Concept of Operations and Action Plan

Final DRAFT

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REVISION HISTORY

Version	Date	Description	Description of Changes
DRAFT	May 10, 2004	Draft document prepared for the Rural Trip Planning Tool Steering Committee	NA
Final DRAFT	June 18, 2004	Final version of ConOps Draft	Inclusion of information from Literature Review
Revised Final DRAFT	September 14, 2004	Incorporated changes based on meetings with Pam Couch, August 26 & 31, 2004	Updated provider information, included a project overview and an action plan, including an equipment list

PREFACE

This is a living document that will be updated as necessary, dependent upon additional information gained, and decisions made as the project moves forward. This document will serve as the overall document for creating a coordinated transportation system within California, with an emphasis on rural areas/counties. In order to exploit coordination, technology will be used to the maximum extent possible.

The objectives of this document are as follows:

- Identify the vision of the overall project.
- Document the existing transportation system, including the need for change.
- Provide a conceptual overview of the desired system, including the advantages and limitations of the proposed technologies.
- Identify the next steps (action items) of the project.

ACRONYMS

The following acronyms are used in this document:

APTA	American Public Transportation Association
ATRI	Alliance for Transportation Research Institute
ADA	Americans with Disabilities Act
Caltrans	California Department of Transportation
ConOps	Concept of Operations
CSCC	Children Service Coordinating Committee
CREST	Carson Ridgecrest Eastern Sierra Transit
CRRAFT	Client Referral Ridership and Financial Tracking
DRI	Division of Research and Innovation (Caltrans)
DOT	Department Of Transportation
FTE	Full Time Equivalent
GIS	Geographic Information System
HQ	Headquarters
ITS	Intelligent Transportation Systems
KRT	Kern Regional Transit
LRB	Lassen Rural Bus
LAC	Los Angeles County
MCTC	Modoc County Transportation Commission
MTA	Metropolitan Transportation Authority
ND	North Dakota
ODOT	Oregon Department Of Transportation
PDA	Personal Digital Assistant
RTPT	Rural Trip Planning Tool
SCAG	Southern California Association of Governments
SQL	Structured Query Language
UCB	University of California at Berkeley
US	United States
WTI	Western Transportation Institute
WSDOT	Washington State Department Of Transportation

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1. PROJECT INTRODUCTION

This section provides an overview of the overall project and this document.

1.1. Project Purpose

The goal of the overall project is to identify and implement various technologies that will increase the effectiveness and efficiency of individual transportation providers in rural California counties, and increase the coordination between the various transportation providers. It is anticipated that one of the technologies to be implemented will be a Rural Trip Planning Tool (Rural TPT). The project will also likely include the establishment of a Mobility Management Center (MMC) that would provide a "one stop shop" for transportation information within the given region.

The initial phases of the project would focus on Inyo, Lassen, Modoc, Mono and Plumas counties in the eastern Sierras of California (Figure 1). Once the technologies (systems) have been evaluated in these counties, the systems could be expanded to benefit all rural counties in California, and possibly all counties within the state. The Western Transportation Institute - Montana State University (WTI) worked with the following organizations/individuals to create this initial document:

- Pam Couch, Modoc County Transportation Commission/Modoc Transportation Agency
- Eric Holm, Alliance for Transportation Research Institute (ATRI), University of New Mexico
- Doug Anderson, Metropolitan Transit Authority (MTA), Los Angeles, California

This initial timeline for this project is three years, and includes the following major milestones:

- Develop initial scope of work and identify beneficial technologies
- Obtain identified technologies and modify as necessary
- Test technologies
- Implement technologies
- Evaluate project (including technologies)

1.2. Document Overview

This document contains a description and analysis of the existing situation and proposed system. This information is organized into four chapters. Chapter 1 provides the introduction of this project. Chapter 2 describes the current situation related to coordination and the use of technology, and describes the justification for implementing changes to the current system. Chapter 3 describes the concept for the proposed system, including the benefits and limitations of the proposed system. Chapter 4 provides the conclusions and recommendations, including an action plan (next steps) for the next phases of this project. In addition, detailed information on the current transportation systems and specific technology systems, are included in the various appendices.

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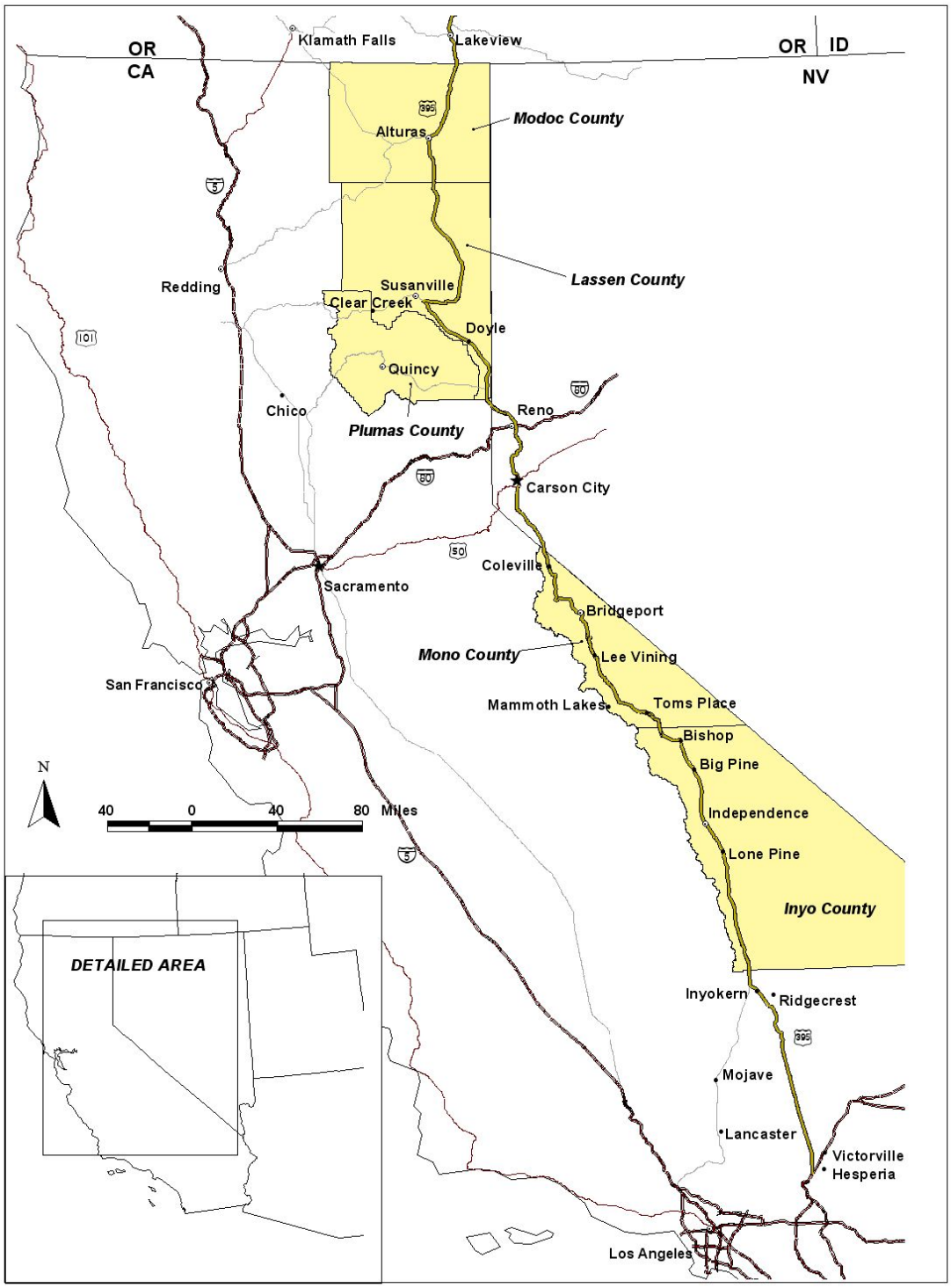


Figure 1: Initial Project Region

2. CURRENT SITUATION AND NEED FOR CHANGE

This section focuses on the current transportation situation in Inyo, Lassen, Modoc, Mono and Plumas counties, and the reasons to modify how the services are currently being provided.

2.1. Current Situation

As identified in the Tri-County Non-Emergency Medical Transportation (NEMT) study [1], the region identified in Figure 1 faces barriers that are common in rural areas. Great distances, low population densities, and limited funding lead to transit systems with limited coverage areas, shorter service hours and fewer days of operation. To receive specialized health care, people in these counties have to travel to Chico, Redding, Sacramento, or Truckee, California; Klamath Falls, Oregon; or Reno, Nevada.

To travel to these destinations, people with limited access to a car may use the public transportation systems, a Medi-Cal van, senior transportation programs, volunteer drivers, agency vehicles, gas vouchers, veteran services vans, for hire cars, private intercity shuttles, or taxis [1]. Depending upon an individual's origin and destination, transfers between one or more providers may be necessary to complete a particular trip.

Currently, there is no single source of information for the various transportation options within the five-county region. To get a general idea of how the current system works, suppose David, a college-educated, computer-literate potential rider, needed to use web-based information to schedule a trip from Alturas in Modoc County to Lone Pine in Inyo County. To determine how to make this trip, he could start with the Sage Stage web site [2]. The web site gives information about the current schedules and a map showing the routes and stops. The information from the website is shown in Figure 2, Figure 3, and Figure 4.

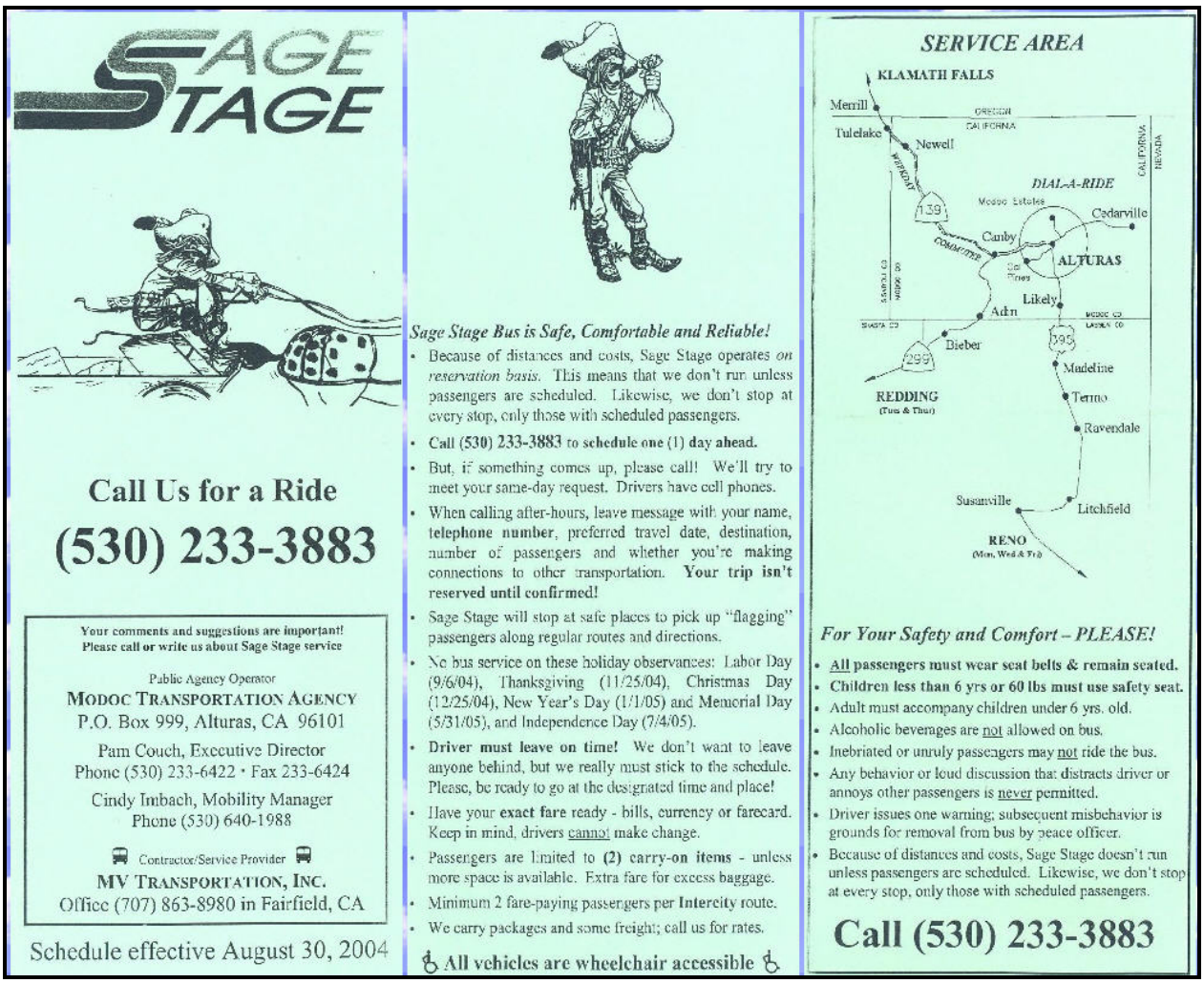
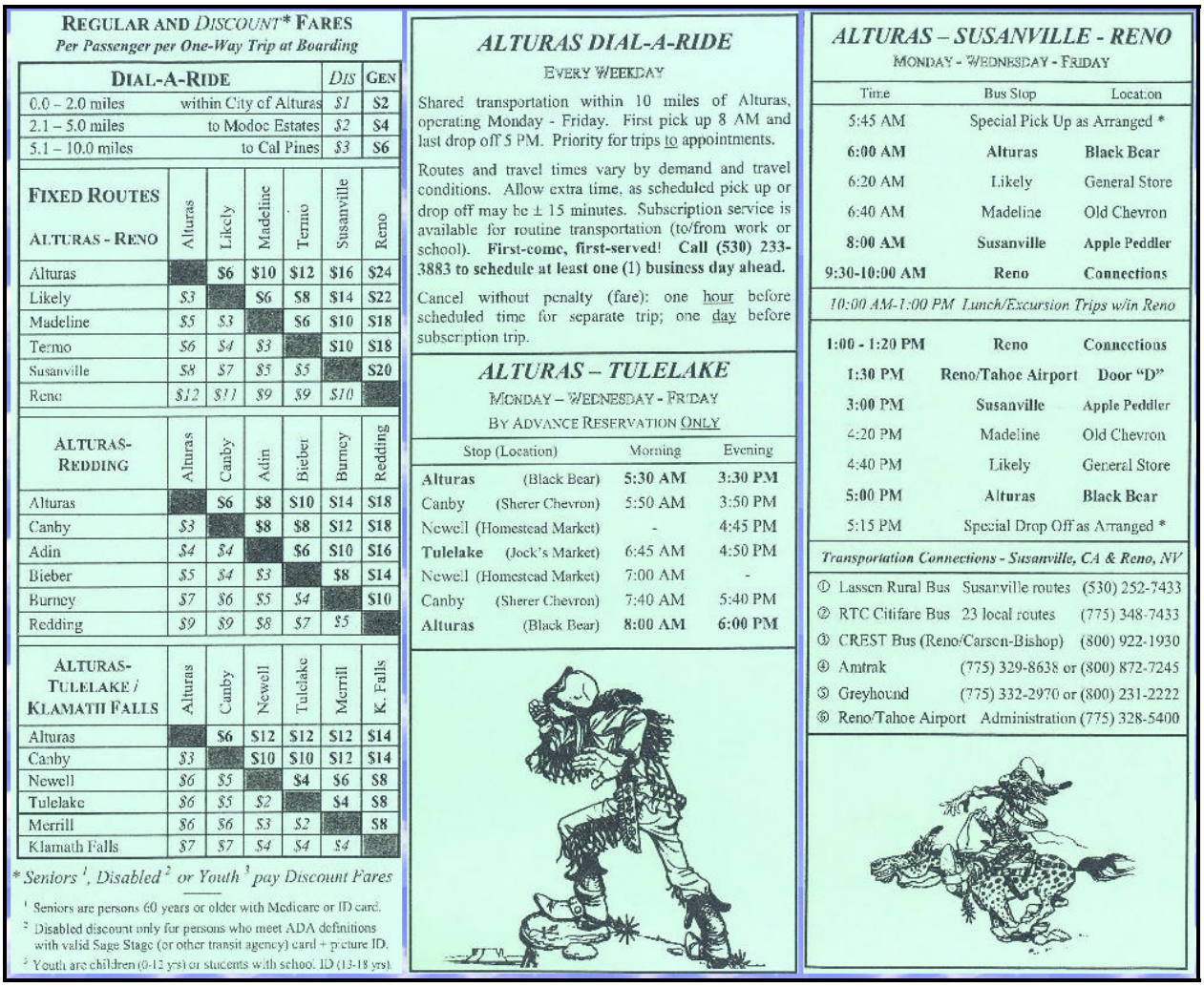


Figure 2 - Sage Stage Website Page 1

As David browses the web page, he notices the map that shows that service is available to Reno on Mondays, Wednesdays and Fridays. As David scrolls down to the second page on the website, Figure 3, he sees the schedule for the service from Alturas to Reno.



REGULAR AND *DISCOUNT FARES**
Per Passenger per One-Way Trip at Boarding

DIAL-A-RIDE		DIS	GEN
0.0 – 2.0 miles	within City of Alturas	$1	$2
2.1 – 5.0 miles	to Modoc Estates	$2	$4
5.1 – 10.0 miles	to Cal Pines	$3	$6

FIXED ROUTES ALTURAS - RENO	Alturas	Likely	Madeline	Termo	Susanville	Reno
Alturas		$6	$10	$12	$16	$24
Likely	$3		$6	$8	$14	$22
Madeline	$5	$3		$6	$10	$18
Termo	$6	$4	$3		$10	$18
Susanville	$8	$7	$5	$5		$20
Reno	$12	$11	$9	$9	$10	

ALTURAS-REDDING	Alturas	Canby	Adin	Bieber	Burney	Redding
Alturas		$6	$8	$10	$14	$18
Canby	$3		$8	$8	$12	$18
Adin	$4	$4		$6	$10	$16
Bieber	$5	$4	$3		$8	$14
Burney	$7	$6	$5	$4		$10
Redding	$9	$9	$8	$7	$5	

ALTURAS-TULELAKE / KLAMATH FALLS	Alturas	Canby	Newell	Tulelake	Merrill	K. Falls
Alturas		$6	$12	$12	$12	$14
Canby	$3		$10	$10	$12	$14
Newell	$6	$5		$4	$6	$8
Tulelake	$6	$5	$2		$4	$8
Merrill	$6	$6	$3	$2		$8
Klamath Falls	$7	$7	$4	$4	$4	

** Seniors [1], Disabled [2] or Youth [3] pay Discount Fares*

[1] Seniors are persons 60 years or older with Medicare or ID card.
[2] Disabled discount only for persons who meet ADA definitions with valid Sage Stage (or other transit agency) card + picture ID.
[3] Youth are children (0-12 yrs) or students with school ID (13-18 yrs).

ALTURAS DIAL-A-RIDE
EVERY WEEKDAY

Shared transportation within 10 miles of Alturas, operating Monday - Friday. First pick up 8 AM and last drop off 5 PM. Priority for trips to appointments.

Routes and travel times vary by demand and travel conditions. Allow extra time, as scheduled pick up or drop off may be ± 15 minutes. Subscription service is available for routine transportation (to/from work or school). **First-come, first-served! Call (530) 233-3883 to schedule at least one (1) business day ahead.**

Cancel without penalty (fare): one hour before scheduled time for separate trip; one day before subscription trip.

ALTURAS – TULELAKE
MONDAY – WEDNESDAY - FRIDAY
BY ADVANCE RESERVATION ONLY

Stop (Location)		Morning	Evening
Alturas	(Black Bear)	**5:30 AM**	**3:30 PM**
Canby	(Sherer Chevron)	5:50 AM	3:50 PM
Newell	(Homestead Market)	-	4:45 PM
Tulelake	(Jock's Market)	6:45 AM	4:50 PM
Newell	(Homestead Market)	7:00 AM	-
Canby	(Sherer Chevron)	7:40 AM	5:40 PM
Alturas	(Black Bear)	**8:00 AM**	**6:00 PM**

ALTURAS – SUSANVILLE - RENO
MONDAY - WEDNESDAY - FRIDAY

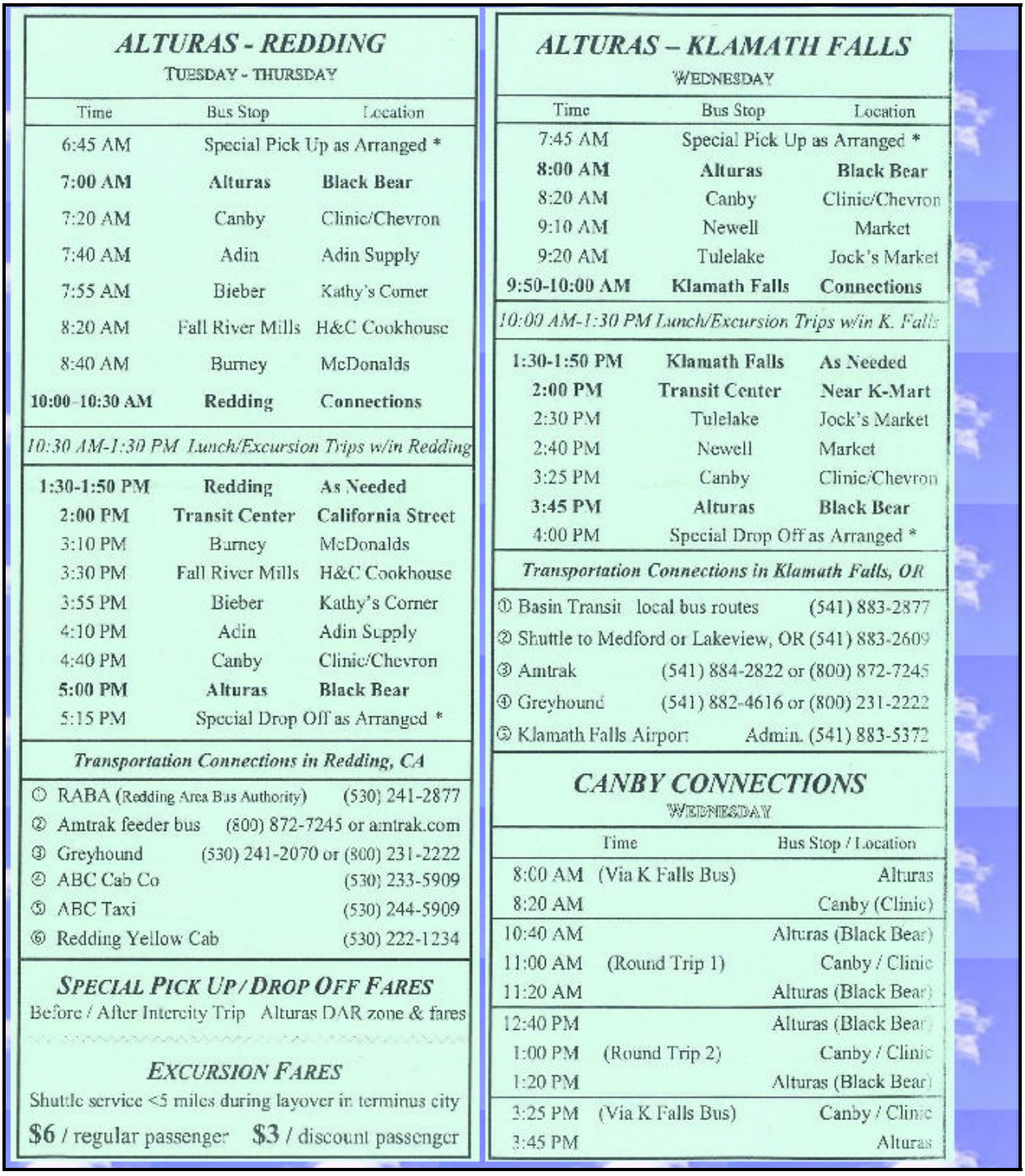
Time	Bus Stop	Location
5:45 AM	Special Pick Up as Arranged *	
6:00 AM	**Alturas**	**Black Bear**
6:20 AM	Likely	General Store
6:40 AM	Madeline	Old Chevron
8:00 AM	**Susanville**	**Apple Peddler**
9:30-10:00 AM	**Reno**	**Connections**
10:00 AM-1:00 PM	*Lunch/Excursion Trips w/in Reno*	
1:00 - 1:20 PM	**Reno**	**Connections**
1:30 PM	**Reno/Tahoe Airport**	**Door "D"**
3:00 PM	**Susanville**	**Apple Peddler**
4:20 PM	Madeline	Old Chevron
4:40 PM	Likely	General Store
5:00 PM	**Alturas**	**Black Bear**
5:15 PM	Special Drop Off as Arranged *	

Transportation Connections - Susanville, CA & Reno, NV

① Lassen Rural Bus	Susanville routes	(530) 252-7433
② RTC Citifare Bus	23 local routes	(775) 348-7433
③ CREST Bus (Reno/Carson-Bishop)		(800) 922-1930
④ Amtrak		(775) 329-8638 or (800) 872-7245
⑤ Greyhound		(775) 332-2970 or (800) 231-2222
⑥ Reno/Tahoe Airport	Administration	(775) 328-5400

Figure 3 - Sage Stage Website Page 2

David sees the schedule for service between Alturas and Reno, notes the times of service, and the cost ($24). David sees the "Transportation Connections" that show the CREST Bus service to Bishop, but is still unsure of how to get from Reno to Lone Pine. David could call the 800 number to get further information, or look on the Internet for further information.



ALTURAS - REDDING

TUESDAY - THURSDAY

Time	Bus Stop	Location
6:45 AM	Special Pick Up as Arranged *	
7:00 AM	**Alturas**	**Black Bear**
7:20 AM	Canby	Clinic/Chevron
7:40 AM	Adin	Adin Supply
7:55 AM	Bieber	Kathy's Corner
8:20 AM	Fall River Mills	H&C Cookhouse
8:40 AM	Burney	McDonalds
10:00-10:30 AM	**Redding**	**Connections**
10:30 AM-1:30 PM Lunch/Excursion Trips w/in Redding		
1:30-1:50 PM	**Redding**	**As Needed**
2:00 PM	**Transit Center**	**California Street**
3:10 PM	Burney	McDonalds
3:30 PM	Fall River Mills	H&C Cookhouse
3:55 PM	Bieber	Kathy's Corner
4:10 PM	Adin	Adin Supply
4:40 PM	Canby	Clinic/Chevron
5:00 PM	**Alturas**	**Black Bear**
5:15 PM	Special Drop Off as Arranged *	

Transportation Connections in Redding, CA

①	RABA (Redding Area Bus Authority)	(530) 241-2877
②	Amtrak feeder bus	(800) 872-7245 or amtrak.com
③	Greyhound	(530) 241-2070 or (800) 231-2222
④	ABC Cab Co	(530) 233-5909
⑤	ABC Taxi	(530) 244-5909
⑥	Redding Yellow Cab	(530) 222-1234

SPECIAL PICK UP / DROP OFF FARES

Before / After Intercity Trip Alturas DAR zone & fares

EXCURSION FARES

Shuttle service <5 miles during layover in terminus city

$6 / regular passenger **$3** / discount passenger

ALTURAS – KLAMATH FALLS

WEDNESDAY

Time	Bus Stop	Location
7:45 AM	Special Pick Up as Arranged *	
8:00 AM	**Alturas**	**Black Bear**
8:20 AM	Canby	Clinic/Chevron
9:10 AM	Newell	Market
9:20 AM	Tulelake	Jock's Market
9:50-10:00 AM	**Klamath Falls**	**Connections**
10:00 AM-1:30 PM Lunch/Excursion Trips w/in K. Falls		
1:30-1:50 PM	**Klamath Falls**	**As Needed**
2:00 PM	**Transit Center**	**Near K-Mart**
2:30 PM	Tulelake	Jock's Market
2:40 PM	Newell	Market
3:25 PM	Canby	Clinic/Chevron
3:45 PM	**Alturas**	**Black Bear**
4:00 PM	Special Drop Off as Arranged *	

Transportation Connections in Klamath Falls, OR

①	Basin Transit local bus routes	(541) 883-2877
②	Shuttle to Medford or Lakeview, OR	(541) 883-2609
③	Amtrak	(541) 884-2822 or (800) 872-7245
④	Greyhound	(541) 882-4616 or (800) 231-2222
⑤	Klamath Falls Airport	Admin. (541) 883-5372

CANBY CONNECTIONS

WEDNESDAY

Time		Bus Stop / Location
8:00 AM	(Via K Falls Bus)	Alturas
8:20 AM		Canby (Clinic)
10:40 AM		Alturas (Black Bear)
11:00 AM	(Round Trip 1)	Canby / Clinic
11:20 AM		Alturas (Black Bear)
12:40 PM		Alturas (Black Bear)
1:00 PM	(Round Trip 2)	Canby / Clinic
1:20 PM		Alturas (Black Bear)
3:25 PM	(Via K Falls Bus)	Canby / Clinic
3:45 PM		Alturas

Figure 4: Sage State Website Page 3

Since David's destination is in Inyo County, David next searches to find out about bus services in Inyo County. David finds the Inyo Mono website [3] shown in Figure 5.

Figure 5: Inyo Mono Transit Homepage

David sees the link highlighting the new route from Reno to Bishop and clicks on that link. The link takes him to the schedule and fare information, shown in Figure 6 and Figure 7.

CREST
Carson Ridgecrest Eastern Sierra Transit

INYO MONO TRANSIT

FARES

Traveling NORTH
Between Bishop and Reno

From:	Adults	Discount
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	$ 8.00	$ 6.00

Traveling SOUTH
Between Mammoth and Ridgecrest

From:	Adults	Discount
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
Olancha	$ 7.00	$ 5.50
Coso Junction	$ 5.00	$ 4.00

Additional fare information available from the driver or by calling Monday through Friday
8:00 a.m. to 5:00 p.m. Reservations are strongly recommended.
To confirm your ride please call (760) 872-1901 the prior business day.

Prices and times are subject to change - Please call to Confirm.

Figure 6: Reno-Bishop Fares

Traveling NORTH
Between Bishop and Reno
Tuesdays-Thursday-Friday

Location	A.M. Departure Times	P.M. Return Times
Bishop 201 S. Warren terminal	7:00 am	5:30 pm
Tom's Place ** Storefront	7:30 am	5:00 pm
Crowley Lake ** Crowley Storefront	7:35 am	4:55 pm
Mammoth McDonalds	7:50 am	4:40 pm
June Lake** Fire House	8:15 am	4:15 pm
Lee Vining Caltrans Yard	8:25 am	4:05 pm
Mono City**	8:35 am	3:55 pm
Bridgeport Bridgeport General Store	8:55 am	3:35 pm
Walker Walker Sporting Goods	9:35 am	2:55 pm
Coleville ** Across from Post Office	9:45 am	2:45 pm
Topaz ** Trailer Park Entry	10:00 am	2:30 pm
Gardnerville **	10:35 am	2:15 pm
Carson City - Nugget Robinson St. & Hwy 395	10:45 am	1:45 pm
Reno Airport	11:45 am	11:45 am

** By request stops only

Traveling SOUTH
Between Mammoth and Ridgecrest
Monday-Wednesday-Friday

Location	A.M. Departure Times	P.M. Return Times
Mammoth Mc Donald's	8:05 am	4:50 pm
Crowley Crowley lake Store	8:20 am	4:35 pm
Tom's Place	8:25 am	4:30 pm
Bishop 201 S. Warren terminal	9:15 am	3:50 pm
Big Pine Texaco Bench	9:30 am	3:35 pm
Aberdeen** Storefront	9:45 am	3:20 pm
Independence Mair's Market	10:00 am	3:05 pm
Lone Pine Statham Hall	10:25 am	2:50 pm
Olancha** Ranch house restaurant	11:45 am	2:30 pm
Coso Junction** Rest stop	11:05 am	2:10 pm
Pearsonville** Texaco Parking Lot	11:20 am	1:55 pm
Ridgecrest City Hall 100 W. California Ave.	11:45 pm	1:30 pm

** By request stops only

Figure 7: Reno-Bishop Schedule

David reviews the information and sees that he would have a layover in Reno from about 10:00 am until 11:45 am. David sees that he would depart Reno at 11:45 am and arrive in Bishop at 5:30 pm.

David then goes back to the Inyo Mono Transit homepage to figure out how to get from Bishop to Lone Pine. After David sees the link for "Route Maps, Schedules and Fares" Figure 8, he clicks on the "Lone Pine to Bishop" link and sees the specific route and fare information (Figure 9).

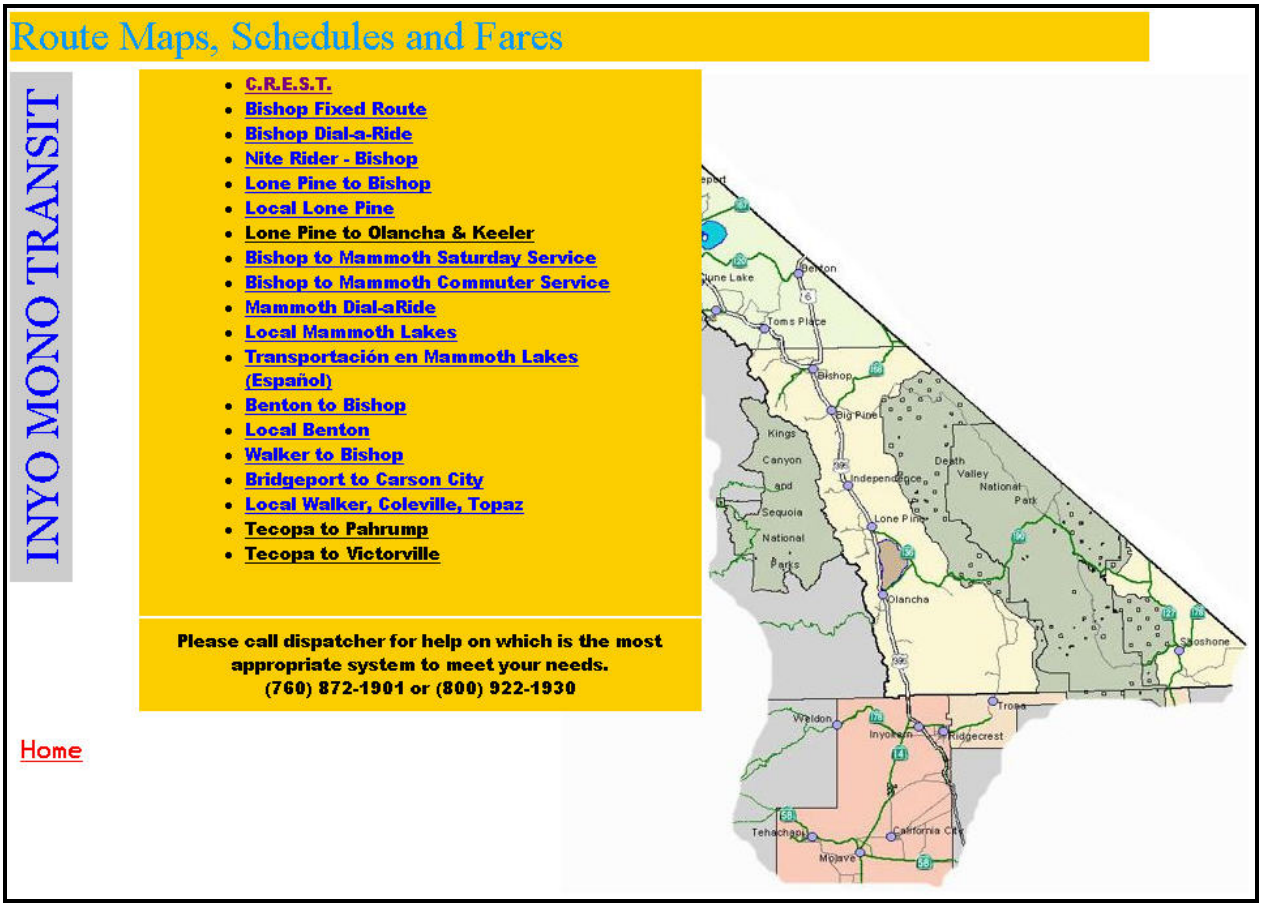


Figure 8: Inyo Mono Transit Route Map and Schedules

Lone Pine to Bishop

INYO MONO TRANSIT

INYO MONO TRANSIT
LONE PINE TO BISHOP

Monday thru Friday
Two Round Trips Daily

	MORNINGS		AFTERNOON	
	Arrive	**Depart**	**Arrive**	**Depart**
Lone Pine - Statham Hall		6:30 am		12:30 pm
Independence - Austin's Mkt.	6:45	6:45	12:47	12:47
Aberdeen - Store**	7:00	7:00	1:03	1:03
Big Pine - Carrol's Mkt.	7:20	7:20	1:22	1:22
Bishop - Kmart	7:40		1:45	
Bishop - Kmart		12:00 (noon)		5:30 pm
Big Pine - Texaco	12:15	12:15	5:45	5:45
Aberdeen - Store**	12:30	12:30	6:05	6:05
Independence - Mairs Mkt.	12:45	12:45	6:20	6:20
Lone Pine - Statham Hall	1:00		6:40	

** Must call day prior to request bus.

FIRST SATURDAY OF EVERY MONTH

Departs		**Departs**	
Lone Pine – Statham Hall	8:30 am	Bishop - Kmart	3:00 pm
ndependence – Austin's Mkt.	8:45	Big Pine - Texaco	3:15
Big Pine – Carroll's Mkt.	9:15	Independence - Mair Mkt.	3:45
Bishop – Kmart	9:30	Lone Pine - Statham Hall	4:00

Figure 9: Bishop to Lone Pine Schedule

David sees that he can leave Bishop at 5:30 pm and arrive in Lone Pine at 6:40 pm. David's trip itinerary is shown in Table 1:

Table 1: Alturas-Lone Pine Trip Itinerary

Action	Time	Service	Cost
Depart Alturas	6:00 am		
Arrive Reno	10:00 am	Sage Stage	$ 24.00
Depart Reno	11:45 am		
Arrive Bishop	5:30 pm	CREST	$ 28.00
Depart Bishop	5:30 pm		
Arrive Lone Pine	6:40 pm	Inyo Mono Transit	$ 4.00
Totals	12 hours 40 min.	3 providers	$ 56.00

For David, who has proficient computer skills and a decent understanding of bus schedules, it could take at least 30 minutes to put together this itinerary using the current system. A person who is unfamiliar with the Internet would likely take longer and may not be able to identify the trip at all. Of course, another option would be to call the various providers directly. When calling the providers, the individual would hope that the providers know of the possible transfers, and the other providers' services, so they could suggest possible routings to complete the trip.

The above scenario shows how difficult it currently is for an individual to plan a trip from one town to another. In addition, it is difficult for a single transportation operator to have detailed information about all the various transportation options within the region. This scenario shows how important it is to have a one stop shop, or a single source for transportation options within the region.

The scenario also shows how current information is critical to the concept of trip planning. As schedules change, new brochures must be produced, and webpages must be updated. Dispatchers must be educated of changes, and the new information must be shared with current and potential riders.

With the current system, a change with one transportation provider may have an impact on clients of other transportation providers. The current system makes it harder to maintain current information, and share any changes to schedules, routes, etc., with the public or other providers. With the current system, individual transit providers are responsible for maintaining their web sites, ensuring that all information about the transit system is current.

Further, individuals at the transit systems are typically available to answer questions during normal office hours (8:00AM – 5:00PM). Therefore, if someone wanted to plan a trip during the evening or weekends, they may have limited access to the information they need to plan the trip.

All of the issues concerning trip planning and transportation information noted in this section highlight the need for changes to the current system, which are discussed in detail in the next section.

2.2. Need for Change

The transit systems in Inyo, Modoc, Mono and Plumas counties have a website. Lassen County is currently developing a web site. The web sites' objective is to provide information and schedules about the individual service. They are somewhat limited in scope in that they usually provide information only about their own service. Information regarding possible connections with other transit services is typically not provided. These individual web sites may not have the most current information, and may not be constantly operational (on-line), and hence their effectiveness as individual information dissemination centers is limited. Potential travelers can, however, also get information about transit in their county through paper schedules or by calling the transit provider. There are limitations to these approaches, which have already been discussed.

Currently, if a customer needs to travel in the eastern Sierra corridor using public transportation, the customer is responsible for planning the trip. If the service is available through a single provider, the trip planning is fairly simple. The customer accesses the web site or paper schedule; reserves a seat with the transit agency, if required, then makes the trip.

However, as the earlier scenario showed, if the desired trip requires changing providers, the methodology is more complicated. The customer first identifies the counties he or she has to pass through. Then he/she contacts the individual county transit services including their origin, intermediate points and destination. The customer may need to explain the purpose of the trip to all service providers to obtain information about the routes, timings, restrictions, and transfers. Once the customer gathers all the information, the customer identifies the transit services he or she needs to use to reach the destination. The timings get calculated and if the customer comes up with a feasible trip plan, then the individual agencies are called and reservations are made if necessary. This process could be vastly improved (simplified) by implementing a single source of transportation information and a trip planning tool.

In addition to the usual lack of a single source of transportation information, rural transit operates differently than urban or suburban transit due to the characteristics of a rural environment. Rural transit systems' vehicles are often smaller. Demand responsive service or deviated routes are common. Often, rural service includes routes to urban centers, and frequency can be in terms of days as opposed to minutes in the urban environment. In addition, many urban transit providers have implemented various technologies to improve the efficiency of their operations, and increase the use of technology by their customers. Some of these technologies include:

- Automatic Vehicle Location (AVL) and Mobil Data Communications (MDC)
- Next Bus Signs
- Trip Planning Tools

However, there are limited deployments of such systems in rural environments. Technology can be used to improve the effectiveness and efficiency of individual transportation providers, and to enhance transportation coordination.

The benefits of coordinated transportation have been document in various sources, including the recent publication of *TCRP Report 91: Economic Benefits of Coordinating Human Service Transportation and Transit Services* [4]. In fact, the Ohio Department of Transportation noted that coordinating transportation services is "the best way to stretch scarce resources and improve mobility for everyone." Coordination efforts can be enhanced through the use of technology. As shown in Table 2, there are a host of technologies that can be utilized to enhance not only coordination, but the operations of individual public transportation providers.

Table 2: Transportation Provider's Needs vs. Technologies

NEEDS	APPLICATIONS														
	Accounting Software	Automatic Passenger Counters	Automatic Vehicle Location Systems (AVL)	Communications	Customized Spreadsheets and Databases	Demand-Responsive Transit Software - Automated	Demand-Responsive Transit Software – Computer Assisted	Electronic Payment Systems	Geographic Information Systems (GIS)	Internet website	Maintenance Software	Silent Alarm System	Mobil Data Communications / Terminal	Palmtop Electronic Manifest Device	Personnel Management Software
More Accurate, Easier Reporting and Record Keeping	X				X									X	X
More Efficient Service Coordination		X	X	X	X	X	X		X				X		
Safer, More Accurate Cash Handling					X								X	X	
Improved Operations, Staff Performance, and Productivity			X		X	X	X		X				X	X	
More Effective Maintenance Tracking					X						X		X		
Clearer Communication			X	X									X	X	
More Effective Dispatching			X	X	X	X	X				X			X	
Faster, More Efficient Trip Request Processing						X	X		X	X					
Improved Scheduling Productivity			X		X	X	X		X				X		
Improved Service Quality			X		X	X	X		X				X		
Greater Safety			X		X	X	X						X		
More Accessible, More Useful Customer Information			X		X	X	X		X	X					

Source: Technology In Rural Transit: Linking People With Their Community [5]

In short, the following factors point to the need for changing the way transportation information and services are provided in rural California:

- Currently there is no trip planning capability; the burden of obtaining information, planning the trip, and making necessary reservations or arrangements between the service providers rests on the shoulders of the customer.

- The dispatcher for an individual service provider has limited information about other service providers in the region.

- Each transit website in the region describes their service in a different way. This complicates a customer's attempt to understand service in multiple regions. Furthermore, some of the transportation services are eligibility oriented, and other services such as door to door paratransit systems need 24 hour advance reservations.

- Coordination between transit services is limited to informal communication via telephone between service providers.

- If information were more easily available, people may be encouraged to try public transportation services.
- Coordination is a proven tool to increase the effectiveness and efficiency of transportation (transit) providers.

This section (Section 2) highlighted how the current system operates, and the need for changes to the current system. The next section describes the proposed changes to the system.

3. NEW SYSTEM CONCEPT

This section of the report defines the features and characteristics of the proposed system that would implement a Mobility Management Center (MMC), or one stop shop; and how various technologies could be utilized to increase coordination and improve the efficiency of local rural transportation providers.

3.1. Overall Concept

To improve the coordination among providers, and allow individuals to more easily plan their own trip itineraries, a Mobility Management Center would be created along with implementing a Rural Trip Planning Tool (Rural TPT). In addition, the Client Referral, Ridership, and Financial Tracking (CRRAFT) software would be implemented, allowing all transportation providers in the region to easily manage their data and increase the efficiency of their operations. Figure 10 shows the basic components of the proposed system.

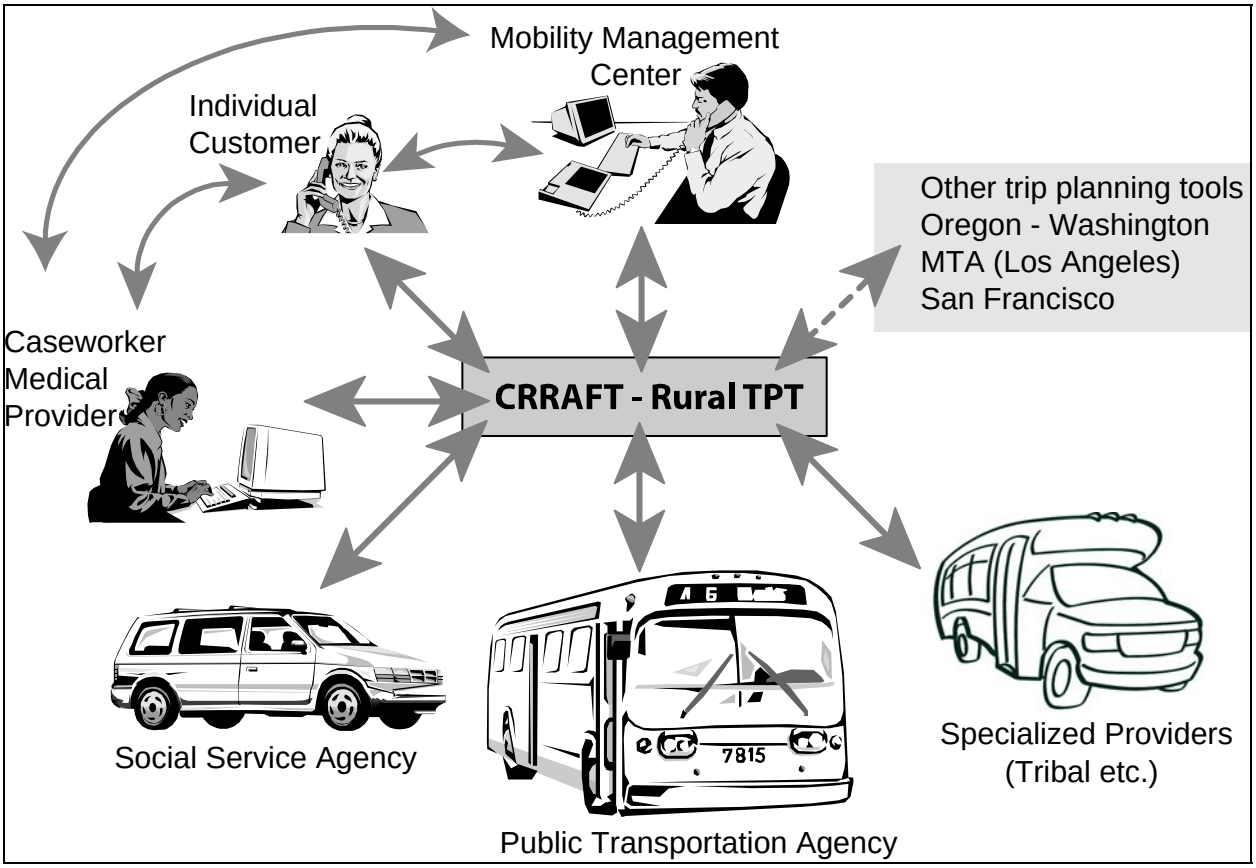


Figure 10: System Concept

The Mobility Management Center (MMC) is in reality a person who has access to the Rural TPT. If an individual in the region did not have access to the Internet, they could call the MMC, and the person at the MMC could complete a trip itinerary for that person. The person at the MMC would

also be able to view the schedules of all transportation providers that were participating in the process, and would be able to see opportunities for coordination.

The MMC would, through this process, become an "additional staff member" of participating providers. This is due to the fact that an individual could call the MMC for transportation information, instead of a particular provider. The person at the MMC would also have a better sense of how individual providers' schedules may be modified to enhance the opportunity for intercity travel within the region.

3.2. Technology Components

There are two technologies that have been initially identified as having the potential to meet the objectives of this project, they are:

- CRRAFT: Client Referral, Ridership, and Financial Tracking. This software system has been developed by the Alliance for Transportation Research Institute (ATRI) at the University of New Mexico. This software is currently being modified to an open architecture.

- Rural TPT: Rural Trip Planning Tool. This software would be created, and implemented to aid customers and agencies in planning public transportation trips. The initial focus of this tool would be on planning trips in rural areas of California, with the possibility for the system to be expanded to include all of California and other states, such as Oregon and Washington.

The envisioned Rural Trip Planning Tool would be a web-based application that would help the potential transit users to obtain information about able transportation options in Inyo, Lassen, Modoc, Mono and Plumas counties. The Rural TPT would contain information about all the transit providers in the region combined with their fixed route schedule, contact information, eligibility requirements, fares, and other relevant information. A traveler would use the system to indicate their origin and destination, and the Rural TPT would provide transportation options between the origin and destination.

Based on a low-level needs assessment, a rural trip planning tool should include the following key features:

- Include as many sources of transportation as possible, including fixed route, demand responsive, intercity bus (public and private), and taxis
- Easy to use and understand
- Easy for the transportation providers to maintain the data
- Speedy information retrieval via the web
- Low cost for implementation
- Low cost for ongoing support
- Desirable to re-use an application that has already been developed
- Configured to easily share data with other applications
- Designed to meet future, more advanced capabilities.

The Rural TPT may become a "module" of the CRRAFT software that was developed by ATRI at the University of New Mexico. Current discussions are aimed at determining the best way to develop and integrate the Rural TPT and CRRAFT. It is important to note that any technologies implemented would follow the architecture developed as part of the Rural COATS process [6]. Also, the technologies implemented would remain as open as possible, so that they may be modified to operate on a statewide basis, or communicate with other systems such as the planned Oregon-Washington Trip Planner (Trip Check Deluxe). Figure 11 shows the concept of the technologies to be implemented.

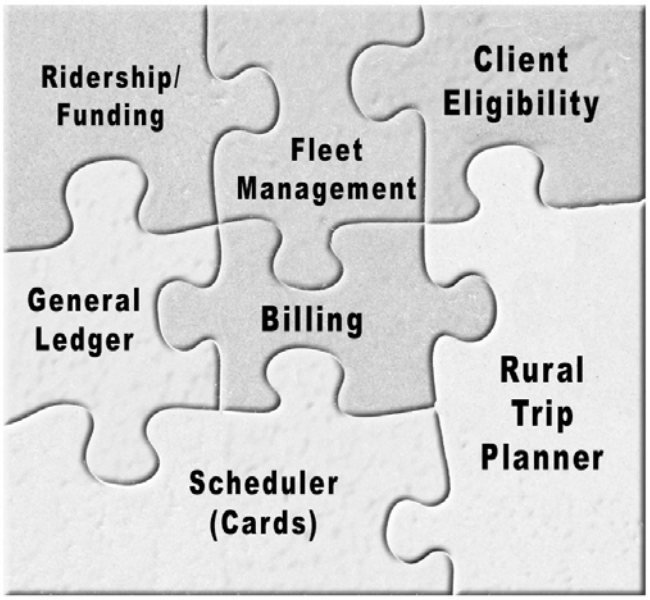


Figure 11: Technology Concept

As Figure 11 shows, a scheduling module may be added as well, to enhance the usefulness of the CRRAFT software. In addition, the accounting module of CRRAFT is being modified to include a full general ledger system compatible with current California regulations.

3.2.1. Rural Trip Planning Tool Specifics

The Western Transportation Institute (WTI) reviewed available tools to identify which would meet the needs of the rural eastern Sierra region. The results can be found in Appendix A. Based on this review, WTI recommended that the Rural TPT be based on the MTA TripMaster software developed in Los Angeles. This is based on the fact that MTA is willing to share the code with other agencies or companies at no cost.

The development philosophy for the TripMaster project was to keep the computer code as simple as possible in order to handle large transaction volumes and to limit the possibility of software bugs. MTA believes it may be the least complicated planner available. They are using only open source software tools and products that will run on any processing platform. The system is database centered and does not have a geographic information system engine. This keeps the code

simpler, but requires some ongoing upkeep of the map images that it uses. The system became active in July 2004.

Based on the fact that the CRRAFT software developed by ATRI at the University of New Mexico is currently being modified to operate on an open platform, it is anticipated that the MTA TripMaster software may be modified an integrated with CRRAFT, as previously discussed. This planned integration may be modified, however, based on further investigations of the various software.

The Rural Trip Planning Tool should provide an automated trip planning function, and be able to link to the Oregon-Washington system that is under development and would provide information on transportation options within those states. The Rural TPT home page would also link to the individual web pages of the transit providers in the region. Links would also be included for other relevant transportation web sites. A system overview is shown in Figure 12.

Figure 12: Schematic of the Rural Trip Planning Tool

Ideally, a traveler would enter their origin and destination into the Rural TPT by entering an address, an intersection, or a point of interest. The system would then provide a complete listing of all potential itineraries, along with attributes such as travel time and cost. The user would be able to sort this list according to any of the selected attributes. Then the user would select a potential itinerary to view the details. The user can return to the itinerary list to select an alternative. A comprehensive trip planning tool would provide:

- All options for traveling between selected origins and destinations
- The name of the service or services the customer has to use to reach from origin to destination.
- Number and name of transfer points. This will help the user know how many different providers may be involved in the trip.
- Details, such as bus number, route number, type of vehicle and accessibility options that will allow the user to identify any special needs or eligibility criteria for using the service.
- Time spent at various transfer points.
- The details of fares and modes of payment, so the passenger knows the full cost of the trip.
- Distance and expected duration of the trip. This information lets the user know how long he or she needs to spend on each vehicle for each leg of the journey.
- Alternatives with indication of travel time, distance, fare, waiting time, and number of transfer points.

3.3. Concept Priorities

During discussions about implementing the new concept, the following priorities were established:

Essential capabilities:

- One-stop shop
- Provide service information
- Use existing technology
- Highlight intercity service

Desirable features:

- Automated trip planner
- Individual transit web sites
- Efficient interoperability
- Input data once, use it many times
- Tool for maintaining data

Optional features:

- All forms of transportation
- Transportation schedules for regional destinations

Project team members had some suggestions for a more robust tool that needed to be set aside to keep the project focused. One change discussed the incorporation of eligibility options into the automated trip itinerary. While this is an important function, it requires significant data maintenance and may require significant time to implement. While in-town routes at the regional destinations were identified as useful component, this also was given a low priority because of the extra work involved.

The approach outlined in this document makes the following assumptions:

- Funding, although limited, is believed adequate to implement the system and technologies identified within this document.
- The Modoc County Transportation Commission will be able to host a server. Because local expertise may be limited, the server is assumed to be capable of remote system administration.
- Coordination with the Oregon-Washington project should allow an interface to occur between the various technology solutions.
- Individual transit agencies will commit to keeping their information current and complete utilizing the new technologies.

The new system will need to operate within the existing operational policies and constraints of the transit systems in five counties. It will remain the prerogative of the individual agencies to modify their schedules and services.

3.4. Summary of Impacts

This section highlights the impacts the proposed system would have on the various entities involved.

3.4.1. Customer/Client Impacts

The proposed system will have a significant impact on customers who can use the Internet. The Rural Trip Planning Tool (Rural TPT) would allow customers to quickly access information, not only for local trips, but would significantly reduce the amount of time to plan an intercity, or regional trip. The Rural TPT should allow for easy access to accurate and timely information. For those people without access to the Internet, the Mobility Management Center (MMC) would provide a single source for transportation options within the region.

If successful, the MMC and Rural TPT should result in increased ridership and more transfers between providers. Customer satisfaction should increase as customers have the ability to quickly determine trip routings and gain access to transportation information.

3.4.2. Organizational Impacts

For transit agencies, the MMC and Rural TPT should result in fewer calls to their dispatcher(s). With access to information readily available, more people will access transit system information on their own, and reduce the burden on dispatchers, allowing dispatchers to focus on efficiently scheduling trips.

In addition, the MMC should be able to assist organizations with coordination opportunities, and be able to suggest routing/schedule changes that would increase the opportunity for people to transfer between various providers.

With the introduction of the modified CRRAFT software, providers should be able to improve their data management, including the ability to spot trends in their ridership statistics.

The bulk of the impacts will fall upon the Modoc County Transportation Commission as the server host. This agency will likely be responsible for on-going system administration support, in addition to overall project management.

With the new technologies, transit agencies will have an increased responsibility for maintaining the accuracy of their schedules. However, if the technologies are structure as planned, individual transit agencies should need to commit minimal staff time to keep information current. There should be few, if any, negative impacts to the transit agencies that participate in the program.

3.4.3. Impacts during Development

Because the technologies planned are not currently in place with any of the providers, impacts during development should be minimal. Managers from the various transit agencies will need to participate in development process, and be ready to dedicate resources to implementing the various technologies. The benefits from the various components: CRRAFT, MMC and Rural TPT, should decrease the time staff dedicate to updating information, responding to customer inquiries, and may even reduce printing costs as fewer schedules may have to be printed for customers.

While this section focused on the impacts of the proposed system, the next section focuses on the advantages and disadvantages of the proposed system.

3.5. Analysis of the Proposed Concept

This section provides a summary of the advantages and disadvantages of the proposed concept, including implementation of a Rural Trip Planning Tool. A summary of other trip planning alternatives and their likely trade-offs is also discussed.

3.5.1. Summary of Advantages

The Rural TPT and MMC will provide travelers in the eastern Sierra corridor with a one-stop shop for trip planning purposes. The development and installation of such a system will aid the customer in planning inter-county trips using the available information. Additionally, the MMC

and Rural TPT should help agencies enhance their understanding of regional services and identify routes that can be coordinated more efficiently.

Utilizing the MTA TripMaster software, and maintaining an open system architecture, should create the following advantages:

- No cost to obtain the code. Funds would be spent purchasing a server and modifying the existing TripMaster code.
- Open source software, also eliminates the costs of licensing, renewal and support fees.
- The application can be customized to suit the operations of the eastern Sierra corridor. The application should also be able to be modified to meet the needs of rural California.
- Coordination should allow the Rural TPT to interface with the Oregon-Washington Trip Planner.

3.5.2. Summary of Disadvantages/Limitations

The identified solution also poses some possible disadvantages:

- The Los Angeles Trip Master system was designed for urban areas. Because of this, extensive modifications may be necessary.
- The Oregon-Washington system is at least one year away from implementation, and has been delayed in the past.
- The MTA system has no options for deviated routes and human service transportation.
- The MTA system involves Linux and MySQL, which are stable and robust, yet technicians proficient in system administration for these servers are more difficult to find.

3.5.3. Alternatives and Trade-offs Considered

In recommending the CRRAFT, MMC, Rural TPT system, there were several other alternatives that were considered:

- Do nothing – Maintaining the status quo does not recognize the benefits of the various technologies, and limits the opportunities for coordination. This also does not recognize the vital necessity of rural transportation.
- Database of information – This is a low-cost alternative, but has certain disadvantages. The main disadvantage is that a schedule change is a time consuming issue. Thus maintaining the credibility of the information is difficult. Also, this alternative does not create a MMC, or provide the transportation agencies with the CRRAFT software.
- North Dakota system – ND Info, as described in Appendix A, includes information on all modes of transportation. It appears to be an unsophisticated application, and doesn't

provide information on how to link between various providers. This alternative also does not create a MMC or provide the transportation agencies the CRRAFT software.

- Utilize the MTA or Oregon-Washington software as a stand alone system – Each of these individual systems has their own strengths and weaknesses. As mentioned before, the MTA is primarily an urban based system and the applications may not be as readily transferable. The Oregon-Washington system will not be operational for at least another year, and would cost a significant amount of money to obtain. Implementing either of these systems alone would not create the MMC, and would not introduce the CRRAFT software.

- Paper Based Origin-Destination Chart - This is another inexpensive alternative to the Rural Trip Planning Tool. This would integrate the schedules of all providers in the region. However, this would have to be updated any time a provider modified their schedule. Also, this alternative would not likely introduce the CRRAFT software, and may not create the MMC.

Technology has improved to a point where information that used to be presented in a paper format is now being presented electronically. An electronic based trip planning tool offers many advantages. This section discussed the various possibilities and highlights the fact that moving forward by modifying the MTA TripMaster is a logical course. It also makes sense to pursue integrating the CRRAFT software to the extent possible, and to coordinate with the Oregon-Washington Trip Planner as that application is developed.

While this section focused on the proposed system, the next section highlights the conclusions and recommendations based on the research conducted to date.

4. CONCLUSIONS AND RECOMMENDATIONS

The five counties of Inyo, Lassen, Modoc, Mono and Plumas counties contracted with the Western Transportation Institute (WTI) to develop a Concept of Operations and Action Plan, based on their desire to implement solutions that would improve transportation in their rural counties. After reviewing current technologies, and consulting with the group, it is proposed that implementing a solution that includes CRRAFT, a Mobility Management Center (MMC), and a Rural Trip Planning Tool, should assist in coordinating service between different transportation providers, increase the dissemination of timely and accurate information, and provide both transit agencies and their clients with a tool to enhance intercity and regional trip planning.

This document discusses the problems with the current methods of planning systems, the justification for a new system, and the concept for the new system. In the remainder of this section, the action steps that are needed to implement and evaluate the proposed system are outlined.

4.1. Action Plan/Next Steps

The information presented in this section is as timely as possible. However, as the systems (technologies) are implemented, it is vital that specifications be verified as requirements may have changed. It is also important to note that each of the software identified are currently operating, or are planned to operate, as stand along systems. Therefore integration of the software may take more time or effort than planned. In addition, the hardware requirements may need to be modified based on the integration of the various software.

In general, the action steps are as follows:

- Obtain the recommended software
- Acquire a server to host the software
- Make the necessary modifications to the software
- Test the software to determine if it is operational
- Implement and market the trip planning tool, MMC and CRRAFT
- Evaluate the various components of the project

Each of these items is discussed in more detail below.

4.1.1. Select Technologies (Hardware and Software)

- Acquire the software applications (code) for MTA TripMaster. Work with ATRI in New Mexico to acquire and modify the CRRAFT software. Coordinate with the Oregon-Washington group so that it is possible to link to their trip planning too.

- Acquire a server that will allow for hosting the selected software. WTI has identified the following specifications for a server:

  Configurable as per requirements:
  ProLiant ML350 G4 Hot Plug SCSI-Tower Array Model

  CPU: (Dual Processor)
  Intel Xeon™ Processor 3.20 GHz/800MHz FSB
  Intel Xeon™ Processor 3.20 GHz/800MHz FSB

  Memory: (Minimum)
  2GB Total PC2700 (1x2GB)

  Primary Operating System:
  SUSE Linux Enterprise Svr 8 2P (w/o media) 24x7 unlimited SW Phone support, per server 1 year (non-installed).

  Storage Controller:
  Integrated Dual Channel Ultra 320 SCSI Adapter or equivalent

  Additional Controllers & Adapters:
  HP Smart Array 6402/128 Controller (RAID) or equivalent with Advanced Data Guarding

  Drive Cage:
  6x1" Hot Pluggable Hard Drive Bays

  RAID (Redundant Arrays of Inexpensive Disks) Setting:
  RAID 1 drive set (requires minimum 2 hard drives).

  First Hard Drive:
  146.8GB Pluggable Ultra 320 SCSI 10,000 rpm Universal Hard Drive (1")

  Second Hard Drive:
  146.8GB Pluggable Ultra 320 SCSI 10,000 rpm Universal Hard Drive (1")

  Hot Plug Drive Cage:
  ML3xx hot plug SCSI drive cage (two bays)

  Hot Plug Drive Option:
  DAT 40 Hot Plug Tape Drive

  Hot Plug Cage Bay 1:
  146.8GB Pluggable Ultra320 SCSI 10,000 rpm Universal Hard Drive (1")

Floppy Disk Drive:
1.44MB Floppy Disk Drive

CD_ROM/DVD Drive:
DVD-ROM/CD-RW Drive Option Kit

Network Card (Default):
NC7761 PCI Gigabit NIC (embedded).

Additional Network Card:
HP NC7170 Dual Port PCI-X 1000T Gigabit Server Adapter or equivalent server adapter card

Display Adapter:
128 MB Video Ram NVIDIA GeForce AGP 4X Card with dual monitor support

Server Management:
SmartStart & Insight Manager

Warranty:
Warranty – 3 year next business day onsite

Service, Support and Upgrades:
24x7, 4-Hr Response On-site coverage, 3 years

Monitor:
17-inch TFT Flat panel display-analog/digital and multimedia

UPS (Uninterruptible Power Systems):
UPS R1500 XR (1440VA, 1340 Watt), Low Voltage-Rack

Additional Operating System:
Microsoft Windows 2000 Server Virtual License

Additional Peripheral Devices:
Standard Key Board and Mouse (minimum PS2)

Estimated Price $12,500

4.1.2. Software Modification and Testing

- Set up the host server and associated database. It is anticipated that the Modoc County Transportation Commission will be responsible for project oversight and technological support, once the various components are implemented.

- Modify the MTA TripMaster and CRRAFT software as necessary. This step requires the hiring of, or contracting for, the services of a software engineer/programmer. It is recommended that the programmer has knowledge of public transportation operations.

- Once the software has been modified, test the software using a select group of transportation providers and the general public. Ensure the software is functional and provides useful information to both groups.

- Select/assign a system administrator that will be responsible for maintaining the CRRAFT and Rural TPT software operational. This includes assigning new users, installing fixes and upgrades, and ensuring the transit agencies provide current and accurate data.

- Select and register a domain name for the Rural TPT website. Also, develop a marketing concept for the Mobility Management Center. In October 2004, the Community Transportation Association of America (CTAA) will develop a "branding strategy" for this effort. CTAA's recommendations should be implemented into this process. Current suggestions for the website include:

  www.nocaltransit.com
  www.easternsierratransit.com
  www.northerncaliforniatransit.com
  www.nocaltripplanner.com
  www.nocalplanyourtrip.com
  www.ruraltripplanner.com
  www.ruralcatripplanner.com
  www.ruralcalnection.com

- Once the system has been testing and is ready to be "unveiled", market the new system, via advertisements, links from participating transit providers' websites, and other sources.

4.1.3. Evaluation

The proposed system will be evaluated in two phases. The first evaluation will occur before the technologies are implemented on a full scale. The first step of the evaluation will include the following considerations:

- Does the Rural TPT provide logical routings?
- Are the proposed solutions (routings) the most efficient?
- Are solutions presented in a timely manner?
- Is the Rural TPT easy to access and use?
- Is the Rural TPT easy to maintain?
- Does the modified CRRAFT software meet the needs of rural transportation providers?
- Is the modified software free of bugs and ready for implementation?

The first step in the evaluation will answer the questions necessary to determine whether the various tools are ready to be implemented on a wide scale. It is anticipated that one year will be necessary for obtaining and making the necessary modifications to the various software.

Once the different software are judged to be operational, they will be implemented, and the second step of the evaluation will occur.

The second step of the evaluation will focus on how the MMC, CRRAFT and Rural TPT components affect the transportation agencies/providers, and the customers and clients of the transportation providers. The following considerations will be part of the second part of the evaluation:

- Is the Rural TPT easy for the customers of the various transportation agencies to use?
- Is there an increase in the number of hits per month on the website?
- Is there an increase in the transfers between providers?
- Is there an overall increase in ridership?
- Are transportation agencies spending less time updating information?
- Is ridership increasing with a corresponding decrease in call to dispatchers?

Evaluation tools to be used will include: surveys, interviews, and the collection of various data from the transportation providers, including: overall ridership, transfer rates, and the number of calls for information/dispatching.

Based on the evaluation of the various components of the system, modifications may be necessary. This project is an on-going process, where the various software may need to be modified to remain effective for both the customers of the various transportation providers, and for the transportation providers themselves. Most software is expected to have a "useful" life of three to five years, so it should be expected that CRRAFT and the Rural TPT will have to be upgraded to remain useful.

In summary, this project will take advantage of technologies that have been proven in urban transportation environments, but can be modified for rural areas. Individual agencies should gain efficiencies by utilizing the CRRAFT software. The Rural Trip Planning Tool will increase the ability for individuals to quickly plan a trip within the region. Finally, the Mobility Management Center will provide a one stop shop for transportation information, and increase the possibilities for coordination, which has been proven to increase the effectiveness and efficiency of transportation systems.

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Doug Anderson, Metropolitan Transportation Authority. April 21, 2004.

Robin Phillips, Washington State Department of Transportation, April 13, 2004.

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APPENDIX A: REVIEW OF AVAILABLE APPLICATIONS

The purpose of this appendix is to identify and evaluate computer applications that may serve as a Rural Trip Planning Tool in eastern California. The Western Transportation Institute - Montana State University (WTI) identified web-based solutions for maintaining and coordinating transit information and schedules across multiple rural transit operators and transportation providers. Applications were identified through a review of literature as well as discussions with national and state experts, developers, and personnel from agencies that are deploying similar tools.

The authors began the review of rural trip planning tools with a literature search and phone interviews with national experts. Sources of literature included the Transportation Research Information Services (TRIS), the Bureau of Transportation Statistic's National Transportation Library, the University of California Transportation Library, and the Transportation Research Board (TRB) Research in Progress (RIP) database. Furthermore the findings from the 2003 National Rural Intelligent Transportation Systems (NRITS) Conference were used. As is typical in the field of ITS, the written literature had minimum documentation about current applications. Therefore, national experts were contacted to identify relevant work. This search identified three projects to research further.

When potential applications were identified, the authors interviewed the developers and the lead agencies. Where available, project documentation was also reviewed. The data gathered from this process was supplemented by reviewing the developer's websites and deployed web applications that they had created.

WTI began the review at the beginning of April, with a draft document completed on April 29. Stakeholders provided feedback at a workshop in Sacramento on May 20, and their comments were incorporated into this document.

The information contained in this appendix should not be considered a comprehensive evaluation of all potential rural trip planning tools, but rather a survey of nationally recognized projects and applicable California projects. Constraints included a limited data collection time frame and limited availability of literature. Trip planning tools have been implemented extensively for urban systems, and thus information is readily available about the urban application; information about deployment in a rural environment is more limited. The literature that is available tends to be for projects that use funds from the Federal Transit Administration or Federal Highway Administration. These projects tend to be better documented in the transportation literature than efforts funded outside of these organizations.

Finally, the reader should recognize that some of the information presented in this document is based on potentially biased information provided by the developer or by the deploying agency. As of June 2004, none of the four projects identified are fully operational, so it was not possible to directly review the application in question. Before the final document is complete, the author will be able to review prototypes for two of the three. Information gathered from this review will be incorporated into the final document.

Background

The Rural Trip Planning Tool is one of many initiatives planned for improving access to transportation in northeastern California. Modoc, Lassen, and Plumas Counties are currently working on an assessment of non-emergency medical transportation. Chico State is conducting a study analyzing the "Graying of the North State". Finally, Modoc County is planning on implementing an application that will help schedule rides, share information with other providers, and develop reports for different funding agencies. All of these efforts are oriented towards better coordination and effectiveness of transportation options.

This appendix focuses on trip planning tools. For the purpose of this document, this is a web-based application that allows transit providers, social service agencies, or customers to identify transportation options and determine how to obtain a ride. Currently this function is being served to some extent through the web sites of the individual transportation providers. A simple, but more inclusive trip planner, would include a collection transportation options available in a particular region. A more complex application would include an automated itinerary planner, where the user enters the origin and destination and the system provides the routes with departure times. The tool can provide options including carpooling, bicycling, or private transportation options. In an urban area with hundreds of routes, the automated itinerary planner becomes a mathematical routing problem. Rural areas will require functionality that accommodates infrequent service or demand responsive service. For rural use, it also becomes more important for a trip planner to easily accommodate alternatives to fixed route services.

Another type of traveler information is expected arrival times. Either through a variable sign at a bus stop, through a phone system, or through the Internet, travelers can be presented with this information. If a bus is equipped with Automatic Vehicle Location (AVL), it is possible to track the actual time. This technology is more expensive and less advanced than the trip planning tool.

Management tools include both in-vehicle and office applications. For door-to-door services, computer-based scheduling and reporting tools are often used in both the urban and rural environment. The purpose is to streamline the functions that are often done on paper, including data analysis, scheduling of trips, and billing. There are a handful of commercially available applications that are designed for a single agency to scheduling paratransit. RouteMatch and Trapeze have a number of clients in relatively small areas. TransTrack is a new company, founded in 2002, that has a web-based application for managing information. However, for many rural providers, the cost of many of these commercial applications is too high at a cost of $40,000. Furthermore, the products tend to be focused on single-agency application.

Some of the rural transit applications featured in the transportation literature highlights programs that share information between providers. For example, the Northern Shenandoah Valley Public Mobility Program has worked with RouteMatch to implement a system where providers can view each other's schedules and share rides. The Alliance for Transportation Research Institute (ATRI) at University of New Mexico is developing a statewide system for Client Referral, Ridership, and Financial Tracking (CRAFFT). The program assists all of the funding sources to analyze ridership and cost data across multiple providers.

Finally, techniques are available to assist in payment methods coordination. The goal is to streamline and coordinate funding sources and payment functions to make it easier for the traveler to use multiple transportation providers. For example, smart cards can be used on multiple transportation providers.

Summary of Trip Planning Tools

A trip planner is only as accurate as the information it contains. Because of this, transportation providers need to plan for and assign data maintenance activities on an ongoing basis. For the statewide system, Oregon estimated that it would require 3.0 FTE during development and 1 FTE during deployment to manage the system and keep the portal information current. Robin Phillips estimated that if the Northeast California Rural Trip Planning Tool were hosted by another organization, the region should plan on 0.25 FTE for ongoing maintenance. If it was hosted in California, it may take 1.0 FTE for system administration as well as keeping the information current. The system is currently not operational and will take another year before it is running as a web-based application.

The remainder of this appendix summarizes the applications that were identified for possible use in California.

Oregon – Washington Regional Trip Planner

Oregon Department of Transportation (ODOT) and Washington State Department of Transportation (WSDOT) are currently developing a transit trip planner that will provide information about all providers in both states. As stated in the documented titled "Objectives of the System",

> "The long term goal is to develop a system that will allow anyone wishing to take a trip within the region to log on to an internet site, access a kiosk, or from their PDA and easily get information on multiple travel options, plan the trip itinerary, and reserve/pay for that trip. In the event that no public transit services are available or the user is interested in other available options, the system will be able to provide rideshare, carpool or shuttle/taxi choices."

ODOT and WSDOT have selected bd Systems, Spatial Division to develop this system. This company also has developed the Transit Trip Planner for MTC in the Bay Area. They are also under contract to document the transit trip planner that LACMTA is developing.

The application is being developed in stages, with the first stage being scheduled for deployment in late-Summer 2005. The first stage will be a web-based clearinghouse. As stated in the System Recommendations document, it will include:

- Interactive tools to locate appropriate service provider:
  - Map based interface to identify a list of transit service providers by clicking on a map of the state

        - Zone-to-zone intercity carrier identification based on the trip origin and destination (trip origins/destinations can be selected via a map or through a pick list of cities)
        - Map based interface to identify demand responsive/dial-a-ride service providers through a map of service area boundaries
    - List of all public/private transit service providers within the State of Oregon, organized by sub-regions, including:
        - Heavy rail
        - Long distance bus service
        - Local public fixed route service providers (IntraCity)
        - Private fixed route intercity providers
        - Demand responsive services
        - Special need brokerages
        - Shuttle/taxi services
        - Web-based rideshare or service planning services offered by partner agencies
    - Links to sites with useful content
    - Comprehensive transit data for each of the transit providers
        - Announcements/holiday schedules
        - General service area map and description
        - Contact information, service hours, etc.
        - Routes, schedules, stops, time points, fare structures, connection points
        - Maps of routes/patterns
        - Maps of stop locations
        - Ticket sale locations
    - Interactive GIS maps and tools
    - Service area boundaries for all transportation providers
    - Bike maps and trails
    - Key landmarks and activity locations.

The data set-up and collection for this web clearinghouse is essential for the ultimate vision to be reached. A listing of the objectives and functionality for the web clearinghouse is included in the Appendix B. ODOT has identified the use of automated tools for importing and maintaining the data as a lesson learned.

ODOT and WSDOT are currently pursuing funds to develop the second stage. The web site will allow the traveler to automatically generate a trip from their origin to their destination that may use multiple providers. In the future, possible additional functions include on-line reservations and real-time vehicle tracking.

Of all of the identified applications and programs, the Regional Trip Planner was the best documented and included the most thorough analysis, needs assessment, and design process. FTA has contributed funds to this effort in hopes of having the application re-used in other regions of the country without having to repeat the entire development process. The perspective of Robin Phillips of Washington State Department of Transportation was that "a system can either be implemented fast OR it can be long lasting." One negative impact of this approach has been the

length of time to deploy the system. Estimated deployment for the web portal is scheduled for summer 2005.

Initial cost

$75,000

Requires data entry from transportation providers

Ongoing operational cost

If hosted by ODOT, ¼ FTE for data maintenance

If hosted in California, 1 FTE for system administration and data maintenance

Perceived Advantages

- Needs of rural users considered in the development process
- Interoperable with other transit trip planners
- Can be deployed without local agency hosting the application
- Process followed for development should result in a quality product that follows national standards
- Develop once, deploy many times
- The system would include information for Oregon and Washington, and should be easily compatible with the Bay Area trip planner

Perceived disadvantages

- Completion of Release 1 is not scheduled until spring 2005.
- Automated trip planning function is not included in Release 1.
- Requires a quality geographic information system base map
- Because the application is designed for statewide use, it will likely have complexities and functions that are not useful for eastern California. Furthermore, the time required to make the system functional in urban areas, may prevent the developer from making sure it works in the rural environment.
- If hosted in California, the cost of servers, software packages, and tools may be inappropriate to serve only the identified region.

Trip Master (Metropolitan Transportation Authority)

Metropolitan Transportation Authority (MTA) is in the process of developing a web-based trip planner tool for 60 carriers in southern California. The current trip planner requires MTA to pay a fee when processing rides for other carriers. The ongoing costs and the age of the current application have led MTA to develop a new application, Trip Master. The agency is willing to share the code with other agencies or companies at no cost.

The development philosophy for this project is to keep the code simple in order to handle large transaction volumes and to limit the possibility of bugs. MTA believes it may be the least complicated planner available. They are using only open source software tools and products that will run on any processing platform. The system is database centered and does not have a geographic information system engine. This keeps the code simpler, but requires some ongoing upkeep on the map images that it uses. The system is active as of June 1, 2005. The application can be viewed at www.mta.net. This is the only trip planning tool that is currently operational. While it is being developed in house, MTA has a contract with bdSpatial to document the system and code.

To use the system, a traveler would enter their origin and destination by either entering an address, an intersection, or a point of interest. The system would then provide a complete listing of all potential itineraries, along with attributes, such as travel time and cost. The user would be able to sort this list according to any of the selected attributes. Then the user would select a potential itinerary to view the details. The user can return to the itinerary list to select an alternative. . The system can handle both fixed and deviated routes.

Doug Anderson of MTA estimated that it would cost around $50,000 to implement the system in another location without any modification to the code. Because of the simplicity of the system, Mr. Anderson assumed that it would be less costly to modify the system than other trip planners. While the code would be free, a consultant would need to be hired to implement the system.

Initial cost

Approximately $50,000 to implement as is. Modifications should cost less in this data-driven application, as compared to a procedurally driven application.

Ongoing operational cost

1/2 FTE for system administration and data maintenance

Perceived Advantages

- Simple architecture that theoretically should work in rural areas.
- Open architecture, open systems. LACMTA wants to share code with other interested parties; developers have tried to avoid proprietary products.
- Designed by experienced people by LACMTA
- Interoperable with other transit trip planners - can theoretically provide ride information to neighboring regions by importing their data
- Should be operational by July 1 with automated trip planning
- Develop once, deploy many times.
- The system is developed using robust platform, and hence stable and can handle large volumes of traffic.

- Since the source code is available for free (as the system is developed in the philosophy of Open Source) the trip planning tool can be highly customized for the needs to the North Eastern California counties.

Perceived disadvantages

- Needs of rural users were not directly consulted during the development process, although LACMTA product will serve rural portions of San Bernardino County
- A developer or expert programmer will need to be hired to deploy the system.
- Because the application is designed for use in a metropolitan area, it likely has complexities and functions that are not useful for eastern California. Furthermore, the time taken to make the system function well in urban areas may prevent the developer from focusing on use in the rural environment.
- The system needs to be hosted by one of the Northeastern California counties.
- It is unclear if the system would effectively handle transit routes that only run certain days of the week when a user looks for a trip on a different day.
- It may not identify a trip if it can only be made via demand responsive services.
- Alternatives to public transportation are limited, such as Greyhound, Amtrak, taxi service, charter buses, carpools, or voucher programs.
- Ongoing system administration and data maintenance may be more intensive than some of the other systems reviewed.

ND Info

In North Dakota, non-profit community service organizations, North Dakota DOT, and other state agencies have worked together to implement a statewide community services directory. This directory can be found at www.NDinfo.org. As of April 2004, they were in the process of upgrading the web site to include transportation information. The lead agency in this effort is the Region VII Children Service Coordinating Committee (CSCC). Cybersites LLC is developing the service. The transportation component should be available for public access in September or October 2004. The intent of the website is for NDinfo.org to be the portal for non-profit organizations in the state to get all of the information that they want. The rural nature of the state has pushed the developers and stakeholders to understand the nature of transportation options in rural areas, more so than most of the other products that were reviewed.

The system is hosted by CSCC on a desktop computer. It runs on MS SQL. Cybercites is currently providing technical system administration functions. An administrative assistant is assigned ¼ time to maintaining the data on the system. They are trying to design the system so CSCC or another agency does not need CyberSites or any other highly technical system administrator to maintain the system.

The developer classified this application as a trip planning tool. For scheduling, the user will enter their origin and destination. The system will provide the transportation options in the counties at the origin and destination, and the choices for intercity transportation. Because the transportation

options are very limited in the rural area, the system will include transportation options in multiple categories, including:

- Fixed route
- Demand responsive
- Airline
- Air charter
- Bus charter
- Emergency services
- Taxis
- Trains
- County private providers, such as churches
- Recreation transportation
- Limousines
- Freight & shipping
- Hotel shuttles
- Home delivery

The user will be able to search for options with a number of search functions, including search by name, type of service, city, destination outside of the state, key word, select by county or region, ADA accessibility, availability of bike racks, and payment options.

For trip planning, the user will enter the type of service(s) they are interested in considering and origin and destination city. Since intercity service is limited and often does not exist, the system will provide the user with three categories of information. First, the webpage will show services that exactly match the request. Second, the website will show providers in the city of origin. Lastly, the website will show providers in the destination area.

The philosophy of NDInfo is to link to information that is already there, as opposed to recreating information for this web site. All of the information for the different providers will be stored in a MS SQL database. The system will have links to the providers' websites and any route maps. For their application, the stakeholders felt that GIS and address matching capabilities were not an immediate need.

The application has a tool to conduct surveys; a special announcement section, and an online survey management system. It has capabilities to report how many hits any particular component of the web site received. It also has been designed to assist in grant writing, by providing tools for assessing the demographics for a certain region.

This application probably has a lower cost than some of the other reviewed applications. A budget of $35,000 may be adequate for customizing the application for deployment in five counties in eastern California.

Initial cost

Estimated $35,000 to modify for five counties in California

Ongoing operational cost

¼ FTE for data maintenance

Perceived Advantages

- Largest collection of different types of transportation options
- Designed for use in primarily rural regions
- Includes functionality for other human service needs
- Low initial and ongoing cost
- Develop once, deploy many times
- Should be operational in the fall

Perceived disadvantages

- The service sounds like it is a simple database application that will provide information that meets certain criteria. This will probably limit capabilities for quality automated trip planning algorithms and provide results that may be more difficult to use and understand than the approach outlined for the Oregon-Washington Regional Trip Planner.
- The developer is unfamiliar with ITS and the related standards
- Must be hosted by Caltrans or another northern California entity, although the required skill set would probably be less than the other two applications

Commercially available applications

Many vendors or consultants can probably develop an application that is appropriate for eastern California. There is a question about how interoperable a system provided by a vendor would be compared to a system that received FTA funding. Although the author has not collected much information on commercially available applications, some web pages have been reviewed without finding an ideal match.

Initial cost

Estimated $150,000?

Ongoing operational cost

1 FTE for data maintenance for data maintenance and project administration

Ongoing product maintenance and training fees to the vendor

Perceived advantages

- Can be designed or customized to meet the exact needs of the identified region
- May be possible for the vendor to host the application

Perceived disadvantages

- Most vendors are focused on designing for urban applications
- Typically less concern about interoperability issues

San Francisco Bay Area Take Transit Trip Planner

The San Francisco Bay Area has implemented the 511 TakeTransit(SM) Trip planner system. This is a web-based trip planning tool which is available at: http://transit.511.org/tripplanner/index.asp. Originally, the website www.TransitInfo.org was developed by two undergraduate students at UC Berkley. In November 2002, the developers handed over the site to Metropolitan Transportation Commission and its contractor bdSpatial. The software is named "511 TakeTransit(SM) Trip Planner." The system requires the customer to know the exact street address or pin point the location in a map. Also the map is sluggish on normal dial-up connections. The software that was developed by the Southern California Association of Governments (SCAG) for their telephone based TranStar transit information system is the basis for the San Francisco Bay Area's TransitInfo. There was a user interface development done for the TranStar software to bring it to the web so that trip planning can be done online.

San Diego Regional Advanced Traveler Information System (ATIS)

This project is aimed at building upon the Caltrans/California Highway Patrol Transportation Management Center, Phase 1 of the Intermodal Transportation Management Center (IMTMC), to develop a regional plan for how various agencies can use advanced technology to coordinate more effectively. This is part of the San Diego Association of Governments (SANDAG) ITS plan. The project has not yet become operational. The project is designed to meet the following goals:

- Inventory existing management systems at selected transportation agencies.
- Develop requirements baselines for modal operations: Traffic Management, Transit Management, Traveler Information Management, Incident Response Management, and commercial vehicle operations management.
- Develop requirements and a high level design for the integration of modal operations into a regional inter-modal transportation management network.
- Develop an inter-modal operational concept facilitating cooperative management of regional transportation operations.
- Establish a Memorandum of Agreement between the involved agencies and partners.
- Detailed design and deployment of Version 3 of the ATMS to include inter-modal applications.

Initial Cost

Information is not available.

Ongoing Operational Cost

Information is not available.

Perceived Advantages

- It may provide lessons learned for the eastern sierra corridor

Perceived Disadvantages

- Not yet operations
- Urban focused
- Focused more on transportation management

APPENDIX B: REGIONAL TRANSPORTATION SERVICES

Inyo Mono Transit

Inyo Mono Transit serves both counties. It covers a vast area of mostly rural, isolated and varied terrain in California. The service offers a variety of local and intercity services. They offer twice daily round trips from Bishop to Mammoth lakes and to Lone Pine; twice weekly round trips between Bishop - Walker, Bishop – Benton and Lone Pine – Olancha; and a once a week round trips between Bridgeport - Carson City. The other main inter city route is the CREST (Carson Ridgecrest Eastern Sierra Transit) route, which provides service between Ridgecrest and Reno. The Mammoth Lakes – Ridgecrest route operates on Monday, Wednesday and Friday whereas the Bishop – Reno route operates on Tuesdays and Thursdays. Of all the passengers using CREST, 69% are adults, 21% are seniors, 7% are disabled and 3% of riders are children. A demand responsive paratransit system that serves senior citizens and persons with disabilities also exists in the community and is also operated by the Inyo Mono Transit.

The services of Inyo Mono transit operated under the name of CREST are aimed at providing transportation services to people for life saving medical trips such as dialysis, cancer treatment, preventive medical appointments, dental and vision services, mental health and other specialized medical services. The service to Ridgecrest links passengers wanting to reach Los Angeles using public transportation. At Ridgecrest the passengers transfer to Kern Regional Transit services. The passengers transfer to the Ridgecrest – Mojave route. At Mojave they transfer to the East Kern Express route to reach the city of Lancaster. At Lancaster they transfer to the Los Angles service. Detailed information on the various transit options is available on the Internet [3].

Lassen Rural Bus

Lassen Rural Bus serves Susanville and Lassen County. Lassen Rural Bus has two commuter routes, one fixed route, Dial-A-Ride service and charter service. The West County commuter route carries passengers between Susanville and Hamilton. The South County commuter route shuttles between Susanville and Doyle. The south route is used by people who want to transfer to Sage Stage at Doyle to go to Reno. The Susanville city fixed route is a one hour loop route covering in-town schools, governmental, residential and commercial areas within the city limits. The Dial-A-Ride system provides door-to-door transportation for senior citizens (60 +) or people with disabilities (7:00 AM to 6:00 PM, Monday through Friday), where an advanced 24 hour reservation is necessary.

The West County commuter route's last stop is at Hamilton Branch, which is the transfer point for Plumas County transit service. The West County commuter route is operated twice a day, once in the morning and the second time in the afternoon. The South County commuter route operates also twice a day, early morning and afternoon. The south route utilizes Standish as a transfer point for Sage Stage transit service. Passengers on the commuter routes have the option of flagging down the bus at any safe location.

The Susanville city fixed route has 11 loops starting from 7:10 AM till 6:10 PM. The bus can be flagged down for a ride anywhere along the route. The fares are different for general public and senior citizens. All the buses of Lassen County are handicap accessible. The Dial-A-Ride service can be used by seniors and disabled people for any transportation needs. The passenger has to be

registered with the Lassen Rural Bus office before starting to use the system. Unlike other routes and vehicles, the Dial-A-ride vehicles cannot be flagged down for a ride at any place. Detailed information is available from Lassen Rural Bus [7].

Sage Stage

Sage Stage serves Modoc County. Within ten miles of the county seat of Alturas, Sage Stage has demand responsive (dial-a-ride) service Monday through Friday, 8:00AM – 5:00PM except at lunchtime. Sage Stage serves Redding on Tuesdays and Thursdays; Klammath Falls on Tuesday; and Reno and Susanville are served on Mondays, Wednesdays and Fridays. The system is overseen by the Modoc County Transportation Commission. There are three intercity routes. The major routes are Intercity North that runs from Alturas to Klamath Falls; Intercity West between Alturas and Redding, and Intercity South between Alturas and Reno. Intercity South connects with the Lassen Rural Bus at Standish. There is also a weekday route from Alturas to Tulelake, by advance reservation only.

The Dial-A-Ride system of the Sage Stage is dedicated for senior citizens and people with disabilities in the county. A twenty-four hour advanced reservation is needed for utilizing this service. Like many other paratransit systems, Dial-A-Ride is a demand responsive, door to door system. Sage Stage uses the Dial-A-Ride as a feeder service to their fixed route system.

There are eligibility criteria for seniors and people with disabilities. Similarly eligible students and youth are defined by the Sage Stage; all of this information is available for reference on the website [2].

Plumas County Transit

Plumas Transit Systems serves Plumas County. One fixed route provides day and evening service in Quincy. Within the county, routes also run between Quincy and Meadow Valley, Portola, and Chester. On Wednesdays, Plumas Transit Systems has a route between Quincy and Chico. The Reno route, which runs on Mondays and Fridays, is designated as inter-county route. Passengers using this service can transfer to Sage Stage or Lassen Rural Bus at Reno or Standish. The system is operated by Allied for Workforce Development, Inc.

The Quincy inner city route (also known as Quincy Local) is a fixed route service with six runs in a day. The service covers major schools, hospitals and shopping areas of the city. The round trip takes 38 minutes to complete. There is a Quincy to Chester fixed route service that operates three times a day. The complete duration of one trip is one hour and forty minutes. Also there is a Quincy evening route that starts at 5:15 PM and runs until 10:00 PM. This is also a fixed route, and a single trip duration is seventeen minutes. There are three trips a day from Portola to Quincy, another fixed route with duration of one hour twenty four minutes. More detailed information is available on the Internet [8].

Modoc, Lassen and Plumas County Transportation Providers

The following tables provide further information on the various transportation options within these three counties [9].

Name	Service Type	Service Area	Funding Source
Modoc Transportation Agency - Sage Stage	General public dial-a-ride General public intercity lifeline	DAR Within 10 miles of Alturas including Modoc estates and Cal Pines (on a shuttle basis). Intercity Alturas to Cal Pines, Canby, Newel, Tulelake and Klamath Falls (Wednesday & Saturday). Alturas to Likely, Madeline, Standish and Reno (Monday & Thursday) Alturas to Cal Pines, Canby, Adin and Redding (Tuesday & Friday)	FTA Section 5311 TDA Farebox revenues
Alturas Head Start	Transportation for preschool and daycare participants – includes medical trips. Staff and agency vehicles, and participant household vehicles on a client trip basis	Modoc County Medical trips can be to destinations within and beyond the county.	Funds drawn from general budget funds.
American Cancer Society	Trips for cancer treatment in Klamath Falls Volunteer driver mileage reimbursement	Modoc County Trips beyond the county	Society fundraising/donations
Department of Rehabilitation	Medical trips in conjunction with job training and employment training participation Driver reimbursement & Sage Stage coupons	Modoc County Medical trips can be to destinations within and beyond the county.	Funds drawn from general budget funds.
Dimensional Association Resources and Training (DART)	Staff and agency vehicles on a client trip basis Program serves developmentally disabled	Modoc County Medical trips can be to destinations within and beyond the county.	Funds drawn from general budget funds.
Far Northern Regional Center	Mileage reimbursement and direct travel costs for client medical trips. Program serves developmentally disabled	Tri-County Medical trips can be to destinations within and beyond the study area.	Funds drawn from general budget funds.
I'SOT Inc. – Canby Family Practice Clinic	Gas vouchers for access to Canby Family Practice Clinic services – medical, dental, and behavioral health.	Modoc County	Funds drawn from general budget funds.

Name	Service Type	Service Area	Funding Source
Modoc County CalWORKS Employment	Trips for mental health and drug and alcohol treatment Staff drive agency vehicles Gas vouchers Mileage reimbursement Sage Stage vouchers	Modoc County	Funds drawn from general budget funds.
Modoc County Dept. of Health Services	Alcohol and Drug, Mental Health and Public H+ealth Programs Designated staff drivers using agency vehicles Mileage and travel cost reimbursement Gas Vouchers	Modoc County Medical trips can be to destinations within and beyond the county.	Funds drawn from general budget funds.
Modoc County Dept. of Social Services	Medical trips for clients in need Volunteer driver using agency vehicles Mileage reimbursement Sage Stage vouchers	Modoc County Medical trips can be to destinations within and beyond the county.	Funds drawn from general budget funds.
Modoc County Dept. of Social Services – Veterans' Services	Volunteer drivers using a VA van transporting Modoc County residents to Reno for VA hospital and medical appointments. Service provided on a first come, first served basis and limited to individuals eligible for VA benefits. Attendants can accompany if required. There is no wheelchair capability.	Modoc County Van shuttle between Alturas and Reno	Veterans' Administration and Modoc County Veterans Services
Modoc County Office of Education	Child & Family Services Early Head Start Even Start Family Education Program Independent Living Skills Program Medical trips for clients in need Staff will drive agency vehicles Gas vouchers Mileage reimbursement Sage Stage vouchers	Modoc County Medical trips can be to destinations within and beyond the county.	Funds drawn from general budget funds.

Name	Service Type	Service Area	Funding Source
Modoc County Senior Citizens Association, Inc.	Van services primarily to transport seniors to senior center programs, site meal programs and home meal delivery. Service also available if a senior needs transportation to a local doctor or clinic appointment Center vans (Alturas) and shared school bus (Tulelake) using volunteer drivers	Alturas DAR within 5 miles of the Senior Center Tulelake DAR within 12 miles of the Senior Center	Funds drawn from general budget funds.
Modoc Indian Health Project	Staff drive agency vehicles.	Modoc County excluding Fort Bidwell Medical trips for clients to destinations within and beyond county	Indian Health Services
Modoc Medical Center	Staff drive agency van providing door-to-door service in Alturas for appointments and treatment at the Modoc Medical Center	Service limited to immediate Alturas area	Funds drawn from general budget funds.
Pit River Health Services, Inc.	Medical service to clients Staff drive agency vehicles Mileage reimbursement	Modoc County Medical trips for clients to destinations within and beyond county	Indian Health Services
Surprise Valley Health Care District	Staff drive agency vehicle Service for Surprise Valley Health Care District patients who need access to clinic and community hospital	Surprise Valley	California Dept. of Health Services
T.E.A.C.H., Inc.	Emergency Services and Modoc Crisis Center who need NEMT. Staff drive agency vehicles Gas vouchers Sage Stage vouchers	Modoc County Medical trips for clients to destinations within and beyond county	Modoc-Siskiyou CAP

Name	Service Type	Service Area	Funding Source
Lassen Rural Bus	General public fixed Dial-a-Ride for seniors and persons with disabilities	Local loop in Susanville West County Commuter Route (Hamilton Branch) South County Commuter Route (Herlong) Pilot service to Eagle Lake Area DAR within Susanville	FTA Section 5311 TDA Farebox revenues Revenues from Lassen College pass program
Mt. Lassen Cab and Shuttle	Weekly shuttle General public taxi and subsidized taxi service for seniors and persons with disabilities	Shuttle from the California Correctional Center to Sacramento via Reno. General public taxi primarily in Susanville area. Subsidized taxi coupon program limited to Susanville	Contract work Farebox revenues. Taxi reimbursements from the county for the subsidized taxi program
Indian Elders Council (Lassen County Senior Services)	Meal site and dial-a-ride service for seniors	Susanville and Bieber Westwood and Doyle – medical trips only Medical trips from Susanville to Reno, Klamath Falls, Redding and Burney	TDA Older Americans Act
Lassen County Veterans services	VA medical trips	Susanville to Reno	Veterans Administration
Susanville Rancheria	Medical trips for American Indians	Susanville area	Bureau of Indian Affairs
Sierra Life Support	Medi-Cal eligible trips – passengers using wheelchairs, or needing stretchers	Mainly in Lassen county to destinations within and beyond the county	Medi-Cal

Name	Service Type	Service Area	Funding Source
Plumas Transit System	General public fixed route Deviated fixed route for seniors and persons with disabilities	Local Quincy area Quincy, Portola and Chester intercity	FTA Section 5311 TDA CalWORKs contract work Farebox revenues Feather River College pass sales Far Northern Regional Center tickets purchases
Plumas County Senior Services	Meal site and dial-a-ride for seniors and persons with disabilities Medical trips for seniors	Quincy, Portola, Chester and Greenville local Feather River Canyon (weekly) Chico and Reno (monthly)	TDA Older Americans Act Donations
Plumas County Veterans Services	V.A medical trips	Reno	Veterans Administration
Greenville Rancheria Tribal Health Organization	Medical trips for American Indians and general public	To Greenville Clinic Referrals to Red Bluff, Chico and Redding	Funds drawn from general budget funds.
Environmental Alternatives	Services for foster children	Quincy local area	Temporary Assistance for Needy families
Mountain Circle Family Services	Services for foster children	Plumas County-wide	Funds drawn from general budget funds.

The following figure shows the various intercity options available within the region.

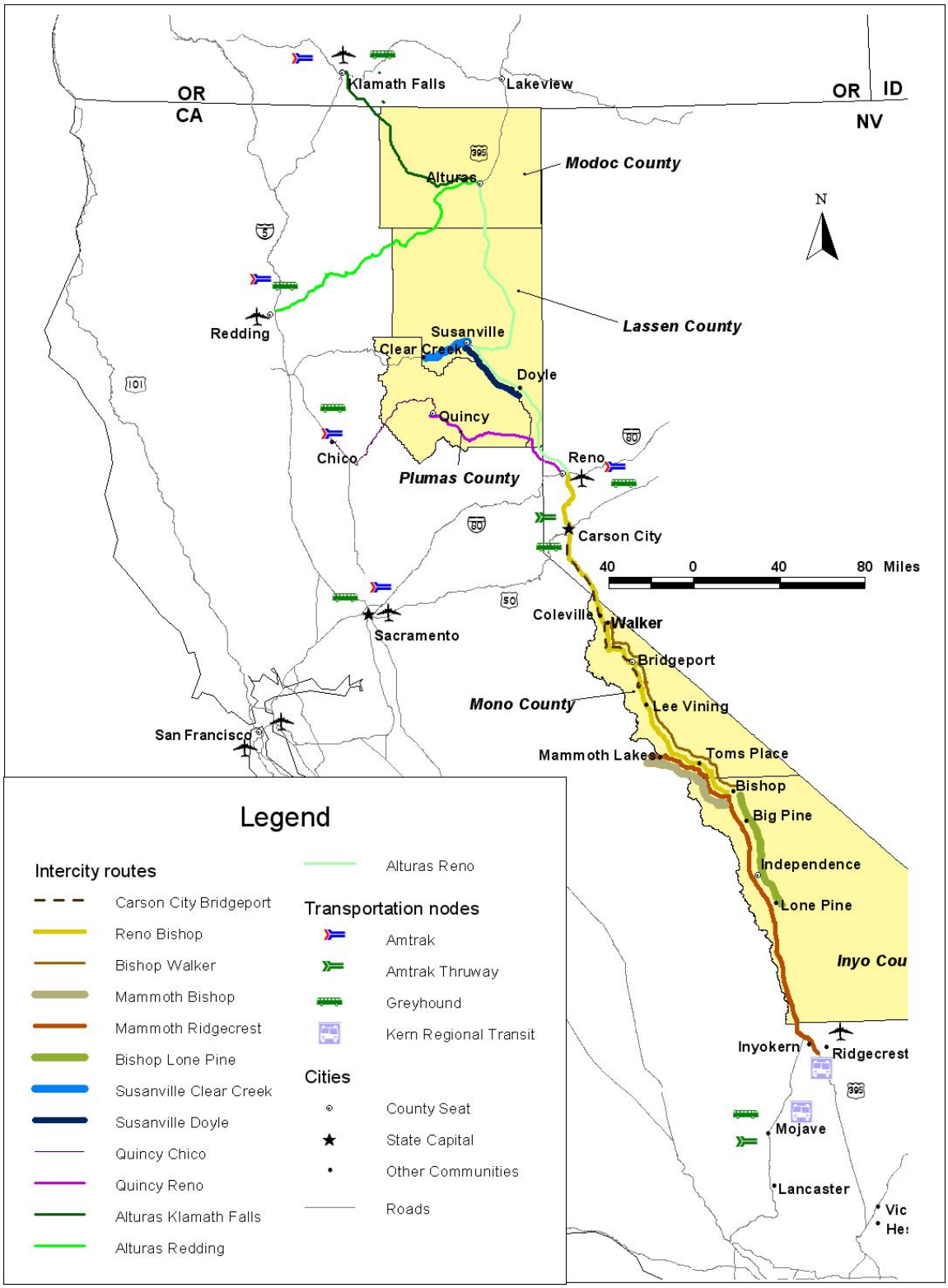

Figure B-13: Eastern Sierra Public Transportation Intercity Service

Table B-5-1: Public Transportation Routes Serving Eastern Sierra Corridor

Provider	Bus Route	Days of Service						Total Days of Service
		Mon	Tues	Wed	Thurs	Fri	Sat	
Sage Stage	Alturas to Redding		X		X			2
Sage Stage	Alturas to Klamath Falls		X					1
Sage Stage	Alturas to Reno	X		X		X		3
Lassen Rural Bus	Susanville to Clear Creek	X	X	X	X	X		5
Lassen Rural Bus	Susanville to Doyle	X	X	X	X			4
Plumas County Transit	Quincy to Reno	X				X		2
Plumas County Transit	Quincy to Chico			X				1
Inyo Mono Transit / CREST	Mammoth - Ridgecrest	X		X		X		3
Inyo Mono Transit / CREST	Bishop - Reno		X		X	X		3
Inyo Mono Transit / CREST	Bishop-Mammoth	X	X	X	X	X	X	6
Inyo Mono Transit / CREST	Bishop-Walker	X		X				2
Inyo Mono Transit / CREST	Lone Pine - Bishop	X	X	X	X	X		5
Inyo Mono Transit / CREST	Bridgeport - Carson City					X		1

Table B-5-2: Summary of Services Between Select Origins and Destinations

Origin	Destinations	Mode	Days of Week
Alturas	Klamath Falls	Sage Stage	T
Alturas	Redding	Sage Stage	T,Th
Alturas	Reno	Sage Stage	M,W,F
Susanville	Doyle	Lassen Rural Bus	M,T,W,R,F
Susanville	Clear Creek	Lassen Rural Bus	M,T,W,R
Quincy	Chico	Plumas County Transit	W
Quincy	Reno	Plumas County Transit	M,F
Reno	Alturas	Sage Stage	M,T
Reno	Quincy	Plumas County Transit	M,F
Reno	Bishop	Inyo Mono Transit / CREST	T,R,F
Reno	Various locations to the East and West	Amtrak	All days
Reno	Various locations to the East and West	Greyhound	All days
Reno	Las Vegas, Seattle, Portland, Eureka, San Francisco, Salt Lake, Phoenix, Chicago, Auckland, Washington, Minneapolis/St. Paul, Orlando, Houston etc.	Airport: 10 airlines	All days
Carson City	Bishop	Inyo Mono Transit / CREST	T,R,F
Carson City	Bridgeport	Inyo Mono Transit / CREST	F
Carson City	Sacramento	Amtrak Thruway	All days
Carson City	Las Vegas	Greyhound via K-T	All days
Walker	Bishop	Inyo Mono Transit / CREST	M,W
Bridgeport	Carson City	Inyo Mono Transit / CREST	F
Mammoth Lakes	Ridgecrest	Inyo Mono Transit / CREST	M,W,F
Mammoth Lakes	Bishop	Inyo Mono Transit / CREST	Sat
Bishop	Carson City, Reno	Inyo Mono Transit / CREST	T,R,F
Bishop	Walker	Inyo Mono Transit / CREST	M,W
Bishop	Mammoth Lakes	Inyo Mono Transit / CREST	M,T,W,R,F
Bishop	Lone Pine	Inyo Mono Transit / CREST	M,T,W,R,F
Lone Pine	Bishop	Inyo Mono Transit / CREST	M,T,W,R,F
Ridgecrest	Mammoth Lakes	Inyo Mono Transit / CREST	M,W,F
Ridgecrest	Various locations to the North and South	Kern Regional Transit	M,T,W,R,F
InyoKern / Ridgecrest	Los Angeles	Airport: United Express	M,W,F
Mojave	Metropolitan Los Angeles, Barstow, Bakersfield	Amtrak Thruway	All days
Mojave	Metropolitan Los Angeles, Barstow, Bakersfield	Greyhound	All days

Origin	Destinations	Mode	Days of Week
Mojave	Various locations in Kern County; Lancaster	Kern Regional Transit	M,T,W,R,F,Sat
Klamath Falls	Alturas	Sage Stage	T
Klamath Falls	Various locations to the North and South	Amtrak	All days
Klamath Falls	Various locations to the North and South	Greyhound	All days
Klamath Falls	Portland	Airport: Horizon	All days
Redding	Alturas	Sage Stage	T,Th
Redding	Various locations to the North and South	Amtrak	All days
Redding	Various locations to the North and South	Greyhound	All days
Redding	Las Vegas, Seattle, Portland, Eureka, San Francisco	Airport: Horizon, United Express, Allegiant	All days
Chico	Quincy	Plumas County Transit	W
Chico	Various locations to the North and South	Amtrak	All days
Chico	Various locations to the North and South	Greyhound	All days

Table B-5-3: Origin – Destination Travel Times

From \ To	Alturas	Klamath Falls	Reno	Susanville	Clear Creek	Doyle	Quincy	Carson City	Walker
Alturas	-	Sage 2 Hr (T)	Sage 3 Hr (M/W/F)	Sage to LRB 12 Hr (M/W/F)	Overnight Stay	Sage 1.5 Hr (M/W)	Sage to Plumas 10 Hr (M/F)	Sage to InyoMono 8 HR (F)	Sage to InyoMono 9 Hr (F)
Klamath Falls	Sage 2 Hr (T)	-	Greyhound 12 HR (All Days)	Overnight Stay	Overnight Stay	Greyhound to Sage 20.5 Hr (M/W)	Overnight Stay	Greyhound to InyoMono 18 HR (Tu/Th/Fri)	Greyhound to InyoMono 19 HR (Tu/Th/Fri)
Reno	Sage 3 Hr (M/W/F)	Greyhound 12 HR (All Days)	-	Sage to LRB 4 Hr (M/Th)	Overnight Stay	Sage 1 Hr (M/W/F)	Plumas 2 Hr (M/F)	InyoMono 1 HR (Tu/Th/Fri)	InyoMono 2 HR (Tu/Th/Fri)
Susanville	Sage to LRB 11 Hr (M/W/F)	Overnight Stay	LRB to Sage 4 Hr (M/W)	-	LRB 1 Hr (M/Tu/W/Th/F)	LRB 2 Hr (M/Tu/W/Th)	LRB to Sage to Plumas 12 Hr (M)	LRB to Sage to InyoMono 9 HR (F)	LRB to Sage to InyoMono 10 HR (F)
Clear Creek	Overnight Stay	Overnight Stay	Overnight Stay	LRB 1 HR (M/Tu/W/Th/F)	-	LRB 10.5 Hr (M/Tu/W/Th)	Overnight Stay	Overnight Stay	Overnight Stay
Doyle	Sage 1.5 Hr (M/W)	Greyhound to Sage 13.5 Hr (M/W)	Sage 1 Hr (M/W/F)	LRB 2 HR (M/Tu/W/Th)	LRB 10.5 HR (M/Tu/W/Th)	-	LRB to Sage 9 Hr (M)	Sage to InyoMono 5 HR (F)	Sage to InyoMono 6 HR (F)
Quincy	Plumas to Sage 9 Hr (M/F)	Overnight Stay	Plumas 2 Hr (M/F)	Plumas to Sage to LRB 10 Hr (M)	Overnight Stay	Plumas to Sage 7 Hr (M)	-	Overnight Stay	Overnight Stay
Carson City	InyoMono to Sage 7 Hr (F)	Overnight Stay	InyoMono 1 HR (Tu/Th/Fri)	InyoMono to Sage to LRB 9 HR (F)	Overnight Stay	InyoMono to Sage 5 Hr (Th)	Overnight Stay	-	InyoMono 1 HR (Tu/Th/Fri)
Walker	InyoMono to Sage 9 Hr (F)	Overnight Stay	InyoMono 2 HR (Tu/Th/Fri)	InyoMono to Sage to LRB 10 HR (F)	Overnight Stay	InyoMono to Sage 6 HR (Th)	Overnight Stay	InyoMono 1 HR (Tu/Th/Fri)	-
Mammoth Lakes	InyoMono to Sage 10 Hr (Th)	Overnight Stay	InyoMono 4 HR (Tu/Th/Fri)	InyoMono to Sage to LRB 12 HR (F)	Overnight Stay	InyoMono to Sage 8 HR (Th)	Overnight Stay	InyoMono 3 HR (Tu/Th/Fri)	InyoMono 2 HR (Tu/Th/Fri)
Bishop	InyoMono to Sage 11.5 Hr (F)	Overnight Stay	InyoMono 5 HR (Tu/Th/Fri)	InyoMono to Sage to LRB 13 HR (F)	Overnight Stay	InyoMono to Sage 9 HR (Th)	Overnight Stay	InyoMono 4 HR (Tu/Th/Fri)	InyoMono 3 HR (Tu/Th/Fri)
Lone Pine	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay
Ridgecrest	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay
Chico	GreyHound to Sage 6 HR (T/Th)	Greyhound 5.5 HR (All Days)	Greyhound 7 HR (All Days)	Greyhound to Sage to LRB 13 HR (M/Th)	Overnight Stay	Greyhound to Sage 11 HR (M/Th)	Plumas 1.75 Hr (W)	Greyhound to InyoMono 9 HR (Tu/Th/Fri)	Greyhound to InyoMono 10 HR (Tu/Th/Fri)
Redding	Sage 3 HR (T/Th)	GreyHound 3.5 HR (All Days)	Greyhound 7.5 HR (All Days)	GreyHound to Sage to LRB 19.5 HR (M/Th)	Overnight Stay	Greyhound to Sage 16 Hr (M/Th)	Greyhound to Plumas 4 Hr (W)	GreyHound to InyoMono 14 HR (Tu/Th/Fri)	GreyHound to InyoMono 15 HR (Tu/Th/Fri)

USAGE
LRB - Lassen Rural Bus
From - is read downwards
To - is read to the right

TableB-9-3: Origin – Destination Travel Times (continued)

From \ To	Mammoth Lakes	Bishop	Lone Pine	Ridgecrest	Chico	Redding
Alturas	Sage to InyoMono 11 Hr (F)	Sage to InyoMono 12 HR (F)	Overnight Stay	Overnight Stay	Sage to GreyHound 6 HR (T/Th)	Sage 3 HR (T/Th)
Klamath Falls	Greyhound to InyoMono 21 HR (Tu/Th/Fri)	Greyhound to InyoMono 22 HR (Tu/Th/Fri)	Overnight Stay	Overnight Stay	Greyhound 5.5 HR (All Days)	GreyHound 3.5 HR (All Days)
Reno	InyoMono 4 HR (Tu/Th/Fri)	InyoMono 5 HR (Tu/Th/Fri)	Overnight Stay	Overnight Stay	Greyhound 7 HR (All Days)	Greyhound 7.5 HR (All Days)
Susanville	LRB to Sage to InyoMono 12 HR (F)	LRB to Sage to InyoMono 13 HR (F)	Overnight Stay	Overnight Stay	LRB to Sage to Greyhound 13 HR (M/TW)	LRB to Sage to GreyHound 21 HR (M/W)
Clear Creek	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay
Doyle	Sage to InyoMono 8 HR (Th)	Sage to InyoMono 9 HR (Th)	Overnight Stay	Overnight Stay	Sage to Greyhound 11 HR (M/W/F)	Sage to GreyHound 16 Hr (M/W/F)
Quincy	Overnight Stay	Overnight Stay	Overnight Stay	Overnight Stay	Plumas 1.75 Hr (W)	Plumas to Greyhound 4 Hr (W)
Carson City	InyoMono 3 HR (Tu/Th/Fri)	InyoMono 4 HR (Tu/Th/Fri)	Overnight Stay	Overnight Stay	InyoMono to Greyhound 9 HR (Tu/Th/Fri)	InyoMono to GreyHound 14 HR (Tu/Th/Fri)
Walker	InyoMono 2 HR (Tu/Th/Fri)	InyoMono 3 HR (Tu/Th/Fri)	Overnight Stay	Overnight Stay	InyoMono to Greyhound 10 HR (Tu/Th/Fri)	InyoMono to GreyHound 15 HR (Tu/Th/Fri)
Mammoth Lakes	-	InyoMono 1 HR (Tu/Th/Fri)	InyoMono 2.5 HR (M/W/Fri)	InyoMono 4 HR (M/W/Fri)	InyoMono to Greyhound 12 HR (Tu/Th/Fri)	InyoMono to GreyHound 17 HR (Tu/Th/Fri)
Bishop	InyoMono 1 HR (Tu/Th/Fri)	-	InyoMono 1.5 HR (M/W/Fri)	InyoMono 3 HR (M/W/Fri)	InyoMono to Greyhound 13 HR (Tu/Th/Fri)	InyoMono to GreyHound 18 HR (Tu/Th/Fri)
Lone Pine	InyoMono 2.5 HR (M/W/Fri)	InyoMono 1.5 HR (M/W/Fri)	-	InyoMono 1.5 HR (M/W/Fri)	Overnight Stay	Overnight Stay
Ridgecrest	InyoMono 4 HR (M/W/Fri)	InyoMono 3 HR (M/W/Fri)	InyoMono 1.5 HR (M/W/Fri)	-	Overnight Stay	Overnight Stay
Chico	Greyhound to InyoMono 12 HR (Tu/Th/Fri)	Greyhound to InyoMono 13 HR (Tu/Th/Fri)	Overnight Stay	Overnight Stay	-	GreyHound 2 HR (All Days)
Redding	GreyHound to InyoMono 17 HR (Tu/Th/Fri)	GreyHound to InyoMono 18 HR (Tu/Th/Fri)	Overnight Stay	Overnight Stay	GreyHound 2 HR (All Days)	-

USAGE
LRB - Lassen Rural Bus
From - is read downwards
To - is read to the right

Table B-5-4: Services From Modoc County

Locations	Inter City West (Bus-WC)			Inter City North (Bus-WC)			Inter City South (Bus-WC)		
	Tuesdays, Thursday			Tuesday			Mondays, Wednesday, Friday		
	Down	Up	Fare	Down	Up	Fare	Down	Up	Fare
Alturas	7:00 AM	5:00 PM	-	8:00 AM	3:45 PM	-	7:00 AM	5:00 PM	-
Cal Pines	7:15	4:40		8:15	3:45	6.00			
Canby	7:20	4:40	6.00	8:20	3:25	10.00			
Newel				9:00	2:50	11.00			
Tulelake				9:10	2:40	12.00			
Klamath Falls				9:45-10:00	2:00	10.00			
Adin	7:40	4:10	8.00						
McArthur	8:30	3:45	8.00						
Fall River Mills	8:35	3:30	8.50						
Burney	8:50	3:10	14.00						
Redding	10:30	2:00	18.00						
Likely							7:20	4:40	6.00
Madeline							7:40	4:20	8.00
Standish							8:30	3:30	15.00
Reno							10:00-10:30	2:00	24.00

Note: Greyhound serves Klamath Falls, Reno, and Redding. Amtrak also serves Klamath Falls, Reno, and Redding.

WC - Wheel Chair capability
NWC - No Wheel Chair capability
Down – Service runs from locations at the top of the table to locations down the table – read downwards
Up - Service runs from locations at the bottom of the table to locations up the table – read up
Fare - One way fare
Fare (*) - One way fare and request stop only
X:XX AM or X:XX PM marks the origin and destination of the round trip
G - General fare; for discount fare contact the service provider.

Table B-5-5 Services From Lassen County

Locations	West County Commuter (WC) MON, TUE, WED, THUR, FRI			South County Commuter (WC) MON. TUE, WED, THU		
	Down	Up	Fare (G)	Down	Up	Fare (G)
Susanville	5:45 AM/ 5:15 PM	7:45 AM/ 7:25 PM	-	5:15 AM/ 3:00 PM	8:20 AM/ 6:15 PM	-
Devil's Corral	6:02 / 5:30	- / -	1.00			
Westwood	6:26 / 5:40	6:50 / -	1.50			
Clear Creek	6:31 / 6:05	6:45 / -	1.75			
Hamilton Branch	6:39 / 6: 10	6:40 / 6:15	2.00			
Janesville				5:30 / 3:20	7:45 / 5:45	1.75
Milford				5:45 / -	- / 5:30	2.00
Herlong				6:40 / -	- / 5:00	2.50
Doyle				7:00 / 4:05	7:05 / 4:10	2.50

Note: There is no Amtrak or Greyhound operating through these destinations.

USAGES:
WC - Wheel Chair capability
NWC - No Wheel Chair capability
Down – Service runs from locations at the top of the table to locations down the table – read downwards
Up - Service runs from locations at the bottom of the table to locations up the table – read up
Fare - One way fare
Fare (*) - One way fare and request stop only
X:XX AM or X:XX PM marks the origin and destination of the round trip
G - General fare; for discount fare contact the service provider.

Table B-5-6: Services From Plumas County

Locations	Quincy-Reno (WC)			Quincy-Chico (WC)		
	MON, FRI			WED		
	Down	Up	Fare	Down	Up	Fare
Quincy	8:00 AM	5:00 PM	~	8:00 AM	5:00 PM	~
Kwik Stop	8:30	4:30				
Hallelujah Jct.	9:00	3:50				
Bordertown	9:15	3:35				
Wal-Mart (North)	9:25	3:25				
Downtown	9:35	2:55				
Hilton	9:45	3:15				
Airport	9:55	3:05				
Meadow Mall	10:15	2:35	$$$$			
Greenville				8:30	4:45	
Twain				8:45	4:37	
Caribou				9:00	4:25	
Belden				9:05	4:23	
Tobin Store				9:15	4:14	
Storrie				9:18	4:12	
Chico Mall				10:20	3:03	
Wal-Mart				10:23	3:05	
Down Town				10:30	2:45	
Greyhound Station				10:35	2:50	$$$$

Note: Amtrak and Greyhound serve Chico.

WC - Wheel Chair capability
NWC - No Wheel Chair capability
Down – Service runs from locations at the top of the table to locations down the table – read downwards
Up - Service runs from locations at the bottom of the table to locations up the table – read up
Fare - One way fare
Fare (*) - One way fare and request stop only
X:XX AM or X:XX PM marks the origin and destination of the round trip
G - General fare; for discount fare contact the service provider.
$$$$ - exact fare classification not available.

Table B-5-7: Services From Inyo-Mono County

Locations	Mammoth-Ridgecrest (WC) MON, WED, FRI			Bishop-Reno (WC) TUE, THUR, FRI			Bishop-Mammoth (WC) MON, TUE, WED, THUR, FRI		
	Down	Up	Fare (G)	Up	Down	Fare (G)	Up	Down	Fare (G)
Reno				11:45	12:45	28.00			
Carson City				10:45	1:45	25.00			
Topaz				10:00	2:30	24.50 (*)			
Coleville				9:45	2:45	23.00 (*)			
Walker				9:35	2:55	21.00 (*)			
Bridgeport				8:55	3:35	20.00			
Lee Vining				8:25	4:05	17.00			
June Lake				8:15	4:15	13.00 (*)			
Mammoth Lakes	8:05 AM	4:50 PM	-	7:50	4:40	12.50	7:50 / 4:50	8:05 / 5:15	5.50
Crowley Lake	8:20	4:35	5.00	7:35	4:55	11.50 (*)	7:35 / 4:35	8:20 / 5:30	3.00
Tom'-s Place	8:25	4:30	7.00	7:30	5:00	8.00 (*)	7:30 / 4:30	8:25 / 5:35	2.50
Bishop	9:15	3:50	9.50	7:00 AM	5:30 PM	-	7 AM/ 4 PM	8:55AM/ 6:05PM	-
Big Pine	9:30	3:35	11.00						
Aberdeen	9:45	3:20	13.00 (*)						
Independence	10:00	3:05	14.00						
Lone Pine	10:25	2:50	15.50						
Olancha	10:45	2:30	18.00						
Coso Junction	11:05	2:10	18.50 (*)						
Ridgecrest	11:45	1:30	21.00						

Note: Amtrak and Greyhound serve Reno and Carson City. Reno has an international airport with service from ten airlines. Kern Regional Transit connects Ridgecrest to Mojave, the rest of Kern County, and Lancaster in Los Angeles County.

WC - Wheel Chair capability
NWC - No Wheel Chair capability
Down – Service runs from locations at the top of the table to locations down the table – read downwards
Up - Service runs from locations at the bottom of the table to locations up the table – read up
Fare - One way fare
Fare (*) - One way fare and request stop only
X:XX AM or X:XX PM marks the origin and destination of the round trip
G - General fare; for discount fare contact the service provider.

Table B-7: Services From Inyo-Mono County (continued)

Locations	Bishop-Mammoth Special (WC)			Bishop-Walker (WC)			Lone Pine-Bishop (WC)			Bridgeport-Carson City (WC)		
	Saturday			MON, WED			MON, TUE, WED, THUR, FRI			FRI		
	Up	Down	Fare (G)	Down	Up	Fare (G)	Up	Down	Fare (G)	Up	Down	Fare (G)
Reno												
Carson City										10:00	1:00	5.50
Topaz												
Coleville										9:10	3:30	3.50
Walker				9:00 AM	5:40 PM	-				8:50	4:00	3.00
Bridgeport				9:40	5:00	3.00				8:00 AM	4:30 PM	-
Lee Vining				10:05	4:30	5.75						
June Lake				10:25	4:15	6.25 (*)						
Mammoth Lakes	8:45 / 3:15	9:00 / 3:30	3.50	10:40	4:00	6.75						
Crowley Lake	8:15 / 2:45	9:20 / 3:50	3.00	10:55	3:45	7.25						
Tom'-s Place	8:00 / 2:30	9:35 / 4:05	2.75	11:00	3:35	7.50						
Bishop	7:30AM/ 2PM	10:15AM/ 4:45PM	-	11:40	3:00	9.00	7:40	12:30	4.00			
Big Pine							7:20	12:45	3.50			
Aberdeen							7:00	1:00	3.00 (*)			
Independence							6:45	1:20	2.00			
Lone Pine							6:30 AM	1:45 PM	-			
Olancha												
Coso Junction												
Ridgecrest												

Note: Amtrak and Greyhound serve Reno and Carson City. Reno has an international airport with service from ten airlines. Kern Regional Transit connects Ridgecrest to Mojave, the rest of Kern County, and Lancaster in Los Angeles County.

WC - Wheel Chair capability
NWC - No Wheel Chair capability
Down – Service runs from locations at the top of the table to locations down the table – read downwards
Up - Service runs from locations at the bottom of the table to locations up the table – read up
Fare - One way fare
Fare (*) - One way fare and request stop only
X:XX AM or X:XX PM marks the origin and destination of the round trip
G - General fare; for discount fare contact the service provider

Regional Transportation Options

Within the eastern Sierra counties of Modoc, Plumas, Lassen, Inyo and Mono, transportation options are limited to public transit service providers. The five counties do not have any service from Greyhound, Amtrak, or commercial airlines. Transit providers in eastern Sierra link to the following urban centers where these services exist. Services for these communities are as follows.

1. Redding (served by Sage Stage):
    a. Greyhound: North-South along I-5 with connections to SR 99. Destinations include Chico, Klamath Falls, Sacramento. Direct services, buses with wheel chair.
    b. Amtrak: North-South via the California Starlight train. Southbound service on Amtrak Thruway bus.
    c. Airport: Horizon, United Express, and Allegiant serve Las Vegas, Seattle, Portland, Eureka, San Francisco.
2. Reno (served by Sage Stage, Plumas County Transit, and Inyo Mono Transit/CREST):
    a. Greyhound: East-West along I 80. Direct services, buses with wheel chair.
    b. Amtrak: East-West via the California Zephyr train or Amtrak Thruway bus.
    c. Airport: International Airport with ten airlines. Services available to places like Las Vegas, Seattle, Portland, Eureka, San Francisco, Salt Lake, Phoenix, Chicago, Auckland, Washington, Minneapolis/St. Paul, Orlando, Houston etc.
3. Chico (served by Plumas County Transit):
    a. Greyhound: North-South along SR 99. Destinations include Klamath Falls, Sacramento, and Redding. Direct services, buses with wheel chair.
    b. Amtrak: North-South via the California Starlight train. Southbound service on Amtrak Thruway bus.
4. Klamath Falls (served by Sage Stage):
    a. Greyhound: North-South along US 97. Destinations include Sacramento, Chico and Redding. Direct services, buses with wheel chair.
    b. Amtrak: North-South via the California Starlight train
    c. Airport: Horizon Airlines has service to Portland
5. Carson City (served by Inyo Mono Transit/CREST):
    a. Greyhound: Service to Reno via K-T Services
    b. Amtrak Thruway: Bus connection to Sacramento using US 50
6. Ridgecrest (served by Inyo Mono Transit / CREST):
    a. Kern Regional Transit: Service to Mojave with connecting service to the rest of the county and Lancaster. Lancaster is served by Los Angeles Metrolink rail service and regional transit services.
    b. Airport: At Inyokern Municipal Airport, United Express/Skywest has service to Los Angeles
7. Mojave (connecting service to Ridgecrest via Kern Regional Transit):
    a. Kern Regional Transit: Service to Ridgecrest, Lancaster, and the rest of Kern County. Lancaster is served by Los Angeles Metrolink rail service and various regional transit services.
    b. Amtrak Thruway: Bus service to Victorville, Bakersfield, and Barstow.

c. Greyhound: Service to the Greater Los Angeles region, Bakersfield, and Barstow.