\$15.50
Tom’s Place	\$18.00/\$15.00
Bishop	\$15.50/\$13.00
Big Pine	\$14.00/\$11.50
Aberdeen	\$13.00/\$10.50
Independence	\$11.00/\$9.00
Lone Pine	\$9.50/\$7.50
Olancho	\$7.00/\$5.50
Coso Junction	\$5.00/\$4.00
Pearsonville	\$5.00/\$4.00

CREST: Bishop – Reno	Reno
Bishop	\$28.00/\$23.00
Tom’s Place	\$25.00/\$20.50
Crowley Lake	\$24.50/\$20.00
Mammoth	\$23.00/\$18.50
June Lake	\$21.00/\$16.50
Lee Vining	\$20.00/\$15.50
Bridgeport	\$17.00/\$13.00
Walker	\$13.00/\$10.00
Coleville	\$12.50/\$9.50
Topaz	\$11.50/\$9.00
Carson City	\$8.00/\$6.00

Lone Pine – Bishop	Lone Pine	Bishop	Independence	Aberdeen	Big Pine
Lone Pine		\$4.00/\$3.50			
Bishop	\$4.00/\$3.50		\$3.50/\$3.00	\$3.00/\$2.50	\$2.00/\$1.50
Independence		\$3.50/\$3.00			
Aberdeen		\$3.00/\$2.50			
Big Pine		\$2.00/\$1.50			

Inyo-Mono Transit (continued)

Walker – Bishop	Walker	Bridgeport	Lee Vining	Mammoth	Crowley	Tom’s Place	Round Valley	Bishop
Walker		\$3.00/\$2.00	\$5.75/\$4.75	\$6.25/\$5.25	\$7.25/\$6.25	\$7.50/\$6.50	\$8.00/\$7.00	\$9.00/\$8.00
Bridgeport	\$3.00/\$2.00							
Lee Vining	\$5.75/\$4.75							
Mammoth	\$6.25/\$5.25							
Crowley	\$7.25/\$6.25							
Tom’s Place	\$7.50/\$6.50							
Round Valley	\$8.00/\$7.00							
Bishop	\$9.00/\$8.00							

YARTS

YARTS Highway 120/395	Mammoth Lakes	June Lake	Lee Vining	Tuolumne Meadows	White Wolf	Crane Flat	Yosemite Valley
Mammoth Lakes		\$5.00/\$3.00	\$10.00/\$5.00	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00
June Lake	\$5.00/\$3.00		\$5.00/\$3.00	\$15.00/8.00	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00
Lee Vining	\$10.00/\$5.00	\$5.00/\$3.00		\$10.00/\$5.00	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00
Tuolumne Meadows	\$20.00/\$10.00	\$15.00/8.00	\$10.00/\$5.00		\$10.00/\$5.00	\$20.00/\$10.00	\$20.00/\$10.00
White Wolf	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00	\$10.00/\$5.00		\$10.00/\$5.00	\$10.00/\$5.00
Crane Flat	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00	\$10.00/\$5.00		\$5.00/\$3.00
Yosemite Valley	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00	\$20.00/\$10.00	\$10.00/\$5.00	\$5.00/\$3.00	

Figure B-6 One-Way Fares for Demand-Responsive Services

City	Fare		Passes	Fare Discount Eligibility
	Regular	Discount		
California City DAR				
California City	\$1.25	\$0.50	None	Seniors, disabled, youth (15 and under)
Inyo-Mono Transit				
Benton	\$1.25	\$0.75	<i>Monthly pass:</i> \$55.00 (regular) \$35.00 (discount)	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Bishop	\$1.25	\$0.75	<i>Monthly pass:</i> \$55.00 (regular) \$35.00 (discount)	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Bishop Night Rider	\$2.00	\$1.50	<i>10-ride punch card:</i> \$13.50 (regular) \$ 9.00 (discount)	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Lone Pine *	\$2.00 – \$4.00	\$1.50 – \$3.50	<i>10-ride punch card:</i> \$13.50 (regular) \$ 9.00 (discount)	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Walker – Coleville *	\$1.25 – \$2.50	\$0.75 – \$2.00	<i>10-ride punch card:</i> \$13.50 (regular) \$ 9.00 (discount)	Seniors, disabled, youth (5-16). Children 4 and under ride free.
Kern Regional Transit				
Kern River Valley	\$1.00	\$0.75	Tickets available	Seniors, disabled, youth (5-15). Children 4 and under ride free.
Lake Isabella – Bakersfield	\$2.75	\$1.75	Tickets available	Seniors, disabled, youth (5-15). Children 4 and under ride free.
Mojave	\$1.00	\$0.75	Tickets available	Seniors, disabled, youth (5-15). Children 4 and under ride free.
Rosamond	\$1.00	\$0.75	Tickets available	Seniors, disabled, youth (5-15). Children 4 and under ride free.
Mammoth Transit				
Mammoth	\$1.25 – \$2.50	\$0.75 – \$2.50	<i>10-ride punch card:</i> \$13.50 (regular) \$ 9.00 (discount) <i>Monthly pass:</i> \$55.00 (regular) \$35.00 (discount)	Seniors, disabled, youth (5-15). Children 4 and under ride free.
Ridgecrest Transit System				
Ridgecrest	\$1.25	\$0.75	Tickets available	Seniors, disabled.

*See Figure B-7 for detailed fare structure.

Figure B-7 Fare Structures for DAR Services with Zonal Fares (One-way, Regular/Discount)

Inyo-Mono Transit

Lone Pine	Lone Pine	Independence	Bishop	Big Pine
Lone Pine			\$4.00/\$3.50	
Independence			\$3.50/\$3.00	
Bishop	\$4.00/\$3.50	\$3.50/\$3.00		\$2.00/\$1.50
Big Pine			\$2.00/\$1.50	

Walker – Coleville	Walker	Coleville	Topaz	Topaz Lake
Walker	\$1.25/\$0.75	\$1.50/\$1.00	\$2.00/\$1.50	\$2.50/\$2.00
Coleville	\$1.50/\$1.00		\$1.50/\$1.00	\$2.00/\$1.50
Topaz	\$2.00/\$1.50	\$1.50/\$1.00		\$2.00/\$1.50
Topaz Lake	\$2.50/\$2.00	\$2.00/\$1.50	\$2.00/\$1.50	

Operating Characteristics

Vehicles

Figure B-8 presents the vehicle fleets operated by transit providers in the Eastern Sierra corridor. KRT has the largest fleet size overall. It is worth noting that not all of the vehicles in the KRT and IMT fleets are used within the study area at all times.

Figure B-8 Vehicle Fleets of Transit Operators in Study Area

Operator	Vehicles		Description/Comments
	Buses	Small Buses/ Vans	
California City ¹	0	3	Two cutaways and one 10-passenger van.
Inyo-Mono Transit ^{2,3}	4	22	Fleet is owned by Inyo County.
Kern Regional Transit ¹	40	38	Fleet is owned by the County.
Reds Meadow Shuttle ⁴	10	0	All buses seat 48 passengers and run on diesel.
Ridgecrest Transit System ¹	0	4	16-passenger vehicles, all purchased in FY 1999.
YARTS ⁴	1	1	One 21-passenger minibus. One 55-passenger motorcoach. Both vehicles are diesel.

¹ From Kern Regional Transit, 2004

² From 2004 Triennial Performance Audits

³ Includes vehicles used for Mammoth Transit Service

⁴ Data from Brian Vaughan, contract operator for Reds Meadow and YARTS shuttles

Funding and Funding Sources

The municipal transit operators' revenues in the Eastern Sierra region consist of passenger fares and funding from a combination of federal, state, and local sources. More than 50% of their funding is from the state's Transportation Development Act, which consists of Local Transportation Funds (LTF) and State Transit Assistance Funds (STA). LTF funds are derived from a quarter-cent of the 7.25-cent retail sales tax collected statewide. The State Board of Equalization returns the money to each county or Regional Transportation Planning Agency (RTPA) according to the amount of tax collected in that county. Thereafter, the RTPA distributes the money to cities according to their population. For example, Kern COG distributes the funds for Kern County. STA funds are derived from the statewide sales tax on gasoline and diesel fuel. The state allocates funds to counties and, in turn, individual operators using a formula that relies on operator revenues from prior fiscal years.

Federal funds, apportioned by the Federal Transit Administration, are used to pay for operating, capital, and planning expenditures. FTA Section 5311 is a formula grant program for non-urbanized areas, which are those areas with populations less than 50,000. This money is to be used for transit capital and operating costs. This program requires that federal funds be matched locally. Some of this money had been used for the Eastern Sierra Greyhound service when the counties were providing financial support.

Mammoth Lakes essentially has two separate transit operations. IMT is responsible for the non-ski season operation. The winter fixed-route service is entirely operated and paid for the Mammoth Mountain Ski Area resort. However, all DAR services within the Town of Mammoth Lakes utilize TDA funds.

Because it is operated entirely by a federal entity, the Reds Meadow Shuttle has a different funding structure. Since 2002, the shuttle has been primarily funded by the U.S. Department of Interior's Recreational Fee Demonstration Project Authority. This provision allows the U.S. Forest Service (USFS) to charge an access fee to all people visiting Inyo National Forest. The fee authority acknowledges that all visitors to the area benefit from the mandatory shuttle system and therefore all visitors should help to support it. Park guests with vehicle-exempt status are therefore required to pay the same fee as those day users who are entering the area via bus. In FY 2001-2002, revenues from the access fees paid for all of the shuttle's operating costs.³ A policy change was made in FY 2002-2003, and Golden Passports and National Parks passes were accepted which allowed some visitors to enter the park for free. This led to a projected deficit of approximately \$280,000, which the Washington offices of the National Park Service and USFS agreed to cover. The Reds Meadow Shuttle Transit Advisory Group met in August 2004 to look at long-term sustainable funding opportunities for the shuttle. Members are currently putting together a report with recommendations, to be released in September 2005.

³ Smith, G. (2004, July). "Reds Meadow Shuttle and Devils Postpile National Monument: Background Information and Regional Context." Unpublished paper. National Park Service.

Figure B-9 Funding Sources

	California City		Inyo-Mono Transit		Kern Regional Transit		Reds Meadow ¹		Ridgecrest Transit		YARTS ²	
Federal Funding Sources												
FTA 5309	-	-	-	-	-	-	-	-	-	-	\$145,000	18.6%
FTA 5311	\$7,287	3.9%	\$91,755	4.9%	\$217,151	7.4%	-	-	\$96,470	12.8%	\$101,000	12.9%
DOI, NPS subsidy	-	-	-	-	-	-	\$280,000	32.3%	-	-	-	-
Other (unspecified)	-	-	-	-	-	-	-	-	\$106,885	14.2%	-	-
State and Regional Funding Sources												
STA			\$93,371	5.0%	\$258,801	8.8%	-	-	\$75,124	10.0%	\$100,000	12.8%
LTF	\$151,038	79.8%	\$1,084,991	58.4%	\$1,944,025	66.3%	-	-	\$369,443	49.2%	-	-
Local and Other Revenue Sources												
Fares	\$20,786	11.0%	\$135,481	7.3%	\$474,182	16.2%	\$587,906	67.7%	\$42,553	5.7%	\$216,000	27.7%
General Operating Assistance	\$10,903	5.3%	\$428,309	23.1%	-	-	-	-	\$60,040	8.0%	\$218,360	28.0%
Auxiliary Transportation Revenue	-	-	-	-	-	-	-	-	-	-	-	-
Non-Transportation Revenue (including interest revenue)	-	-	\$11,726	0.6%	\$37,814	1.3%	-	-	\$962	0.1%	-	-
Subsidy from other sector of operations	-	-	\$10,954	0.5%	-	-	-	-	-	-	-	-
TOTAL	\$189,204	100%	\$1,402,409	100%	\$2,931,973	100%	\$867,906	100%	\$751,477	100%	\$780,360	100%

Sources:

All data, except for Reds Meadows and YARTS, from State Controller’s Report for FY 2001-2002. Amounts reported for Kern Regional Transit are systemwide.

¹ Smith, G. (2004, July). “Reds Meadow Shuttle and Devils Postpile National Monument: Background Information and Regional Context.” Unpublished paper. National Park Service.

² YARTS data is projected budget for FY 2003-2004 from YARTS Short-Range Transit Plan for 2004-2009.

Oversight and Coordinated Services

California City

The Director of Public Works coordinates transportation studies, transit analyses, and project programming, including the maintenance of statistical reporting systems. Public Works staff maintains the city-owned fleet of three vehicles. The Director of Finance is responsible for the programming of local, state and federal transportation funds as well as for preparing and submitting all regional, state, and federal financial reports.

Inyo-Mono Transit

The County Administrator is the official head of IMT and reports to its Board of Directors, which is effectively the county's Board of Supervisors. IMT's Transit Director is charged with the agency's management, and this person works with a Transit Coordinator and Office Manager. Other personnel assigned to IMT include a dispatch supervisor, administrative clerk, trainer, and 29 drivers.

Kern Regional Transit

KRT is a division of the Kern County Roads Department, which is part of the County's Resource Management Agency. The County contracts with First Transit, Inc. to operate its transit services. First Transit provides all staffing and necessary facilities, while the Kern County Roads Department maintains the county-owned fleet. First Transit is responsible for maintaining any vehicles it owns.

Three staff members administer KRT's transit services. The Transit Systems Coordinator reports to the Director of the County Roads Department and provides daily management and oversight of operations and service contracts. The Coordinator also monitors and analyzes transit service performance and coordinates with various public and private entities within the county to provide services. A Transit Specialist manages daily operations and the fulfillment of service contracts. She is also responsible for most research and planning activities. An Accounting Clerk provides accounting and administrative support.

In the Eastern Sierra corridor, KRT contracts with the City of Ridgecrest to provide transit services to nearby county residents.

Mammoth Transit

The Town of Mammoth Lakes is undergoing a re-organization of its Public Works Department. Currently, transit responsibilities are handled by both the Public Works Department and the Airport and Transportation Department at the Town of Mammoth Lakes. Transit contracts are overseen by the Airport and Transportation Department.

Mammoth Transit is operated and funded by the Mammoth Mountain Ski Area during the winter ski season (November through April). The resort company has a transportation office

that manages the shuttle in addition to handling other transportation issues for visitors and employees. From May to October, transit service is contracted out to Inyo-Mono Transit.

Reds Meadow Shuttle

Shuttle service is contracted to Cruisers of America, which is based in Florida. Cruisers has stationed one full-time manager in the Eastern Sierra whose responsibilities consist of dispatch, supervision of drivers, and other items. As part of its contract, Cruisers provides the buses, maintenance, maintenance facility, and fuel.

Ridgecrest Transit System

The city's Finance Director oversees all daily transit operations and is also responsible for preparing and submitting all grant applications, State Controller's Reports and all reports and documentation required by the Transit Development Act. The City of Ridgecrest hired many of TransWest's employees (the former contractor) after their contract was cancelled in October 2001. These staffers coordinate and provide service.

The county's portion of city-provided dial-a-ride service is based on a formula that accounts for mileage and time spent serving county residents. Each is calculated separately based on the ratio of mileage and time spent in the county versus the city. The ratio of time is multiplied by the percentage of total contract and administrative costs (as a percentage of the prior year's administrative costs).

Yosemite Area Regional Transportation System

YARTS service is the outcome of a Joint Powers Authority (JPA) established between the counties of Mariposa, Merced, and Mono, which was formed to implement transit service into and around Yosemite. Service was planned expressly to alleviate traffic congestion and parking issues at Yosemite National Park while maintaining the economic viability of its gateway communities. YARTS collaborates with the National Park Service to coordinate operations, which began in 2000. Its passengers include residents, visitors, and park employees.

The Merced County Association of Governments administers the FTA grant money on behalf of the YARTS JPA. YARTS staff includes the Transit Director who oversees service contracts, liaises with the member jurisdictions, and develops and implements marketing programs. Three full-time staff persons support the Transit Director.

YARTS service is contracted to Cruisers of America. As with the Reds Meadow service, Cruisers provides YARTS transit service, buses, maintenance, a maintenance facility, and fuel.

System Performance

This section presents key performance indicators for the seven Eastern Sierra study area transit operators. These include annual ridership, farebox recovery, and several productivity measures, including passengers per service hour and service mile, operating costs per passenger, and operating cost per service hour and service mile:⁴

- Annual ridership numbers reflect the overall volume of passengers on an entire system or a particular route.
- Farebox recovery is the percentage of total operating costs recovered by passenger revenues. It is calculated by dividing farebox revenues into operating costs.
- The number of passengers per service hour is measured by dividing annual passenger boardings by annual service hours. This indicates systemwide productivity, or the productivity of a particular route.
- The number of passengers per service mile is derived by dividing annual passenger boardings by annual service miles. This is another indicator of the productivity of a particular route.
- Operating cost per passenger identifies the total amount paid by the system to transport each rider and is calculated by dividing operating costs by total passenger boardings.
- Operating cost per service hour and per service mile are measures of system efficiency. Operating cost per service hour is obtained by dividing the operating costs by the total annual service hours. Operating cost per service mile is determined by dividing the operating cost by the total annual revenue miles.

⁴ Data presented is from the transit agencies for the most recent fiscal year available.

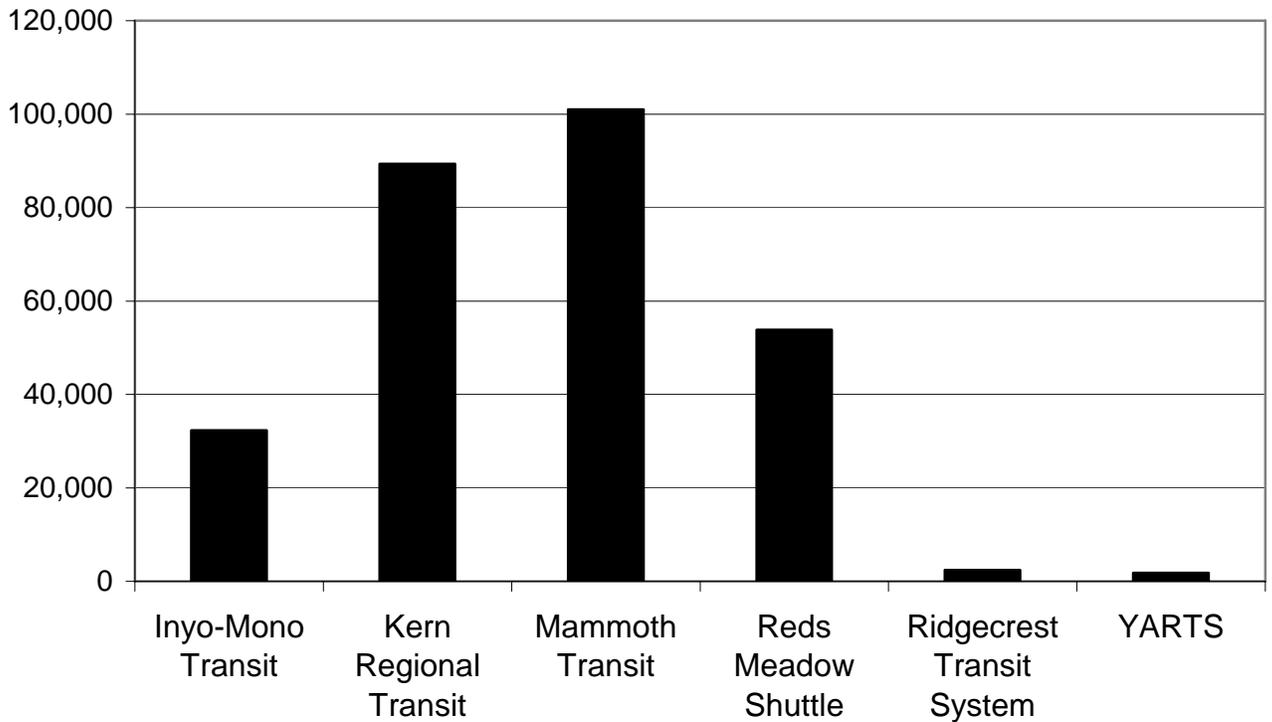
Figure B-10 Ridership for Fixed Route Services in the Eastern Sierra Corridor

City/Area	FY 2003 Annual Ridership ¹
Inyo-Mono Transit²	32,334
Benton – Bishop Route	967
Bishop	19,336
Bishop – Mammoth	838
Bridgeport – Carson City	717
CREST (Overall)	2,258
CREST: Bishop – Reno	1,385
CREST: Bishop – Ridgecrest	873
Lone Pine – Bishop	4,772
Mammoth Transit (Spring-Summer-Fall)	2,204
Walker – Bishop	1,242
Kern Regional Transit³	89,371
Boron – Mojave	748
East Kern Route	31,961
Kern River Valley	54,788
Mojave – Ridgecrest	1,874
Mammoth Transit	101,031
Winter ¹	12,485
Reds Meadow Shuttle⁴	53,871
Ridgecrest Transit System⁵	2,422
Ridgecrest – Inyokern	2,375
Ridgecrest – Randsburg/Johannesburg	47
YARTS⁶	
Route 120/395	1,812

Sources:

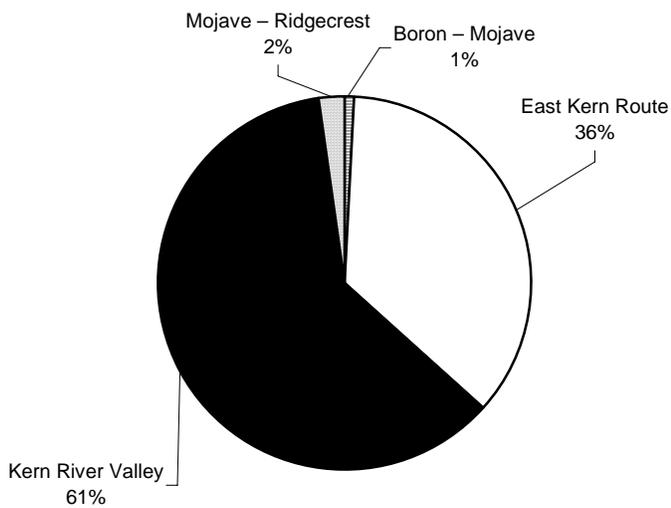
- ¹ Mammoth Lakes Winter Data is for FY 2001-2002. (From Sonja Brynelsen’s memorandum to Town Council (dated 5/13/2003) on the subject of Fixed Route Transit Expansion.)
- ² Inyo-Mono Transit, Route Statistics FY 2002-2003; Includes routes operating only fully within study area.
- ³ Includes routes operating only fully within study area. Data from internal Kern Regional Transit documents for FY 2002-2003.
- ⁴ Smith, G. (2004, July). “Reds Meadow Shuttle and Devils Postpile National Monument: Background Information and Regional Context.” Unpublished paper. National Park Service.
- ⁵ 2004 Triennial Performance Audits.
- ⁶ YARTS Short-Range Transit Plan for 2004-2009.

Figure B-11 Comparison of FY 2003 Ridership for Fixed Route Services Operating Within Eastern Sierra Study Area Corridor



Ridership by Region for Kern Regional Transit and Inyo-Mono Transit

Kern Regional Transit



Inyo-Mono Transit

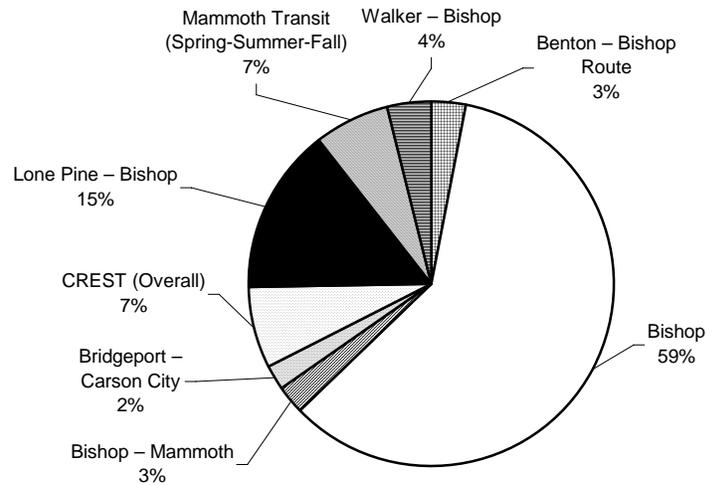


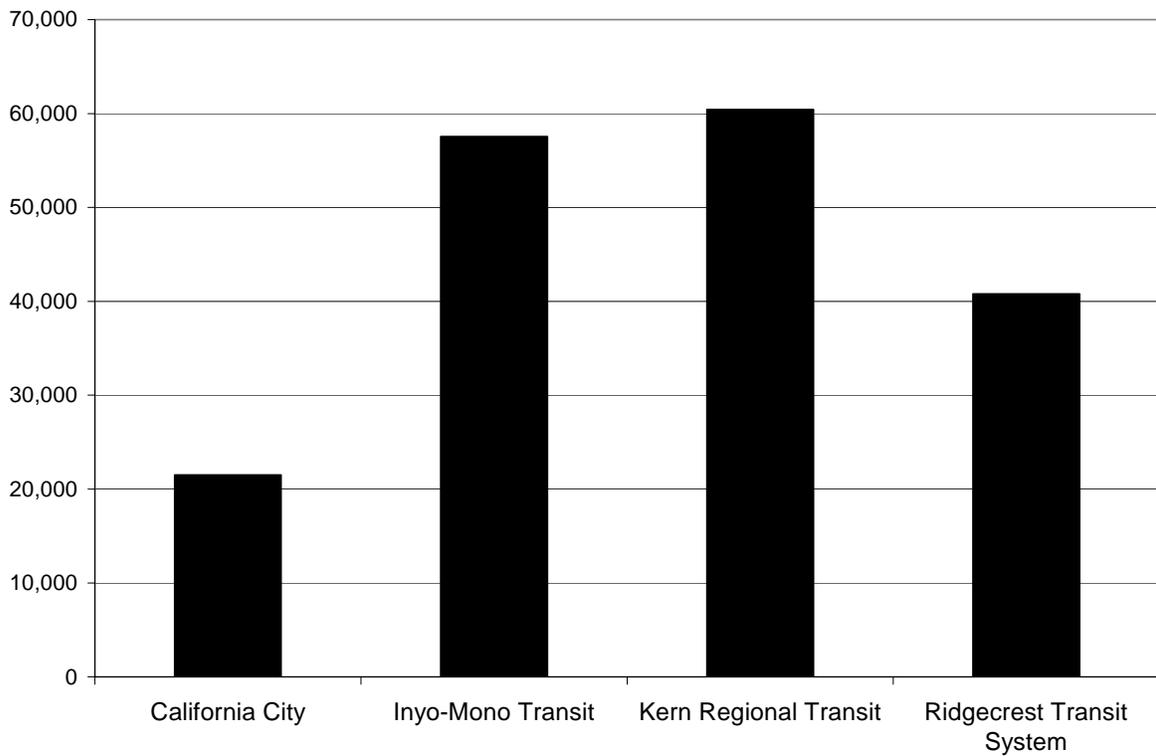
Figure B-12 Ridership for DAR Services in the Eastern Sierra Corridor

City/Area	FY 2003 Annual Ridership
California City¹	21,523
Inyo-Mono Transit²	57,551
Benton	432
Bishop	28,569
Bishop Night Rider	3,200
Lone Pine	9,268
Mammoth	13,255
Walker	2,827
Kern Regional Transit³	60,422
Kern River Valley	18,533
Mojave	16,705
Rosamond	14,246
Tehachapi	10,938
Ridgecrest Transit System¹	40,779

Sources:

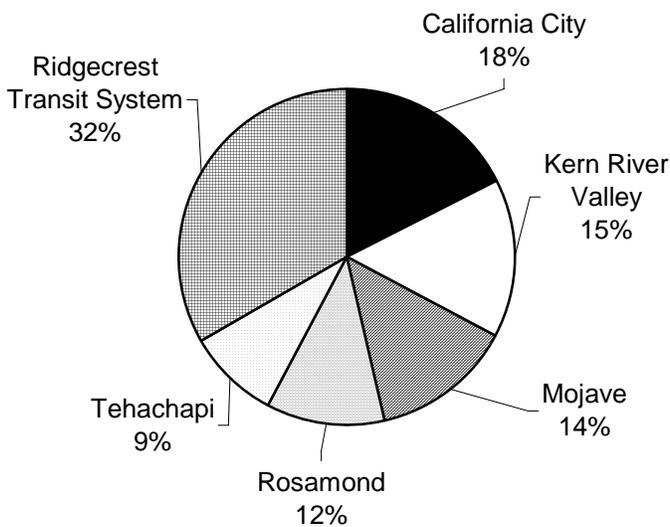
¹ 2004 Triennial Performance Audits² Inyo-Mono Transit, Route Statistics FY 2002-2003³ Data from internal Kern Regional Transit documents for FY 2002-2003

Figure B-13 Comparison of FY 2003 Ridership for DAR Services Operating Within the Eastern Sierra Study Area Corridor



Ridership by Region for Kern County's transit services and Inyo-Mono Transit

Eastern Kern County Transit Services



Inyo-Mono Transit

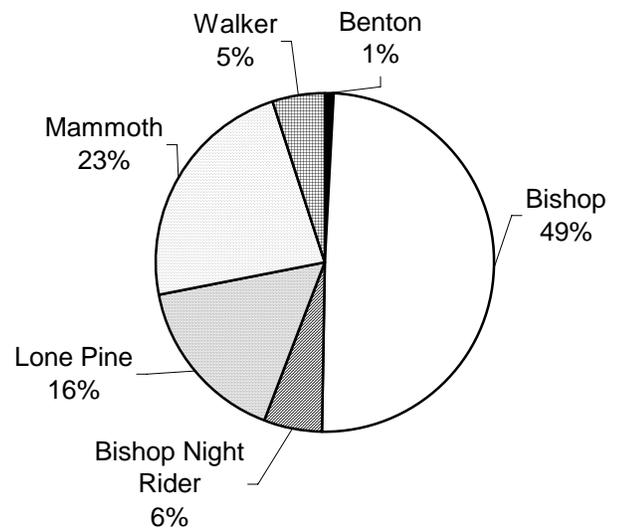


Figure B-14 Farebox Recovery

City/Area	Farebox Recovery
California City¹	
Demand Response	10.0%
Inyo-Mono Transit²	
Inyo County services	11.7%
CREST (Overall)	20.9%
Mono County services	13.8%
Kern Regional Transit³	18.8%
Fixed Route	19.9%
Demand Response	12.5%
Reds Meadow Shuttle	133.0%⁴
Ridgecrest Transit System⁵	6.0%
YARTS⁶	37.9%
Highway 120/395	

Sources:

- ¹ 2004 Triennial Performance Audits
- ² Inyo-Mono Transit, Route Statistics (2002-2003)
- ³ Data from internal Kern Regional Transit documents for FY 2002-2003. This includes the entire KRT system.
- ⁴ In 2003, the cost of the Reds Meadows Shuttle bus contract was \$407,504 in 2003, and fare revenues were \$587,906. The excess was used to pay for operation of the ticket office and check station, materials and supplies and against the previous year’s deficit.
- ⁵ Numbers currently being reviewed by City of Ridgecrest.
- ⁶ YARTS data based on July 2004 operations report.

Service Productivity

Service productivity includes the number of boarding passengers per vehicle service hour and vehicle service miles. Vehicle service hours are the total number of hours that transit vehicles are in revenue service, including layover time. Vehicle service miles are the total number of miles that transit vehicles are in revenue service.

Figure B-15 Summary of Performance

Transit Agency	Passengers per Vehicle Service Hour	Passengers per Vehicle Service Mile	Cost per Passenger	Cost per Vehicle Service Hour	Cost per Vehicle Service Mile
California City¹					
Demand Response	6.8	0.4	\$9.95	\$67.45	\$3.95
Inyo-Mono Transit²	3.3	0.2	\$12.11	\$40.23	\$2.21
Inyo County services	3.6	0.2	\$ 8.77	\$31.20	\$2.07
CREST (Overall)	0.8	0.02	\$63.41	\$51.12	\$1.42
Mono County services	2.0	0.08	\$19.55	\$38.74	\$1.66
Ridgecrest Transit System³					
Fixed Route	5.1	0.4	\$16.64	\$84.67	\$6.68
Demand Response	4.9	0.4	\$14.84	\$72.26	\$5.92
Kern Regional Transit⁴					
Fixed Route	6.1	0.2	\$8.35	\$50.54	\$1.63
Demand Response	3.7	0.4	\$13.67	\$50.54	\$4.72
Reds Meadow Shuttle⁵			\$16.11		
YARTS⁶ Highway 120/395	2.8	0.09	\$34.71	\$98.13	\$3.18

Sources:

¹ TDA Triennial Performance Audit for FY 2001-2003

² Inyo-Mono Transit, Route Statistics FY 2002-2003

³ State Controller’s Report for FY 2001-2002

⁴ Internal Kern Regional Transit documents for FY 2002-2003

⁵ Reds Meadow Shuttle vehicle service hours and miles not available.

⁶ YARTS data based on July 2004 Operations Report.

Other Transit Providers

Amtrak operates three rail routes within California, with grant assistance from the State Department of Transportation for operating and capital grants for station and equipment improvements. Relevant to this project is Amtrak’s San Joaquin route, which operates in a generally north-south direction in central California, linking Bakersfield and the Bay Area with stops in Fresno, Stockton, and Sacramento. This service is supplemented by Amtrak motor coaches, which carry passengers to Reno and Carson City (Nevada), to Redding and Red Bluff, to Yosemite National Park, to the northwest California Coast including Eureka, to the Central Coast and San Luis Obispo, and to locations in Southern California, including Los Angeles.

Trains on the San Joaquin route operate six times in each direction, every day of the year. Four round trips daily operate between the Bay Area and Bakersfield, and two round trips operate directly between Sacramento and Bakersfield.

Antelope Valley Transit Authority’s (AVTA) services operate within the region’s two largest cities, the Los Angeles County cities of Palmdale and Lancaster. These two cities are located in the Antelope Valley, which is nestled between the San Gabriel Mountains and the Tehachapi Mountains in the southernmost portion of the Eastern Sierra corridor⁵. AVTA’s double-decker buses provide express bus service from Lancaster to downtown Los Angeles. The agency also operates limited service to the unincorporated communities of Littlerock and Lake Los Angeles.

AVTA provides local and commuter fixed route bus and paratransit service. The AVTA system is based around three trunk routes (Routes 1, 2, and 3), which provide service in and between Lancaster and Palmdale. These routes account for nearly three-quarters of the system’s total boardings. From the Metrolink station in Lancaster, passengers can transfer to AVTA Routes 2 and 8. From the Antelope Valley Mall in Palmdale (via the East Kern Express), passengers can transfer to AVTA Routes 1, 3, 6, 7, 9, 92, and 97.

Service operates Monday through Friday from 6:00 AM to 8:00 PM and Saturday and Sunday from 9:00 AM to 6:00 PM. Local fares are \$1.20, and \$0.60 for seniors and the disabled.

The **Golden Empire Transit (GET)** District in Bakersfield is the only large urban transit service provider in Kern County. The GET service area includes Bakersfield and adjacent urbanized portions of Kern County. It offers 18 different fixed-routes and ADA dial-a-ride services in the City of Bakersfield and adjacent urbanized portions of Kern County. GET began operating in 1973 and is governed by a five-member board that includes representatives from both the City of Bakersfield and Kern County.

⁵ It should be noted that two separate areas designated as “Antelope Valley” are located within the study region. AVTA provides service in the Los Angeles County Antelope Valley (Lancaster and Palmdale); IMT provides service in the Antelope Valley portion of Mono County, which includes Walker, Topaz and Coleville.

Metrolink is the primary commuter rail system in the greater Los Angeles area, with service on six lines and an estimated 400 miles of dedicated right of way. It also serves the counties of Orange, San Bernardino, Riverside, and Ventura as well as portions of northern San Diego County. It was formed in 1992, when Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties formed the Southern California Regional Rail Authority to develop and operate this system.

The system is primarily oriented towards peak-only commute service Monday through Friday but offers limited weekend service on several lines. Kern County's closest link is at the Lancaster station on the Antelope Valley Line, where trains travel to Los Angeles Union Station via Santa Clarita and Burbank. A total of 24 trains operate daily, Monday through Friday. Trains depart Lancaster for Los Angeles between 4:05 AM to 5:55 PM and depart Los Angeles for Lancaster beginning at 6:35 AM and as late as 9:00 PM. Commuters and travelers also benefit from the line's direct service to Burbank and Los Angeles Union Station, with easy access to the Metro Red Line subway and buses. (The latter service is operated by the Metropolitan Transportation Authority.) KRT's East Kern intercity route travels to the Lancaster Metrolink Station from California City, Mojave and Rosamond. Passengers can also transfer to AVTA bus routes, Santa Clarita Transit lines, and to Amtrak Thruway and Greyhound buses.

Carson City Community Transportation (CCCT) is a dial-a-ride transit system available to the general public, senior citizens, and people with permanent or temporary disabilities. Service is for travel within Carson City, Nevada, only and is available seven days a week. All users must register with CCCT in order to use the service. This service is managed by the City of Carson City.

Citifare is the public transit service for people traveling to and within the cities of Reno, Sparks, and select areas of Washoe County, Nevada. The service is managed by the Regional Transportation Commission (RTC) of Washoe County. **Citilift** is RTC's demand-response paratransit service, also serving Reno, Sparks, and parts of Washoe County. Citilift services include vans, flexible route shopper service routes, taxis, and night taxis. Regular Citilift services are available Monday through Friday from 6:00 AM to 7:00 PM, and on Saturday and Sunday from 9:00 AM to 7:00 PM. RTC contracts the Whittlesea Taxi Company to provide a night taxi service between 9:00 PM and 6:00 AM. Citilift also operates three circulator routes to major retail destinations Monday through Friday.

PRIDE is another transit service offered by RTC. This bus service provides round-trip, commuter service to Reno and the Reno/Tahoe Airport during the weekdays. It connects users to the Citifare system, where passengers can board for free.

APPENDIX C

COMMUNITY INPUT: TRANSIT NEEDS AND ISSUES

Appendix C. Community Input: Transit Needs and Issues

Onboard passenger surveys, telephone surveys, and stakeholder interviews were conducted to gauge people's opinions, latent demand, and service needs regarding transit along the Highway 395 corridor. This appendix summarizes separately the results from three tools that were used to assess community opinions and priorities.

Telephone Survey

Methodology

A telephone survey was administered to 750 households during the week of July 27 to August 2, 2004. These residents live in communities in Inyo, Mono, Kern, or San Bernardino Counties that are located within a reasonable distance of Highways 395 and 14. The number of respondents interviewed in each community was proportional to the global population numbers of the study area.¹ The margin of error for the sample is +/- 5.0 percent, which lies within the accepted 95 percent confidence level.

After reading a short introduction, the surveyor asked if the respondent was willing to complete the survey and given the option of doing so in English or Spanish. If the answer was no, the surveyor thanked the respondent and ended the call. If the answer was yes, the surveyor asked if the respondent was at least 16 years old. If the respondent was at least 16 years old, the caller began administering the survey. If the respondent was younger than 16, the caller asked to speak to someone who was at least 16 years old and currently at home. If no one was available, the respondent was thanked and the call was terminated.

Nelson\Nygaard created the survey questions, with input from Kern COG staff. A copy of the script used for the telephone survey can be found at the end of this appendix.

Key Findings and Issues

Demographics of Respondents

Because Kern County has the largest population in the study area, most of the individuals interviewed live in Kern County. About 92% of the surveys were conducted in English.

¹ For example, if Town A's population numbers amount to 10% of the entire study's population, then the percentage of respondents interviewed from Town A should be approximately 10%. Population numbers were obtained from the 2000 U.S. Census, where they were available for Census-designated places in the study area. However, Census population data is available by "place," and many communities in the study area were categorized as "block group areas." For the Mono County communities that are covered under a block group, specific population numbers were obtained from the Mono County website: www.monocounty.ca.gov/demographics.html.

Figure C-1 lists the number of people interviewed and identifies the community where they live.

Figure C-1 Completed Phone Interviews

County	City/Community	Number of completed surveys	Percentage
Inyo	Big Pine	12	1.6%
	Bishop	88	11.7%
	Independence	9	1.2%
	Lone Pine	22	2.9%
	Olancha	5	0.7%
	Total for Inyo County	136	18.1%
Kern	California City	61	8.1%
	Inyokern	26	3.5%
	Mojave	55	7.3%
	Ridgecrest	261	34.8%
	Rosamond	80	10.7%
	Total for Kern County	483	64.4%
Mono	Benton	2	0.3%
	Bridgeport	8	1.1%
	Coleville	5	0.7%
	Crowley	6	0.8%
	June Lake	8	1.1%
	Lee Vining	3	0.4%
	Mammoth Lakes	66	8.8%
	Topaz	4	0.5%
	Tom's Place	1	0.1%
	Walker	6	0.8%
	Total for Mono County	109	14.5%
San Bernardino	Trona	22	2.9%
Total completed phone interviews		750	100%

Only a small number of surveys (22) were completed in Trona, the only San Bernardino County community included in the study area. This information is reported in the overall totals for each survey question.

Employment, Age, and Income

Respondents' employment status varies across the counties. Between 52% and 65% of respondents in Inyo, Kern, and Mono Counties were employed (see Figure C-2). This roughly corresponded with the age groupings in each county: 58% or more of respondents in each of the former counties were between the working ages of 25 and 59 years.

Figure C-2 Employment Status

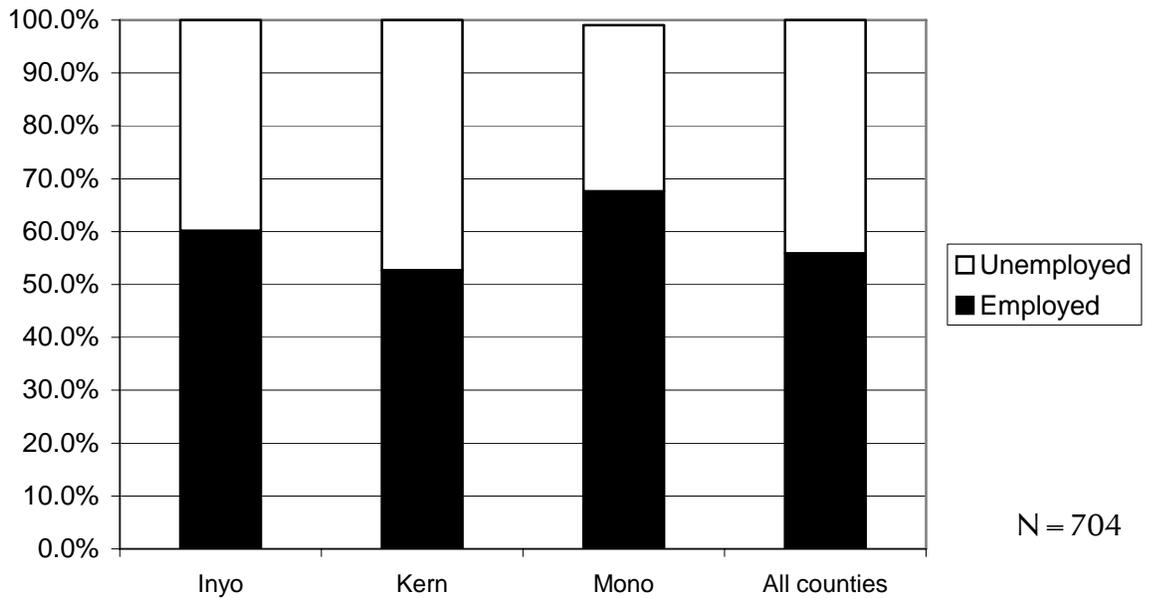
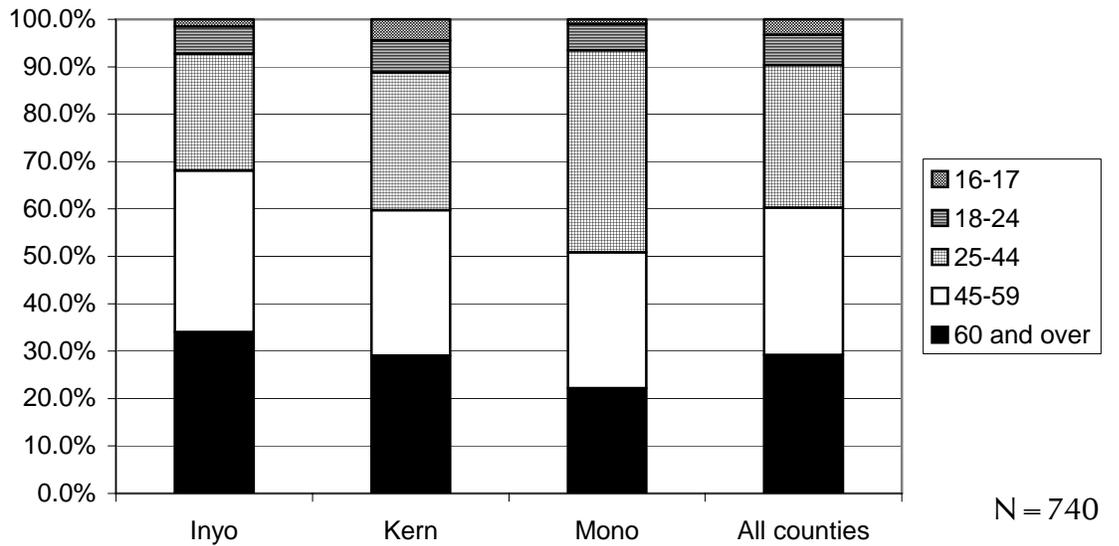
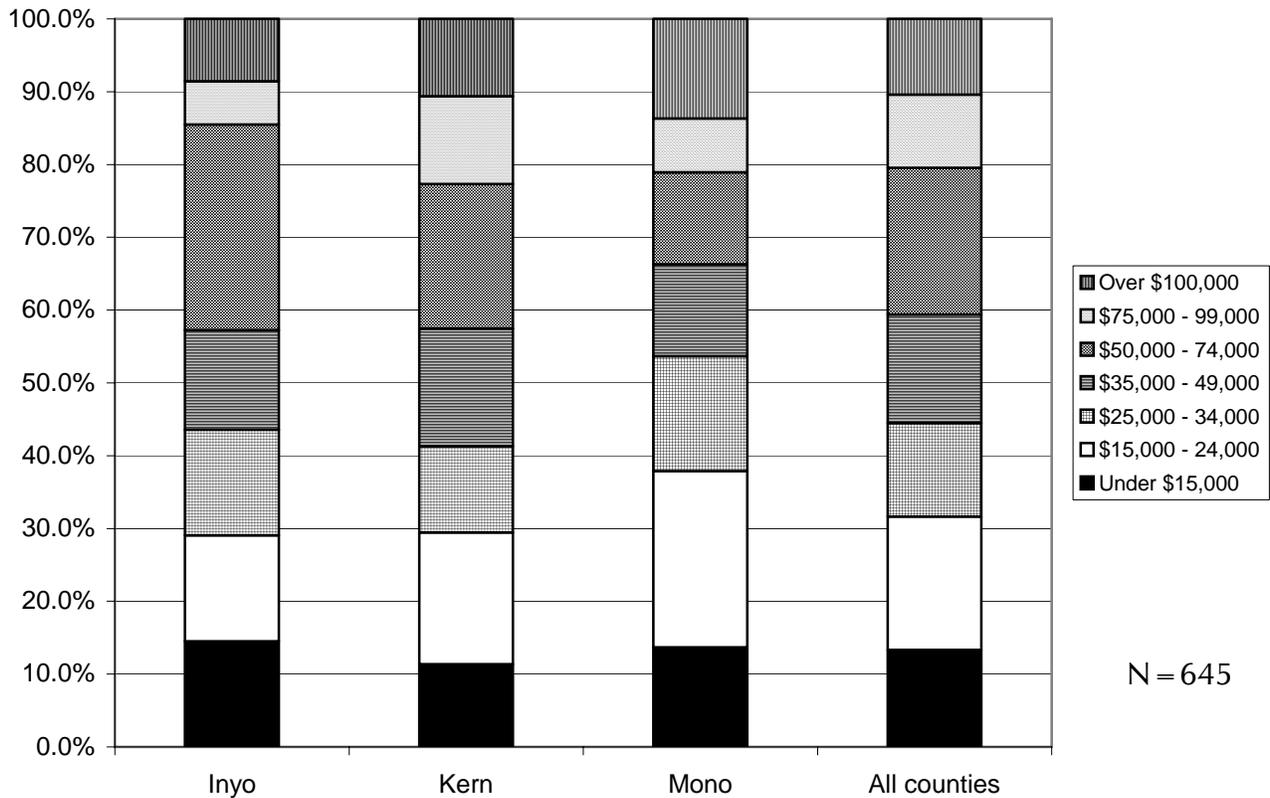


Figure C-3 Age



Income levels also varied amongst the respondents in the four counties. Overall, 60% or less of all respondents had incomes below \$50,000. More respondents in Inyo (43%) and Kern Counties (43%) had incomes over \$50,000.

Figure C-4 Income



Vehicle Availability and Possession of Driver's License

Access to a car can be a strong measure of potential public transit use. More than half of households surveyed have one or two vehicles available to them. At least one licensed driver is found in 25% of all the households surveyed, with more than 75% of the total sample having two licensed drivers. Typically, being able to catch a ride with another member of the household limits the likelihood of transit dependence.

Figure C-5 Availability of Operational Vehicles in Household

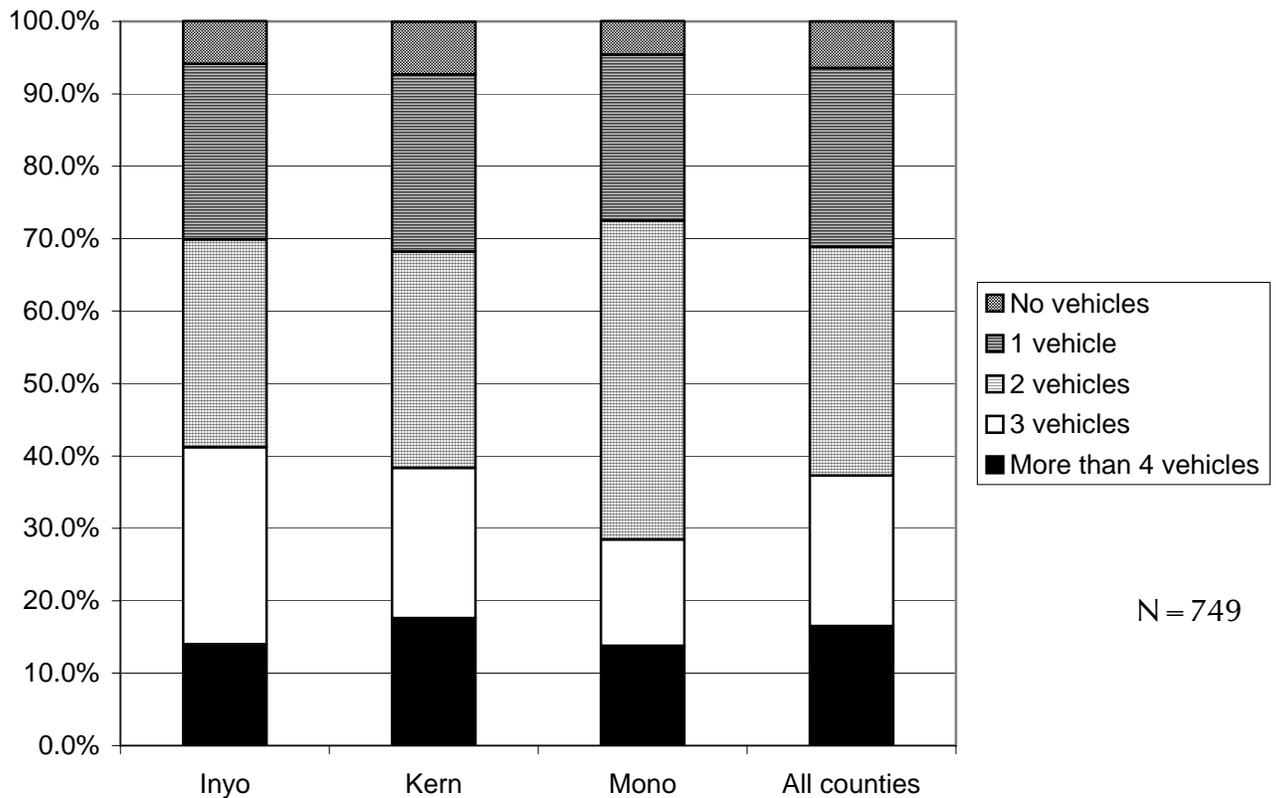
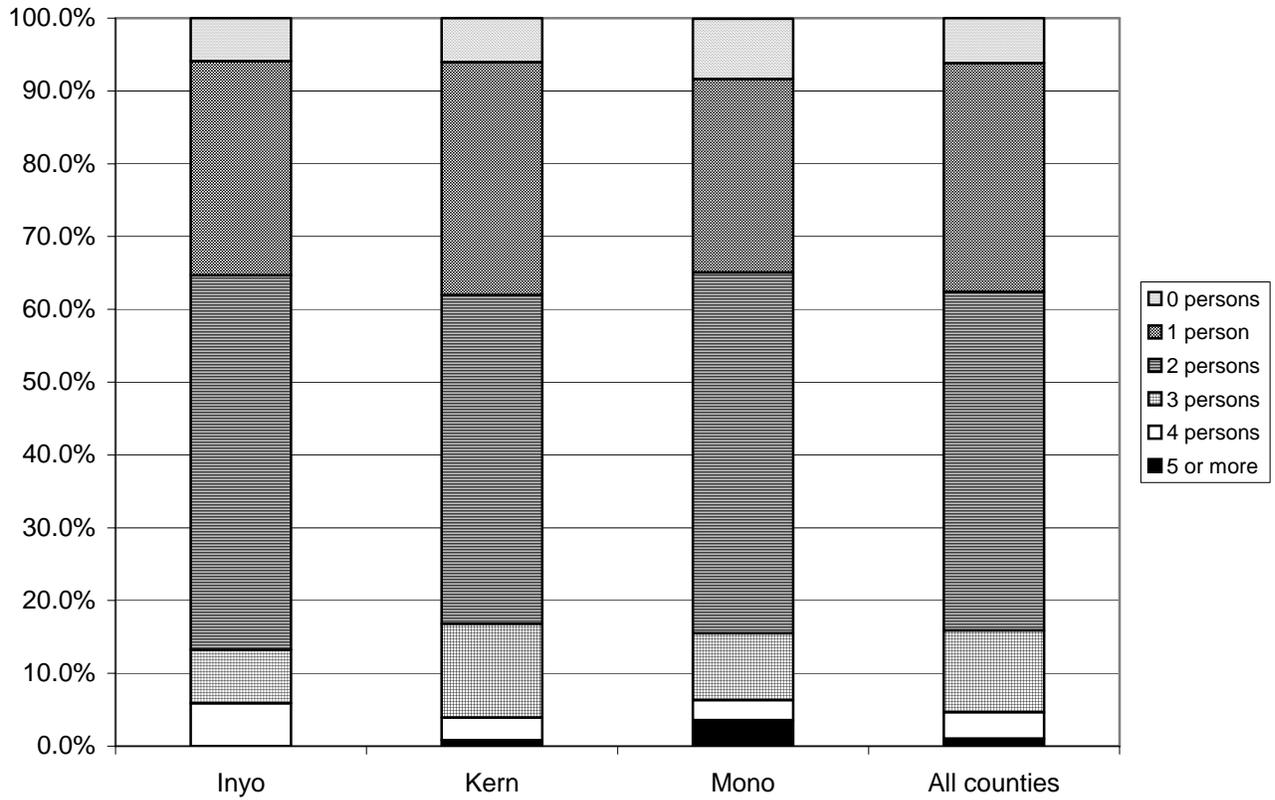


Figure C-6 Persons with Driver's License in Household

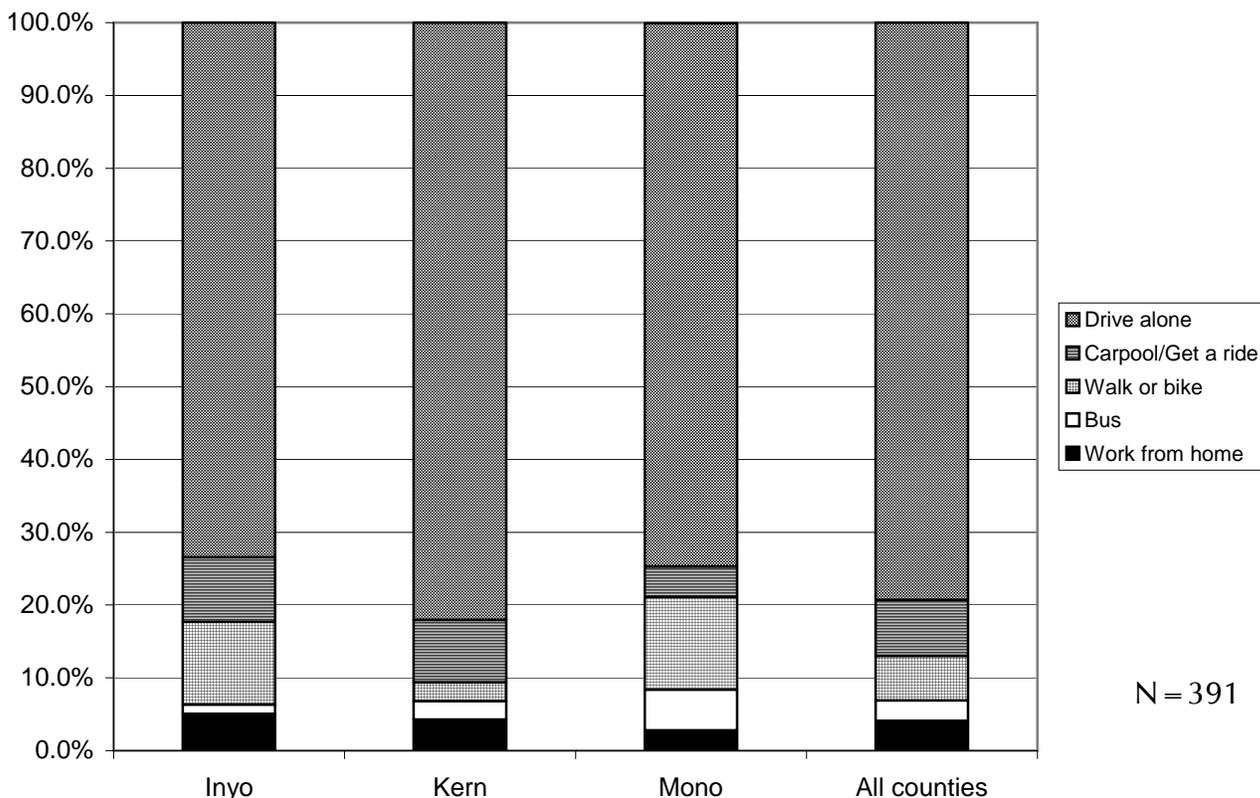


N = 749

Commute to Work

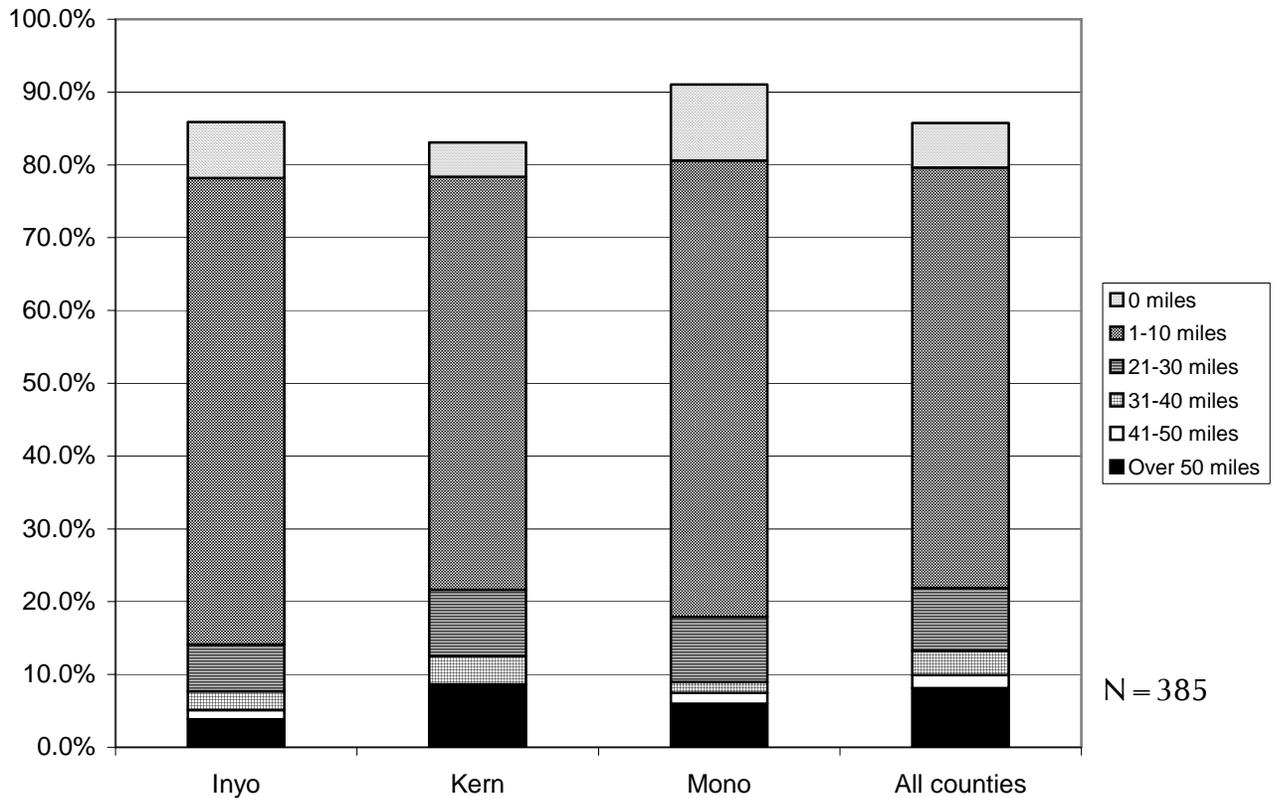
The vast majority of these individuals are driving their cars alone to get to work. Transit has the lowest mode share in all counties, with Kern County residents evenly split between taking a bus and biking or walking to work. Mono County respondents (6%) were more likely than other residents to board a bus to get to work. The modes of biking or walking to work are relatively high in Inyo and Mono Counties (11% and 13%, respectively).

Figure C-7 Mode to Work



Respondents have fairly short commute distances to work. At least 55% of respondents in each county are traveling one to 10 miles to their place of work. Figure C-8 shows a breakdown of how far respondents in each county are commuting to work. While the average distance is 37 miles, the median is 5.0 miles for all respondents.

Figure C-8 Distance to Work (Miles)



These short commute distances were confirmed with origin-destination pairs (Figure C-9). The most common origin-destination pairs had the same city or community for both locations, indicating that respondents were working in the same city that they lived in. These included Ridgecrest, Bishop, and Mammoth Lakes, among the largest communities represented in the survey.

Figure C-9 Origins and Destinations for Travel to Work

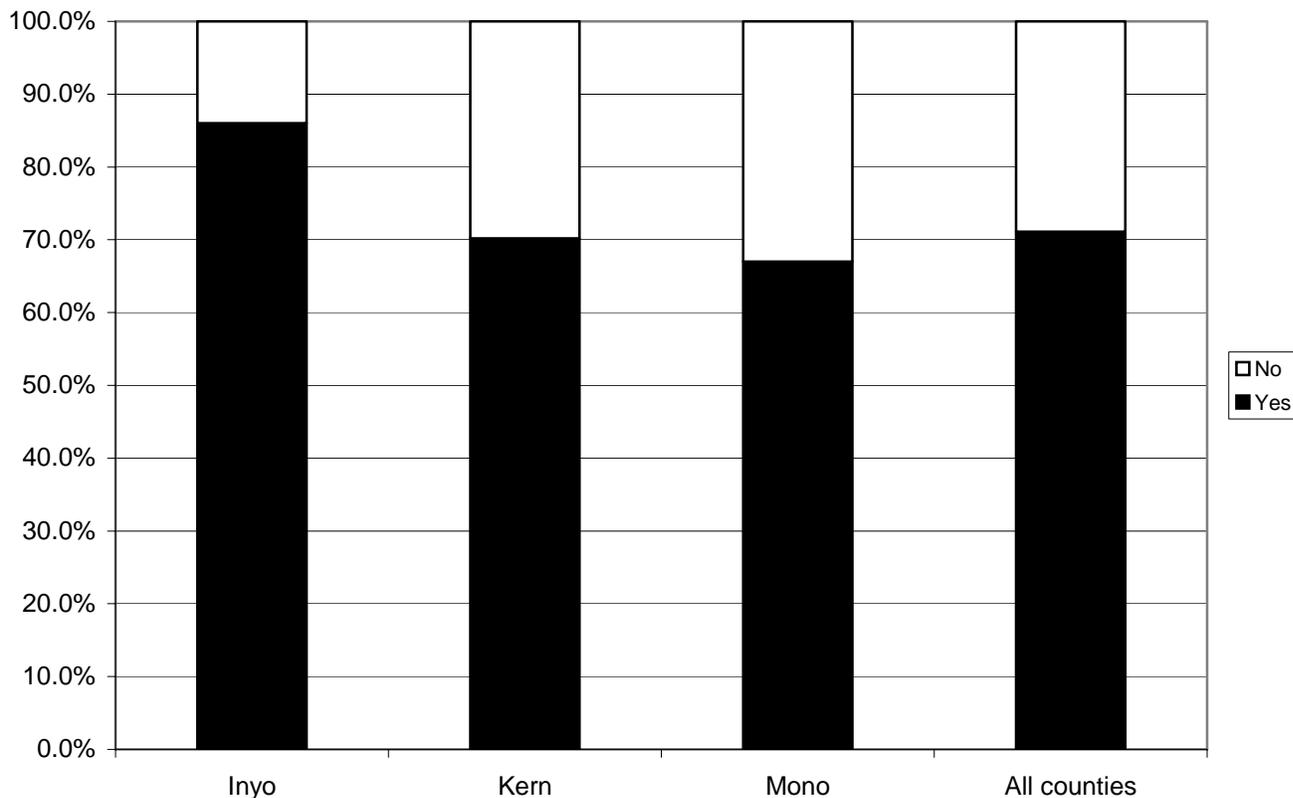
ORIGIN	WORK DESTINATIONS																								
	Benton	Big Pine	Bishop	Bridgeport	California City	Coleville	Crowley Lake	Independence	Inyokern	June Lake	Lancaster	Lee Vining	Lone Pine	Los Angeles	Mammoth	Mojave	Olancha	Palmdale	Ridgecrest	Rosamond	Tehachapi	Trona	Walker	Other	
Benton	0.3%		0.3%																						
Big Pine		0.5%	0.5%									0.3%													0.3%
Bishop		0.5%	12.0%											0.5%											0.5%
Bridgeport				1.0%																					
Calif City				0.3%	2.5%						0.5%					1.0%				0.5%					1.8%
Coleville				0.5%																					0.3%
Crowley Lake			0.3%				0.3%							0.3%					0.3%						
Independence								0.8%				0.5%													
Inyokern									0.5%					0.3%					1.8%			0.5%			0.5%
June Lake			0.3%							1.3%		0.3%													0.3%
Lee Vining										0.3%		0.3%													
Lone Pine													3.1%				0.5%								
Mammoth			0.3%											0.3%	9.9%										0.8%
Mojave										1.0%				0.3%		4.1%					0.3%				
Olancha								0.3%									0.3%								
Ridgecrest					0.3%				0.3%					1.3%			0.5%		27.0%			1.3%			3.8%
Rosamond											2.0%			0.5%				1.0%		2.5%					3.6%
Topaz																									0.3%
Tom's Place														0.3%											
Trona						0.3%													0.5%			1.3%			
Walker																							0.3%		

N = 393

Familiarity and Use of Transit Services

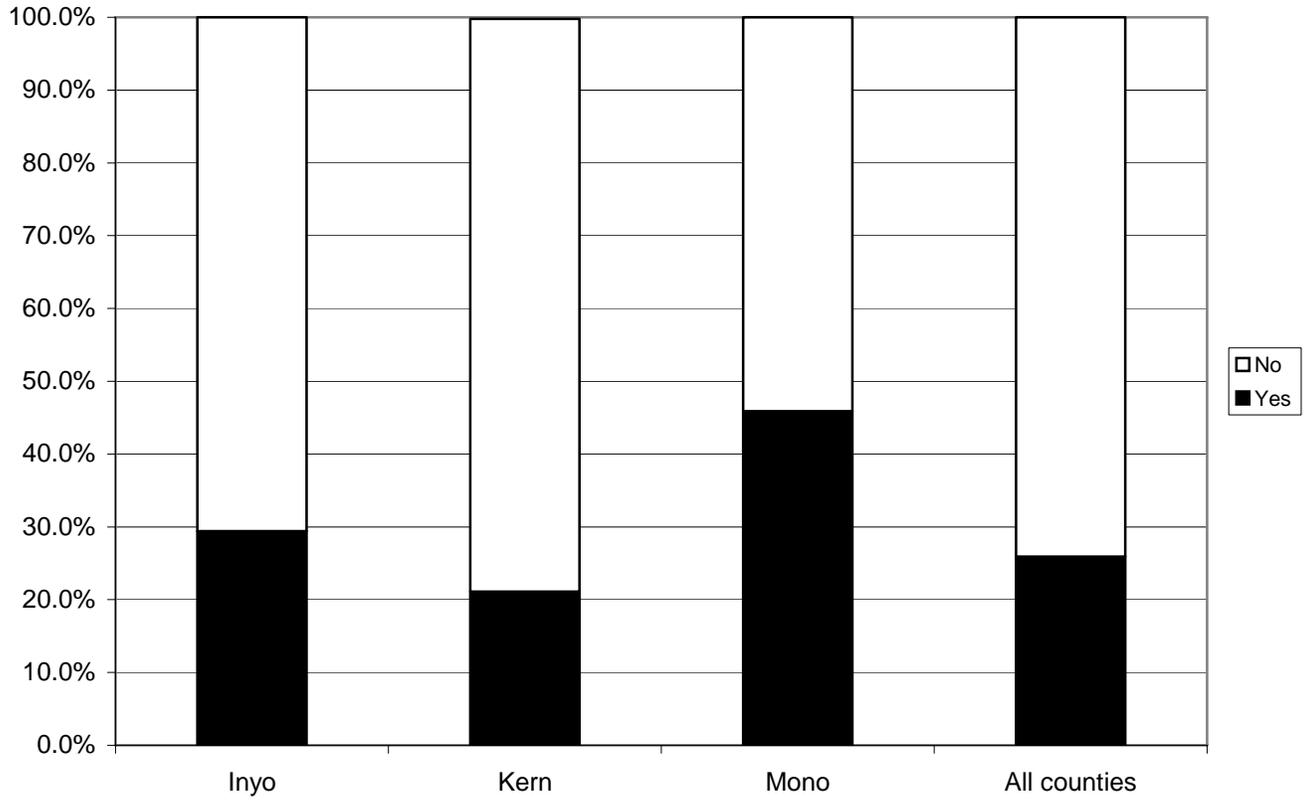
The large majority of respondents in Inyo, Kern, and Mono Counties are familiar with the transit services available in their community (86%, 70%, and 67%, respectively). However, high percentages of the people in these counties, or members of their household, had not used transit in the last year (71%, 79%, and 54%, respectively). Households surveyed in Mono County had the fewest number of people familiar with transit (33%) but conversely the highest proportion of people who had used transit in the last year (46%).

Figure C-10 Familiarity with Transit Services



N = 750

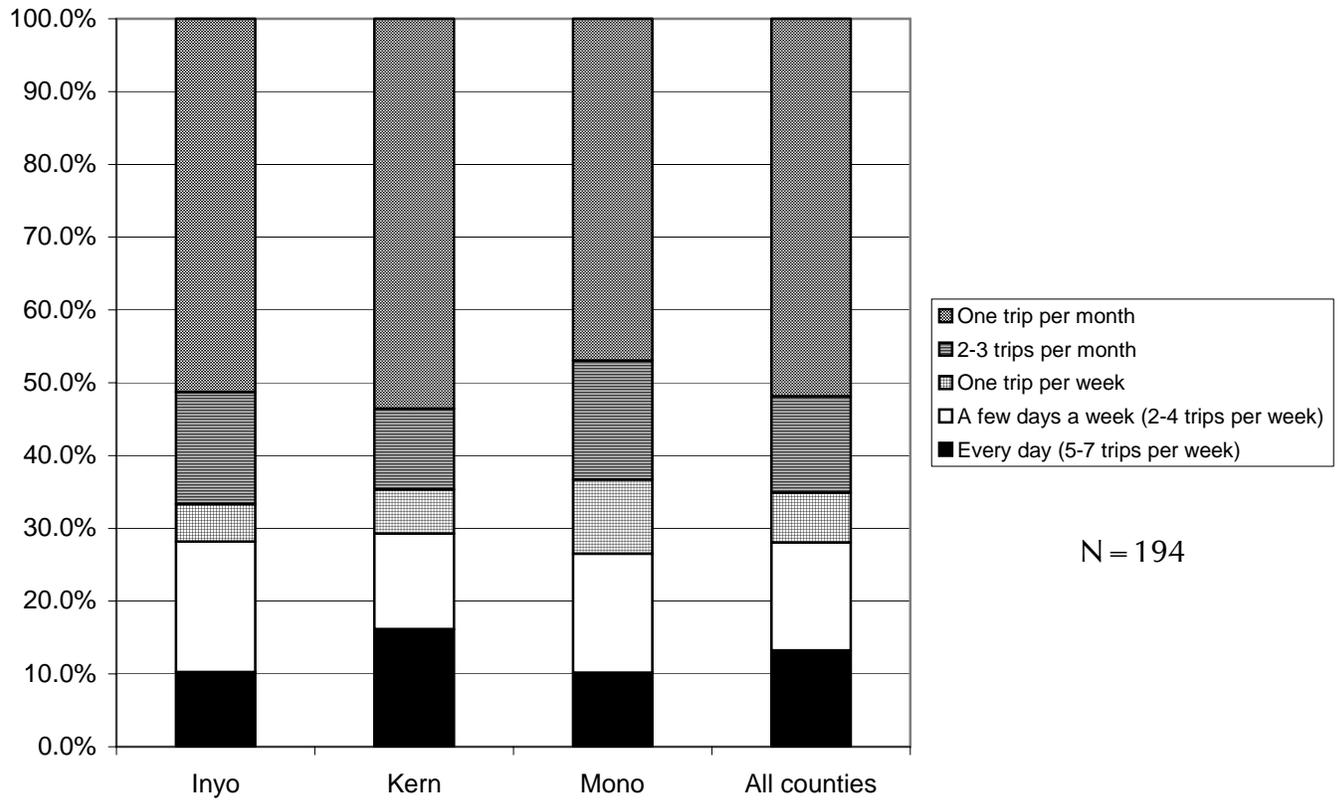
Figure C-11 Used Transit Services in Last Year



N = 750

Of the people who used transit in the past year, most used it for only one trip per month (45% and up). At the same time, nearly 30% of users in Inyo, Kern, and Mono Counties used transit to make two to five trips per week.

Figure C-12 Frequency of Use



Attitudes and Opinions about Transit

While many respondents said they do not use transit themselves, a very high percentage of them felt that it was a critical service. The vast majority strongly agreed that “it is important to have public transit available for people who do not have other transportation options” (see Figure C-13). In fact, less than 1% of respondents in all counties disagreed or strongly disagreed with this statement. At least 68% of respondents overall *and* in each county agreed or strongly agreed with the statement that they would use transit if it were fast, frequent, and available between places where they most regularly travel. Additionally, a large majority of respondents also agreed that “more regular or frequent public bus service is needed between cities in the region” (80% or more) and that “local bus service (or more local bus service) is needed” in their community (66% or more).

Figure C-13 “It is important to have public transit available for people who don't have other transportation options.”

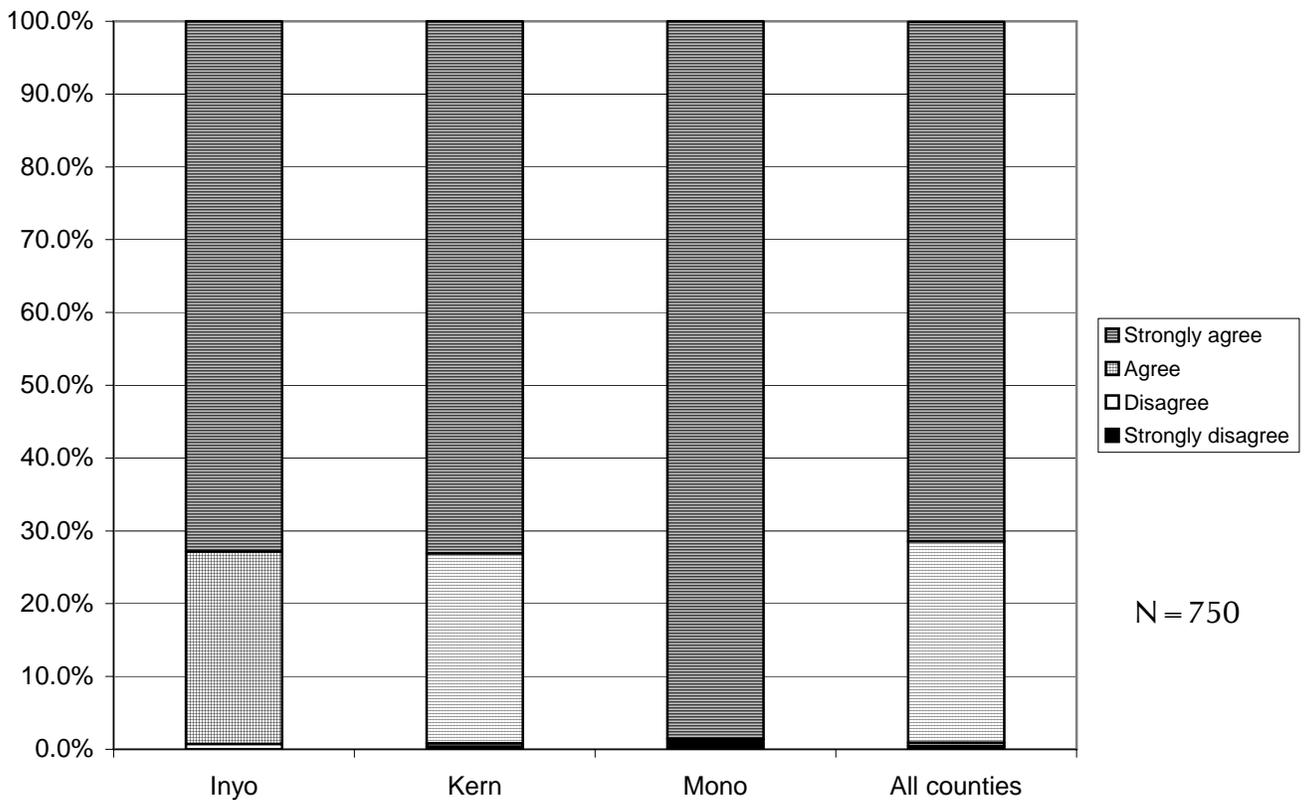


Figure C-14 “If fast and frequent public transportation were available between places where I regularly travel, I would use it (or I would use it more often).”

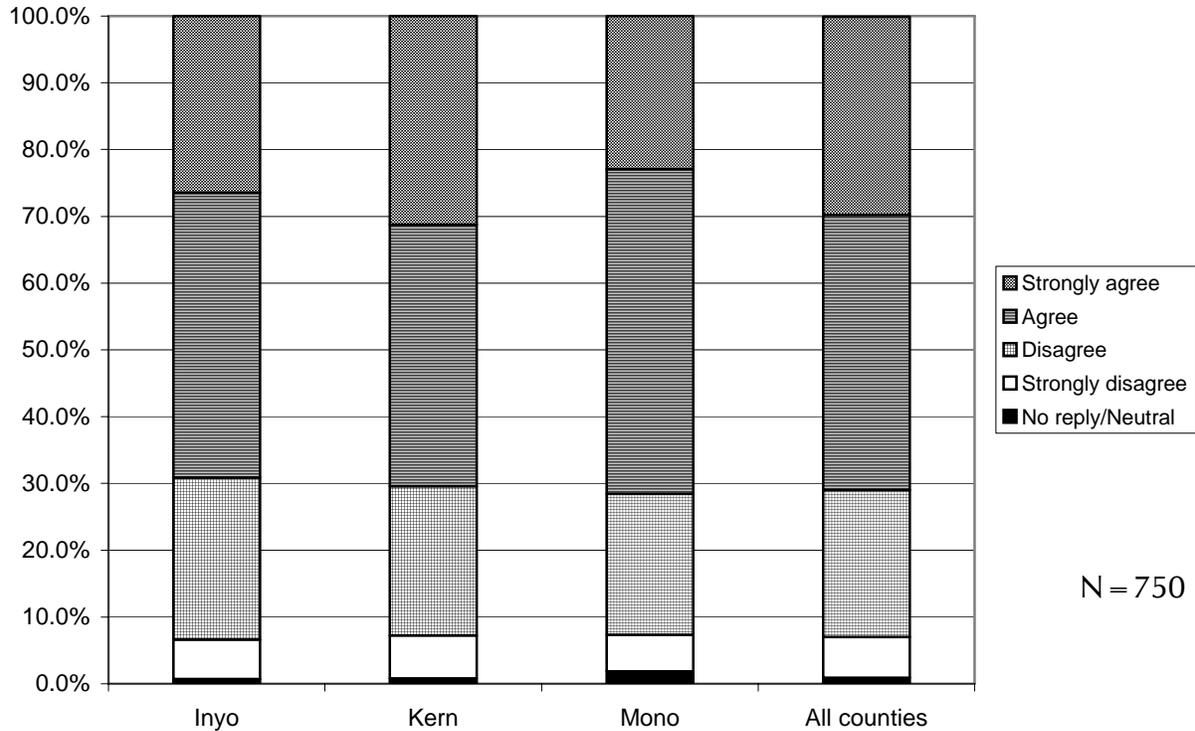


Figure C-15 “More regular or frequent public bus service is needed between cities in the region.”

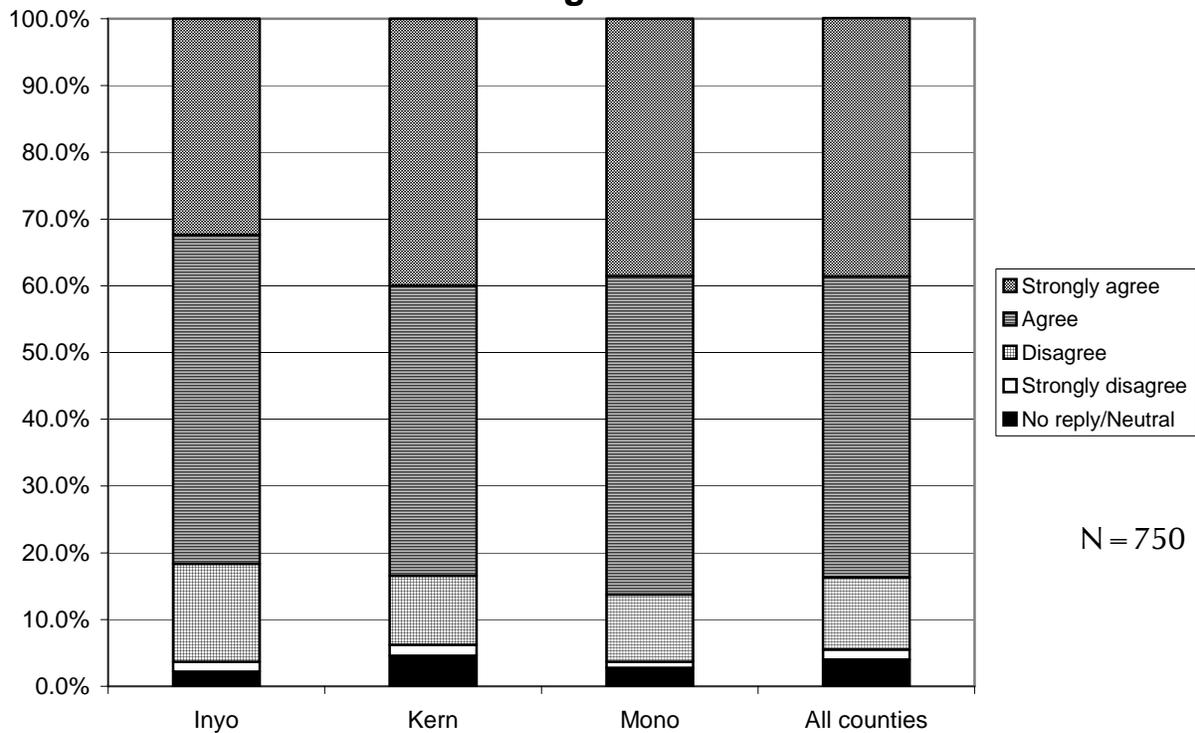
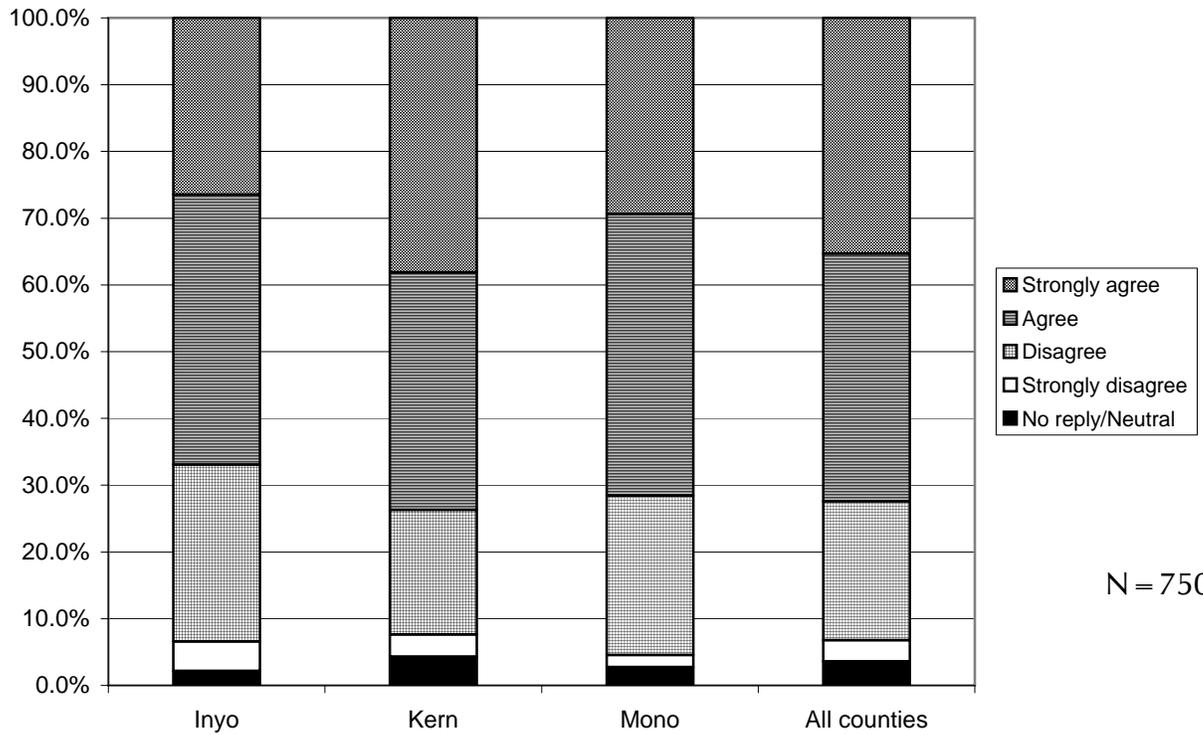


Figure C-16 “Local bus service (or more local bus service) is needed in my community.”



When presented with specific, hypothetical transit services, many respondents responded favorably. More than 70% of respondents were attracted to the possibility of passenger train service between Mammoth Lakes and Los Angeles County. At least 60% in all four counties were likely to use such service if it were available. This is not too surprising, considering more respondents ranked transportation connections to Los Angeles County as more important than connections to either the Bakersfield or Reno-Carson City-Minden areas.

Figure C-17 “Passenger train service between Mammoth Lakes and Los Angeles County would be personally appealing.”

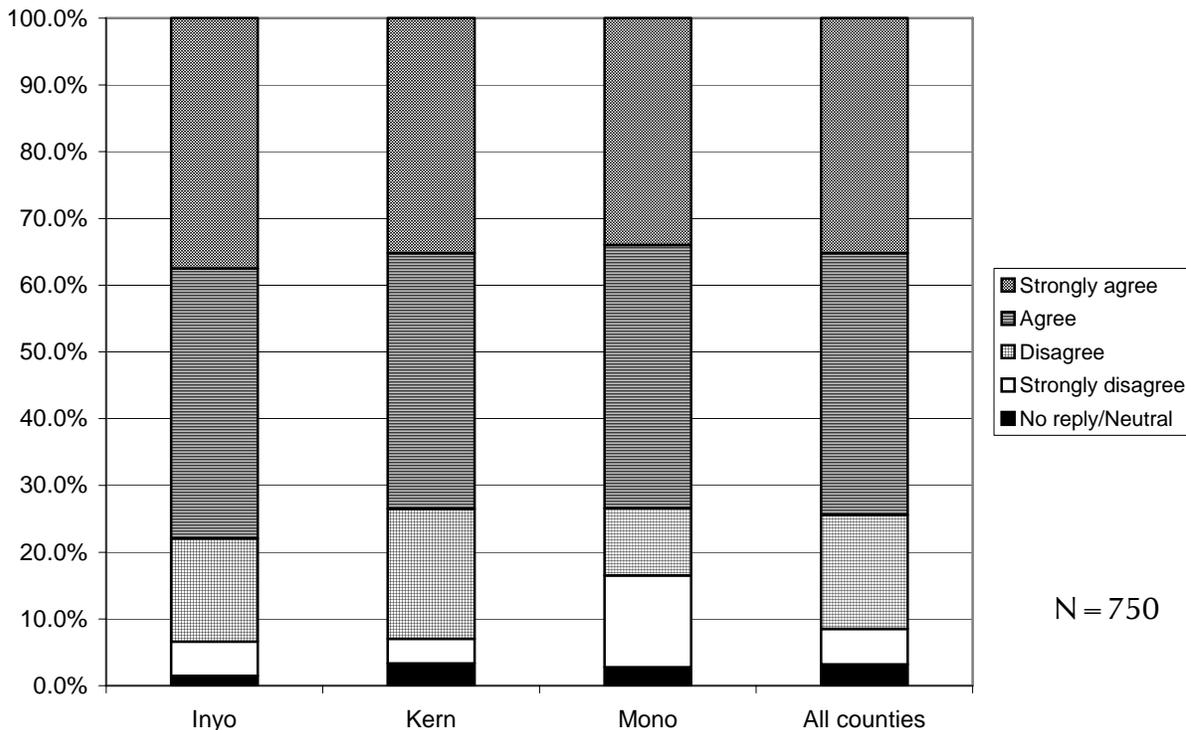


Figure C-18 “If daily passenger rail service were available between Mammoth Lakes and Los Angeles County, with stops in between, how likely are you, personally, to use it at any time?”

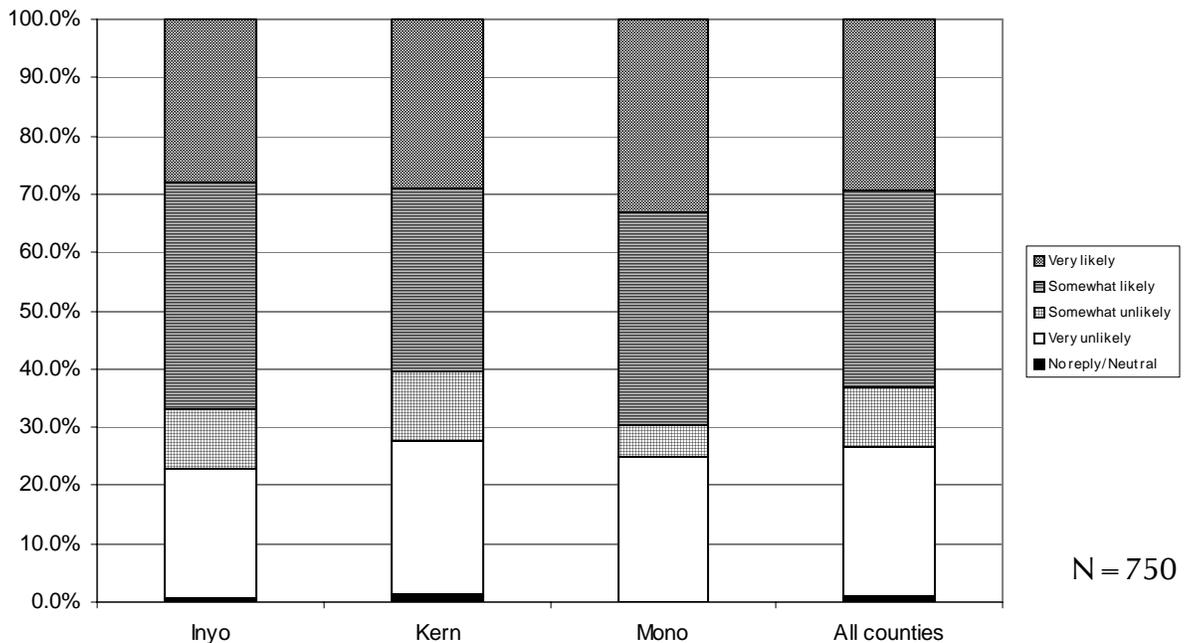
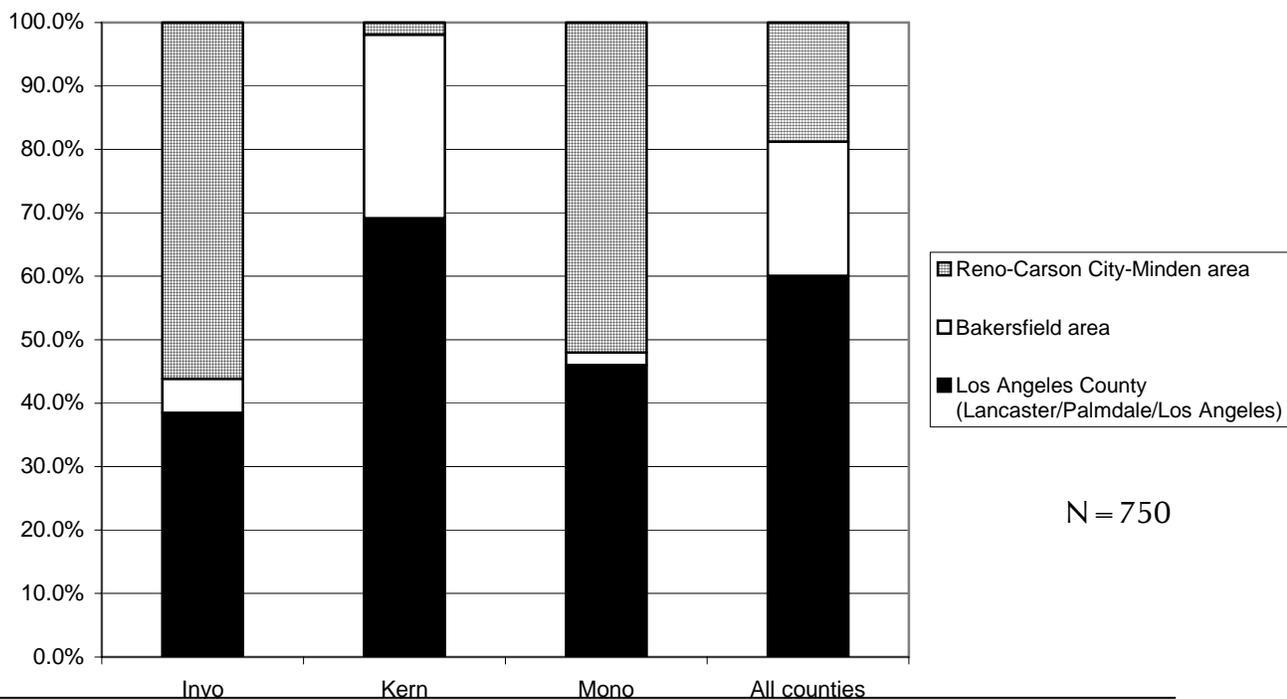


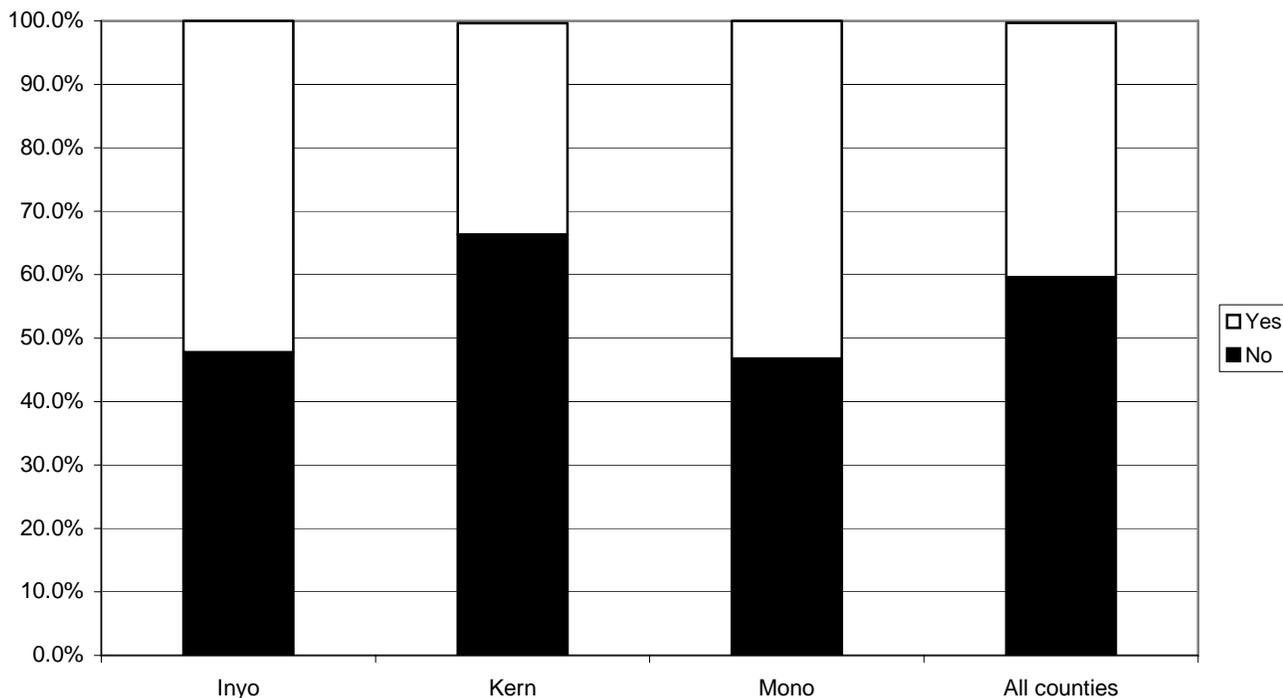
Figure C-19 “Of the following three urban areas, which one represents the most important transportation connection for the residents of your community?”



Greyhound Services

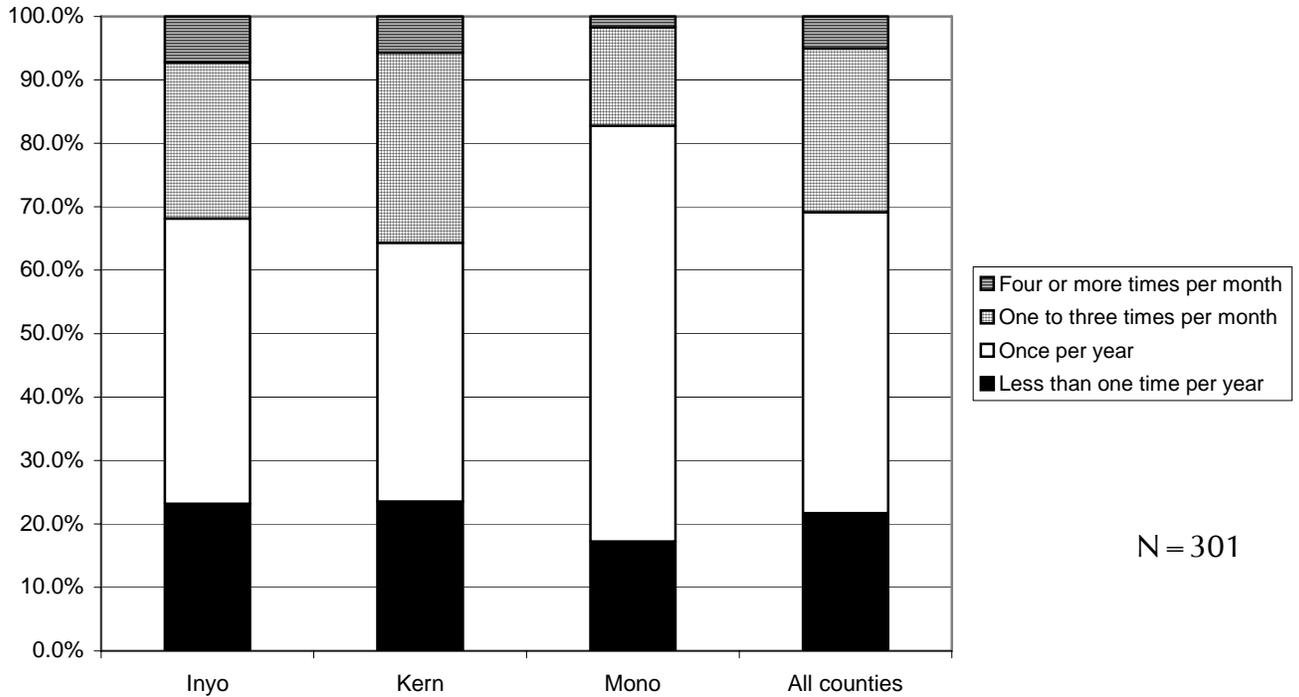
When Greyhound was available in this area, nearly 40% of respondents reported that they had used the service. Of those who had used Greyhound, nearly half used Greyhound at least once a year (47%). The most often cited reason for not using Greyhound was that respondents did not have a need for the service or they had their own car (66%). With Greyhound no longer in the area, respondents or members of their households are primarily using a car for trips they would have previously made on Greyhound.

Figure C-20 Use of Former Greyhound Services



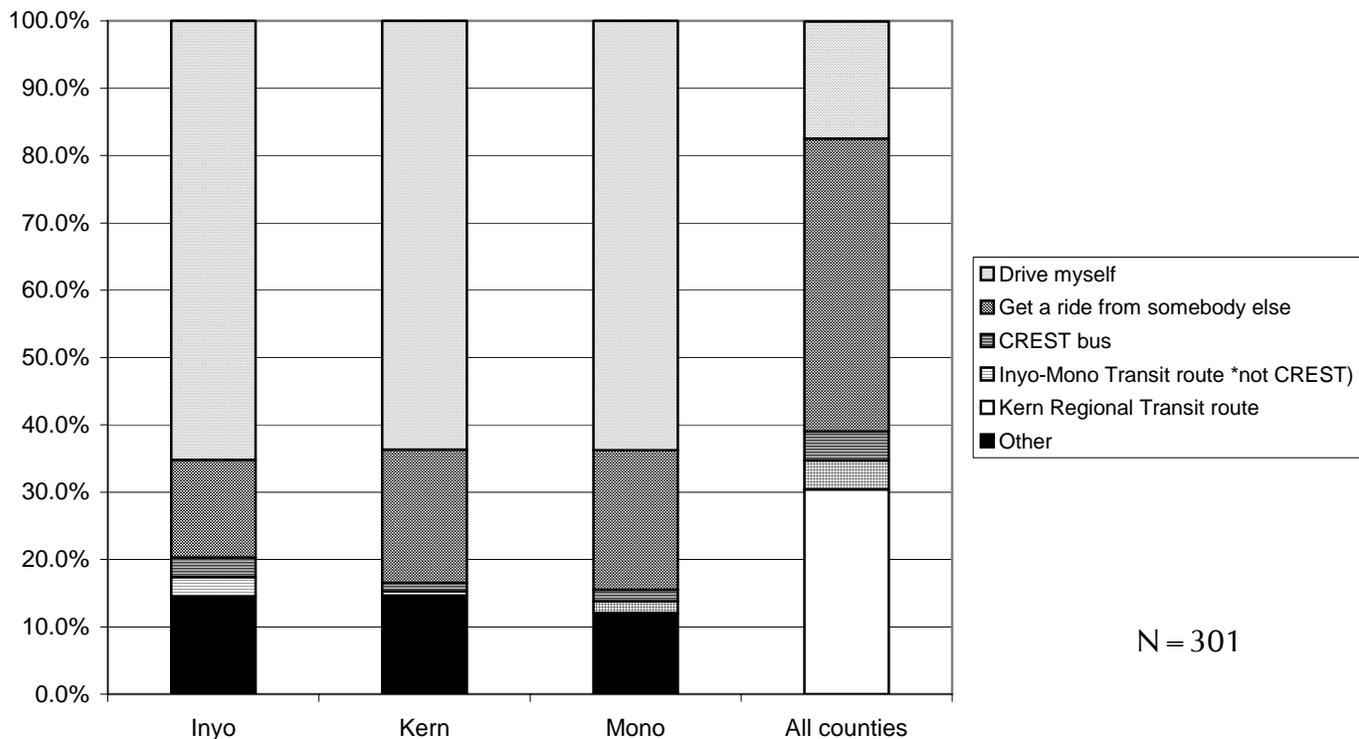
N = 750

Figure C-21 Frequency of Greyhound Use Among Former Greyhound Riders



N = 301

Figure C-22 Mode Alternative Now Used by Former Greyhound Riders

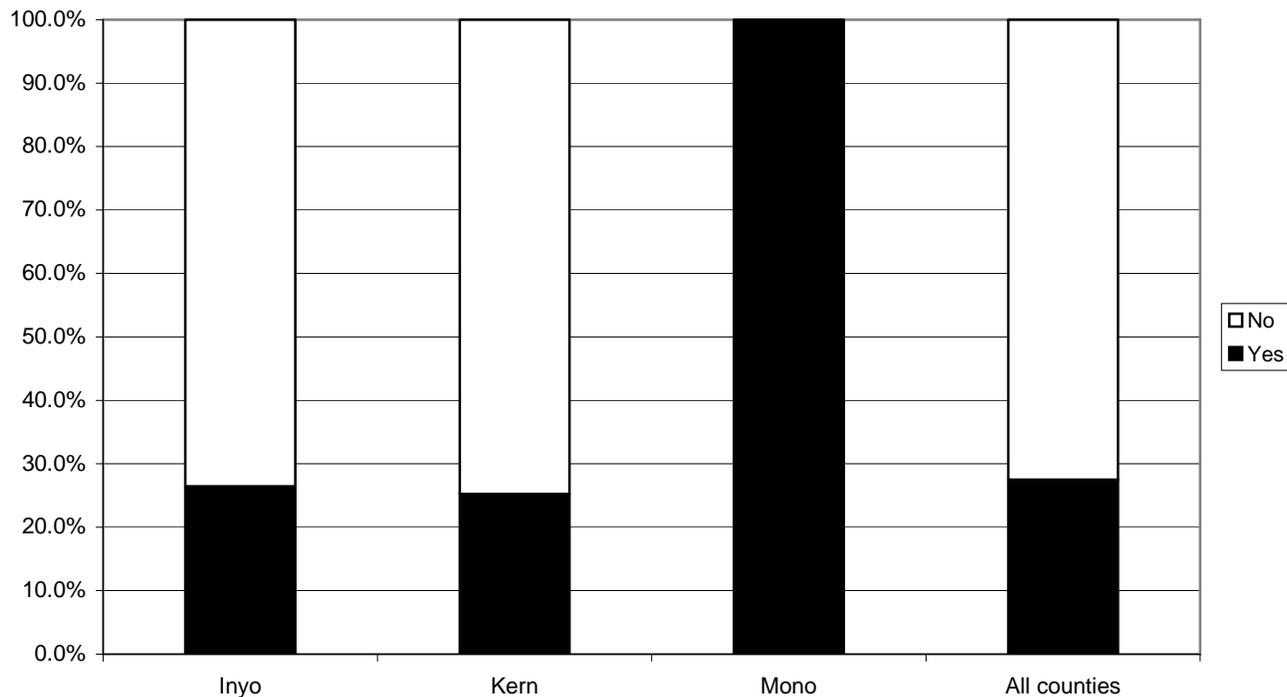


N = 301

Mobility Issues

About 28% of respondents said that members of their household have difficulty getting somewhere because of a lack of transportation. When asked the specific destination, Los Angeles and Lancaster were the most frequently mentioned destinations. Figure C-24 lists the 10 most often reported cities of where “difficult-to-access” destinations are located.

Figure C-23 “Do you or members of your household have difficulty getting somewhere because of a lack of transportation?”



N = 750

Figure C-24 Destinations Difficult to Access Because of Lack of Transportation

Destination	Number of Respondents
Lancaster	48
Los Angeles	35
Reno	18
Bakersfield	17
Palmdale	16
Ridgecrest	11
China Lake Blvd	9
Mojave	8
Bishop	6
California City	5

N = 229

Respondents’ Opinions on Traffic Conditions and Civic Services

Respondents were asked a series of questions about traffic conditions. They were asked to rate general traffic conditions along the major highway running through or adjacent to their community using a scale of 1 to 5, with 1 being worst and 5 being best. The number 3 was the most often given answer; 3.4 was the average of all responses; and 3 was the median. These results show that, overall, respondents did not have overwhelmingly positive or negative feelings about general traffic conditions.

Respondents were also asked about traffic during different times of the week and during different seasons. In general, they thought that traffic was worse on weekends than weekdays. In general, respondents expressed no strong feelings about traffic problems being greater during the summer or winter.

Figure C-25 “Is traffic generally worse on weekdays or weekends?”

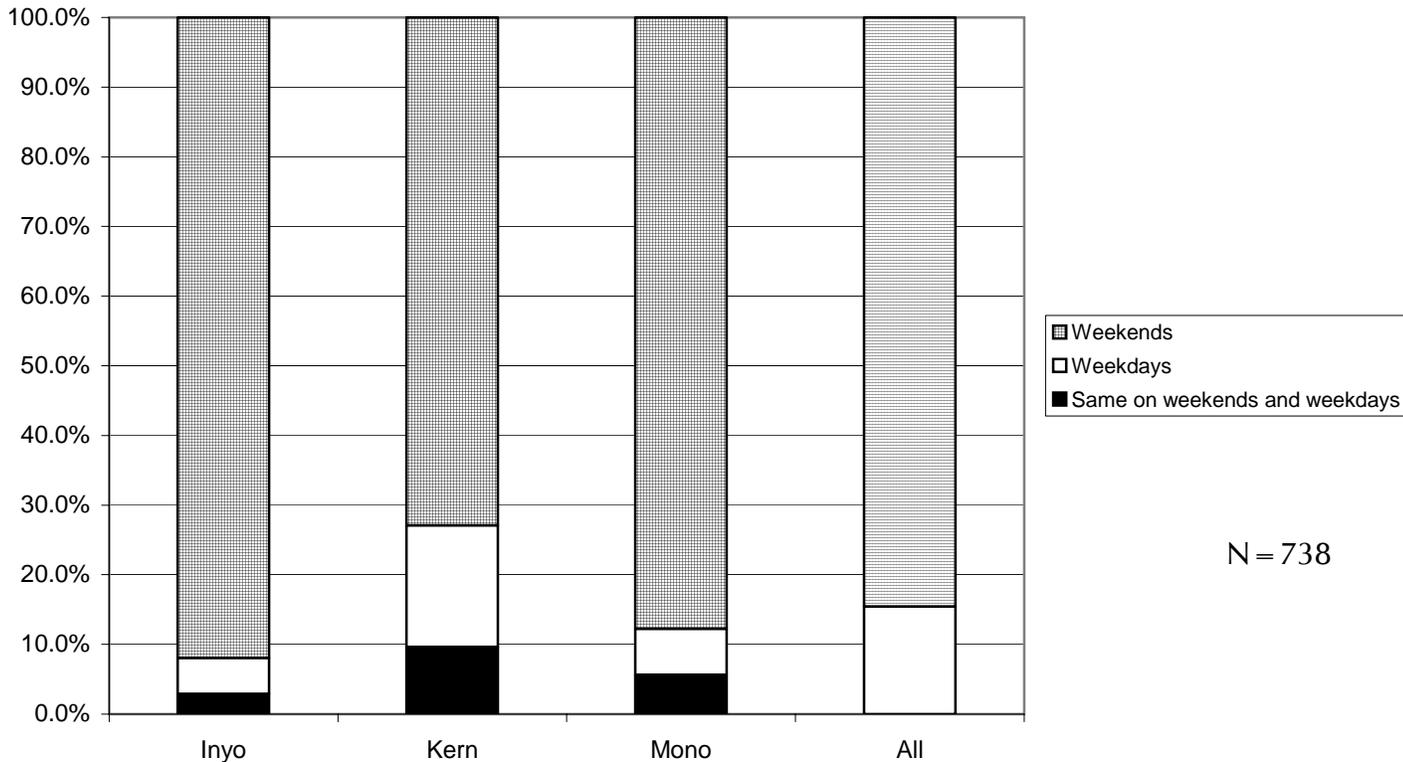
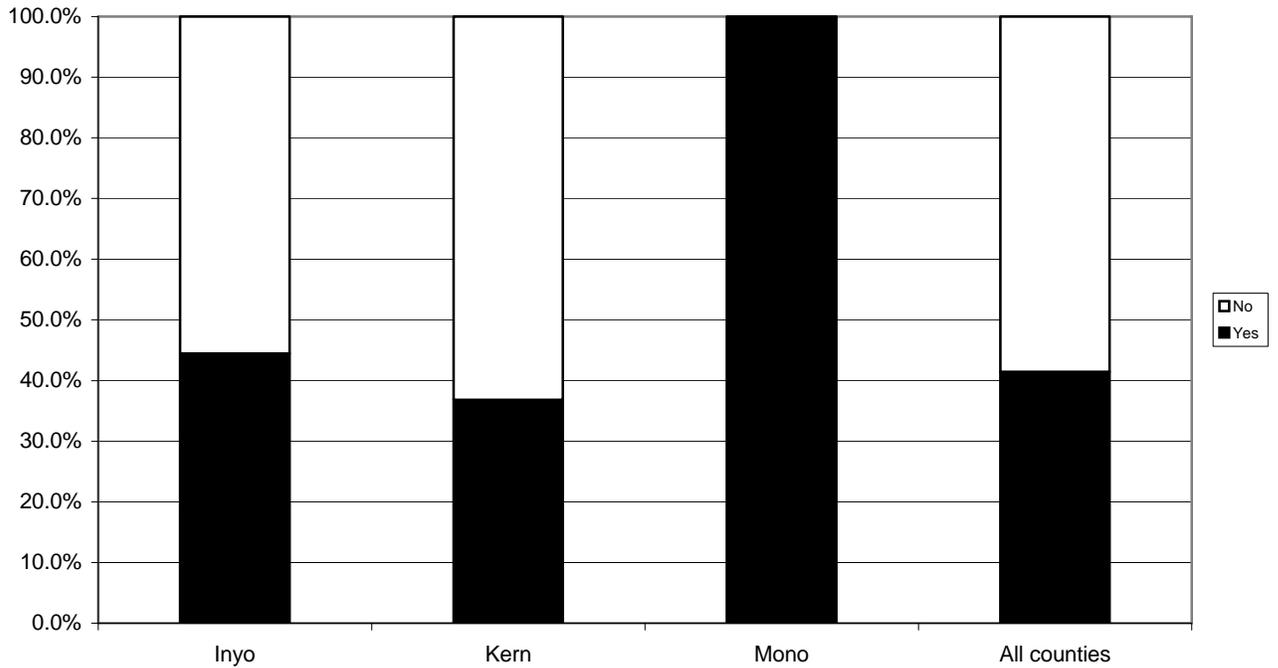
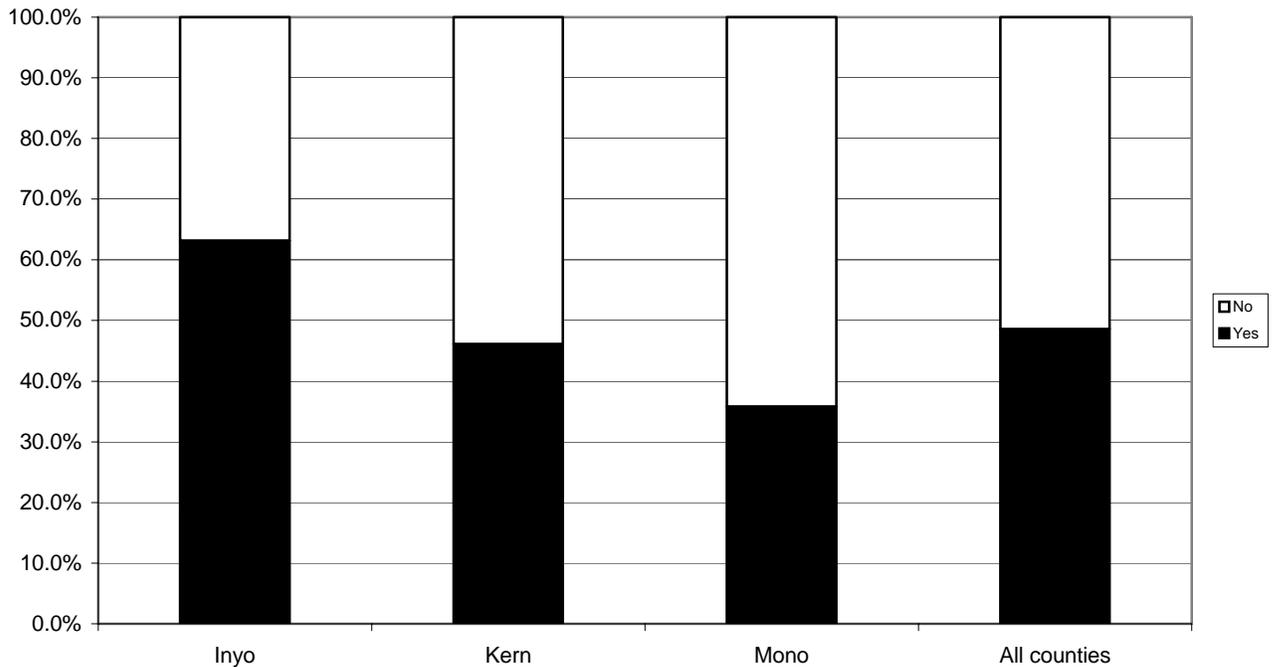


Figure C-26 “Is traffic generally worse in the winter?”



N = 719

Figure C-27 “Is traffic generally worse in the summer?”



N = 728

To better understand the true importance of transit compared with other public services, respondents were also to prioritize street maintenance and paving; sidewalks, crosswalks, and bikeways; public transit services; parks and recreation facilities; and public school programs and facilities. For all counties, street maintenance and paving received the highest prioritization (92% for both high and medium priorities), followed by public school programs and facilities (90%), and then public transit services (86%). Figures C-28 through C-32 show how respondents in each county ranked these civic services.

Figure C-28 Priority of Street Maintenance and Paving

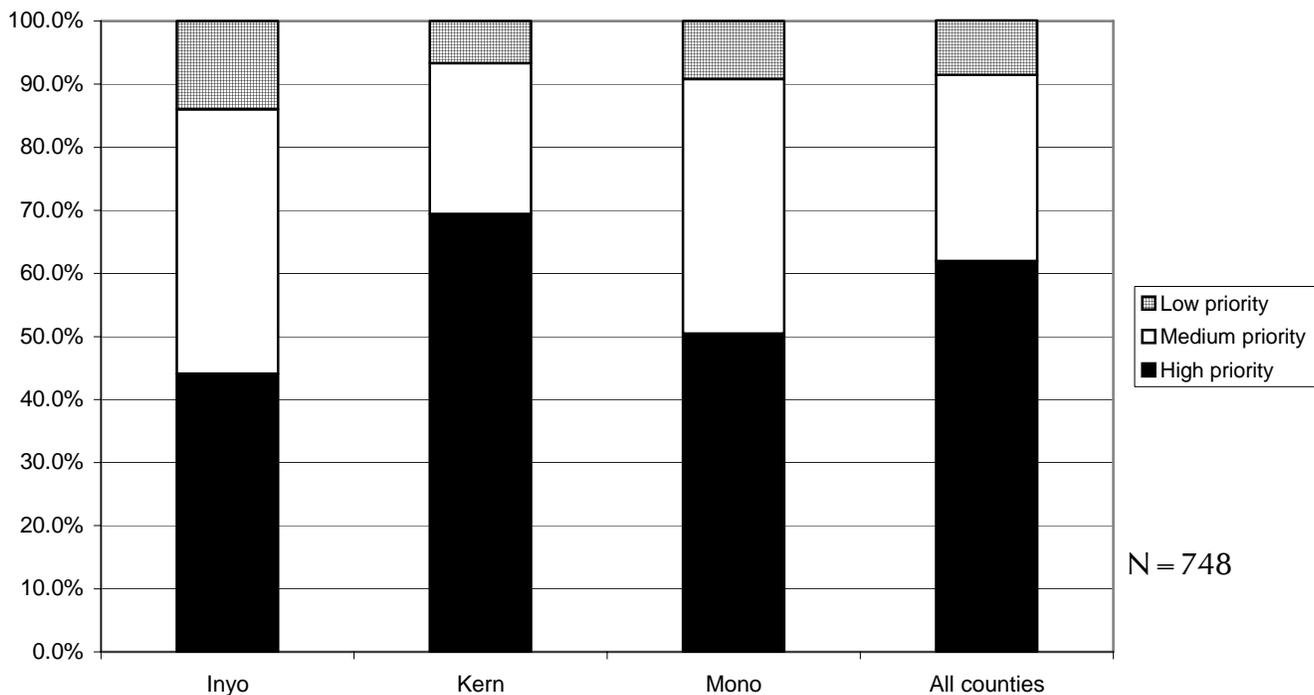


Figure C-29 Priority of Sidewalks, Crosswalks, and Bikeways

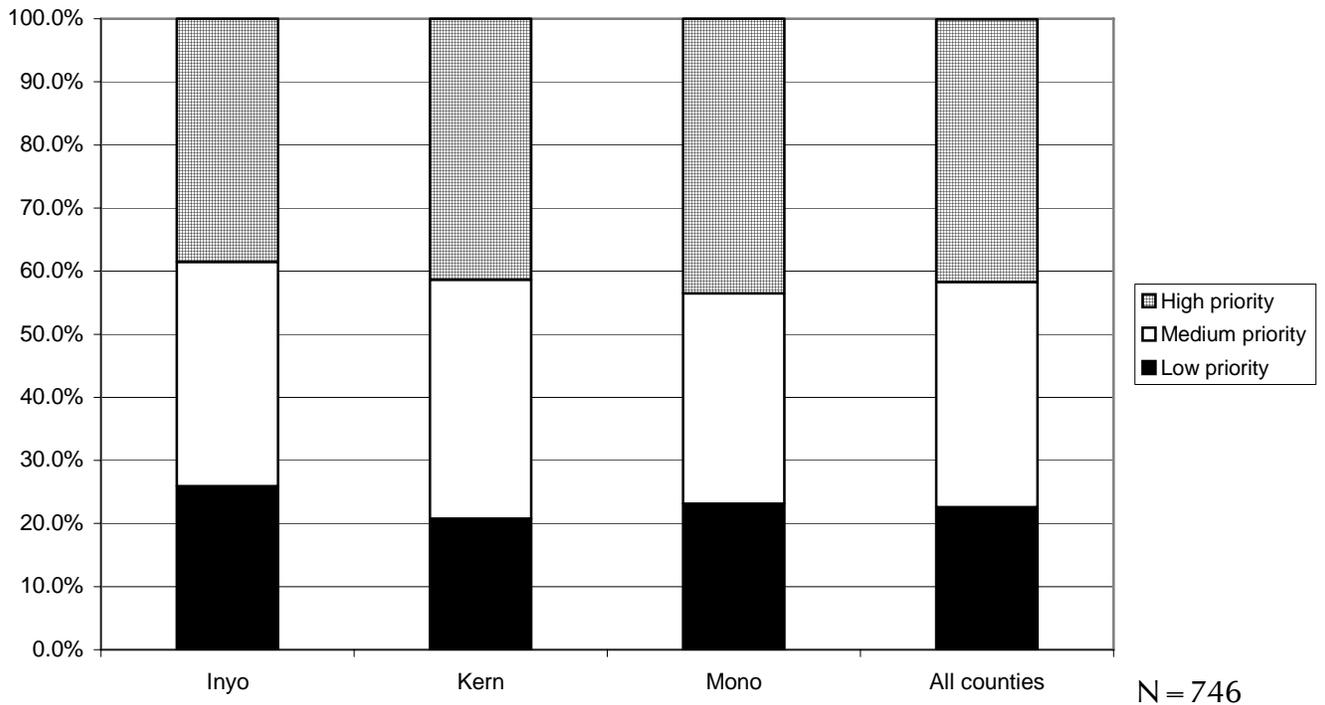


Figure C-30 Priority of Public Transit

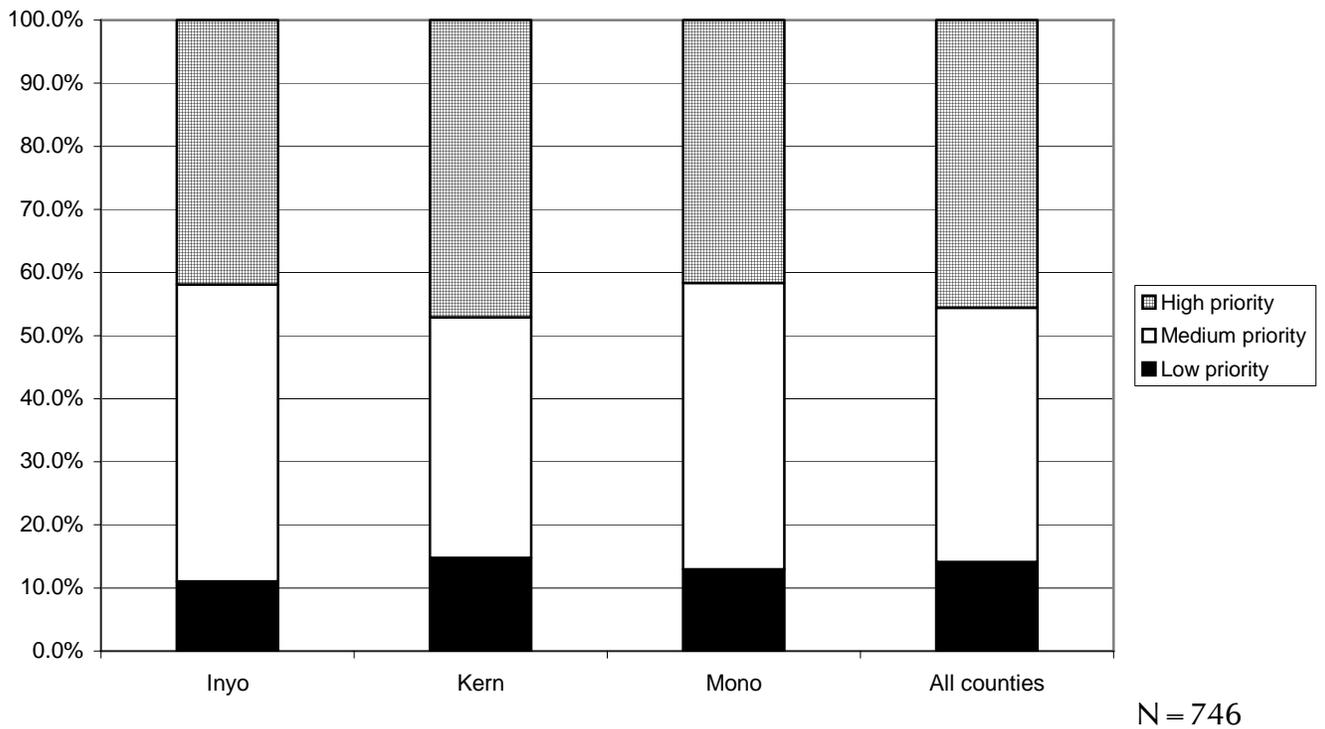


Figure C-31 Priority of Parks and Recreation Facilities

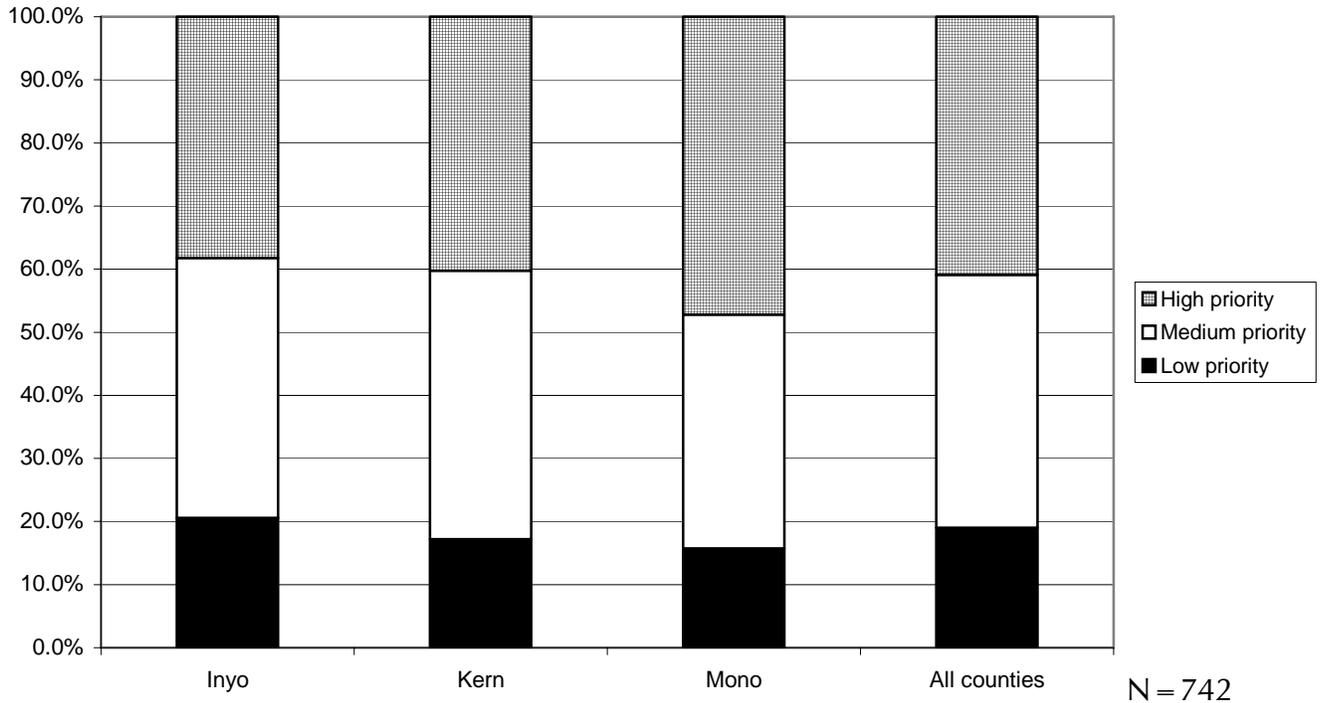
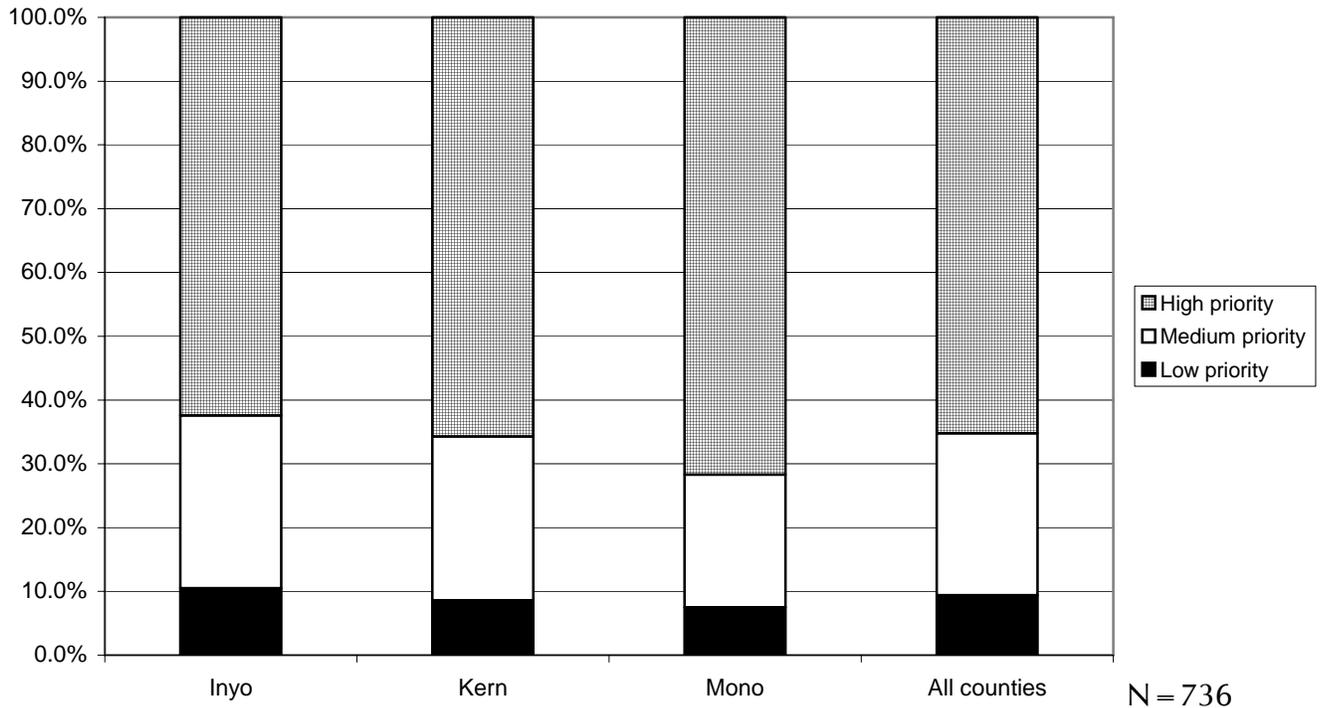


Figure C-32 Priority of Public School Programs and Facilities



Onboard Passenger Survey

Methodology

Onboard passenger surveys were conducted on transit services operated by California City, Inyo-Mono Transit, Reds Meadow Shuttle, YARTS, and on select Kern Regional Transit services. Nelson\Nygaard developed a one-page, tri-fold questionnaire with 18 questions that was printed in English and Spanish. One panel of the form included Kern COG's mailing address and a place to affix a stamp for passengers wishing to mail their completed survey. A copy of the survey form can be found at the end of this appendix.

Surveys were distributed on one to two weekdays (depending on the route) and, where applicable, on a weekend day. Bus drivers handed the survey forms to passengers when they boarded the bus. Passengers were asked to complete the survey form while on the bus and return it to the driver prior to alighting. Ten riders mailed in their completed surveys.

Figure C-33 Number of Passenger Surveys Collected

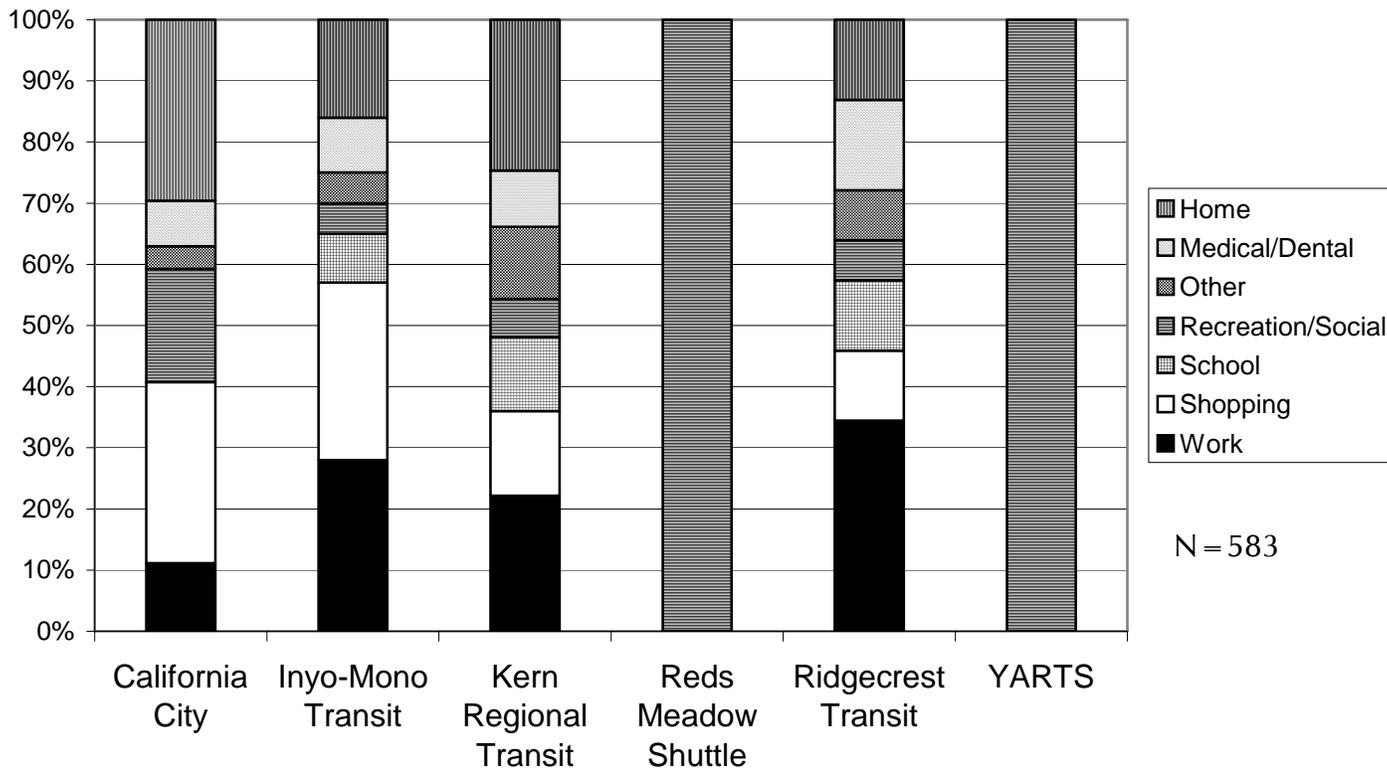
Transit Operator	Number of surveys collected
California City	27
Inyo-Mono Transit	106
Kern Regional Transit	244
Reds Meadow	153
YARTS	6
TOTAL	536

Key Findings and Issues

Trip Purpose

To determine trip purpose, riders were asked to identify their destination. With the exception of the Reds Meadow and YARTS shuttles, the primary destinations for survey respondents were shopping, working, and home. Most of Ridgecrest Transit System’s passengers (34%) were heading for work followed by passengers on Inyo-Mono Transit (28%) and Kern Regional Transit (22%). Thirty percent of the passengers on both Inyo-Mono Transit and California City systems were using the bus to go shopping. Not surprisingly, the predominant majority of riders on the Reds Meadow and YARTS shuttles were using this service for recreational purposes.

Figure C-34 “Where are you going?”



Origins and Destinations

Respondents were asked to report the location of their trip origins and destinations.

The most common trip origin-destination pairs were those made to or from recreational areas (Devil's Postpile-Mammoth (11%), Mammoth-Mammoth (8%), and Mammoth-Reds Meadow (5%)). Frequent origin-destination pairs for non-recreational areas include Ridgecrest-Ridgecrest (9%), Bishop-Bishop (7%), Bakersfield-Tehachapi (4%), and California City-California City (3%).

Figure C-35 Origin and Destination Pairs (Percent of Trips between Locations)

	Aspen Springs	Bakersfield	Benton	Bishop	Bodfish	Boron	Bridgeport	California City	Chester	China Lake	Coleville	Delano	Devil's Postpile	Inyokern	Kernville	Lake Isabella	Lancaster	Lee Vining	Mammoth	Mojave	Mt. Mesa	Onyx	Rainbow Falls	Reds Meadow	Reno	Ridgecrest	Rosamond	Shafter	South Lake	St. Moritz	Taft	Tehachapi	Walker	Wasco	Weldon	Wofford Heights			
Aspen Springs																																							
Bakersfield		1.3%																																					
Benton																																							
Bishop			1.0%	7.3%																																			
Bodfish		1.3%			0.3%																																		
Boron																																							
Bridgeport							1.0%																																
California City								3.2%																															
Chester																																							
China Lake																																							
Coleville																																							
Delano																																							
Devil's Postpile													2.9%																										
Inyokern														0.3%																									
Kernville															0.3%																								
Lake Isabella		2.9%			1.6%										1.3%	1.6%																							
Lancaster		0.6%						0.3%									0.3%																						
Lee Vining													0.6%					0.3%																					
Mammoth	1.0%			1.6%									10.5%			0.3%			8.0%																				
Mojave						0.6%		0.3%	0.3%								1.9%			2.2%																			
Mt. Mesa					0.3%											0.3%																							
Onyx		1.6%														1.9%																							
Rainbow Falls													0.3%					0.3%	0.6%																				
Reds Meadow													0.6%																										
Reno																																							
Ridgecrest													0.3%	0.6%													9.3%												
Rosamond		0.3%								1.0%							1.6%			0.6%								2.6%											
Shafter																																							
South Lake		0.3%														0.6%																							
St. Moritz																																							
Taft		1.9%																																					
Tehachapi		3.8%															0.6%		0.6%								0.3%												
Walker											0.3%																								0.6%				
Wasco		0.6%										0.3%																0.6%											
Weldon		0.3%													0.3%	0.6%																							
Wofford Heights					0.3%										0.6%	2.5%						0.3%															0.6%		

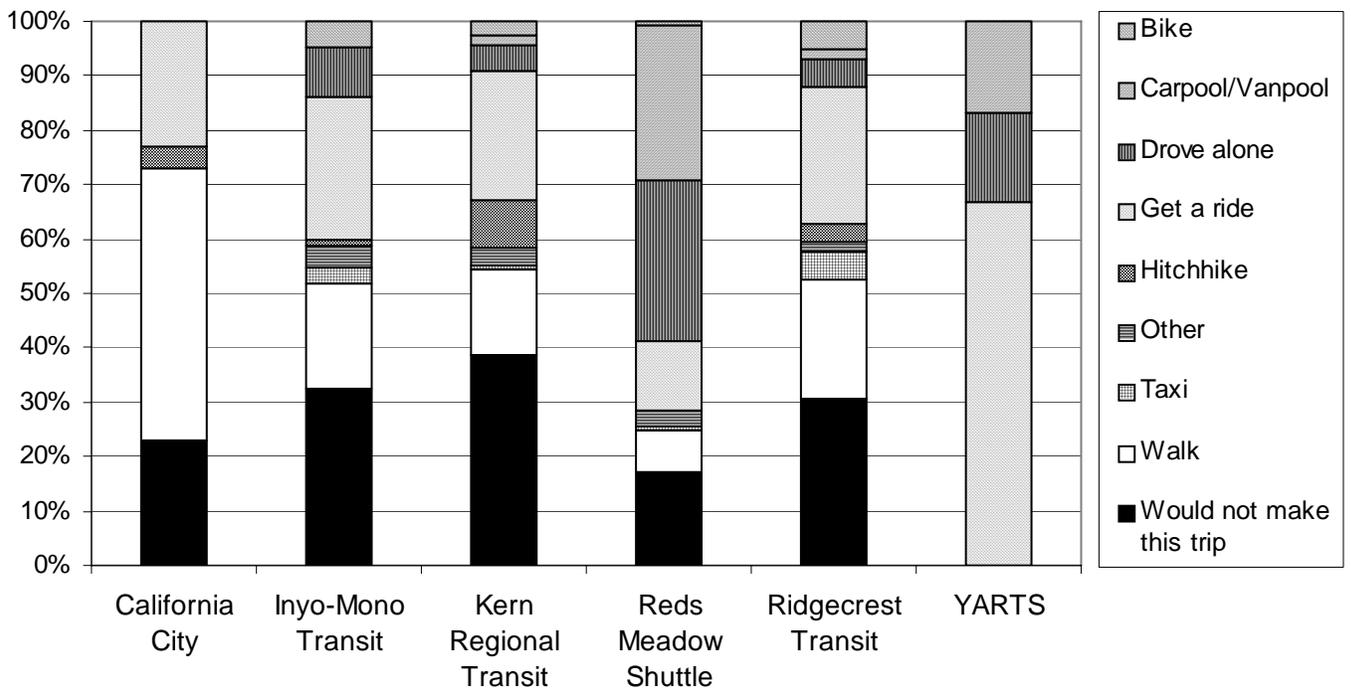
Number of respondents = 313

Note: Origins and destinations do not include those outside the Eastern Sierra region (e.g. San Diego, CA; Yuma, AZ).

Transit Dependence

Many of the operators' current passengers can be considered transit-dependent. When asked how they would have traveled if transit service had not been available, 39% of KRT's passengers said they would not have been able to make the trip. This was also true for 32% of IMT's riders, 31% of RTS's customers, and 23% of California City's passengers. Less than 10% of the passengers on each system would have driven themselves: 9% in IMT, 5% for KRT and RTS, and none in California City.

Figure C-36 "If this service were not available, how would you make this trip?"



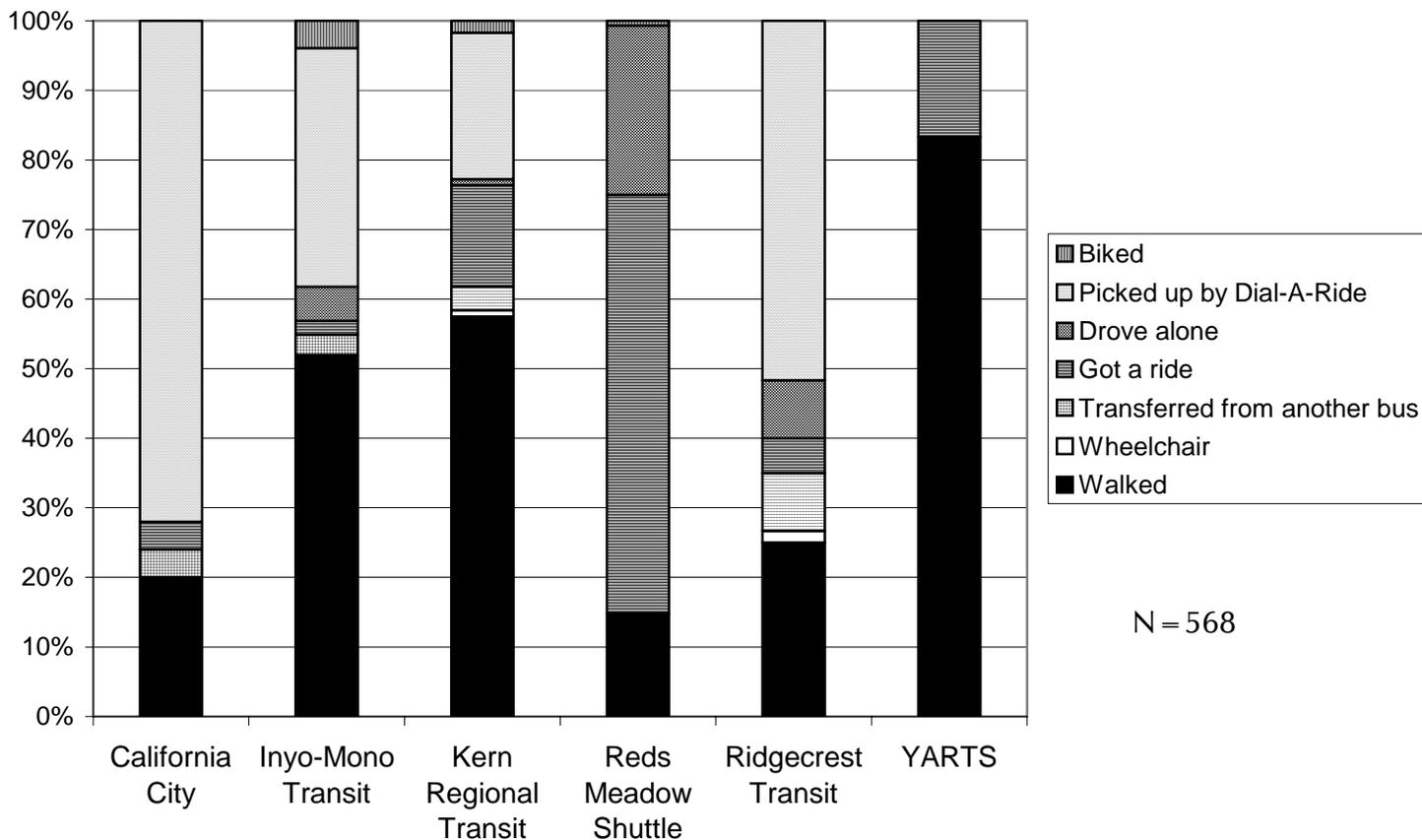
N = 500

Mode of Access to Transit Services

Figure C-37 shows the modes passengers used to access transit. More than half of IMT and KRT patrons are walking to the bus stop, while the majority of California City and RTS riders are being picked up at their trip origin because they are using DAR services.

Users' access modes for the park shuttles were transposed. About 83% of YARTS patrons walked to the bus stop, while only 15% of the Reds Meadow shuttle users did so. Conversely, 17% of YARTS patrons and 60% of the Reds Meadow shuttle users drove to the bus stop.

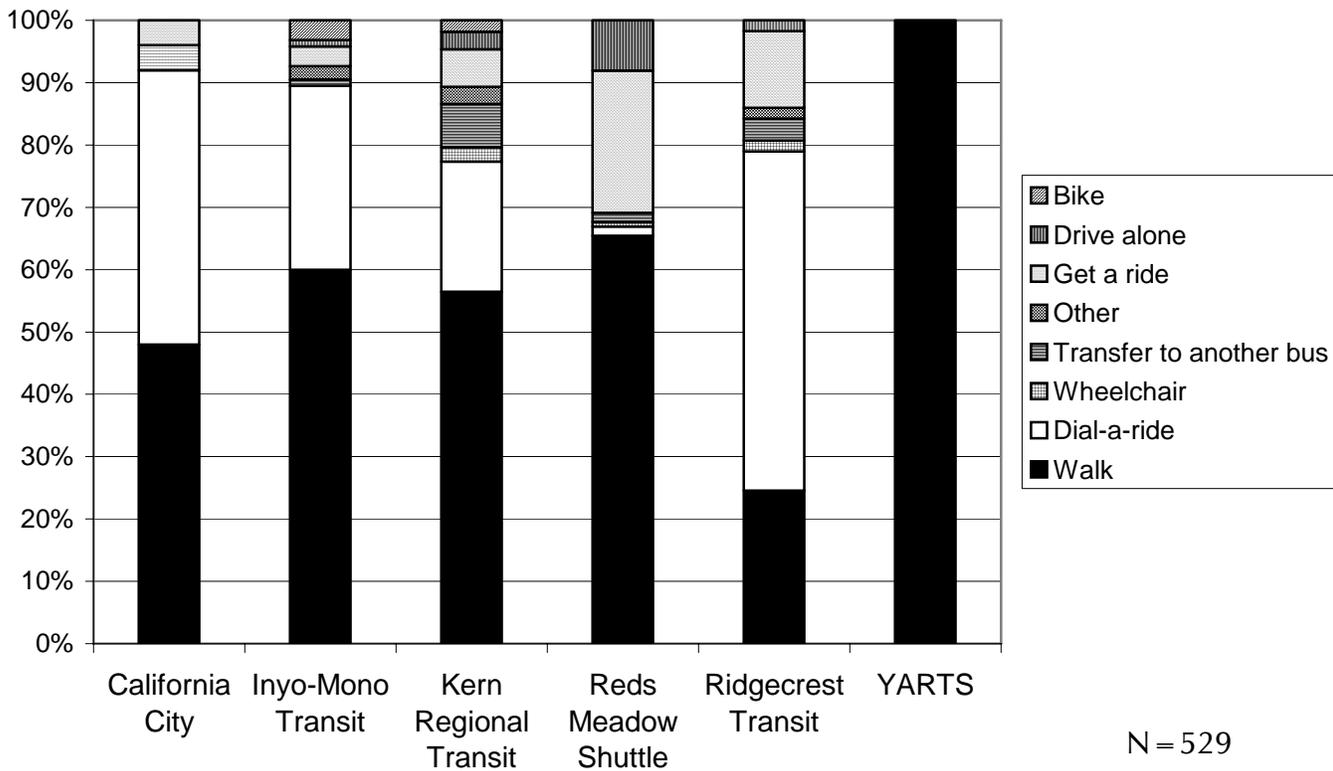
Figure C-37 “How did you get to the bus stop to board this bus?”



Mode of Egress from Transit Services

Walking is the primary egress mode for nearly half or more of the respondents on California City Transit (48%), IMT (60%), KRT (56%), Reds Meadow Shuttle (65%), and YARTS (100%). Walking was also common for 25% of RTS riders, but DAR was used by 54% of its passengers.

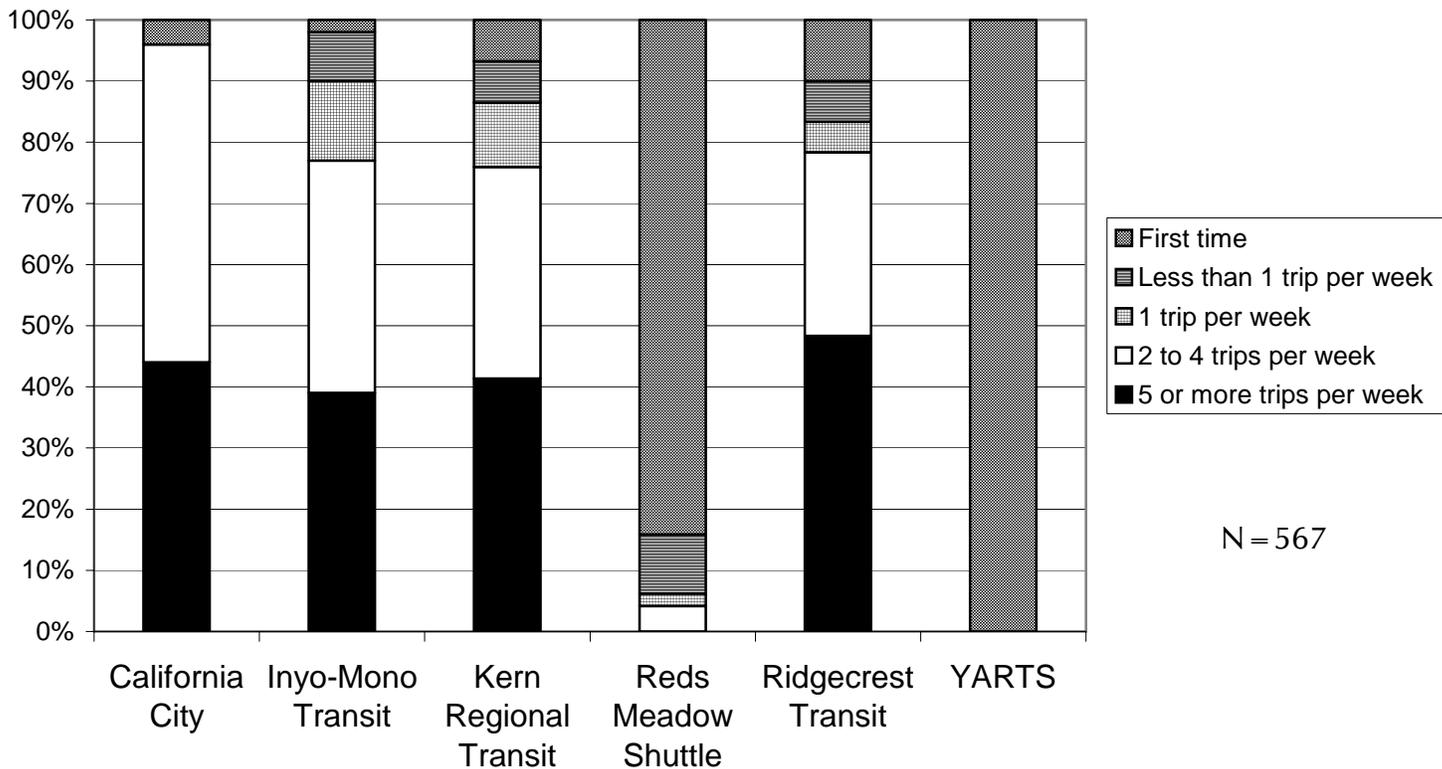
Figure C-38 “How will you get from the bus stop to your destination?”



Frequency of Use

Survey results show that passengers ride the bus frequently. Many of them use the service five or more times a week, including 48% of RTS passengers, 44% of California City customers, and 41% of KRT riders. For the majority of the park shuttle users, this was the first time they had used the Reds Meadow (84%) and YARTS shuttle (100%).

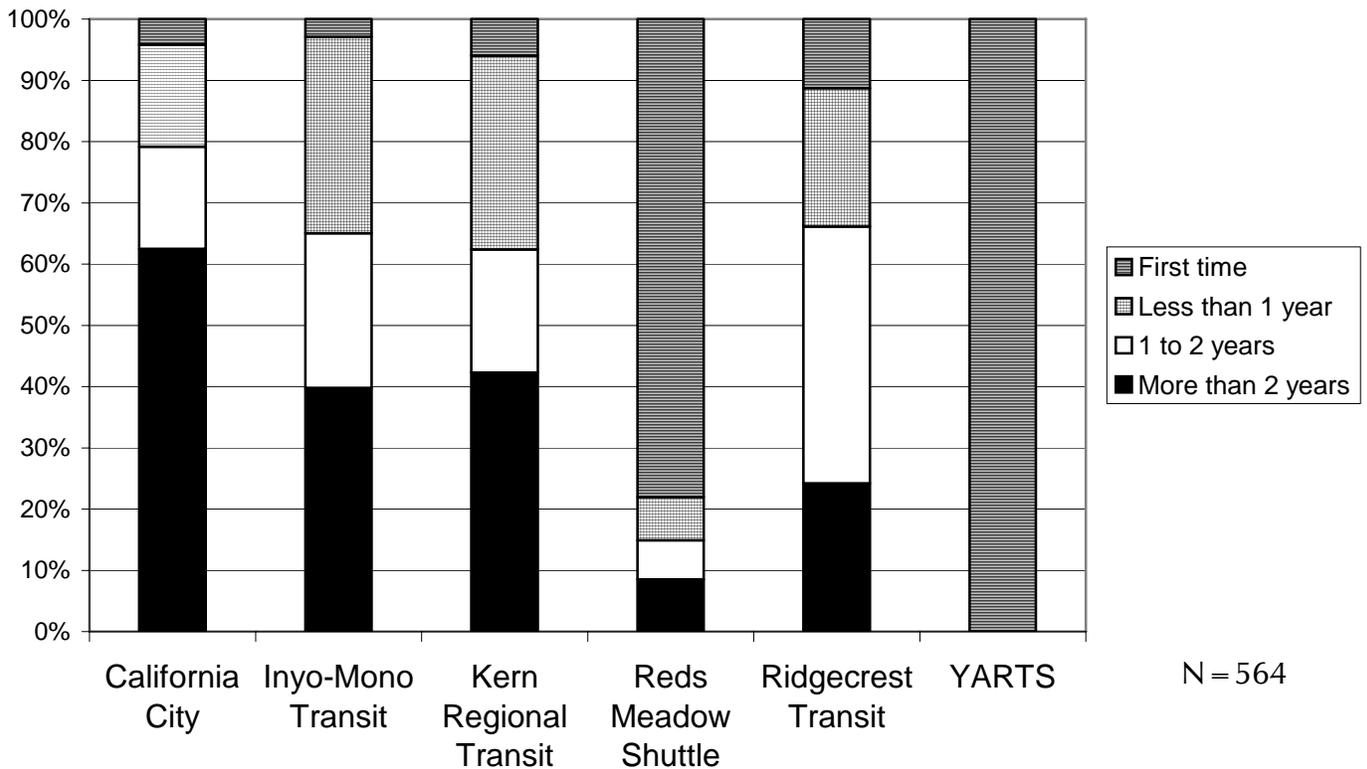
Figure C-39 “How often do you ride this bus service?”



Length of Use

Passengers have also been using regional bus services for a long time, with the exception of the park shuttle users. More than 50% of the respondents have been users for at least one year. More than half of the respondents (63%) on California City’s transit system have been using it for more than two years. This was also true for 40% of the IMT respondents and 42% of the IMT respondents and 42% of the KRT respondents.

Figure C-40 “How long have you been riding this bus?”



Riders' Attitudes and Opinions

Overall, respondents have a very positive opinion of transit services, with more than 90% rating it excellent or good. This was also reflected in their written comments, with many people praising drivers for being professional and courteous.

Figure C-41 “Overall, how would you rate this bus service?”

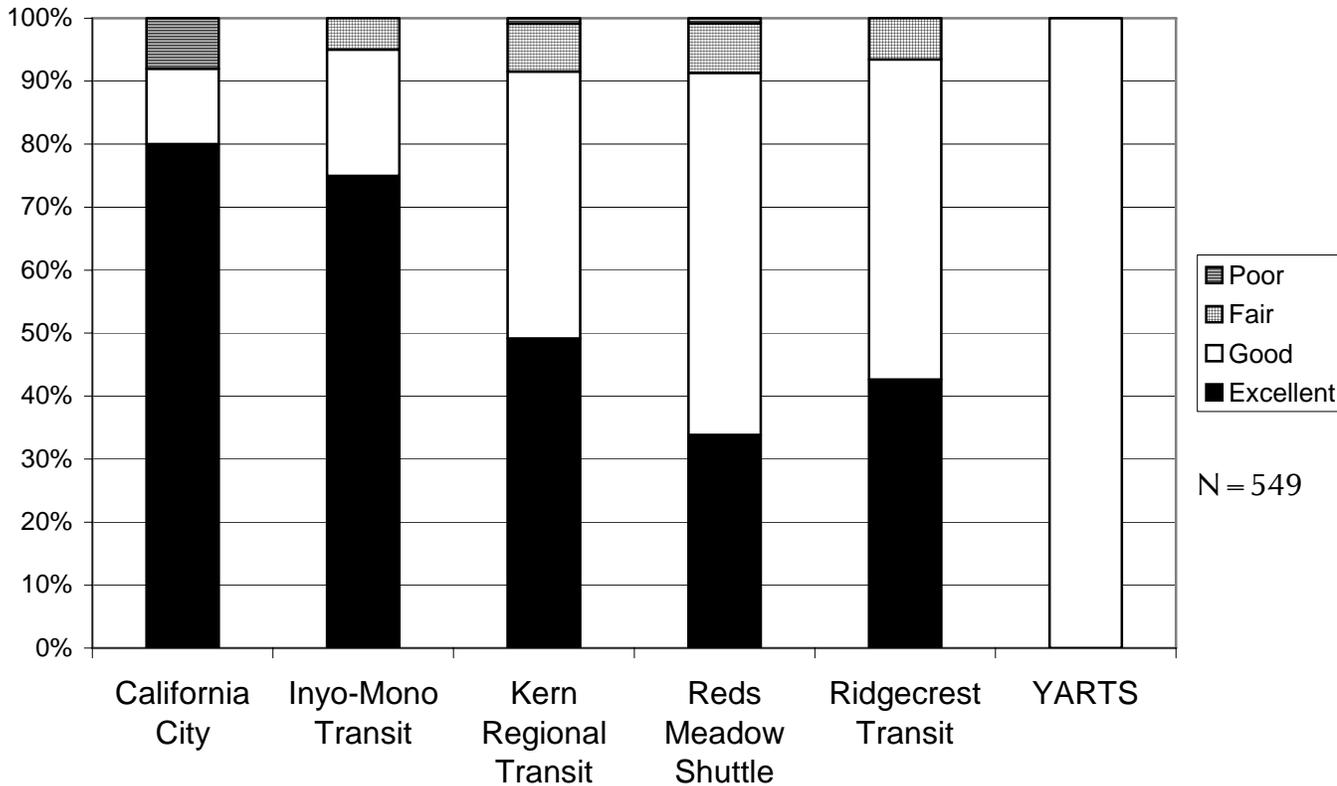
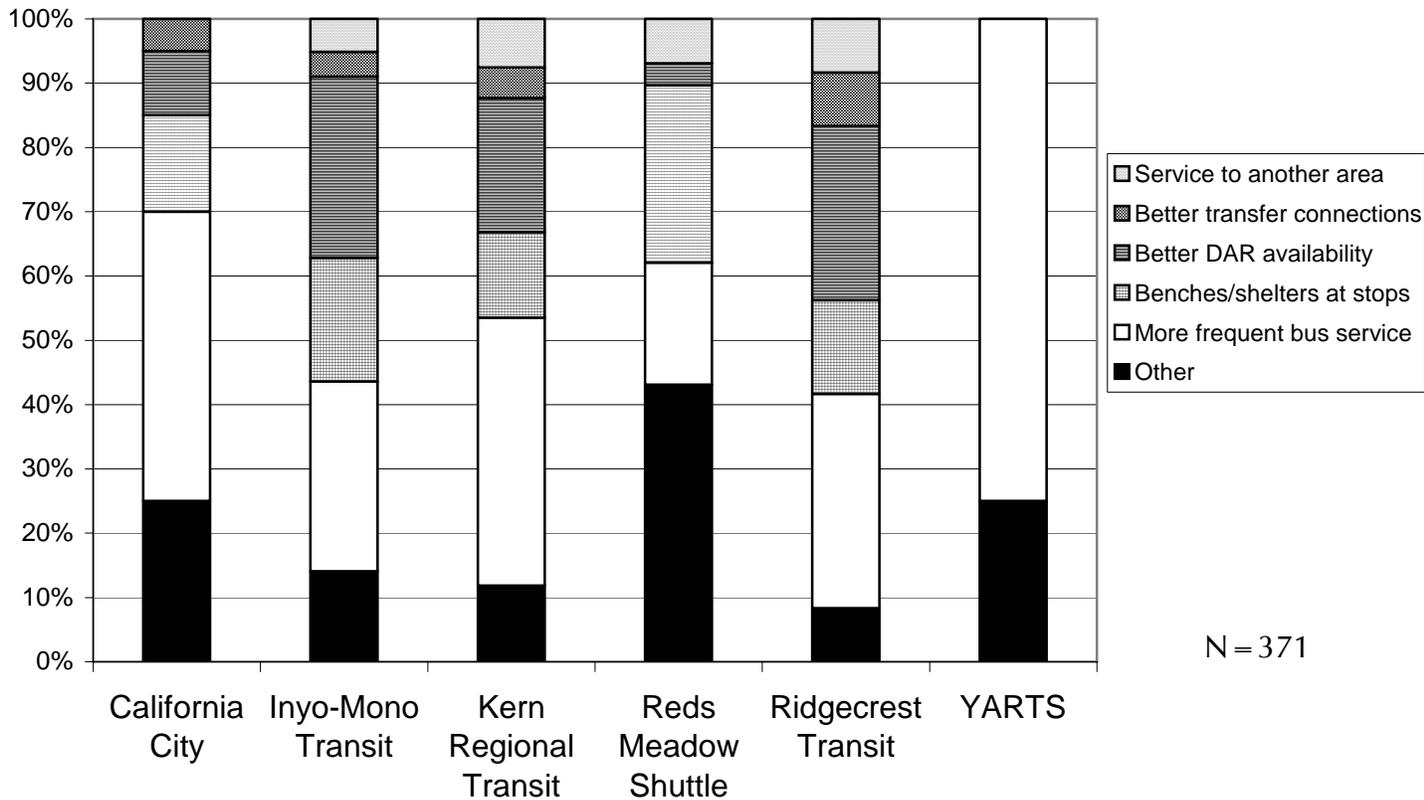


Figure C-42 “What one improvement would you most like to see?”

Respondents were given a list of service improvements and asked to mark the one most important improvement to them. Figure C-42 shows how various improvements were ranked. By far, the highest-ranking improvement was “more frequent service.” Also significant was better DAR availability for IMT (28%), KRT (21%), and Ridgecrest (27%) passengers. Benches and shelters were also noted by a significant number of riders.



Stakeholder Process

Introduction

To initiate this strategic analysis of the transit services in the Eastern Sierra, the consulting team conducted a series of interviews and meetings during July and August 2004 with a wide range of representatives who could discuss transportation issues in Inyo, Mono, Kern, and San Bernardino Counties.

The intention of this section is to represent the array of concerns voiced by political leaders, representatives of the media, local agencies and organizations, and community members representing a diversity of advocacy groups. Individuals commented on a number of issues regarding transit services. Stakeholders were assured that their answers were provided in confidence.

Interviews were conducted in person, by telephone and by questionnaire. A total of 29 individuals provided responses for the stakeholder input effort. The range of stakeholder participants included representatives of the following organizations:

- Caltrans District 6
- Caltrans District 7
- Caltrans District 9
- Citizen groups, community activists, and media representatives
- City staff representatives in Kern and San Bernardino Counties
- Elected and honorary officials from communities in the study area
- Inyo County LTC Board
- Inyo-Mono Transit
- Kern COG
- Kern Regional Transit
- Mono County LTC Board
- Mono County LTC
- National Forest Service
- SANBAG

Role of Stakeholders

Kern COG staff identified stakeholders to provide a diversity of insight that would reflect the concerns of the communities within the Eastern Sierra study area. Stakeholder interviews were conducted to address a number of issues. While interview topics and discussion priorities varied slightly from interview to interview, the primary range of topics included the following:

- An overview of the stakeholders' program or service. The questions included the type and, if relevant, the number of clients served. The emphasis of the discussion was whether transportation is an issue for community residents, clients, patients or the population group represented.
- The major transportation challenges in the community. Means of evaluating this include individuals who have difficulty accessing programs or services. It is also important to understand key travel destinations. For example, from where do people travel? Where do they go? Where are concentrations of travelers? What are the strengths and weaknesses of IMT, KRT, and the other services in the area?
- Evaluation of service and perceived role or mission for public bus transit and passenger rail service in the region. The impetus for the Eastern Sierra Public Transportation Study is to identify better methods of providing transportation throughout the Eastern Sierra and to assess the feasibility of passenger rail service as a longer-term solution. Does CREST adequately meet travel needs? What are short term and longer term priorities for KRT? The consulting team asked stakeholders to share opportunities for change and wanted their opinions about the issues that should be addressed as part of the Eastern Sierra Public Transportation Study.

Stakeholders were relied upon to describe their perspectives, but do not necessarily express the full range of concerns among the residents of Mono, Inyo, eastern Kern and northwestern San Bernardino County. In combination with the findings from the on-board survey and the telephone survey, this information provides a more in-depth qualitative view of some of the region's pivotal transportation issues. A copy of the stakeholder outline is included at the end of this appendix.

Stakeholder Issues

The interview format afforded stakeholders an opportunity not only to discuss their concerns about transit services in the Eastern Sierra, but also to inform the consulting team about availability and the level of information provided about the services currently available. Comments are classified under the following headings:

- Overall transportation challenges in the Eastern Sierra,
- Strengths and weaknesses of the current transit network,
- Mission and policy direction,
- Needs and priorities,
- Benefits of public transportation, and
- Rail service issues and concerns.

Overall Transportation Challenges

Depending on their knowledge and understanding of regional transportation issues, stakeholders had a range of perspectives about the transportation challenges facing their communities, clients and all of the Eastern Sierra. Major challenges, according to stakeholders, can be summarized under a few key themes. Sample comments regarding these themes are summarized in Figure C-43:

- People need to travel extremely long distances for some specialized services, such as medical services and some social support services.
- The road/highway network and general isolation of the population limit regional access.
- Few transportation alternatives are available for people living in the Eastern Sierra. Overwhelmingly, people drive and rely on their cars for transportation.
- Transit options are very limited for the truly transit-dependent, especially seniors, persons with disabilities and persons making medical trips.
- Securing sustainable operating funds is a significant challenge.

Figure C-43 Sample Stakeholder Comments on Transportation Challenges

Area of Emphasis	Comments
Long Distances/ Isolation	Requests come in for transit service from very small areas far from population centers that are currently not served.
	The biggest challenge is distance – significant distances. Many bus drivers travel along stretches of road without the ability to communicate, because radios and cell phones don't work.
	I think the single most serious gap is the lack of direct inter-regional service to the metropolitan areas of Reno, Los Angeles, Bakersfield and San Bernardino. Lack of such service leaves many residents of the Eastern Sierra region isolated from major medical, recreational and airline and passenger rail services.
	In the winter all the east-west roads are closed due to snow. People travel to Reno or to Mojave to access the west side of the Sierra. For much of the Sierra, the nearest major city is Reno in Nevada. In the winter most visitors come from Southern California.
	The cost of housing is so high in the Town of Mammoth Lakes that many people are moving to the unincorporated areas of Mono County where housing is still cheaper. Many still hold jobs in Mammoth Lakes and are now commuting long distances.
	Edwards Air Force Base has several thousand people who don't have access to get off base.
	Many seniors live in areas that are hard to access by transit service.
Costs/Funding	The Trona Senior Center employs one person part-time to serve as secretary with that position's responsibilities being coordinating transportation requests. The transportation serves only the elderly and disabled, most of who are on limited incomes and have trouble just covering the expense of fuel, which is how they meet their 10% farebox recovery ratio.
	Limited funding means few bus shelters and other types of transit amenities.
	The need for ongoing funds for transit is the greatest concern.
	It is hard to find money to support the desired transit services, as well as provide for greater frequencies on the services which would make them more desirable.
Service Quality and Frequency	We lack a true intercity system. It is critical to have daily service, several times a day.
	We have no bus service here except a small dial-a-ride. Literally people stopped coming to town when the train stopped running.
	The CREST route runs from Ridgecrest to Reno three days a week. The route serves the locals by operating during the day, providing transit to medical appointments and shopping. Greyhound mostly served people traveling through the area or the person with a specific destination in the Eastern Sierras. Greyhound's operating hours did not serve the local traveler. The CREST route is well received by the local commuters.
	In some communities, the bus is fine for commuting, but not for grocery shopping. It comes by in the morning, but not in the afternoon when you're ready to go grocery shopping.
	Boron has a bus that travels once a week. Anyone without a car is out of luck.

Strengths and Weaknesses of Transit Services in the Eastern Sierra

According to stakeholders, the best qualities of the transit services operating in the Eastern Sierra region are as follows:

- Staff and customer service,
- Responsiveness of the services, and
- The availability of a regional transportation alternative.

Weaknesses include issues related to:

- Service frequency,
- Low ridership,
- Lack of information and marketing, and
- Limited coordination of services.

Figure C-44 illustrates a sample of comments about strengths and weaknesses of the transit services in the Eastern Sierra study area.

Figure C-44 Sample of Comments on Strengths and Weaknesses of Transit Services

	Strengths	Weaknesses
General Opinions	Overall Inyo Mono Transit is doing a decent job providing transportation for the transit-dependent, but is constrained by funding.	
	Basic dial-a-ride comes in handy for a lot of people.	
	Kern Regional Transit has a good network of bus routes throughout the eastern part of the County.	
Marketing and Customer Service	I have heard good things about Inyo-Mono transit.	We have a need for better coordination and marketing of the Eastern Sierra region as a whole to the local population and to the visitor.
	Drivers are helpful and know their riders. They do what they can to meet the riders needs.	
	Bilingual information is available. Materials are printed in English and Spanish.	We have a general lack of information about transit services. Almost no marketing is done and I don't know where to pick up information about transit.

	Strengths	Weaknesses
Service Availability	The strength of rural transit systems such as these manifest themselves in being able to structure services to meet the needs of the clientele served. These services, out of necessity, are as responsive as funding allows.	For services such as Inyo-Mono Transit, Kern Regional Transit, and California City Transit, weaknesses are centered around the inherent restrictions low-density populations and large geographic service areas place on these transit services. Insufficient ridership demand does not allow for increased round trips per day. For Ridgecrest and Bishop transit services origin and destination trips are typically too short to be able to attract significant non-transit dependent riders.
		When schools get off, seats are taken by school kids and not available, so dial-a-ride is not meeting Rosamond’s needs for public transit. Nothing would be feasible in the short-term.
		The introduction of CREST in 2002 provides an essential interconnectivity route to fill some of the service lost when Greyhound dropped service a few years ago. While it is a valiant effort to fill the gap of lost Greyhound service, full inter-regional connectivity north and south along the Rte 395 corridor has not been addressed.
Coordination	Good coordination and a good working relationship exists between Caltrans and Inyo-Mono Transit.	A weakness is the lack of regional partnership between Inyo and Mono Counties. On the Bishop-Mammoth route, Mammoth Lakes has agreed to share in the costs, but Bishop has not.
	Inyo-Mono Transit is coordinating schedules between CREST and YARTS for transfers in Lee Vining.	Bus schedules and service hours are not coordinated. No one can really take a bus from any particular point, do their job and then take the bus back.

Mission and Policy Direction

Stakeholders were asked to voice what they believe the role of transit services in the Eastern Sierra region should be.

Two very distinct priorities were identified: (1) transit should serve tourists and (2) transit should address the local and regional transit needs of Eastern Sierra residents.

Several transit services in the Eastern Sierra are specifically designed for recreational travelers and tourists. YARTS and the Reds Meadow Shuttle provide access to tourist destinations, while the winter service in Mammoth Lakes provides skiers access to the

slopes. As an intercity service connecting to Reno with Ridgecrest, CREST serves a mix of recreational and residential needs.

Stakeholders said that bus services may be able to address the needs of some tourists, but passenger rail service would better serve tourists headed to the Eastern Sierra region. At the same time, some stakeholders expressed reservations about passenger rail service providing an economic boost, suggesting instead that more riders on the train means fewer people stopping their cars and patronizing local businesses that serve tourists. Stakeholders also suggested that regional transit services oriented to tourists should serve Las Vegas and the Owens Valley, as well as the Burbank Airport.

Among the stakeholders that focused on serving the needs of residents, most identified social service, shopping, medical and work trips (or workforce training/development) as priorities. Many of these stakeholders concede that transit services for tourists and recreational purposes are important, but the services should be designed to improve the mobility of the region's residents for travel within the region. In addition to travel within the Eastern Sierra, a critical role for transit is to provide a "lifeline" link to larger cities, particularly Reno for many Mono County residents, Bakersfield for Kern County residents, and the Los Angeles area for residents of southern Mono County, Inyo County, San Bernardino County and Kern County. Stakeholders identified low-income residents and senior citizens as particularly important groups to address, but several stakeholders said they would like to see transit service provide an option to attract "choice riders," people who have a car at home but decide to use transit instead.

It is important to note that recreational trips via public transit are not only geared toward tourists and visitors. A couple of stakeholders discussed the role of transit for serving youth in small communities, like Trona and Bridgeport, to provide them access to social and recreational activities they are unlikely to find in-town.

Most stakeholders agree that transit will never be a significant transportation mode in the Eastern Sierra region. One stakeholder's comments summarize what many expressed: transit's role is "to provide a reasonable alternative to the automobile and accessibility for transit-dependent users in the cities." For rural communities, the role of transit should be to provide "reasonable access" to medical appointments, government services and shopping centers.

Stakeholders in Kern County conceded that transit services addressing tourism are less important to them than they would be in Inyo and Mono Counties where tourism plays a much greater role in the economic health of the region.

Needs and Priorities for Transit Services in the Eastern Sierra

Stakeholders described their own personal priorities for public transit, as well as the primary transit needs for their constituents, members or clients.

The priority most often noted by stakeholders was the need for **more transit service**. More transit service means different things to different stakeholders, but typically greater frequencies and new routes were identified as critical, as opposed to longer service hours. Many stakeholders asserted that the current transit operations in the region represent the baseline: these are the minimal services necessary and that any service reduction would be unwise.

In addition, better **marketing and public information** for public transit services was discussed by a large group of stakeholders. Many stakeholders felt that much of the public is unaware of the transit services that are available in the study area. In fact, a few stakeholders were unaware of the intercity transit routes serving their own community.

Improved coordination between services was the third-most mentioned priority for transit in the region. Several stakeholders indicated that while the limited transit service frequencies negatively impact mobility, the lack of coordinated transfers, fares and connectivity among some services is a greater concern.

Specific stakeholder comments illustrate some of these needs and priorities, and are presented in Figure C-45.

Figure C-45 Sample of Comments on Transit Priorities

Area of Emphasis	Comments
Service Needs	Re-establish Greyhound or similar direct inter-regional transit service to Reno, Los Angeles, Bakersfield and San Bernardino.
	Need express bus routes from the Lancaster-Palmdale area into southeastern Kern County to serve the major employers in the region.
	Establish Metrolink service between Los Angeles and Reno.
	Entire corridor needs to be connected with daily service. Also need to ensure transit connections to Victor Valley, Greyhound and Amtrak.
	It is worth experimenting with services: undertake pilot programs to get something set up rather than planning and waiting for things to happen.
	Need a better connection over Tioga Pass – not just YARTS.
Service Quality/Hours/Days	Expand weekend service.
	Improve the service: certain routes get bogged down and run late (East Kern Express runs late).
	Better transit frequency is the most important change that needs to be made.
	Don't reduce or eliminate any of the services already in place.
	Need some later runs so people can make a round trip on transit in one day for work or for medical and shopping needs.
Regional Connections	The most critical market would be between Ridgecrest and Lancaster. Connections to AVTA or Metrolink in Lancaster will take passengers to Los Angeles.
	Keep the CREST Reno run. If funding sources are decreased, this run should become a priority.
	Need to enhance the connections with the LA area and Bakersfield.
	The court system and the public have requested regular transit to Bridgeport and Mammoth Lakes from the unincorporated areas for jury duty and other government-related business.
	The most important connection for residents or visitors in the Trona area would be to another city or region where more established transit links are available. State Line, NV, is where a lot of people go for entertainment.
	Need airport connections for growing and expanding air service. Need intermodal focus on air and rail.
Service/Fare Coordination	Consolidate transit services in eastern Kern County and possibly all services along the Rte 395 and 14 corridors between Mammoth Lakes, Victorville and Lancaster.
	Need better cooperating between Inyo and Mono Counties with regard to funding of services that connect both counties.
	Introduce "smart card" coordinated transit passes.
Visibility/ Marketing	Develop an Eastern Sierra transit service guide which includes schedules, fare rates and intersystem connection information.
	We need increased marketing and awareness of transit to increase transit ridership.
	While good information is provided in Spanish, many Latinos do not have reading skills and the majority are monolingual, so they learn information about things orally rather than through printed materials.
	Kern COG does limited marketing and Kern Regional Transit doesn't do marketing.

Benefits of Public Transportation for Community

Stakeholders were asked to describe what they believe a more comprehensive public transit service could do for their community. According to stakeholders, overall improved transit services in the region would provide access to essential services and improve the quality of life for transit-dependent residents. Many people who were interviewed agreed that improved transit service could boost tourism, allow people to retire in their community, and provide better access to medical services.

Stakeholders tended to be optimistic about benefits of improved transit. Some saw existing services as a good model for transit in the region. For example, one stakeholder noted that many skiers use charter buses from Southern California to Mammoth Mountain and that these users would probably be interested in a transit system from Southern California to Mammoth. Such a transit system would facilitate access to the region making it a more appealing destination for tourists. Nevertheless, questions arose with regard to how people going fishing with boats and float tubes could use transit, how skiers could bring their equipment on the bus, and how backpackers could travel with tents and sleeping bags. Stakeholders suggested that these types of travelers might not be primary users of a comprehensive regional transit system.

According to stakeholders, boosts to tourism are likely to come from visitors from outside of the United States and some of the hikers who use the current system, but who would appreciate a comprehensive public transit system. Some stakeholders saw the potential for negative impacts on their communities if more people use transit. Automobile-serving businesses located along the major highways could lose business if people opt for transit services over using their car. Some stakeholders expressed greater concern about rail: if the system were to bypass small communities in the Eastern Sierra, could ghost towns result?

Rail Service Issues and Concerns

Stakeholders were asked to comment on the rail service component of this study: the feasibility of passenger rail between Mammoth and Los Angeles. They were asked whether rail service is critical to them and the community, and whether they have any opinions about its potential success.

Overall, stakeholders like the idea of passenger rail – in fact, many were very enthusiastic – but most doubt that it could be very successful or financial feasible.

When talking about passenger rail service, most stakeholders talked about the need to find a niche for it: to make it a “fun” experience with some “entertainment value.” A few stakeholders pointed to examples in other regions, such as trains in Europe and the successes of the Denver Ski Train. Most saw it as a tourist-oriented service that would have less benefit for Eastern Sierra residents going about their day-to-day business. For example, few stakeholders saw much potential for the service as a commute option.

At the same time, stakeholders asked some critical questions about rail service. Some, noting that Highway 395 is becoming more congested with freight trucking, asked whether the rail system could be used for freight as well as commuters. Questions were also posed about potential noise from rail and its effect on the communities, as well as whether grade-separations might be planned to avoid conflicts at road intersections.

Figure C-46 presents a sample of comments about passenger rail service

Figure C-46 Sample of Comments on Passenger Rail Service

Issue	Comments
Rail Preference	A Mammoth Ski train would look good.
	Consider rail service to the East from the Eastern Sierra toward Las Vegas.
	I would like to see all rail lines electrified.
	Provide Recreational Vehicle tours for the summer visitor. Have flatbeds available for recreational vehicles on the train.
Praise	Personally, I think it is a good really idea. However, it would be extremely expensive.
	It would be fun to ride the train. The scenery would be great and it would be a relaxing and enjoyable way to travel in the corridor.
	A lot of people in this region have families in Los Angeles, so it would provide a good way for them to see their families.
	Rail is a good idea, but you would have to make it a truly unique experience.
Caution	Reno or Carson City to LA rail is probably not viable.
	Passenger rail is not critical. It could be a tourist train run by a private company, but it would not be successful due to high costs and low ridership.
	Rail service would be difficult to provide, especially since the community lies along a fault line that has been shifting and destroying structures. In addition, I don't think enough riders would take it into or out of the community for it to be successful.
	Would have a negative impact on Mojave and Bishop – putting people on train would take them away from businesses.
	Reason rail line doesn't do through Red Rock Canyon is because the highway gets washed out periodically.
	We'll see some political challenges, trying to get past the "giggle" factor. In other words, passenger rail is not going to be taken seriously by political leadership.
	A line between LA and Mammoth would have some political obstacles. The market would be primarily a winter market. A lot of summer visitors are off-roaders. Can you put motorcycles on the train?
	I don't see passenger rail service as a practical or important need. Insufficient demand for Greyhound service meant it was difficult to justify economic support it. I don't see something as high cost as passenger rail being economically successful.

Conclusion

Major Challenges

The vast majority of respondents on both the telephone and onboard passenger surveys do not use transit for most of their trips. While most were familiar with available services in their communities, this has not translated to higher patronage.

Current commute patterns suggest a potential opportunity for capturing more riders. Most individuals interviewed on the phone were driving to work, despite the relatively short distances and the fact that they were not commuting to another city. Many of these same respondents also expressed their belief that local bus service (or more of it) is needed in their communities. In fact, greater bus frequency was a desired improvement for current riders and would possibly attract non-users.

Interregional connections are another area to explore, especially to the Los Angeles area. Phone respondents noted that they or a member of their household had difficulty accessing this area in addition to Lancaster, Reno, and Bakersfield.

Opinion of transit

Current riders highly rate the transit system they use. They are using transit to go to work, home, and shopping. If transit were not available, several people would not be able to travel (39% KRT passengers, 32% IMT riders, 31% of RTS customers, and 23% of California City passengers).

People who do not currently use transit regularly believe that transit is a vital service to provide, especially to those who do not have other transportation options. If frequent, reliable transit routes were made available to practical destinations, many people have stated that they would utilize such services.

For many, transit is an important government service. While public transportation was not as highly prioritized as street maintenance and paving by respondents, it did receive more support than parks and recreation facilities.

**Eastern Sierra Public Transportation Study
Telephone Survey**

Hello. My name is _____.

I'm conducting a survey for the Eastern Sierra Public Transportation Study.

Would you be willing to answer a few questions to help us to understand your needs and opinions about transportation?

All answers will be kept strictly confidential. The survey will take between 6 and 10 minutes. For quality control purposes this call may be monitored or recorded.

[Surveyor: Do not read answers unless specifically noted]

1. Are you at least 16 years old? ____ YES ____NO (go to 1A)
1a. May I speak with someone at least 16 years old who is at home now?
____ YES ____NO [If no, disconnect. If yes, repeat intro to new respondent]

2. In which city or community do you live?

- | | |
|-------------------------|------------------------|
| _____ 1.Aberdeen | _____ 14.Lone Pine |
| _____ 2.Benton | _____ 15.Mammoth Lakes |
| _____ 3.Big Pine | _____ 16.Mojave |
| _____ 4.Bishop | _____ 17.Olancha |
| _____ 5.Bridgeport | _____ 18.Ridgecrest |
| _____ 6.California City | _____ 19.Rosamond |
| _____ 7.Coleville | _____ 20.Round Valley |
| _____ 8.Crowley Lake | _____ 21.Topaz |
| _____ 9.Independence | _____ 22.Tom's Place |
| _____ 10.Inyokern | _____ 23.Trona |
| _____ 11.June Lake | _____ 24.Walker |
| _____ 12.Lee Vining | _____ 25.OTHER: _____ |
| _____ 13.Little Lake | _____ 26.REFUSED |

TERMINATE OTHER , Don't Know AND Refused

3. Including yourself, how many people over 16 years of age live in your household? **[0-99;99=REFUSED]**
4. How many people in your household have a valid driver's license?
[ANSWER TO Q4 CAN NOT BE MORE THAN Q3] [0-99;99=REFUSED]

5. How many operational (working) cars, trucks, vans or motorcycles do the people living in your household have immediate access to?
[0-99;99=REFUSED]
-

6. Are you a full-time student? ___1.YES ___2.NO ___3.Refused

[If no or refused, continue to Q7]

6a. [If yes] How many days/week (on average) do you travel to school?

[0-7;8=Don't Know;9=REFUSED]

6b. How do you typically travel to school?

_____ 1. Car: Drive alone

_____ 2. Car: Carpool/get a ride

_____ 3. Walk or bike

_____ 4. Ride the bus (transit)

_____ 5. Other:_____

_____ 6. Refused:_____

6c. What is your average one-way commute distance? (in miles)

[0-999;999=DK]

6d. How can your commute to school be improved? [open ended]

[continue to Q8]

7. Are you currently employed? ___1.YES ___2.NO ___3.Refused

[If no or refused, continue to Q8]

7a. [If yes] In what city or community do you work?

- | | |
|--|---|
| <input type="checkbox"/> 1.Aberdeen | <input type="checkbox"/> 18.Los Angeles |
| <input type="checkbox"/> 2.Bakersfield | <input type="checkbox"/> 19.Mammoth Lakes |
| <input type="checkbox"/> 3.Benton | <input type="checkbox"/> 20.Minden,NV |
| <input type="checkbox"/> 4.Big Pine | <input type="checkbox"/> 21.Mojave |
| <input type="checkbox"/> 5.Bishop | <input type="checkbox"/> 22.Olancha |
| <input type="checkbox"/> 6.Bridgeport | <input type="checkbox"/> 23.Palmdale |
| <input type="checkbox"/> 7.California City | <input type="checkbox"/> 24.Reno, NV |
| <input type="checkbox"/> 8.Carson City, NV | <input type="checkbox"/> 25.Ridgecrest |
| <input type="checkbox"/> 9.Coleville | <input type="checkbox"/> 26.Rosamond |
| <input type="checkbox"/> 10.Crowley Lake | <input type="checkbox"/> 27.Round Valley |
| <input type="checkbox"/> 11.Independence | <input type="checkbox"/> 28.Topaz |
| <input type="checkbox"/> 12.Inyokern | <input type="checkbox"/> 29.Tehachapi |
| <input type="checkbox"/> 13.June Lake | <input type="checkbox"/> 30.Tom's Place |
| <input type="checkbox"/> 14.Lancaster | <input type="checkbox"/> 31.Trona |
| <input type="checkbox"/> 15.Lee Vining | <input type="checkbox"/> 32.Walker |
| <input type="checkbox"/> 16.Little Lake | <input type="checkbox"/> 33.OTHER _____ |
| <input type="checkbox"/> 17.Lone Pine | <input type="checkbox"/> 34.REFUSED |

7b. How many days per week (on average) do you travel to work? **[0-7;8=Don't Know;9=REFUSED]**

7c. How do you typically travel to work?

- 1. Car: Drive alone
- 2. Car: Carpool/get a ride
- 3. Walk or bike
- 4. Ride the bus (transit)
- 5. Other: _____
- 6. Refused: _____

7d. What is your average one-way commute distance? (in miles) **[0-999;999=DK]**

7e. How can your commute to work be improved? [open-ended]

8. Are you familiar with the public transit services that provide service to your community? (Do you know of them?) [If NO, go to Q9]

1. YES 2.NO

8a. [If yes] Would you please give me the name of any transit systems or services available in or around your community with which you are familiar? [Do not read or prompt – just mark systems mentioned. Exact name not necessary]

- _____ 1.Amtrak/Amtrak Bus
- _____ 2.AVTA/Antelope Valley Transit Authority (Lancaster/Palmdale)
- _____ 3.California City Transit/California City Dial-a-Ride (California City, CA)
- _____ 4.Citifare (Reno)
- _____ 5.CREST/Carson Ridgecrest Eastern Sierra Transit (Inyo-Mono)
- _____ 6.DART/Douglas Area Rural Transit (Douglas County, NV)
- _____ 7.Inyo-Mono Transit (Which route(s)?)
- _____ 8.Kern Regional Transit (Which route(s)?)
- _____ 9.Metrolink (LA County)
- _____ 10.PRIDE/Public Rural Ride (Reno-Carson City)
- _____ 11.Ridgecrest Transit System (Ridgecrest & Inyokern, CA)
- _____ 12.YARTS/Yosemite Area Regional Transit System (Mammoth-Yosemite)
- _____ 13.OTHER(S): _____
- _____ 14.Don't Know

IF Q8a=7

8aa. Which Inyo-Mono transit routes are you familiar with?

- 1 Benton-Bishop Route
- 2 Bishop Local Fixed Routes/Bishop Area Dial-A-Ride
- 3 Bishop-Mammoth Commuter Service
- 4 Bridgeport-Carson City Service
- 5 Coleville-Topaz-Walker Dial-A-Ride
- 6 Lone Pine Dial-A-Ride
- 7 Lone Pine-Bishop Service
- 8 Mammoth Transit System
- 9 Walker-Bishop Service
- 10 Other Inyo-Mono Transit /uncertain how to classify
- 11 Bishop to Reno [or Reno to Bishop] (Crest Route)
- 12 Mammoth to Ridgecrest [or Ridgecrest to Mammoth]

IF Q8a=8

8ab. Which Kern Regional Transit routes are you familiar with?

- 1 East Kern Route (Cal City-Mojave-Rosamond-Lancaster)
- 2 Mojave Dial-A-Ride
- 3 Mojave-Boron Route
- 4 Mojave-California City-Ridgecrest Route
- 5 Mojave-Tehachapi-Bakersfield Route
- 6 Rosamond Dial-A-Ride
- 7 Other Kern Regional Transit /uncertain how to classify

9. Have you or has anyone in your household used public transit in the last year?
___1.YES ___2.NO ___3.Don't Know [If no or DK, continue to Q12]

10. [If yes] What service or services did you/they use? (What are the names of the services or routes?)

- _____ 1.Amtrak/Amtrak Bus
- _____ 2.AVTA/Antelope Valley Transit Authority (Lancaster/Palmdale)
- _____ 3.California City Transit/California City Dial-a-Ride (California City, CA)
- _____ 4.Citifare (Reno)
- _____ 5.CREST/Carson Ridgecrest Eastern Sierra Transit (Inyo-Mono)
- _____ 6.DART/Douglas Area Rural Transit (Douglas County, NV)
- _____ 7.Inyo-Mono Transit (Which route(s)?)
- _____ 8.Kern Regional Transit (Which route(s)?)
- _____ 9.Metrolink (LA County)
- _____ 10.PRIDE/Public Rural Ride (Reno-Carson City)
- _____ 11.Ridgecrest Transit System (Ridgecrest & Inyokern, CA)
- _____ 12.YARTS/Yosemite Area Regional Transit System (Mammoth-Yosemite)
- _____ 13.OTHER(S): _____
- _____ 14.Don't Know

IF Q10=7

10a. Which Inyo-Mono transit routes are you familiar with?

- 1 Benton-Bishop Route
- 2 Bishop Local Fixed Routes/Bishop Area Dial-A-Ride
- 3 Bishop-Mammoth Commuter Service
- 4 Bridgeport-Carson City Service
- 5 Coleville-Topaz-Walker Dial-A-Ride
- 6 Lone Pine Dial-A-Ride
- 7 Lone Pine-Bishop Service
- 8 Mammoth Transit System
- 9 Walker-Bishop Service
- 10 Other Inyo-Mono Transit /uncertain how to classify
- 11 Bishop to Reno [or Reno to Bishop] (Crest Route)
- 12 Mammoth to Ridgecrest [or Ridgecrest to Mammoth]

IF Q10=8

10b. Which Kern Regional Transit routes are you familiar with?

- 1 East Kern Route (Cal City-Mojave-Rosamond-Lancaster)
- 2 Mojave Dial-A-Ride
- 3 Mojave-Boron Route

4 Mojave-California City-Ridgecrest Route

5 Mojave-Tehachapi-Bakersfield Route

6 Rosamond Dial-A-Ride

7 Other Kern Regional Transit /uncertain how to classify

11. How often do you/they or did you/they ride? **ACCEPT MULTIPLE RESPONSES**

_____ 1. Every day (5-7 daily trips per week)

_____ 2. A few days a week (2-4 daily trips per week)

_____ 3. One day per week

_____ 4. 2-3 days per month/Less than one day per week

_____ 5. One day per month

_____ 6. Less than one day per month

_____ 7. Don't Know

_____ 8. Refused

12. Now I am going to read you five statements. For each one, please tell me if you strongly agree, agree, disagree, or strongly disagree with the statement.

1. Strongly Agree

2. Agree

3. Disagree

4. Strong Disagree

5. No Reply/Neutral

12a. It is important to have public transit available for people who don't have other transportation options.

12b. If fast and frequent public transportation were available between places where I regularly travel, I would use it (or I would use it more often).

12c. More regular or frequent public bus service is needed between cities in the region.

12d. Local bus service (or more local bus service) is needed in my community

12e. Public transportation is one of the most important issues facing my community.

12f. Passenger train service between Mammoth Lakes and Los Angeles County would be personally appealing. [If they have a hard time replying or have questions, note that train could stop in locations between Mammoth and Los

Angeles, such as Bishop, Lone Pine, Ridgecrest/Indian Wells Valley, Mojave, Lancaster, etc.]

12g. If daily passenger rail service were available between Mammoth Lakes and Los Angeles County, with stops in between, how likely are you, personally, to use it at any time? Very likely, somewhat likely, somewhat unlikely, or very unlikely?

___ VL ___ SL ___ SU ___ VU ___ No Reply/Neutral

13. Of the following three urban areas, which represents the most important transportation connection for the residents of your community. Please choose one. [Read all three options]

- ___ 1.The Reno-Carson City-Minden area
- ___ 2.The Bakersfield area
- ___ 3.Los Angeles County (Lancaster/Palmdale/Los Angeles)
- ___ 4.[DO NOT READ] Don't know
- ___ 5.[DO NOT READ] Refused

14. Until August 2001, Greyhound bus service operated along Highway 395 and Highway 14 between Reno and Los Angeles. Did you or any members of your household ever use that service? ___1.YES ___2.NO ___3.Don't Know [If yes, go to Q14a. If no or don't know, go to Q14c].

14a. In general, how often did you or other members of your household use that service? [Prompt: Give total for all members in household] **ACCEPT MULTIPLE RESPONSES**

- ___ 1.Four or more times per month
- ___ 2.One to three times per month
- ___ 3.Once per year
- ___ 4.Less than one time per year
- ___ 5.[DO NOT READ] Don't know

14b. With Greyhound no longer in the area, how do you make the trips you or your household members used to make on Greyhound? **ACCEPT MULTIPLE RESPONSES**

- ___ 1.Car: Drive myself
- ___ 2.Car: Get a ride from somebody else
- ___ 3.CREST bus
- ___ 4.Inyo-Mono Transit route other than CREST
- ___ 5.Kern Regional Transit (KRT)

_____ 6.Other: _____
_____ 7.Don't Know

[skip Q14c: Go to Q15]

14c. Why didn't you or members of your household use the Greyhound service?

ACCEPT MULTIPLE RESPONSES

- _____ 1.Had no need/never had occasion to ride it/have a car
- _____ 2.Did not live in this area at the time
- _____ 3.Was unaware of service
- _____ 4.Service hours/schedule did not meet my needs
- _____ 5.Too expensive
- _____ 6.Don't like the bus/wouldn't ride a Greyhound bus
- _____ 7.Service did not run frequently enough
- _____ 8.Other response: _____
- _____ 9.Don't Know

15. Do members of your household have difficulty getting somewhere because of a lack of transportation? [Prompts: could be no car, no one to drive you, no transit service, etc.] _____ YES _____ NO [If no, go to Q16]

15a. What is that destination? _____ [Prompt: name or address or cross streets]

15b. In which community/city is that destination? **ACCEPT MULTIPLE RESPONSES**

- | | |
|-------------------------|----------------------------|
| _____ 1.Aberdeen | _____ 18.Los Angeles |
| _____ 2.Bakersfield | _____ 19.Mammoth Lakes |
| _____ 3.Benton | _____ 20.Minden,NV |
| _____ 4.Big Pine | _____ 21.Mojave |
| _____ 5.Bishop | _____ 22.Olancha |
| _____ 6.Bridgeport | _____ 23.Palmdale |
| _____ 7.California City | _____ 24.Reno, NV |
| _____ 8.Carson City, NV | _____ 25.Ridgecrest |
| _____ 9.Coleville | _____ 26.Rosamond |
| _____ 10.Crowley Lake | _____ 27.Round Valley |
| _____ 11.Independence | _____ 28.Tehachapi |
| _____ 12.Inyokern | _____ 29.Topaz |
| _____ 13.June Lake | _____ 30.Tom's Place |
| _____ 14.Lancaster | _____ 31.Trona |
| _____ 15.Lee Vining | _____ 32.Walker |
| _____ 16.Little Lake | _____ 33.OTHER name: _____ |
| _____ 17.Lone Pine | _____ 34.Don't Know |

16. On a scale of 1 to 5, five being best and one being worst [5=no traffic problems; 1=severe traffic problems], how would you generally describe traffic conditions along the major highway running through or adjacent to your city/community [Highway 395 or 14]?

1 2 3 4 5 ;6=Don't Know

- 16a. Is traffic generally worse in the winter?

1.YES
 2.NO
 3.Don't know

- 16b. Is traffic generally worse in the summer?

1.YES
 2.NO
 3.Don't know

- 16c. Is traffic generally worse on weekends or weekdays?

1.Weekends 2. Weekdays
 3.Same on Weekends and Weekdays 4.Don't know/Depends

17. I am going to read you a short list of government services. For each one, please tell me if the maintenance and improvement of the service should be high, medium, or low priority in your community and the surrounding area during the next five years.

- 17a. Street maintenance and repaving

1.High
 2.Medium
 3.Low
 4.Don't know

- 17b. Sidewalks, crosswalks, and bikeways

1.High
 2.Medium
 3.Low
 4.Don't know

- 17c. Buses and other public transportation services

1.High
 2.Medium
 3.Low
 4.Don't know

17d. Parks and recreation facilities

- 1.High
- 2.Medium
- 3.Low
- 4.Don't know

17e. Public school programs and facilities

- 1.High
- 2.Medium
- 3.Low
- 4.Don't know

For classification purposes:

18. What is your age? [Read each age range from top]

- 1.16-17
- 2.18-24
- 3.25-44
- 4.45-59
- 5.60 and over
- 6.DO NOT READ- Refused

19. What is your household income range (last year, before taxes)? Please stop me when I read the income range that corresponds to your household. [Read each age range from top]

- 1.Under \$15,000
- 2.\$15 - 24,000
- 3.\$25 - 34,000
- 4.\$35 - 49,000
- 5.\$50 - 74,000
- 6.\$75 - 99,000
- 7.\$100,000 +
- 8.DO NOT READ- Don't know
- 9.DO NOT READ- Refused

Thank you.

Record respondent's gender.

- Male
- Female

1. Where are you coming FROM?

- ₁ Home
- ₂ Work
- ₃ Recreation or social
- ₄ School/College (Name of School _____)
- ₅ Other (Specify _____)
- ₆ Shopping
- ₇ Medical/Dental

2. Where is this PLACE?

List nearest intersection (For example: Hwy 95 & Graff Ave., Inyokern) **or** Name of unique location or landmark (For example: Lone Pine High School; Mono General Hospital in Bridgeport)

_____ & _____
(street) & (cross street) (city/community)

3. How did you GET TO the bus stop to board this bus?

- ₁ Walked (How many minutes? _____)
- ₂ Biked
- ₃ Drove alone then parked
- ₄ Drove/rode with someone else
- ₅ Used wheelchair (How many minutes? _____)
- ₆ Transferred from
 - _a Kern Regional Transit (Which service? _____)
 - _b CREST/Inyo-Mono Transit (Which service? _____)
 - _c Metrolink
 - _d AVTA (Lancaster-Palmdale, CA)
 - _e YARTS
 - _f Citifare (Reno, NV)
 - _g GET (Bakersfield, CA)
 - _h Greyhound
 - _i Amtrak
 - _j Ridgecrest Transit System
 - _k Mammoth Transit
 - _l Bishop Fixed Routes
 - _m Other Bus System (Which? _____)
- ₇ This bus came to my door/curb (for Dial-A-Ride)
- ₈ Other _____

4. Where are you going TO?

- ₁ Home
- ₂ Work
- ₃ Recreation or social
- ₄ School/College (Name of School _____)
- ₅ Other (Specify _____)
- ₆ Shopping
- ₇ Medical/Dental

5. Where is this PLACE?

List nearest intersection (For example: Hwy 95 & Graff Ave., Inyokern) **or** Name of unique location or landmark (For example: Lone Pine High School; Mono General Hospital in Bridgeport)

_____ & _____
(street) & (cross street) (city/community)

6. How will you GET FROM the bus stop to your destination?

- ₁ Walk (How many minutes? _____)
- ₂ Bike
- ₃ Drive alone then park
- ₄ Will drive/ride with someone else
- ₅ Use wheelchair (How many minutes? _____)
- ₆ Will transfer to
 - _a Kern Regional Transit (Which service? _____)
 - _b CREST/Inyo-Mono Transit (Which service? _____)
 - _c Metrolink
 - _d AVTA (Lancaster-Palmdale, CA)
 - _e YARTS
 - _f Citifare (Reno, NV)
 - _g GET (Bakersfield, CA)
 - _h Greyhound
 - _i Amtrak
 - _j Ridgecrest Transit System
 - _k Mammoth Transit
 - _l Bishop Fixed Routes
 - _m Other Bus System (Which? _____)
- ₇ This bus will take me to my destination (for Dial-A-Ride)
- ₈ Other _____

7. Are you making a round trip today?

- ₁ Yes
- ₂ No

8. How did pay for this bus trip?

- ₁ Cash
- ₂ Pass
- ₃ Other (Specify _____)

9. If you paid a cash fare, how much did you pay for this trip?

\$.

10. If this service were not available, how would you make this trip?

- ₁ Drive alone
- ₂ Carpool or vanpool
- ₃ Someone would drive me
- ₄ Taxi
- ₅ Hitchhike
- ₆ Walk
- ₇ Bike
- ₈ Other (Specify _____)
- ₉ I would not be able to make this trip.

11. How often do you ride this bus service?

- ₁ 5 or more trips per week
- ₂ 2 to 4 trips per week
- ₃ 1 trip per week
- ₄ <1 trip per week
- ₅ First time

12. How long have you been riding this bus?

- ₁ Less than 1 year
- ₂ More than 2 years
- ₃ 1 to 2 years
- ₄ First time

13. Overall, how would you rate this bus service?

- ₁ Excellent
- ₂ Good
- ₃ Fair
- ₄ Poor

14. What ONE improvement would you most like to see?

- ₁ Regular bus routes/services operate more often (How often? _____)
- ₂ Better dial-a-ride availability _____
- ₃ Benches and shelters at bus stops
- ₄ Better bus transfer connections
- ₅ Service to _____
- ₆ Other _____

Eastern Sierra Public Transportation Study STAKEHOLDER INTERVIEW OUTLINE

Nelson\Nygaard has been hired by the Kern Council of Governments to conduct a study of public transportation services along the Highway 395 corridor (and Highway 14 in Kern County) between the Los Angeles County communities of Lancaster and Palmdale to the Nevada border. Our objective is to develop service options that address the identified gaps and to plan proactively for bus service and potential passenger rail service in the Eastern Sierra (short term focus is on improving transit connections; long term, the study includes a feasibility analysis of passenger rail between Mammoth and the Los Angeles area).

- The study area covers the Kern County communities of Rosamond, Mojave, California City, Johannesburg/Randsburg, Ridgecrest/Inyokern.
 - The study area covers the San Bernardino County community of Trona.
 - The study area covers all communities in Inyo County.
 - The study area covers all communities in Mono County.
-

Your name was provided to us by the Kern Council of Governments and a stakeholder in this study process.

Individuals can speak to us in confidence. Any quoting of outcomes will be done anonymously. Our main purpose is to allow individuals to speak freely about their concerns.

[Provide brief overview and show map of the study area].

1. What are the major challenges your community/organization is facing with regard to transportation? [Probe: Since Greyhound stopped operating, how has the community been affected? How do people travel?]
2. What is your opinion of the current transit services in Inyo, Mono and eastern Kern Counties [Inyo-Mono Transit, CREST, Mammoth fixed routes, YARTS, Bishop, Ridgecrest, California City]? What are the strengths and weaknesses of the services?
3. What do you think should be the purpose of transit in the Eastern Sierra (including eastern Kern County)? What is transit's role in the region? (This could address mission/goal tradeoffs such as a tourism link versus lifeline needs or local circulation versus regional linkages to Los Angeles and Reno.)
4. What do you see as key transit needs in the study area? For your city/organization? What are the primary transit-related concerns that you have / (hear from your constituents)?
5. What do you think a more comprehensive public transit service could do for this community? [Probes: boost tourism, allow people to retire here, provide better access to medical services]
6. If only limited funding is available, what do you think are the most important transit connections for residents and visitors? What are the most critical markets? [Which connection is more important in this community: Reno or Los Angeles?]
7. What are the top 3 - 5 priorities for transit in Inyo, Mono and eastern Kern County within the short-term? What are the top 3 - 5 priorities in the long-term?

8. Rail service between Mammoth and Los Angeles is an element of this study. How critical is rail service to you? To your community? Do you have any opinions about where, when and how it should operate? Do you think it would be successful?
9. What would need to be the necessary elements of the Eastern Sierra Public Transportation Study for you (and your community/organization) to support it?
10. We are collecting demographic, land use, and planning data for this study? Is there anything we should be aware of with respect to land use or employment changes in your community? Any data you have available? Any surveys you have conducted? (What development projects are on the fast track? How is land use planning in the region coordinated with transit planning?)
11. What haven't we covered that's important to you?
12. Any other comments, questions or concerns?

APPENDIX D

OVERVIEW OF OTHER RELEVANT STUDIES AND EVALUATIONS

Appendix D. Overview of Other Relevant Studies and Evaluations

Several other studies and reports were prepared regarding public transportation services in the Eastern Sierra region. This appendix presents an overview of issues and findings from other reports and studies that are relevant to the Eastern Sierra. Reports are classified under the following two headings:

- Regional Transportation and Coordination Studies
- Local Transit Studies

Regional Transportation and Coordination Studies

Destination 2030 - Draft Regional Transportation Plan, Kern COG (2004)

The Regional Transportation Plan identifies short-term and long-term transit priorities, with implications for the Eastern Sierra PTP. The key transit needs and opportunities presented in the plan, with impacts in the Eastern Sierra region include the following:

- Several transit-related needs are identified, including the expansion of public transportation services in the County, based on a new dedicated funding source. As noted in the RTP, Kern County is the only major urbanized county in California without a dedicated sales tax to support highway and transit improvements.
- A countywide Consolidated Transportation Service Agency (CTSA) could be developed to incorporate all public operators of disabled and senior transportation. According to the RTP, expanding the CTSA would provide a means for coordination of services.
- If a dedicated transportation funding source can be secured through a new tax measure, the following eastern Kern/Eastern Sierra projects are noted as possible priorities for funding: Improvements to the Willow Springs Expressway in Rosamond, passenger rail between Mammoth and Reno, and the development of the intermodal corridors along Route 58 and the UP/BNSF rail line between Bakersfield and Tehachapi.

According to the Regional Transportation Plan, short-term priorities (with a five-year time span) are as follows:

- Assist local transit agencies in marketing their services and prepare a countywide transit marketing brochure.
- Update the Transportation Resource Directory in cooperation with the CTSA.

- Update the Social Services Transportation Action Plan.
- Replace full- and mid-size diesel buses with alternative fuel buses in rural communities, as funding becomes available.
- Determine appropriate locations for park-and-ride lots; construct as funding becomes available.

Federal Lands Alternative Transportation Study, Eastern Sierra Expanded Transit System, Federal Highway Administration and Federal Transit Administration (2004)

The Eastern Sierra Expanded Transit System (ESETS) report provides a summary of transit services operating throughout the Eastern Sierra region. The focus of the report is on a regional transit service area from Lancaster, California to Klamath Falls, Oregon, essentially encompassing a key component of the Highway 395 Corridor. The emphasis of the study is that both the roadway network and the transit system in the Eastern Sierra will not be able to effectively meet the recreational and employment needs of the region in the coming years.

With regard to the Eastern Sierra study area, the report recommends that CREST service frequencies be increased “to provide a sustainable, dependable, and year round interregional transit service.” According to the report, the increase in service should be accompanied by an increase in other scheduled IMT services in Bishop, Lone Pine, Mammoth Lakes, Walker, and Benton. The study also calls for an increase in YARTS service, expanding its current operation not only to meet tourist needs but also to address commutes in and around the Eastern Sierra region.

The study recommends a new shuttle, operating along Highway 178 East, providing a new connection from the Lake Isabella region of Kern County to the Sequoia National Forest and the San Joaquin Valley.

In addition to regional transit issues, the ESETS study also includes other key recommendations:

- Continue to fund and operate the Reds Meadow/Devils Postpile Shuttle.
- Create a year-round transit system in Mammoth Lakes that essentially represents the combined operation of the winter Mammoth Mountain Ski Area Shuttle and the summer Mammoth routes. Provide a shuttle service to Mammoth Mountain during the summer.
- Develop Forest Service Recreation Area shuttle services to the Rock Creek Recreation Area, Bishop Creek Recreation Area, Twin Lakes, Bodie State Park, Virginia Lake, the South Tufa/Scenic Area Visitor Center at Mono Lake, the Ancient Bristlecone Pine Forest, and the Whitney Portal/Interagency Visitor Center. Shuttle services would connect with CREST services, providing expanded recreational opportunities up and down the corridor.

Kern Regional Rural Transit Strategy, Kern Council of Governments (2003)

Kern COG initiated this study in 2002 to look at opportunities to better coordinate the County's many transit rural and intercity services. The report provides several recommendations with potential impacts on the Eastern Sierra public transit network. The Regional Rural Transit Strategy outlines the requirements for advanced coordination in Kern County and the opportunities and processes for consolidation.

Essentially, the report recommends consolidation of at least some of Kern County's transit operations. Several organizational models are reviewed and discussed for the administration of a consolidated transit network, including the initial establishment of a transit consortium or Multiple Operator Agreement that might eventually be converted into an administrative consolidation arrangement. According to the report, under a fully consolidated rural transit system, all or nearly all local and regional transit services would operate under one single agency. A regional cost-sharing agreement would be required, and various funding arrangements and implementation steps are included in the report.

The report emphasizes several service changes, including intercity transit enhancements, a volunteer driver reimbursement program, the elimination of poorly performing services (including the Boron-Mojave route in the study area), the introduction of subscription bus services and employer-sponsored carpools/vanpools. The report also suggests flexroute services within eastern Kern communities such as Rosamond and Tehachapi, as well as a flexroute in the Kern River Valley.

Marketing is a key element of the report, and marketing coordination is recommended in the short-term.

YARTS Short-Range Transit Plan, Merced County Council of Governments (2003)

This plan provides a summary of YARTS services and farebox recovery, and provides a framework for short-term improvements to the transit system. Goals for YARTS include a five percent increase in ridership, a ten percent increase in commuter ridership (by Yosemite employees), a reduction of 50 cars per day entering Yosemite National Park and the identification of dedicated funding sources.

The SRTP looked at capacity problems and identified no capacity problems along the route serving Highway 395/120 currently or in the future. Some capacity problems have been projected on the YARTS Highway 140 service.

As part of the five-year action plan, the Highway 395/120 YARTS service will be marketed in promotional materials and a manual to hotel operators, for hikers and backpackers, and for airlines. The five-year plan includes a funding and organizational plan for YARTS.

US 395 Corridor Intercity Transit Study, Inyo County LTC, Mono County LTC, Kern COG (2001)

With the impending discontinuation of Greyhound service, the US 395 Corridor Study was commissioned to examine opportunities for coordinated public transit service in the Eastern Sierra. The focus of the effort was to review the potential for regional coordination between several counties to provide a link in the Eastern Sierra region, which ultimately became the CREST service.

Greyhound's services and the 5311 funding the operator received are described in this report. The report noted that annual service hours for Greyhound along the corridor numbered 6,990. The Greyhound service schedule included southbound departures from Reno at 7:45 am, Bridgeport at 10:40 am, Bishop at 1:35 pm, Ridgecrest at 4:20 pm, and an arrival in Lancaster at 6:30 pm en route to Los Angeles. From Los Angeles, northbound departures were from Lancaster at 7:10 pm, Ridgecrest at 9:30 pm, Bishop at 12:15 am, Bridgeport at 2:35 am, and an arrival in Reno at 5:30 am. The Greyhound bus stopped in all other communities along Highways 14 and 395 between the points noted above.

The report also included a funding analysis and a transit demand analysis that calculated demand for 21 trips per day for both northbound and southbound trips combined.

The US 395 Corridor Study provided recommendations for bus service three times weekly between Carson City and Ridgecrest, with Kern Regional Transit providing the connection south from Ridgecrest. The service allows for connections from Los Angeles County through Kern County, to as far as Reno in the north using a series of coordinated transit services.

The report reviewed service information and provided operating needs and cost projections for the various alternatives.

Mono County Transit Plan, County of Mono (2001)

The Transit Plan includes transit goals and policies established for a 20-year horizon. The plan includes a number of short-term items for implementation over a five-year period and a number of long-term items.

According to the Plan, the short-range actions that relate to transit service concerns are as follows:

- Eliminate the Walker/Gardnerville route and provide service for Walker/Coleville residents on the Tuesday run from Bridgeport to Gardnerville. This was not implemented.
- Formalize the fare collection procedures on the Benton DAR route, changing it from a donation basis to a fare-upon-boarding basis. This was implemented.
- Maintain the existing Walker DAR service at existing service levels.

- Create a Mammoth Lakes DAR program based on the Mono County Short Range Transit Plan Technical Memorandum from 2001. This was implemented.
- Develop a year round transit service in Mammoth Lakes. This was implemented.
- Continue the replacement program for the Mono County transit fleet. This is ongoing.
- Implement a program of bus stop improvements, including signs and schedule displays in conjunction with other community elements. This is underway.
- Investigate ways of providing office and/or dispatch space in Mammoth Lakes for the Mammoth Lakes DAR service. Allocate funds for office space, furnishings, communication equipment, and staffing costs. This has been implemented.

The long-range goal provided in the plan includes, “Provide convenient and efficient public transportation for all Mono County communities and all segments of the population – transit dependent persons, recreational users, commuters, and visitors.” The related policies include (1) providing transit services for transit dependent populations; (2) expanding the transit system to provide general public transit service to all communities in Mono County; (3) providing specialized transit services for recreational users, commuters, and other special groups; (4) ensuring that route selection and scheduling provide connectivity within the system and to adjacent systems; (5) reviewing the Transit Plan annually and updating it as necessary, to ensure that it continues to serve the needs of the public in the Eastern Sierra; and (6) providing transit stops in communities.

Other relevant long-term coordination policies include ensuring that transit services in the Eastern Sierra provide opportunities for connections with services in adjacent areas and the establishment of a Transit Coordinating Committee for the Eastern Sierra. They also include participating actively in Yosemite National Park transit/transportation planning, working with transit providers in Inyo County and Douglas County (Nevada) to coordinate service schedules, and importantly, working with transit providers in Inyo and Kern counties to seek a private provider for the inter-regional transit services.

Inyo County General Plan: Circulation Element, Public Transportation Issues, County of Inyo (2001)

Several policies that have an impact on the Eastern Sierra Public Transportation Study are outlined as part of the Public Transportation discussion in the Inyo County General Plan. The overall stated goal is to “provide effective, economically feasible, and efficient public transportation in Inyo County that is safe, convenient, efficient, reduces the dependence on privately owned vehicles, and meets the identified transportation needs of the County, with emphasis on service to the transportation disadvantaged.” The policies to support the goal are as follows:

- Provide transit facilities, such as bus shelters, staging areas, base stations, transit hubs, etc.

- Encourage and support the use of public transportation grants from state and federal programs to the maximum extent possible.
- Support and promote accessibility in public transportation to the maximum extent practicable, including continued support of special service vans that provide a high level of service to low mobility groups.
- Cooperatively develop long-range plans with transit operators that provide guidance and assistance in determining capital and operating requirements.
- Consider future development of commercial or residential centers that will generate traffic and require transportation improvements.
- Encourage the development, expansion, and maintenance of interregional and intercity bus lines within Inyo County.
- 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.
- Encourage development of multi-modal facilities at airports where appropriate.

East Kern Transit Study, Kern COG (1998)

This study looked at service needs and opportunities in the eastern portion of Kern County. Several service changes were implemented based on the findings of the study, including the introduction of transit service between Inyokern and Ridgecrest. The East Kern Transit Study also recommended further review of Boron's transit needs. The study was primarily oriented toward service planning in the east Kern region, but focused on the array of coordination opportunities between individual transit systems.

The study also described coordination in east Kern County as being relatively unsuccessful. It described an attempted transfer program whereby transfers from one system were accepted by another. Due to a limited number of actual transfers and cumbersome accounting procedures, the program was eliminated.

The process of conducting the East Kern Transit Study brought together personnel of the individual transit systems, for the first time in some cases, for dialogue about coordination. A conclusion was that the high level of informal cooperation had been quite successful overall in providing for the needs of transit users, but that much could be done to formalize coordination in the region.

Local Transit Studies

A small number of city-focused transit studies have taken place in the eastern portion of Kern County and in Mono County in recent years. Brief synopses of these studies are as follows:

Town of Mammoth Lakes Transit Study, Mono County LTC (2003)

This study reviewed transit service options in Mammoth Lakes and identified a year-round transit service scenario, so spring and summer service could be provided when Mammoth Mountain Ski Shuttle service was not available. Year-round service was implemented in Mammoth Lakes. Administered by IMT, it has a different service schedule and different operating characteristics. The study also noted the need for accessible vehicles for the winter service and a local DAR, which has been implemented.

Mojave Area Commute Origins, Mojave Town Council (2002)

In 2002, an informal survey was conducted of Mojave-area employers to understand where their employees reside. The survey found that significant numbers of commuters were coming to Kern County from the Los Angeles County cities of Lancaster and Palmdale. For example, 480 of the 600 employees at BAE Systems were from Lancaster-Palmdale, as were 150 of 250 Avtel Services employees and 119 of 170 PRC-Desoto International employees. The review suggests evidence of an important reverse commute population from the Lancaster-Palmdale area to worksites in Kern County that might be served by transit or other alternative transportation modes.

Boron-North Edwards Transit Study, Kern COG (1999)

This study was undertaken as a result of the East Kern Transit Study. The study found a potential for lifeline transit service from Boron, connecting to other East Kern transit routes. Kern Regional Transit has since implemented limited lifeline transit service between Boron and Mojave.

Ridgecrest TDP, Kern COG (1998)

The Ridgecrest TDP set the stage for possible further modifications to the local Ridgecrest Transit System. It included recommendations for evening service to Cerro Coso College, as well as providing service to Inyokern (to be funded by Kern County) and considered a contract taxicab provider for service to Randsburg and Johannesburg. The TDP played a pivotal role in advancing community interest in transit in Ridgecrest. Opportunities for a local fixed route service in Ridgecrest were also reviewed, but were not recommended at the time of the study. Since the TDP was developed, the City of Ridgecrest dismissed its contractor and assumed the operation of its own local service. The City is also beginning to review the potential for implementing local fixed route service.

APPENDIX E

CASE STUDY: SUCCESSFUL REPLACEMENT
OF GREYHOUND SERVICE BY PRIVATE
OPERATORS IN THE UPPER MIDWEST

Appendix E. Case Study: Successful Replacement of Greyhound Service by Private Operators in the Upper Midwest

Introduction

Greyhound's departure from the Eastern Sierra region is only one of many examples of the bus operator discontinuing service in a rural area. In many parts of the rural Midwest, and in some northwestern states, particularly in relatively remote areas with low populations, Greyhound eliminated routes. Although not geographically or topographically the same, these are areas very similar to the Eastern Sierra region in terms of small populations and vast distances. They also have seasonal population changes and dramatic weather variation. Unlike the Eastern Sierra region, these areas do not have a significant tourist population, suggesting the potential for an additional market for a privately operated transit service in the Eastern Sierra region.

To better understand how some of these regions addressed the elimination of Greyhound service, the consulting team conducted interviews with representatives of state agencies and transit providers that implemented private transit service in Greyhound's place.

This case study includes an overview of route replacement in Iowa, North Dakota, Wisconsin and Minnesota. In addition, the consultant conducted an interview with a representative of one of the private providers, Jefferson Lines, which replaced former Greyhound service in these states. The case study illustrates that in the very remote portions of the rural Midwest, significant State involvement and State funding were critical to the replacement of the lost Greyhound service.

Iowa¹

The continuation of lost Greyhound service in Iowa was a result of efforts by the state's Department of Transportation working with two private carriers that were already operating other service in Iowa.

Since 1999, the State of Iowa, through the Iowa Department of Transportation (IADOT), has been providing funding for intercity bus carriers. The average annual funding has been approximately \$800,000, based on 15 percent of the non-urbanized formula funds the state receives under the FTA 5311 program. Greyhound Lines, Burlington Trailways, and

¹ Samil Sermet, Transit Programs Administrator, Office of Public Transit, Iowa Department of Transportation, Ames, IA

Jefferson Lines, were the primary recipients of intercity bus funding through IADOT's Office of Public Transit (OPT).

Upon learning of Greyhound's decision to cut service in communities outside of the interstate 80 route — more remote farm areas — the OPT contacted Burlington and Jefferson Lines to encourage them to pick up the abandoned routes. It also contacted other providers to determine their interest, but OPT did not receive a formal solicitations from other providers. Burlington and Jefferson Lines agreed to replace the discontinued Greyhound routes and started service on August 18, 2004, the day after Greyhound ceased service.

IADOT was the only public agency involved in this effort, and an OPT staff member was designated as the point person. OPT contacted local and regional transit providers to let them know that it was trying to find a substitute for the lost Greyhound service.

Replacing Greyhound service added 598 miles of service for Burlington and 414 miles of service for Jefferson Lines per day. The OPT amended existing contracts with both carriers by providing up to \$0.50 per mile assistance on the new service based on documentable expenses on preventative maintenance, insurance, and project administration. At 80% federal participation, each provider needs to document such costs to equal or exceed \$0.625 per mile to earn the maximum reimbursement of \$0.50 per mile. Historically, both operators exceeded the \$0.625 cost and received \$0.50 per mile assistance on new service. Additionally, Burlington will receive funding for a ticketing system to be used at a new location.

Both carriers were also approved for marketing assistance, which amounted to approximately \$12,000 for each provider to promote their new service. Hallock said that this was needed to counter the "negative" publicity generated from Greyhound's service elimination announcements. Burlington and Jefferson conducted their own marketing, and OPT reimbursed them.

According to Hallock, Burlington and Jefferson's new schedules are a better fit for local users. Because they are regional transit operators, they are able to provide schedules that are more sensitive to local residents' needs. For example, Jefferson's north-south service through western Iowa begins around 10:00 AM, whereas the former Greyhound service started at about 2:30 AM, much like the former Greyhound line through the Eastern Sierra region.

One trouble that OPT has is that Burlington is having a hard time working with Greyhound to allow for connections to its services in Denver and Chicago. According to Hallock, Greyhound is not working very hard to help Burlington's passengers connect with its lines in these two hub cities. Despite this, Hallock feels that the transition has been smooth and is fairly confident that Burlington and Jefferson Lines will continue to operate these routes in the long-term.

North Dakota²

Like Iowa, replacement of Greyhound service in North Dakota by another carrier was facilitated by the state Department of Transportation.

Indirect political pressure may have also played a key role. The governor, U.S. Senator Byron Dorgan, and several Congressional representatives were planning to run for re-election in 2004. Their staffs felt that the lack of intercity bus service could leave them vulnerable during the upcoming election season. Immediately after Greyhound's announcement that it would forgo the Fargo, North Dakota, to Billings, Montana, route Senator Dorgan convened a public meeting to discuss alternatives.

According to Tom Forseth, owner of Billings-based Rimrock Stages Trailways, three private transport carriers (Rimrock, Jefferson Lines, and a charter bus service) had met after Greyhound's re-structuring announcement to discuss how they could piece together the routes that Greyhound would drop. Although the carriers were all regional providers, they wanted to craft routes that would have a semblance of through-service from Chicago to Seattle. An informal agreement was reached for Rimrock to take north-south routes and for Jefferson Lines to take east-west service, as that was each provider's current service orientation anyway. (The third entity eventually decided not to pursue intercity bus contracts.)

Forseth emphasized that economics was the primary reason behind his decision to take on the North Dakota routes. While no public subsidy would be available, he felt the routes could still be profitable. The timing was also right, as Rimrock had just lost a major contract in May 2004, and equipment from that contract could be available for the new service in North Dakota.

The North Dakota Department of Transportation (NDDOT) took on a large role to facilitate Rimrock's assumption of the intercity bus route. It sponsored forums for local residents to talk to Rimrock about their travel needs and concerns. It assisted with scheduling to ensure that Rimrock's route would interline with Jefferson's service in connecting cities.

NDDOT also put out a concerted marketing campaign to publicize that the Fargo-Billings service would not disappear. A series of articles and advertisements on television and newspapers followed. Forseth recalls that on the first day of Rimrock's service of the North Dakota route, a newspaper reporter was present at the bus's first stop at 5:00 AM to record the service's inauguration. This same reporter called him back three months later to ask follow-up questions about how Rimrock and the route were faring.

Bruce Fuchs, NDDOT's Transit Programs Manager, stresses that the state DOT or an MPO needs to be the facilitator for the incoming private carrier. The DOT or MPO could be proactive and seek out bus providers that currently operate near its area and approach these providers. With its expertise and planning staff, the DOT or MPO must do the necessary

² Bruce Fuchs, Transit Programs Manager, North Dakota Department of Transportation, Bismarck, ND and Tom Forseth, Owner, Rimrock Stages Trailways, Billings, MT

studies and legwork to lay the foundation that will help the provider succeed. Concessions are also important and may include helping the operator locate or build a facility or assisting with maintenance tasks.

Fuchs urges that the DOT or MPO be creative. For example, some communities have informal stops at commercial businesses where, if a passenger were waiting, the proprietor would contact the driver by radio or cell phone that a customer is waiting for the bus there. If no passengers were waiting, the driver would not need to make a stop at this location.

Fuchs also recommends that the DOT or MPO check out the carrier's financial stability before reaching any agreement.

One of the problems Rimrock currently faces is identifying local agents. It needs people located at the different local stops to handle inquiries and transactions from users.

Wisconsin³

Jefferson Lines contracts with the City of La Crosse to operate Wisconsin's intercity bus service abandoned by Greyhound. This is a through-route that originates and ends in the Twin Cities, with stops in La Crosse and Madison, Wisconsin.

The state Department of Transportation (WisDOT) funds the Wisconsin portion of this route through an agreement with the City of La Crosse. FTA Section 5311 funds are used to cover 50% of the deficit/operating loss. Jefferson Lines covers the non-federal portion of the loss on the segment between La Crosse and Madison. According to Don Chatfield at WisDOT, the portion between La Crosse and the Twin Cities does not operate at a loss.

WisDOT's role was giving approval for Jefferson Lines to continue the agreement that Greyhound previously had with the City of La Crosse. WisDOT does not contract directly with intercity operators, including Jefferson. Its administrative rules direct that it contract with municipalities, who in turn contract with the providers. Essentially, the City of La Crosse passes the funds through to the provider. Because other providers expressed no interest, WisDOT did not anticipate any problems with approving Jefferson's proposal.

According to Keith Carlson, the Manager of the City of La Crosse's Municipal Transit Utility, community response to Jefferson's handling of the route has been a very positive. Moreover, Jefferson's operations for this route cost less than Greyhound, as it is a smaller company with less overhead.

WisDOT approved funding for the continuation of the agreement between the City of La Crosse and Jefferson Lines for 2005. The City of La Crosse was advised that it should provide an opportunity for competitive procurement prior to their 2006 funding application.

³ Don Chatfield, Wisconsin Department of Transportation, Madison, WI and Keith Carlson, Manager, La Crosse Municipal Transit Utility, La Crosse, WI

Minnesota⁴

Jefferson Lines took over Greyhound's intercity bus contracts in Minnesota, effective August 16, 2004. The private carrier was already on contract and in good standing with the Minnesota Department of Transportation (Mn/DOT) for other routes in Minnesota.

Upon Greyhound's announcement that it was dropping the Minnesota runs, Mn/DOT released a notice in the State Register soliciting applications and received one application, which was from Jefferson Lines. In fact, it had approached Mn/DOT with strong interest in these routes once Greyhound made known its abandonment. Mn/DOT's Office of Transit approved Jefferson Lines to finish Greyhound's grant contract from August to December 2004 with the amount that remained in the agreement. As in Wisconsin, Jefferson is paid 50% of the net deficit of operating costs. Eighty percent of the company's marketing and capital expenses are paid with federal money and the remaining 20% with local money.

According to Senior Transportation Planner Jody Jacoby, Mn/DOT was fortunate to have Jefferson Lines ready and willing to help. In fact, she states that Jefferson Lines also improved the route by adding more stops and ridership increased.

Jefferson Lines⁵

Founded in 1919, Jefferson Lines is a private, family-managed intercity bus operator. The Minneapolis-based company runs passenger and express scheduled service and charter and tour services. Jefferson's fixed routes extend from Minneapolis to Dallas, with service in the intervening 11 states. This includes service in Iowa and Minnesota where Greyhound pulled out of in 2004, as described above.

Bonnie Buchanan, Vice-President of Marketing and Sales, feels that Jefferson Lines' relationship with the public agencies with which it works are partnerships, rather than business relationships. For example, when Jefferson Lines stepped in to assume Greyhound's routes in Iowa and Minnesota, she found the two states' Department of Transportations very helpful in expediting the grant approval process, facilitating interactions and meetings with local jurisdictions, and assisting with local and statewide marketing campaigns.

Jefferson Lines also tries to work in a way that benefits both parties. For example, the City of Aberdeen, South Dakota, approached Jefferson Lines about providing service to its residents. Aberdeen is located about 40 miles off the I-29 highway, which one Jefferson Lines route travels along in South Dakota. Buchanan's approach to this was to propose that the City offer a feeder service. It had a local, paratransit service, the Aberdeen Ride Line, which is available to all residents. However, the Ride Line is known around town as the "senior citizens' bus" as people see it as carrying primarily older adults. Buchanan suggested that

⁴ Micky Gutzmann, Grants Specialist Coordinator, Minnesota Department of Transportation Office of Transit, St. Paul, MN

⁵ Bonnie Buchanan, Vice-President, Marketing and Sales, Jefferson Partners

the City create a feeder route that would carry Aberdeen passengers to a stop on I-29, where they could meet Jefferson's bus. Part of this arrangement would include the City selling Jefferson's tickets to Aberdeen passengers, and in turn, Jefferson Lines would pay the City a commission and about 50% of the passenger fare. For its part, Jefferson Lines would train City staff on how to sell tickets, provide them with the equipment to do so, and also manage the initial marketing of the new feeder service. The feeder's schedule and Ride Line's fleet was such that the City could use its own equipment and did not have to incur additional capital costs. According to Buchanan, the new service has been successful. In its first year, the City of Aberdeen came within \$3000 of breaking even. In its second year, it was able to come out ahead of its investment. And now, residents perceive Ride Line as a bus service for everybody and not just senior citizens.

Buchanan feels that the marketing Jefferson Lines does is much more intense and grassroots-oriented than what Greyhound did and what other companies usually do. The central part of the country is very much Jefferson's market, including rural towns. Examples of Jefferson's marketing activities include holding focus groups, distributing surveys to people on buses as well as in shopping malls, recreation centers, and other activity points; and making presentations at club and organizational meetings of users (e.g., senior centers) as well as non-users (e.g., Rotary Club). One promotional item that has worked effectively for Jefferson Lines is dollars-off coupons, which can be inserted in a newspaper, household mailing, utility bills, or described in a radio advertisement. Such marketing efforts often produce positive results. For example, she states that ridership in Iowa and Minnesota is 20% higher now than when Greyhound was operating those routes.

Conclusion

The Upper Midwest case study illustrates the importance of close coordination at the state government level and state's role in lobbying for private transit providers. Although in most of the states profiled, state and federal funds were made available to the private transit providers, this is not always the case. In North Dakota, no such state subsidy was provided, but a significant level of promotion and facilitation was carried out by the state. The combination of "willing" regional transit providers who saw little risk in replacing Greyhound services and a high level of state support is what has made these services successful.

Such an opportunity is available in the Eastern Sierra region. Counties in the region banded together to create CREST service, but based on current resources, can only operate it with limited frequency.

Because the Eastern Sierra is a multi-county region, State involvement would be appropriate. The region also needs political representatives who perceive the importance of intercity transit if the region is to lobby for supplemental support for interregional transit service. In addition, aggressive and cooperative marketing of the region (including its services and amenities) can attract interest in a regional private transit network by potential investors.

A Hard Sell: Would Private Transportation Companies Have an Interest in Operating the Intercity Service between Reno and Lancaster?

The consulting team asked five private operators whether they would be interested in operating for-profit intercity transit service between Reno and Lancaster, via Highways 385 and 14 in Inyo, Mono and Kern Counties. We asked what kinds of factors would induce them to provide service in an area like the Eastern Sierra region. Not one of them expressed any interest.

- **Cruisers of America**, which operates the YARTS and Reds Meadow shuttle, said they would not be interested in providing such a service. They no longer operate private intercity bus service.
- **Jefferson Lines**, which operates several services in the Midwest, in locations where Greyhound stopped providing service, said they have no immediate or long-term plans to work in California, and that they would not go out of their current geographic region (north-south spine in the Midwest).
- **Rimrock Lines**, which operates services in Montana, Utah, and South Dakota, said they would not be interested in providing services outside their current base of operations. Rimrock is currently in a process of evaluating how they can cut back their operations due to a loss of revenues.
- **VIA Adventures**, which operates tour buses to Yosemite and YARTS on the western side of the Park, is looking at cutting back operations because of continuing losses. They would not be interested in providing service in the corridor.
- **Orange Belt Lines**, which operates contracted and other intercity services in California said they would happily contract. The only way they would operate the service is if a public agency would pay for all the operating costs. At this point, they do not see enough ridership to expand anywhere. They are looking at cutbacks in their current routes in the Central Valley because the demand is not there.

APPENDIX F

SUMMARY OF COMMUNITY WORKSHOPS

Appendix F. Summary of Community Workshops

Ten community meetings were held throughout the Eastern Sierra region in October 2004.

The objectives of these public workshops were threefold:

- To present the study and its purpose;
- To share the findings from the Existing Conditions Report; and
- To seek residents' feedback for short- and long-term goals for transit in the region, identifying and prioritizing transportation markets and passenger rail priorities.

The meetings included a slide presentation followed by a discussion to identify each community's priorities, markets, interest in rail and alternative transportation options, and other topics. Two representatives from the consulting team attended each workshop and facilitated the discussion.

The 10 meetings were held all along the Highway 395 corridor, in the following locations:

- Bishop (11 attendees)
- Bridgeport (4 attendees)
- June Lake (3 attendees)
- Lee Vining (17 attendees)
- Lone Pine (10 attendees)
- Mammoth Lakes (16+ attendees)
- Mojave (4 attendees)
- Ridgecrest (14 attendees)
- Rosamond (3 attendees)
- Walker (1 attendee)

A total of 83 attendees were counted at all of the meetings. Excluding persons who attended more than one workshop, at least 65 individuals participated in the community workshops.

Publicity

In advance of the community workshops, an agenda was prepared and reviewed by Kern COG staff. In addition, a press release was developed and tailored to individual communities, as needed. The consultant distributed the press release on behalf of Kern COG, and press releases were also issued by the Inyo LTC, Mono LTC and the Town of Mammoth Lakes. The consultant prepared a flier for the buses, which Inyo-Mono Transit staff posted. The City of Ridgecrest also posted information in municipal facilities. News

coverage of the workshops was found in all major daily and weekly newspapers in the Eastern Sierra region, as well as on radio stations. In Bishop, some television coverage was also provided. A copy of the press release is included at the end of this appendix.

Findings and Key Issues

The following pages describe major issues raised at the community workshops. More specific issues from each workshop are presented in the meeting notes, which are included as Appendix G. Notes from the February 2005 stakeholder workshop to review these issues are attached as Appendix H.

Long-Term Goals

Meeting participants clearly saw transit as a means of promoting economic development and improving their community's quality of life. Often-stated goals included alleviating congestion, improving commuting options, and providing greater mobility for tourists and visitors. Attendees were aware of the area's growth potential and upcoming development projects (e.g., residential developments, new regional airport in Mammoth). Moreover, they felt that transit projects should be planned to serve these new markets and ensure that the additional growth does not diminish the area's current attributes.

Another goal that community members raised is that transit must address housing growth in outlying areas. Many people who work in Mammoth, where high growth and a subsequent rise in housing demand have inflated prices, are finding that housing is costly. As a result, in both Inyo and Mono Counties, many families have moved to more rural locations. Housing is needed for the region's service employees, and maintaining housing affordability and/or access to residential areas and jobs is important.

Key Markets and Important Connections

During the public meetings, two markets for public transportation services were identified as most critical to serve:

- Transit is required to move residents throughout the Eastern Sierra and beyond the region.
- Tourists rely on transit to access recreational sites and wilderness areas.

Meeting attendees felt that better, more convenient access is needed to the closest metropolitan areas for both residents and tourists. They said that travel to Reno and Los Angeles was usually for non-work purposes (e.g., medical appointments, shopping trips, airport). At the southern end of the study area, many locals go to Los Angeles for work but also for medical trips. Local and intercity service to smaller communities was considered vital as well, especially for workers, seniors, students, and youth.

Even though attendees emphasized that transit is necessary for locals, tourists were considered an important market. A suggestion to serve visitors included instituting a service

that circulates around major sites, such as campgrounds, motels, and key visitor destinations like Bodie, Mammoth Lakes and the Mono Basin. Some attendees felt that a tourist-oriented circulator should be a “transit service,” not a “tour operator,” that runs on a regular basis. Additionally, times should be adjusted according to seasonal fluctuations.

Transportation Options

The consultant presented 10 transportation options to meeting attendees and asked community members to talk about their interest in each. The options showcased several traditional and nontraditional transit modes or transportation programs. The table distributed to meeting attendees is included in Figure F-1. This was accompanied by a slide presentation of these options.

Figure F-1 Examples of Transit Modes and Transportation Programs (Presented at Community Workshops)

Option	Description	Examples
Fixed Route (Public)	Service that operates on a schedule and along a fixed route. Service hours and levels may fluctuate throughout the week or operate seasonally. A base fare is usually required for local service with reduced fares for seniors, disabled riders and youth. Fare on intercity service is often based on distance.	Mammoth Transit, IMT (including CREST line), KRT, Reds Meadow Shuttle (Seasonal), YARTS (Seasonal)
Local Service/Shuttle		
Intercity		
Fixed Route (Private)	Similar to public fixed route except usually does not operate locally. Fares are based on distance traveled.	Greyhound, Amtrak bus, VIA Adventures (Yosemite)
Intercity; Airport Shuttle		
Flexible Route	Similar to fixed route but the vehicle can deviate to provide on-demand service off of fixed route. Standard fares are charged for general public, usually with reduced fares for seniors, disabled riders and youth. Usually operated by a transit agency.	Stanislaus Runabout (Modesto)
Tour Operator	Specialized tour bus/van service to and from a tourist destination. Fares are generally based on the length of the tour. Services are usually operated by a private company.	VIA Adventures, Gray Line
Demand Response	Flexible transit service that provides door-to-door or curb-to-curb service on an appointment basis. Senior and ADA compliant service often requires passengers to be registered. A standard fare is charged for all riders. Can be operated by a transit authority or social service agency.	California City Transit, IMT, KRT, Mammoth Transit, Ridgecrest Transit System
Senior/ADA		
General Public		
Subscription Bus/Van	A service operated on a reservation basis from a specific origin (or area) to a specific destination. Fares are based on distance or subsidized. Can be operated by a public or private organization.	Dialysis service, Major employers
Senior Center/Meals		
Medical Appointments		
Employers		
Rideshare (Carpool/Vanpool)	Volunteer or employer/employee sponsored transportation program designed to encourage trip sharing. Volunteer programs usually match two or more people together who wish to make the same trip. Employer-based programs are sponsored by the employer rather than individuals. People can use their own private vehicle, or a program sponsor (such as a Council of Governments) can provide vans for larger groups.	Project Clean Air (Kern County)
Volunteer		
Employer/Employee based		
Volunteer Driver Program	Program that organizes and arranges volunteers to provide transportation for medical appointments, senior meal programs or social events (such as church). May provide free trips or be funded on a donation basis. Drivers may use their own vehicle or vehicles purchased/maintained/insured by the volunteer driver program. May be sponsored by a public agency, transit authority or other social service organization (e.g., senior center).	Inyo-Mono Area Agency on Aging (Bishop)
Senior Center/Meals Programs		
Medical Appointments		
Church/Social Events		
Goods Delivery Services	Volunteer or business-sponsored program that delivers goods from larger activity centers to smaller communities. The goal of these programs is to save trips by bringing goods to areas with out them. These goods are typically delivered on fixed-route services that are making the trip anyway, but may be provided by volunteer drivers. Programs may be organized by a social service agency, medical facility, transit authority or private business.	Trinity Transit (CA), Paul Bunyan Transit (MN)
Groceries, Prescription Drugs, etc.		
Private Transportation	Transportation that is provided by private providers for specialized trips. The cost of this type of transportation is usually high and services are generally concentrated in larger communities.	Starr Yellow Cab (Ridgecrest), U-Save Auto Rental (Mammoth Lakes), Sierra Express (Mammoth Lakes)
Taxi		
Rental car		
Car Sharing Program	A private system in which a company or group of individuals share vehicles on a reservation basis and pay for the use on the basis of time or mileage.	Aspen (CO), Kitsap County (WA)

Attendees at the workshops in the smallest communities expressed interest in a goods delivery program, especially from major grocery stores or drug stores. A rideshare program was seen as a viable option for people working within the region. Casual carpooling, as it is conducted in the San Francisco Bay Area, whereby people line up and wait for a driver to pick them up at locations throughout the Bay Area, was seen as a workable option if it could capitalize on existing community networks and be supplemented by technology to make it “real-time.” The vast majority of participants, however, expressed interest in having a service similar to the former Greyhound service but with better hours (not in the middle of the night).

Participants advised that to some degree, agencies and organizations are already implementing some of the nontraditional transportation options shown in Figure F-1. These include the County Health Departments, IMACA, Inyo-Mono Transit’s informal prescription drug delivery, and agencies that rent cars for medical trips. Transit operators may be able to partner with these groups or provide some kind of support to expand their efforts.

Passenger Rail

Passenger rail appealed to many of the meeting attendees. They saw it as a way to avoid congestion and bad weather, and to travel via a mode that was fast and more comfortable than the bus. Many participants also felt that rail could be a way to attract tourists to the region.

However, concerns also were expressed about the costs, especially if trade-offs result in reductions in the current transit service. Another important concern for residents was that passenger rail service would have to be economical and that a trip to the Los Angeles area via rail would have to be competitive with the time it takes to travel by car. In order for rail to be successful, residents said a train must make convenient stops, operate at daytime and evening hours (especially to facilitate weekend travel), and at least be linked to local transit. Some participants worried that a passenger train would bypass smaller communities altogether.

Marketing Coordination

Meeting participants identified several opportunities to improve the marketing of public transit. This included enhancing Inyo-Mono Transit’s web site and providing more information about travel to Los Angeles and connections to parks via YARTS and the Reds Meadow shuttle. User-friendly trip-planning software was suggested as a handy tool for both residents and visitors.

Because of the frequent intercity travel that takes place in the Eastern Sierra region, regional coordination was seen as critical to improving overall marketing efforts. According to attendees at the community workshops, transit operators should have a relatively thorough knowledge of other operators’ services or service areas, and should be able to respond to callers’ inquiries. Trip-planning software, if implemented, would necessitate inter-agency cooperation.

Other marketing venues mentioned during the meetings included partnering with tour operators, web sites for parks and recreation areas, and providing information to visitors' centers and their staff.

Conclusion

As a follow-up to the stakeholder interviews and bus/telephone surveys, the community workshops provided a forum for continued public participation in the Eastern Sierra Public Transportation Study process.

Although it would have been better to have a higher level of public involvement in the workshops, the consultant determined that the overall level of interest was appropriate given the scope of the project and the lack of any significant "controversial element" in this study. Many participants said informally that they appreciated the opportunity to share their opinions and learn about the progress of the study.



October 4, 2004
FOR IMMEDIATE RELEASE

Contact: Marilyn Beardslee, Kern Council of Governments, 661-861-2191
Joey M. Goldman, Nelson\Nygaard Associates, 415-284-1544

Public Asked to Share Ideas for Regional Bus and Passenger Rail Service in Inyo, Mono and Eastern Kern Counties

Eastern Sierra Public Transportation Plan: Community Workshops

Mono County

June Lake	Wednesday, October 13, 5:30 PM June Lake Community Center
Lee Vining	Wednesday, October 13, 7:30 PM Lee Vining Community Center
Mammoth Lakes & Long Valley	Thursday, October 14, 6:00 PM Town Offices, Suite Z, Minaret Shopping Center, Mammoth Lakes
Antelope Valley	Thursday, October 21, 5:30 PM Antelope Valley Senior Center, Walker
Bridgeport	Thursday, October 21, 7:30 PM Bridgeport Community Building

Inyo County

Bishop	Tuesday, October 26, 6:00 PM First Presbyterian Church, 585 North Main Street, Bishop
Lone Pine & Independence	Wednesday, October 27, 6:00 PM Statham Hall, 138 Jackson Street, Lone Pine

Kern County

Rosamond	Tuesday, October 19, 6:00 PM Hummel Hall, 2500 20th Street West, Rosamond
Mojave & California City	Wednesday, October 20, 6:00 PM Mojave Recreation Building, Mojave East Park, Hwy. 58 & M St., Mojave
Ridgecrest & Inyokern	Thursday, October 28, 6:30 PM Kerr McGee Center, 100 W. California Avenue in Ridgecrest

Should passenger rail service connect Los Angeles with Mammoth Lakes? What type of bus service should be available to residents to travel between Los Angeles, Ridgecrest, Bishop, Mammoth and Reno? What transportation services are needed to attract tourists?

These are questions planners intend to ask residents at community workshops scheduled throughout Inyo, Mono and eastern Kern County. Everyone is invited to attend the workshop to talk about regional transportation. Residents may attend workshops in their own community or in nearby communities. Input will be used to plan public transportation.

The workshops are being held as part of the *Eastern Sierra Public Transportation Plan*. The Plan's goal is to improve bus service between cities in the region. It will also look at possible passenger rail service and other transit service alternatives.

Each workshop is scheduled to last between 1½ and two hours.* Planners will share results of recent bus rider surveys and telephone surveys. Residents will be asked to talk about bus and rail alternatives for the region and prioritize transportation needs. Several exercises are planned so community members can explore how they want to spend funds on different transit services. Refreshments will be provided.

The Kern Council of Governments (Kern COG), on behalf of Eastern California Transportation Planning Partnership, commissioned the *Eastern Sierra Public Transportation Plan* to improve transit services in Inyo, Mono, and eastern Kern Counties. An *Existing Conditions Report* was prepared in August 2004, which provides findings from a regional telephone survey; an on-board bus survey of transit riders; interviews with planners, community representatives and political leaders; an analysis of transit data; and a review of regional issues.

Nelson\Nygaard Associates, a San Francisco-based transportation-planning firm, is leading the study.

For more information about the Eastern Sierra Public Transportation Plan and the community workshops, please call Marilyn Beardslee at Kern Council of Governments, 661-861-2191, or Joey M. Goldman, Nelson\Nygaard Associates, 415-284-1544.

APPENDIX G

NOTES FROM COMMUNITY WORKSHOPS

Appendix G. Notes from Community Workshops

Antelope Valley

Thursday, October 21, 5:30 PM
Antelope Valley Senior Center, Walker

Number of attendees (excluding NN staff): 1
Staff: Keith Hartstrom
NN staff: Paul Lutey, Tam Tran

No members of the public attended this meeting.

Bishop

Tuesday, October 26, 6:00 PM

First Presbyterian Church, 585 North Main Street, Bishop

Number of attendees (excluding NN staff): 11

NN staff: Joey Goldman, Paul Lutey

Most important connections:

- Airport service
 - LAX is the most important. Reno also important
 - Weather problem
- Large metropolitan areas: Los Angeles, Reno
- Medical facilities: Reno (depends on insurance), Fresno, Bakersfield
 - Most trips are 500 miles round trip for medical and social services
- Work trips: Mammoth
- Housing shortage
- Big Pine to Bishop (both directions)
- Independence to Bishop (both directions)
- Local tours: Around the region
- Campgrounds
- Yosemite service beyond Mono County
- Bishop-Mammoth connection is important for service industry workers who are living in Inyo County or south

Markets

- Subscription bus for senior programs
- Prescription drug delivery: Done by drug store
 - IMT does this when asked
- Agencies will rent car for medical trips
 - But this is costly and person must have a driver's license
- Local school trips over 4th grade
- Round Valley School service could use public transit to better serve students
- School teachers, employees, county employees
- Sports teams to other communities
- Tourists
 - Could be difficult from outside area
 - Maybe opportunities for local circulation
 - Marketing could improve

Rail

- Train: faster, cleaner, no traffic implications
- Is this tradeoff worth millions of dollars?
- Skiers would ride train to Mammoth year round
- "Government owes this area!" (Public land ownership)

- Train would allow enjoyment of area
- Train from Los Angeles needs to go to Mammoth
- EIR for diesel unit will be a concern
- Rail service: Something different may help to get funds
 - Solar-powered train?
 - Need rail that serves goods movement through to Reno. May get funds this way
 - Need to tie service to other movement, other destinations
- Urban trains have been a priority in state. Need to look at rural areas
- State Department of Tourism: They could “latch on” to this

Other

- All services are money-driven, and there is limited funding
- A Greyhound-type service would be critical
- Not essential to have same-day return service
- Bikes
 - More bike holders on buses
 - Free bikes or bike sharing
 - Bike connections are being improved
- Crossing main streets is a problem
- Look at needs of public: Get ideas to pinpoint needs
- Should be funds for regional long-distance service using local service funds
- Local DAR service vs. regional connection: Not a fair trade-off

Bridgeport

Thursday, October 21, 7:30 PM

Bridgeport Community Building, Bridgeport

Number of attendees (excluding NN staff): 4 (Members of the Bridgeport Regional Planning Advisory Council)

Staff: Keith Hartstrom

NN staff: Paul Lutey, Tam Tran

Bus

- Short-term goals should focus on economic stability and growth.
- Have a service that circulates for tourists around sites, such as campgrounds, motels, and key destinations (e.g. Bodie, Mammoth, Mono Basin).
- This should be a “transit service,” not a “tour operator” that runs on a regular basis, like twice in the morning and twice in the afternoon.
- Adjust times for seasonal fluctuations.
- Long-term goals should be focused on commuters. Affordable housing is needed for commuters. If building affordable homes in Bridgeport, transit will be needed to growth areas (e.g. employment centers).

Information Dissemination

- Best way to get information to people is through the mail. Sending flyers home with kids is another option.
- There are two papers in town: *Mammoth News* (with only news about Mammoth) and a free monthly advertiser.
- There are maybe two functions a year that draw people together in Bridgeport.
- Organizations and civic groups in Bridgeport include: Chamber of Commerce, Cub Scouts, Historical Society, Library support group, Parent Teachers Association, RPAC, some church groups.
- Informal programs happen “because there’s nothing else.”

Medical Trips

- Residents head north for medical trips. They make appointments and then make a full day of the trip. They make it known to other residents that they’re going and to let them know if they need something (say, in Reno), and they will get it for them.

Travel to Reno

- Traveling to airport takes a full day. But not much demand from local residents.

Other

- Casual carpooling (like in SF Bay Area) may be an option for Bridgeport
- Is there a way to improve carpooling via rideshare (e.g. Antelope Valley to Bridgeport)?

- Participants were concerned about costs of rail and how likely Kern COG would implement this idea.

June Lake

Wednesday, October 13, 5:30 PM

June Lake Community Center, June Lake

Number of attendees (excluding NN staff): 3

Staff: Gwen Plummer

NN staff: Joey Goldman, Tam Tran

Rail

- Could look at freight to support rail
- Moving people from June Lake to Mammoth is the wrong direction
- Locals would go to Los Angeles on passenger rail
- Consider bus links to station

Commute Trips

- Employees' bus between Mammoth Mountain and June Lake
- Alternate rides: One-year-old rideshare program that a couple of people have picked up on.
- County employees who drive from city to city: What kind of tax incentives can be provided for them to use county vehicles?

Marketing

- The problem is that there is not enough service
- Need more info about Inyo-Mono Transit and travel to Bishop

Social Services

- County Health Department is very active
 - Linda Salsedo is the public health nurse
 - Carolyn Baliad (Gwen has contact info and can make introduction)
 - IMACA, Head Start, child care

Other

- Tamarack: Orange line cut resulted in large loss of users
- Need easier access to Reno

Lee Vining

Wednesday, October 13, 7:30 PM

Lee Vining Community Center, Lee Vining

Number of attendees (excluding NN staff): 17

NN staff: Joey Goldman, Tam Tran

Note: This meeting was held during one of Lee Vining's Regional RPAC's monthly meetings.

Rail

- Rail: to beat congestion or bad weather
- May be effective for Mammoth – Bishop route
- May change this region, including property values
- Every day needs can be difficult without Greyhound (e.g. going to the bank or post office)

Market

- People who commute between communities

Important connections

- June Lake
- Mammoth

Other

- Private groups are good at transporting skiers, tourists
- New or alternative vehicles or fuel technology
- Entrepreneurial: Something new to help people get jobs and to their jobs

Lone Pine and Independence

Wednesday, October 27, 6:00 PM

Statham Hall, Lone Pine

Number of attendees (excluding NN staff): 10

Staff: Jeff Jewett

NN staff: Joey Goldman, Paul Lutey

Connections

- Courthouse in Independence
- Reno and Los Angeles population centers
- How to go north beyond Mammoth
- How about a hostel for staying the night?

Markets

- Tourists
 - How do we get out of here?
 - Hikers from Sequoia National Park
 - Tourists need space for skis, backpacks, equipment
- What happens when no longer can drive? There are VAs in Reno and Los Angeles.
- Grocery shopping and medical trips, especially for senior citizens.
 - Ridgecrest will coordinate. Call 24 hours in advance.
- Goods delivery
 - Pharmacy and goods delivery could be very beneficial for mobility impaired, also low income.
 - Salvation Army buys many tickets for this.
 - What is the charge? Who does the shopping?

Marketing

- Very little YARTS publicity in Inyo County
- How do people making connections know about the connections?
- If I call Greyhound, will they know about service to Lone Pine?
- Radio problems in Lone Pine
- Radio works best
- Word of mouth
- Tell people where to go for more information
- Put big maps/signs in dead spots: Lone Pine Community Association
- Need more information for travel to Los Angeles.

Coordination

- There is good coordination locally.
- How to better coordinate between adjacent transit providers?
- Washington State has legal requirements for coordination of transit services

Rail

- Make sure there is room for skis, bags
- Must stop through small communities, serve Lone Pine
- Nice train, comfy seats, walk to dining car, so that you can get up and move around. On the bus, you're stuck. Once you sit down, you can't move, feel "cramped"
- Restrooms
- Train can be expensive
- Train can't compete with cars, others (freeways, politics)

Other

- It's a complicated system: "Complexity"
- Transit can be a "social" activity
- IMACA program
- Is this the future of Highway 395: growth in the corridor?
- Death Valley

Mammoth Lakes and Long Valley

Thursday, October 14, 6:00 PM

Town Offices, Mammoth Lakes

Number of attendees (excluding NN staff): 16+

NN staff: Joey Goldman, Tam Tran

Major connections include

- Bishop
- Los Angeles
- Reno
- Airports in Reno, Los Angeles area
- Parks:
 - Yosemite, Death Valley
- Carson City
 - Costco, WalMart, Hospitals
- Local recreation destinations
 - Whitmore, Lake Basin, Mammoth Mountain, Rock Creek
- Shopping:
 - Mammoth, Carson City, Bishop, Reno, Lancaster
- Medical:
 - Mammoth has the only hospital in the county. For specialized medical services, residents have to go outside of the county.
 - For appointments in Carson City, Ridgecrest, Reno, South Tahoe: People take transit *and then* a taxi or something else to get to the appointment
- Most important area for Mammoth residents are north of Mammoth, including Las Vegas and Victorville
- Workforce travels to:
 - Bishop, Crowley, Benton, June Lake, Lee Vining
- People going *into* Mammoth are tourists and workers or commuters
- Residents leaving Mammoth include:
 - Seniors going on medical trips
 - Latinos without cars
 - Transient workforce
 - Those traveling outside the area (e.g. to LAX)

When and frequency

- Seven days a week for travel outside area and medical trips
- Local survey found that the most frequent local trips made were students going to school on the bus
- Local and express service:
 - 2 buses in AM, at 6:30 AM and 8:00 AM
 - 2 buses in PM, at 4:30 PM and 6:00 PM
 - Actual times would depend if you are coming from town or from the Mountain

- Need to accommodate service jobs at night

Markets

- Consider evening bus for youths, including evening activities and after school programs
- Give option for extended stays or mid-week visits
- For tourists: Schedule every day, same time
- People need to be able to make one round trip in one day
- Avoid 395 on Friday afternoon and evening and Sunday afternoon and evening. It is less safe because visitors are going home
- Specialized ground transportation for future regional airport
- Ridesharing programs in Bishop and Mammoth. But need P&R's at Tom's Place, Crowley Place, Rovana and others
- On-site vans (e.g. concierge cars) at new developments owned by lodges
- Residential developments in Portland, OR had car share arrangements
- One or two companies: Groceries, concierge company for second homeowners
- Volunteer driver programs more likely for short connections (e.g. within communities)
 - Concerns: screening, insurance, reliability
- Cost, time, convenience → Right stop at right time
- Traveling with family or multiple people
- Safer than driving
- Car safety: Where are you leaving your car?
- Groceries/errand service is a desirable option

Rail

- What about freight? It is also a cause of congestion on roads.
- Need transit gateways
- Bishop to Los Angeles
- Need connections that make sense and are timely, e.g. CREST to Bishop to Los Angeles
- Rail v. airport
 - Train can be more expensive
 - People forget about time costs to take flights
 - Weather concerns for airports
- Have a "party train" for visitors from Los Angeles area, e.g. train on late Friday afternoon or night to Mammoth and then returning train on Sunday late afternoon or night.
- Is there funding four-laning of Highways 14 and 395?
- Too many transfers can be prohibitive

Marketing

- It needs to be a cooperative effort (countywide). Right now, only the Town of Mammoth is active with marketing
- Trade shows, tour operators are good marketing resources

But they need a daily schedule, price point, and need to know rates early so that they can create tour packages

- IMT needs better web site
 - Easier to use, provide more info
 - Need to publicize transit links (e.g. to YARTS, Reds Meadow)
- Trip planning software
- How about surveying incoming and outgoing flights from Reno airport? Know when they coming and going so that CREST and other transit can make connections

Mojave and California City

Wednesday, October 20, 6:00 PM
Mojave Recreation Building, Mojave

Number of attendees (excluding NN staff): 4
Staff: Marilyn Beardslee, Linda Willbanks
NN staff: Linda Rhine, Tam Tran

Private Bus Service Example in Upstate New York

- A former private bus company owner from NY dominated much of the discussion at this meeting. He talked about how municipal operators and private bus companies have unique arrangements along Route 17 in upstate New York. They share revenues – both passenger fares and public subsidies with NYDOT as the “broker”. He cited this as good example of how mix of public and private operators could work cooperatively together in Eastern Sierra. He explained that there are local services that feed into major trunklines and work in coordinated fashion.
- LR suggestion – We may want to look into some peers that have inter-county or inter-state JPAs or other governance arrangements whereby they coordinate service and revenues, etc. This could be longer-term strategy for the three counties, perhaps LA too.
- Linda Willbanks pointed out the Inyo – Mono Counties have an MOU... We should know what is included in this. perhaps this is a starting point!
- Even though Greyhound has eliminated service, the company may still maintain “rights” along the corridor to operate service at a future date and time. It was suggested that we find out through the State PUC.
- Suggestions for bus improvements are to provide one long-haul service – perhaps only one trip per day along the entire length of the corridor with some short haul trips (not traveling entire corridor but servicing major destinations). Feeder network would provide local services and connect with long haul service.
- Transit Check mentioned by NY person – Neither Marilyn or Linda Willbanks heard of it – could be good to include as something to improve marketing transit in area through employers.

Ridgecrest and Inyokern

Thursday, October 28, 6:30 PM

Kerr McGee Center, Ridgecrest

Number of attendees (excluding NN staff): 14

Staff: Marilyn Beardslee, Linda Wilbanks

NN staff: Joey Goldman, Paul Lutey

Connections

- Medical trips
 - West Los Angeles Veterans Hospital, UCLA Medical Center, and other major medical facilities
 - Easier to get to Bakersfield
 - Medical trips often require an overnight stay
 - There isn't enough medical transportation from smaller communities (e.g. Ridgecrest)
 - But Ridgecrest medical facilities can't offer all services
- Airport service
 - Los Angeles and Ontario are closer and easier; maybe Burbank
 - Inyokern airport service is not frequent enough
 - Is Reno airport a possibility with better transit connections?
 - Reno is more for entertainment or vacation
- Connection to Metrolink
- Transfer center in Mojave is an issue
- Change at Stater Brothers in Mojave for service further south
- Shopping trips are difficult because of all you need to carry
- Service further north mainly for recreation and entertainment purposes
- Los Angeles vs. Bakersfield
 - Bakersfield for some purposes (e.g. county seat, entertainment). It's easier to get to.
 - New airport is another option if going to Northern California or other limited destination

Frequency of services

- A lot of people still do not know about service
- May not be cost-effective to provide more
- Five days a week would be better

Greyhound?

- It would help greatly
- Need bus depot
- Must market service
- Still have it run through Mojave

Transportation Options

- Car-sharing could benefit some families with limited car access
- Need to look at local fixed-route in Ridgecrest
- Volunteer driver program
 - What about insurance?
 - Concern about being part of transit system
 - Include: Inyokern, Randsburg, Johannesburg
 - Senior nutrition program is handled by County with volunteer drivers. The problem is getting volunteers.
- Senior bus service: No funding to operate or maintain
- Ridgecrest carries six riders per hour. Maybe fixed route would provide more flexibility?
- Fixed route could have some appeal if there could be fixed route/DAR combo.

Rail

- Could walk around, can work on train, bring bike
- Lancaster to Mojave
- Ridgecrest for train?
- Serve Inyokern
- Takes you off the road and away from traffic
- Reservations would be required so that you get a seat
- Assistance for seniors and others to make connections – “like an airline”
- Good information, good customer service
- Are there enough parking spaces in Inyokern and Lancaster park-and-ride lots?
- Seniors: Concerned about the connections to shuttles, medical appointments, and local senior centers

Other

- Amtrak bus
- Longer layover time for regional service
- May not have enough time on current schedules, including for same-day service
- Maybe there should be more options than current service

Rosamond

Tuesday, October 19, 6:00 PM

Hummel Hall, Rosamond

Number of attendees (excluding NN staff): 3

Staff: Marilyn Beardslee, Linda Wilbanks

NN staff: Linda Rhine

General

- Comments on Power Point (Note: handouts only at this meeting)
 - Job centers should include Ridgecrest, Edwards Air Force Base (not Rosamond – it is bedroom community only)
 - 1000 employees in Mojave at Spaceport
- Suggestions to improve/correct examples in “The Transportation Options”
 - Project Clean Air (no longer around) – need another example for Rideshare (carpool/vanpool)
 - May not be a Star Yellow Cab in Ridgecrest – double check
- Mammoth Airport has plans for expansion. May be longer term because of environmental issues.

Bus-Related

- AVTA (Antelope Valley Transit Authority) should be added to study because this service has one route extending into the service area (According to one person, AVTA plans to introduce a service to Edwards Air Force Base with buses used internally on base as shuttle during day –issue of security means service MAY not be general public – need to check into specifics)
- The “honorary Mayor of Rosamond” says the top priority in next 3 years is to provide an “active bus service” for workers in the Rosamond area. Service should run every hour and be reliable and dependable.
- Consider park-and-ride facilities at key locations to connect with long distance bus service. Possible locations along Sierra Highway in Rosamond – others TBD

Rail

- As first step to bring rail service into area, should extend Metrolink to Ridgecrest

APPENDIX H

NOTES FROM STAKEHOLDER WORKSHOP

Appendix H. Notes from Stakeholder Workshop

Friday, February 11, 10:00 AM – 2:00 PM
City Hall, Ridgecrest

Attendees:

Marilyn Beardslee	Kern COG
Ron Brummett	Kern COG
Bob Snoddy	Kern COG
Dave Bloom	Caltrans District 9
Dewain Cook	Ridgecrest Transit System
Gary Goldy	CHP
Jim McRea	City of Ridgecrest
Gwen Plummer	Mono County
Monicka Watterson	Inyo-Mono Transit
Joey Goldman	Nelson\Nygaard
Tam Tran	Nelson\Nygaard

Project Goals and Objectives

Transit service should be professional-looking in as many aspects as possible. What people see “defines your system.” For example:

- Transfer centers should look like transfer centers, not just another parking lot
 - There can be a kiosk with amenities such as: information about other services, ATM, etc.
 - Stops should be easy to understand, transparent
 - McDonalds is a poor transfer center
- What are the right locations for transfer points?

There also needs to be a comprehensive market strategy for the entire corridor:

- Create a separate web site that covers transit services for the whole corridor. Each county’s web site would have a link to this one web site about inter-regional transportation
- Need low-tech version too (e.g. a brochure about the corridor)

Other suggestions to revise goals and objectives include:

- Maybe have two tiers of goals. The first tier would be a regional transit service. A secondary goal would be more localized (e.g. sub-regional) service. Local

service is important, too: If local services are not enhanced, it cannot support a regional service.

- Have primary and secondary goals with policies to support them.
- Focus on inter-regional service and reduce the number of goals to reflect this policy.
- Take each goal and apply it to a regional level and to a sub-regional level.
- Change some of the goals to policies (like #3 and #7).

Goal 1: Enhance local mobility for key existing and potential user groups in the Eastern Sierras.

- Change Goal #1 to “Develop an inter-regional transit system.” The focus of this study is to develop an inter-regional transit service that is comprehensive. The study’s goals should revolve around this purpose. Local service would tie into the inter-regional service.
- Greyhound is not a good model. But the long-term goal would be to establish a service from Los Angeles to Reno that works for locals and tourists. Right now, it is a Lifeline service. At the regional level, it is just a patchwork of services.

Goal 2: Provide more efficient transit service for current users while building new markets.

- Identify entrance and exit nodes (how do you get into the system and how do you leave it) that make sense to increase efficiency.
 - People are currently using out-of-the-way connections (e.g. flying into Vegas and LAX, which have poor or no connections to the Eastern Sierras)
 - The southern connections have more users in the spring and summer. Better connections should be developed for these users

Goal 3: Identify non-traditional, innovative transportation options that will better address demands for services.

- Inyo and Mono County should consider conducting a rural transit strategy that complements the one that Kern COG has done.

Goal 5: Develop an infrastructure for regional coordination.

- Important goal because land use issues are often local decisions. These local decisions could be worked out in a regional forum, such as a TMA.
- Inyo-Mono Transit is looking at establishing a JPA between Inyo and Mono Counties.
- Mammoth wants more control in the area of transit. Inyo County would like to move transit functions to a JPA.
- A regional transit authority could implement the Eastern Sierra Public Transportation Study.

Goal 6: Develop supportive policies to enhance the value and utility of transit services in the region.

- Because there is a lot of public land, supportive policies could work.
- A JPA could handle the money.
- Passenger rail would be one carrot.
- Services need to be added to support rail. (This could be an area for economic development.)

Goal 7: Coordinate and align transit service planning with decisions involving land use and economic development.

- Land use should not be included as it is a local issue.

Prisoners are another population to consider. Currently, they are released at 5:00 AM in Bridgeport and late at night in Bakersfield. They need good transit, too.

Service Alternatives

Public Fixed Route Interregional Bus Service

- Shift schedule later
- Interregional bus service should meet Metrolink train at its terminus

Car-Sharing Program

- “Like pushing a snowball up a hill” – Everyone wants transit to come to them
- Could just do car rental
- Chemical Corporation in Trona has a car-sharing program

Goods Delivery Program

- This is a local issue
- Could be costly for people who need it
- Could be cumbersome – Too many things to pick up
- Maybe will compete with private enterprise

Regional Ridesharing Program

- Mono County has been working with a group called AlterNet Rides, which is a nationwide program
 - Users sign up, input their destinations, arrival times, and connects users with rides
 - The service has expanded to colleges. It has also been used by social services and hospitals
 - It is inexpensive because this is the first public agency the vendor has worked with
 - Biggest problem is telling people about it, especially those who do not have computers

- Informal ridesharing billboard
- Status of kiosks?

Joint Marketing Program for Regional Transit Services

- Tourism industry and Chambers of Commerce could be a part of regional marketing program
- Kern COG has held discussions with the provider of Southern California 511 to be linked to them
- Would 511 work in Mono?
- Modoc County is working on a trip-planning tool
- Create an inter-regional brochure with major trips. Referrals would be made to local providers in this brochure
- Ridgecrest Transit Service provides information about connecting services when they send out their brochure

Employer-Based Subscription Bus Services or Vanpools

- Jill Ellis is looking into tax-incentive programs to encourage employer-based programs and has been talking with the BLM and USFS
- What are the challenges to involving employers?
- IMT is working to encourage employers to purchase bus passes
- Where would you recruit employers? Mammoth may be willing, as they currently have employees that live 40 to 60 miles away from town. People may need an incentive to work in Mammoth if they are going to have to travel that far and earn minimum wage.

Volunteer Driver Program

- TDA funds have ADA requirements
- This has been successful in Riverside and San Bernardino County
- It has also been successful in Ridgecrest. But regionalizing it may make it less appealing (e.g., you don't know who you are getting a ride with)

Private Tour Operator in the Region

- Current operators don't travel along the entire corridor. Ski buses might, but they don't go to national parks, etc.
- Tourism Commissions can promote this
- IMT fills in some gaps for charters, shuttles
- This option is more local and leans towards economic development
- If the main inter-regional service goal is achieved, this option (and others) may happen via private enterprise

Shuttle Services

- Is this the same as private tour operators?
- ESETS intended to use CREST as the backbone and have shuttles service CREST stops. But CREST won't deviate, and some destinations can't be served without shuttles

- Take out Mono County in the text. This is for the entire study area

Expansion of Existing Transit Service Schedules

- These are local issues, but need to make the regional system work as a whole.

Bus Stop/Shelter Improvement and Enhancement

- Branding is important
- Stops and shelters are two of the best marketing tools because they are so visible
- But some people don't change their habits and will continue to use the old stops

Evaluation

These alternatives are not mutually exclusive. Let's call them strategies.

Which ones are inter-regional? And which ones are local? While some may overlap, it would be helpful to make this distinction for policy boards.

Community Support and Markets Served

- The term "Lifeline" may not be applicable. Would its absence limit future funding? One solution is to include Lifeline users as part of the "primary markets served"
- Three tiers of service provision: basic Lifeline, standard service, optimum/premium service
- Focus on inter- and intra-regional regions to cover all the bases to capitalize on funding

Funding and Cost

- *Maintain* or *maximize* (not attract) existing funding
- When expand service, can re-apply for the same pot of funding
- Attract *new* funding
- *Cost-effective* (not low-cost)
- Do not use *cost per rider* as an evaluation criteria, as transit is usually not cost-effective
- Combine #1 and #2 or delete #1 → Is it cost-efficient?

Transportation Service

- *Connectivity between the different systems*: Does the strategy make the system more accessible?
- *Improve* access and options
- *Increase* access and options
- Improve connectivity for entire region
- Enhance connectivity between services (e.g. seamless transfer)

Implementation

- Substitute *short time* for ease of implementation
- Add *Ability to Fund* → Money can make things happen and faster

New Evaluation Criteria to Add

- How well does it match the requirements of the corridor?
- Can the strategy be modified? (as the corridor can change, e.g. land use, new casino)

Rail

- How would ADA be handled?
- One option would be to transport passengers' cars, too
- **Short-term priority:** The main priority is to save the right-of-way. Investigate options for public ownership of right-of-way first. Usage can be determined after that
- Could passenger rail and freight be combined? Add passenger cars to freight cars.

APPENDIX I

RAIL FEASIBILITY TECHNICAL DOCUMENTATION

Appendix I. Rail Feasibility Technical Documentation

Rail Stations

Appendix I-1

Construction Cost Cases

See Appendix I-2, Exhibits 1 and 4

Track Rehabilitation and Construction Cost Case Assumptions

See Appendix I-2, Exhibits 2 and 3

Final Summary of Construction Cost Estimate

See Appendix I-3

LTK Engineering Services
East of Sierras Regional Rail Service
Stations

Station	Mile Post via Red Rock	Distance between Stations via Red Rock	Hour Run Time via Red Rock	Mile Post via Searles	Distance between Stations via Searles
Lancaster	0.000			0.000	
Mojave	24.270	24.270	0.2786	24.270	24.270
Ridgecrest	72.284	48.014	0.6020	-	-
Lone Pine	142.580	70.296	0.7438	162.119	137.849
Bishop Station	199.028	56.448	0.5645	218.567	56.448
Mammoth	237.909	38.881	0.8103	257.448	38.881
Totals		237.909	2.9992		257.448

FROM LOC	TO LOC	COUNTY	SEQ	Const Code	MPH	Hour Run Time	Actual Miles	Rounded Miles	Rounded Feet	A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	Total Feet	
Total Route					87.3	2.7266	237.906	237.909	1,256,183	0	0	0	0	30,412	99,921	150,134	68,789	0	8,314	59,879	100,683	0	32,709	42,966	17,072	11,808	154,126	273,156	59,661	69,090	77,463	1,256,183	
Running time grossed for operating contingencies						3.4083																											
Running time with four station stops @ 6 minutes per stop						3.8083																											
So End Red Rock Canyon	Garlock County	Kern	110	A2	60	0.2351	14.10595	14.1060	74,480	0	74,480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Garlock County	Klinker Mountain	Kern	115	A2	60	0.1148	6.88762	6.8877	36,368	0	36,368	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Klinker Mountain	Kern/San Bernardino C.L	Kern	116	A3	40	0.1205	4.81986	4.8199	25,450	0	0	25,450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kern/San Bernardino C.L	Terrain Change	San Bernardino	120	A4	40	0.0580	2.32181	2.3219	12,260	0	0	0	12,260	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Terrain Change	San Bernardino/Kern C.L	San Bernardino	125	A3	40	0.0232	0.92731	0.9274	4,897	0	0	4,897	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Bernardino/Kern C.L	Interlocking	Kern	130	A3	40	0.0026	0.10288	0.1029	544	0	0	544	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interlocking	South End Abandoned Trk	Kern	140	A2	40	0.0083	0.33187	0.3319	1,753	0	1,753	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South End Abandoned Trk	US Hwy 395	Kern	150	A2	40	0.0871	3.48402	3.4841	18,397	0	18,397	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
US Hwy 395	Brown Road	Kern	151	B4	40	0.2254	9.01439	9.0144	47,597	0	0	0	0	0	0	0	47,597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown Road	Mesquite Canyon Road	Kern	152	B3	60	0.0417	2.50229	2.5023	13,213	0	0	0	0	0	0	13,213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mesquite Canyon Road	Abandoned Interlocking	Kern	153	B1	80	0.0664	5.31496	5.3150	28,064	0	0	0	0	28,064	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Abandoned Interlocking	No End Red Rock Canyon	Kern	160	B1	80	0.0999	7.99246	7.9925	42,201	0	0	0	0	42,201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals - By-pass Red Rock Canyon					53.4	1.0830	57.80542	57.8060	305,224	0	130,998	30,891	12,260	70,265	0	13,213	47,597	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	305,224
Running time via Red Rock Canyon						0.4145																											
Lost running time by using UP route						0.66850																											
Total running time via UP route						3.39510																											
Running time grossed up for operating contingencies						4.24388																											
Running time with four station stops @ 6 minutes per stop						4.64388																											
Totals for North End of Red Rock Canyon Bypass to Bishop						0.98660	104.42999	104.43090	551,407	0	0	0	0	30,412	99,921	150,134	68,789	0	0	0	0	0	0	0	0	0	78,768	89,373	34,010	0	0	0	
Totals for Bishop to End of Line						0.85560	51.97639	51.97700	274,445	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42,966	17,072	11,808	0	105,359	0	42,952	54,288	0	

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level	Improvement Description	Unit of Measure Input	Unit Cost	Upgrade Exst. BL RR				Build New/Old R/W					New Trk on Existing RR R/W		
				Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling
New Construction - Trackwork															
	Construct New Track to Mainline Standards 136# Rail	Track Feet	\$ 158.39												
	Construct New Track to Mainline Standards 136HH	Track Feet	\$ 195.00												
	Construct New Track to Mainline Standards 136# Rail with Concrete Ties	Track Feet	\$ 157.84	1,106	1,106	1,000	789	6,386	6,386	6,386	5,858	4,802	6,386	6,386	6,386
	Construct New Track to Mainline Standards 136HH with Concrete Ties	Track Feet	\$ 163.49			106	317				528	1,584			
	Construct New Track to Mainline Standards 115# Rail	Track Feet	\$ 192.90												
	Construct New Track to Mainline Standards 141# Rail	Track Feet	\$ 209.69												
	Construct Yard & Side Track	Track Feet	\$ 125.72												
	15' Cut and Throw	Each	\$ 25,600.00												
	Construct New Turnout - # 9	Each	\$ 65,024.02												
	Construct New Turnout - #11	Each	\$ 74,376.98												
	Construct New Turnout - #15	Each	\$ 102,218.06												
	Construct New Turnout - #20	Each	\$ 131,103.39												
	Construct New Turnout - #24	Each	\$ 151,024.17												
	Construct New Turnout - #11 Concrete	Each	\$ 185,000.00	0.25	0.25	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	Construct New High Speed Concrete Turnout # 26	Each	\$ 275,000.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Other	Lump Sum	\$ -												
	Tie into existing main	Lump Sum	\$ 20,000.00												
Rehabilitate Existing Track															
	Relay w/136# New	Track Feet	\$ 77.72	5,280	5,280	4,752	3,696								
	Relay w/136# New HH	Track Feet	\$ 84.24			528	1,584								
	Relay w/141# New	Track Feet													
	Install 750 ties per mile, and Surface (3" raise)	Track Feet	\$ 20.07												
	Install 1400 ties per mile, and Surface (2" raise)	Track Feet	\$ 30.14	5,280	5,280	5,280	5,280								
	Replace Existing Ballast Section	Track Feet	\$ 25.00												
	Surface Track	Track Feet	\$ 4.12	5,280	5,280	5,280	5,280								
	Retire Turnout	Each	\$ 15,400.00												
	Other	Lump Sum	\$ -												
	Retire Track	Track Feet	\$ 15.00												
		Lump Sum	\$ -												
Grading - New and Enhanced Roadbed															
	1 New Track 2.5' Fill	Lineal Feet	\$ 86.20												
	1 New Track 7' Fill	Lineal Feet	\$ 259.29												
	1 New Track 15' Fill	Lineal Feet	\$ 748.59												
	1 New Track 25' Fill	Lineal Feet	\$ 1,661.60												
	1 New Track 50' Fill	Lineal Feet	\$ 5,410.70												
	2 New Tracks 2.5' Fill	Lineal Feet	\$ 124.64												
	2 New Tracks 7' Fill	Lineal Feet	\$ 361.64												
	2 New Tracks 15' Fill	Lineal Feet	\$ 951.61												

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level			Build Completely New Rail Line										
Improvement Description	Unit of Measure Input	Unit Cost	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged	
New Construction - Trackwork													
Construct New Track to Mainline Standards 136# Rail	Track Feet	\$ 158.39											
Construct New Track to Mainline Standards 136HH	Track Feet	\$ 195.00											
Construct New Track to Mainline Standards 136# Rail with Concrete Ties	Track Feet	\$ 157.84	6,386	6,386	5,858	4,802	3,243	6,386	6,386	5,858	4,802	3,243	
Construct New Track to Mainline Standards 136HH with Concrete Ties	Track Feet	\$ 163.49			528	1,584	3,193			528	1,584	3,193	
Construct New Track to Mainline Standards 115# Rail	Track Feet	\$ 192.90											
Construct New Track to Mainline Standards 141# Rail	Track Feet	\$ 209.69											
Construct Yard & Side Track	Track Feet	\$ 125.72											
15' Cut and Throw	Each	\$ 25,600.00											
Construct New Turnout - # 9	Each	\$ 65,024.02											
Construct New Turnout - #11	Each	\$ 74,376.98											
Construct New Turnout - #15	Each	\$ 102,218.06											
Construct New Turnout - #20	Each	\$ 131,103.39											
Construct New Turnout - #24	Each	\$ 151,024.17											
Construct New Turnout - #11 Concrete	Each	\$ 185,000.00	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	
Construct New High Speed Concrete Turnout # 26	Each	\$ 275,000.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
Other	Lump Sum	\$ -											
Tie into existing main	Lump Sum	\$ 20,000.00											
Rehabilitate Existing Track													
Relay w/136# New	Track Feet	\$ 77.72											
Relay w/136# New HH	Track Feet	\$ 84.24											
Relay w/141# New	Track Feet												
Install 750 ties per mile, and Surface (3" raise)	Track Feet	\$ 20.07											
Install 1400 ties per mile, and Surface (2" raise)	Track Feet	\$ 30.14											
Replace Existing Ballast Section	Track Feet	\$ 25.00											
Surface Track	Track Feet	\$ 4.12											
Retire Turnout	Each	\$ 15,400.00											
Other	Lump Sum	\$ -											
Retire Track	Track Feet	\$ 15.00											
	Lump Sum	\$ -											
Grading - New and Enhanced Roadbed													
1 New Track 2.5' Fill	Lineal Feet	\$ 86.20	4,214	1,478				4,214	1,478				
1 New Track 7' Fill	Lineal Feet	\$ 259.29		790	733				790	733			
1 New Track 15' Fill	Lineal Feet	\$ 748.59		790	733	372			790	733	372		
1 New Track 25' Fill	Lineal Feet	\$ 1,661.60			733	931	558			733	931	558	
1 New Track 50' Fill	Lineal Feet	\$ 5,410.70				559	930				559	930	
2 New Tracks 2.5' Fill	Lineal Feet	\$ 124.64	1,054	370				1,054	370				
2 New Tracks 7' Fill	Lineal Feet	\$ 361.64		197	185				197	185			
2 New Tracks 15' Fill	Lineal Feet	\$ 951.61		197	185	94			197	185	94		

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level	Improvement Description	Unit of Measure Input	Unit Cost	Upgrade Exst. BL RR				Build New/Old R/W					New Trk on Existing RR R/W			
				Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	
	2 New Tracks 25' Fill	Lineal Feet	\$ 1,998.84													
	2 New Tracks 50' Fill	Lineal Feet	\$ 6,062.54													
	1 New Track 10' Dirt Cut	Lineal Feet	\$ 611.90													
	1 New Track 25' Dirt Cut	Lineal Feet	\$ 1,635.23													
	1 New Track 25' Rock Cut	Lineal Feet	\$ 5,958.79													
	1 New Track 50' Rock Cut	Lineal Feet	\$ 13,870.44													
	2 New Tracks 10' Dirt Cut	Lineal Feet	\$ 703.95													
	2 New Tracks 25' Dirt Cut	Lineal Feet	\$ 1,831.37													
	2 New Tracks 25' Rock Cut	Lineal Feet	\$ 7,380.77													
	2 New Tracks 50' Rock Cut	Lineal Feet	\$ 16,691.75													
	1 New Track; extend 25' from Existing- 2.5' Fill	Lineal Feet	\$ 95.41										4,214	4,214	1,478	
	1 New Track; extend 25' from Existing- 7' Fill	Lineal Feet	\$ 207.91												790	
	1 New Track; extend 25' from Existing- 15' Fill	Lineal Feet	\$ 416.87												790	
	2 New Tracks; extend 25' from Existing- 2.5' Fill	Lineal Feet	\$ 152.09										1,054	1,054	370	
	2 New Tracks; extend 25' from Existing- 7' Fill	Lineal Feet	\$ 323.69												197	
	2 New Tracks; extend 25' from Existing- 15' Fill	Lineal Feet	\$ 637.72												197	
	1 New Track; extend 25' from Existing- 10' Dirt Cut	Lineal Feet	\$ 324.66												1,056	
	2 New Tracks; extend 25' from Existing- 10' Dirt Cut	Lineal Feet	\$ 409.16												264	
	Widen Roadbed 3 feet each side - 2.5' Fill	Lineal Feet	\$ 33.64	4,222	1,478			4,224	4,224	1,478						
	Widen Roadbed 3 feet each side - 7' Fill	Lineal Feet	\$ 93.81		800	755				830	755					
	Widen Roadbed 3 feet each side - 15' Fill	Lineal Feet	\$ 243.93		800	755	608			830	755	351				
	Widen Roadbed 3 feet each side - 25' Fill	Lineal Feet	\$ 510.34			755	938				755	878				
	Widen Roadbed 3 feet each side - 50' Fill	Lineal Feet	\$ 1,558.75				634					634				
	Widen Roadbed 3' & 1 track - 2.5' Fill	Lineal Feet	\$ 85.47	1,046	370			1,044	1,044	370						
	Widen Roadbed 3' & 1 track - 7' Fill	Lineal Feet	\$ 180.99		196	181				211	181					
	Widen Roadbed 3' & 1 track - 15' Fill	Lineal Feet	\$ 394.74		196	181	94			211	181	88				
	Widen Roadbed 3' & 1 track - 25' Fill	Lineal Feet	\$ 793.83			181	232				181	219				
	Widen Roadbed 3' & 1 track - 50' Fill	Lineal Feet	\$ 2,128.12				158					158				
	Widen 1 Track Cut - New Standards - 10' Dirt Cut	Lineal Feet	\$ 287.71		1,056	845	296			1,056	845	296				
	Widen 1 Track Cut - New Standards - 25' Dirt Cut	Lineal Feet	\$ 670.53			845	264				845					
	Widen 1 Track Cut - New Standards - 25' Rock Cut	Lineal Feet	\$ 2,109.07				634					634				
	Widen 1 Track Cut - New Standards - 50' Rock Cut	Lineal Feet	\$ 3,974.83				338					338				
	Widen 1 Track Cut to 2 Tracks - 10' Dirt Cut	Lineal Feet	\$ 379.76		264	211	74			264	211	74				
	Widen 1 Track Cut to 2 Tracks - 25' Dirt Cut	Lineal Feet	\$ 866.67			211					211					
	Widen 1 Track Cut to 2 Tracks - 25' Rock Cut	Lineal Feet	\$ 3,531.05				158					158				
	Widen 1 Track Cut to 2 Tracks - 50' Rock Cut	Lineal Feet	\$ 6,796.14				84					84				
	TOTALS:			5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280
	Build Right-of-Way Road	Lineal Feet	\$ 15.00	5280	5280	5280	5280	5280	5280	5280	5280	5280	5280	5280	5280	5280
	Access road to service tracks	Lineal Feet	\$ 50.00													

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level			Build Completely New Rail Line									
Improvement Description	Unit of Measure Input	Unit Cost	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged
2 New Tracks 25' Fill	Lineal Feet	\$ 1,998.84			185	233	139			185	233	139
2 New Tracks 50' Fill	Lineal Feet	\$ 6,062.54				139	233				139	233
1 New Track 10' Dirt Cut	Lineal Feet	\$ 611.90		1,056	845	296			1,056	845	296	
1 New Track 25' Dirt Cut	Lineal Feet	\$ 1,635.23			845					845		
1 New Track 25' Rock Cut	Lineal Feet	\$ 5,958.79				634	296				634	296
1 New Track 50' Rock Cut	Lineal Feet	\$ 13,870.44				338	676				338	676
2 New Tracks 10' Dirt Cut	Lineal Feet	\$ 703.95		264	211	74			264	211	74	
2 New Tracks 25' Dirt Cut	Lineal Feet	\$ 1,831.37			211					211		
2 New Tracks 25' Rock Cut	Lineal Feet	\$ 7,380.77				158	74				158	74
2 New Tracks 50' Rock Cut	Lineal Feet	\$ 16,691.75				84	169				84	169
1 New Track; extend 25' from Existing- 2.5' Fill	Lineal Feet	\$ 95.41										
1 New Track; extend 25' from Existing- 7' Fill	Lineal Feet	\$ 207.91										
1 New Track; extend 25' from Existing- 15' Fill	Lineal Feet	\$ 416.87										
2 New Tracks; extend 25' from Existing- 2.5' Fill	Lineal Feet	\$ 152.09										
2 New Tracks; extend 25' from Existing- 7' Fill	Lineal Feet	\$ 323.69										
2 New Tracks; extend 25' from Existing- 15' Fill	Lineal Feet	\$ 637.72										
1 New Track; extend 25' from Existing- 10' Dirt Cut	Lineal Feet	\$ 324.66										
2 New Tracks; extend 25' from Existing- 10' Dirt Cut	Lineal Feet	\$ 409.16										
Widen Roadbed 3 feet each side - 2.5' Fill	Lineal Feet	\$ 33.64										
Widen Roadbed 3 feet each side - 7' Fill	Lineal Feet	\$ 93.81										
Widen Roadbed 3 feet each side - 15' Fill	Lineal Feet	\$ 243.93										
Widen Roadbed 3 feet each side - 25' Fill	Lineal Feet	\$ 510.34										
Widen Roadbed 3 feet each side - 50' Fill	Lineal Feet	\$ 1,558.75										
Widen Roadbed 3' & 1 track - 2.5' Fill	Lineal Feet	\$ 85.47										
Widen Roadbed 3' & 1 track - 7' Fill	Lineal Feet	\$ 180.99										
Widen Roadbed 3' & 1 track - 15' Fill	Lineal Feet	\$ 394.74										
Widen Roadbed 3' & 1 track - 25' Fill	Lineal Feet	\$ 793.83										
Widen Roadbed 3' & 1 track - 50' Fill	Lineal Feet	\$ 2,128.12										
Widen 1 Track Cut - New Standards - 10' Dirt Cut	Lineal Feet	\$ 287.71										
Widen 1 Track Cut - New Standards - 25' Dirt Cut	Lineal Feet	\$ 670.53										
Widen 1 Track Cut - New Standards - 25' Rock Cut	Lineal Feet	\$ 2,109.07										
Widen 1 Track Cut - New Standards - 50' Rock Cut	Lineal Feet	\$ 3,974.83										
Widen 1 Track Cut to 2 Tracks - 10' Dirt Cut	Lineal Feet	\$ 379.76										
Widen 1 Track Cut to 2 Tracks - 25' Dirt Cut	Lineal Feet	\$ 866.67										
Widen 1 Track Cut to 2 Tracks - 25' Rock Cut	Lineal Feet	\$ 3,531.05										
Widen 1 Track Cut to 2 Tracks - 50' Rock Cut	Lineal Feet	\$ 6,796.14										
TOTALS:			5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280	5,280
Build Right-of-Way Road	Lineal Feet	\$ 15.00	5280	5280	5280	5280	5280	5280	5280	5280	5280	5280
Access road to service tracks	Lineal Feet	\$ 50.00										

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level	Improvement Description	Unit of Measure Input	Unit Cost	Upgrade Exst. BL RR				Build New/Old R/W					New Trk on Existing RR R/W		
				Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling
Right-of-Way															
	Buy New 200' Right of Way for Rough Terrain	Lineal Feet	\$ 50.00								1,320	2,376			
	Buy New 125' Right of Way (Urban)	Lineal Feet	\$ 735.00					5,280					5,280		
	Buy New 125' Right of Way (Rural)	Lineal Feet	\$ 31.25						5,280	5,280	3,960	2,376		5,280	5,280
	Extend Existing Right-of-Way, 25 Foot Width	Lineal Feet	\$ 6.25	1,056	1,056	2,640	5,016								
	Extend Existing Right-of-Way, 8 Foot Width	Lineal Feet	\$ 5.00												
	Other	Lump sum	\$ -												
Public Improvements															
	Rehab Highway Crossing with Concrete	Track Feet	\$ -												
	Rehab Highway Crossing with Asphalt	Track Feet	\$ -												
	Rebuild Highway Crossing and Track with Concrete	Track Feet	\$ -	4.0	4.0	4.0	2.0								
	Rebuild Highway Crossing and Track with Asphalt	Track Feet	\$ -	10.0	5.0	5.0	5.0	2.0	5.0	5.0	5.0	5.0	2.0	5.0	5.0
	Install Concrete Highway Crossing on Newly Built Track	Track Feet	\$ -					12.0	4.0	4.0	4.0	2.0	12.0	4.0	4.0
	New Highway OH	Each	\$ 6,145,800.00	0.050	0.050	0.050	0.000	0.100	0.050	0.050	0.050	0.000	0.100	0.050	0.050
	Surface Existing Track Through Road Crossing	Track Feet	\$ 200.00												
	Highway Approach Profile Adjustment	Track Feet	\$ 2,100.00	4.6	2.3	2.3	1.8	4.6	2.3	2.3	2.3	1.8	4.7	3.0	3.0
Train Control - Wayside															
	Interlocking, Single Switch, 3 Signals	Each	\$ 574,632.30	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
	Interlocking, Crossover, 4 Signals	Each	\$ 676,038.00												
	Interlocking, 3 Switch, 5 Signals	Each	\$ 783,077.90												
	Interlocking, Universal, 4 Signals	Each	\$ 890,116.70												
	Additional Switch to above Universal Interlocking	Each	\$ 107,039.90												
	Additional Signal to above Universal Interlocking	Each	\$ 28,168.80												
	Additional Signal Head on Existing Pole	Each	\$ 4,506.70	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400
	Switch Heaters, Electric, each switch	Each	\$ 9,689.90				0.300								
	Switch Heaters, Hot Air, each switch	Each	\$ 11,267.30												
	Track Circuit for Cab Signal Territory	Each	\$ 100,000.00	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
	Electric Lock Layout	Each	\$ 106,949.70	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
	Automatic Block Signal, One Head, One Direction	Each	\$ 95,772.60												
	Back/Back Automatic Block Signal, Single Head, ea	Each	\$ 152,109.10	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
	Additional Signal Head to Automatic Location, each	Each	\$ 4,506.70												
	Retire Signal	Each	\$ 3,200.00												
	Add features to existing microprocessor interlocking	Lump sum	\$ 150,000.00												
	Dispatch Center Cutover	Lump sum	\$ 102,500.00	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level			Build Completely New Rail Line									
Improvement Description	Unit of Measure Input	Unit Cost	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged
Right-of-Way												
Buy New 200' Right of Way for Rough Terrain	Lineal Feet	\$ 50.00			1,320	2,376	2,033			1,320	2,376	2,376
Buy New 125' Right of Way (Urban)	Lineal Feet	\$ 735.00	5,280	5,280	3,960	2,904	3,089					
Buy New 125' Right of Way (Rural)	Lineal Feet	\$ 31.25						5,280	5,280	3,960	2,376	2,376
Extend Existing Right-of-Way, 25 Foot Width	Lineal Feet	\$ 6.25										
Extend Existing Right-of-Way, 8 Foot Width	Lineal Feet	\$ 5.00										
Other	Lump sum	\$ -										
Public Improvements												
Rehab Highway Crossing with Concrete	Track Feet	\$ -										
Rehab Highway Crossing with Asphalt	Track Feet	\$ -										
Rebuild Highway Crossing and Track with Concrete	Track Feet	\$ -										
Rebuild Highway Crossing and Track with Asphalt	Track Feet	\$ -	2.0	2.0	2.0	2.0	2.0	5.0	5.0	5.0	5.0	5.0
Install Concrete Highway Crossing on Newly Built Track	Track Feet	\$ -	12.0	12.0	12.0	6.0	6.0	4.0	4.0	4.0	4.0	2.0
New Highway OH	Each	\$ 6,145,800.00	0.100	0.100	0.100	0.000	0.000	0.050	0.050	0.050	0.000	0.000
Surface Existing Track Through Road Crossing	Track Feet	\$ 200.00										
Highway Approach Profile Adjustment	Track Feet	\$ 2,100.00	7.0	7.0	7.0	4.0	4.0	4.5	4.5	4.5	4.5	3.5
Train Control - Wayside												
Interlocking, Single Switch, 3 Signals	Each	\$ 574,632.30	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Interlocking, Crossover, 4 Signals	Each	\$ 676,038.00										
Interlocking, 3 Switch, 5 Signals	Each	\$ 783,077.90										
Interlocking, Universal, 4 Signals	Each	\$ 890,116.70										
Additional Switch to above Universal Interlocking	Each	\$ 107,039.90										
Additional Signal to above Universal Interlocking	Each	\$ 28,168.80										
Additional Signal Head on Existing Pole	Each	\$ 4,506.70	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400
Switch Heaters, Electric, each switch	Each	\$ 9,689.90				0.300	0.300				0.300	0.300
Switch Heaters, Hot Air, each switch	Each	\$ 11,267.30										
Track Circuit for Cab Signal Territory	Each	\$ 100,000.00	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
Electric Lock Layout	Each	\$ 106,949.70	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250	0.250
Automatic Block Signal, One Head, One Direction	Each	\$ 95,772.60										
Back/Back Automatic Block Signal, Single Head, ea	Each	\$ 152,109.10	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450	0.450
Additional Signal Head to Automatic Location, each	Each	\$ 4,506.70										
Retire Signal	Each	\$ 3,200.00										
Add features to existing microprocessor interlocking	Lump sum	\$ 150,000.00										
Dispatch Center Cutover	Lump sum	\$ 102,500.00	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level	Improvement Description	Unit of Measure Input	Unit Cost	Upgrade Exst. BL RR				Build New/Old R/W					New Trk on Existing RR R/W		
				Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling
Train Control - Special Items															
	TWC Factory Wired Case and 8 Loops	Each	\$ 84,505.30												
	On Board TWC	Each	\$ 28,168.80												
	On Board Cab Signal	Each	\$ 112,673.00												
	Tag Reader	Each	\$ 32,675.50												
	Defect Detector Location, one track	Each	\$ 102,500.00	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
	Defect Detector Location, each additional track	Each	\$ 41,000.00												
	Provide Power for Signal System	Lineal Feet	\$ 7.00	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000
	Additional Switch Machines, H/S Turnouts	Each	\$ 30,000.00	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
	Radio Broadcast Towers	Each	\$ 50,000.00	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
	Other	Lump sum	\$ -												
	Tie into Existing System Additive	Percent	50%	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Highway Warning Devices															
	1 Track Grade Crossing With Gates	Each	\$ 227,889.20												
	1 Track Grade Crossing With 4 Quadrant Gates	Each	\$ 250,253.30												
	1 Track Grade Crossing With Cantilevers	Each	\$ 284,047.50	0.100	0.100	0.100	0.050	0.300	0.100	0.100	0.100	0.100	0.300	0.100	0.100
	2 Track Grade Crossing With Gates	Each	\$ 281,418.50												
	Additional Cantilever with Flasher, each	Each	\$ 26,207.50												
	Additional Gates, each	Each	\$ 12,393.70												
	Additional Flasher, each	Each	\$ 5,742.00												
	Additional Gate and Flasher on Single Pole	Each	\$ 26,338.40	0.200	0.200	0.200	0.100	0.600	0.200	0.200	0.200	0.200	0.600	0.200	0.200
	Additional Track to Grade Crossing	Each	\$ 52,643.80												
	Jersey Barriers for 4 Quad Gates	Each	\$ 100,000.00	0.100	0.100	0.100	0.050	0.300	0.100	0.100	0.100	0.100	0.300	0.100	0.100
	Other	Each	\$ 1,100.00												
	Tie into Existing System Additive	Percent	25%												
Structures															
	Install OH Bridge Column Protection	Each	\$ 204,900.00												
	1 Track Aqueduct Crossing	Each	\$ 96,000.00	0.025	0.025	0.025		0.025	0.025	0.025	0.025		0.025	0.025	0.025
	2 Track Aqueduct Crossing	Each	\$ 156,000.00												
	New Precast Concrete BDT, One Track	Lineal Feet	\$ 2,000.00					12.000	12.000	12.000		240.000	12.000	12.000	120.000
	Replace Bridge with Concrete BDT, 1 Track	Lineal Feet	\$ 3,600.00	12.000	120.000	360.000	240.000				360.000				
	New Steel (Water), One Track	Lineal Feet	\$ 6,200.00												
	New Steel (Land), One Track	Lineal Feet	\$ 5,200.00							18.000		72.000			18.000
	Special, Large Steel, One Track	Lineal Feet	\$ 8,000.00				264.000					528.000			
	Special, Large Steel, Two Track	Lineal Feet	\$ 14,000.00												
	Special, Very Large Structure, One Track	Lineal Feet	\$ 12,000.00												
	Tunnel, One Track	Lineal Feet	\$ 20,000.00									528.000			
	Rehabilitate Existing One Track Tunnel	Lineal Feet	\$ 7,500.00				264.000								
	Other	Lump Sum	\$ -												
	Demolish Signal Bridge	Lump Sum	\$ 25,000.00												
	Small Building, furnished for crew	Lump Sum	\$ 400,000.00	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level			Build Completely New Rail Line									
Improvement Description	Unit of Measure Input	Unit Cost	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged
Train Control - Special Items												
TWC Factory Wired Case and 8 Loops	Each	\$ 84,505.30										
On Board TWC	Each	\$ 28,168.80										
On Board Cab Signal	Each	\$ 112,673.00										
Tag Reader	Each	\$ 32,675.50										
Defect Detector Location, one track	Each	\$ 102,500.00	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
Defect Detector Location, each additional track	Each	\$ 41,000.00										
Provide Power for Signal System	Lineal Feet	\$ 7.00	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000	5280.000
Additional Switch Machines, H/S Turnouts	Each	\$ 30,000.00	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
Radio Broadcast Towers	Each	\$ 50,000.00	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Other	Lump sum	\$ -										
Tie into Existing System Additive	Percent	50%	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Highway Warning Devices												
1 Track Grade Crossing With Gates	Each	\$ 227,889.20										
1 Track Grade Crossing With 4 Quadrant Gates	Each	\$ 250,253.30										
1 Track Grade Crossing With Cantilevers	Each	\$ 284,047.50	0.300	0.300	0.300	0.150	0.150	0.100	0.100	0.100	0.100	0.050
2 Track Grade Crossing With Gates	Each	\$ 281,418.50										
Additional Cantilever with Flasher, each	Each	\$ 26,207.50										
Additional Gates, each	Each	\$ 12,393.70										
Additional Flasher, each	Each	\$ 5,742.00										
Additional Gate and Flasher on Single Pole	Each	\$ 26,338.40	0.600	0.600	0.600	0.600	0.300	0.200	0.200	0.200	0.200	0.100
Additional Track to Grade Crossing	Each	\$ 52,643.80										
Jersey Barriers for 4 Quad Gates	Each	\$ 100,000.00	0.300	0.300	0.300	0.300	0.150	0.100	0.100	0.100	0.100	0.050
Other	Each	\$ 1,100.00										
Tie into Existing System Additive	Percent	25%										
Structures												
Install OH Bridge Column Protection	Each	\$ 204,900.00										
1 Track Aqueduct Crossing	Each	\$ 96,000.00	0.025	0.025	0.025			0.025	0.025	0.025		
2 Track Aqueduct Crossing	Each	\$ 156,000.00										
New Precast Concrete BDT, One Track	Lineal Feet	\$ 2,000.00	12.000	120.000	360.000	240.000	180.000	12.000	120.000	360.000	240.000	180.000
Replace Bridge with Concrete BDT, 1 Track	Lineal Feet	\$ 3,600.00										
New Steel (Water), One Track	Lineal Feet	\$ 6,200.00										
New Steel (Land), One Track	Lineal Feet	\$ 5,200.00		18.000	54.000	72.000	72.000		18.000	54.000	72.000	72.000
Special, Large Steel, One Track	Lineal Feet	\$ 8,000.00				528.000	295.680				528.000	295.680
Special, Large Steel, Two Track	Lineal Feet	\$ 14,000.00					73.920					73.920
Special, Very Large Structure, One Track	Lineal Feet	\$ 12,000.00					369.600					369.600
Tunnel, One Track	Lineal Feet	\$ 20,000.00				528.000	1214.400				528.000	1214.400
Rehabilitate Existing One Track Tunnel	Lineal Feet	\$ 7,500.00										
Other	Lump Sum	\$ -										
Demolish Signal Bridge	Lump Sum	\$ 25,000.00										
Small Building, furnished for crew	Lump Sum	\$ 400,000.00	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level			Upgrade Exst. BL RR				Build New/Old R/W					New Trk on Existing RR R/W		
Improvement Description	Unit of Measure Input	Unit Cost	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling
New Access Road Overpass	Lump Sum	\$ 1,500,000.00												
New Access Road, Paved	Lineal Feet	\$ 50.00	10	10	10	10	10	10	10	10	10	10	10	10
Drainage														
Install 1 Track Culvert	Each	\$ 20,500.00	2	4	6	4	2	2	4	6	4	2	2	4
Install 2 Track Culvert	Each	\$ 25,700.00	1	1	2	2	1	1	1	2	2	1	1	1
Extend Culvert	Each	\$ 15,400.00												
Other	Lump sum	\$ -												
	Lump sum	\$ -												
Other Costs														
Relocation Business	Each	\$ -												
Relocate Residence	Each	\$ -												
Relocate Pipe Line (Urban)	Lineal Feet	\$ 301.00												
Relocate Pipe Line (Rural)	Lineal Feet	\$ 151.00												
Relocate Fiber Optic Cable	Lineal Feet	\$ 14.00												
Demolition	Each	\$ 153,700.00					2	2	2	1	1	2	1	1
Power for layup	Lump sum	\$ 70,000.00												
480 volt ground outlets	Lump sum	\$ 2,000.00												
	Lump sum	\$ -												

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level			Build Completely New Rail Line									
Improvement Description	Unit of Measure Input	Unit Cost	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged
New Access Road Overpass	Lump Sum	\$ 1,500,000.00										
New Access Road, Paved	Lineal Feet	\$ 50.00	10	10	10	10	10	10	10	10	10	10
Drainage												
Install 1 Track Culvert	Each	\$ 20,500.00	2	4	6	4	4	2	4	6	4	4
Install 2 Track Culvert	Each	\$ 25,700.00	1	1	2	2	2	1	1	2	2	2
Extend Culvert	Each	\$ 15,400.00										
Other	Lump sum	\$ -										
	Lump sum	\$ -										
Other Costs												
Relocation Business	Each	\$ -										
Relocate Residence	Each	\$ -										
Relocate Pipe Line (Urban)	Lineal Feet	\$ 301.00										
Relocate Pipe Line (Rural)	Lineal Feet	\$ 151.00										
Relocate Fiber Optic Cable	Lineal Feet	\$ 14.00										
Demolition	Each	\$ 153,700.00	2	2	1	1	1	1	1	1	1	1
Power for layup	Lump sum	\$ 70,000.00										
480 volt ground outlets	Lump sum	\$ 2,000.00										
	Lump sum	\$ -										

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level	Improvement Description	Unit of Measure Input	Unit Cost	Upgrade Exst. BL RR				Build New/Old R/W				New Trk on Existing RR R/W			
				Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling
New Construction - Trackwork															
	Construct New Track to Mainline Standards 136# Rail	Track Feet	\$ 158.39	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Track to Mainline Standards 136HH	Track Feet	\$ 195.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Track to Mainline Standards 136# Rail with Concrete Ties	Track Feet	\$ 157.84	\$ 174,571	\$ 174,571	\$ 157,840	\$ 124,536	\$ 1,007,966	\$ 1,007,966	\$ 1,007,966	\$ 924,627	\$ 757,948	\$ 1,007,966	\$ 1,007,966	\$ 1,007,966
	Construct New Track to Mainline Standards 136HH with Concrete Ties	Track Feet	\$ 163.49	\$ -	\$ -	\$ 17,330	\$ 51,826	\$ -	\$ -	\$ -	\$ 86,323	\$ 258,968	\$ -	\$ -	\$ -
	Construct New Track to Mainline Standards 115# Rail	Track Feet	\$ 192.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Track to Mainline Standards 141# Rail	Track Feet	\$ 209.69	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct Yard & Side Track	Track Feet	\$ 125.72	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	15' Cut and Throw	Each	\$ 25,600.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Turnout - # 9	Each	\$ 65,024.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Turnout - #11	Each	\$ 74,376.98	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Turnout - #15	Each	\$ 102,218.06	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Turnout - #20	Each	\$ 131,103.39	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Turnout - #24	Each	\$ 151,024.17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Construct New Turnout - #11 Concrete	Each	\$ 185,000.00	\$ 46,250	\$ 46,250	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000
	Construct New High Speed Concrete Turnout # 26	Each	\$ 275,000.00	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500
	Other	Lump Sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Tie into existing main	Lump Sum	\$ 20,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Rehabilitate Existing Track															
	Relay w/136# New	Track Feet	\$ 77.72	\$ 410,361	\$ 410,361	\$ 369,325	\$ 287,253	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Relay w/136# New HH	Track Feet	\$ 84.24	\$ -	\$ -	\$ 44,477	\$ 133,431	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Relay w/141# New	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Install 750 ties per mile, and Surface (3" raise)	Track Feet	\$ 20.07	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Install 1400 ties per mile, and Surface (2" raise)	Track Feet	\$ 30.14	\$ 159,120	\$ 159,120	\$ 159,120	\$ 159,120	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Replace Existing Ballast Section	Track Feet	\$ 25.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Surface Track	Track Feet	\$ 4.12	\$ 21,763	\$ 21,763	\$ 21,763	\$ 21,763	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Retire Turnout	Each	\$ 15,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Other	Lump Sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Retire Track	Track Feet	\$ 15.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
		Lump Sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grading - New and Enhanced Roadbed															
	1 New Track 2.5' Fill	Lineal Feet	\$ 86.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track 7' Fill	Lineal Feet	\$ 259.29	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track 15' Fill	Lineal Feet	\$ 748.59	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track 25' Fill	Lineal Feet	\$ 1,661.60	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track 50' Fill	Lineal Feet	\$ 5,410.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 2.5' Fill	Lineal Feet	\$ 124.64	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 7' Fill	Lineal Feet	\$ 361.64	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 15' Fill	Lineal Feet	\$ 951.61	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 25' Fill	Lineal Feet	\$ 1,998.84	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 50' Fill	Lineal Feet	\$ 6,062.54	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track 10' Dirt Cut	Lineal Feet	\$ 611.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track 25' Dirt Cut	Lineal Feet	\$ 1,635.23	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track 25' Rock Cut	Lineal Feet	\$ 5,958.79	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track 50' Rock Cut	Lineal Feet	\$ 13,870.44	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 10' Dirt Cut	Lineal Feet	\$ 703.95	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 25' Dirt Cut	Lineal Feet	\$ 1,831.37	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 25' Rock Cut	Lineal Feet	\$ 7,380.77	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks 50' Rock Cut	Lineal Feet	\$ 16,691.75	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 New Track; extend 25' from Existing- 2.5' Fill	Lineal Feet	\$ 95.41	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 402,072	\$ 402,072	\$ 141,021
	1 New Track; extend 25' from Existing- 7' Fill	Lineal Feet	\$ 207.91	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 164,246
	1 New Track; extend 25' from Existing- 15' Fill	Lineal Feet	\$ 416.87	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 329,324
	2 New Tracks; extend 25' from Existing- 2.5' Fill	Lineal Feet	\$ 152.09	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 160,301	\$ 160,301	\$ 56,273
	2 New Tracks; extend 25' from Existing- 7' Fill	Lineal Feet	\$ 323.69	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 63,766
	2 New Tracks; extend 25' from Existing- 15' Fill	Lineal Feet	\$ 637.72	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 125,631

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level		\$ -	Build Completely New Rail Line									
Improvement Description	Unit of Measure Input	Unit Cost	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged
New Construction - Trackwork												
Construct New Track to Mainline Standards 136# Rail	Track Feet	\$ 158.39	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Track to Mainline Standards 136HH	Track Feet	\$ 195.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Track to Mainline Standards 136# Rail with Concrete Ties	Track Feet	\$ 157.84	\$ 1,007,966	\$ 1,007,966	\$ 924,627	\$ 757,948	\$ 511,875	\$ 1,007,966	\$ 1,007,966	\$ 924,627	\$ 757,948	\$ 511,875
Construct New Track to Mainline Standards 136HH with Concrete Ties	Track Feet	\$ 163.49	\$ -	\$ -	\$ 86,323	\$ 258,968	\$ 522,024	\$ -	\$ -	\$ 86,323	\$ 258,968	\$ 522,024
Construct New Track to Mainline Standards 115# Rail	Track Feet	\$ 192.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Track to Mainline Standards 141# Rail	Track Feet	\$ 209.69	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct Yard & Side Track	Track Feet	\$ 125.72	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
15' Cut and Throw	Each	\$ 25,600.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Turnout - # 9	Each	\$ 65,024.02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Turnout - #11	Each	\$ 74,376.98	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Turnout - #15	Each	\$ 102,218.06	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Turnout - #20	Each	\$ 131,103.39	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Turnout - #24	Each	\$ 151,024.17	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Construct New Turnout - #11 Concrete	Each	\$ 185,000.00	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000	\$ 37,000
Construct New High Speed Concrete Turnout # 26	Each	\$ 275,000.00	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500	\$ 27,500
Other	Lump Sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tie into existing main	Lump Sum	\$ 20,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Rehabilitate Existing Track												
Relay w/136# New	Track Feet	\$ 77.72	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relay w/136# New HH	Track Feet	\$ 84.24	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relay w/141# New	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Install 750 ties per mile, and Surface (3" raise)	Track Feet	\$ 20.07	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Install 1400 ties per mile, and Surface (2" raise)	Track Feet	\$ 30.14	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replace Existing Ballast Section	Track Feet	\$ 25.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Surface Track	Track Feet	\$ 4.12	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Retire Turnout	Each	\$ 15,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other	Lump Sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Retire Track	Track Feet	\$ 15.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Lump Sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grading - New and Enhanced Roadbed												
1 New Track 2.5' Fill	Lineal Feet	\$ 86.20	\$ 363,263	\$ 127,409	\$ -	\$ -	\$ -	\$ 363,263	\$ 127,409	\$ -	\$ -	\$ -
1 New Track 7' Fill	Lineal Feet	\$ 259.29	\$ -	\$ 204,840	\$ 190,060	\$ -	\$ -	\$ -	\$ 204,840	\$ 190,060	\$ -	\$ -
1 New Track 15' Fill	Lineal Feet	\$ 748.59	\$ -	\$ 591,387	\$ 548,718	\$ 278,476	\$ -	\$ -	\$ 591,387	\$ 548,718	\$ 278,476	\$ -
1 New Track 25' Fill	Lineal Feet	\$ 1,661.60	\$ -	\$ 1,217,949	\$ 1,546,945	\$ 927,170	\$ -	\$ -	\$ 1,217,949	\$ 1,546,945	\$ 927,170	\$ -
1 New Track 50' Fill	Lineal Feet	\$ 5,410.70	\$ -	\$ -	\$ -	\$ 3,024,584	\$ 5,031,955	\$ -	\$ -	\$ -	\$ 3,024,584	\$ 5,031,955
2 New Tracks 2.5' Fill	Lineal Feet	\$ 124.64	\$ 131,366	\$ 46,115	\$ -	\$ -	\$ -	\$ 131,366	\$ 46,115	\$ -	\$ -	\$ -
2 New Tracks 7' Fill	Lineal Feet	\$ 361.64	\$ -	\$ 71,244	\$ 66,904	\$ -	\$ -	\$ -	\$ 71,244	\$ 66,904	\$ -	\$ -
2 New Tracks 15' Fill	Lineal Feet	\$ 951.61	\$ -	\$ 187,468	\$ 176,048	\$ 89,452	\$ -	\$ -	\$ 187,468	\$ 176,048	\$ 89,452	\$ -
2 New Tracks 25' Fill	Lineal Feet	\$ 1,998.84	\$ -	\$ 369,786	\$ 465,730	\$ 277,839	\$ -	\$ -	\$ 369,786	\$ 465,730	\$ 277,839	\$ -
2 New Tracks 50' Fill	Lineal Feet	\$ 6,062.54	\$ -	\$ -	\$ -	\$ 842,693	\$ 1,412,572	\$ -	\$ -	\$ -	\$ 842,693	\$ 1,412,572
1 New Track 10' Dirt Cut	Lineal Feet	\$ 611.90	\$ -	\$ 646,162	\$ 517,052	\$ 181,121	\$ -	\$ -	\$ 646,162	\$ 517,052	\$ 181,121	\$ -
1 New Track 25' Dirt Cut	Lineal Feet	\$ 1,635.23	\$ -	\$ -	\$ 1,381,773	\$ -	\$ -	\$ -	\$ -	\$ 1,381,773	\$ -	\$ -
1 New Track 25' Rock Cut	Lineal Feet	\$ 5,958.79	\$ -	\$ -	\$ -	\$ 3,775,486	\$ 1,761,894	\$ -	\$ -	\$ -	\$ 3,775,486	\$ 1,761,894
1 New Track 50' Rock Cut	Lineal Feet	\$ 13,870.44	\$ -	\$ -	\$ -	\$ 4,687,100	\$ 9,374,199	\$ -	\$ -	\$ -	\$ 4,687,100	\$ 9,374,199
2 New Tracks 10' Dirt Cut	Lineal Feet	\$ 703.95	\$ -	\$ 185,842	\$ 148,533	\$ 52,092	\$ -	\$ -	\$ 185,842	\$ 148,533	\$ 52,092	\$ -
2 New Tracks 25' Dirt Cut	Lineal Feet	\$ 1,831.37	\$ -	\$ -	\$ 386,420	\$ -	\$ -	\$ -	\$ -	\$ 386,420	\$ -	\$ -
2 New Tracks 25' Rock Cut	Lineal Feet	\$ 7,380.77	\$ -	\$ -	\$ -	\$ 1,169,114	\$ 545,586	\$ -	\$ -	\$ -	\$ 1,169,114	\$ 545,586
2 New Tracks 50' Rock Cut	Lineal Feet	\$ 16,691.75	\$ -	\$ -	\$ -	\$ 1,410,119	\$ 2,820,238	\$ -	\$ -	\$ -	\$ 1,410,119	\$ 2,820,238
1 New Track; extend 25' from Existing- 2.5' Fill	Lineal Feet	\$ 95.41	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 New Track; extend 25' from Existing- 7' Fill	Lineal Feet	\$ 207.91	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 New Track; extend 25' from Existing- 15' Fill	Lineal Feet	\$ 416.87	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2 New Tracks; extend 25' from Existing- 2.5' Fill	Lineal Feet	\$ 152.09	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2 New Tracks; extend 25' from Existing- 7' Fill	Lineal Feet	\$ 323.69	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2 New Tracks; extend 25' from Existing- 15' Fill	Lineal Feet	\$ 637.72	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level	Improvement Description	Unit of Measure Input	Unit Cost	Upgrade Exst. BL RR				Build New/Old R/W				New Trk on Existing RR R/W					
				Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling		
	1 New Track; extend 25' from Existing- 10' Dirt Cut	Lineal Feet	\$ 324.66	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 342,843
	2 New Tracks; extend 25' from Existing- 10' Dirt Cut	Lineal Feet	\$ 409.16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 108,018
	Widen Roadbed 3 feet each side - 2.5' Fill	Lineal Feet	\$ 33.64	\$ 142,029	\$ 49,720	\$ -	\$ -	\$ 142,096	\$ 142,096	\$ 49,720	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 7' Fill	Lineal Feet	\$ 93.81	\$ -	\$ 75,049	\$ 70,828	\$ -	\$ -	\$ -	\$ 77,863	\$ 70,828	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 15' Fill	Lineal Feet	\$ 243.93	\$ -	\$ 195,147	\$ 184,170	\$ 148,312	\$ -	\$ -	\$ 202,465	\$ 184,170	\$ 85,621	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 25' Fill	Lineal Feet	\$ 510.34	\$ -	\$ -	\$ 385,308	\$ 478,700	\$ -	\$ -	\$ -	\$ 385,308	\$ 448,080	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 50' Fill	Lineal Feet	\$ 1,558.75	\$ -	\$ -	\$ -	\$ 987,622	\$ -	\$ -	\$ -	\$ -	\$ 987,622	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 2.5' Fill	Lineal Feet	\$ 85.47	\$ 89,399	\$ 31,623	\$ -	\$ -	\$ 89,228	\$ 89,228	\$ 31,623	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 7' Fill	Lineal Feet	\$ 180.99	\$ -	\$ 35,474	\$ 32,759	\$ -	\$ -	\$ -	\$ 38,189	\$ 32,759	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 15' Fill	Lineal Feet	\$ 394.74	\$ -	\$ 77,370	\$ 71,449	\$ 37,106	\$ -	\$ -	\$ 83,291	\$ 71,449	\$ 34,737	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 25' Fill	Lineal Feet	\$ 793.83	\$ -	\$ -	\$ 143,683	\$ 184,169	\$ -	\$ -	\$ -	\$ 143,683	\$ 173,849	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 50' Fill	Lineal Feet	\$ 2,128.12	\$ -	\$ -	\$ -	\$ 337,095	\$ -	\$ -	\$ -	\$ -	\$ 337,095	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut - New Standards - 10' Dirt Cut	Lineal Feet	\$ 287.71	\$ -	\$ 303,826	\$ 243,119	\$ 85,163	\$ -	\$ -	\$ 303,826	\$ 243,119	\$ 85,163	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut - New Standards - 25' Dirt Cut	Lineal Feet	\$ 670.53	\$ -	\$ -	\$ 566,599	\$ 177,020	\$ -	\$ -	\$ -	\$ 566,599	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut - New Standards - 25' Rock Cut	Lineal Feet	\$ 2,109.07	\$ -	\$ -	\$ -	\$ 1,336,304	\$ -	\$ -	\$ -	\$ -	\$ 1,336,304	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut - New Standards - 50' Rock Cut	Lineal Feet	\$ 3,974.83	\$ -	\$ -	\$ -	\$ 1,343,176	\$ -	\$ -	\$ -	\$ -	\$ 1,343,176	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut to 2 Tracks - 10' Dirt Cut	Lineal Feet	\$ 379.76	\$ -	\$ 100,258	\$ 80,130	\$ 28,103	\$ -	\$ -	\$ 100,258	\$ 80,130	\$ 28,103	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut to 2 Tracks - 25' Dirt Cut	Lineal Feet	\$ 866.67	\$ -	\$ -	\$ 182,868	\$ -	\$ -	\$ -	\$ -	\$ 182,868	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut to 2 Tracks - 25' Rock Cut	Lineal Feet	\$ 3,531.05	\$ -	\$ -	\$ -	\$ 559,318	\$ -	\$ -	\$ -	\$ -	\$ 559,318	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut to 2 Tracks - 50' Rock Cut	Lineal Feet	\$ 6,796.14	\$ -	\$ -	\$ -	\$ 574,138	\$ -	\$ -	\$ -	\$ -	\$ 574,138	\$ -	\$ -	\$ -	\$ -	\$ -
	Build Right-of-Way Road	Lineal Feet	\$ 15.00	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200
	Access road to service tracks	Lineal Feet	\$ 50.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Right-of-Way																
	Buy New 200' Right of Way for Rough Terrain	Lineal Feet	\$ 50.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 66,000	\$ 118,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Buy New 125' Right of Way (Urban)	Lineal Feet	\$ 735.00	\$ -	\$ -	\$ -	\$ -	\$ 3,880,800	\$ -	\$ -	\$ -	\$ 3,880,800	\$ -	\$ -	\$ -	\$ -	\$ -
	Buy New 125' Right of Way (Rural)	Lineal Feet	\$ 31.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 165,000	\$ 165,000	\$ 123,750	\$ 74,250	\$ -	\$ 165,000	\$ 165,000	\$ -	\$ -
	Extend Existing Right-of-Way, 25 Foot Width	Lineal Feet	\$ 6.25	\$ 6,600	\$ 6,600	\$ 16,500	\$ 31,350	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Extend Existing Right-of-Way, 8 Foot Width	Lineal Feet	\$ 5.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Other	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Public Improvements																
	Rehab Highway Crossing with Concrete	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Rehab Highway Crossing with Asphalt	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Rebuild Highway Crossing and Track with Concrete	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Rebuild Highway Crossing and Track with Asphalt	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Install Concrete Highway Crossing on Newly Built Track	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	New Highway OH	Each	\$ 6,145,800.00	\$ 307,290	\$ 307,290	\$ 307,290	\$ -	\$ 614,580	\$ 307,290	\$ 307,290	\$ 307,290	\$ -	\$ 614,580	\$ 307,290	\$ 307,290	\$ 307,290	\$ -
	Surface Existing Track Through Road Crossing	Track Feet	\$ 200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Highway Approach Profile Adjustment	Track Feet	\$ 2,100.00	\$ 9,660	\$ 4,725	\$ 4,725	\$ 3,675	\$ 9,660	\$ 4,725	\$ 4,725	\$ 4,830	\$ 3,780	\$ 9,800	\$ 6,300	\$ 6,300	\$ 6,300	\$ -
	Train Control - Wayside																
	Interlocking, Single Switch, 3 Signals	Each	\$ 574,632.30	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463
	Interlocking, Crossover, 4 Signals	Each	\$ 676,038.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Interlocking, 3 Switch, 5 Signals	Each	\$ 783,077.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Interlocking, Universal, 4 Signals	Each	\$ 890,116.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Switch to above Universal Interlocking	Each	\$ 107,039.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Signal to above Universal Interlocking	Each	\$ 28,168.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Signal Head on Existing Pole	Each	\$ 4,506.70	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803
	Switch Heaters, Electric, each switch	Each	\$ 9,689.90	\$ -	\$ -	\$ -	\$ 2,907	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Switch Heaters, Hot Air, each switch	Each	\$ 11,267.30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Track Circuit for Cab Signal Territory	Each	\$ 100,000.00	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000
	Electric Lock Layout	Each	\$ 106,949.70	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737
	Automatic Block Signal, One Head, One Direction	Each	\$ 95,772.60	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Back/Back Automatic Block Signal, Single Head, ea	Each	\$ 152,109.10	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449
	Additional Signal Head to Automatic Location, each	Each	\$ 4,506.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Retire Signal	Each	\$ 3,200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Add features to existing microprocessor interlocking	Lump sum	\$ 150,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Dispatch Center Cutover	Lump sum	\$ 102,500.00	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level	Improvement Description	Unit of Measure Input	Unit Cost	Build Completely New Rail Line											
				Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged		
	1 New Track; extend 25' from Existing- 10' Dirt Cut	Lineal Feet	\$ 324.66	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	2 New Tracks; extend 25' from Existing- 10' Dirt Cut	Lineal Feet	\$ 409.16	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 2.5' Fill	Lineal Feet	\$ 33.64	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 7' Fill	Lineal Feet	\$ 93.81	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 15' Fill	Lineal Feet	\$ 243.93	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 25' Fill	Lineal Feet	\$ 510.34	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3 feet each side - 50' Fill	Lineal Feet	\$ 1,558.75	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 2.5' Fill	Lineal Feet	\$ 85.47	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 7' Fill	Lineal Feet	\$ 180.99	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 15' Fill	Lineal Feet	\$ 394.74	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 25' Fill	Lineal Feet	\$ 793.83	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen Roadbed 3' & 1 track - 50' Fill	Lineal Feet	\$ 2,128.12	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut - New Standards - 10' Dirt Cut	Lineal Feet	\$ 287.71	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut - New Standards - 25' Dirt Cut	Lineal Feet	\$ 670.53	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut - New Standards - 25' Rock Cut	Lineal Feet	\$ 2,109.07	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut - New Standards - 50' Rock Cut	Lineal Feet	\$ 3,974.83	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut to 2 Tracks - 10' Dirt Cut	Lineal Feet	\$ 379.76	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut to 2 Tracks - 25' Dirt Cut	Lineal Feet	\$ 866.67	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut to 2 Tracks - 25' Rock Cut	Lineal Feet	\$ 3,531.05	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Widen 1 Track Cut to 2 Tracks - 50' Rock Cut	Lineal Feet	\$ 6,796.14	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Build Right-of-Way Road	Lineal Feet	\$ 15.00	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200	\$ 79,200
	Access road to service tracks	Lineal Feet	\$ 50.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Right-of-Way														
	Buy New 200' Right of Way for Rough Terrain	Lineal Feet	\$ 50.00	\$ -	\$ -	\$ 66,000	\$ 118,800	\$ 101,650	\$ -	\$ -	\$ 66,000	\$ 118,800	\$ 118,800	\$ 118,800	\$ 118,800
	Buy New 125' Right of Way (Urban)	Lineal Feet	\$ 735.00	\$ 3,880,800	\$ 3,880,800	\$ 2,910,600	\$ 2,134,440	\$ 2,270,415	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Buy New 125' Right of Way (Rural)	Lineal Feet	\$ 31.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 165,000	\$ 165,000	\$ 123,750	\$ 74,250	\$ 74,250	\$ 74,250	
	Extend Existing Right-of-Way, 25 Foot Width	Lineal Feet	\$ 6.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Extend Existing Right-of-Way, 8 Foot Width	Lineal Feet	\$ 5.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Other	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Public Improvements														
	Rehab Highway Crossing with Concrete	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Rehab Highway Crossing with Asphalt	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Rebuild Highway Crossing and Track with Concrete	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Rebuild Highway Crossing and Track with Asphalt	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Install Concrete Highway Crossing on Newly Built Track	Track Feet	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	New Highway OH	Each	\$ 6,145,800.00	\$ 614,580	\$ 614,580	\$ 614,580	\$ -	\$ -	\$ 307,290	\$ 307,290	\$ 307,290	\$ -	\$ -	\$ -	\$ -
	Surface Existing Track Through Road Crossing	Track Feet	\$ 200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Highway Approach Profile Adjustment	Track Feet	\$ 2,100.00	\$ 14,700	\$ 14,700	\$ 14,700	\$ 8,400	\$ 8,400	\$ 9,450	\$ 9,450	\$ 9,450	\$ 9,450	\$ 9,450	\$ 7,350	
	Train Control - Wayside														
	Interlocking, Single Switch, 3 Signals	Each	\$ 574,632.30	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463	\$ 57,463
	Interlocking, Crossover, 4 Signals	Each	\$ 676,038.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Interlocking, 3 Switch, 5 Signals	Each	\$ 783,077.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Interlocking, Universal, 4 Signals	Each	\$ 890,116.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Switch to above Universal Interlocking	Each	\$ 107,039.90	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Signal to above Universal Interlocking	Each	\$ 28,168.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Signal Head on Existing Pole	Each	\$ 4,506.70	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	\$ 1,803	
	Switch Heaters, Electric, each switch	Each	\$ 9,689.90	\$ -	\$ -	\$ -	\$ 2,907	\$ 2,907	\$ -	\$ -	\$ -	\$ -	\$ 2,907	\$ 2,907	
	Switch Heaters, Hot Air, each switch	Each	\$ 11,267.30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Track Circuit for Cab Signal Territory	Each	\$ 100,000.00	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	\$ 80,000	
	Electric Lock Layout	Each	\$ 106,949.70	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	\$ 26,737	
	Automatic Block Signal, One Head, One Direction	Each	\$ 95,772.60	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Back/Back Automatic Block Signal, Single Head, ea	Each	\$ 152,109.10	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	\$ 68,449	
	Additional Signal Head to Automatic Location, each	Each	\$ 4,506.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Retire Signal	Each	\$ 3,200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Add features to existing microprocessor interlocking	Lump sum	\$ 150,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
	Dispatch Center Cutover	Lump sum	\$ 102,500.00	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	\$ 2,563	

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level	Improvement Description	Unit of Measure Input	Unit Cost	Upgrade Exst. BL RR				Build New/Old R/W				New Trk on Existing RR R/W		
				Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat
Train Control - Special Items														
	TWC Factory Wired Case and 8 Loops	Each	\$ 84,505.30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	On Board TWC	Each	\$ 28,168.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	On Board Cab Signal	Each	\$ 112,673.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Tag Reader	Each	\$ 32,675.50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Defect Detector Location, one track	Each	\$ 102,500.00	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250
	Defect Detector Location, each additional track	Each	\$ 41,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Provide Power for Signal System	Lineal Feet	\$ 7.00	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960
	Additional Switch Machines, H/S Turnouts	Each	\$ 30,000.00	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000
	Radio Broadcast Towers	Each	\$ 50,000.00	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500
	Other	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Tie into Existing System Additive	Percent	50%	\$ 146,362	\$ 146,362	\$ 146,362	\$ 147,816	\$ 146,362	\$ 146,362	\$ 146,362	\$ 146,362	\$ 146,362	\$ 146,362	\$ 146,362
Highway Warning Devices														
	1 Track Grade Crossing With Gates	Each	\$ 227,889.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 Track Grade Crossing With 4 Quadrant Gates	Each	\$ 250,253.30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 Track Grade Crossing With Cantilevers	Each	\$ 284,047.50	\$ 28,405	\$ 28,405	\$ 28,405	\$ 14,202	\$ 85,214	\$ 28,405	\$ 28,405	\$ 28,405	\$ 28,405	\$ 85,214	\$ 28,405
	2 Track Grade Crossing With Gates	Each	\$ 281,418.50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Cantilever with Flasher, each	Each	\$ 26,207.50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Gates, each	Each	\$ 12,393.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Flasher, each	Each	\$ 5,742.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Additional Gate and Flasher on Single Pole	Each	\$ 26,338.40	\$ 5,268	\$ 5,268	\$ 5,268	\$ 2,634	\$ 15,803	\$ 5,268	\$ 5,268	\$ 5,268	\$ 5,268	\$ 15,803	\$ 5,268
	Additional Track to Grade Crossing	Each	\$ 52,643.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Jersey Barriers for 4 Quad Gates	Each	\$ 100,000.00	\$ 10,000	\$ 10,000	\$ 10,000	\$ 5,000	\$ 30,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 30,000	\$ 10,000
	Other	Each	\$ 1,100.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Tie into Existing System Additive	Percent	25%	\$ 10,918	\$ 10,918	\$ 10,918	\$ 5,459	\$ 32,754	\$ 10,918	\$ 10,918	\$ 10,918	\$ 10,918	\$ 32,754	\$ 10,918
Structures														
	Install OH Bridge Column Protection	Each	\$ 204,900.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1 Track Aqueduct Crossing	Each	\$ 96,000.00	\$ 2,400	\$ 2,400	\$ 2,400	\$ -	\$ 2,400	\$ 2,400	\$ 2,400	\$ 2,400	\$ -	\$ 2,400	\$ 2,400
	2 Track Aqueduct Crossing	Each	\$ 156,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	New Precast Concrete BDT, One Track	Lineal Feet	\$ 2,000.00	\$ -	\$ -	\$ -	\$ -	\$ 24,000	\$ 24,000	\$ 24,000	\$ -	\$ 480,000	\$ 24,000	\$ 24,000
	Replace Bridge with Concrete BDT, 1 Track	Lineal Feet	\$ 3,600.00	\$ 43,200	\$ 432,000	\$ 1,296,000	\$ 864,000	\$ -	\$ -	\$ -	\$ 1,296,000	\$ -	\$ -	\$ -
	New Steel (Water), One Track	Lineal Feet	\$ 6,200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	New Steel (Land), One Track	Lineal Feet	\$ 5,200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 93,600	\$ -	\$ -	\$ 374,400	\$ -	\$ 93,600
	Special, Large Steel, One Track	Lineal Feet	\$ 8,000.00	\$ -	\$ -	\$ -	\$ 2,112,000	\$ -	\$ -	\$ -	\$ -	\$ 4,224,000	\$ -	\$ -
	Special, Large Steel, Two Track	Lineal Feet	\$ 14,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Special, Very Large Structure, One Track	Lineal Feet	\$ 12,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Tunnel, One Track	Lineal Feet	\$ 20,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,560,000	\$ -	\$ -
	Rehabilitate Existing One Track Tunnel	Lineal Feet	\$ 7,500.00	\$ -	\$ -	\$ -	\$ 1,980,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Other	Lump Sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Demolish Signal Bridge	Lump Sum	\$ 25,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Small Building, furnished for crew	Lump Sum	\$ 400,000.00	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
	New Access Road Overpass	Lump Sum	\$ 1,500,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	New Access Road, Paved	Lineal Feet	\$ 50.00	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500
Drainage														
	Install 1 Track Culvert	Each	\$ 20,500.00	\$ 41,000	\$ 82,000	\$ 123,000	\$ 82,000	\$ 41,000	\$ 41,000	\$ 82,000	\$ 123,000	\$ 82,000	\$ 41,000	\$ 41,000
	Install 2 Track Culvert	Each	\$ 25,700.00	\$ 25,700	\$ 25,700	\$ 51,400	\$ 51,400	\$ 25,700	\$ 25,700	\$ 25,700	\$ 51,400	\$ 51,400	\$ 25,700	\$ 25,700
	Extend Culvert	Each	\$ 15,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Other	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level		\$ -	Build Completely New Rail Line									
Improvement Description	Unit of Measure Input	Unit Cost	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged
Train Control - Special Items												
TWC Factory Wired Case and 8 Loops	Each	\$ 84,505.30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
On Board TWC	Each	\$ 28,168.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
On Board Cab Signal	Each	\$ 112,673.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tag Reader	Each	\$ 32,675.50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Defect Detector Location, one track	Each	\$ 102,500.00	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250	\$ 10,250
Defect Detector Location, each additional track	Each	\$ 41,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Provide Power for Signal System	Lineal Feet	\$ 7.00	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960	\$ 36,960
Additional Switch Machines, H/S Turnouts	Each	\$ 30,000.00	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000	\$ 6,000
Radio Broadcast Towers	Each	\$ 50,000.00	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500
Other	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tie into Existing System Additive	Percent	50%	\$ 146,362	\$ 146,362	\$ 146,362	\$ 147,816	\$ 147,816	\$ 146,362	\$ 146,362	\$ 146,362	\$ 147,816	\$ 147,816
Highway Warning Devices												
1 Track Grade Crossing With Gates	Each	\$ 227,889.20	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 Track Grade Crossing With 4 Quadrant Gates	Each	\$ 250,253.30	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 Track Grade Crossing With Cantilevers	Each	\$ 284,047.50	\$ 85,214	\$ 85,214	\$ 85,214	\$ 42,607	\$ 42,607	\$ 28,405	\$ 28,405	\$ 28,405	\$ 28,405	\$ 14,202
2 Track Grade Crossing With Gates	Each	\$ 281,418.50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Additional Cantilever with Flasher, each	Each	\$ 26,207.50	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Additional Gates, each	Each	\$ 12,393.70	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Additional Flasher, each	Each	\$ 5,742.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Additional Gate and Flasher on Single Pole	Each	\$ 26,338.40	\$ 15,803	\$ 15,803	\$ 15,803	\$ 15,803	\$ 7,902	\$ 5,268	\$ 5,268	\$ 5,268	\$ 5,268	\$ 2,634
Additional Track to Grade Crossing	Each	\$ 52,643.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Jersey Barriers for 4 Quad Gates	Each	\$ 100,000.00	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 15,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 5,000
Other	Each	\$ 1,100.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tie into Existing System Additive	Percent	25%	\$ 32,754	\$ 32,754	\$ 32,754	\$ 22,103	\$ 16,377	\$ 10,918	\$ 10,918	\$ 10,918	\$ 10,918	\$ 5,459
Structures												
Install OH Bridge Column Protection	Each	\$ 204,900.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1 Track Aqueduct Crossing	Each	\$ 96,000.00	\$ 2,400	\$ 2,400	\$ 2,400	\$ -	\$ -	\$ 2,400	\$ 2,400	\$ 2,400	\$ -	\$ -
2 Track Aqueduct Crossing	Each	\$ 156,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Precast Concrete BDT, One Track	Lineal Feet	\$ 2,000.00	\$ 24,000	\$ 240,000	\$ 720,000	\$ 480,000	\$ 360,000	\$ 24,000	\$ 240,000	\$ 720,000	\$ 480,000	\$ 360,000
Replace Bridge with Concrete BDT, 1 Track	Lineal Feet	\$ 3,600.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Steel (Water), One Track	Lineal Feet	\$ 6,200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Steel (Land), One Track	Lineal Feet	\$ 5,200.00	\$ -	\$ 93,600	\$ 280,800	\$ 374,400	\$ 374,400	\$ -	\$ 93,600	\$ 280,800	\$ 374,400	\$ 374,400
Special, Large Steel, One Track	Lineal Feet	\$ 8,000.00	\$ -	\$ -	\$ -	\$ 4,224,000	\$ 2,365,440	\$ -	\$ -	\$ -	\$ 4,224,000	\$ 2,365,440
Special, Large Steel, Two Track	Lineal Feet	\$ 14,000.00	\$ -	\$ -	\$ -	\$ -	\$ 1,034,880	\$ -	\$ -	\$ -	\$ -	\$ 1,034,880
Special, Very Large Structure, One Track	Lineal Feet	\$ 12,000.00	\$ -	\$ -	\$ -	\$ -	\$ 4,435,200	\$ -	\$ -	\$ -	\$ -	\$ 4,435,200
Tunnel, One Track	Lineal Feet	\$ 20,000.00	\$ -	\$ -	\$ -	\$ 10,560,000	\$ 24,288,000	\$ -	\$ -	\$ -	\$ 10,560,000	\$ 24,288,000
Rehabilitate Existing One Track Tunnel	Lineal Feet	\$ 7,500.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other	Lump Sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Demolish Signal Bridge	Lump Sum	\$ 25,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Small Building, furnished for crew	Lump Sum	\$ 400,000.00	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000
New Access Road Overpass	Lump Sum	\$ 1,500,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Access Road, Paved	Lineal Feet	\$ 50.00	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500	\$ 500
Drainage												
Install 1 Track Culvert	Each	\$ 20,500.00	\$ 41,000	\$ 82,000	\$ 123,000	\$ 82,000	\$ 82,000	\$ 41,000	\$ 82,000	\$ 123,000	\$ 82,000	\$ 82,000
Install 2 Track Culvert	Each	\$ 25,700.00	\$ 25,700	\$ 25,700	\$ 51,400	\$ 51,400	\$ 51,400	\$ 25,700	\$ 25,700	\$ 51,400	\$ 51,400	\$ 51,400
Extend Culvert	Each	\$ 15,400.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Other	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level		\$ -	Upgrade Exst. BL RR				Build New/Old R/W				New Trk on Existing RR R/W			
Improvement Description	Unit of Measure Input	Unit Cost	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Medium - Flat	Low - Flat	Low - Rolling
Other Costs														
Relocation Business	Each	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relocate Residence	Each	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relocate Pipe Line (Urban)	Lineal Feet	\$ 301.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relocate Pipe Line (Rural)	Lineal Feet	\$ 151.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relocate Fiber Optic Cable	Lineal Feet	\$ 14.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Demolition	Each	\$ 153,700.00	\$ -	\$ -	\$ -	\$ -	\$ 307,400	\$ 307,400	\$ 307,400	\$ 153,700	\$ 153,700	\$ 307,400	\$ 153,700	\$ 153,700
Power for layup	Lump sum	\$ 70,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
480 volt ground outlets	Lump sum	\$ 2,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal, All Investment Categories			\$ 2,090,220	\$ 3,152,124	\$ 5,179,959	\$ 12,803,523	\$ 6,901,888	\$ 2,764,682	\$ 3,555,194	\$ 5,748,109	\$ 23,780,330	\$ 7,233,078	\$ 2,943,607	\$ 4,062,956
Contingencies														
New Construction - Trackwork		10%	\$ 24,832	\$ 24,832	\$ 23,967	\$ 24,086	\$ 107,247	\$ 107,247	\$ 107,247	\$ 107,545	\$ 108,142	\$ 107,247	\$ 107,247	\$ 107,247
Rehabilitate Existing Track		10%	\$ 59,124	\$ 59,124	\$ 59,468	\$ 60,157	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grading - New and Enhanced Roadbed		15%	\$ 46,594	\$ 142,150	\$ 306,017	\$ 953,314	\$ 46,579	\$ 46,579	\$ 144,965	\$ 306,017	\$ 910,861	\$ 96,236	\$ 96,236	\$ 211,548
Right-of-Way		20%	\$ 1,320	\$ 1,320	\$ 3,300	\$ 6,270	\$ 776,160	\$ 33,000	\$ 33,000	\$ 37,950	\$ 38,610	\$ 776,160	\$ 33,000	\$ 33,000
Public Improvements		15%	\$ 47,543	\$ 46,802	\$ 46,802	\$ 551	\$ 93,636	\$ 46,802	\$ 46,802	\$ 46,818	\$ 567	\$ 93,657	\$ 47,039	\$ 47,039
Train Control - Wayside		15%	\$ 35,552	\$ 35,552	\$ 35,552	\$ 35,988	\$ 35,552	\$ 35,552	\$ 35,552	\$ 35,552	\$ 35,552	\$ 35,552	\$ 35,552	\$ 35,552
Train Control - Special Items		15%	\$ 30,311	\$ 30,311	\$ 30,311	\$ 30,529	\$ 30,311	\$ 30,311	\$ 30,311	\$ 30,311	\$ 30,311	\$ 30,311	\$ 30,311	\$ 30,311
Highway Warning Devices		15%	\$ 8,189	\$ 8,189	\$ 8,189	\$ 4,094	\$ 24,566	\$ 8,189	\$ 8,189	\$ 8,189	\$ 8,189	\$ 24,566	\$ 8,189	\$ 8,189
Structures		20%	\$ 11,220	\$ 88,980	\$ 261,780	\$ 993,300	\$ 7,380	\$ 7,380	\$ 26,100	\$ 261,780	\$ 3,129,780	\$ 7,380	\$ 7,380	\$ 69,300
Drainage		15%	\$ 10,005	\$ 16,155	\$ 26,160	\$ 20,010	\$ 10,005	\$ 10,005	\$ 16,155	\$ 26,160	\$ 20,010	\$ 10,005	\$ 10,005	\$ 16,155
Other Costs		25%	\$ -	\$ -	\$ -	\$ -	\$ 76,850	\$ 76,850	\$ 76,850	\$ 38,425	\$ 38,425	\$ 76,850	\$ 38,425	\$ 38,425
Subtotal, All Contingencies			\$ 274,690	\$ 453,415	\$ 801,546	\$ 2,128,299	\$ 1,208,286	\$ 401,915	\$ 525,171	\$ 898,747	\$ 4,320,447	\$ 1,257,964	\$ 413,384	\$ 596,766
Total, All Investment Categories			\$ 2,400,000	\$ 3,600,000	\$ 6,000,000	\$ 14,900,000	\$ 8,100,000	\$ 3,200,000	\$ 4,100,000	\$ 6,600,000	\$ 28,100,000	\$ 8,500,000	\$ 3,400,000	\$ 4,700,000

Trackwork, New Construction	\$273,152	\$273,152	\$263,637	\$264,946	\$1,179,717	\$1,179,717	\$1,179,717	\$1,182,995	\$1,189,562	\$1,179,717	\$1,179,717	\$1,179,717	\$1,179,717	\$1,179,717
Trackwork, Rehabilitate Existing	\$650,364	\$650,364	\$654,148	\$661,727	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Grading	\$357,221	\$1,089,817	\$2,346,130	\$7,308,741	\$357,106	\$357,106	\$1,111,398	\$2,346,130	\$6,983,268	\$737,809	\$737,809	\$1,621,868	\$1,621,868	\$1,621,868
Drainage	\$76,705	\$123,855	\$200,560	\$153,410	\$76,705	\$76,705	\$123,855	\$200,560	\$153,410	\$76,705	\$76,705	\$123,855	\$123,855	\$123,855
Structures	\$67,320	\$533,880	\$1,570,680	\$3,583,800	\$44,280	\$44,280	\$156,600	\$1,570,680	\$6,106,680	\$44,280	\$44,280	\$415,800	\$415,800	\$415,800
Tunnels	\$0	\$0	\$0	\$2,376,000	\$0	\$0	\$0	\$0	\$12,672,000	\$0	\$0	\$0	\$0	\$0
Train Control	\$504,950	\$504,950	\$504,950	\$509,964	\$504,950	\$504,950	\$504,950	\$504,950	\$504,950	\$504,950	\$504,950	\$504,950	\$504,950	\$504,950
Highway Warning Devices	\$62,782	\$62,782	\$62,782	\$31,387	\$188,339	\$62,782	\$62,782	\$62,782	\$62,782	\$62,782	\$188,339	\$62,782	\$62,782	\$62,782
Public Improvements	\$364,496	\$358,815	\$358,815	\$4,224	\$717,876	\$358,815	\$358,815	\$358,938	\$4,347	\$718,037	\$360,632	\$360,632	\$360,632	\$360,632
Other Costs	\$0	\$0	\$0	\$0	\$384,250	\$384,250	\$384,250	\$192,125	\$192,125	\$384,250	\$192,125	\$192,125	\$192,125	\$192,125
Right-of-Way	\$7,920	\$7,920	\$19,800	\$37,620	\$4,656,960	\$198,000	\$198,000	\$227,700	\$231,660	\$4,656,960	\$198,000	\$198,000	\$198,000	\$198,000
Total Cost per Mile	\$2,364,910	\$3,605,535	\$5,981,503	\$14,931,819	\$8,110,183	\$3,166,605	\$4,080,368	\$6,646,860	\$28,100,784	\$8,491,047	\$3,357,001	\$4,659,729	\$4,659,729	\$4,659,729

LTK Engineering Services
East of Sierras Regional Rail Service
Track Rehabilitation and Construction Cost Case Assumptions

Conceptual Design Level		\$ -	Build Completely New Rail Line									
Improvement Description	Unit of Measure Input	Unit Cost	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged
Other Costs												
Relocation Business	Each	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relocate Residence	Each	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relocate Pipe Line (Urban)	Lineal Feet	\$ 301.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relocate Pipe Line (Rural)	Lineal Feet	\$ 151.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Relocate Fiber Optic Cable	Lineal Feet	\$ 14.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Demolition	Each	\$ 153,700.00	\$ 307,400	\$ 307,400	\$ 153,700	\$ 153,700	\$ 153,700	\$ 153,700	\$ 153,700	\$ 153,700	\$ 153,700	\$ 153,700
Power for layup	Lump sum	\$ 70,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
480 volt ground outlets	Lump sum	\$ 2,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	Lump sum	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal, All Investment Categories			\$ 7,170,233	\$ 9,086,672	\$ 11,708,431	\$ 37,435,129	\$ 59,390,371	\$ 2,879,012	\$ 4,795,451	\$ 8,499,860	\$ 35,320,066	\$ 57,155,716
Contingencies												
New Construction - Trackwork		10%	\$ 107,247	\$ 107,247	\$ 107,545	\$ 108,142	\$ 109,840	\$ 107,247	\$ 107,247	\$ 107,545	\$ 108,142	\$ 109,840
Rehabilitate Existing Track		10%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grading - New and Enhanced Roadbed		15%	\$ 86,074	\$ 320,950	\$ 762,366	\$ 2,640,317	\$ 3,334,598	\$ 86,074	\$ 320,950	\$ 762,366	\$ 2,640,317	\$ 3,334,598
Right-of-Way		20%	\$ 776,160	\$ 776,160	\$ 595,320	\$ 450,648	\$ 474,413	\$ 33,000	\$ 33,000	\$ 37,950	\$ 38,610	\$ 38,610
Public Improvements		15%	\$ 94,392	\$ 94,392	\$ 94,392	\$ 1,260	\$ 1,260	\$ 47,511	\$ 47,511	\$ 47,511	\$ 1,418	\$ 1,103
Train Control - Wayside		15%	\$ 35,552	\$ 35,552	\$ 35,552	\$ 35,988	\$ 35,988	\$ 35,552	\$ 35,552	\$ 35,552	\$ 35,988	\$ 35,988
Train Control - Special Items		15%	\$ 30,311	\$ 30,311	\$ 30,311	\$ 30,529	\$ 30,529	\$ 30,311	\$ 30,311	\$ 30,311	\$ 30,529	\$ 30,529
Highway Warning Devices		15%	\$ 24,566	\$ 24,566	\$ 24,566	\$ 16,577	\$ 12,283	\$ 8,189	\$ 8,189	\$ 8,189	\$ 8,189	\$ 4,094
Structures		20%	\$ 7,380	\$ 69,300	\$ 202,740	\$ 3,129,780	\$ 6,573,684	\$ 7,380	\$ 69,300	\$ 202,740	\$ 3,129,780	\$ 6,573,684
Drainage		15%	\$ 10,005	\$ 16,155	\$ 26,160	\$ 20,010	\$ 20,010	\$ 10,005	\$ 16,155	\$ 26,160	\$ 20,010	\$ 20,010
Other Costs		25%	\$ 76,850	\$ 76,850	\$ 38,425	\$ 38,425	\$ 38,425	\$ 38,425	\$ 38,425	\$ 38,425	\$ 38,425	\$ 38,425
Subtotal, All Contingencies			\$ 1,248,537	\$ 1,551,483	\$ 1,917,377	\$ 6,471,676	\$ 10,631,030	\$ 403,694	\$ 706,640	\$ 1,296,749	\$ 6,051,408	\$ 10,186,881
Total, All Investment Categories			\$ 8,400,000	\$ 10,600,000	\$ 13,600,000	\$ 43,900,000	\$ 70,000,000	\$ 3,300,000	\$ 5,500,000	\$ 9,800,000	\$ 41,400,000	\$ 67,300,000

Trackwork, New Construction	\$1,179,717	\$1,179,717	\$1,182,995	\$1,189,562	\$1,208,240	\$1,179,717	\$1,179,717	\$1,182,995	\$1,189,562	\$1,208,240
Trackwork, Rehabilitate Existing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Grading	\$659,901	\$2,460,617	\$5,844,806	\$20,242,430	\$25,565,251	\$659,901	\$2,460,617	\$5,844,806	\$20,242,430	\$25,565,251
Drainage	\$76,705	\$123,855	\$200,560	\$153,410	\$153,410	\$76,705	\$123,855	\$200,560	\$153,410	\$153,410
Structures	\$44,280	\$415,800	\$1,216,440	\$6,106,680	\$10,296,504	\$44,280	\$415,800	\$1,216,440	\$6,106,680	\$10,296,504
Tunnels	\$0	\$0	\$0	\$12,672,000	\$29,145,600	\$0	\$0	\$0	\$12,672,000	\$29,145,600
Train Control	\$504,950	\$504,950	\$504,950	\$509,964	\$509,964	\$504,950	\$504,950	\$504,950	\$509,964	\$509,964
Highway Warning Devices	\$188,339	\$188,339	\$188,339	\$127,090	\$94,170	\$62,782	\$62,782	\$62,782	\$62,782	\$31,387
Public Improvements	\$723,672	\$723,672	\$723,672	\$9,660	\$9,660	\$364,251	\$364,251	\$364,251	\$10,871	\$8,456
Other Costs	\$384,250	\$384,250	\$192,125	\$192,125	\$192,125	\$192,125	\$192,125	\$192,125	\$192,125	\$192,125
Right-of-Way	\$4,656,960	\$4,656,960	\$3,571,920	\$2,703,888	\$2,846,478	\$198,000	\$198,000	\$227,700	\$231,660	\$231,660
Total Cost per Mile	\$8,418,774	\$10,638,160	\$13,625,807	\$43,906,809	\$70,021,402	\$3,282,711	\$5,502,097	\$9,796,609	\$41,371,485	\$67,342,598

Route	Avg MPH	Hour Run Time	Actual Miles	Rounded Miles	Rounded Feet	Upgrade Existing Branch Line Railroad				Build New on Old RoW					New Track on Existing Railroad Right of Way			
						Low Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Flat	Low - Rolling	Low - Rugged	Medium - Flat	Low - Heavily Rolling	Medium - Flat	Low - Flat	Low - Rolling	
Investment Categories																		
Lancaster Station to Red Rock Canyon	96	0.4699	43.23343	43.2339	228,279	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,389,358	\$ 33,382,622	\$ 77,475,493
Red Rock Canyon	90	0.4145	38.26646	38.2668	202,052	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Red Rock Canyon to Bishop	106	0.9866	104.42999	104.4309	551,407	\$ -	\$ -	\$ -	\$ -	\$ 39,753,829	\$ 52,320,039	\$ 101,090,056	\$ 74,887,622	\$ -	\$ -	\$ -	\$ -	\$ -
From Bishop to EOL	66	0.8556	51.97639	51.9770	274,445	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Route Totals	92	2.7266	237.906	237.909	1,256,183	\$ -	\$ -	\$ -	\$ -	\$ 39,753,829	\$ 52,320,039	\$ 101,090,056	\$ 74,887,622	\$ -	\$ 11,389,358	\$ 33,382,622	\$ 77,475,493	
By-pass Red Rock Canyon	52	1.0830	57.80542	57.8060	305,224	\$ -	\$ 78,204,924	\$ 30,305,704	\$ 29,729,393	\$ 91,848,705	\$ -	\$ 8,896,738	\$ 51,816,804	\$ -	\$ -	\$ -	\$ -	
Contingencies																		
Lancaster Station to Red Rock Canyon	96	0.4699	43.23343	43.2339	228,279	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,980,817	\$ 4,688,072	\$ 11,379,582	
Red Rock Canyon	90	0.4145	38.26646	38.2668	202,052	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Red Rock Canyon to Bishop	106	0.9866	104.42999	104.4309	551,407	\$ -	\$ -	\$ -	\$ -	\$ 6,959,544	\$ 7,606,013	\$ 14,932,959	\$ 11,709,073	\$ -	\$ -	\$ -	\$ -	
From Bishop to EOL	66	0.8556	51.97639	51.9770	274,445	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Route Totals	92	2.7266	237.906	237.909	1,256,183	\$ -	\$ -	\$ -	\$ -	\$ 6,959,544	\$ 7,606,013	\$ 14,932,959	\$ 11,709,073	\$ -	\$ 1,980,817	\$ 4,688,072	\$ 11,379,582	
By-pass Red Rock Canyon	52	1.0830	57.80542	57.8060	305,224	\$ -	\$ 11,249,329	\$ 4,689,500	\$ 4,941,846	\$ 16,079,586	\$ -	\$ 1,314,221	\$ 8,101,830	\$ -	\$ -	\$ -	\$ -	
Investment Categories including Contingencies																		
Lancaster Station to Red Rock Canyon	96	0.4699	43.23343	43.2339	228,279	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,370,175	\$ 38,070,694	\$ 88,855,075	
Red Rock Canyon	90	0.4145	38.26646	38.2668	202,052	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Red Rock Canyon to Bishop	106	0.9866	104.42999	104.4309	551,407	\$ -	\$ -	\$ -	\$ -	\$ 46,713,373	\$ 59,926,052	\$ 116,023,015	\$ 86,596,695	\$ -	\$ -	\$ -	\$ -	
From Bishop to EOL	66	0.8556	51.97639	51.9770	274,445	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Route Totals	92	2.7266	237.906	237.909	1,256,183	\$ -	\$ -	\$ -	\$ -	\$ 46,713,373	\$ 59,926,052	\$ 116,023,015	\$ 86,596,695	\$ -	\$ 13,370,175	\$ 38,070,694	\$ 88,855,075	
By-pass Red Rock Canyon	52	1.0830	57.80542	57.8060	305,224	\$ -	\$ 89,454,253	\$ 34,995,204	\$ 34,671,239	\$ 107,928,291	\$ -	\$ 10,210,959	\$ 59,918,634	\$ -	\$ -	\$ -	\$ -	

Route	Build Completely New Rail Line										Total Dollars
	Medium - Flat	Medium - Rolling	Medium - Heavily Rolling	Medium - Rugged	Medium - Very Rugged	Low - Flat	Low - Rolling	Low - Heavily Rolling	Low - Rugged	Low - Very Rugged	
Investment Categories											
Lancaster Station to Red Rock Canyon	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 32,390,522	\$ -	\$ -	\$ -	\$ -	\$ 154,637,995
Red Rock Canyon	\$ -	\$ 56,290,899	\$ -	\$ -	\$ -	\$ 8,699,742	\$ 71,226,977	\$ 41,293,543	\$ 174,847,707	\$ 250,868,127	\$ 603,226,995
Red Rock Canyon to Bishop	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 42,949,626	\$ 81,171,180	\$ 54,750,045	\$ -	\$ -	\$ 446,922,397
From Bishop to EOL	\$ -	\$ -	\$ 95,277,356	\$ 121,040,251	\$ 132,818,466	\$ -	\$ 95,690,135	\$ -	\$ 287,323,388	\$ 587,664,676	\$ 1,319,814,272
Route Totals	\$ -	\$ 56,290,899	\$ 95,277,356	\$ 121,040,251	\$ 132,818,466	\$ 84,039,890	\$ 248,088,292	\$ 96,043,588	\$ 462,171,095	\$ 838,532,803	\$ 2,524,601,659
By-pass Red Rock Canyon	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 290,802,268
Contingencies											
Lancaster Station to Red Rock Canyon	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,541,787	\$ -	\$ -	\$ -	\$ -	\$ 22,590,258
Red Rock Canyon	\$ -	\$ 9,611,261	\$ -	\$ -	\$ -	\$ 1,219,875	\$ 10,495,745	\$ 6,299,793	\$ 29,956,762	\$ 44,712,304	\$ 102,295,740
Red Rock Canyon to Bishop	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,022,380	\$ 11,961,087	\$ 8,352,734	\$ -	\$ -	\$ 67,543,790
From Bishop to EOL	\$ -	\$ -	\$ 15,602,655	\$ 20,925,086	\$ 23,774,849	\$ -	\$ 14,100,546	\$ -	\$ 49,227,287	\$ 104,739,658	\$ 228,370,081
Route Totals	\$ -	\$ 9,611,261	\$ 15,602,655	\$ 20,925,086	\$ 23,774,849	\$ 11,784,042	\$ 36,557,378	\$ 14,652,527	\$ 79,184,049	\$ 149,451,962	\$ 420,799,869
By-pass Red Rock Canyon	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 46,376,312
Investment Categories including Contingencies											
Lancaster Station to Red Rock Canyon	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 36,932,309	\$ -	\$ -	\$ -	\$ -	\$ 177,228,253
Red Rock Canyon	\$ -	\$ 65,902,160	\$ -	\$ -	\$ -	\$ 9,919,617	\$ 81,722,722	\$ 47,593,336	\$ 204,804,469	\$ 295,580,431	\$ 705,522,735
Red Rock Canyon to Bishop	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 48,972,006	\$ 93,132,267	\$ 63,102,779	\$ -	\$ -	\$ 514,466,187
From Bishop to EOL	\$ -	\$ -	\$ 110,880,011	\$ 141,965,337	\$ 156,593,315	\$ -	\$ 109,790,681	\$ -	\$ 336,550,675	\$ 692,404,334	\$ 1,548,184,353
Route Totals	\$ -	\$ 65,902,160	\$ 110,880,011	\$ 141,965,337	\$ 156,593,315	\$ 95,823,932	\$ 284,645,670	\$ 110,696,115	\$ 541,355,144	\$ 987,984,765	\$ 2,945,401,528
By-pass Red Rock Canyon	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 337,178,580

Category of Design and Construction	Engineering	Lancaster to Cantil	Red Rock Cut-off, Cantil to Inyokern	Inyokern to Bishop	Bishop to Mammoth	Total	Cost per mile of category	Tumbler Ridge Costs per Mile
Trackwork, New Construction	5.0%	\$ 51,004,662	\$ 45,334,586	\$ 123,265,376	\$ 61,815,240	\$ 281,419,864	\$ 1,182,933	\$ 995,444
Trackwork, Rehabilitate Existing	2.5%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Grading	7.5%	\$ 47,880,312	\$ 294,598,653	\$ 160,125,548	\$ 646,812,223	\$ 1,149,416,736	\$ 4,831,512	\$ 2,452,009
Drainage	7.5%	\$ 4,215,406	\$ 5,245,810	\$ 12,560,720	\$ 7,767,911	\$ 29,789,847	\$ 125,220	
Structures	10.0%	\$ 8,998,853	\$ 90,219,010	\$ 41,543,163	\$ 216,511,159	\$ 357,272,185	\$ 1,501,775	\$ 445,518
Tunnels	10.0%	\$ -	\$ 190,657,200	\$ -	\$ 508,907,520	\$ 699,564,720	\$ 2,940,583	\$ 3,585,622
Train Control	10.0%	\$ 21,831,327	\$ 19,369,952	\$ 52,733,481	\$ 26,366,151	\$ 120,300,911	\$ 505,678	
Highway Warning Devices	8.0%	\$ 2,912,077	\$ 3,042,530	\$ 7,279,746	\$ 4,240,359	\$ 17,474,713	\$ 73,454	
Public Improvments	7.5%	\$ 16,195,305	\$ 12,854,501	\$ 39,750,057	\$ 13,385,495	\$ 82,185,359	\$ 345,462	
Other Costs	7.5%	\$ 8,608,983	\$ 8,542,321	\$ 30,269,658	\$ 9,986,315	\$ 57,407,277	\$ 241,308	\$ 119,728
Right-of-Way	7.5%	\$ 15,581,636	\$ 35,658,358	\$ 46,938,941	\$ 52,392,198	\$ 150,571,132	\$ 632,918	
		\$ -	\$ -	\$ -	\$ -	\$ -		
Total Cost with Contingency		\$ 177,228,561	\$ 705,522,922	\$ 514,466,689	\$ 1,548,184,572	\$ 2,945,402,743	\$ 12,380,844	
Engineering	Comp.	\$ 12,569,374	\$ 59,058,819	\$ 37,314,302	\$ 133,045,056	\$ 241,987,551	\$ 1,017,182	\$ 680,076
Construction Management	5.0%	\$ 8,861,428	\$ 35,276,146	\$ 25,723,334	\$ 77,409,229	\$ 147,270,137	\$ 619,042	
Total Cost of Project		\$ 198,700,000	\$ 799,900,000	\$ 577,500,000	\$ 1,758,600,000	\$ 3,334,700,000		
Distance	Miles	43.2	38.3	104.4	52.0	237.9		
Cost per Mile		\$ 4,600,000	\$ 20,900,000	\$ 5,500,000	\$ 33,800,000	\$ 14,000,000		
					\$31,500,000	Rogers Pass on CP		
			Via UP Searles Branch					
Trackwork, New Construction	5.0%		\$ 38,250,387			\$ 274,335,666	\$ 1,065,773	
Trackwork, Rehabilitate Existing	2.5%		\$ 21,499,326			\$ 21,499,326	\$ 83,523	
Grading	7.5%		\$ 86,418,367			\$ 941,236,449	\$ 3,656,630	
Drainage	7.5%		\$ 7,741,153			\$ 32,285,190	\$ 125,425	
Structures	10.0%		\$ 45,896,709			\$ 312,949,884	\$ 1,215,786	
Tunnels	10.0%		\$ 5,517,000			\$ 514,424,520	\$ 1,998,499	
Train Control	10.0%		\$ 29,201,558			\$ 130,132,517	\$ 505,555	
Highway Warning Devices	8.0%		\$ 5,227,279			\$ 19,659,462	\$ 76,375	
Public Improvments	7.5%		\$ 24,698,296			\$ 94,029,154	\$ 365,296	
Other Costs	7.5%		\$ 7,807,007			\$ 56,671,963	\$ 220,166	
Right-of-Way	7.5%		\$ 64,921,529			\$ 179,834,303	\$ 698,642	
			\$ -			\$ -		
Total Cost with Contingency			\$ 337,178,611			\$ 2,577,058,433	\$ 10,011,671	
Engineering	Comp.		\$ 24,880,506			\$ 207,809,238	\$ 807,323	
Construction Management	5.0%		\$ 16,858,931			\$ 128,852,922	\$ 500,584	
Total Cost of Project			\$ 378,918,048			\$ 2,913,720,593		
Distance	Miles		57.81			257.41		
Cost per Mile			\$ 6,555,061			\$ 11,319,578		