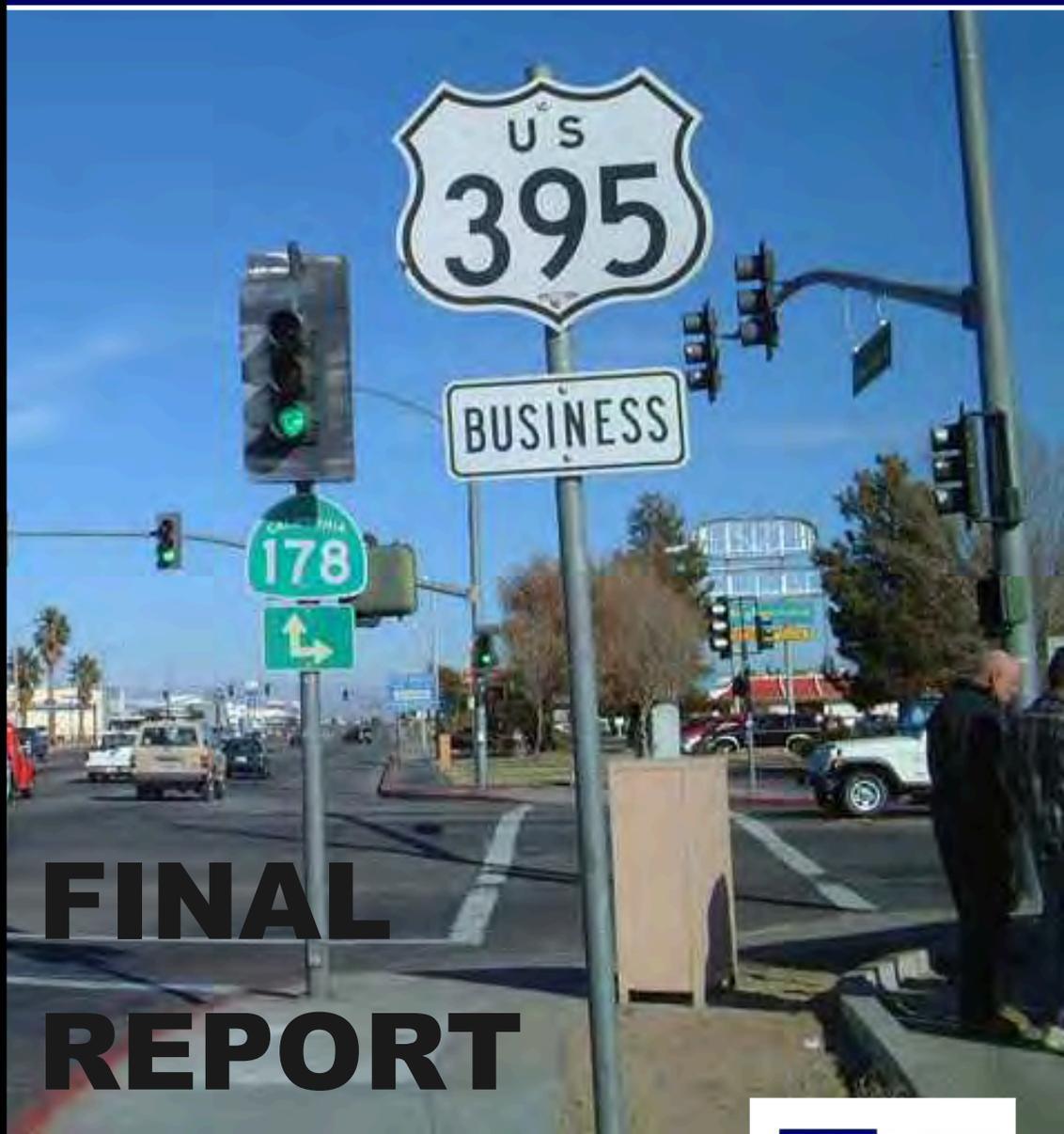
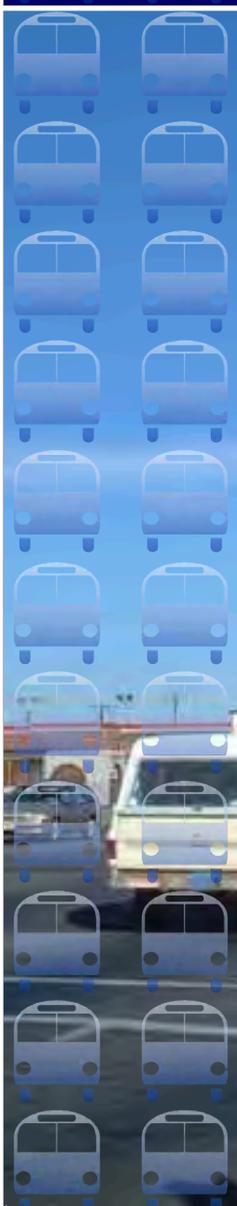
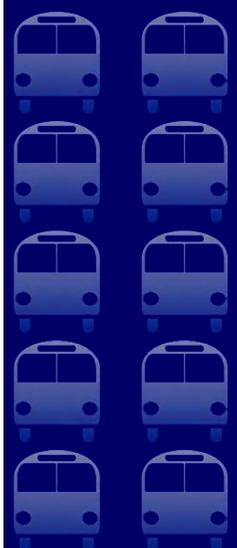


# Ridgecrest, CA Transportation Development Plan



## FINAL REPORT

*Prepared for*



# Ridgecrest Transportation Development Plan

## Final Report

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June 12, 2007

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# CHAPTER I

## Introduction

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The Kern Council of Governments (COG) contracted with LSC Transportation Consultants, Inc. to develop a Transportation Development Plan (TDP) for the City of Ridgecrest, California. The purpose of this document is to provide recommendations with which the City may improve the efficiency and effectiveness of its public transportation service.

The Ridgecrest Transit System (RTS) has been experiencing significant losses in ridership over the past few years. RTS operates a general public demand-response service whereby customers call 24 hours or more in advance to book a trip on RTS. LSC planning staff concentrated on developing new service that would enhance and improve ridership for RTS. The Planning Team reviewed existing transportation plans for the Ridgecrest area, studied the existing transit providers in the area, developed a community profile of Ridgecrest and individuals who use transit in Ridgecrest, assessed the transit needs of the community, conducted an onboard survey and key person interviews on the needs for transit in Ridgecrest, assisted in the development of Goals and Objectives for RTS, provided institutional and service alternatives to enhance RTS service, and, once the recommendations were approved, prepared an implementation plan for the new service.

RTS, Kern COG, and the City of Ridgecrest chose to consider changing the existing general public demand-response service to a flexible fixed-route service that will be phased in over the next seven years. Having the new service phased in over a relatively short period of time will allow the City to see if the new service is accepted by the community and give the City a timeframe in which to garner financial resources to fund the new service. This report presents how this type of service was determined and how the City of Ridgecrest may phase in the new service.

Chapter II reviews existing transportation plans in the Ridgecrest and Kern County area. Knowing what transportation planning has been conducted aids the Planning Team in the development of the TDP. Existing transportation plans are useful in knowing overall how the region plans and develops transportation projects.

Chapter III reviews and presents a discussion on the existing transit providers in the area. Having the knowledge of what forms of transit are available to the community assists RTS in any efforts to coordinate with regional service in the area as well as any social service agency which may provide transportation. Coordinating these services generally enhances the efficiency and effectiveness of each transit agency.

Chapter IV presents a demographic profile of the community as well as showing places of employment and areas of interest such as parks, libraries, and schools. Studies have shown that various segments of the population (elderly, low-income and disabled individuals) tend to use transit more than other segments of the population and are generally described as transit dependent. This chapter shows areas in the City of Ridgecrest which have large populations of transit-dependent persons.

Chapter V assesses the transit needs of the community. Using proven computer modeling techniques, this chapter estimates the need for public transit in the community and projects this need into the future. This information is helpful in developing the transit service area and frequency of service needed.

Chapter VI presents the findings of the public input gathered by the Planning Team. This includes an onboard survey, key person interviews, a public meeting at the Ridgecrest Senior Center, and ideas from a meeting with RTS drivers.

Chapter VII presents the Goals and Objectives which were used to develop this plan and can be used to guide the operations and services of RTS. The Goals and Objectives were developed over several meetings with the City of Ridgecrest Organizational Committee which oversees the Department of Public Works and

the transit service. Kern COG staff also played a role in the development of the Goals and Objectives.

Chapter VIII provides institutional alternatives and a recommendation for which alternative should be best for RTS. Several alternatives were explored including the existing institutional form of having RTS as a division of the Department of Public Works.

Chapter IX presents service alternatives developed by the Planning Team. The team studied the effectiveness of fixed-route service, flexible fixed-route service, demand-response service, and a hybrid service that used several types of transit service.

Chapter X presents the recommended service plan for RTS. This plan offers flexible fixed-route service that will be phased in over a seven-year time span. This recommended service met with the approval of the Organizational Committee.

Chapter XI provides an implementation plan for RTS. This plan addresses issues such as management, operations, capital and support facility needs, a financial plan, and a marketing plan.

Chapter XII proposes a plan that will monitor the new service and provides statistical methods with which to evaluate the performance of the transit service. This Service Monitoring and Performance Evaluation Plan is very important in judging whether the service is efficient and effective or not.



# Previous Transportation Plans and Studies

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## INTRODUCTION

### Study Area Location

This chapter summarizes previous transportation plans and studies that have been undertaken for the Ridgecrest area. Previous planning efforts give insight into how a community is to develop in the future. Planning documents relevant to future transportation planning in the area include:

- Regional Rural Transit Strategy (2003)
- Economic and Growth Strategy 2005-2010, A Five Year Analysis (2005)
- Eastern Sierra Public Transportation Plan (2004)
- Triennial Performance Audits (2000 and 2003)
- City of Ridgecrest Transit Development Plan (1998)

These planning documents are reviewed briefly in the following sections to the extent that they relate to transportation or some part of the plan covers the Ridgecrest area. Briefly, these documents are presented as a discussion of past planning. Only relevant information is presented. Please refer to each document for more specific details.

### Regional Rural Transit Strategy (2003)

This plan was initiated by Kern COG to develop alternatives toward consolidation of services in the existing network of transit services. This plan provides a set of steps to facilitate coordination among transit providers in the Kern County area toward a single lead agency that does both the operational and administrative functions. The intent of the plan was to create a countywide transit network for people to get from welfare to work, creating an alternative mode of transportation for tourists, and providing an efficient transit system. Some of the components discussed in this plan were:

- **Administrative Responsibility:** This component presents various organizational structures and administrative responsibilities for Kern County transit systems depending on the level of coordination. The recommended coordination strategy was a Joint Powers Agreement (JPA) or a transit district with potential lead agencies being the Kern COG, Kern County, or a completely new JPA agency.
- **Sharing Costs for Transit:** This component discusses four main funding formulas which are based on population, transit service hours, transit service miles, and ridership within or between jurisdictions.
- **Governance:** Options recommended for a consolidated transit system include a board of supervisors – be a department within Kern County, Kern COG, or a new policy board based on population and transit expenditure.
- **Service Planning:** This component discusses both short-term and long-term priorities for enhancing transportation services in Kern County.
- **Marketing:** This component discusses developing a single brochure or website with information and resources about the various available transit services. Steps for achieving a consolidated marketing plan are identifying various transit market segments, identifying responsibilities for implementing marketing actions, marketing efforts such as creating a new look for the transit system, and other activities to meet the newly consolidated efforts.

The plan also addresses a few concerns that come with consolidation such as transit's need to reflect the community's identity, loss of local control in making decisions, and continuation of established relationship between operators and customers. The plan also presents the benefits to transit users with consolidation such as improved services without regard to jurisdictional boundaries, new travel options, easy-to-use and easy-to-read schedules, common marketing efforts, and origins and destinations served more efficiently.

### **Economic and Growth Strategy 2005-2010, A Five-Year Analysis (2005)**

This document was prepared by the Community and Economic Development Department in the City of Ridgecrest to evaluate the existing growth and development of the city and determine whether future projected growth within the City of Ridgecrest could be accommodated within its existing infrastructure. The plan emphasizes serving the current need as well as providing for the future population. One of the elements addressed was transportation needed through 2010 to support its current and future population. Emphasis was placed on transportation corridors such as US Highway 395 and State High-

ways 14 and 178 to access major areas such as Bakersfield, Lancaster/Palmdale, Victorville, and Los Angeles.

### **Eastern Sierra Public Transportation Plan (2004)**

This plan provides an overview of the various community meetings conducted throughout the Eastern Sierra study area along State Highway 395. The objective of these public meetings was to have a community-based transportation planning process, identify short-term and long-term goals for transit in the region, and prioritize passenger rail in the region. The public was asked to share ideas for regional bus and passenger rail service in Inyo, Mono, and Kern Counties.

Some of the issues identified in the Ridgecrest area were as follows:

- Lack of medical transportation from smaller communities like Ridgecrest to access major medical facilities like West Los Angeles Veterans Hospital and UCLA Medical Center.
- Lack of frequent service to Inyokern Airport.
- Car-sharing would benefit families with limited car access.
- Need to look at the transit service in Ridgecrest. Presently, the Ridgecrest system carries six passengers per hour and moving toward a fixed-route service would help.
- Senior bus service has no funding available to operate or maintain the service.
- Lack of transportation options.

The goals identified for public transportation in the Eastern Sierra Region, which includes the Ridgecrest and Inyokern area, were as follows:

1. Enhance local transportation for people with limited transportation options such as seniors, persons with disabilities, low-income individuals, and youth in the Eastern Sierra Region.
2. Provide an efficient transit service for current users while building new transit markets for residents, visitors, and commuters in the region.
3. Identify non-traditional innovative transportation options such as flex routes, subscription bus service, volunteer driver programs, and grocery/medication delivery program to better address the demand for services.

4. Provide public information about existing transit services and connections between different transit services to major regional destinations on all providers' marketing materials.
5. Develop an interregional transit service with increased frequencies and better coordination, thereby providing a dependable year-round transit service.
6. Develop supportive policies, such as free transit service, buses with storage for skis and bicycles, and mandatory transit services for areas with fragile ecosystems, to enhance the value and effectiveness of transit services in the region.
7. Integrate regional transit service planning with land use and economic development.
8. Identify passenger rail options for the Eastern Sierra region and determine the financial feasibility of such a service.

### **Triennial Performance Audits (2000, 2003)**

These documents are performance audits for the City of Ridgecrest required every three years under California's Transportation Development Act (TDA). The audits include a synopsis of the transit system, changes during the audit period, the City of Ridgecrest's compliance with the TDA requirements, performance measures, overall administration of the transit system, and recommendations. The two performance audit reports are as follows:

- Performance Audit – Three fiscal years ending 2003
- Performance Audit – Three fiscal years ending 2000

Listed below are recommendations from each of the two audit reports. Though these documents are not planning documents, they were listed in this chapter because of recommendations made to the system. Some of the recommendations were repeated from previous transit audits. The recommendations in the performance audit report conducted in 2003 were as follows:

- Report vehicle-miles and full-time equivalents (FTEs) by city-operated service and county-funded service in accordance with the TDA guidelines.
- Implement a method for tracking and reporting Ridgecrest's transit service by local and regional transit service.
- Prepare an updated Transportation Development Plan (TDP).

- Prepare written public policies.
- Record revenue and non-revenue for both service miles and service hours.

The recommendations for the 2000 performance audit were as follows:

- Implement a method to calculate FTEs in accordance with TDA guidelines.
- Create a marketing plan.
- Update the City's TDP.

### **City of Ridgecrest Transit Development Plan (1998)**

This document was used as a planning tool in compliance with federal, state, and regional transportation planning guidelines. This report includes a review of existing transit services, assessment of transit needs in the area, review of performance trends and measures, service recommendations, marketing recommendations, and a capital and operating financial plan.

Some of the recommended service changes were as follows:

- Maintain the current dial-a-ride system.
- Improve data collection by tracking trip denials and rescheduled trips.
- Restructure fare to include a fare of \$0.75 for youth between the ages of 6 and 15.
- Create a task force to coordinate transportation services for medical trips to Bakersfield.
- Develop a service alternative with evening service to Cerro Coso College.
- Provide service to Inyokern by utilizing the third vehicle to provide service three times each day.
- Provide service from Randsburg/Johannesburg to Ridgecrest by contracting with a taxicab provider.



## Existing Transportation Resources

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### INTRODUCTION

Chapter III provides an overview of the various public, private, and nonprofit transportation providers within the study area. Not all of the providers reviewed are “transit agencies” in the traditional sense of the word. Rather, the various providers are entities that provide some type of passenger transportation service. The services provided by these agencies are presented in the discussion that follows. This chapter also presents travel patterns, financial status, and a peer community review.

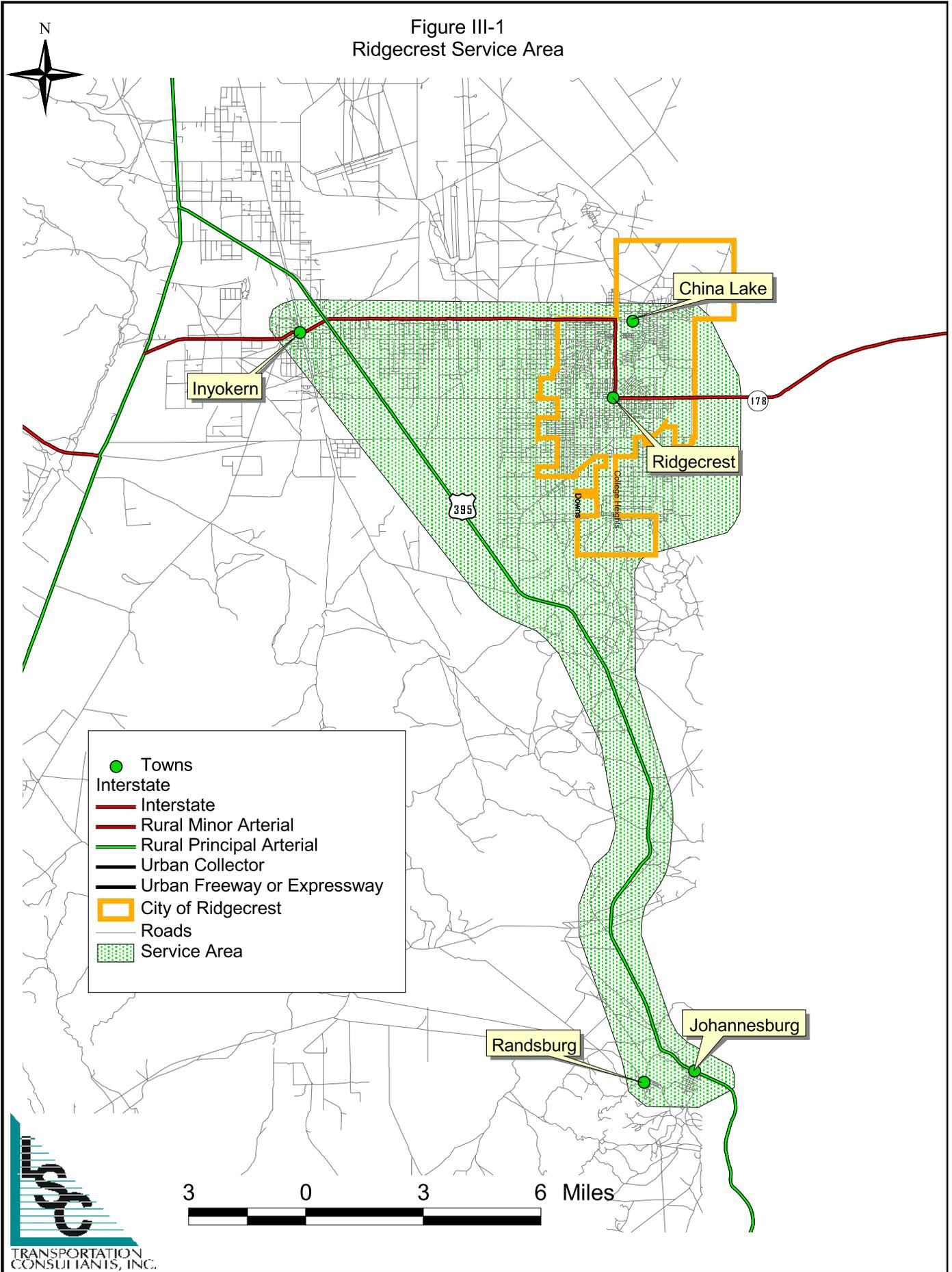
### CITY TRANSIT SERVICES

City Transit Services, known as Ridgecrest Transit System (RTS), primarily serves the City of Ridgecrest. RTS is financed through local sources, state funding, and Federal Transit Administration (FTA) funds. The City Transit administrative office is located at 100 West California Avenue, Ridgecrest, CA 93555. The phone number is (760) 499-5000. RTS is a public transportation service owned and operated by the City of Ridgecrest.

#### Description of Transportation Services

The City of Ridgecrest operates a dial-a-ride system in the Greater Ridgecrest Area and fulfills a contract for dial-a-ride service (on a reservation-basis only) to Randsburg and the Inyokern area. Figure III-1 shows the service area of the system.

Figure III-1  
Ridgecrest Service Area



The City of Ridgecrest Transit System is a demand-response dial-a-ride system that has served the citizens of the Indian Wells Valley since 1981. The system currently operates from 6:00 a.m. to 6:00 p.m. Monday through Friday and 8:00 a.m. to 4:00 p.m. on Saturday. Advance reservations are required, and passengers are asked to request transportation at least two hours before their desired trip. There are no eligibility requirements for riding RTS, and the service is provided to anyone who requests a ride.

All information on passenger fare collections is written on daily driver trip sheets that separate riders into several groups: general public, senior citizens, disabled passengers, youth under 18, and free rides (5 years old and under or attendants). Rides are also categorized by locations in the city, county, and towns of Inyokern and Johannesburg. All information from the driver trip sheets is tallied and checked by the transit supervisor, who then compiles the information into a daily ride sheet that is used to track ridership and fare collections.

The system currently works with the Sierra Sands School District to pick up passengers by special request that the Sierra Sands School District is unable to transport. The system also picks up individual students from all high schools, middle schools, and elementary schools in the service area.

### Scheduling and Dispatching

The transit dispatch system is currently set up as a “real time” system. All rides are handwritten by the dispatcher, and routed to each individual driver hourly via push-to-talk radio phones. All information is cataloged for recurring rides. The ride bookings for the following week are written in as they are requested by the passengers. The dispatcher is the immediate supervisor of the drivers and makes decisions concerning operation times and destinations as they arise. The transit supervisor makes all decisions inside and outside of the immediate operation spectrum and is responsible for policy and disciplinary enforcement of administrative policies.

All rides are by advance reservation only, with a minimum two-hour advance notification requirement. Trip reservations can be made up to one week in

advance. Recurring rides for the same days and times are also available on a long-term basis. Walk-on rides or rides “in the field” are not allowed without authorization from the dispatcher or supervisor. Passengers booking rides from business to business are required to give their first and last name to aid in no-show collections.

Currently, the City enforces a progressive no-show policy. When either a passenger (or a resident address) is a no-show for a reserved ride, all of that passenger’s rides for that day are automatically cancelled. The passenger is asked to pay the full fare for the missed ride on the next trip taken. If the passenger is unable to pay for the missed ride, it is recorded. When a passenger (or resident address) reaches four no-shows, the passenger is automatically placed on the restricted list. The passenger is not allowed on a bus again until the no-shows are paid for at the City finance office. After being taken off the restricted list, the passenger is put on a “first pull” list and is only allowed to make ride reservations on a weekly basis. All other standing reservations for the passenger are pulled for three months. If the passenger again reaches four no-shows, the passenger is placed back on the restricted list and must pay for the missed rides at the City finance office. The passenger is then put on a “second pull” list and is only allowed to book rides on a daily basis. If the passenger then reaches two no-shows, the passenger is denied all service for a period of three months. After three months, the passenger is allowed to book rides on a daily basis. If the passenger then reaches two no-shows, the passenger is suspended from bus service for one year. When a passenger has their service suspended for any length of time, a cancellation of service letter is sent to their address informing them of the policy and the dates and times of their no-shows.

## Fares

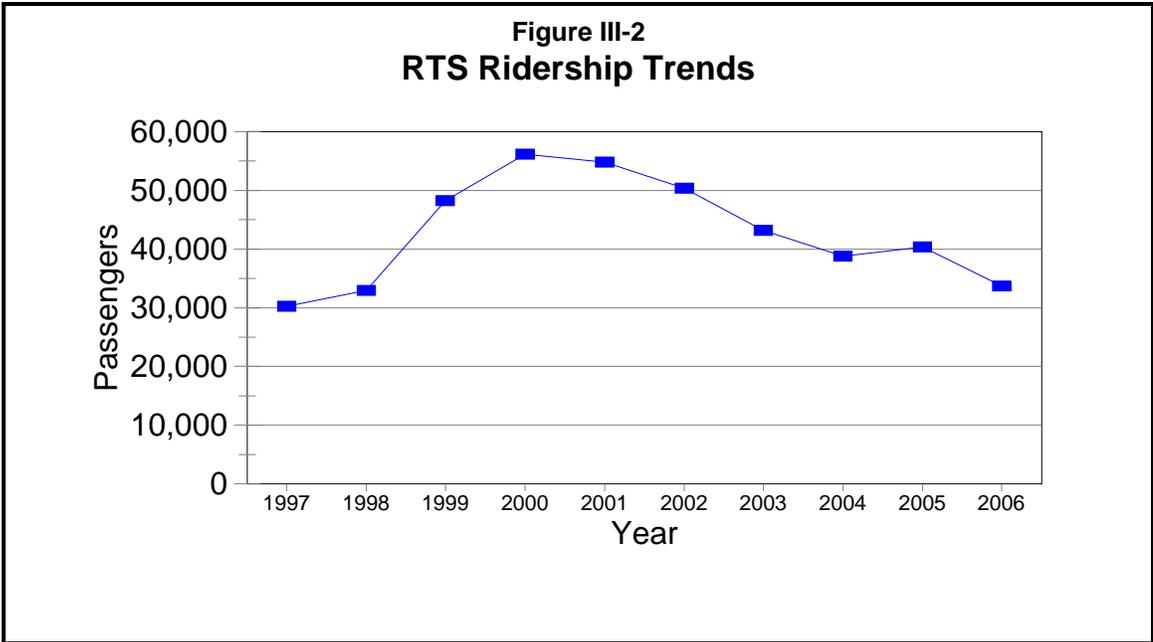
The current fare structure for RTS is shown in Table III-1. The regular passenger fare is \$2.00 for a one-way trip. For youth under the age of 18, the fare is \$1.00. For seniors and disabled individuals, the fare is \$1.00 for a one-way trip. RTS also provides monthly passes. At this time no discount has been identified for the monthly pass.

Table III-1 Fares for RTS	
General Ridership	\$2 each
Senior	\$1 each
Youth under 18	\$1 each
Disabled Individuals	\$1 each
<i>Source: RTS, 2007.</i>	

**Ridership Patterns**

Ridership Trends

Figure III-2 shows the ridership trends for RTS since 1997. The ridership increased until 2000, decreased from 2001 to 2004, and then stabilized somewhat in 2004 and 2005 at 40,000 passengers. This equates to a 27 percent decrease over a four-year period. When reviewing the ridership over the past nine years, the average growth rate is less than one percent. The ridership in fiscal year 2005-2006 was 33,700 annual passenger-trips. The highest ridership was 55,000 passenger-trips in 2001.



## Ridership by Market Segment

RTS currently tracks passengers by the traditional categories of general public, disabled, youth, and elderly. Currently, the highest percentage of riders is the disabled passengers, with 30 percent of the total ridership. The general public has been the highest, with an average of 30 percent of the total ridership. The smallest percentage is the youth ridership at 12 percent. General public and youth demand have been decreasing while other groups have remained relatively constant. Table III-2 shows the total ridership by the different categories. At this time, RTS does not record the number of wheelchairs on the system.

<b>Table III-2 Transit Market Segment</b>								
	<b>Fiscal Year</b>						<b>Through Dec. 06</b>	<b>Totals</b>
	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>		
<b>General</b>	17,878	16,681	16,212	12,409	11,086	8,814	4,538	<b>87,618</b>
<b>Senior</b>	10,210	9,929	8,939	8,616	7,548	6,486	3,485	<b>55,213</b>
<b>Disabled</b>	9,846	9,360	8,833	9,071	9,916	10,033	5,206	<b>62,265</b>
<b>Youth</b>	7,872	7,537	6,089	6,426	5,877	4,082	2,353	<b>40,236</b>
<b>Free</b>	8,992	7,024	3,807	4,644	5,759	4,464	2,964	<b>37,654</b>
<b>Totals</b>	<b>54,798</b>	<b>50,531</b>	<b>43,880</b>	<b>41,166</b>	<b>40,186</b>	<b>33,879</b>	<b>18,546</b>	

## **Staff**

RTS has a staff of one part-time and six full-time employees. The employees include one transit supervisor, five transit drivers (two of whom are relief dispatchers), and one part-time relief driver. The transit system currently has one full-time mechanic assigned for repairs to the units. All transit staff are licensed and currently drive GPPV-certified buses. All transit drivers are currently trained by a USDOT-certified mass transit instructor. All training criteria are in compliance with federal and state requirements for classroom, in-service, and behind-the-wheel instruction including time and content.

## **Vehicle Fleet**

RTS currently has five vehicles for passenger transportation. The vehicle inventory for passenger transit is shown in Table III-3. All of the buses are body-on-

chassis, equipped with lifts, and are ADA-accessible. The vehicles all have the capacity for up to two wheelchairs.

<b>Table III-3 RTS Fleet Inventory</b>						
<b>Equipment Type</b>	<b>Make</b>	<b>Model Year</b>	<b>Capacity</b>	<b>Lift</b>	<b>Wheel-chair</b>	<b>Mileage</b>
16-passenger cutaway	Ford	2002	16	Y	2	138,016
16-passenger cutaway	Ford	2002	16	Y	2	112,642
10-passenger cutaway	Ford	2003	10	Y	2	21,655
14-passenger cutaway	Ford	2005	14	Y	2	30,241
12-passenger cutaway	Ford	2006	12	Y	2	15,370
<i>Source: RTS, 2007.</i>						

The buses have a vehicle life based on the FTA guidelines of approximately four years or 100,000 to 150,000 miles. Please note that the vehicle life of four years or 100,000 to 150,000 miles is based on the minimum number of years specified by FTA for capital replacement. Thus, an agency may be able to use the buses for longer.

All buses are repaired at the city-operated maintenance facility every 45 days, 3,000 miles, or sooner if needed. All units, records, and repairs are checked and inspected by the California Highway Patrol Motor Carriers Division annually.

## **Facilities**

The facility is shared with the Public Works/Streets Department. The facility has 6.9 acres, fenced, with four maintenance bays, one of which is used for transit buses. The city has 54 acres, unfenced, for expansion of the facilities.

## **Financial Status**

### Revenues

The revenue required to operate and support RTS comes from a variety of funding sources. Total revenue is \$814,700. The funding sources are shown in Table III-4. The number following each of the funding sources represents the percentage of total revenue. As indicated in Table III-4, the system's largest resource, \$666,000, is from the SB 325 TDA ¼-cent sales tax. In the 2005 to

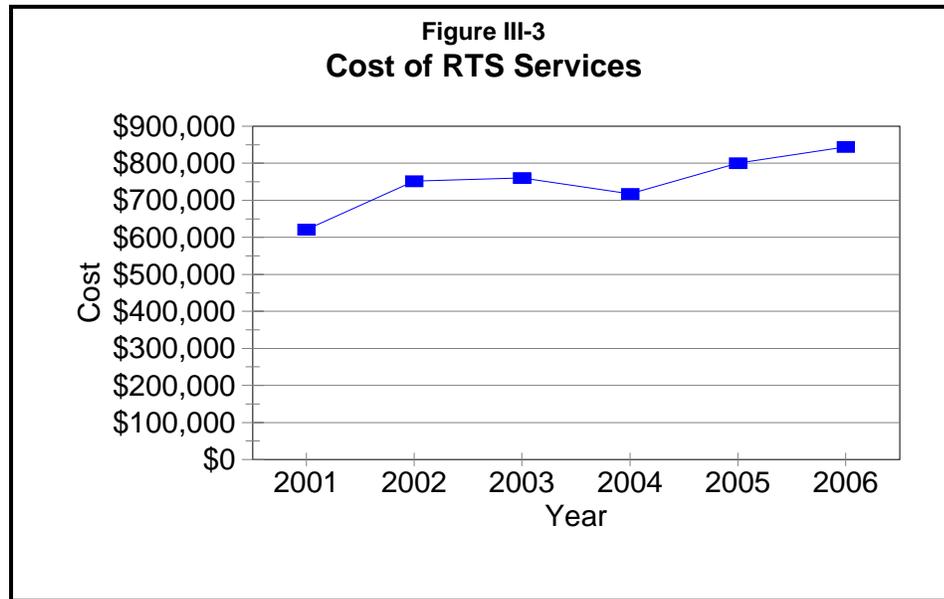
2006 fiscal year, RTS received approximately \$50,000 from FTA and state grants. The farebox revenue collected for the same period was \$35,811. This equates to a farebox recovery ratio of four percent. The average fare collected per passenger-trip was \$1.25.

<b>Table III-4 Revenues</b>		
	<b>Actual Revenues</b>	<b>Percentage of Budget</b>
Local Transit Fund (1/4-cent sales tax)	\$665,978	82%
State Transit Assistance Fund	\$50,028	6%
Federal Grant	0	0%
Farebox Revenue	\$35,811	4%
Charter Services	\$700	0%
Non-Transportation Revenue	\$5,819	1%
General Operating Assistance (Local General Fund)	\$56,364	7%
<b>Total</b>	<b>\$814,700</b>	

*Source: RTS, 2006.*

### Expenses

The other half of the total budget equation is, of course, expenditures. Total expenditures for FY 2005-2006 were \$844,400. The primary expenses for RTS (and all other transit agencies across the United States) are salaries and benefits. Figure III-3 presents the trend of expenses over six years starting from FY 2000-2001. The percent increase from FY 2000-2001 to FY 2005-2006 is approximately 36 percent, which reflects the average increase in cost. RTS operating costs for FY 2005-2006 are shown in the following section, which presents the cost allocation model.



### Cost Allocation Model

Financial, ridership, and service information can be used to develop internal evaluation tools for RTS. A cost allocation model provides base information against which the current operations can be judged. In addition, the model is useful for estimating the cost ramifications of any proposed service alternative. The RTS cost allocation model is shown in Table III-5. Note that the cost allocation model is based on actual expenditure and not the budget amount.

Cost information from FY 2005-2006 was used to develop a two-factor cost allocation model of the current RTS operations. In order to develop such a model, each cost line item is allocated to one of two service variables—hours and miles. In addition, fixed costs are identified as being constant. This is a valid assumption for the short term, although fixed costs could change over the long term (more than one or two years). Examples of the cost allocation methodology include allocating fuel costs to vehicle-miles and allocating operator salaries to vehicle-hours. The total costs allocated to each variable are then divided by the total quantity (i.e., total revenue-miles or hours) to determine a cost rate for each variable. The allocation of costs for RTS' 2005-2006 fiscal year operations yields the following cost equation for the existing bus operations:

$$\text{Total Cost} = \$280,782 + (\$1.71 \times \text{Revenue-Miles}) + (\$72.32 \times \text{Revenue-Hours})$$

Incremental costs such as the extension of service hours or service routes/ areas are evaluated considering only the mileage and hourly costs:

$$\text{Incremental Costs} = (\$1.71 \times \text{Revenue-Miles}) + (\$72.32 \times \text{Revenue-Hours})$$

<b>Table III-5 RTS Cost Allocation Model</b>				
<b>ACCOUNT</b>	<b>Actual Expenses 2004-2005</b>	<b>Vehicle- Hours</b>	<b>Vehicle- Miles</b>	<b>Fixed Cost</b>
Admin. Salaries/Wages/Benefits	\$191,436			\$191,436
Op. Salaries/Wages/Benefits	\$426,645	\$426,645		
Vehicle Supplies	\$136,952		\$136,952	
Office Expenses	\$89,346			\$89,346
<b>TOTAL OPERATING COSTS</b>	<b>\$844,379</b>	<b>\$426,645</b>	<b>\$136,952</b>	<b>\$280,782</b>
Service Variable Quantities		veh-hrs	veh-mls	
		5,899	80,045	
<b>TOTAL COST</b>	<b>\$844,379</b>	<b>\$72.32</b>	<b>\$1.71</b>	
Fixed Cost Factor: 1.50				
<i>Note: Actual expenses were taken in contrast to budget cost because of unencumbered balances.</i>				
<i>RTS, 2006; LSC, 2007.</i>				

### Performance Measures

Operating effectiveness and financial efficiency of the transit system are two important factors to the success of the system. The operating effectiveness is the ability of the transit service to generate ridership. Financial efficiency is the ability of the transit system to provide service and serve passenger-trips in a cost-efficient manner. Table III-6 presents the systemwide characteristics for FY 2005-2006. While the number of passengers per hour is good, the cost per hour is high.

<b>Table III-6 System Performance</b>	
Operating budget	\$844,379
Fare revenue	\$35,811
Ridership	40,374
Vehicle-miles	80,045
Vehicle-hours	5,899
Passengers/mile	0.50
Passengers/hour	6.84
Cost/passenger	\$20.91
Cost/hour	\$143.14

*Source: RTS, 2006; LSC, 2007.*

## **OTHER TRANSPORTATION PROVIDERS AND RESOURCES**

Within the Ridgecrest study area are social service transportation providers as well as additional social services which, although they do not provide transportation, have significant transportation needs and often make use of the services provided by RTS. The following brief agency descriptions are based on information received in the planning process and a review of past transit planning efforts.

### **Homemaker Services of Indian Wells Valley**

Homemaker Services of Indian Wells Valley provides information and services to senior citizens still living in their private homes, but who are in need of basic assistance. Currently Homemaker Services has about 100 to 110 clients.

Homemaker Services staff provide transportation to about 4 to 50 clients once or twice each week for shopping and personal errands. In addition, Homemaker Services works with senior volunteers who offer transportation when requests come in. These volunteers bring two to three people each week to a bingo game and are assigned to additional requests about five times per month.

### **Desert Area Rehabilitation and Training (DART)**

DART provides community support and programs (vocational and recreational) for developmentally-disabled adults, babies, and young children. DART provides transportation to its clients free of charge from their homes to the vocational and recreational program sites.

Occasionally, DART rents its vehicles and drivers to provide transportation for special events. Transportation for DART clients is funded through a 16b.2 grant from Caltrans. As long as DART operations are funded by the grant, DART must maintain control over the vehicles.

## **CREST**

CREST is a regional transit provider. CREST provides service from the Ridgecrest area to Mammoth Lakes, California; Reno, Nevada; Carson City, Nevada; and several other communities along the route. The service will deviate up to three-quarters of a mile from the route if the individual calls 12 hours in advance. The office is open for reservations Monday through Friday from 8:00 a.m. to 5:00 p.m. The fare depends on the community to which the rider is traveling. For example, the cost from Ridgecrest to Mammoth Lakes is \$21.00 for adults and \$17.50 for discount fares. The fares range from Coso Junction at \$5 to Bishop at \$28.

## **Community Resource Center**

The Community Resource Center is primarily a referral agency, although it also does some crisis prevention. Beginning in February 1998, the Center initiated a transportation service for its clients. The Center provides rides to their clients free of charge.

Currently, staff at the Community Resource Center receive requests for transportation on a daily basis. When a request for transportation comes in, they refer the client to RTS or to the taxi service. Frequently, however, neither of these options meets the needs of the client because:

- RTS cannot accommodate an immediate trip.
- Taxi service is too expensive and RTS is too expensive on a daily basis to get to work and child care.

In emergencies, individual staff members at the Community Resource Center have volunteered to provide transportation to clients.

## **Community Connection for Child Care**

Community Connection for Child Care is a resource and referral agency for parents looking for licensed child care. Of the 40 or so families served each month, a large number are participants in the subsidized child care program.

Each month, Community Connection for Child Care receives five to ten requests for transportation, almost exclusively from families in the subsidized child care program. The organization refers the families to RTS, provides them with the taxi company's phone number, and encourages them to carpool with family members or neighbors. It does not provide transportation.

## **Kern Regional Transit (KRT)**

Kern Regional Transit operates Mojave Ridgecrest Express which provides regional/intercity service from Ridgecrest to Mojave and California City. The service provides trips on Monday, Wednesday, and Friday to Inyokern and Ridgecrest. Tickets are sold on a first-come/first-served basis. The fare ranges from \$1 in Ridgecrest to \$4 to Mojave. There are also discount tickets for seniors and youth under 15 years of age.

## **Salvation Army**

The Salvation Army provides emergency assistance including food, shelter, clothing, and medical prescriptions to those in need. Salvation Army staff report that many low-income residents of Ridgecrest need transportation to medical services in Bakersfield because MediCal is not accepted at medical centers in Ridgecrest. RTS is also not an option for many because their same-day trips cannot be accommodated or they cannot afford to pay the fare. The Salvation Army does not provide transportation to its clients due to liability issues.

## **Sage Medical Center**

Sage Medical Center offers primary care medical service only. Ridgecrest area residents who require the care of a medical specialist must travel to Bakersfield to receive this care. About once each week, Sage staff members encounter a patient who needs to go to Bakersfield for a medical appointment, but has no transportation. In cases where the person has no family, friends, or neighbors

to take them to their appointment, staff does one of two things: 1) refers the patient to the Community Resource Center in hopes they will be able to arrange a ride; or 2) as a last resort, pay for a rental car or a driver.

On three occasions during the last year and a half, a staff member of Sage Medical Center has taken a patient to Bakersfield. This only occurs when there is no other way for the patient to get there and there is a work-related reason the staff person is going to Bakersfield anyway.



## CHAPTER IV

# Community Conditions

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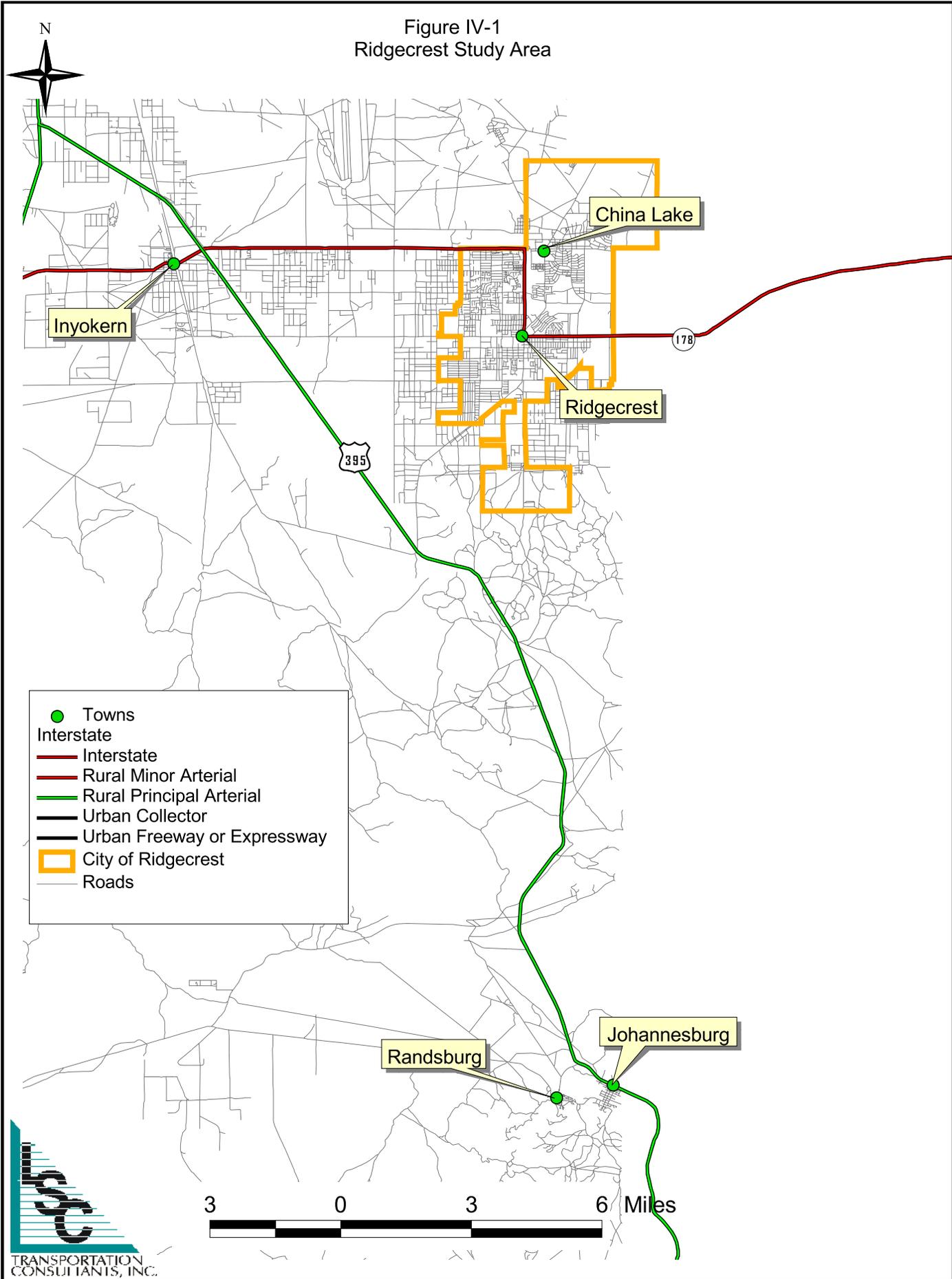
### COMMUNITY DESCRIPTION

#### Study Area Location

The Greater Ridgecrest study area, shown in Figure IV-1, is located in the Indian Wells Valley in northeast Kern County. Kern County is the third largest county in acreage and the twelfth most populous county in the State of California. Ridgecrest is approximately 120 miles from Bakersfield, the county seat, and is adjacent to the Naval Air Weapons Station China Lake.

Prominent topographic features include the Sierra Nevada Mountains. The study area includes the City of Ridgecrest and the service area of the Ridgecrest Transit System (RTS), the local public transit provider in the Ridgecrest area, which extends to China Lake on the north, Inyokern to the west, Johannesburg and Randsburg to the south, and is referred to in this document as the “Greater Ridgecrest study area.”

Figure IV-1  
Ridgecrest Study Area



## **Transportation System Overview**

### Highways

The major north/south highway access to the area is provided by US Highway 395, providing access to locations such as Bishop, Mammoth Lakes, and Yosemite National Park to the north and towns such as Randsburg and Johannesburg to the south. Major east/west access is provided by State Highway 178 which provides access to Inyokern, Kern River Valley, and Bakersfield. There are several major and minor arterials that provide east/west and north/south access in the City of Ridgecrest.

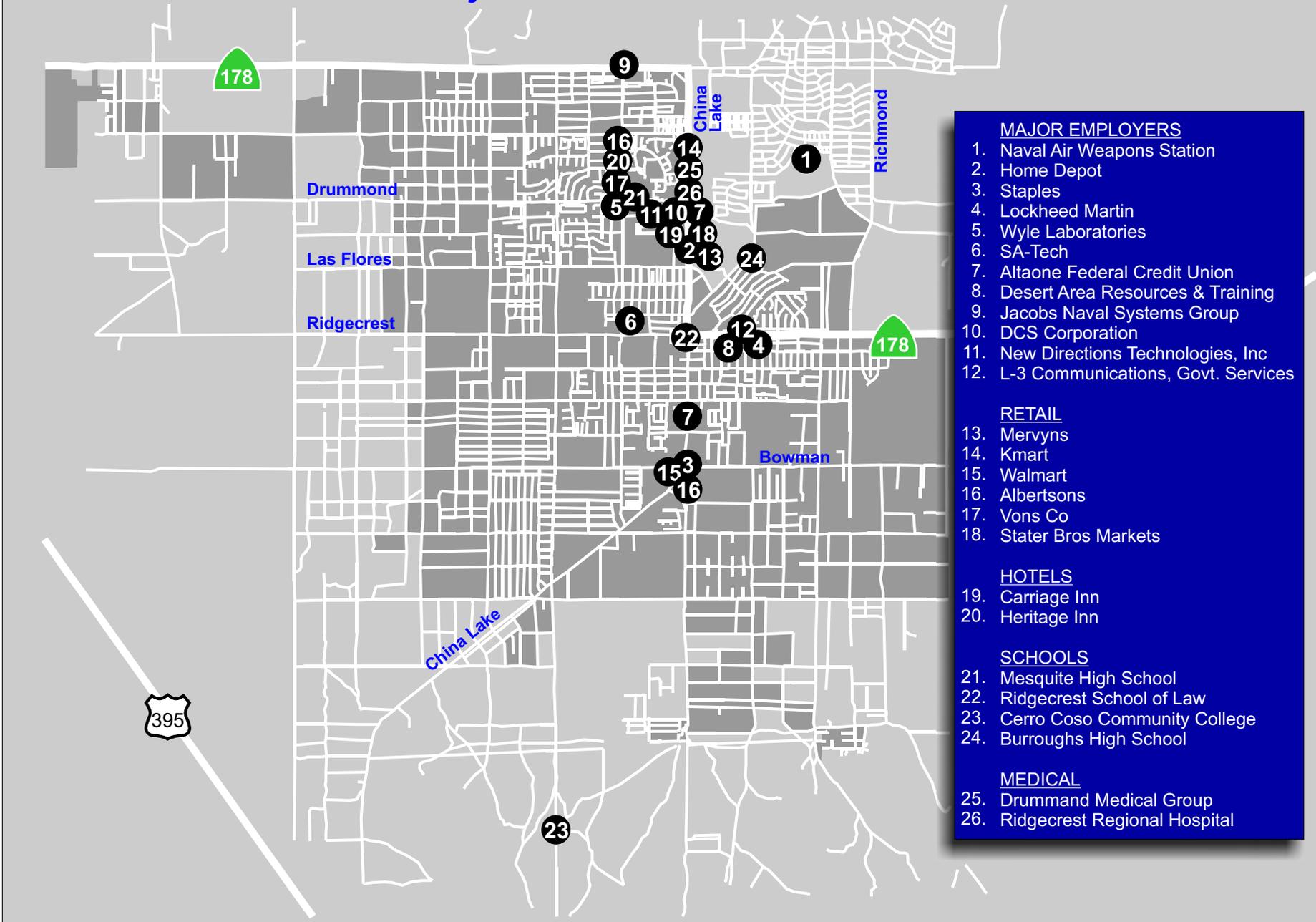
### Airports

The Inyokern Airport lies 10 miles west of Ridgecrest along State Highway 178. United Express, operated by Sky West, provides daily scheduled flights between Inyokern and Los Angeles International Airport.

### **Major Transit Destinations**

The major transit destinations are important in terms of land use, trip generation rates, and their ability to be served by public transit. The region's major activity centers, including the largest employers are concentrated mainly along State Highway 178 and Norma Street. The Ridgecrest major transit destinations are shown in Figure IV-2. These destinations include medical facilities such as Ridgecrest Regional Hospital and Drummond Medical Group; shopping centers such as Wal-Mart, Kmart, Home Depot, Albertsons, and Stater Bros. Market; high schools such as Burroughs High School and Mesquite High School; and Cerro Coso Community College.

Figure IV-2  
Major Transit Destinations



## **Major Employers**

Table IV-1 reflects Ridgecrest's largest private and public employers. Naval Air Weapons Station China Lake is the largest employer in the area with approximately 3,250 civilian employees and 950 military employees. This is followed by Searles Valley Minerals and the Sierra Sands Unified School District, which employ approximately 625 and 620 employees respectively. Figure IV-2 shows the location of the largest employers in Ridgecrest.

**Table IV-1  
Major Employers in Ridgecrest**

<b>Name of the Employer</b>	<b>Type of Business</b>	<b>Number of Employees</b>
Naval Air Weapons Station, China Lake	Defense RDT&E	3,251 (civilian) 951 (military)
Searles Valley Minerals	Mining of Soda Ash Products	625
Sierra Sands Unified School District	Education	620
Ridgecrest Regional Hospital	Acute-Care Hospital	340
Wyle Laboratories	Defense Contractor	280
SA-Tech (Systems Applications & Technologies)	Defense Contractor	187
Wal-Mart	Discount Department Store	184
Cerro Coso Community College	Education	175
AltaOne Federal Credit Union	Credit Union	161
Desert Area Resources and Training	Training and Social Services	155
City of Ridgecrest	Municipality	134
Drummond Medical Group	Medical Clinic	125
Jacobs Naval Systems Group	Defense Contractor	120
Ridgecrest HealthCare Center	Convalescent Hosp., Rehab.	118
Titan National Security Solutions/EC3	Range Technical Support	111
Lockheed Martin	Defense Contractor	110
Albertson's (two stores)	Grocery Store	100
L-3 Communications, Govt. Services, Inc.	Defense Contractor	95
DCS Corporation (2 offices)	Defense Contractor	90
Carriage Inn	Hotel	80
Coso Operating Co.	Geothermal Power Production	80
Kmart	Discount Department Store	80
Immanuel Baptist Church, Ministry Center, School	Church and School	80
The Home Depot	Retail Home Improvement	75
New Directions Technologies Inc.	Network Systems Administration	75
Mervyn's	Department Store	74
Stater Bros.	Grocery Store	60
CR Briggs, Inc.	Mining	60
Heritage Inn and Suites	Hotel and Restaurant	54
Staples, Inc.	Office Supply Store	50
Computer Technology Associates, Inc.	Engineering/Computing Services	30
<i>Source: Ridgecrest Chamber of Commerce, 2007.</i>		

## **STUDY AREA DEMOGRAPHICS**

### **1990-2006 Population**

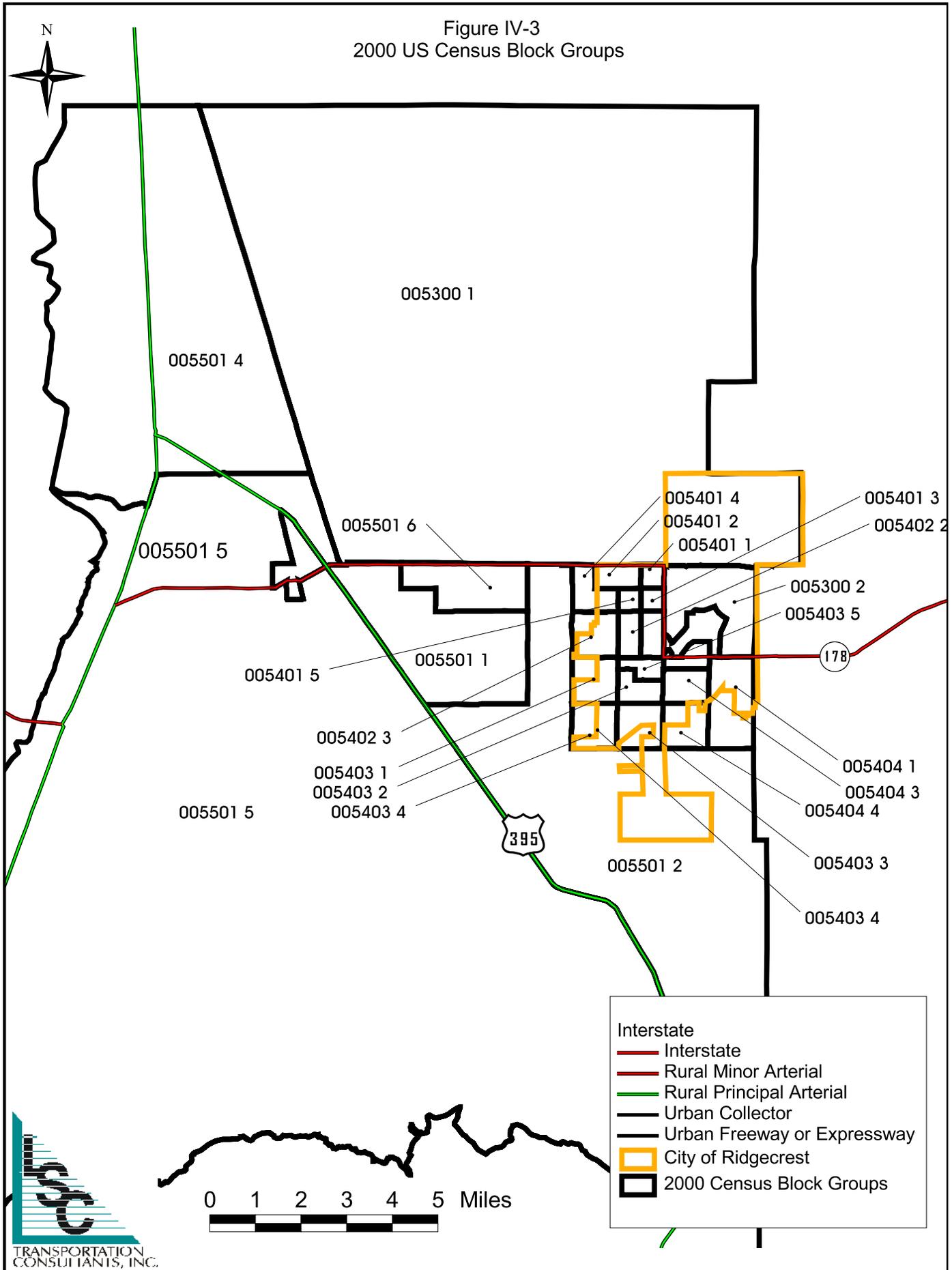
The permanent population for the Greater Ridgecrest study area was reported to be 35,384 people based on the 1990 US Census. According, to the 2000 US Census, the population of the Greater Ridgecrest study area was 32,140, a decrease of approximately 10 percent from 1990. This could be attributed to the downsizing of the Naval Air Weapons Station China Lake. In comparison, the State of California had a population increase of approximately 14 percent between 1990 and 2000. The estimated 2006 population of the Greater Ridgecrest study area is 34,188 (a six percent increase from 2000), while the State of California 2005 population is estimated with an eight percent increase at 36,457,549. Table IV-2 presents the 2006 Greater Ridgecrest study area population estimates by census block groups. Figure IV-3 illustrates the census block groups of the Greater Ridgecrest study area.

**Table IV-2  
2006 Estimated General Population  
Greater Ridgecrest Study Area**

Census Tract	Census Block Group	Land Area sq. ml.	Total Population 2006	2000 Population By Gender	
				Male	Female
53	1	107.00	739	449	290
53	2	2.99	0	0	0
53	3	0.81	1,175	637	538
54.01	1	0.26	737	354	383
54.01	2	0.54	1,572	739	833
54.01	3	0.25	915	472	443
54.01	4	0.77	1,465	750	715
54.01	5	0.25	1,233	622	611
54.02	1	0.52	1,599	814	785
54.02	2	0.50	1,779	850	929
54.02	3	1.01	1,875	966	909
54.03	1	1.01	1,543	733	811
54.03	2	0.59	2,402	1,199	1,203
54.03	3	1.00	1,012	522	489
54.03	4	0.98	1,341	654	687
54.03	5	0.40	1,006	558	448
54.04	1	1.99	1,343	656	687
54.04	2	0.47	2,601	1,256	1,345
54.04	3	0.75	2,518	1,257	1,260
54.04	4	1.00	721	363	358
55.01	1	7.83	953	502	451
55.01	2	36.16	1,908	965	944
55.01	3	0.98	350	200	150
55.01	4	37.30	1,059	553	506
55.01	5	192.04	817	374	443
55.01	6	2.54	959	447	513
55.03	1	339.84	564	315	249
<b>Study Area (General Population):</b>		<b>740</b>	<b>34,188</b>	<b>17,209</b>	<b>16,979</b>

*Source: 2000 Census, Kern Council of Governments, LSC, 2007.*

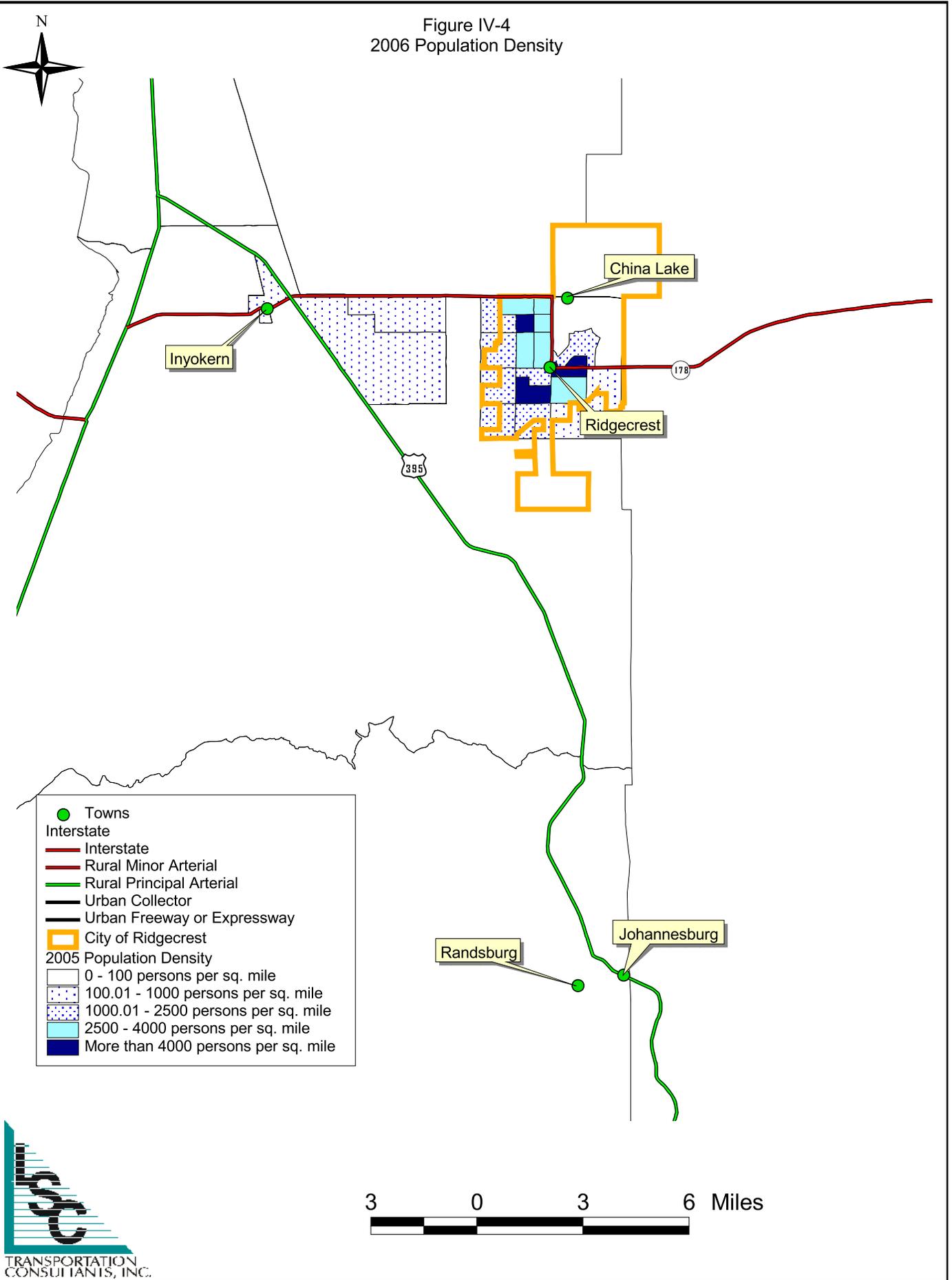
Figure IV-3  
2000 US Census Block Groups



## Population Density

Figure IV-4 reflects the 2006 estimated population density for the Greater Ridgecrest study area by block group boundaries. The population is most dense in the City of Ridgecrest just east of the intersection between Ridgecrest Boulevard and China Lake Boulevard, the area west of Albertson's (on North Norma Street), and the area northwest of Wal-Mart. The area west of the Ridgecrest Regional Hospital along State Highway 178 and the area east of Wal-Mart reflect the next highest population density areas. In Inyokern, the highest population density is concentrated east of the Inyokern Airport.

Figure IV-4  
2006 Population Density



- Towns
- Interstate
- Interstate
- Rural Minor Arterial
- Rural Principal Arterial
- Urban Collector
- Urban Freeway or Expressway
- ▭ City of Ridgecrest
- 2005 Population Density
- 0 - 100 persons per sq. mile
- ▨ 100.01 - 1000 persons per sq. mile
- ▨ 1000.01 - 2500 persons per sq. mile
- ▨ 2500 - 4000 persons per sq. mile
- More than 4000 persons per sq. mile



## Population Projections

The population is dependent on the US Naval Weapons Station China Lake, and from 2000 to 2006 this has resulted in a population growth. Based on these and other planning factors, development is expected to increase over the next 20 years. Table IV-3 and Figure IV-5 reflect population projections to the year 2030 for the Greater Ridgecrest study area. It is anticipated that the population will increase approximately two percent every year until the year 2030, at which time the population is projected to be 53,908 people. Figure IV-6 illustrates the projected population density for 2030, based on the 2000 US census block group boundaries.

Possible growth areas include the areas along State Highway 178 between North China Lake Boulevard extending west to Down Street and Ridgecrest Boulevard extending south to Bowman's Road.

<b>Table IV-3 Population Projections</b>		
<b>Year</b>	<b>Greater Ridgecrest Study Area Populations</b>	<b>Percent Growth</b>
2000	32,140	—
2006	34,188	6.37%
2010	35,973	5.22%
2020	41,002	13.98%
2030	46,675	13.84%
<i>Note: The 2006 estimate was based on the California Department of Finance. The 2010, 2020, and 2030 population projections were based on Kern Council of Governments, April 2005. Adopted Regional Growth Forecast by Regional Statistical Area (RSA).</i>		
<i>Source: US Bureau of the Census &amp; Kern Council of Governments, LSC, 2007.</i>		

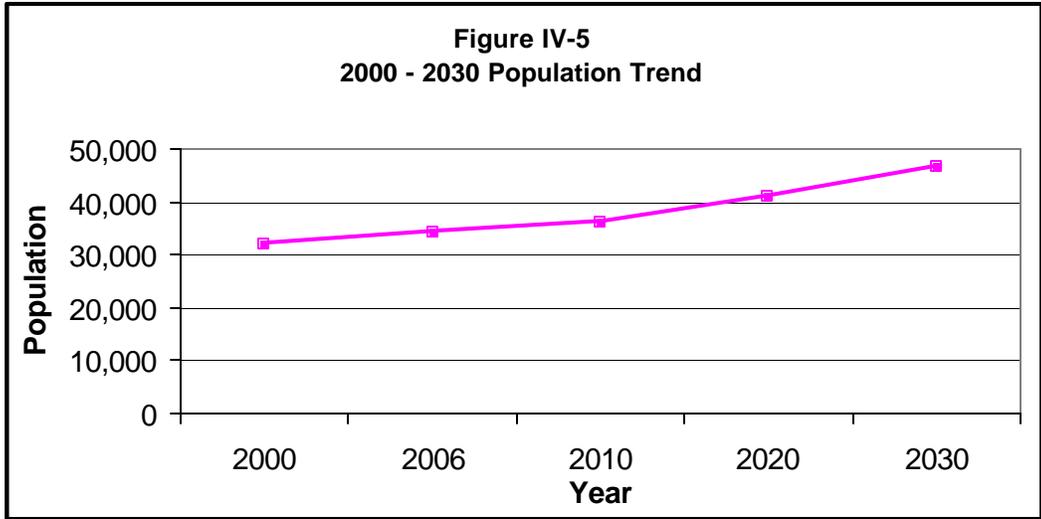
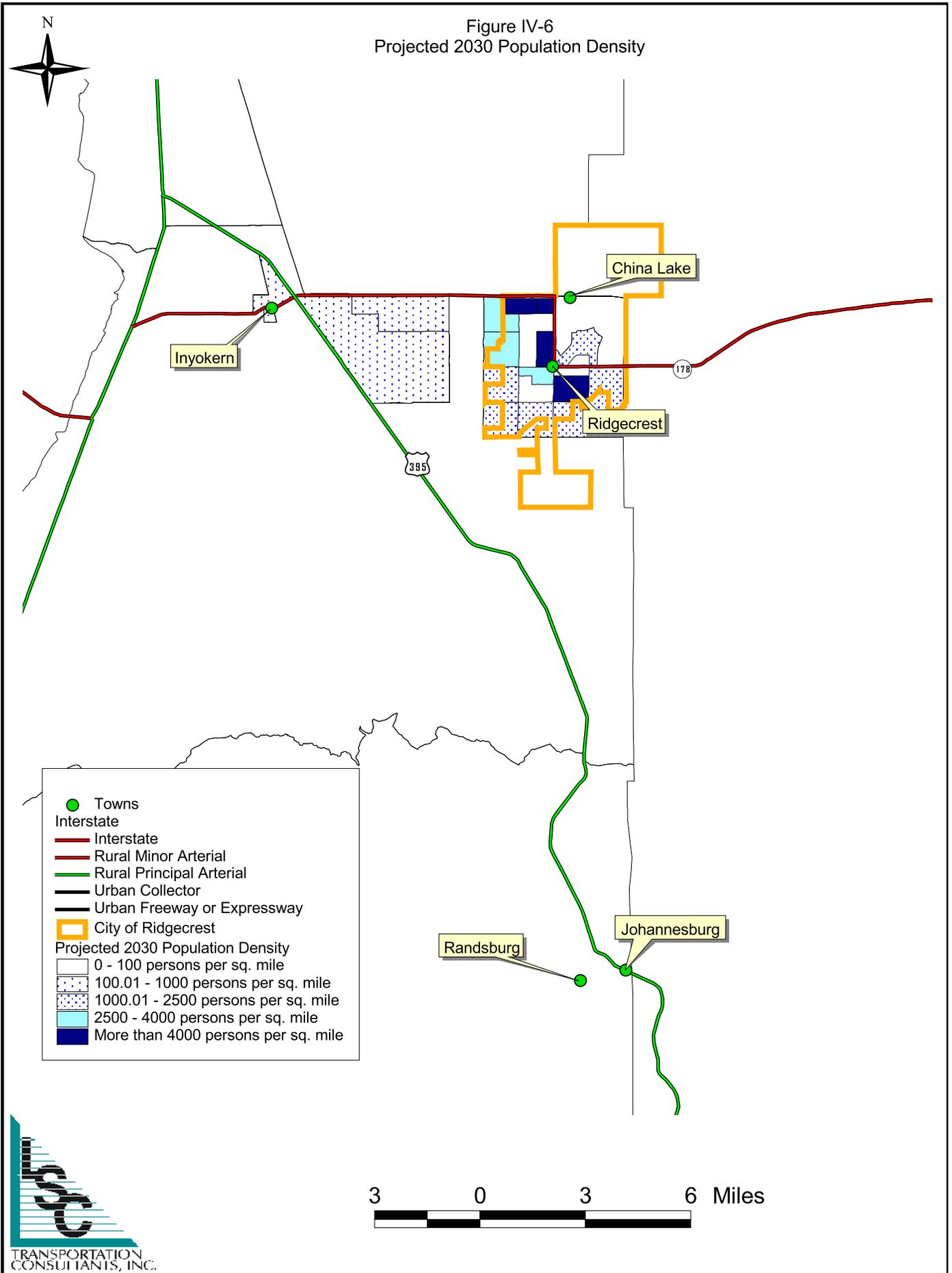


Figure IV-6  
Projected 2030 Population Density



## **Transit-Dependent Population Characteristics**

This section provides information on individuals considered by the transportation profession to be dependent upon public transit. In general these population characteristics preclude most such individuals from driving, leaving carpooling and public transit as the only other motorized forms of transportation available.

The four types of limitations that preclude persons from driving are: (1) physical limitations, (2) financial limitations, (3) legal limitations, and (4) self-imposed limitations. Physical limitations may include everything from permanent disabilities such as frailty due to age, blindness, paralysis, or developmental disabilities, to temporary disabilities such as acute illnesses and head injuries. Financial limitations essentially include those persons unable to purchase or rent their own vehicle. Legal limitations refer to such limitations as persons who are too young (generally under age 16). Self-imposed limitations refer to those people who choose not to own or drive a vehicle (some or all of the time) for reasons other than those listed in the first three categories.

The US Census is generally capable of providing information about the first three categories of limitation. The fourth category is currently recognized as representing a relatively small proportion of transit ridership. Table IV-4 presents the Greater Ridgecrest study area's estimated 2006 population for zero-vehicle households, youth population, elderly population, mobility-limited population, and below-poverty population. These types of data are important to the various methods of demand estimation.

Table IV-4 2006 Estimated General Population Characteristics Greater Ridgecrest Study Area															
Census Tract	Census Block Group	Land Area (sq. ml.)	Population Estimated 2006	Total Number of Households Estimated 2006		Zero-Vehicle Households Estimated 2006		Youth Aged 0-15 Estimated 2006		Elderly 60 & Over Estimated 2006		Mobility-Limited Population Estimated 2006		Below-Poverty Population Estimated 2006	
				#	%	#	%	#	%	#	%	#	%	#	%
53	1	107.00	739	147	7	5.1%	247	33.4%	0	0.0%	0	0.0%	0	0.0%	
53	2	2.99	0	0	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	
53	3	0.81	1,175	395	120	30.5%	481	40.9%	60	5.1%	61	5.2%	451	38.4%	
54.01	1	0.26	737	423	72	17.1%	124	16.9%	275	37.4%	51	6.9%	46	6.2%	
54.01	2	0.54	1,572	744	80	10.7%	361	22.9%	220	14.0%	74	4.7%	255	16.2%	
54.01	3	0.25	915	370	30	8.0%	200	21.9%	184	20.1%	11	1.2%	9	0.9%	
54.01	4	0.77	1,465	499	28	5.5%	332	22.7%	167	11.4%	19	1.3%	12	0.8%	
54.01	5	0.25	1,233	569	17	3.0%	198	16.0%	356	28.9%	139	11.3%	64	5.2%	
54.02	1	0.52	1,599	700	101	14.4%	425	26.6%	234	14.6%	68	4.3%	330	20.6%	
54.02	2	0.50	1,779	702	44	6.2%	328	18.4%	480	27.0%	73	4.1%	157	8.9%	
54.02	3	1.01	1,875	664	22	3.4%	523	27.9%	227	12.1%	78	4.1%	82	4.4%	
54.03	1	1.01	1,543	606	10	1.6%	337	21.8%	184	11.9%	152	9.9%	118	7.6%	
54.03	2	0.59	2,402	925	63	6.8%	719	29.9%	325	13.6%	124	5.2%	396	16.5%	
54.03	3	1.00	1,012	385	0	0.0%	226	22.3%	138	13.7%	41	4.1%	14	1.4%	
54.03	4	0.98	1,341	561	33	5.9%	319	23.8%	270	20.1%	61	4.5%	85	6.3%	
54.03	5	0.40	1,006	430	119	27.7%	291	29.0%	128	12.7%	94	9.3%	504	50.1%	
54.04	1	1.99	1,343	516	0	0.0%	373	27.8%	150	11.2%	50	3.7%	197	14.6%	
54.04	2	0.47	2,601	1,079	61	5.6%	752	28.9%	324	12.5%	152	5.8%	325	12.5%	
54.04	3	0.75	2,518	871	27	3.1%	712	28.3%	302	12.0%	118	4.7%	221	8.8%	
54.04	4	1.00	721	303	52	17.2%	143	19.8%	172	23.9%	66	9.1%	101	14.0%	
55.01	1	7.83	953	360	48	13.3%	166	17.4%	262	27.5%	100	10.5%	101	10.6%	
55.01	2	36.16	1,908	749	0	0.0%	323	16.9%	391	20.5%	21	1.1%	77	4.0%	
55.01	3	0.98	350	171	32	18.6%	74	21.3%	106	30.4%	36	10.3%	96	27.4%	
55.01	4	37.30	1,059	451	33	7.3%	184	17.4%	227	21.4%	88	8.3%	132	12.4%	
55.01	5	192.04	817	319	6	2.0%	168	20.6%	96	11.7%	14	1.7%	113	13.8%	
55.01	6	2.54	959	394	7	1.9%	264	27.5%	238	24.8%	53	5.5%	223	23.3%	
55.03	1	339.84	564	285	28	9.7%	82	14.5%	274	48.7%	95	16.8%	48	8.5%	
<b>Study Area TOTAL (General Population):</b>			<b>740</b>	<b>34,188</b>	<b>13,617</b>	<b>1,039</b>	<b>7.6%</b>	<b>8,352</b>	<b>24.4%</b>	<b>5,792</b>	<b>16.9%</b>	<b>1,840</b>	<b>5.4%</b>	<b>4,156</b>	<b>12.2%</b>

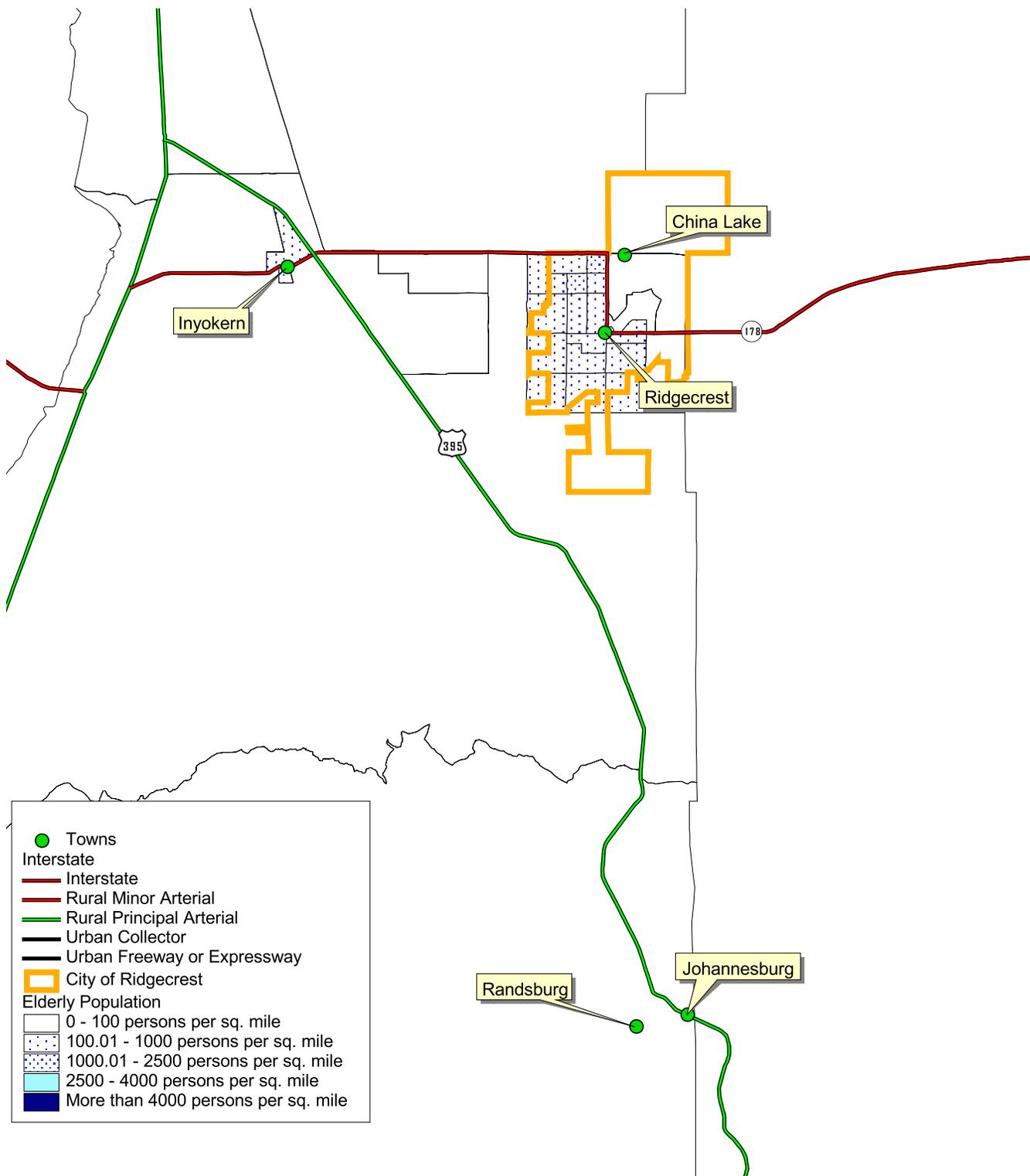
Source: 2000 Census, Kern Council of Governments, LSC, 2007.

## Elderly Population

Elderly persons represent a significant number of the transit-dependent population compared to other transit-dependent market segments and represent approximately 16.9 percent of the total population in the Greater Ridgecrest study area. Figure IV-7 illustrates the distribution of elderly persons (age 60 or more) across Ridgecrest. As illustrated in Table IV-4 and Figure IV-7, the highest density areas of elderly residents are concentrated west of China Lake Boulevard extending west to Brady Street and along Ridgecrest Boulevard extending south to Bowman's Road and north to North Sunland Street. The highest concentration of the elderly in Inyokern is located east of the Inyokern Airport at the intersection of US Highway 395 and State Highway 178.

The next highest density areas of elderly residents are east of Ridgecrest between Gateway Boulevard and San Bernardino Boulevard, which extends north to the China Lake Golf Course and in the west Ridgecrest area.

Figure IV-7  
Elderly Population Density



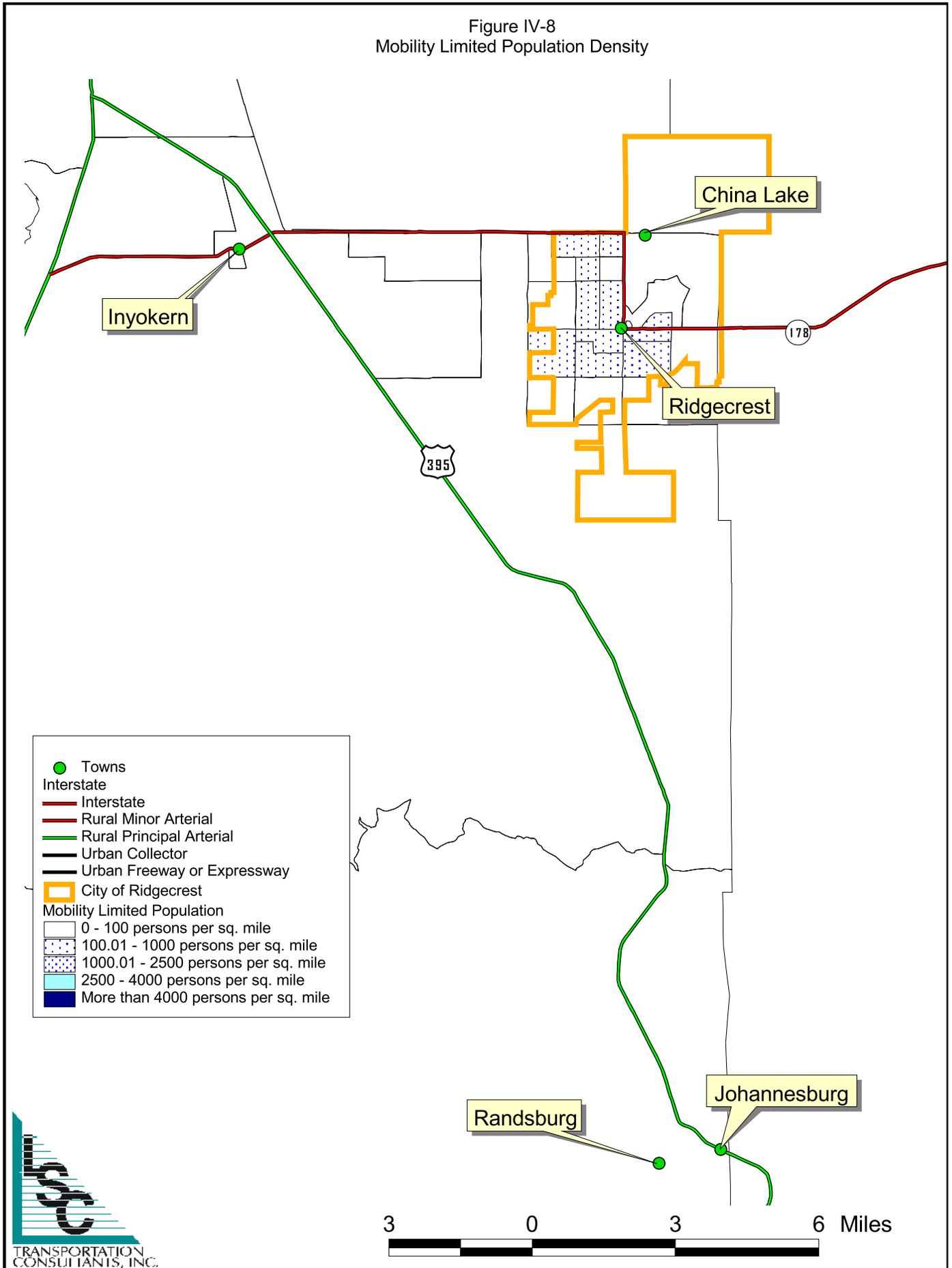
●	Towns
Interstate	
—	Interstate
—	Rural Minor Arterial
—	Rural Principal Arterial
—	Urban Collector
—	Urban Freeway or Expressway
□	City of Ridgecrest
Elderly Population	
□	0 - 100 persons per sq. mile
□	100.01 - 1000 persons per sq. mile
□	1000.01 - 2500 persons per sq. mile
□	2500 - 4000 persons per sq. mile
□	More than 4000 persons per sq. mile



### Mobility-Limited Population

The mobility-limited population also represents a large portion of the transit-dependent population. Nationwide, approximately 10 percent of the population has some form of mobility impairment, although this is typically much lower in rural areas. This holds true in the Greater Ridgecrest study area, where approximately five percent of the population has some type of mobility limitation. Figure IV-8 illustrates the distribution of the mobility-limited population in the Greater Ridgecrest study area. In all respects, Ridgecrest has few mobility-limited persons as a percentage of the total population. Persons with disabilities are clustered in the City of Ridgecrest, west of China Lake Boulevard extending west to Down Street and Mahan Street, and along Ridgecrest Boulevard extending south to the Wal-Mart area. In Inyokern, a significant percentage of mobility-limited persons live east of the Inyokern Airport.

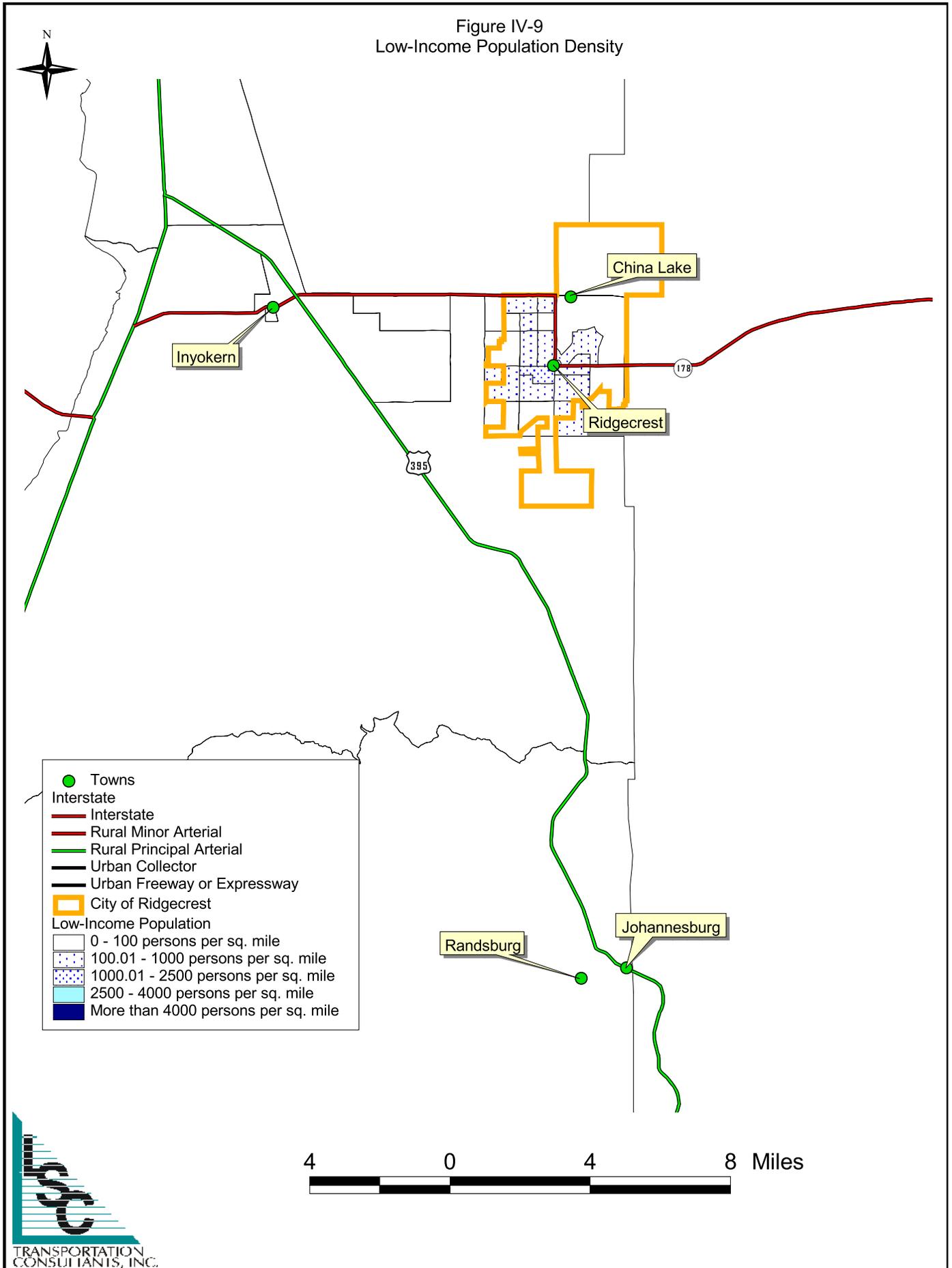
Figure IV-8  
Mobility Limited Population Density



## Low-Income Population

Low-income persons tend to depend on transit to a greater extent than more wealthy persons or persons with a high level of disposable income. Based on the 2000 US Census, the average per-capita income for Ridgecrest was \$21,312. This is lower than the state's average of \$22,711. The portion of the population living below the poverty level within Ridgecrest is approximately 12 percent. The distribution of the below-poverty population is shown in Figure IV-9. The highest density of the below-poverty population is in the northeast area of the City of Ridgecrest, west of China Lake Boulevard extending west to Down Street and Mahan Street, along Ridgecrest Boulevard extending south to Bowman Road and Springer Avenue, and north to the China Lake Golf Course. The highest percentage of low-income persons in Inyokern is located east of Inyokern Airport.

Figure IV-9  
Low-Income Population Density



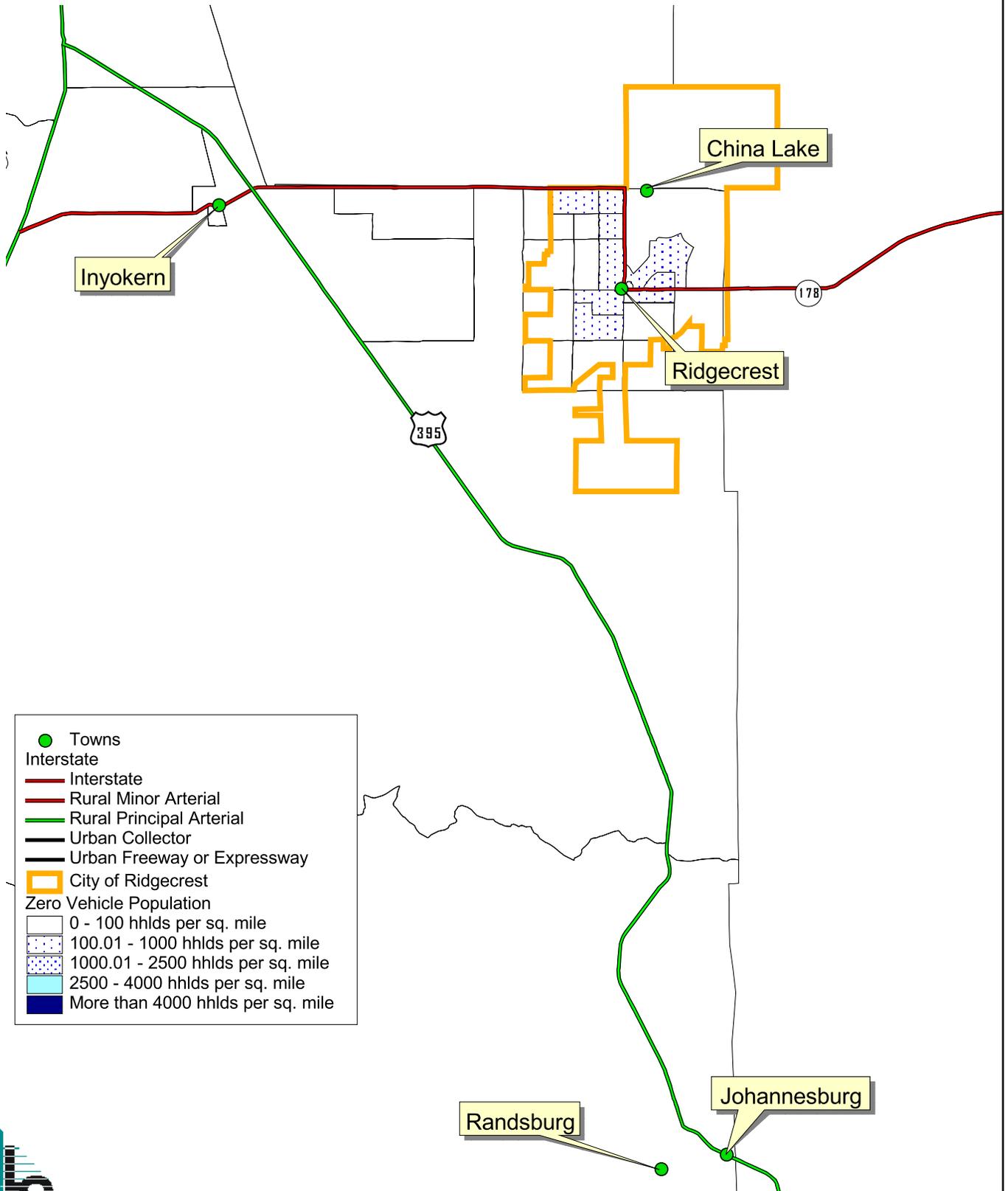
- Towns
- Interstate
- Interstate
- Rural Minor Arterial
- Rural Principal Arterial
- Urban Collector
- Urban Freeway or Expressway
- ▭ City of Ridgecrest
- Low-Income Population
- ▭ 0 - 100 persons per sq. mile
- ▭ 100.01 - 1000 persons per sq. mile
- ▭ 1000.01 - 2500 persons per sq. mile
- ▭ 2500 - 4000 persons per sq. mile
- ▭ More than 4000 persons per sq. mile



### Zero-Vehicle Households

Persons who do not own or have access to a private vehicle are also considered transit-dependent. An estimated eight percent (1,039) of the households within Ridgecrest had no vehicles available for use in 2006. The highest concentrations of zero-vehicle households are in the City of Ridgecrest along State Highway 178 extending west to Down Street and Mahan Street and along Ridgecrest Boulevard extending south to Bowman Road and north to the China Lake Golf Course. The distribution of zero-vehicle households in the Greater Ridgecrest study area is shown in Figure IV-10. In Inyokern, the zero-vehicle households are the highest east of the Inyokern Airport.

Figure IV-10  
Zero Vehicle Population Density



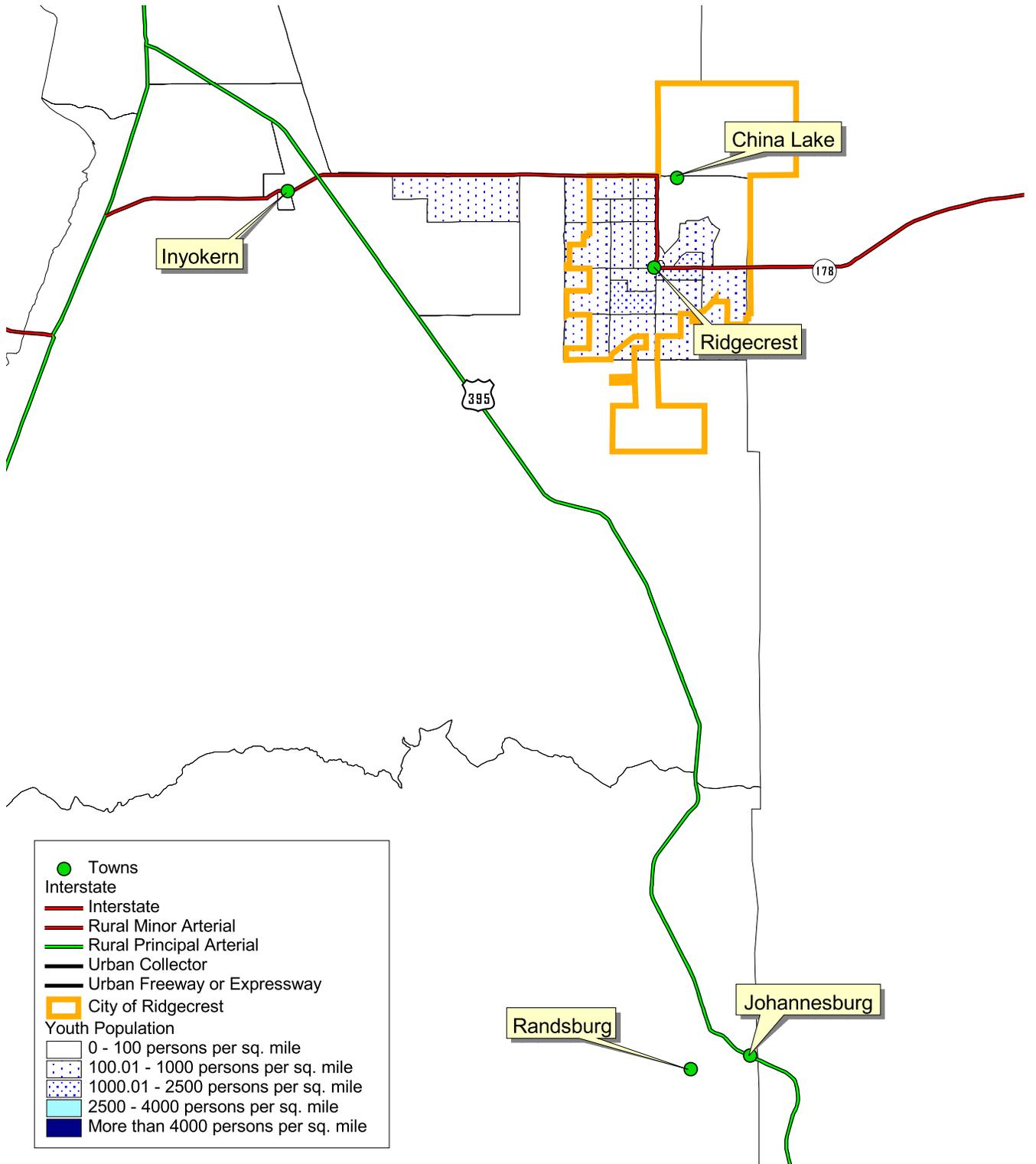
- Towns
- Interstate
- Interstate
- Rural Minor Arterial
- Rural Principal Arterial
- Urban Collector
- Urban Freeway or Expressway
- ▭ City of Ridgecrest
- Zero Vehicle Population
- ▭ 0 - 100 hhlds per sq. mile
- ▭ 100.01 - 1000 hhlds per sq. mile
- ▭ 1000.01 - 2500 hhlds per sq. mile
- ▭ 2500 - 4000 hhlds per sq. mile
- ▭ More than 4000 hhlds per sq. mile



## Youth

The population between 0 and 15 years of age is shown in Table IV-4 and the distribution of the youth (0-15 years) population is shown in Figure IV-11. In the Greater Ridgecrest study area, the percentage of youth population is 24 percent. The density of youth population is concentrated in the City of Ridgecrest in the area extending from China Lake Boulevard west to Brady Street and along Ridgecrest Boulevard extending south to Springer Avenue and north to the China Lake Golf Course. Other areas with a high youth population are west Ridgecrest followed by the Inyokern area east of the Inyokern Airport.

Figure IV-11  
Youth Population Density



- Towns
- Interstate
- Interstate
- Rural Minor Arterial
- Rural Principal Arterial
- Urban Collector
- Urban Freeway or Expressway
- ▭ City of Ridgecrest
- Youth Population
- 0 - 100 persons per sq. mile
- ▨ 100.01 - 1000 persons per sq. mile
- ▩ 1000.01 - 2500 persons per sq. mile
- 2500 - 4000 persons per sq. mile
- More than 4000 persons per sq. mile



## ECONOMY

Table IV-5 shows the available information on the City of Ridgecrest's employment by sector for 2000. Based upon the number of employees, Ridgecrest is dominated by education, health, social services, and retail industries. These sectors accounted for 27 percent of the total wage and salary jobs in the area. This is followed by the professional services sector with nine percent of the employment within the Ridgecrest area. Currently, the area has a civilian labor force of 11,341, with approximately 772 unemployed.

Sector	Ridgecrest	Ridgecrest %
Educational, health, and social services	1,720	16.3%
Retail	1,110	10.5%
Professional, scientific, management, administrative, and waste management services	925	8.8%
Financial, insurance, real estate, and leasing	487	4.6%
Construction	650	6.2%
Information	250	2.4%
Arts, entertainment, recreation, accommodation, and food services	929	8.8%
Manufacturing	642	6.1%
Public administration	2,457	23.2%
Other services	609	5.8%
Transportation, warehousing, and utilities	428	4.0%
Wholesale trade	112	1.1%
Agriculture, forestry, fishing and hunting, and mining	250	2.4%
<i>Source: 2000 Census.</i>		

A growing population increases demand for housing, goods, and services, which then leads to the creation of jobs in retail, building trades, and services. Consumer demand should also increase with higher incomes and wages in the area. This will improve the purchasing power of the entire region. The increase in income may create a greater demand on the transportation system within the region.

## TRAVEL PATTERNS

### Work Transportation Mode

The 2000 Census yields information useful to this study regarding residents' means of transportation to and from work. Table IV-6 shows the number in the Ridgecrest workforce and their modes of travel to work. These data were tabulated for employees 16 years of age and older who were at work when the census questionnaire was completed.

	<b>City of Ridgecrest</b>	<b>City of Ridgecrest %</b>	<b>Kern County %</b>	<b>California %</b>
Drove alone	8,476	77.0%	73.8%	71.82%
Carpool	1,627	14.8%	18.4%	14.55%
Public transportation (incl. taxicab)	45	0.4%	1.4%	5.07%
Motorcycle	87	0.8%	0.3%	0.25%
Bicycle	158	1.4%	0.5%	0.83%
Walk	263	2.4%	1.9%	2.85%
Other	68	0.6%	1.0%	0.79%
Work at home	284	2.6%	2.7%	3.83%
Average Travel Time (minutes)	14.9		23.2	27.7
<i>Source: 2000 Census.</i>				

As indicated in Table IV-6, the majority of Ridgecrest's residents drive alone to work (8,476 persons or approximately 77 percent). Carpooling (14.8 percent), working at home (2.6 percent), and walking to work (2.4 percent) are the next mode-to-work choices. According to the 2000 data, less than one percent (0.4 percent) of the employed population takes public transportation to work. The table also shows comparative percentages of transportation modes for Kern County and for the State of California. When compared with Kern County, the percentage of residents who drive alone to work was at 74 percent followed by carpooling at 18 percent. The percentage of Kern County residents who use public transportation to get to work was at 1.4 percent, which is higher than the City of Ridgecrest at 0.4 percent indicating that Kern County residents use public transportation more than the residents of Ridgecrest. The mean travel time to work for workers age 16 years and older in the City of Ridgecrest is 14.9 minutes. The mean travel time is higher for the county at 23.2 minutes and the state average at 27.7 minutes.

Table IV-7 shows the commute patterns between Kern County and the adjoining counties. The majority (93 percent) of the employees live and work within Kern County. Approximately three percent of the Kern County residents commute to Los Angeles, with two percent commuting to Tulare County. The table thus indicates that commuters are more likely to drive to Los Angeles County and Tulare County and less likely to San Bernardino County. As the population of Ridgecrest grows, it is likely that more and more residents will be commuters to nearby counties. These commuting patterns provide a snapshot at a county level of the location of jobs and services, and the affordability of housing within the area.

<b>Table IV-7 County-to-County Worker Flow Patterns in Kern County</b>		
<b>County of Work</b>	<b>Kern County Residents</b>	
	<b>#</b>	<b>%</b>
Kern County	214,958	93%
Los Angeles County	6,075	3%
Tulare County	3,603	2%
San Bernardino County	1,089	<1%
Kings County	717	<1%
Fresno County	379	<1%
Ventura County	262	<1%
Orange County	246	<1%
Riverside County	242	<1%
San Luis Obispo County	233	<1%

*Source: 2000 US Census of County-to-County worker flow files.*

## **SUMMARY**

Chapter IV has presented the local socioeconomic and community background information with which the transit service alternatives were examined and identified. The most current and up-to-date data were used and presented. The transit service alternatives were based upon these data, as well as the demand estimates presented in Chapter V.



## CHAPTER V

# Transit Needs Assessment

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### INTRODUCTION

A key step in developing and evaluating transit plans is a careful analysis of the mobility needs of various segments of the population and the potential ridership of transit services. Transit demand analysis is the basic determination of the demand for public transportation in a given area. There are several factors that affect demand, not all of which can be forecast. However, as demand estimation is an important task in developing any transportation plan, several methods of estimation have been developed in the transit field. The analysis makes intensive use of the demographic data and trends discussed previously.

Chapter V presents an analysis of the needs and demand for Ridgecrest Transit Services (RTS) based on standard estimation techniques. The transit needs and demands identified in this chapter were used to develop and evaluate the various transit service alternatives. Several methods are used to estimate the maximum City of Ridgecrest transit demand: the Rural Transit Demand Methodology, the Estimated Fixed-Route Model, the Greatest Transit Needs Analysis, and ridership trends.

### RURAL TRANSIT DEMAND METHODOLOGY

An important source of information and the most recent research regarding the demand for transit services in rural areas and for elderly or disabled people is the Transit Cooperative Research Program (TCRP) Project A-3: Rural Transit Demand Estimation Techniques. This study, completed by SG Associates, Inc. and LSC Transportation Consultants, Inc., represents the first substantial research into the demand for transit service in rural areas and small communities since the early 1980s. The TCRP study presents a series of formulas relating the number of participants in various types of programs in 185 transit agencies across the United States. The TCRP analytical technique uses a logit model approach to the estimation of transit demand, similar to that commonly

used in urban transportation models. The model incorporates an exponential equation that relates the service quantity and the area demographics.

The TCRP analysis procedure considers transit demand in two major categories:

- \$ “*program demand*,” which is generated by transit ridership to and from specific social service programs, and
- \$ “*non-program demand*,” which is generated by the other mobility needs of the elderly, disabled, and general public (including youth and tourists). Examples of non-program trips may include shopping, employment, and medical trips.

### **Rural Transit Model – Non-Program Demand**

As with any other product or service, the demand for transit services is a function of the level of supply provided. In order to use the TCRP methodology to identify a feasible maximum demand, it is necessary to assume a high supply level measured in vehicle-miles per square mile per year. The high supply level is the upper-bound “density” of similar rural services provided in the United States. The assessment of demand for the rural areas, therefore, could be considered to be the maximum potential ridership if a high level of rural service were made available throughout the City of Ridgecrest. The TCRP methodology is based on the permanent population. Therefore, the TCRP methodology is a good demand analysis technique to use for the City of Ridgecrest.

A maximum level of service for the City of Ridgecrest would be to serve every portion of the city with four round-trips (eight one-way trips) daily Monday through Friday. This equates to approximately 2,400 vehicle-miles of transit service per square mile per year. This is a very high level of service for rural systems. Table V-1 presents the base demographic information that was used in the model analysis in the following sections.

**Table V-1  
2006 Projected Service Area Input Data for TCRP Method**

County	Census Tract	Census Block Group	Land Area (sq.ml.)	2006 Total Estimated Population	2006 Total Estimated 60 & over	2006 Total Estimated Mob-Limited	2006 Total Estimated Zero-Veh HHD's	2006 Total Estimated Below Poverty
Kern	53	1	107.00	739	0	0	7	0
	53	2	2.99	0	0	0	0	0
	53	3	0.81	1,175	60	61	120	451
	54.01	1	0.26	737	275	51	72	46
	54.01	2	0.54	1,572	220	74	80	255
	54.01	3	0.25	0	184	11	30	9
	54.01	4	0.77	1,465	167	19	28	12
	54.01	5	0.25	1,233	356	139	17	64
	54.02	1	0.52	1,599	234	68	101	330
	54.02	2	0.50	1,779	480	73	44	157
	54.02	3	1.01	1,875	227	78	22	82
	54.03	1	1.01	1,543	184	152	10	118
	54.03	2	0.59	2,402	325	124	63	396
	54.03	3	1.00	1,012	138	41	0	14
	54.03	4	0.98	1,341	270	61	33	85
	54.03	5	0.40	1,006	128	94	119	504
	54.04	1	1.99	1,343	150	50	0	197
	54.04	2	0.47	2,601	324	152	61	325
	54.04	3	0.75	2,518	302	118	27	221
	54.04	4	1.00	721	172	66	52	101
	55.01	1	7.83	953	262	100	48	101
	55.01	2	36.16	1,908	391	21	0	77
	55.01	3	0.98	350	106	36	32	96
	55.01	4	37.30	1,059	227	88	33	132
	55.01	5	192.04	817	96	14	6	113
	55.01	6	2.54	959	238	53	7	223
	55.03	1	339.84	564	274	95	28	48
<b>Totals</b>			<b>740</b>	<b>33,273</b>	<b>5,792</b>	<b>1,840</b>	<b>1,039</b>	<b>4,156</b>

Source: 2000 Census, Kern Council of Governments, LSC, 2007.

## 2006 Existing Need Estimates

Applying the feasible maximum service density to the population in the City of Ridgecrest yields the 2006 estimated transit need for the elderly, disabled, and general (including youth and tourist) populations as shown in Table V-2. The City of Ridgecrest 2006 potential need for elderly transit service is 39,740 annual trips. Disabled need is 9,450 annual trips. The general public need is 21,320 annual trips. Using the TCRP methodology, the study area 2006 total estimated need is 70,510 annual trips. The total estimated annual need would be desired by the elderly, disabled, and general public if a very high level of transit service could be provided. The number of existing non-programmed trips is approximately 33,687 for fiscal year 2006, which equates to about 48 percent of the non-program annual need for the study area. However, there was an average of approximately 44,000 annual trips from fiscal years 2001 to 2006.

Table V-2 2006 Estimated Public Transit Needs using the TCRP Model										
Census Tract	Census Block Group	Area Description	Estimated Annual Passenger-Trip Demand					Estimated Daily Transit Demand		Daily Demand Density (Trips per Sq. Mile per Day)
			Elderly	Mobility Limited	Elderly + Mobility Limited	General Public	Total Annual Demand	#	%	
53	1	North of Ridgecrest	0	0	0	0	0	0	0.0%	0.0
53	2	City of Ridgecrest	0	0	0	0	0	0	0.0%	0.0
53	3	City of Ridgecrest	420	320	740	2,370	3,110	12	4.4%	15.0
54.01	1	City of Ridgecrest	1,810	250	2,060	220	2,280	9	3.2%	34.4
54.01	2	City of Ridgecrest	1,540	390	1,930	1,320	3,250	13	4.6%	23.8
54.01	3	City of Ridgecrest	1,250	50	1,300	40	1,340	5	1.9%	20.8
54.01	4	City of Ridgecrest	1,180	100	1,280	60	1,340	5	1.9%	6.8
54.01	5	City of Ridgecrest	2,450	720	3,170	330	3,500	14	5.0%	54.9
54.02	1	City of Ridgecrest	1,550	340	1,890	1,630	3,520	14	5.0%	26.8
54.02	2	City of Ridgecrest	3,290	380	3,670	800	4,470	18	6.3%	35.0
54.02	3	City of Ridgecrest	1,550	400	1,950	420	2,370	9	3.4%	9.2
54.03	1	City of Ridgecrest	1,250	770	2,020	600	2,620	10	3.7%	10.2
54.03	2	City of Ridgecrest	2,190	630	2,820	1,980	4,800	19	6.8%	31.7
54.03	3	City of Ridgecrest	950	210	1,160	70	1,230	5	1.7%	4.8
54.03	4	City of Ridgecrest	1,900	320	2,220	450	2,670	10	3.8%	10.7
54.03	5	City of Ridgecrest	910	500	1,410	2,670	4,080	16	5.8%	39.6
54.04	1	City of Ridgecrest	1,040	260	1,300	1,020	2,320	9	3.3%	4.6
54.04	2	City of Ridgecrest	2,190	770	2,960	1,640	4,600	18	6.5%	38.8
54.04	3	City of Ridgecrest	2,090	610	2,700	1,140	3,840	15	5.4%	20.2
54.04	4	City of Ridgecrest	1,190	340	1,530	520	2,050	8	2.9%	8.1
55.01	1	City of Ridgecrest	1,800	510	2,310	520	2,830	11	4.0%	1.4
55.01	2	City of Ridgecrest	2,690	110	2,800	390	3,190	13	4.5%	0.3
55.01	3	Inyokern	750	190	940	500	1,440	6	2.0%	5.8
55.01	4	North of Ridgecrest	1,560	450	2,010	670	2,680	11	3.8%	0.3
55.01	5	East of Ridgecrest	660	70	730	580	1,310	5	1.9%	0.0
55.01	6	City of Ridgecrest	1,640	270	1,910	1,140	3,050	12	4.3%	4.7
55.03	1	Town of Randsburg	1,890	490	2,380	240	2,620	10	3.7%	0.0
<b>Totals</b>			<b>39,740</b>	<b>9,450</b>	<b>49,190</b>	<b>21,320</b>	<b>70,510</b>	<b>277</b>	<b>100.0%</b>	<b>408</b>

## 2006 Calibrated Demand Model

In order to calibrate the model to the existing service levels, LSC needed to adjust the trips and level of service. The following equation is based on 800 vehicle-miles per square mile: the total number of existing vehicle-miles divided by the total number of square miles of the study area. This equates to 80,045 vehicle-miles/100 square miles = 800. A calibrated model is more closely related to the *demand* for services since an existing level of service is provided by the City of Ridgecrest.

The standard rural model uses 1,200 trips per population group (elderly, disabled, low-income, and general public). In order to calibrate the model, LSC had to increase the trip rate to 1,300 trips per population group. Table V-3 presents the TCRP model calibrated to the existing level of service for the Ridgecrest area based on the service area, revenue miles, and existing ridership. The City of Ridgecrest demand for elderly transit service is 9,010; disabled demand is 9,231 annual trips; and the general public demand is 27,430 annual trips. Using the TCRP methodology, the study area 2006 total demand is 45,671 annual trips.

Census Tract	Census Block Group	Area Description	Estimated Annual Passenger-Trip Demand					Estimated Daily Transit Demand		Daily Demand Density (Trips per Sq. Mile per Day)
			Elderly	Mobility Limited	Elderly + Mobility Limited	General Public	Total Annual Demand	#	%	
53	1	North of Ridgecrest	0	0	0	0	0	0	0.0%	0.0
53	2	City of Ridgecrest	0	0	0	0	0	0	0.0%	0.0
53	3	City of Ridgecrest	94	306	400	3,068	3,468	11	7.6%	13.9
54.01	1	City of Ridgecrest	423	255	678	286	964	3	2.1%	12.1
54.01	2	City of Ridgecrest	334	357	691	1,638	2,329	8	5.1%	14.2
54.01	3	City of Ridgecrest	287	51	338	52	390	1	0.9%	5.0
54.01	4	City of Ridgecrest	259	102	361	78	439	1	1.0%	1.9
54.01	5	City of Ridgecrest	555	697	1,252	416	1,668	5	3.7%	21.7
54.02	1	City of Ridgecrest	357	340	697	2,158	2,855	9	6.3%	18.0
54.02	2	City of Ridgecrest	743	374	1,117	1,040	2,157	7	4.7%	14.0
54.02	3	City of Ridgecrest	353	391	744	546	1,290	4	2.8%	4.2
54.03	1	City of Ridgecrest	287	765	1,052	780	1,832	6	4.0%	5.9
54.03	2	City of Ridgecrest	517	629	1,146	2,652	3,798	12	8.3%	20.9
54.03	3	City of Ridgecrest	216	204	420	104	524	2	1.1%	1.7
54.03	4	City of Ridgecrest	423	306	729	572	1,301	4	2.8%	4.3
54.03	5	City of Ridgecrest	193	459	652	3,224	3,876	13	8.5%	31.2
54.04	1	City of Ridgecrest	235	255	490	1,300	1,790	6	3.9%	2.9
54.04	2	City of Ridgecrest	522	782	1,304	2,210	3,514	11	7.7%	24.6
54.04	3	City of Ridgecrest	470	595	1,065	1,456	2,521	8	5.5%	11.0
54.04	4	City of Ridgecrest	268	323	591	676	1,267	4	2.8%	4.1
55.01	1	City of Ridgecrest	409	493	902	676	1,578	5	3.5%	0.7
55.01	2	City of Ridgecrest	606	102	708	494	1,202	4	2.6%	0.1
55.01	3	Inyokern	165	187	352	624	976	3	2.1%	3.2
55.01	4	North of Ridgecrest	353	442	795	858	1,653	5	3.6%	0.1
55.01	5	East of Ridgecrest	150	68	218	754	972	3	2.1%	0.0
55.01	6	City of Ridgecrest	367	272	639	1,456	2,095	7	4.6%	2.7
55.03	1	Town of Randsburg	428	476	904	312	1,216	4	2.7%	0.0
<b>Totals</b>			<b>9,010</b>	<b>9,231</b>	<b>18,241</b>	<b>27,430</b>	<b>45,671</b>	<b>149</b>	<b>100%</b>	<b>219</b>

Source: 2000 Census, Kern Council of Governments, LSC, 2007.

## 2010 Demand Estimates

The demand estimates for 2010, based on the TCRP methodology, are provided in Table V-4. The study area total non-program demand for 2010 is estimated to be 52,209 one-way annual passenger-trips. This is an increase of 14 percent over four years.

**Table V-4  
2010 Estimated Public Transit Demand using the TCRP Method**

Census Tract	Census Block Group	Area Description	Estimated Annual Passenger-Trip Demand					Estimated Daily Transit Demand		Daily Demand Density (Trips per Sq. Mile per Day)
			Elderly	Mobility Limited	Elderly + Mobility Limited	General Public	Total Annual Demand	#	%	
53	1	North of Ridgecrest	0	0	0	0	0	0	0.0%	0.0
53	2	City of Ridgecrest	0	0	0	0	0	0	0.0%	0.0
53	3	City of Ridgecrest	108	357	465	3,510	3,975	16	7.6%	19.2
54.01	1	City of Ridgecrest	484	289	773	338	1,111	4	2.1%	16.8
54.01	2	City of Ridgecrest	381	425	806	1,872	2,678	11	5.1%	19.6
54.01	3	City of Ridgecrest	324	68	392	52	444	2	0.9%	6.9
54.01	4	City of Ridgecrest	291	102	393	78	471	2	0.9%	2.4
54.01	5	City of Ridgecrest	635	799	1,434	494	1,928	8	3.7%	30.2
54.02	1	City of Ridgecrest	409	391	800	2,444	3,244	13	6.2%	24.7
54.02	2	City of Ridgecrest	851	425	1,276	1,196	2,472	10	4.7%	19.3
54.02	3	City of Ridgecrest	400	442	842	624	1,466	6	2.8%	5.7
54.03	1	City of Ridgecrest	324	867	1,191	884	2,075	8	4.0%	8.1
54.03	2	City of Ridgecrest	592	731	1,323	3,042	4,365	17	8.4%	28.9
54.03	3	City of Ridgecrest	244	238	482	104	586	2	1.1%	2.3
54.03	4	City of Ridgecrest	484	357	841	650	1,491	6	2.9%	6.0
54.03	5	City of Ridgecrest	221	527	748	3,692	4,440	17	8.5%	43.1
54.04	1	City of Ridgecrest	268	289	557	1,482	2,039	8	3.9%	4.0
54.04	2	City of Ridgecrest	592	884	1,476	2,522	3,998	16	7.7%	33.7
54.04	3	City of Ridgecrest	536	680	1,216	1,664	2,880	11	5.5%	15.1
54.04	4	City of Ridgecrest	306	374	680	754	1,434	6	2.7%	5.6
55.01	1	City of Ridgecrest	465	578	1,043	754	1,797	7	3.4%	0.9
55.01	2	City of Ridgecrest	696	119	815	572	1,387	5	2.7%	0.2
55.01	3	Inyokern	193	204	397	728	1,125	4	2.2%	4.5
55.01	4	North of Ridgecrest	404	510	914	988	1,902	7	3.6%	0.2
55.01	5	East of Ridgecrest	169	85	254	858	1,112	4	2.1%	0.0
55.01	6	City of Ridgecrest	423	306	729	1,664	2,393	9	4.6%	3.7
55.03	1	Town of Randsburg	489	544	1,033	364	1,397	5	2.7%	0.0
<b>Total</b>			<b>10,288</b>	<b>10,591</b>	<b>20,879</b>	<b>31,330</b>	<b>52,209</b>	<b>205</b>	<b>100%</b>	<b>301</b>

Source: 2000 Census, Kern Council of Governments, LSC, 2007.

## 2020 Demand Estimates

The demand estimates for 2020, based on the TCRP methodology, are provided in Table V-5. The study area's total non-program demand for 2020 is estimated to be 61,306 one-way annual passenger-trips.

**Table V-5  
2020 Estimated Public Transit Demand using the TCRP Method**

Census Tract	Census Block Group	Area Description	Estimated Annual Passenger-Trip Demand					Estimated Daily Transit Demand		Daily Demand Density (Trips per Sq. Mile per Day)
			Elderly	Mobility Limited	Elderly + Mobility Limited	General Public	Total Annual Demand	#	%	
53	1	North of Ridgecrest	0	0	0	0	0	0	0.0%	0.0
53	2	City of Ridgecrest	0	0	0	0	0	0	0.0%	0.0
53	3	City of Ridgecrest	127	425	552	4,108	4,660	18	7.6%	22.4
54.01	1	City of Ridgecrest	564	340	904	390	1,294	5	2.1%	19.5
54.01	2	City of Ridgecrest	447	493	940	2,210	3,150	12	5.1%	23.1
54.01	3	City of Ridgecrest	381	68	449	78	527	2	0.9%	8.2
54.01	4	City of Ridgecrest	343	119	462	104	566	2	0.9%	2.9
54.01	5	City of Ridgecrest	743	935	1,678	572	2,250	9	3.7%	35.3
54.02	1	City of Ridgecrest	484	459	943	2,886	3,829	15	6.2%	29.1
54.02	2	City of Ridgecrest	1,001	493	1,494	1,404	2,898	11	4.7%	22.7
54.02	3	City of Ridgecrest	470	527	997	728	1,725	7	2.8%	6.7
54.03	1	City of Ridgecrest	381	1,020	1,401	1,040	2,441	10	4.0%	9.5
54.03	2	City of Ridgecrest	696	850	1,546	3,588	5,134	20	8.4%	33.9
54.03	3	City of Ridgecrest	287	272	559	130	689	3	1.1%	2.7
54.03	4	City of Ridgecrest	569	408	977	754	1,731	7	2.8%	6.9
54.03	5	City of Ridgecrest	259	612	871	4,342	5,213	20	8.5%	50.6
54.04	1	City of Ridgecrest	315	340	655	1,742	2,397	9	3.9%	4.7
54.04	2	City of Ridgecrest	700	1,054	1,754	2,964	4,718	19	7.7%	39.8
54.04	3	City of Ridgecrest	630	799	1,429	1,950	3,379	13	5.5%	17.7
54.04	4	City of Ridgecrest	362	442	804	884	1,688	7	2.8%	6.6
55.01	1	City of Ridgecrest	545	680	1,225	884	2,109	8	3.4%	1.1
55.01	2	City of Ridgecrest	818	136	954	676	1,630	6	2.7%	0.2
55.01	3	Inyokern	226	238	464	858	1,322	5	2.2%	5.3
55.01	4	North of Ridgecrest	475	595	1,070	1,170	2,240	9	3.7%	0.2
55.01	5	East of Ridgecrest	202	85	287	988	1,275	5	2.1%	0.0
55.01	6	City of Ridgecrest	494	357	851	1,976	2,827	11	4.6%	4.4
55.03	1	Town of Randsburg	573	629	1,202	416	1,618	6	2.6%	0.0
<b>Total</b>			<b>12,088</b>	<b>12,376</b>	<b>24,464</b>	<b>36,842</b>	<b>61,306</b>	<b>240</b>	<b>100%</b>	<b>354</b>

Source: 2000 Census, Kern Council of Governments, LSC, 2007.

## Program Demand

The methodology for forecasting demand for program-related trips involves two factors: determining the number of participants in each program and applying a trip rate per participant using the TCRP methodology. The program data available includes the following programs: developmentally disabled, Head Start, job training, mental health services, sheltered work, nursing homes, and Senior Nutrition. LSC used the US Census data in the model presented in Appendix A, which shows the TCRP trip rates applied to each program. The existing program demand estimates are presented in Table V-6. Using the participant numbers for each program, the existing program trip demand is approximately 223,150 annual trips.

<b>Table V-6</b>		
<b>Study Area Estimated Program-Related Transit Demand</b>		
<b>Program Type</b>	<b>Estimated # of Participants</b>	<b>Annual One-Way Trips</b>
Developmental Services		
<i>Adult (est.)</i>	21 pp	7,475
<i>Case Management (est.)</i>	54 pp	2,128
<i>Pre-school -- 3 to 5 yrs (est.)</i>	24 pp	5,441
Head Start	163 pp	42,869
Job Training (est.)	112 clients	15,377
Mental Health Services (est.)	23 clients	7,982
<i>Case Management (est.)</i>	168 clients	1,069
Nursing Home (est.)	166 pp	1,513
Senior Nutrition (est.)	418 pp	109,980
Sheltered Workshop* (est.)	44 pp	16,913
Group Home (est.)	20 pp	12,404
<b>Program Trips</b>		<b>223,151</b>
<i>Source: Demand estimates based on the methodology presented in "TCRP Report 3: Workbook for Estimating Demand for Rural Passenger Transportation," and 2000 US Census Bureau.</i>		
<i>*Note: Est. = Best Estimation Technique used from 2000 US Census Bureau.</i>		

## Summary of TCRP Methodology

When combining the program *need* estimates and non-program *need* estimates using the TCRP methodology, the City of Ridgecrest's total existing transit need is approximately 294,000 annual trips.

71,000 non-program trips + 223,000 program trips =  
**294,000 TOTAL Annual Transit Need**

- Existing average annual trips = 44,000
- Percent of non-program unmet need (general public) = 38 percent

Based on 44,000 average annual trips from fiscal years 2001 to 2006 and the non-program need of 71,000, 62 percent of the need is being met. Some of the 223,000 programs trips are likely being met by human service agencies; however, the exact number of trips provided is unknown.

### **Estimated Fixed-Route Model**

In order to analyze whether the existing transit service is meeting the community's needs based on the type of service, LSC created the following fixed-route model. The model estimates the transit ridership if RTS altered its transit services from demand-response to fixed-route. In fixed-route service, vehicles operate on a fixed timetable along a defined path/route. This is normally done along major roadways in the community and links residents who need transportation to the major transit destinations. In fixed-route service, every section of the service area receives about the same type of service.

LSC created a fixed-route model based a several assumptions. This was done in order to create a basis to compare the existing demand-response service to a new fixed-route service. The assumptions included the headways, the destinations of the route structure throughout the community, and access to the transit routes. Based on these assumptions, LSC generated the estimated demand for a new fixed-route service. LSC used 30-minute headways on all routes, an average walking distance to the route of 500 feet, and 100 percent of all households having access to transit. The 500-foot distance is possible in Ridgecrest due to the roadway network density. Also, this 500-foot measure was only used as a modeling input and not actual transit alternative development.

The model generated 2,260 daily trips, as presented in Table V-7. This model does not include those trips for people who would still need to ride the demand-response service due to the FTA's ADA requirements. The total number of trips

the model estimated on an annual basis was 576,400. This is over 10 times the existing ridership. Note that this model just presents the best-case scenario for fixed-route service. Also, any fixed-route alternative developed will need to meet ADA requirements. The model is for comparison purposes only and not meant for actual service operations.

The LSC staff also ran the model with the assumption of 60-minute headways and 2,000 feet for the average walking distance. The average daily ridership was estimated at 700, with the estimated annual trips at 178,153.

The LSC staff then adjusted the fixed-route model to the existing level of service and ridership. It was assumed that the average walking distance was 500 feet. It was also assumed that the headway would be 90 minutes. The trip rates in the model were adjusted from the default of 0.21 to .055 for zero autos, and 0.04 to 0.005 for households with one vehicle. The model results showed 164 average daily trips and 41,800 annual trips. These results for the fixed-route model show that fixed-route service could produce more transit activity than the existing demand-response service. The results of this analysis are presented in Table V-8.

Table V-7 Best-Case Scenario Fixed-Route Demand Model - Ridgecrest																		
Census Tract	Block Group	Total # of Hhlds 2000	# of Hhlds with		% of Hhlds with Transit Access	Hhlds Served by Transit		Basic Transit Trip Rates		Walk Distance (ft)	Walk Factor		Headway (min)	Headway Factor		Daily Transit Trips		Daily Trip #
			0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto		0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto	
53	1	729	7	722	10%	1	72	0.21	0.04	500	1.25	1.2	30	1.4	1.5	0.3	5.2	5
53	2	0	0	0	100%	0	0	0.21	0.04	500	1.25	1.2	30	1.4	1.5	0.0	0.0	0
53	3	1,159	119	1,041	10%	12	104	0.21	0.04	500	1.25	1.2	30	1.4	1.5	4.4	7.5	12
54.01	1	727	71	656	100%	71	656	0.21	0.04	500	1.25	1.2	30	1.4	1.5	26.2	47.2	73
54.01	2	1,551	79	1,472	100%	79	1,472	0.21	0.04	500	1.25	1.2	30	1.4	1.5	28.9	106.0	135
54.01	3	902	29	873	100%	29	873	0.21	0.04	500	1.25	1.2	30	1.4	1.5	10.8	62.8	74
54.01	4	1,445	27	1,417	100%	27	1,417	0.21	0.04	500	1.25	1.2	30	1.4	1.5	10.0	102.0	112
54.01	5	1,216	17	1,199	100%	17	1,199	0.21	0.04	500	1.25	1.2	30	1.4	1.5	6.2	86.3	93
54.02	1	1,577	100	1,477	100%	100	1,477	0.21	0.04	500	1.25	1.2	30	1.4	1.5	36.6	106.4	143
54.02	2	1,754	43	1,711	100%	43	1,711	0.21	0.04	500	1.25	1.2	30	1.4	1.5	15.8	123.2	139
54.02	3	1,850	22	1,828	100%	22	1,828	0.21	0.04	500	1.25	1.2	30	1.4	1.5	8.1	131.6	140
54.03	1	1,522	9	1,513	100%	9	1,513	0.21	0.04	500	1.25	1.2	30	1.4	1.5	3.5	108.9	112
54.03	2	2,369	62	2,307	100%	62	2,307	0.21	0.04	500	1.25	1.2	30	1.4	1.5	22.7	166.1	189
54.03	3	998	0	998	100%	0	998	0.21	0.04	500	1.25	1.2	30	1.4	1.5	0.0	71.8	72
54.03	4	1,323	33	1,290	100%	33	1,290	0.21	0.04	500	1.25	1.2	30	1.4	1.5	12.0	92.9	105
54.03	5	992	117	875	100%	117	875	0.21	0.04	500	1.25	1.2	30	1.4	1.5	43.2	63.0	106
54.04	1	1,325	0	1,325	100%	0	1,325	0.21	0.04	500	1.25	1.2	30	1.4	1.5	0.0	95.4	95
54.04	2	2,565	60	2,505	100%	60	2,505	0.21	0.04	500	1.25	1.2	30	1.4	1.5	22.0	180.4	202
54.04	3	2,483	26	2,457	100%	26	2,457	0.21	0.04	500	1.25	1.2	30	1.4	1.5	9.6	176.9	187
54.04	4	711	51	660	100%	51	660	0.21	0.04	500	1.25	1.2	30	1.4	1.5	18.9	47.5	66
55.01	1	940	47	893	100%	47	893	0.21	0.04	500	1.25	1.2	30	1.4	1.5	17.3	64.3	82
55.01	2	1,882	0	1,882	10%	0	188	0.21	0.04	500	1.25	1.2	30	1.4	1.5	0.0	13.6	14
55.01	3	345	31	314	20%	6	63	0.21	0.04	500	1.25	1.2	30	1.4	1.5	2.3	4.5	7
55.01	4	1,045	33	1,012	20%	7	202	0.21	0.04	500	1.25	1.2	30	1.4	1.5	2.4	14.6	17
55.01	5	806	6	799	10%	1	80	0.21	0.04	500	1.25	1.2	30	1.4	1.5	0.2	5.8	6
55.01	6	946	7	939	100%	7	939	0.21	0.04	500	1.25	1.2	30	1.4	1.5	2.7	67.6	70
55.03	1	556	27	529	10%	3	53	0.21	0.04	500	1.25	1.2	30	1.4	1.5	1.0	3.8	5
<b>Estimated Weekday Ridership</b>																		<b>2,260</b>
<b>Estimated Annual Ridership</b>																		<b>576,406</b>

**Table V-8  
Calibrated Fixed-Route Demand Model - Ridgecrest**

Census Tract	Block Group	Total # of Hhlds 2000	# of Hhlds with		% of Hhlds with Transit Access	Hhlds Served by Transit		Basic Transit Trip Rates		Walk Distance (ft)	Walk Factor		Headway (min)	Headway Factor		Daily Transit Trips		Daily Trip # of
			0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto		0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto	
53	1	729	7	722	10%	1	72	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.0	0.3	0
53	2	0	0	0	100%	0	0	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.0	0.0	0
53	3	1,159	119	1,041	10%	12	104	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.5	0.5	1
54.01	1	727	71	656	100%	71	656	0.055	0.005	500	1.25	1.2	90	0.6	0.75	2.9	3.0	6
54.01	2	1,551	79	1,472	100%	79	1,472	0.055	0.005	500	1.25	1.2	90	0.6	0.75	3.2	6.6	10
54.01	3	902	29	873	100%	29	873	0.055	0.005	500	1.25	1.2	90	0.6	0.75	1.2	3.9	5
54.01	4	1,445	27	1,417	100%	27	1,417	0.055	0.005	500	1.25	1.2	90	0.6	0.75	1.1	6.4	8
54.01	5	1,216	17	1,199	100%	17	1,199	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.7	5.4	6
54.02	1	1,577	100	1,477	100%	100	1,477	0.055	0.005	500	1.25	1.2	90	0.6	0.75	4.1	6.6	11
54.02	2	1,754	43	1,711	100%	43	1,711	0.055	0.005	500	1.25	1.2	90	0.6	0.75	1.8	7.7	9
54.02	3	1,850	22	1,828	100%	22	1,828	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.9	8.2	9
54.03	1	1,522	9	1,513	100%	9	1,513	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.4	6.8	7
54.03	2	2,369	62	2,307	100%	62	2,307	0.055	0.005	500	1.25	1.2	90	0.6	0.75	2.6	10.4	13
54.03	3	998	0	998	100%	0	998	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.0	4.5	4
54.03	4	1,323	33	1,290	100%	33	1,290	0.055	0.005	500	1.25	1.2	90	0.6	0.75	1.3	5.8	7
54.03	5	992	117	875	100%	117	875	0.055	0.005	500	1.25	1.2	90	0.6	0.75	4.8	3.9	9
54.04	1	1,325	0	1,325	100%	0	1,325	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.0	6.0	6
54.04	2	2,565	60	2,505	100%	60	2,505	0.055	0.005	500	1.25	1.2	90	0.6	0.75	2.5	11.3	14
54.04	3	2,483	26	2,457	100%	26	2,457	0.055	0.005	500	1.25	1.2	90	0.6	0.75	1.1	11.1	12
54.04	4	711	51	660	100%	51	660	0.055	0.005	500	1.25	1.2	90	0.6	0.75	2.1	3.0	5
55.01	1	940	47	893	100%	47	893	0.055	0.005	500	1.25	1.2	90	0.6	0.75	1.9	4.0	6
55.01	2	1,882	0	1,882	50%	0	941	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.0	4.2	4
55.01	3	345	31	314	50%	16	157	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.6	0.7	1
55.01	4	1,045	33	1,012	10%	3	101	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.1	0.5	1
55.01	5	806	6	799	50%	3	400	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.1	1.8	2
55.01	6	946	7	939	100%	7	939	0.055	0.005	500	1.25	1.2	90	0.6	0.75	0.3	4.2	5
55.03	1	556	27	529	50%	14	264	0.055	0.01	500	1.25	1.2	90	0.6	0.75	0.6	2.4	3
<b>Estimated Weekday Ridership</b>																		<b>164</b>
<b>Estimated Annual Ridership</b>																		<b>41,871</b>

## **GREATEST TRANSIT NEED ANALYSIS**

The “greatest transit need” is defined as those areas in the City of Ridgecrest with the highest percentage of zero-vehicle households and elderly, disabled, and below-poverty populations. This information was used in the development of a transit service plan and the identification of appropriate transit service district boundaries.

### **Methodology**

The US Census data were used to calculate the greatest transit need. The categories used for the calculation were zero-vehicle households and elderly, disabled, and below-poverty populations. The term below-poverty means those families or households that have a total income less than the income threshold for that size family. Below-poverty households are below the income threshold for their individual household size. Using these categories, LSC developed a “transit need index” to determine the greatest transit need. The percentage of the population for each US Census tract within each category was calculated, placed in numerical order, and divided into six segments. Six segments were chosen in order to reflect a reasonable range. Each segment contains an approximately equal number of US Census tracts in order to provide equal representation.

The US Census tract in the segment with the lowest percentage was given a score of 1. The US Census tract in the segment with the next lowest percentage was given a score of 2. This process continued for the remainder of the US Census tracts. The US Census tract in the segment with the highest percentage was given a score of 6. This scoring was completed for each of the categories (zero-vehicle households and elderly, disabled, and below-poverty populations). After each US Census tract was scored for the four categories, the four scores were added to achieve an overall score. Table V-9 presents the ranked scores for each US Census tract in the study area. The scores range from four (lowest need) to 23 (highest need).

**Table V-9  
2006 Greatest Transit Need Scores by Census Block Group**

Census Tract	Census Block Group	Area Description	Land Area (sq.ml.)	Zero-Vehicle Hhlds		Total # of Hhlds	Total Number of Elderly 60 & over		Mobility-Limited Population		Below-Poverty Population		Overall Score (4-24)	Final (1-6)	Total Population (Persons)
				#	rank		#	rank	#	rank	#	rank			
53	1	North of Ridgecrest	107.0	7	1	145	0	1	0	1	0	1	4	1	729
53	2	City of Ridgecrest	3.0	0	1	0	0	1	0	1	0	1	4	1	0
53	3	City of Ridgecrest	0.8	119	6	389	59	2	60	3	445	6	17	4	1,159
54.01	1	City of Ridgecrest	0.3	71	5	418	272	5	50	3	45	2	15	4	727
54.01	2	City of Ridgecrest	0.5	79	5	733	217	4	73	4	252	5	18	5	1,551
54.01	3	City of Ridgecrest	0.3	29	2	365	181	3	10	1	8	1	7	1	902
54.01	4	City of Ridgecrest	0.8	27	2	492	165	3	19	1	12	2	8	2	1,445
54.01	5	City of Ridgecrest	0.3	17	2	561	351	6	137	6	63	3	17	4	1,216
54.02	1	City of Ridgecrest	0.5	100	6	690	231	4	67	4	325	6	20	6	1,577
54.02	2	City of Ridgecrest	0.5	43	4	692	473	6	72	4	155	5	19	5	1,754
54.02	3	City of Ridgecrest	1.0	22	2	655	223	4	77	4	81	3	13	3	1,850
54.03	1	City of Ridgecrest	1.0	9	1	598	181	3	150	6	116	4	14	3	1,522
54.03	2	City of Ridgecrest	0.6	62	5	913	321	6	123	6	390	6	23	6	2,369
54.03	3	City of Ridgecrest	1.0	0	1	380	136	3	41	2	14	2	8	2	998
54.03	4	City of Ridgecrest	1.0	33	3	553	266	5	60	3	84	3	14	3	1,323
54.03	5	City of Ridgecrest	0.4	117	6	424	126	3	92	5	497	6	20	6	992
54.04	1	City of Ridgecrest	2.0	0	1	509	148	3	49	2	194	5	11	3	1,325
54.04	2	City of Ridgecrest	0.5	60	4	1,064	320	6	150	6	321	6	22	6	2,565
54.04	3	City of Ridgecrest	0.7	26	2	859	298	5	116	6	218	5	18	5	2,483
54.04	4	City of Ridgecrest	1.0	51	4	299	170	3	65	4	100	4	15	4	711
55.01	1	City of Ridgecrest	7.8	47	4	355	258	4	99	5	100	4	17	4	940
55.01	2	City of Ridgecrest	36.2	0	1	739	386	6	21	2	76	3	12	3	1,882
55.01	3	Inyokern	1.0	31	3	169	105	3	36	2	94	4	12	3	345
55.01	4	North of Ridgecrest	37.3	33	3	445	223	4	87	5	130	4	16	4	1,045
55.01	5	East of Ridgecrest	192.0	6	1	315	94	2	14	1	111	4	8	2	806
55.01	6	City of Ridgecrest	2.5	7	1	388	235	4	52	3	220	5	13	3	946
55.03	1	Town of Randsburg	339.8	27	2	281	271	5	93	5	47	2	14	3	556

Source: US Census Bureau & LSC, 2006.

## Results

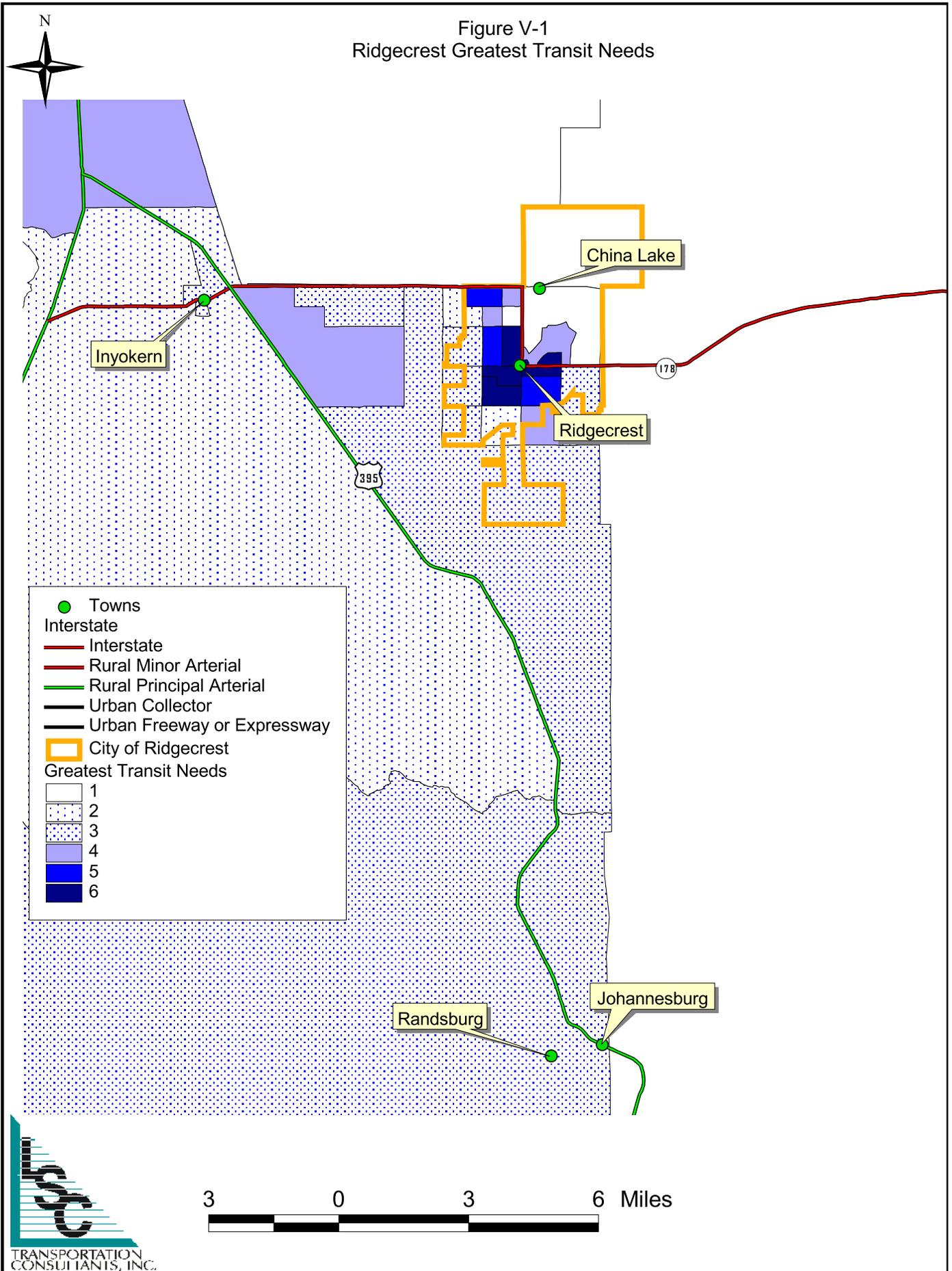
Figure V-1 presents the study area US Census tracts with the greatest transit need, along with the transit need index. Seven US Census tracts were determined to have the greatest transit need based on the zero-vehicle households and elderly, disabled, and below-poverty populations. Table V-10 presents information on these seven tracts. As shown in Figure V-1, the greatest transit need is mainly in the central area of the City of Ridgecrest, within US Census tract 54.02/block group 1, US Census tract 54.03/block group 2, and US Census tract 54.04/block group 5.

<b>Census Tract</b>	<b>Census Block Group</b>	<b>Area Description</b>	<b>Land Area (sq.mi.)</b>	<b>Total Population (Persons) #</b>	<b>Overall Score</b>	<b>Final</b>
54.02	1	City of Ridgecrest	0.516	1,577	20	6
54.03	2	City of Ridgecrest	0.593	2,369	23	6
54.03	5	City of Ridgecrest	0.404	992	20	6
54.04	2	City of Ridgecrest	0.465	2,565	22	6
54.01	2	City of Ridgecrest	0.535	1,551	18	5
54.02	2	City of Ridgecrest	0.501	1,754	19	5
54.04	3	City of Ridgecrest	0.747	2,483	18	5

*Source: LSC, 2007.*

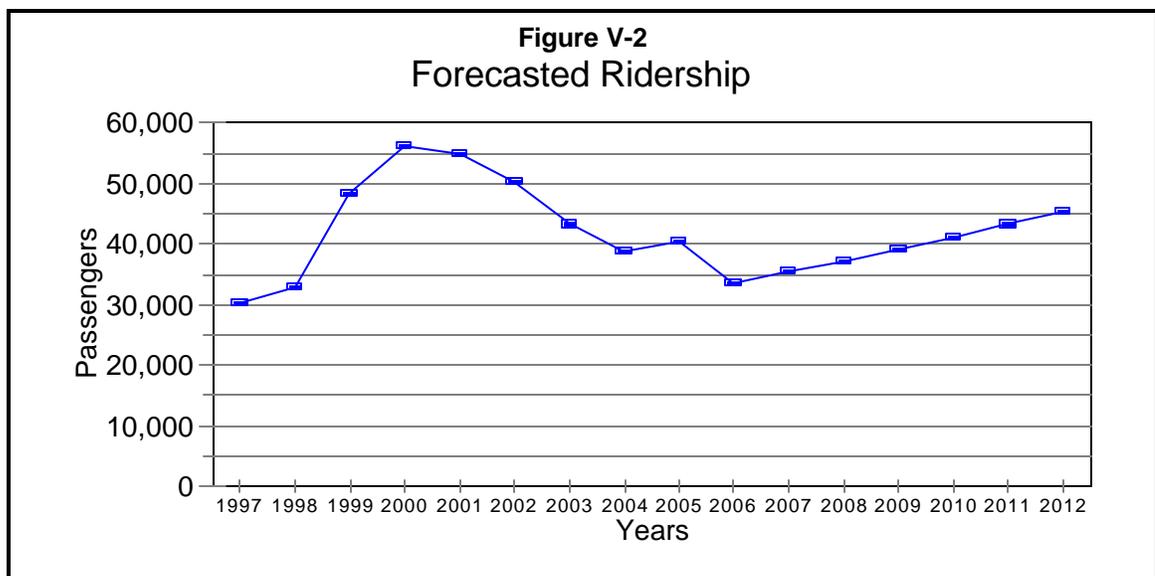
By identifying those areas with a high need for public transportation, LSC was able to uncover a pattern for the areas with the highest propensity to utilize transit service. As LSC examined different future transit scenarios, Figure V-1 was used in the analysis to ensure that areas with a high transit need would be adequately served. Those US Census tracts not scoring in the highest category, but still having a high score, could still be considered a high priority for transit service.

Figure V-1  
Ridgecrest Greatest Transit Needs



## RIDERSHIP TREND

Another approach to looking at short-term transit demand is to evaluate the recent ridership trends. This approach is valid in areas where there are existing transit services, such as in the City of Ridgecrest. The ridership trends for the City of Ridgecrest transit services were presented in Chapter III and are presented again below. Figure V-2 shows the ridership trends and ridership projections (based on the ridership trends). Note that this analysis is based on the existing ridership and is projected to the year 2012. Also note that the ridership trends and projections do not estimate the transit need within the study area.



As can be seen in Figure V-2, the transit ridership is expected to see a low increase in the future according to the recent trends and the forecasted population growth from Chapter II. Much of the transit demand pertains to the increase in the elderly and disabled population within the study area. The City of Ridgecrest transit ridership is estimated at approximately 33,000 annual trips for 2006 and 45,000 annual trips for 2012. The low passenger growth is based on the declining ridership over the past several years along with the increasing ridership from 2004 to 2005. LSC made the assumption that this four percent increase could continue into the future with improvements to the transit service and the population growth over the next four to six years.

## **SUMMARY**

Chapter V presented the methodologies for estimating the demand for the study area public transportation services. The methodologies included the Rural Transit Demand Methodology, Estimated Fixed-Route Model, Greatest Transit Needs Analysis, and ridership trends. LSC used this information to develop and evaluate the various service alternatives for meeting the study area transit needs.



## CHAPTER VI

# Onboard Survey Results

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### INTRODUCTION

This chapter provides the analysis of data collected through onboard surveys on the Ridgecrest Transit System. Information is provided about passenger demographics, trip characteristics, and perceptions of the quality of service. Drivers were provided the questionnaire which they handed out to passengers the week of April 16-20, 2007. The surveys were then mailed back to LSC. A total of 81 responses were received from these passengers. This number of responses limits the ability to analyze specific subgroups of passengers.

### METHODOLOGY

The survey instrument was developed to collect information essential for the evaluation of current services. The Ridgecrest Transit survey was designed to include transit trip characteristics, trip purposes, socioeconomic data, and attitudes toward the Ridgecrest Transit System (RTS). A draft survey instrument was prepared and submitted to Kern Council of Governments for review and comment. The final survey was printed in English on 8½" x 11" cardstock. The survey instrument is included in Appendix B.

### SURVEY FINDINGS

Responses from the usable questionnaires were entered into a survey program for analysis. The responses are summarized in the following sections.

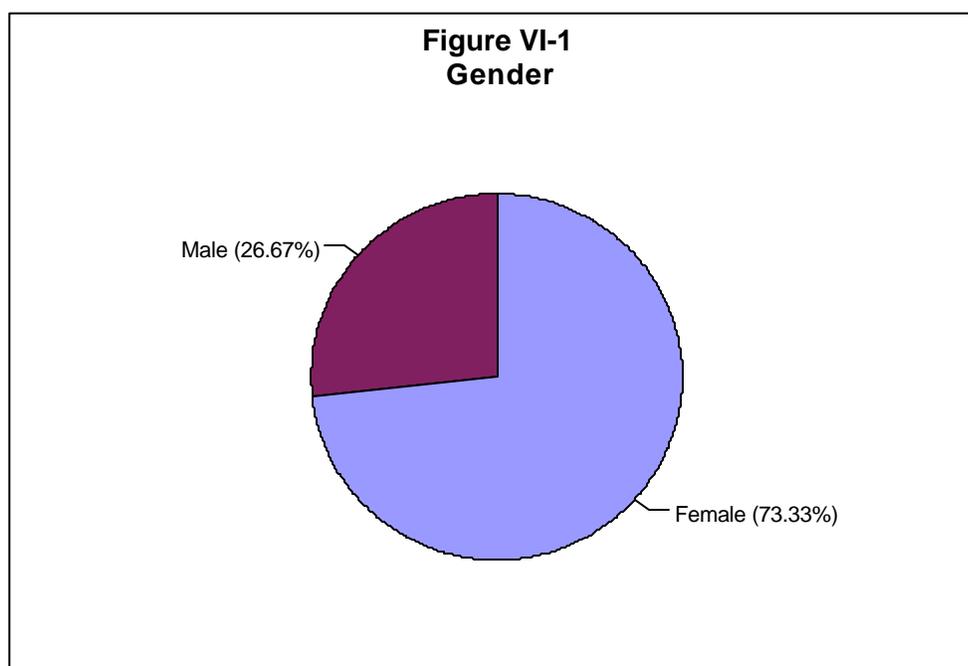
#### Demographic Characteristics

There were a number of questions asked to determine demographic characteristics of transit riders on RTS. Respondents were asked to complete information on every trip which they took regarding the characteristics of the trip. The demographic information is summarized from unduplicated individuals responding to the questions. For the survey, there were 81 unduplicated individual responses.

## Age and Gender

The average age of the respondent was 42 years, ranging from 14 to 87 years. Age 18 was the most frequent age of the respondents. Approximately 35 percent of respondents were between the ages of 14 and 29 years, 46 percent were between 30 and 59 years, and 19 percent were 60 years and older.

Figure VI-1 illustrates the gender of the respondents. Seventy-three (73) percent of the respondents were females, and 27 percent were males. This ratio of more females than male patrons is consistent with many smaller transit systems within the United States.



## Vehicle Availability

The number of cars in a household and the ability to drive play key roles in the demand for public transportation. Lack of a private vehicle or the inability to drive influence people to use public transportation. This comparison provides an indication of the number of choice riders compared to those who are transit-dependent.

Figure VI-2 shows the proportion of passengers who responded with the number of cars they have in their household. Approximately 50 percent of the passengers did not have any car in their household. Patrons who reported having

one car per household were 13 percent of the respondents, followed by 16 percent of patrons who had two or more cars per household.

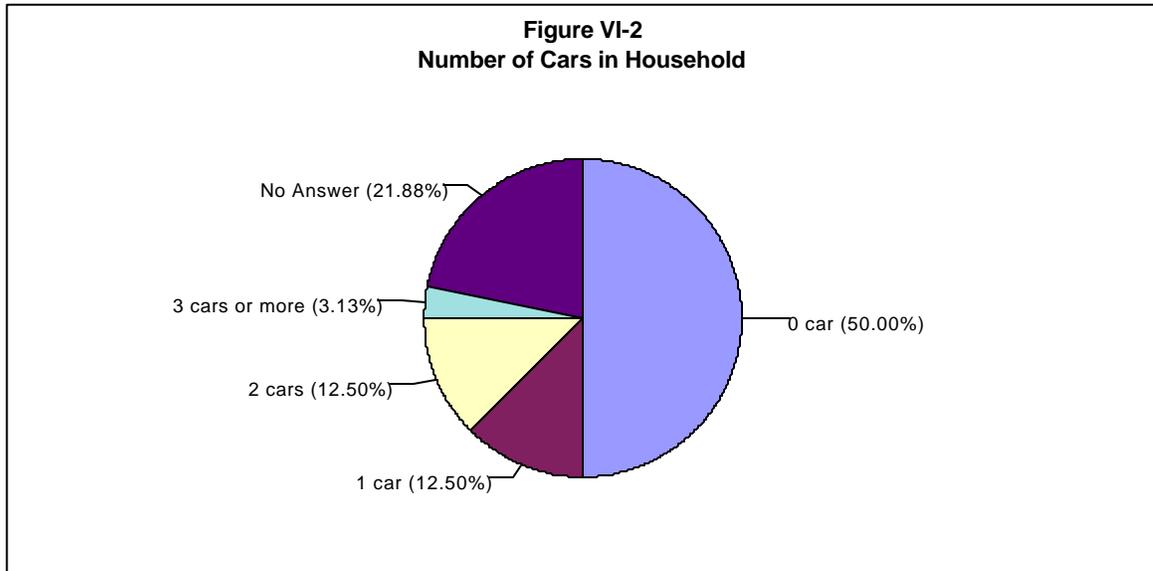
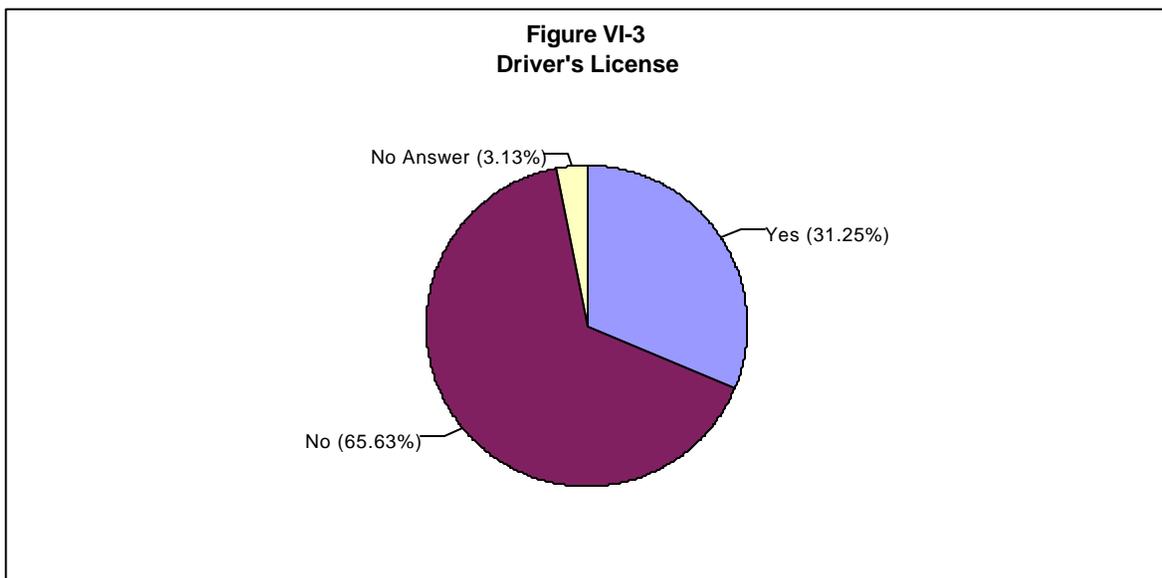


Figure VI-3 shows the proportion of passengers who are licensed drivers. A majority of patrons (66 percent) do not have a license to operate a car.



To determine the percentage of transit-dependent patrons, a cross-tabulation was performed on the question regarding the number of cars they have in their household and whether they have a driver's license. Table VI-1 shows the comparison. Fifty percent of those responding to these two questions (32 respon-

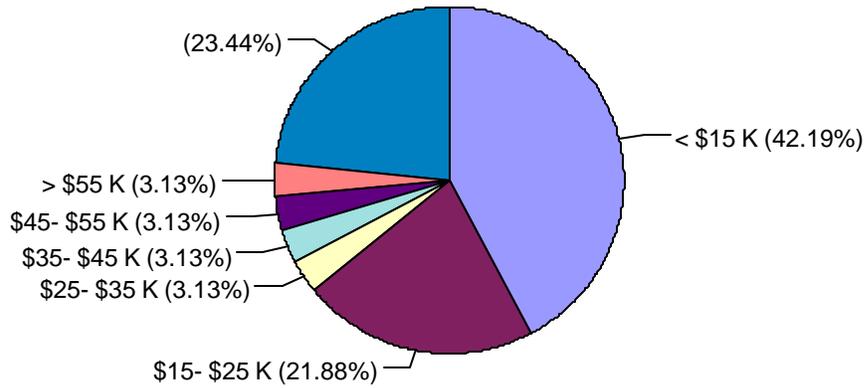
dents) did not have any car in their household or did not have a driver's license. Thus, this percentage represents RTS patrons that are truly transit dependent. In addition, another three percent have a license, but come from a single-vehicle household and may be transit-dependent for some of their transportation needs.

<b>Table VI-1</b>		
<b>Number of Cars in a Household by Driver's License</b>		
<b>Number of Cars</b>	<b>Driver's License</b>	
	<b>Yes</b>	<b>No</b>
None	22%	28%
1 car	3%	9%
2 cars	5%	8%
3 or more cars	0%	%
No Response	22%	**
<i>** Note: Approximately 22% of respondents did not answer one of the two questions.</i>		
<i>Source: LSC Onboard Survey, 2007.</i>		

### **Annual Household Income**

Income plays an important role in determining transit ridership and transit needs in Ridgecrest. The household income of respondents is shown in Figure VI-4. Approximately 42 percent had incomes of less than \$15,000 annually, with another 22 percent having incomes of \$15,000 to \$25,000. Three percent of the passengers had incomes of greater than \$55,000.

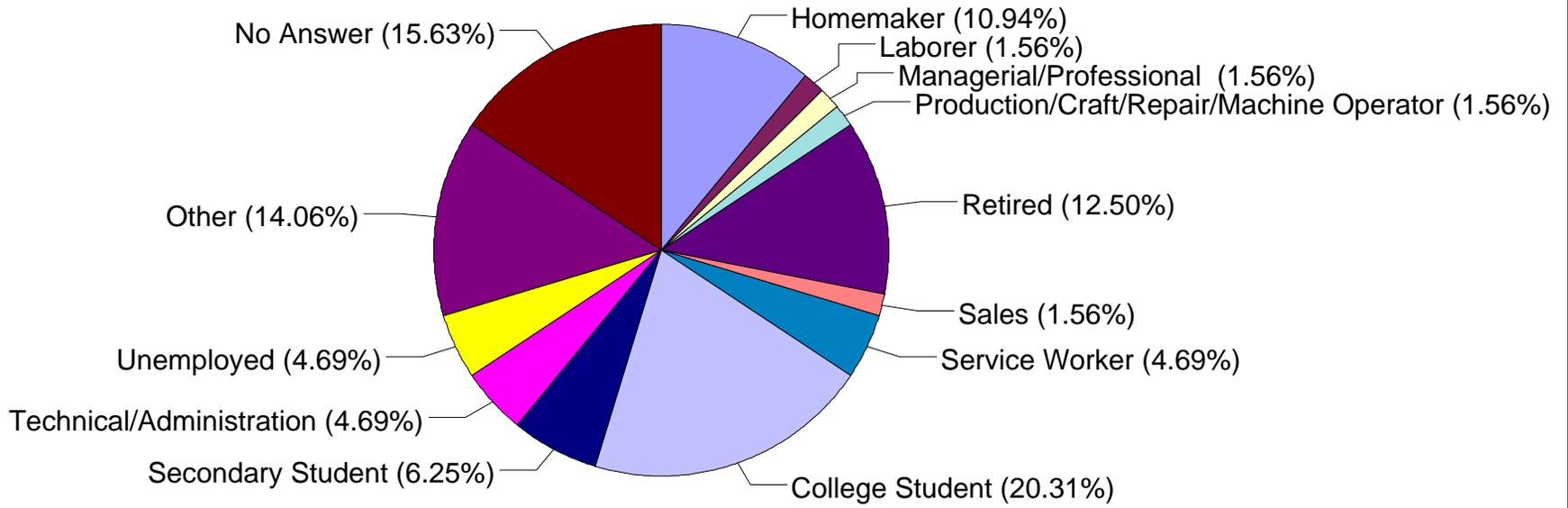
**Figure VI-4  
Annual Household Incomes**



### **Occupation**

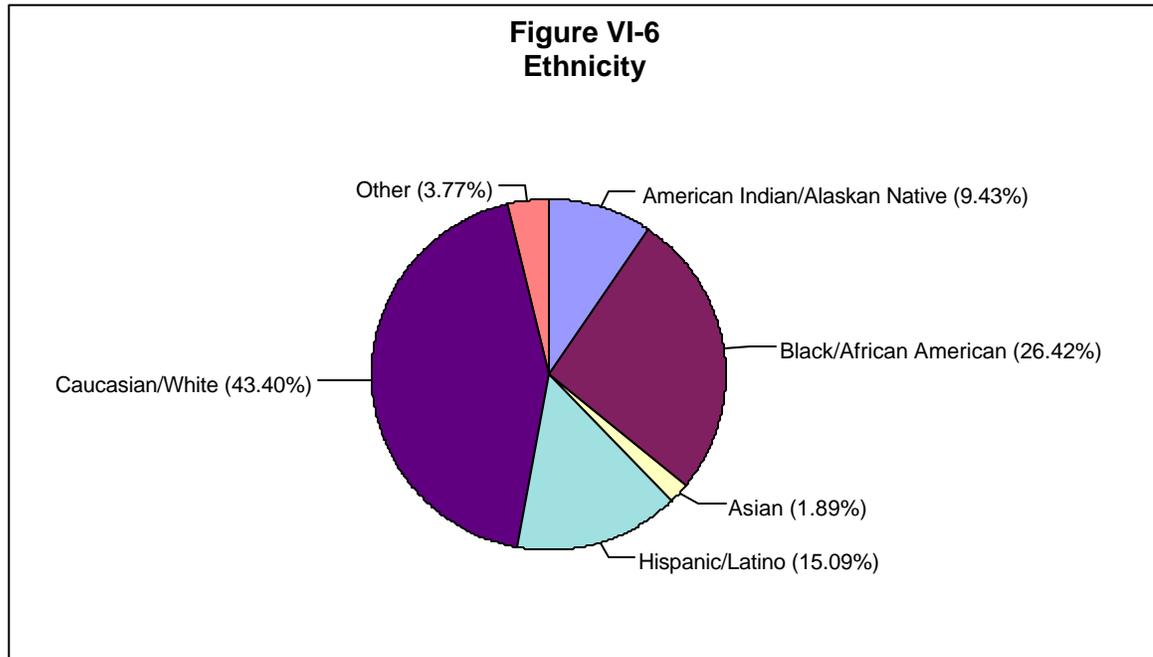
Passengers were asked their occupation, with results shown in Figure VI-5. Passengers represent a broad spectrum of occupations. College students had the highest responses with 20 percent, followed by the retired and those who reported their occupation as a homemaker with 13 percent and 11 percent of transit riders, respectively. The percentage who reported being unemployed was five percent.

### Figure VI-5 Occupation



## Ethnicity

Ethnicity is shown in Figure VI-6. Whites made up about 43 percent of the passengers, followed by Black/African Americans which were about 26 percent and Hispanic/Latino which were about 15 percent.



## Source of Information

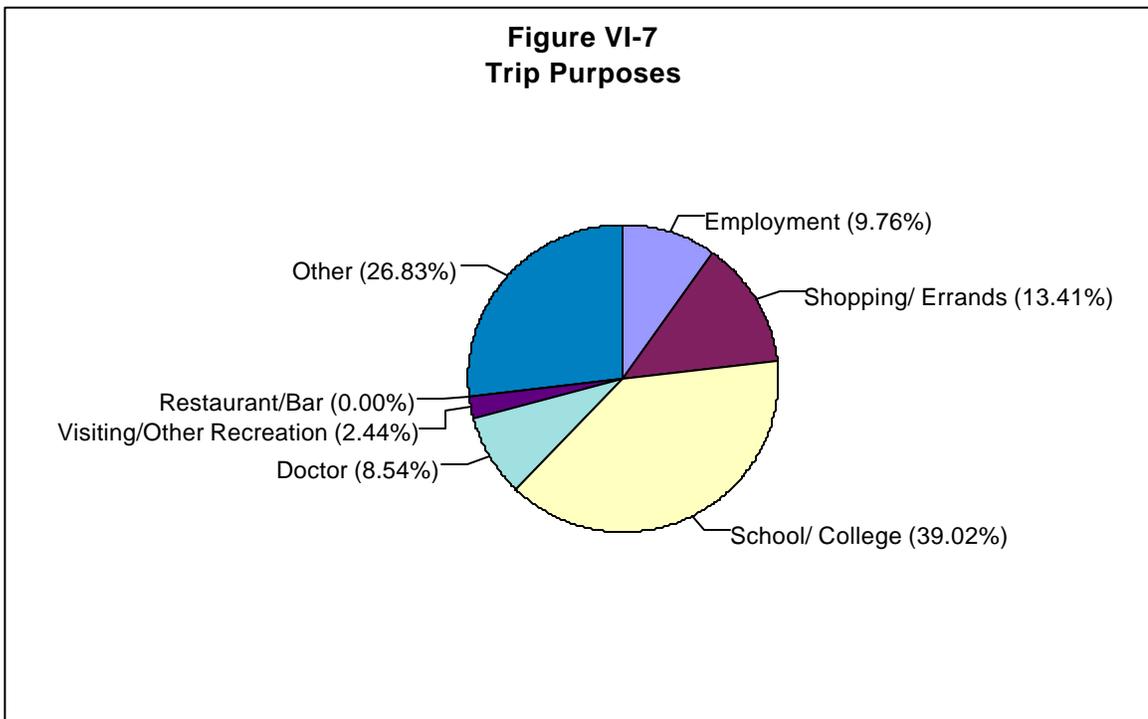
Passengers were asked to indicate how they first learned about the Ridgecrest Transit System. The responses are shown in Table VI-2. The primary sources of information are word of mouth from a friend or coworker and visibility of the buses. Other sources of information, including advertising and bus guide, were identified by far fewer respondents as the way they first learned about RTS.

<b>Table VI-2 Source of Information</b>	
<b>Source</b>	<b>2007 Percentage</b>
Saw bus	22%
Friend/coworker	38%
Advertisement	9%
Saw bus guide	3%
Other	14%
No answer	14%
<i>Source: LSC, 2007.</i>	

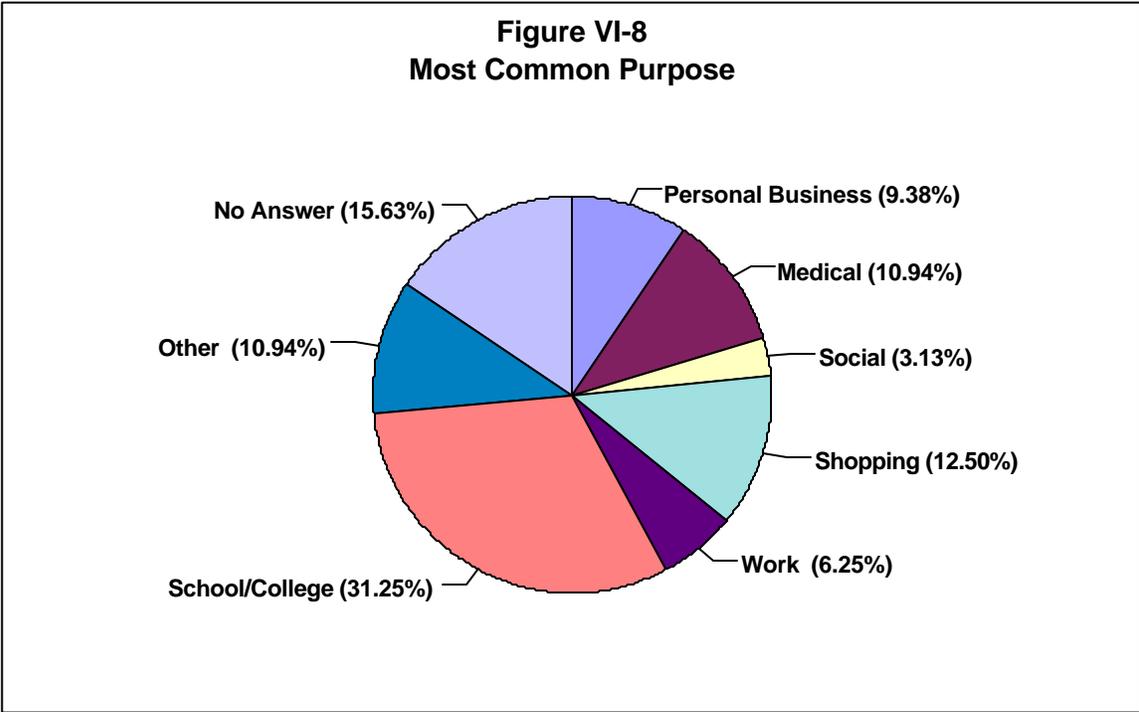
## Trip Characteristics

The survey asked passengers to provide information about the individual trip they were making on RTS. Passengers were asked to provide this information each time they were on a run that was sampled.

Trip purposes are shown in Figure VI-7. The primary trip purpose (39 percent) was to go to and from school/college. The second most common (27 percent) purpose was “other.” Some of the “other” responses reported were trips to post office, day care, and the hospital.



Passengers were also asked to indicate the purpose for most often riding the bus. These responses are shown in Figure VI-8. The greatest proportion of trips (31 percent) taken were for school/college followed by passengers who used the bus for shopping and medical purposes, representing 13 percent and 11 percent of the respondents, respectively.



**Blocks Willing to Walk**

Passengers were asked the number of blocks they were willing to walk to catch a bus. Twenty-eight percent of respondents reported that they were not willing to walk even a block to catch a bus. This response may reflect the nature of the curb-to-curb service offered by RTS. Respondents indicated their willingness to walk one block (16 percent) and two blocks (19 percent). Approximately 13 percent of respondents indicated they would be willing to walk four or more blocks to catch a bus. Fixed-route passengers typically indicate a much greater distance, with four blocks being typical.

**Perceptions about Ridgecrest Transit**

Passengers were asked to rate the quality of service provided by RTS. The responses were poor, fair, good, very good, and don't know. The responses in Table VI-3 are shown as a proportion of each attribute. The characteristics which were rated as very good include:

1. Friendly/helpful by drivers/operators
2. Friendly/helpful by dispatchers
3. Courteousness and safety by drivers/operators
4. Appearance by drivers/operators

The characteristics which were rated low on the “very good” list were response time, time in buses, condition of buses, and service frequency.

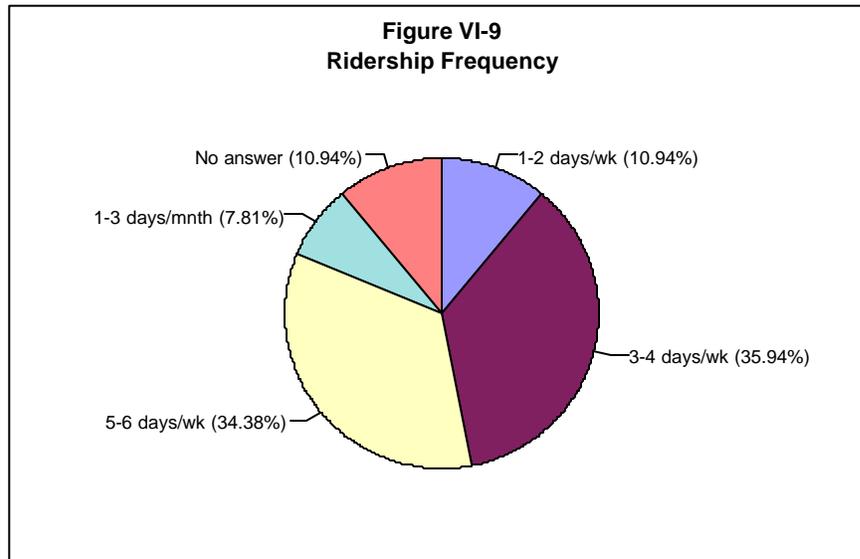
<b>Table VI-3 Quality of Service</b>					
<b>Attribute</b>	<b>Poor</b>	<b>Fair</b>	<b>Good</b>	<b>Very Good</b>	<b>Don't Know</b>
Service Frequency	9%	9%	27%	41%	14%
Condition of Buses	0%	5%	41%	36%	19%
Response Time	6%	14%	27%	31%	22%
Time in Bus	3%	17%	23%	34%	22%
<b><i>Drivers/Operators</i></b>					
Friendly/Helpful	3%	5%	17%	64%	11%
Courteous	3%	5%	19%	55%	19%
Safety	3%	0%	20%	55%	22%
Appearance	3%	0%	25%	53%	19%
<b><i>Dispatchers</i></b>					
Friendly/Helpful	6%	2%	19%	56%	17%
Courteous	6%	0%	22%	47%	25%
<i>Source: LSC, 2007.</i>					

The individual responses and comments for those scoring these items low were looked at in more detail. The written comments from those individuals who responded with poor or fair were reviewed separately. The most common comments were on-time service and make response/pick-up time quicker. Some responses were in favor of the door-to door service while others thought that a fixed-route service with a set schedule and a schedule stop would be a better alternative .

### **Ridership Frequency**

Passengers were asked how often they ride the bus during a typical week. Figure VI-9 shows the responses. Approximately 34 percent of the passengers reported using RTS at least five days per week. Forty-seven percent of respon-

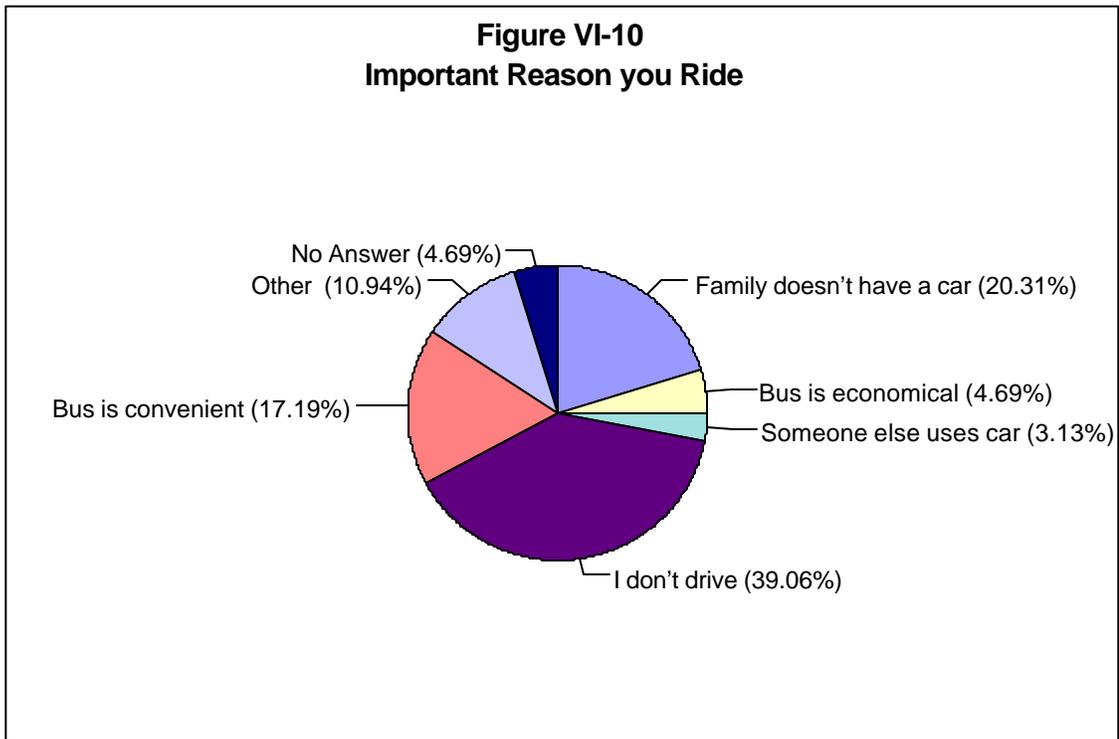
dents reported using RTS four days a week or less, while eight percent of respondents reported using RTS a few days a month.



### Reason for Riding

Passengers were asked the most important reason they ride the bus. The top reasons for riding the bus are passengers that do not drive (39 percent) and family does not have a car (20 percent). Figure VI-10 shows the information.

**Figure VI-10**  
**Important Reason you Ride**



### **Scheduled Service**

Passengers were asked whether they would prefer that the bus would come by at a scheduled time. Sixty-six percent of the respondents preferred that the bus would come by at a set time while 23 percent did not think so. The remaining 11 percent did not indicate any answer.

### **Additional Comments**

Passengers were given the opportunity to recommend new services, make suggestions, and give additional comments. The actual suggestions/comments are included in Appendix C. The major recommendations relate to fixed-route service to Inyokern and the college for the general public, a door-to-door service for persons with disabilities and seniors, regular scheduled service with set bus stops, and extended service hours in the evening and on Saturday. Many of the comments were very positive about the service. The major comments/suggestions relate to a better response, pick-up and drop-off times, and the need for more dispatchers, more drivers, and more buses.

## KEY PERSON INTERVIEWS

The Key Person Interview is one method by which to garner public input concerning public transportation. The Planning Team works with local staff to ascertain individuals who play key roles in the community and would have an interest in public transit either for their employees or clients. These persons are asked a standard list of questions concerning transit and transportation issues in their community. Six individuals were interviewed representing social service agencies, senior citizens, and private business. Each participant in the interviews was assured that their answers would be kept confidential. Listed below are the questions asked during each interview and the responses to these questions.

**Question 1: In your opinion, what are the major issues facing the City of Ridgecrest?**

ANSWER: All respondents stated that poor road conditions were the major issue facing the city.

**Question 2: What are the major transportation issues facing the City of Ridgecrest?**

ANSWER: Every person answered this question by repeating their answer for Question 1.

**Question 3: What are the needs of the community for local and regional transit?**

ANSWER: All those interviewed expressed the need for scheduled local service, and one expressed the need for a regional service like Greyhound.

**Question 4: What benefits do you think improved transit service would bring to the community?**

ANSWER: Several benefits were stated, such as more transportation freedom for people who do not have a car and economic benefits from getting people to work or shopping.

**Question 5: Does the current transit service meet those needs?**

ANSWER: One person responded that the current service meets the needs, and five persons said the service does not meet the needs.

**Question 6: What areas of the community should be given priority for local transit service?**

ANSWER: Several persons were not sure how to answer this question; others stated areas like downtown, the community college, and areas where people go to work were priorities.

**Question 7: What should be the hours of service and should the service operate on weekends?**

ANSWER: All who were interviewed stated the service should operate on weekends, but not necessarily the same hours as weekday service. For weekday service, most respondents preferred between 6:00 a.m. and 10:00 p.m. Several persons responded that the service should operate at least until midnight.

**Question 8: What do you think would make transit service succeed in your community?**

ANSWER: Everyone responded that a scheduled service operating on nights and weekends would make the transit service successful.

**Question 9: What do you think is the greatest barrier to enhanced public transit in the community?**

ANSWER: Everyone responded that the lack of money is the greatest barrier.

**Question 10: Who do you think should operate the service and how should it be funded?**

ANSWER: The conclusive answer to who should operate the service was the City of Ridgecrest. Four were not sure how the service should be funded, and two said the city and state should fund transit.

**Question 11: Do you think the community would support increased funding to improve public transportation services?**

ANSWER: The unanimous answer to this question was no.

**Question 12: What public transportation services are currently in Ridgecrest and what is your opinion of these services?**

ANSWER: Only one person was aware of the regional service provided by Kern County and none were aware of transportation services provided by DART. The overall opinion on RTS was that it should provide scheduled service.

## **DRIVER INTERVIEWS**

Drivers were interviewed individually so that there would be no conflict with the RTS work schedule. The consensus from these interviews was:

- The drivers enjoy their work and like the demand-response type of service.
- They feel that many of their customers have to wait too long for a ride.
- They would like to have more vehicles and drivers.
- They believe that service should be extended later into the night than what is currently being done so that more people could go to night classes at the community college.

## **SENIOR CENTER MEETING**

On May 10, 2007, members of the Planning Team held a public meeting at the Ridgecrest Senior Center. Everyone present endorsed the flexible fixed-route alternative that would be phased in over a seven-year period. They liked that the service would be a scheduled service and that the buses met at a central location so they could transfer to other buses.



## CHAPTER VII

# Goals and Objectives

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### INTRODUCTION

Chapter VII presents the mission statement and goals and objectives that were approved by the Ridgecrest Organizational Committee.

### TRANSIT VISION

In developing the Transportation Development Plan, it is necessary to recognize the goals and objectives of public transportation as they determine the direction to be taken in the TDP. The goals and objectives provide the specific directions for implementation.

#### MISSION STATEMENT

The mission of the City of Ridgecrest Public Transit Service is to provide quality bus service to the citizens of Ridgecrest and to grow the system to include select locations through a transit team dedicated to safety, efficiency, and customer service for the present and into the future.

### Goals and Objectives

**Goal #1:** Provide efficient, cost-effective, and safe mobility for the City of Ridgecrest and select locations at an affordable cost.

**Objective 1a:** Service will operate at an average productivity of four passengers per service hour. Bus routes that do not meet the minimum standard after a one-year period will be reviewed for service changes.

**Objective 1b:** The City of Ridgecrest Public Transit Service will operate with fewer than 2.5 preventable accidents per 150,000 vehicle-miles.

**Objective 1c:** A rider survey will be distributed, at minimum, every two years in order to obtain input from the system users on the adequacy of transit services and any unmet needs.

**Objective 1d:** Establish transit service operating policies, a safety training manual, and prepare a policy manual.

**Objective 1e:** Endeavor to expand the transit service to select locations in and around the City of Ridgecrest through partnerships with government agencies and through intergovernmental agreements.

Goal #2: Maintain the existing ridership base while increasing ridership levels and expanding the types of services offered under the system's current operating parameters (service area and operating times).

**Objective 2a:** Maintain passenger information about weekly ridership and track origins and destinations.

**Objective 2b:** Develop and distribute ride guides with schedule, maps, and service information (as determined by the Marketing Plan) to key locations such as government offices, businesses, the public library, the community college, Senior Center, and others as deemed appropriate.

**Objective 2c:** The RTS Transit Manager shall hold six meetings per year with drivers to discuss ways to improve transit service or perform operations more effectively.

**Objective 2d:** The Ridgecrest Transit System will monitor ways to coordinate with other transit services in the area, such as Desert Area Research and Training and Kern Regional Transit, to promote regional transit service.

**Objective 2e:** The Ridgecrest Transit Service will work closely with the Ridgecrest Planning Department on issues concerning land use and future community growth.

**Goal #3:** Continue to provide for the economic stability and sustainability of the Ridgecrest Transit Service.

**Goal 3a:** Monitor operational costs and seek methods to minimize costs while maintaining service effectiveness.

**Goal 3b:** Seek out any available grants and other means of funding for public transit. Continue to show the benefits of transit.

**Goal 3c:** Implement strategic marketing strategies that identify ways to encourage private organizations and corporations to financially support local transit. Work with these same institutions to show the economic benefits of transit.

**Goal #4:** Promote the services provided by the Ridgecrest Transit Service.

**Objective 4a:** Use every opportunity to promote the transit service, including but not limited to the following ideas:

- Develop a telephone number and website which can be monitored by someone who is available during service hours.
- Display the telephone number and website for information prominently on all fleet vehicles.
- Develop an identity for the transit service and place it on all buses, schedules, marketing devices, and bus stops.
- List the transit service's telephone number in the local telephone directory.
- Post flyers with the telephone number and hours of operation at various locations in the service area such as the public library, Cerro Coso Community College, the Naval Air Weapons Station China Lake, hotels, town offices, senior centers, local attractions, and local businesses.
- Place regular public service announcements with the local newspaper, radio, and television stations.
- Maintain the city's transit service website which posts service information and downloadable schedules.

**Objective 4b:** Develop a public education program on the benefits of transit service and the need to maintain and improve the overall transportation system in Ridgecrest. Train staff to give educational presentations at:

- Civic organizations such as the Lions Club, Elks Club, Rotary, Exchange Club, senior centers, and Kiwanis Club.
- Local churches and the public library.
- Business organizations such as the Chamber of Commerce and the Ridgecrest Economic Development Council.
- Homeowners Associations.
- Monthly reports to City Council.

**Objective 4c:** Aggressively market the transit service to potential customers on the city’s website and through flyers/posters posted at key locations such as local government facilities, grocery stores, the public library, and local businesses. Consider promotions such as:

- Special Transit Days that provide free transportation on election days.
- Guaranteed Ride Home Program

**Objective 4d:** Hold open houses or roundtable discussions—separate from the required Unmet Transit Needs Hearing—of transit issues and needs on an as-needed basis or a minimum of once a year, which are open to the public where people can express their vision and comment on issues and concerns regarding transit.

**Goal #5:** Explore new and expanded service technologies.

**Objective 5a:** Work with the California Department of Transportation, the Federal Transit Administration (FTA), Kern Council of Governments, and private technology experts to incorporate Intelligent Transportation Systems (ITS) for the Ridgecrest Transit Service.



# Institutional Alternatives Analysis

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## INTRODUCTION

Chapter VIII provides a listing of potential institutional structures that may be used in the operation of the Ridgecrest Transit Service (RTS). This chapter explores the existing institutional structure of RTS and provides several alternatives for consideration.

The identification of a cost-effective and geographically appropriate institutional form for the provision of transit is a key element in the improvement of public transportation services. This chapter approaches institutional alternatives from a practical standpoint rather than from a theoretical one. As the population of Ridgecrest and the surrounding area grows and changes, so will the demands upon the existing transit service.

An important objective of this study is to present recommendations for an institutional framework for RTS that is acceptable to the parties involved in the operation and funding of RTS and that can be realistically implemented. With these goals in mind, the following discussion presents an analysis of the most appropriate alternatives and a basis for making a decision.

## CRITERIA FOR THE INSTITUTIONAL STRUCTURES

The history of transit organizations serving scattered urban areas and areas with low population densities indicates the following criteria should guide the selection of the institution for managing and operating transportation services in Ridgecrest. It should be an entity:

- Whose structure is legitimate and whose policy-making actions are authorized and defensible;
- Which can limit the exposure of the participants to suits and claims of liability;
- Which can be responsive to the complete policy-making and management needs of the transit organization;

- Which has political and financial support and can endure more than one year at a time; and
- Which can annually perform proactive planning to improve the system, and effectively identify and implement improvements regularly and easily.

Transit services throughout the west have a variety of organizational homes, from independent agencies (Crested Butte, Colorado) to transit districts (Sutter Transit Authority or Missoula, Montana) to departments of a municipal government (City of Roseville, California) to departments of county government, such as Merced County (California), to nonprofit corporations (Casper, Wyoming).

## **INSTITUTIONAL STRUCTURE ALTERNATIVES FOR THE RIDGECREST TRANSIT SERVICE**

### **Maintain the Current Organizational and Institutional Structures Now in Place**

RTS is a public transportation service owned and operated by the City of Ridgecrest. RTS is a division of the Ridgecrest Public Works Department. All employees of RTS are City employees and receive salary and benefits from the City. Policy decisions concerning the transit service are made by the City Council and the City acts as the recipient for all state, local, and federal funds used in the operation of RTS.

Advantages to this type of organizational structure are that the City can coordinate administration, maintenance, and grant administration with various agencies within city government. For instance, transit vehicle maintenance can be (and in the case of RTS is) conducted by the City's Public Works Department. The same department that obtains and administers federal and state grants can also perform this same function for the public transit service. The City Attorney can handle transit legal matters and the Finance Director can assist the service in budget preparation.

Disadvantages of a city operated system are that the elected officials make final decisions regarding management, operation, and financing of transportation services, which may or may not be a high priority and may provide little long-term stability in the funding for transit services. Sometimes city policies and

procedures do not give the transit agency the operational flexibility it needs in day-to-day operations. For instance, the transit system may operate seven days a week but the Public Works Department garage that maintains the transit buses is only open Monday through Friday thereby creating problems if a bus becomes disabled when the Public Works Department garage is closed. Priority may also be given to maintaining Public Works vehicles over the transit agencies' equipment.

### **Joint Powers Authority**

Joint Powers Authorities are formed when two or more public agencies (city, county, etc.) enter into a joint powers agreement for the purpose of establishing a legally separate entity to oversee and provide a specific service (waste management, water quality improvement, regional transit services, etc.). It should be noted that not all joint powers agreements create joint powers authorities. Typically a joint powers agreement defines the authority, stipulates its powers, establishes a governing body, and states procedures for admission of new members and withdrawal of current members. A joint powers agreement does not create new powers, but rather creates the Joint Powers Authority for the cooperative use of existing governmental powers. In Kern COG's *Regional Rural Transit Strategy* (published in August 2003), it was suggested that a Joint Powers Authority could be developed that would oversee all transit operations in rural Kern County.

Transit authority powers may include the following:

- Make and enter into contracts.
- Employ agents and employees.
- Sue and be sued.
- Incur debts, obligations, and liabilities, including the issuance of bonds.
- Own or lease equipment or buildings.
- Acquire property.
- Apply for grants from public agencies and administer funds.

The governing board usually consists of one or more representatives from each party involved in the joint powers agreement. Population, LTF expenditures on transit, or transit ridership can be used to determine the number of representa-

tives each party will have on the governing board. Elected officials can sit on the governing board, although it is not a requirement for members to be elected officials. In general, new policies must be approved by a majority vote. In addition to a “one member one vote” policy, the number of votes per governing board member can be weighted by population or the amount of funding contributed.

Several advantages may exist for the Joint Powers Authority model:

- A transit authority is an independent decision-making body focused on the service(s) it provides. This gives a transit system greater control over transit issues.
- A joint powers agreement specifies a required level of participation from each party involved; therefore, each party would have a higher degree of commitment to the transit system.
- Another advantage is that joint powers authorities are easy to establish. No special legislation is required and broad guidelines are established in the California Code giving the authority a great deal of flexibility. The only requirements are that a notice of agreement must be filed with the Secretary of State within 30 days of being signed by all parties and routine audits should be performed.
- Another important advantage is that the participating public agencies are released of liability from actions made exclusively by the authority. It should be noted that if the agreement does not specifically create a separate entity, then the participating parties remain responsible for debts, liabilities, and obligations.

Unlike special districts, joint powers authorities do not possess the legal ability to levy taxes or pass ordinances. This can be seen as a disadvantage if a transit system needs additional revenue sources; however, creating an organization with taxing authority could be politically unfavorable, thereby discouraging potential members from joining. Other disadvantages include the costs and time involved in setting up a new layer of government. Finally, as mentioned above, governing board members are not required to be elected officials. No required public accountability for governing board decisions is viewed as a disadvantage.

Creating a transit authority through a joint powers agreement is common among rural transit systems in California. Two examples are:

- El Dorado Transit Authority (EDCTA) - Organized through an agreement between El Dorado County and the City of Placerville, EDCTA’s governing

board consists of three county supervisors and two members appointed by the City Council. EDCTA performs all administrative and operational functions for the transit system.

- Yuba/Sutter Transit Authority (YSTA) - YSTA was formed through an agreement between Yuba and Sutter Counties, and the cities of Marysville and Yuba City. The governing board consists of two elected representatives appointed by each of the four parties. All transit operations are performed by a service contractor. Annual TDA funding provided by each participating jurisdiction is based upon a formula reflecting the service area population, fixed-route service miles, and demand-response boardings by jurisdiction.

Other JPA transit services in California include Merced County Transit, Monterey-Salinas Transit, the Mendocino Transit Authority, the Livermore/Amador Valley Transit Authority, the Redding Area Bus Authority, and the Amador Regional Transit System. As evidenced by this list, a JPA is the most common institutional form for California transit programs serving multiple jurisdictions.

## **Special Districts**

A transit district has more power than a Joint Powers Authority, but it is substantially more complicated to form. According to California Government Code, a special district is “any agency of the State for the local performance of governmental or proprietary functions within limited boundaries.” A transit district is a form of special district and can be formed by submitting a petition or resolution to the county’s Local Agency Formation Commission (LAFCO) or through the legislative actions of a state senator or assembly representative. Because the formation of a special district requires State Legislature approval, the process is much lengthier. The district’s enabling legislation designates the territory, internal organization, labor provisions, retirement system, powers and functions, annexation, exclusion, and dissolution of the district.

Two primary differences exist between a transit district and a Joint Powers Authority. First, a transit district’s policy makers are directly elected and therefore can be considered to be more accountable to the voters. Governing board members can be elected solely for the transit district or may concurrently serve on the board of another governmental agency. Secondly, transit districts have similar powers to local governments, including the ability to levy new taxes with

a two-thirds majority vote and charge fees and assessments for the services they provide as long as those paying the fees are directly benefited by the services. Similar to a Joint Powers Authority, transit districts can issue bonds to pay for service expansion or other capital improvements.

Most existing transit districts in California are located in large urban areas with extensive commuter services. Examples include Alameda Contra Costa Transit District, Sacramento Rapid Transit District, and Southern California Rapid Transit District. Other transit districts encompass smaller areas such as the Yolo County Transit District and the Golden Empire Transit District (City of Bakersfield and Kern County); however, Yolo County has not yet taken advantage of the districts taxing authority (and therefore essentially functions as a JPA).

### **Organizational Structure Summary**

Table VIII-1 ranks each institutional alternative according to four factors: legal capability, revenue generation capacity, administrative impacts, and political acceptability. Legal capability refers to the existence of statutory authority. Revenue generation capacity refers to the capability of funding sources to generate adequate funding levels relative to the projected subsidy requirements. Administrative impacts refer to the level of effort involved in implementing a funding mechanism and the ability to provide coordinated service throughout the RTS region. Political acceptability refers to the likelihood of a given funding mechanism to be accepted by the public and the local elected officials.

Table VIII-1 Institutional Alternatives Comparison Matrix				
Institutional Alternative	Legal Capability	Revenue Generation Capacity	Admin. Impacts	Political Acceptability
Local Govt. Department				
Joint Powers Authority		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Special District		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Legend:	<input type="checkbox"/> = strong/acceptable <input checked="" type="checkbox"/> = moderate/satisfactory <input type="checkbox"/> = weak/unacceptable			
<i>Source: LSC, 2006.</i>				

## RECOMMENDATION

It is recommended that RTS remain as an agency of the City of Ridgecrest. Ridgecrest has a well-run local government, excellent facilities, and a long-standing commitment to local transit. RTS has an experienced manager who is supported by the Public Works Director. RTS has received strong financial and administrative support from the City of Ridgecrest, evidenced by the long years of continuous transit service operation. A cursory inspection of several RTS vehicles shows evidence of a good maintenance program. The City of Ridgecrest also has an intergovernmental agreement (IGA) with Kern County for the provision of transit service within the portion of Kern County that surrounds the city. This IGA is currently being renegotiated. The city also has excellent communications with China Lake and could possibly explore working with the naval air base in providing public transit within the base and between the base and the city.



## CHAPTER IX

# Service Alternatives

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### INTRODUCTION

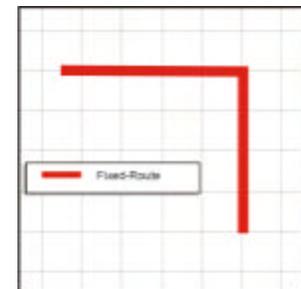
The basis for any transit plan is the careful consideration of realistic transit service alternatives. Capital requirements, financial plans, and management options can then be developed to support the planned transit services. Each transit service alternative must be evaluated using the locally-established goals and objectives. Only the alternatives that support the mission statement of public transportation and the corresponding goals and objectives should be considered for implementation. In order to evaluate the alternatives, a review of the different types of transit services needs to be conducted. The following sections detail the different types of transit services that could be implemented in the study area.

### TYPES OF TRANSIT SERVICE

The term “transit service” encompasses a wide range of alternatives. Traditionally, people think of transit service as buses operating on a strict schedule. A number of other transit service alternatives exist, such as demand-response service and commuter transportation.

#### Fixed-Route Service

Fixed-route transit service fits the popular description of a bus system, with transit vehicles operating on specified routes and following set schedules. Specific transit stops are typically identified for locations where passengers will be picked up and dropped off. Routes are usually laid out in either a radial or grid pattern.



*Fixed-Route Service*

### Radial Route Structure

In a radial route structure, all of the routes originate from a common point and extend to outlying areas. The central location serves as a transfer point and is frequently located at a destination with high transit activity. In many communities, this is the central business district or downtown area.

### Grid Route Structure

In a grid route structure, all of the routes function along a two-way direction (either north/south or east/west). The routes are normally spaced at equal distances if the roadway structure permits. This structure has no center transfer location. The transfers are conducted at the intersections of the routes. This type of service is mainly used in urban areas where the population density is greater and equally distributed across the area.

### Suburban Service Route Structure

In suburban areas, fixed-route service may be provided between major communities with connections to local services that operate within the communities. In many urban and suburban areas, this type of service will be either express or limited express routes. In rural areas, commuter service will be used to link rural communities together or link rural areas with urban areas.

### Summary

Fixed-route service is particularly convenient for passengers without disabilities. Research has shown that fixed-route passengers are willing to walk up to one-quarter mile to reach the bus stop. Therefore, a fixed-route service pattern may be efficiently laid out with the routes having one-half mile spacing. However, those individuals with mobility impairments may have difficulty in accessing the fixed-route system.

The advantages of fixed-route service are that it can be provided at a relatively low cost on a per-passenger-trip basis, schedule reliability is high since the buses do not deviate from their routes, service does not require advance reservations, and service is easy to understand.

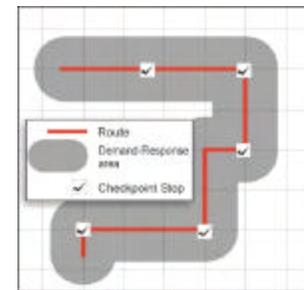


## Flexible-Route Service

Another alternative is flexible routes such as route deviation, flex routes, or checkpoint service. With flexible routes, vehicle dispatching and scheduling must be done carefully to ensure that vehicles are available to serve the designated stops at the scheduled times. To provide a reasonable amount of flexibility, a lenient definition of on-time performance is typically used. A reasonable policy for flexible-route service is a 10- to 15-minute window at each designated stop. Flexible-route service is used to expand the potential service area and is commonly used in low density areas. The following sections detail the different types of flexible-route service that are commonly used.

### Route Deviation

With route deviation, transit vehicles follow a specific route, but leave the route to serve demand-response origins and destinations. The vehicles are required to return to the designated route within one block of the point of deviation to ensure that all of the intersections along the route are served. The passengers on the bus may have a longer travel time than for fixed-route service

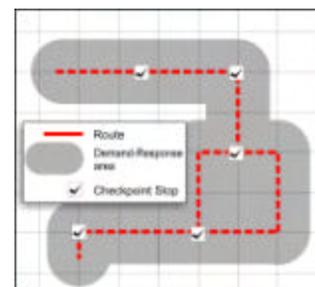


*Route Deviation*

and the service reliability is lower. However, the ADA-mandated complementary paratransit service is not necessary since the bus can deviate from the route to pick up disabled passengers. Passengers who need the bus to deviate are required to make an advance reservation with the transit service up to 24 hours ahead of time. Advance reservations are needed so that the vehicles can be scheduled for pick up and drop off along the scheduled run.

### Flex Route

Flex route is very similar to deviation service in that the transit vehicle follows a specific route, but leaves the route to serve demand-response origins and destinations. The difference is that in the flex-route service, the vehicle must only return to the route before the next transit stop. The distance between transit stops deter-

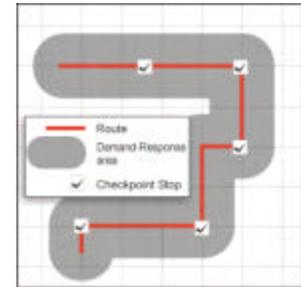


*Flex-Route Service*

mines the size of the deviation that the vehicle can make. For flex-route service, the demand-response rider must make advance reservations. The ADA-mandated complementary paratransit service is not necessary since the bus can deviate from the route to pick up disabled passengers.

### Checkpoint Service

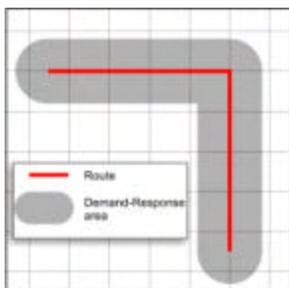
Under checkpoint service, vehicles make periodic scheduled stops at centers of activity (such as program sites, shopping areas, or residential communities). The specific routes are not established between checkpoints, thereby allowing the vehicles to provide demand-response service and alleviate the need for the ADA-complementary paratransit service. Riders are picked up at the checkpoints, typically at a reduced fare, and are taken either to another checkpoint or to a demand-response specific destination. Service between the checkpoints does not require advance reservations. However, service from any other location on a demand-response basis requires advance reservations so that the vehicles can be scheduled for pick up and drop off. Checkpoint service offers an advantage over route deviation because there is no specified route for the vehicles. Checkpoint service requires only that the vehicle arrive at the next checkpoint within the designated time window.



*Checkpoint Service*

### Demand-Response Service

Demand-response service, frequently termed dial-a-ride, is characterized as curb-to-curb transit service scheduled by a dispatcher. With demand-response service, advance reservations are typically required although some immediate requests may be filled if time permits and if the service is particularly needed.



*Demand-Response Service*

The concept of demand-response service was originally developed in the early 1970s as an alternate form of public transportation for the general public. The original efforts proved to be more expensive than envisioned and did not attract the ridership that was forecast. As a result, demand-response service has been used in the

United States almost exclusively for elderly and disabled passengers. However, many communities are beginning to recognize the advantages of demand-response service for low-density areas with low levels of transit demand. Improved technology has led to improvements in dispatching and scheduling, which has increased the efficiency of demand-response service and allows for real-time dispatching.

## **TRANSIT ALTERNATIVES**

### **Base Assumptions**

In our analysis of 2006 RTS transit data, the Planning Team observed that the transit system had an inordinate amount of non-revenue driver hours (4,501 hours) and very high administrative costs (\$191,436 for administrative salaries, wages, and benefits and \$89,346 for office expenses for a two-employee administrative staff). Since the high non-revenue hours cause inefficiencies of the existing service, LSC has estimated a new cost per revenue-hour based on the existing service operating at full capacity. Based on information from Chapter III, there was a total of 5,899 revenue-hours. With five full-time drivers, this equates to about 1,180 revenue-hours per driver. Each driver should have at least 2,000 revenue-hours per year. If the RTS system was operating at full capacity, the total number of revenue-hours should be approximately 10,000. This would equate to \$41.80 per revenue-hour. To make the fixed cost more attuned to a transit system the size of RTS, the Planning Team assigned the dollar amount of the fixed cost (\$280,000) from the RTS 2006 budget to each alternative rather than assigning the fixed cost factor of 1.50 that was developed in the cost allocation model. If we had used the 1.50 cost factor, each alternative would have been \$200,000 to \$300,000 higher than what is shown in this chapter.

Since the City of Ridgecrest has never operated a fixed-route service, LSC assumed the trip rate for the fixed-route model based on the calibrated model for Butte, Montana which has fixed-route operations. The size of the population of Butte, Montana is similar to the population of the Ridgecrest study area. LSC used a trip rate of .20 for households with no vehicles and .02 for households with one vehicle.

In order to estimate the number of trips needed for the complementary paratransit service, the LSC Planning Team developed a paratransit model presented in Table IX-1. This model estimates the number of disabled individuals that could request demand-response/paratransit services. Based on the Certified Population Annual Trips (low range), LSC used 39 daily trips less the trips from the calibrated TCRP model in Chapter V for the demand-response service areas defined in each alternative to determine the daily paratransit trips in the fixed-route/flex-route service areas. For Alternative II, LSC used 31 daily trips, 24 daily trips for Alternative III, and for Alternative IV the amount used was 26 daily trips. Along with this analysis, the LSC team included the daily trip demand from Chapter V from the TCRP model for the areas that would have demand-response service/rural demand-response service.

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**Table IX-1  
2006 Estimated Paratransit Demand - Ridgecrest**

Census Tract	Census Block Group	Total 2006 Population	% of Mobility Limited Population 2005 Est.	Mobility-Limited Population	ADA Eligibility Factor	Estimate of ADA Eligible Population	Certification Factor	Estimate of Certified Population	Trip Rates <sup>(1)</sup> per Eligible Person Per Month		Eligible Population Annual Trips		Certified Population Annual Trips	
									Low	High	Low	High	Low	High
53	1	729	0.00%	0	60.00%	0	0.2825	0	1.61	4.40	0	0	0	0
53	2	0	0.00%	0	60.00%	0	0.2825	0	1.61	4.40	0	0	0	0
53	3	1,159	5.23%	61	60.00%	36	0.2825	17	1.61	4.40	703	1,921	331	904
54.01	1	727	7.02%	51	60.00%	31	0.2825	14	1.61	4.40	592	1,618	279	762
54.01	2	1,551	4.80%	74	60.00%	45	0.2825	21	1.61	4.40	863	2,359	406	1,111
54.01	3	902	1.18%	11	60.00%	6	0.2825	3	1.61	4.40	123	337	58	159
54.01	4	1,445	1.33%	19	60.00%	11	0.2825	5	1.61	4.40	222	607	105	286
54.01	5	1,216	11.46%	139	60.00%	84	0.2825	39	1.61	4.40	1,615	4,414	761	2,078
54.02	1	1,577	4.32%	68	60.00%	41	0.2825	19	1.61	4.40	789	2,157	372	1,015
54.02	2	1,754	4.18%	73	60.00%	44	0.2825	21	1.61	4.40	851	2,325	401	1,095
54.02	3	1,850	4.20%	78	60.00%	47	0.2825	22	1.61	4.40	900	2,460	424	1,158
54.03	1	1,522	9.99%	152	60.00%	91	0.2825	43	1.61	4.40	1,763	4,819	830	2,269
54.03	2	2,369	5.25%	124	60.00%	75	0.2825	35	1.61	4.40	1,443	3,943	679	1,856
54.03	3	998	4.16%	41	60.00%	25	0.2825	12	1.61	4.40	481	1,314	226	619
54.03	4	1,323	4.58%	61	60.00%	36	0.2825	17	1.61	4.40	703	1,921	331	904
54.03	5	992	9.43%	94	60.00%	56	0.2825	26	1.61	4.40	1,085	2,965	511	1,396
54.04	1	1,325	3.77%	50	60.00%	30	0.2825	14	1.61	4.40	580	1,584	273	746
54.04	2	2,565	5.93%	152	60.00%	91	0.2825	43	1.61	4.40	1,763	4,819	830	2,269
54.04	3	2,483	4.75%	118	60.00%	71	0.2825	33	1.61	4.40	1,369	3,741	644	1,761
54.04	4	711	9.27%	66	60.00%	40	0.2825	19	1.61	4.40	764	2,089	360	984
55.01	1	940	10.64%	100	60.00%	60	0.2825	28	1.61	4.40	1,159	3,168	546	1,491
55.01	2	1,882	1.13%	21	60.00%	13	0.2825	6	1.61	4.40	247	674	116	317
55.01	3	345	10.48%	36	60.00%	22	0.2825	10	1.61	4.40	419	1,146	197	539
55.01	4	1,045	8.45%	88	60.00%	53	0.2825	25	1.61	4.40	1,023	2,797	482	1,317
55.01	5	806	1.72%	14	60.00%	8	0.2825	4	1.61	4.40	160	438	75	206
55.01	6	946	5.62%	53	60.00%	32	0.2825	15	1.61	4.40	617	1,685	290	793
55.03	1	556	17.03%	95	60.00%	57	0.2825	27	1.61	4.40	1,097	2,999	517	1,412
<b>Total</b>		<b>33,718</b>	<b>0</b>	<b>1,840</b>		<b>1,104</b>		<b>520</b>			<b>21,332</b>	<b>58,298</b>	<b>10,044</b>	<b>27,449</b>
												<b>Daily</b>	<b>39</b>	<b>108</b>
												<b>Annual Average</b>		<b>18,746</b>

(1) Source: Survey of seven "exemplary" paratransit operators. Crain, et al. "Working Paper 6: Service Needs Analysis, San Francisco Bay Area Regional Paratransit Plan," Jan. 1990.

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## **Maintain Status Quo**

A good starting point for the evaluation of service alternatives is the consideration of the status quo. The status quo alternative involves no change in the service that is provided by RTS. The status quo alternative is a viable option that may be appropriate when the current service meets the community's needs and satisfies the goals and objectives for public transportation services.

The existing demand-response service operates up to five vehicles per day. The annual cost is estimated at \$840,000 for 5,900 total revenue-hours, which equates to an average revenue-hour cost of \$142. The estimated total number of annual passengers is 33,000, equating to a \$25 cost per passenger.

The number of trips served by RTS has continued to decrease over the past four years. This trip decrease has created a situation of increasing inefficiency. Demand-response service does not create an economy of scale. As the number of trips decrease, the overall cost remains the same but the performance of the system degrades. As demand-response vehicles operate fewer revenue-hours, they are seen less in the community. This creates a downward spiraling public relations situation.

Table IX-2 presents the level of service for the existing service. Table IX-2 shows that there is a very low level of service, with 33,400 annual trips. The largest single factor that could be expected to impact the City of Ridgecrest over the next 10-year planning period is population growth, which will result in an increase in the demand for transit service.

Based on the information in Chapter VII, the status quo alternative would not meet the needs, goals, and objectives of the community. Further, the status quo alternative may not aid RTS in the development of a secure funding source. The existing service is very expensive and inefficient when compared to other transit systems.

**Table IX-2  
Level of Service - Status Quo**

Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost per Passenger
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
<b>Status Quo</b>	6:00 am - 6:00 pm Mon.-Sat.	4	259	19	80,870	5,928	312	33,400	5.6	\$840,739	<b>\$25.17</b>

*Note: Costs based on LSC analysis, 2007.*

## **Alternative I: Checkpoint Service**

Alternative I would alter the transit system from demand-response service to checkpoint and demand-response service. The checkpoint service of Alternative I would improve service to those areas of greatest transit demand within the existing budget. Checkpoint service is meant to increase the efficiency and effectiveness of the existing service with as little additional cost as possible. The objective of Alternative I is to improve the service by linking the major origins and destinations. Table IX-3 presents the details of Alternative I. Figure IX-1 presents the proposed route structure and demand-response service areas of Alternative I.

Alternative I would include two general public demand-response zones with one zone in the northern portion of the study area and one zone in the southern portion of the study area. Each of the zones would have one vehicle.

Alternative I would also include one checkpoint route serving the Cerro Coso College, two Albertsons stores, Wal-Mart, the Ridgecrest Medical Center, Kmart, and the community of Inyokern. The length of the route would be 17 miles one-way and 34 miles round-trip. Each of the checkpoints in the service would be served every two hours. Two vehicles would operate the checkpoint service. Between the times that the vehicles are at the checkpoints, the vehicles would operate standard demand-response service in the City of Ridgecrest.

The weekend service would operate two demand-response vehicles for eight hours per day, for a total of 16 revenue-hours per day. The estimated cost of the weekend service is \$47,600. The estimated annual ridership for the weekend service is 3,800 passengers. This equates to a \$12.37 cost per passenger.

## **Paratransit Service**

Since demand-response service is already included, there would be no need for additional paratransit service to cover the requirements of the Americans with Disabilities Act (ADA).

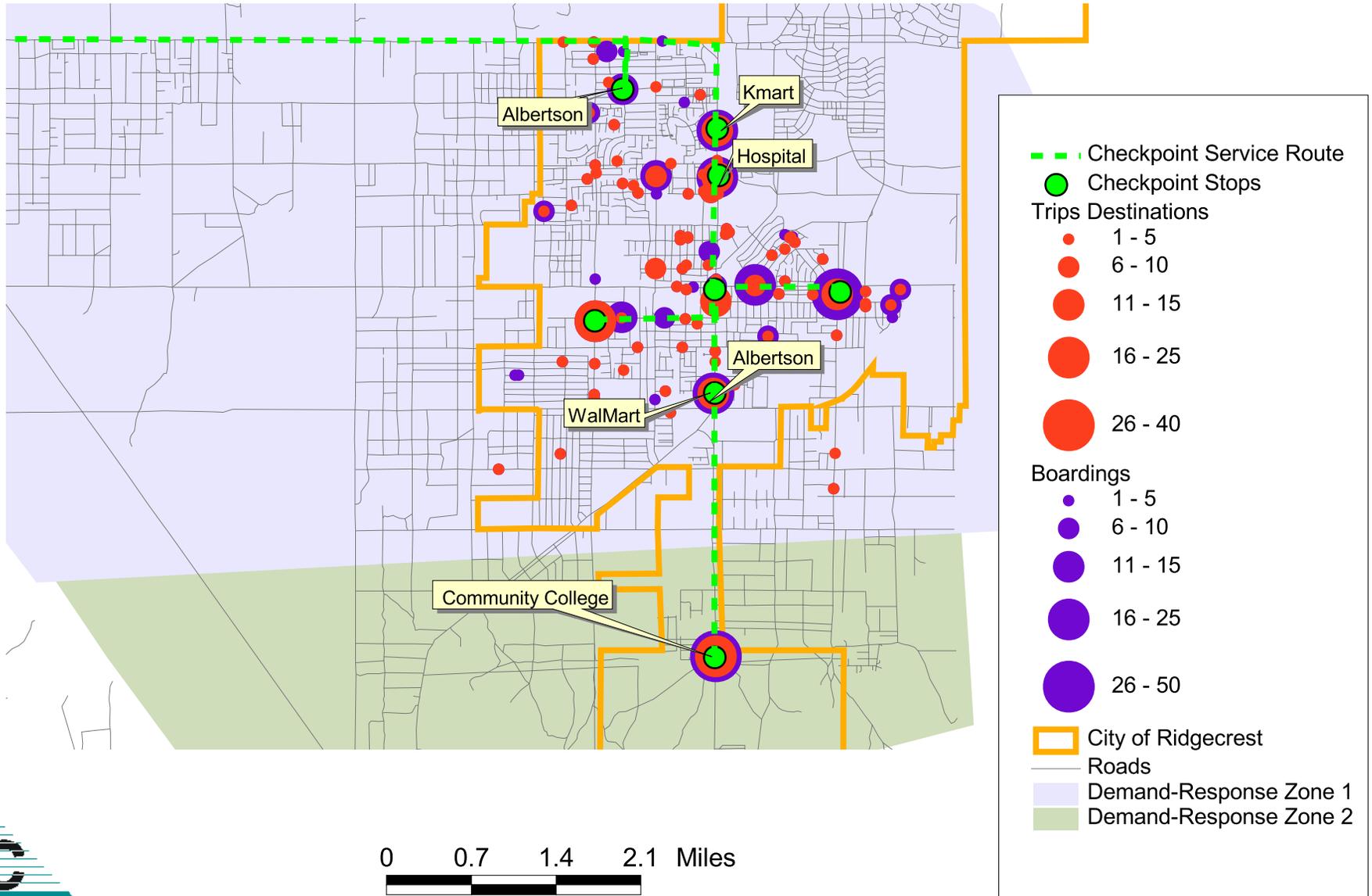
**Table IX-3  
Level of Service - Alternative I**

Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost per Passenger
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
Demand-Response Service	6:00 am - 6:00 pm M-F	4	672	48	171,360	12,240	255	70,990	5.8	\$805,025	\$11.34
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Average</b>			<b>816</b>	<b>64</b>	<b>178,848</b>	<b>13,072</b>		<b>74,838</b>	<b>5.73</b>	<b>\$1,133,332</b>	<b>\$15.14</b>

*Note: Costs based on LSC analysis, 2007.*



Figure IX-1  
Checkpoint Service



## Level of Service and Evaluation

Table IX-3 presents the level of service used to evaluate Alternative I. There would be four vehicles operating 40 revenue-hours per day, for a total of 12,240 revenue-hours per year. This would be an increase of about 6,000 revenue-hours. The total vehicle-miles would increase to 178,800 from the existing 80,000 vehicle-miles. Based on the existing 5.7 trips per hour, Alternative I would increase the annual ridership to 74,800 passengers (including 3,800 weekend trips). The estimated ridership was based on the TCRP model presented in Chapter V.

The operational or variable costs for Alternative I would increase to \$853,000. With the \$280,800 fixed cost, the annual cost for Alternative I is estimated at \$1.13 million. This equates to a \$15.14 cost per passenger, which is a significant decrease from the present \$25.17 cost per passenger. Note that Alternative I includes two vehicles to operate the weekend service. While Alternative I improves the productivity of the transit system, it does not match the estimated level of service and productivity of the other alternatives.

## Capital Needs

The first infrastructure required to implement Alternative I would be the installation of transit stops at the 10 estimated checkpoints. Each stop would need to have a shelter, lighting, signage, and improved sidewalks, curbs, and gutters. Based on an average \$12,000 cost per stop, the total cost is estimated at \$120,000. Since Alternative I uses the existing number of vehicles, there would be no need to expand the fleet size.

## Advantages and Disadvantages

The major advantage of Alternative I is that the checkpoint service would be similar to the existing service. Therefore, it would take less time to implement the new service and educate the transit users about the new service compared to the other alternatives. Alternative I would decrease many of the physical and perceived barriers to using the transit service by creating checkpoint service, installing transit stations, and increasing the level of service in terms of revenue-hours.

The major disadvantage of Alternative I is that a limited economy of scale would be created. This is due to the fact that, at its heart, the service is still general public demand-response. Therefore, as the number of trips increases to over 10 trips per revenue-hour, the cost would also increase. Once the service has a trip rate of over 10 passengers per revenue-hour, the transit system should be altered to a fixed-route system.

As summarized in Table IX-10 (at the end of Chapter IX), Alternative I would result in the following estimates:

- \$ 14.65 cost per passenger
- \$ 1.3 million annual cost (including the \$280,800 fixed cost)
- \$ 5.6 passengers per hour
- \$ 92,000 annual passengers

### **Alternative II: Fixed-Route Hub-and-Spoke Service**

Alternative II includes a fixed-route hub-and-spoke system with complementary paratransit and general public demand-response service, which would improve service to those areas with the greatest transit demand. The objective of Alternative II is to improve the transit system and service by linking the routes at central locations and regulated times (60-minute headways). The routes would be aligned to function in conjunction with each other in order to increase mobility and access throughout the service area. Table IX-4 presents the details of Alternative II. Figure IX-2 presents the proposed route structure and demand-response service areas of Alternative II.

Alternative II moves the existing system from demand-response service to a more urban transit system with fixed routes and a central hub to transfer from route to route. The hub would be located in the downtown area. Four routes in the system would link at the hub and then travel outward through the city to connect with major transit destinations. Paratransit service would operate three-quarters of a mile from the routes for those individuals who are ADA-eligible.

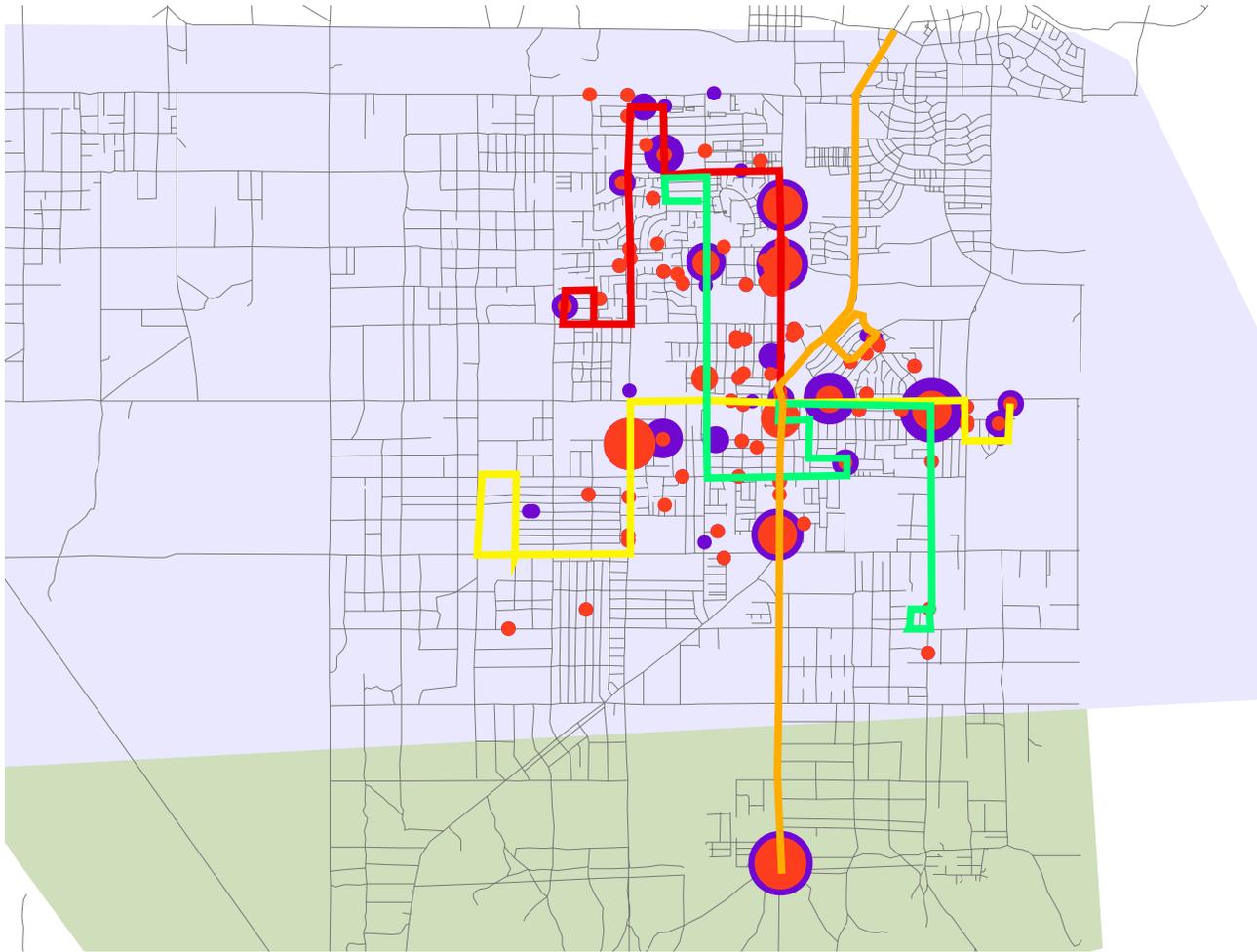
**Table IX-4  
Level of Service - Alternative II**

Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost per Passenger
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
Fixed Routes	6:00 am - 6:00 pm M-F	4	624	48	159,120	12,240	255	74,905	6.1	\$700,372.80	\$9.35
Demand-Response/Paratransit	6:00 am - 6:00 pm M-F	3	324	36	82,620	9,180	255	18,870	2.1	\$525,279.60	\$27.84
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607.04	\$12.37
<i>Fixed Costs</i>										\$280,700.00	
<b>Total/Average</b>			<b>1,092</b>	<b>100</b>	<b>249,228</b>	<b>22,252</b>		<b>97,623</b>	<b>4.39</b>	<b>\$1,553,959.44</b>	<b>\$15.92</b>

*Note: Costs based on LSC analysis, 2007.*



### Figure IX-2 Fixed-Route Hub-and-Spoke



**Fixed Routes**

- 1 (Red line)
- 2 (Yellow line)
- 3 (Orange line)
- 4 (Green line)

**Destinations**

- 1 - 5 (Small red circle)
- 6 - 10 (Medium red circle)
- 11 - 15 (Large red circle)
- 16 - 25 (Very large red circle)
- 26 - 40 (Extremely large red circle)

**Boardings**

- 1 - 5 (Small purple circle)
- 6 - 10 (Medium purple circle)
- 11 - 15 (Large purple circle)
- 16 - 25 (Very large purple circle)
- 26 - 50 (Extremely large purple circle)

— Roads

■ Demand-Response Zone -1 (Light blue shaded area)

■ Demand-Response Zone -2 (Light green shaded area)



The system would operate 12 hours per day. The fixed-route service would operate four vehicles for 48 revenue-hours per day for a total of about 12,240 annual revenue-hours. Based on the fixed-route model presented in Table IX-5, the estimated annual ridership is 75,000 passengers. The cost of the four fixed routes is estimated at \$700,400 plus \$154,300 for fixed costs for a total of \$854,700. This equates to an average \$9.35 cost per passenger. These costs were based on \$41.83 per revenue-hour and \$1.71 per vehicle-mile.

### Paratransit and Demand-Response Service

The paratransit service would cover three-quarters of a mile from all routes for ADA-eligible people. Alternative II would include two general public demand-response zones with one zone in the northern section of the study area and one zone in the southern section of the study area. The demand-response service would provide service for all people, but priority would be given to ADA-eligible people.

The total demand-response and paratransit service would include three vehicles operating 36 revenue-hours per day for a total of 9,180 revenue-hours per year. The total annual cost is estimated at \$525,300 plus \$126,200 for fixed costs for a total of \$651,550. Based on the model presented in Table IX-5, the total annual ridership is estimated at 18,900 passengers. This equates to a cost per passenger of \$27.84.

The demand-response service would operate on the weekend to replace the fixed-route service. The weekend service would operate two vehicles for eight hours per day for a total of 16 revenue-hours per day. The estimated cost of the weekend service is \$47,600. The estimated annual ridership for the weekend service is 3,800 passengers. This equates to a \$12.37 cost per passenger.

### Estimated Demand and Evaluation

Table IX-5 presents the transit demand model used to estimate the level of service and number of trips that could be served with Alternative II. On an average weekday, Alternative II would generate 383 trips. This equates to 97,600 trips per year, based on 255 days of service. Compared to the other alternatives,

Alternative II has the highest trip production. However, Alternative II has the highest cost per passenger.

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**Table IX-5  
Alternative II - Fixed-Route Demand Model**

Census Tract	Block Group	Total # of Hhlds 2000	# of Hhlds with		% of Hhlds with Transit Access	Hhlds Served by Transit		Basic Transit Trip Rates		Walk Distance (ft)	Walk Factor		Headway (min)	Headway Factor		Daily Transit Trips		Route Daily Trip # of	Daily Demand-Response Trips (TRCP Model)	Total Daily Trips			
			0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto		0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto						
53	1	147																			0	0	
53	2	0	0	0	50%	0	0	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	0.0	0.0	0			0	0	
53	3	395	119	276	75%	89	207	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	10.1	3.7	14			0	14	
54.01	1	423	71	352	100%	71	352	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	8.1	6.3	14			0	14	
54.01	2	744	79	665	100%	79	665	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	8.9	11.9	21			0	21	
54.01	3	370	29	341	100%	29	341	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	3.3	6.1	9			0	9	
54.01	4	499	27	472	100%	27	472	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	3.1	8.4	12			0	12	
54.01	5	569	17	552	100%	17	552	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	1.9	9.9	12			0	12	
54.02	1	700	100	600	100%	100	600	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	11.3	10.7	22			0	22	
54.02	2	702	43	659	100%	43	659	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	4.9	11.8	17			0	17	
54.02	3	664	22	642	80%	18	513	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	2.0	9.2	11			0	11	
54.03	1	606	9	597	60%	6	358	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	0.6	6.4	7			0	7	
54.03	2	925	62	864	90%	56	777	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	6.3	13.9	20			0	20	
54.03	3	385	0	385	30%	0	116	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	0.0	2.1	2			0	2	
54.03	4	561	33	528	60%	20	317	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	2.2	5.7	8			0	8	
54.03	5	430	117	312	100%	117	312	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	13.3	5.6	19			0	19	
54.04	1	516	0	516	80%	0	413	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	0.0	7.4	7			0	7	
54.04	2	1,079						Rural Demand-Response Area (TCRP Model)													9	9	
54.04	3	871	26	845	90%	24	760	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	2.7	13.6	16			0	16	
54.04	4	303	51	252	90%	46	227	0.21	0.02	1,200	0.90	1.1	60	0.6	0.85	5.2	4.0	9			0	9	
55.01	1	360						Rural Demand-Response Area (TCRP Model)													6	6	
55.01	2	749						Rural Demand-Response Area (TCRP Model)													6	6	
55.01	3	171						Rural Demand-Response Area (TCRP Model)													3	3	
55.01	4	451						Rural Demand-Response Area (TCRP Model)													5	5	
55.01	5	319						Rural Demand-Response Area (TCRP Model)													3	3	
55.01	6	394						Rural Demand-Response Area (TCRP Model)													6	6	
55.03	1	285						Rural Demand-Response Area (TCRP Model)														5	5
<b>Estimated Weekday Ridership</b>																		<b>220</b>	<b>43</b>	<b>263</b>			
<b>ADA Trips</b>																		<b>31</b>		<b>31</b>			
<b>Estimated Annual Ridership</b>																		<b>56,205</b>		<b>74,905</b>			

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## Capital Needs

The first infrastructure required to implement Alternative II would be the installation of transit stops throughout the community. The number and spacing of transit stops would vary based on density. In more dense areas, the spacing between the transit stops would be 800 to 1,200 feet. In less dense urban areas, the transit stops would be spaced up to 2,500 feet apart. Based on the linear miles of the fixed routes and an average of 2,500 feet between the transit stops, the estimated number of total transit stops is about 110 for the urban area (with 55 outbound and 55 inbound transit stops). Based on an estimated \$1,000 per transit stop (not including the cost of a shelter), the total cost of the transit stops would be \$110,000.

A transfer station would need to be developed in the downtown area and would need to hold six buses at one time. The transfer station would also need to have a shelter, lighting, signage, and improved sidewalks, curbs, and gutters. The estimated cost of a transfer station can vary widely from \$100,000 to over \$1 million depending on amenities and whether or not property needs to be acquired. At this time, LSC is estimating a cost of \$250,000.

Since Alternative II uses seven buses on a daily basis, the fleet size would need to be expanded. Three additional transit vehicles would be needed for the implementation of Alternative II. Based on the cutaway type vehicle, the estimated cost is \$65,000 per vehicle, with a total estimated cost of \$195,000 for the three vehicles. If small transit vehicles are purchased, the total estimated cost would be \$360,000.

## Advantages and Disadvantages

The major advantage of Alternative II is that the route structure would be based on service routes. This increases the access of the riders to the major transit destinations. Alternative II would also decrease many of the physical and perceived barriers to using the transit service by creating fixed routes, installing transit stops, and increasing the service area.

The major disadvantage of Alternative II is that in order to cross the community, transit users would need to transfer at the downtown transit station.

This increases the amount of time that the users have to travel and decreases the mobility of the transit users. Another disadvantage is that additional revenue-hours and vehicles would be needed to implement the transit service, which would increase the overall cost of the transit service over the existing levels.

As summarized in Table IX-10, Alternative II would result in the following estimates:

- \$ \$15.92 cost per passenger
- \$ \$1.5 million annual cost (including the \$280,800 fixed cost)
- \$ 4.39 passengers per hour (average for entire system)
- \$ 97,600 annual passengers

### **Alternative III: Flex-Route Hub-and-Spoke System**

Alternative III would include a flex-route hub-and-spoke system and demand-response service, which would improve service to those areas with the greatest transit demand. Table IX-6 presents details of Alternative III. Figure IX-3 presents the proposed route structure and demand-response service areas for Alternative III. The objective of Alternative III is to improve the transit system and service by linking the flex routes at central locations and regulated times (60-minute headways). The routes would be aligned to function in conjunction with each other in order to increase mobility and access throughout the service area.

Alternative III moves the existing system from general public demand-response service to a more urban transit system with flex routes and a central hub to transfer from route to route. The hub would be located in the downtown area. Four flex routes in the system would link at the hub and then travel outward through the city to connect with the major transit destinations.

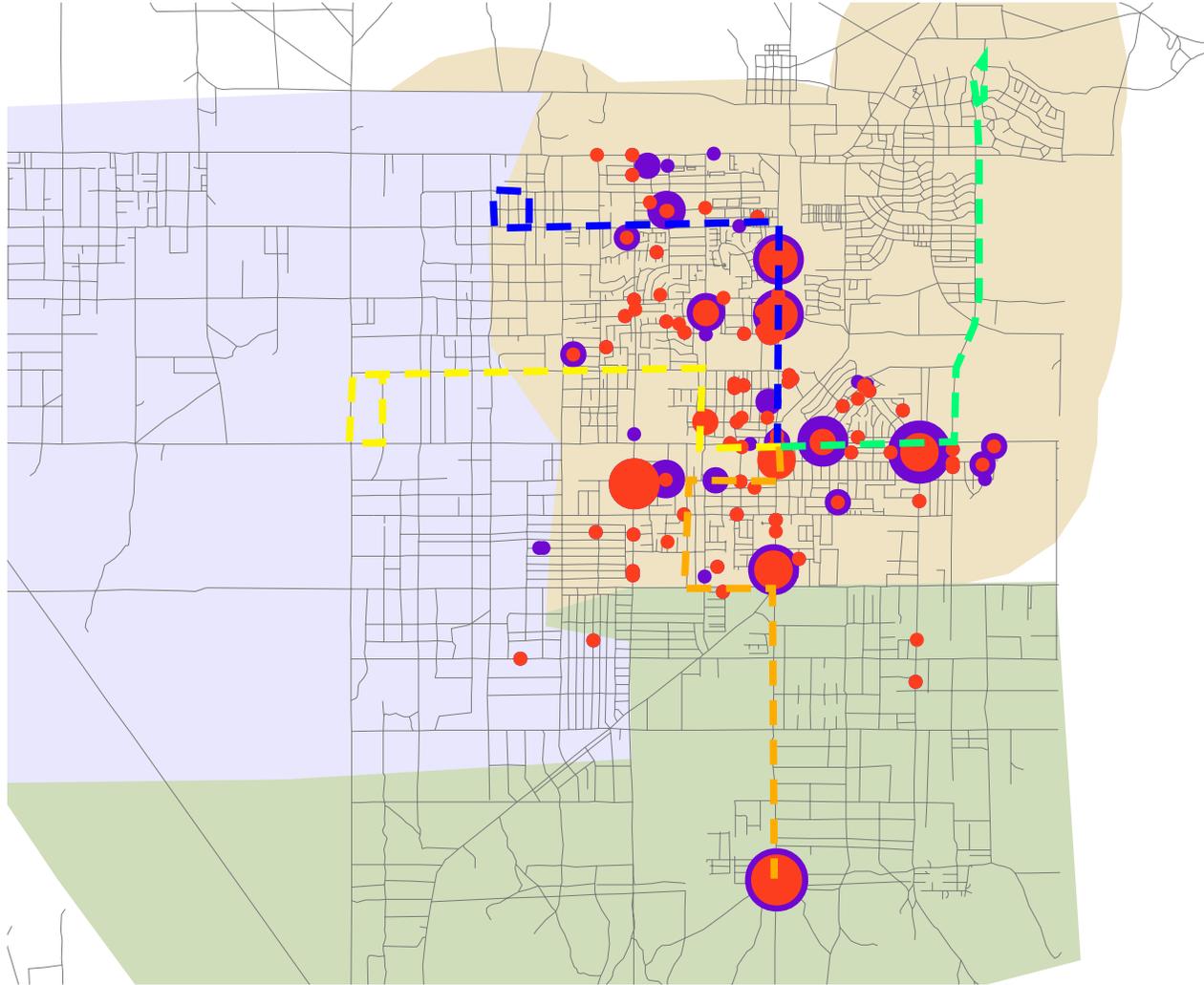
**Table IX-6  
Level of Service - Alternative III**

Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost per Passenger
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
Flex Routes	6:00 am - 6:00 pm M-F	4	432	48	110,160	12,240	255	78,609	6.4	\$700,373	\$8.91
Demand-Response/Paratransit	6:00 am - 6:00 pm M-F	2	216	24	55,080	6,120	255	13,065	2.1	\$350,186	\$26.80
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Average</b>			<b>792</b>	<b>88</b>	<b>172,728</b>	<b>19,192</b>		<b>95,522</b>	<b>4.98</b>	<b>\$1,378,866</b>	<b>\$14.44</b>

*Note: Costs based on LSC analysis, 2007.*



### Figure IX-3 Flex-Route System



**Flex Routes**

- 1 (Blue dashed line)
- 2 (Yellow dashed line)
- 3 (Orange dashed line)
- 4 (Green dashed line)

**Destinations**

- 1 - 5 (Small red circle)
- 6 - 10 (Medium red circle)
- 11 - 15 (Large red circle)
- 16 - 25 (Very large red circle)
- 26 - 40 (Extremely large red circle)

**Boardings**

- 1 - 5 (Small purple circle)
- 6 - 10 (Medium purple circle)
- 11 - 15 (Large purple circle)
- 16 - 25 (Very large purple circle)
- 26 - 50 (Extremely large purple circle)

**Legend**

- Roads (Thin grey line)
- Demand-Response Zone 1 (Light blue shaded area)
- Demand-Response Zone -2 (Light green shaded area)
- Flex Zones (Light tan shaded area)



The system would operate 12 hours per day. The flex-route service would operate four vehicles for 48 revenue-hours per day, with the annual revenue-hours estimated at 12,240. Based on the model presented in Table IX-7 and the estimated 10 passengers per revenue-hour, the estimated annual ridership is 78,600 passengers. The cost of the four flexible fixed routes is estimated at \$700,400 plus fixed costs of \$179,000 for a total of \$879,000. This equates to an average cost of \$8.91 per passenger. These costs were based on \$41.83 per revenue-hour and \$1.71 per vehicle-mile.

### Demand-Response Service

Alternative III would include two general public demand-response zones, with one zone in the northern section of the study area and one zone in the southern section of the study area. The demand-response service would provide service for all people, but priority would be given to ADA-eligible people. Since the flex routes are able to leave the route to service trips, there is no need to have complementary paratransit service.

The total demand-response service would include two vehicles operating 24 revenue-hours per day, for a total of 6,120 revenue-hours per year. The total annual cost is estimated at \$350,200 plus fixed costs of \$101,700 for a total of \$451,900. Based on the model presented in Table IX-7, the total annual ridership is estimated at 13,000 passengers. This equates to a cost of \$26.80 per passenger.

The demand-response service would operate on the weekend to replace the flex-route service. The weekend service would operate two vehicles for eight hours per day, for a total of 16 revenue-hours per day. The estimated cost of the weekend service is \$47,600. The estimated annual ridership for the weekend service is 3,800 passengers. This equates to a cost of \$12.37 per passenger.

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**Table IX-7  
Alternative III - Flex-Route Demand Model**

Census Tract	Block Group	Total # of Hhlds 2000	# of Hhlds with		% of Hhlds with Transit Access	Hhlds Served by Transit		Basic Transit Trip Rates		Walk Distance (ft)	Walk Factor		Headway (min)	Headway Factor		Daily Transit Trips		Daily Trip # of	Daily Demand-Response Trips (TRCP Model)	Total Daily Trips
			0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto		0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto			
53	1	147	7	139	20%	1	28	0.21	0.02	500	1.25	1.2	60	0.6	0.85	0.2	0.6	1	0	1
53	2	0	0	0	50%	0	0	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	0.0	0.0	0	0	0
53	3	395	119	276	75%	89	207	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	11.2	3.9	15	0	15
54.01	1	423	71	352	100%	71	352	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	9.0	6.6	16	0	16
54.01	2	744	79	665	100%	79	665	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	9.9	12.4	22	0	22
54.01	3	370	29	341	100%	29	341	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	3.7	6.4	10	0	10
54.01	4	499	27	472	100%	27	472	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	3.4	8.8	12	0	12
54.01	5	569	17	552	100%	17	552	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	2.1	10.3	12	0	12
54.02	1	700	100	600	100%	100	600	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	12.6	11.2	24	0	24
54.02	2	702	43	659	100%	43	659	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	5.4	12.3	18	0	18
54.02	3	664	22	642	80%	18	513	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	2.2	9.6	12	0	12
54.03	1	606	9	597	60%	6	358	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	0.7	6.7	7	0	7
54.03	2	925	62	864	90%	56	777	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	7.0	14.5	22	0	22
54.03	3	385	0	385	30%	0	116	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	0.0	2.2	2	0	2
54.03	4	561								Rural Demand-Response Area (TCRP Model)									5	5
54.03	5	430	117	312	100%	117	312	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	14.8	5.8	21	0	21
54.04	1	516								Rural Demand-Response Area (TCRP Model)									5	5
54.04	2	1,079	60	1,019	100%	60	1019	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	7.5	19.1	27	0	27
54.04	3	871	26	845	90%	24	760	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	3.0	14.2	17	0	17
54.04	4	303	51	252	90%	46	227	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	5.8	4.2	10	0	10
55.01	1	360						Rural Demand-Response Area (TCRP Model)											6	6
55.01	2	749						Rural Demand-Response Area (TCRP Model)											0	0
55.01	3	171						Rural Demand-Response Area (TCRP Model)											3	3
55.01	4	451						Rural Demand-Response Area (TCRP Model)											5	5
55.01	5	319						Rural Demand-Response Area (TCRP Model)											3	3
55.01	6	394						Rural Demand-Response Area (TCRP Model)											6	6
55.03	1	285						Rural Demand-Response Area (TCRP Model)											5	5
<b>Estimated Weekday Ridership</b>																		<b>248</b>	<b>37</b>	<b>284</b>
<b>ADA Trip</b>																				<b>24</b>
<b>Estimated Annual Ridership</b>																		<b>63,119</b>		<b>78,609</b>

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## Estimated Demand and Evaluation

Table IX-7 presents the transit demand model used to estimate the level of service and number of trips that could be served with Alternative II. On an average weekday, Alternative II would generate 524 trips. This equates to 95,500 trips per year, based on 255 days of service. Compared to the other alternatives, Alternative III has the highest trip production on the route structure. Alternative II would generate a higher level of service than the existing service at the lowest cost per passenger.

## Capital Needs

The first infrastructure required to implement Alternative III would be the installation of transit stops throughout the community. The number and spacing of transit stops would vary based on density. In more dense areas, the spacing between the transit stops would be 800 to 1,200 feet. In less dense urban areas, the transit stops would be spaced up to 2,500 feet apart. Based on the linear miles of the fixed routes and an average of 2,500 feet between the transit stops, the estimated number of total transit stops is about 75 for the urban area (with 38 outbound and 37 inbound transit stops). Based on an estimated \$1,000 per transit stop (not including the cost of a shelter), the total cost of the transit stops would be \$75,000.

A transfer station would need to be developed in the downtown area and would need to hold six buses at one time. The transfer station would also need to have a shelter, lighting, signage, and improved sidewalks, curbs, and gutters. The estimated cost of a transfer station can vary widely from \$100,000 to over \$1 million, depending on amenities and whether or not property needs to be acquired. At this time, LSC is estimating a cost of \$250,000.

Since Alternative III uses six buses on a daily basis, there would be a need to expand the fleet size. Two additional transit vehicles would be needed for the implementation of Alternative III. Based on the cutaway type vehicle, the estimated cost is \$65,000 per vehicle, with a total estimated cost of \$130,000 for the two vehicles. If small transit vehicles are purchased, the total estimated cost would be \$240,000.

## Advantages and Disadvantages

The major advantage of Alternative III is that the flex routes would increase the service area. The second advantage is that there would be no need for additional paratransit service. This would reduce the overall operational cost of the transit system. Also, since the flex routes would function like the existing demand-response system, riders would learn the new system easily. Alternative III would also decrease many of the physical and perceived barriers to using the transit service by creating routes, transit stops, and increasing the service area.

The major disadvantage of Alternative III is that in order to cross the community, transit users would need to transfer at the downtown transit station. This increases the amount of time that transit users have to travel and decreases the mobility of transit users. Another disadvantage is that additional revenue-hours and vehicles would be needed to implement the transit service, which would increase the overall cost of the transit service over the existing levels. Also, if the route flexes more than five times per hour, the vehicle on the route may no longer maintain the 60-minute headway and would not meet the other vehicles at the hub. This could cause system delays in service operations.

As summarized in Table IX-10, Alternative III would result in the following estimates:

- \$ \$14.40 cost per passenger
- \$ \$1.38 million annual cost (including the \$280,800 fixed cost)
- \$ 4.98 passengers per hour (average for entire system)
- \$ 95,500 annual passengers

## **Alternative IV: Hybrid System**

The hybrid system and demand-response service would improve service to those areas with the greatest transit demand. Table IX-8 presents the details of Alternative IV. Figure IX-4 presents the proposed route structure and demand-response service areas of Alternative IV. The objective of Alternative IV is to improve the transit system and service by linking the loop routes at central locations and regulated times (60-minute headways). The routes would be

aligned to function in conjunction with each other in order to increase mobility and access throughout the service area.

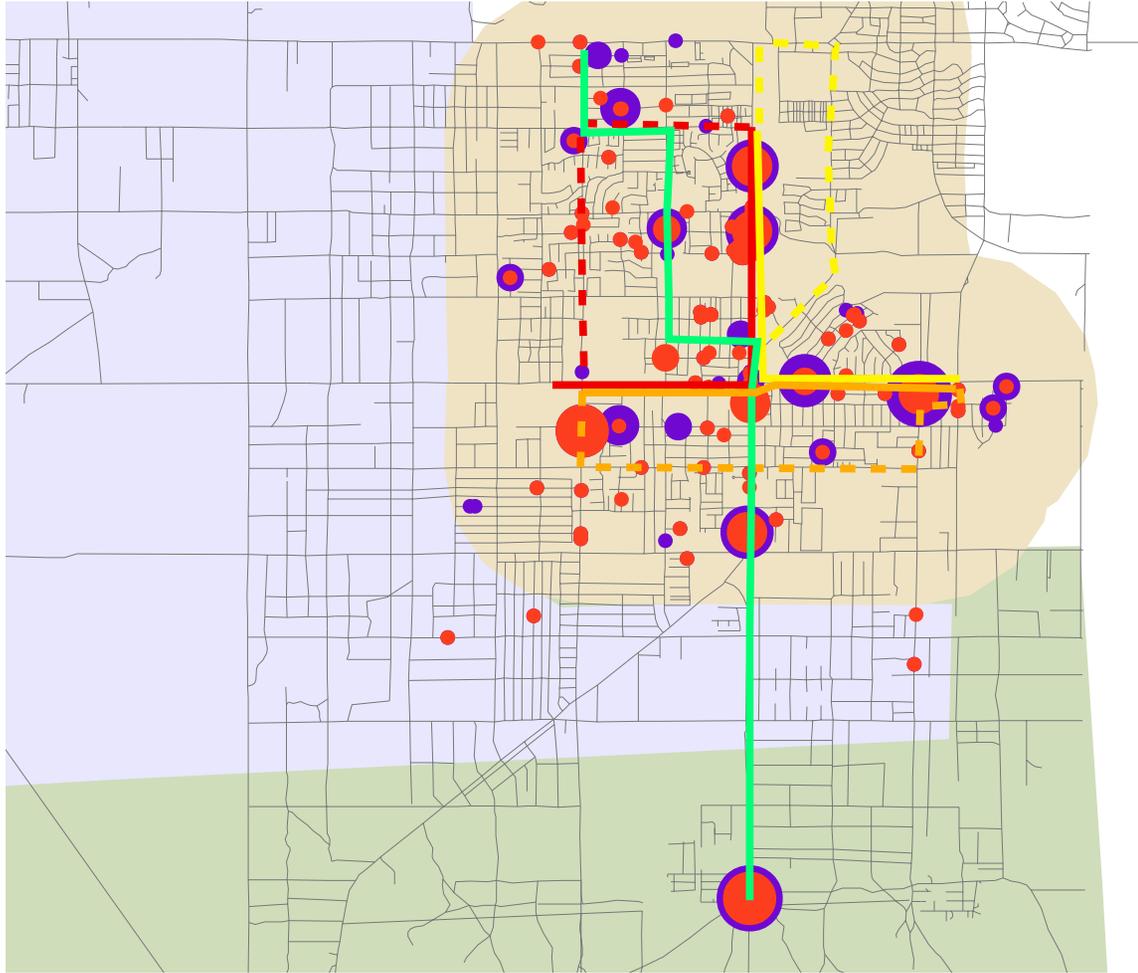
**Table IX-8  
Level of Service - Alternative IV**

Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost per Passenger
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
Hybrid Routes	6:00 am - 6:00 pm M-F	4	528	48	134,640	12,240	255	77,935	6.4	\$700,373	\$8.99
Demand-Response/Paratransit	6:00 am - 6:00 pm M-F	2	216	24	55,080	6,120	255	13,495	2.2	\$350,186	\$25.95
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	216	16	11,232	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Average</b>			<b>960</b>	<b>88</b>	<b>200,952</b>	<b>19,192</b>		<b>95,278</b>	<b>4.96</b>	<b>\$1,378,866</b>	<b>\$14.47</b>

*Note: Costs based on LSC analysis, 2006.*



Figure IX-4  
Hybrid System



Hybrid Fixed Routes

- 1 (Red solid line)
- 2 (Yellow solid line)
- 3 (Orange solid line)
- 4 (Green solid line)

Flex Routes

- 1 (Red dashed line)
- 2 (Yellow dashed line)
- 3 (Orange dashed line)

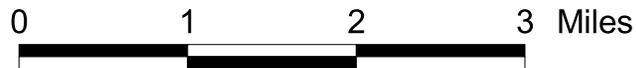
Destinations

- 1 - 5 (Small red circle)
- 6 - 10 (Medium red circle)
- 11 - 15 (Large red circle)
- 16 - 25 (Very large red circle)
- 26 - 40 (Extremely large red circle)

Boardings

- 1 - 5 (Small purple circle)
- 6 - 10 (Medium purple circle)
- 11 - 15 (Large purple circle)
- 16 - 25 (Very large purple circle)
- 26 - 50 (Extremely large purple circle)

- Roads
- Flex Zone (Tan shaded area)
- Demand-Response Zone-1 (Light blue shaded area)
- Demand-Response Zone -2 (Light green shaded area)



Alternative IV moves the existing system from demand-response service to a more urban transit system with hybrid loop routes and a central hub to transfer from route to route. The hub would be located in the downtown area. Three loop routes and one fixed route would link at the hub and then travel outward through the city to connect with the major transit destinations. Unlike the other alternatives, the loop routes function as fixed routes along the major corridors and flex routes once the vehicles turn off the major corridors. Figure IX-4 presents this as solid lines for the portion of the route that is fixed and dashed lines for the portion of the route that is flex. The loop routes operate in a clockwise direction. The routes are inter-connected along two major corridors, thereby creating a bi-directional route structure.

The system would operate 12 hours per day. The hybrid service would operate four vehicles for 48 revenue-hours per day, for a total of 12,240 annual revenue-hours. Based on the model presented in Table IX-8 and the estimated 6.4 passengers per revenue-hour, the estimated annual ridership is 79,000 passengers. The cost of the four routes is estimated at \$700,400 plus fixed costs of \$179,000 for a total cost of \$879,400. This equates to an average cost of \$8.99 per passenger. These costs are based on \$41.83 per revenue-hour and \$1.71 per vehicle-mile.

### Demand-Response Service

Alternative IV would include two general public demand-response zones, with one zone in the northern section of the study area and one zone in the southern section of the study area. The demand-response service would provide service for all people, but priority would be given to ADA-eligible people. Since the hybrid loop routes are able to leave the route to service trips, there is no need for additional paratransit service.

The total demand-response service would include two vehicles operating 24 revenue-hours per day, for a total of 6,120 revenue-hours per year. The total annual cost is estimated at \$350,200 plus fixed costs of \$101,700 for a total cost of \$451,900. Based on the model presented in Table IX-9, the total annual ridership is estimated at 13,500 passengers. This equates to a cost per passenger of \$25.95.

The demand-response service would operate on the weekend to replace the flex-route service. The weekend service would operate two vehicles for eight hours per day, for a total of 16 revenue-hours per day. The estimated cost of the weekend service is \$47,600. The estimated annual ridership for the weekend service is 3,800 passengers. This equates to a \$12.37 cost per passenger.

### Estimated Demand and Evaluation

Table IX-9 presents the transit demand model used to estimate the level of service and number of trips that could be served with Alternative V. On an average weekday, Alternative V would generate 370 trips. This equates to 95,300 trips per year, based on 255 days of service. Compared to the other alternatives, Alternative IV has the third highest trip production. Alternative IV would generate a higher level of service than the existing service, at the second lowest cost per passenger.

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**Table IX-9  
Alternative IV - Hybrid Demand Model**

Census Tract	Block Group	Total # of Hhlds 2000	# of Hhlds with		% of Hhlds with Transit Access	Hhlds Served by Transit		Basic Transit Trip Rates		Walk Distance (ft)	Walk Factor		Headway (min)	Headway Factor		Daily Transit Trips		Daily Trip # of	Daily Demand-Response Trips (TRCP Model)	Total Daily Trips	
			0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto		0 Auto	1 Auto		0 Auto	1 Auto	0 Auto	1 Auto				
53	1	147																			
53	2	0	0	0	80%	0	0	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	0.0	0.0	0	0	0	0
53	3	395	119	276	100%	119	276	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	14.9	5.2	20	0	20	
54.01	1	423	71	352	100%	71	352	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	9.0	6.6	16	0	16	
54.01	2	744	79	665	100%	79	665	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	9.9	12.4	22	0	22	
54.01	3	370	29	341	100%	29	341	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	3.7	6.4	10	0	10	
54.01	4	499	27	472	100%	27	472	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	3.4	8.8	12	0	12	
54.01	5	569	17	552	100%	17	552	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	2.1	10.3	12	0	12	
54.02	1	700	100	600	100%	100	600	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	12.6	11.2	24	0	24	
54.02	2	702	43	659	100%	43	659	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	5.4	12.3	18	0	18	
54.02	3	664	22	642	80%	18	513	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	2.2	9.6	12	0	12	
54.03	1	606	9	597	60%	6	358	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	0.7	6.7	7	0	7	
54.03	2	925	62	864	90%	56	777	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	7.0	14.5	22	0	22	
54.03	3	385	0	385	30%	0	116	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	0.0	2.2	2	0	2	
54.03	4	561								Rural Demand-Response Area (TCRP Model)									5	5	
54.03	5	430	117	312	100%	117	312	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	14.8	5.8	21	0	21	
54.04	1	516	0	516	60%	0	310	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	0.0	5.8	6	5	10	
54.04	2	1,079	60	1,019	100%	60	1019	0.21	0.02	1,000	1.00	1.1	60	0.6	0.85	7.5	19.1	27	0	27	
54.04	3	871						Rural Demand-Response Area (TCRP Model)											0	0	
54.04	4	303						Rural Demand-Response Area (TCRP Model)											0	0	
55.01	1	360						Rural Demand-Response Area (TCRP Model)											6	6	
55.01	2	749	0	749	90%	0	674	0.2	0.02	1,000	1.00	1.1	60	0.6	0.85	0.0	12.6	13	0	13	
55.01	3	171						Rural Demand-Response Area (TCRP Model)											3	3	
55.01	4	451						Rural Demand-Response Area (TCRP Model)											5	5	
55.01	5	319						Rural Demand-Response Area (TCRP Model)											3	3	
55.01	6	394						Rural Demand-Response Area (TCRP Model)											6	6	
55.03	1	285						Rural Demand-Response Area (TCRP Model)											5	5	
<b>Estimated Weekday Ridership</b>																		<b>243</b>	<b>37</b>	<b>280</b>	
<b>ADA Trips</b>																				<b>26</b>	
<b>Estimated Annual Ridership</b>																		<b>61,935</b>		<b>77,935</b>	

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## Capital Needs

The first infrastructure required to implement Alternative *M* would be the installation of transit stops throughout the community. The number and spacing of the transit stops would vary based on density. In more dense areas, the spacing between transit stops would be 800 to 1,200 feet. In less dense urban areas, transit stops would be spaced up to 2,500 feet apart. Based on the linear miles of the fixed routes and an average of 2,500 feet between the transit stops, the estimated number of total transit stops is about 60 for the urban area. Based on an estimated \$1,000 per transit stop (not including the cost of a shelter), the total cost of the transit stops would be \$60,000.

A transfer station would need to be developed in the downtown area and would need to hold six buses at one time. The transfer station would also need to have a shelter, lighting, signage, and improved sidewalks, curbs, and gutters. The estimated cost of a transfer station can vary widely from \$100,000 to over \$1 million, depending on amenities. At this time, LSC is estimating a cost of \$250,000.

Since Alternative *IV* uses six buses on a daily basis, there would be a need to expand the fleet size. Two additional transit vehicles would be needed for the implementation of Alternative *IV*. Based on the cutaway type vehicle, the estimated cost is \$65,000 per vehicle, with a total estimated cost of \$130,000 for the two vehicles. If small transit vehicles are purchased, the total estimated cost would be \$240,000.

## Advantages and Disadvantages

The major advantage of Alternative *IV* is that the loop routes are able to flex, thereby increasing the service area. The second advantage is that there is no need for additional paratransit service. This reduces the overall operational cost of Alternative *IV*. Also, since the routes would function like the existing demand-response system, the riders would learn the new system easily. Alternative *IV* would also decrease many of the physical and perceived barriers to using the transit service by creating routes, transit stops, and increasing the service area. The hybrid system would increase the level of service in the areas of the community where there is significant trip demand and would allow for

the routes to be more like demand-response service in the areas of lower population density and fewer transit trips.

The major disadvantage of Alternative *IV* is that in order to cross the community, transit users may need to transfer at the downtown transit station. This increases the amount of time transit users have to travel and decreases the mobility of transit users. Another disadvantage is that additional revenue-hours and vehicles would be needed to implement the transit service, which would increase the overall cost of the transit service over the existing service. Also, if the vehicles flex more than five times per hour, the vehicle on the route may no longer maintain the 60-minute headway and would not meet the other vehicle at the hub. This would cause system delays in service operations.

A major disadvantage of this alternative is that the routes are loops. Loop routes result in short travel times in one direction and long travel times in the other direction for most passengers. As a result, the demand for this service is lower than would be expected for fixed-route service.

As summarized in Table IX-10, Alternative *IV* would result in the following estimates:

- \$ \$14.47 cost per passenger
- \$ \$1.38 million annual cost (including the \$280,800 fixed cost)
- \$ 4.96 passengers per hour (average for entire system)
- \$ 95,300 annual passengers

## **SUMMARY**

Chapter IX has provided information on various transit service alternatives for the Ridgecrest study area. The alternatives include the current system, check-point service, fixed-route service, flex-route service, and a hybrid system. Table IX-10 presents a summary of the alternatives' levels of service.

The information from Chapter IX was used in the selection of the preferred transit service alternative, which includes a detailed description of each route that includes turning movements and bus stop locations in Chapter X of this report.

**Table IX-10  
Service Alternatives - Cost Estimates**

Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost (\$) per Pass.
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
<b>Status Quo</b>	6:00 am - 6:00 pm M-S	4	259	19	80,870	5,928	312	33,400	5.6	\$840,739	<b>\$25.17</b>
<b>Alternative I - Checkpoint Services</b>											
Demand-Response Service	6:00 am - 6:00 pm M-F	4	672	48	171,360	12,240	255	70,990	5.8	\$805,025	\$11.34
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Avg</b>			<b>816</b>	<b>64</b>	<b>178,848</b>	<b>13,072</b>		<b>74,838</b>	<b>5.73</b>	<b>\$1,133,332</b>	<b>\$15.14</b>
<b>Alternative II - Fixed Route</b>											
Fixed Routes	6:00 am - 6:00 pm M-F	4	624	48	159,120	12,240	255	74,905	6.1	\$700,373	\$9.35
Demand-Response/Paratransit	6:00 am - 6:00 pm M-F	3	324	36	82,620	9,180	255	18,870	2.1	\$525,280	\$27.84
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Avg</b>			<b>1,092</b>	<b>100</b>	<b>249,228</b>	<b>22,252</b>		<b>97,623</b>	<b>4.39</b>	<b>\$1,553,959</b>	<b>\$15.92</b>
<b>Alternative III - Flex Route</b>											
Flex Routes	6:00 am - 6:00 pm M-F	4	432	48	110,160	12,240	255	78,609	6.4	\$700,373	\$8.91
Demand-Response/Paratransit	6:00 am - 6:00 pm M-F	2	216	24	55,080	6,120	255	13,065	2.1	\$350,186	\$26.80
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Avg</b>			<b>792</b>	<b>88</b>	<b>172,728</b>	<b>19,192</b>		<b>95,522</b>	<b>4.98</b>	<b>\$1,378,866</b>	<b>\$14.44</b>
<b>Alternative IV - Hybrid</b>											
Hybrid Routes	6:00 am - 6:00 pm M-F	4	528	48	134,640	12,240	255	77,935	6.4	\$700,373	\$8.99
Demand-Response/Paratransit	6:00 am - 6:00 pm M-F	2	216	24	55,080	6,120	255	13,495	2.2	\$350,186	\$25.95
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	216	16	11,232	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Avg</b>			<b>960</b>	<b>88</b>	<b>200,952</b>	<b>19,192</b>		<b>95,278</b>	<b>4.96</b>	<b>\$1,378,866</b>	<b>\$14.47</b>

*Note: Costs based on LSC analysis, 2007.*



## Preferred Transit Service

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### INTRODUCTION

Chapter X reviews the details of the preferred transit service alternative including the levels of service, route schedules, operating costs, and capital needs. The preferred transit service plan will be developed in three phases, each of which will increase the level of service. The three phases were created in order to facilitate the coordination and development of transit service in the urban area and allow for the allocation of local funding based on the success of each phase.

### PREFERRED TRANSIT SERVICE ALTERNATIVE

Based on the planning process and input from the stakeholders, Alternative III (flex system) should be the preferred transit service. Alternative III includes four flex routes and demand-response service for the urban and rural portions of the study area. The LSC team worked with the stakeholders and the drivers to develop the preferred transit service plan, including the following adjustments to Alternative III:

- \$ Route structure changes for each of the flex routes
- \$ Addition of phases to the implementation of the recommended transit service plan
- \$ Changes to reflect peak-hour service and off-peak-hour service

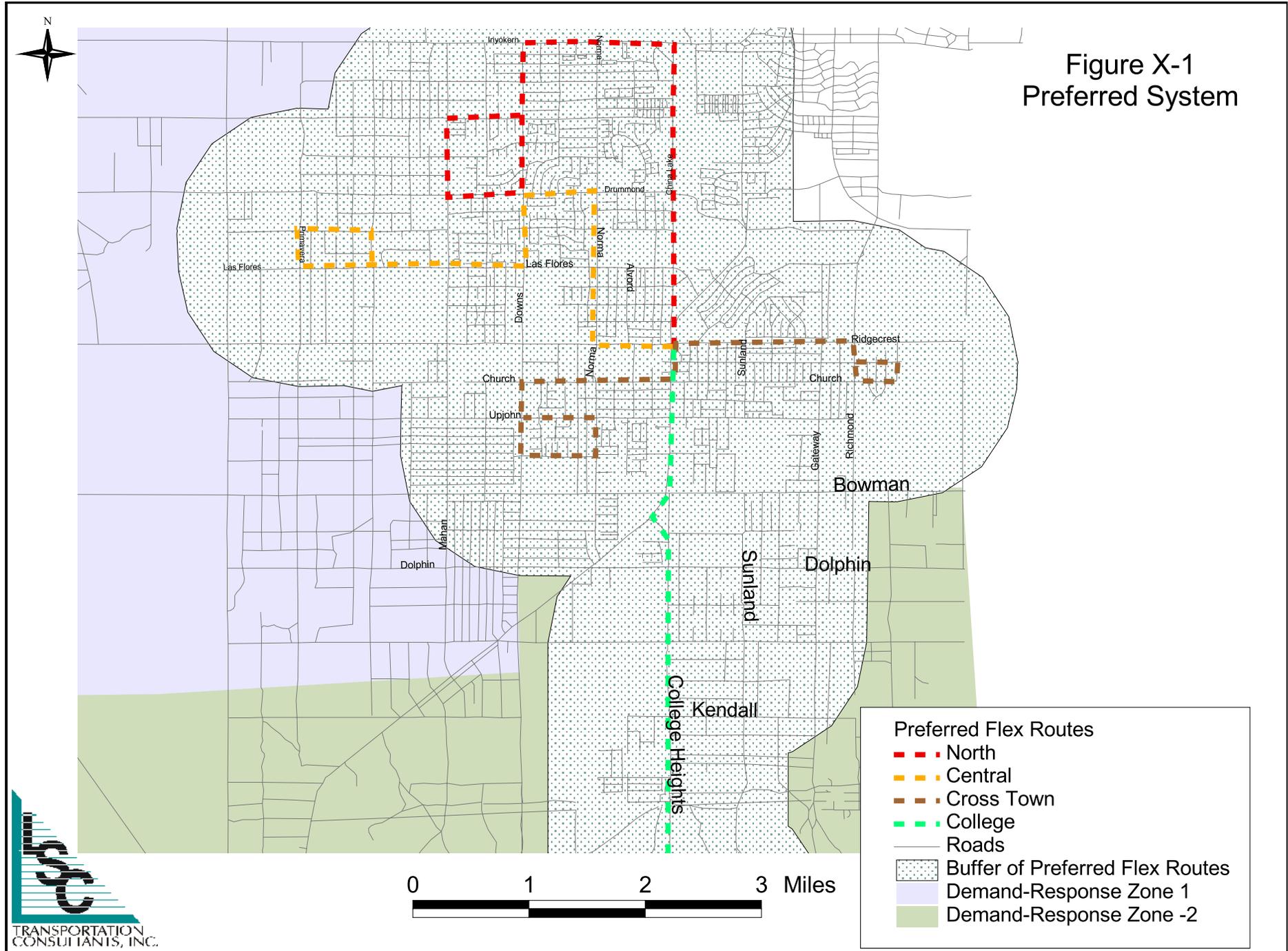
Also note that LSC staff has used conservative estimates in developing the farebox return rate. By Phase III of this plan, the preferred service increases the farebox return from the existing 4.3 percent to 10 percent by 2014. This is an increase of 132 percent over a six-year time period. This equates to an annual increase of 22 percent.

### SERVICE PLAN

The proposed transit service changes for RTS over the next seven years (2008 to 2014) include restructuring the current system to a flex system with four flex

routes and demand-response service. The financial details are shown on Table XI-2 (presented in Chapter XI). Figure X-1 presents the preferred flex routes and demand-response service for the three phases. The following sections detail the transit service that will be implemented in each phase. The route structure of the flex routes remain the same for each phase. Only the levels of service, number of operating hours, and schedules change from one phase to the next.

Figure X-1  
Preferred System



## **Phase I - Flex System (2008 to 2010)**

The first service recommendation is for RTS to restructure the existing service into a flex system with flexible routes. As first presented in Chapter IX, the routes interconnect in downtown at the City Administrative offices. The critical element of the system is that the buses operate on a 60-minute pulse (headway) during peak times and as demand-response service during off-peak times. The buses will meet at the transfer points at the same times, thereby allowing the transit users to easily transfer between routes.

The flex routes will deviate from the routes up to three-quarters of a mile. Therefore, there is no need for complementary paratransit service since the route deviation meets the ADA requirements. During off-peak times, two of the vehicles will operate demand-response service and will serve the rural communities of the study area. All three phases of the transit service plan will operate demand-response service on Saturday from 8:00 a.m. to 4:00 p.m.

Phase I of the preferred flex-route service is designed to operate for 24 revenue-hours per day, for a total of 6,120 revenue-hours per year. The following sections detail the flex-route service, with adjustments per the stakeholders and drivers' comments. Table X-1 presents the level of service for the Phase I flex-route, demand-response, and weekend service.

Table X-1 Level of Service - Phase One (2008-2010)											
Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost per Passenger
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
Flex Routes	AM and PM peak	4	264	24	67,320	6,120	255	39,168	6.4	\$371,117	\$9.48
Demand-Response/Paratransit	Off-peak times	2	108	12	27,540	3,060	255	6,533	2.1	\$175,093	\$26.80
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Average</b>			<b>516</b>	<b>52</b>	<b>102,348</b>	<b>10,012</b>		<b>49,549</b>	<b>4.95</b>	<b>\$874,517</b>	<b>\$17.65</b>

*Note: Costs based on LSC analysis, 2007.*

Red Route

Table X-2 details the draft schedule for the Red Route. The route will start at the City Administration offices, travel north on China Lake Boulevard, turn west on Inyokern Road to Downs Street, turn south on Downs Street to Drummond Avenue, travel north on Mahan Street to Ward Avenue, run east on Ward Avenue to Downs Street, and then travel along Inyokern Road and China Lake Boulevard to return to the City Administration offices. The route will operate one bus on a 60-minute headway 255 days per year. The estimated annual cost of the route is \$92,800.

Table X-2 Route 1 - Red Route (North Service)							
Runs	Hub	China Lake/ Drummond	Inyokern/ Norma	Drummond/ Mahan	Inyokern/ Norma	China Lake/ Drummond	Hub
1	6:00 AM	6:06 AM	6:15 AM	6:26 AM	6:37 AM	6:46 AM	6:52 AM
2	7:00 AM	7:06 AM	7:15 AM	7:26 AM	7:37 AM	7:46 AM	7:52 AM
3	4:00 PM	4:06 PM	4:15 PM	4:26 PM	4:37 PM	4:46 PM	4:52 PM
4	5:00 PM	5:06 PM	5:15 PM	5:26 PM	5:37 PM	5:46 PM	5:52 PM

*Source: LSC, 2007.*

Yellow Route

Table X-3 details the draft schedule for the Yellow Route. The route will start at the City Administration offices, travel west on Ridgecrest Boulevard, run north on Norma Street, turn west on Drummond Avenue, travel south on Downs Street, turn west on Las Flores Avenue, travel along Primavera Street to loop back to Las Flores Avenue, and then return to the City Administration offices via the reverse route. The route will operate one bus on a 60-minute headway 255 days per year. The estimated annual cost of the route is \$92,800.

Table X-3 Route 2 - Yellow Route (Central Service)							
Runs	Hub	Las Flores/ Norma	Drummond/ Downs	Las Flores/ Primavera	Drummond/ Downs	Las Flores/ Norma	Hub
1	6:00 AM	6:08 AM	6:16 PM	6:26 PM	6:41 PM	6:49 PM	6:57 PM
2	7:00 AM	7:08 AM	7:16 PM	7:26 PM	7:41 PM	7:49 PM	7:57 PM
3	4:00 PM	4:08 PM	4:16 AM	4:26 AM	4:41 AM	4:49 AM	4:57 AM
4	5:00 PM	5:08 PM	5:16 AM	5:26 AM	5:41 AM	5:49 AM	5:57 AM

*Source: LSC, 2007.*

**Brown Route**

Table X-4 details the draft schedule for the Brown Route. The route will start at the City Administration offices, travel east on Ridgecrest Boulevard to Richmond Street, run south on Richmond Street, travel along Lumill Street and California Avenue, turn west on Ridgecrest Boulevard, travel south on China Lake Boulevard, run west on Church Avenue, travel south on Downs Street to Upjohn Avenue, loop back onto Downs Street, and then return to the City Administration offices via the reverse route. The route will operate one bus on a 60-minute headway 255 days per year. The estimated annual cost of the route is \$92,800.

<b>Table X-4 Route 3 - Brown Route (Cross Town Service)</b>							
<b>Runs</b>	<b>Hub</b>	<b>Richmond/ Church</b>	<b>Ridgecrest/ Sunland</b>	<b>Downs/ Church</b>	<b>Downs/ Upjohn</b>	<b>Church/ Norma</b>	<b>Hub</b>
1	6:00 AM	6:08 AM	6:17 AM	6:27 AM	6:37 AM	6:41 AM	6:45 AM
2	7:00 AM	7:08 AM	7:17 AM	7:27 AM	7:37 AM	7:41 AM	7:45 AM
3	4:00 AM	4:08 AM	4:17 AM	4:27 AM	4:37 AM	4:41 AM	4:45 AM
4	5:00 AM	5:08 AM	5:17 AM	5:27 AM	5:37 AM	5:41 AM	5:45 AM

*Source: LSC, 2007.*

**Green Route**

Table X-5 details the draft schedule for the Green Route. The route will start at the City Administration offices, travel south along China Lake Boulevard, south on College Heights Boulevard to Cerro Coso College, and then return to the City Administration offices via the reverse route. The route will operate one bus on a 60-minute headway 255 days per year. The estimated annual cost of the route is \$92,800.

Table X-5 Route 4 - Green Route (College Service)							
Runs	Hub	College Heights/ China Lake Blvd	College Heights/ Kendall	College	College Heights/ Kendall	College Heights/ China Lake Blvd	Hub
1	6:00 AM	6:07 AM	6:15 AM	6:30 AM	6:40 AM	6:48 AM	6:54 AM
2	7:00 AM	7:07 AM	7:15 AM	7:30 AM	7:40 AM	7:48 AM	7:54 AM
3	4:00 AM	4:07 AM	4:15 AM	4:30 AM	4:40 AM	4:48 AM	4:54 AM
4	5:00 AM	5:07 AM	5:15 AM	5:30 AM	5:40 AM	5:48 AM	5:54 AM

*Source: LSC, 2007.*

**Demand-Response Service**

During the off-peak times (between 8:00 a.m. and 4:00 p.m.), RTS will use two of the fleet buses to operate demand-response service within the study area. The service will operate for an estimated 12 hours per day. The estimated annual cost of the service is \$175,100.

**Summary**

RTS should continue to focus on stable transit-user markets, such as the elderly and disabled. It will be difficult for transit to become a competitor of the automobile in the near future since the automobile continues to play a key role in the region (particularly in developments with low density).

The annual cost for existing transit service in 2006 is approximately \$840,000. The annual cost for the Phase I transit service is approximately \$874,000 in 2008 (without inflation). By using federal transit funding, the local annual cost will only be 50 percent (less farebox revenue) of the \$874,000 (which equates to approximately \$437,000). Local funding could be generated from intergovernmental agreements, contracts, and the city general fund.

The estimated annual ridership is 49,500 passengers. This equates to a \$17.65 cost per passenger. Based on the forecasted ridership and an assumed average fare of \$1.50, the total farebox revenue is estimated at \$74,300. This amount of revenue equates to 8.5 percent of the operational cost, and will not meet the California minimum farebox revenue of 10 percent. The preferred plan is designed to move the system to the minimum 10 percent requirement over a

period of years. Following is a summary of the estimated additional costs and passengers for Phase I transit service:

- \$ \$17.65 cost per passenger
- \$ \$874,000 annual cost
- \$ 4.95 passengers per hour
- \$ 49,500 annual passengers

It is estimated that four vehicles will be needed to operate the Phase I transit service during peak times. RTS currently has the fleet capacity to operate the preferred transit service plan. Therefore, no vehicle purchases will be needed in order to implement the preferred transit service plan. RTS will need to install bus stops along each of the flex routes, for a total of 100 bus stops. RTS will also need to develop transfer stations at the City Administration offices. Additional details on the capital needs are presented in Chapter XI.

### **Phase II - Service Expansion (2011 to 2013)**

Phase II will include the addition of midday flex-route service and an increase in the demand-response service. Table X-6 shows the level of service for Phase II. Phase II will operate 48 revenue-hours per day, for a total of 12,240 revenue-hours per year. Based on the modeling in Chapter IX, the estimated ridership will increase to 64,800 passengers per year.

**Table X-6  
Level of Service - Phase Two (2011-2013)**

Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost per Passenger
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
Flex Routes	AM / Midday / PM	4	352	32	89,760	8,160	255	52,224	6.4	\$494,822	\$9.48
Demand-Response/Paratransit	Off-peak times	2	144	16	36,720	4,080	255	8,710	2.1	\$233,458	\$26.80
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Average</b>			<b>640</b>	<b>64</b>	<b>133,968</b>	<b>13,072</b>		<b>64,782</b>	<b>4.96</b>	<b>\$1,056,587</b>	<b>\$16.31</b>

*Note: Costs based on LSC Analysis 2007.*

## Flex-Route Service

Phase II will add midday flex-route service from 11:00 a.m. to 1:00 p.m. Monday through Friday. Two additional fleet vehicles will be needed to operate the service on 60-minute headways. This will be an increase of eight revenue-hours per day, for a total of 2,040 revenue-hours per year. The estimated annual cost of the service is \$123,705. Tables X-7 through X-10 detail the draft schedules for Phase II.

<b>Table X-7 Route 1 - North Service</b>							
<b>Runs</b>	<b>Hub</b>	<b>China Lake/ Drummond</b>	<b>Inyokern/ Norma</b>	<b>Drummond/ Mahan</b>	<b>Inyokern/ Norma</b>	<b>China Lake/ Drummond</b>	<b>Hub</b>
1	6:00 AM	6:06 AM	6:15 AM	6:26 AM	6:37 AM	6:46 AM	6:52 AM
2	7:00 AM	7:06 AM	7:15 AM	7:26 AM	7:37 AM	7:46 AM	7:52 AM
3	8:00 AM	8:06 AM	8:15 AM	8:26 AM	8:37 AM	8:46 AM	8:52 AM
4	11:00 AM	11:06 AM	11:15 AM	11:26 AM	11:37 AM	11:46 AM	11:52 AM
5	12:00 PM	12:06 PM	12:15 PM	12:26 PM	12:37 PM	12:46 PM	12:52 PM
6	3:00 PM	3:06 PM	3:15 PM	3:26 PM	3:37 PM	3:46 PM	3:52 PM
7	4:00 PM	4:06 PM	4:15 PM	4:26 PM	4:37 PM	4:46 PM	4:52 PM
8	5:00 PM	5:06 PM	5:15 PM	5:26 PM	5:37 PM	5:46 PM	5:52 PM

Source: LSC, 2007.

<b>Table X-8 Route 2 - Central Route</b>							
<b>Runs</b>	<b>Hub</b>	<b>Las Flores/ Norma</b>	<b>Drummond/ Downs</b>	<b>Las Flores/ Primavera</b>	<b>Drummond/ Downs</b>	<b>Las Flores/ Norma</b>	<b>Hub</b>
1	6:00 AM	6:08 AM	6:16 PM	6:26 PM	6:41 PM	6:49 PM	6:57 PM
2	7:00 AM	7:08 AM	7:16 PM	7:26 PM	7:41 PM	7:49 PM	7:57 PM
3	8:00 AM	8:08 AM	8:16 PM	8:26 PM	8:41 PM	8:49 PM	8:57 PM
4	11:00 AM	11:08 AM	11:16 PM	11:26 PM	11:41 PM	11:49 PM	11:57 PM
5	12:00 PM	12:08 PM	12:16 AM	12:26 AM	12:41 AM	12:49 AM	12:57 AM
6	3:00 PM	3:08 PM	3:16 AM	3:26 AM	3:41 AM	3:49 AM	3:57 AM
7	4:00 PM	4:08 PM	4:16 AM	4:26 AM	4:41 AM	4:49 AM	4:57 AM
8	5:00 PM	5:08 PM	5:16 AM	5:26 AM	5:41 AM	5:49 AM	5:57 AM

Source: LSC, 2007.

<b>Table X-9</b>							
<b>Route 3 - Cross Town Route</b>							
<b>Runs</b>	<b>Hub</b>	<b>Richmond/ Church</b>	<b>Ridgecrest/ Sunland</b>	<b>Downs/ Church</b>	<b>Downs/ Upjohn</b>	<b>Church/ Norma</b>	<b>Hub</b>
1	6:00 AM	6:08 AM	6:17 AM	6:27 AM	6:37 AM	6:41 AM	6:45 AM
2	7:00 AM	7:08 AM	7:17 AM	7:27 AM	7:37 AM	7:41 AM	7:45 AM
3	8:00 AM	8:08 AM	8:17 AM	8:27 AM	8:37 AM	8:41 AM	8:45 AM
4	11:00 AM	11:08 AM	11:17 AM	11:27 AM	11:37 AM	11:41 AM	11:45 AM
5	12:00 PM	12:08 PM	12:17 PM	12:27 PM	12:37 PM	12:41 PM	12:45 PM
6	3:00 PM	3:08 PM	3:17 PM	3:27 PM	3:37 PM	3:41 PM	3:45 PM
7	4:00 PM	4:08 PM	4:17 PM	4:27 PM	4:37 PM	4:41 PM	4:45 PM
8	5:00 PM	5:08 PM	5:17 PM	5:27 PM	5:37 PM	5:41 PM	5:45 PM

*Source: LSC, 2007.*

<b>Table X-10</b>							
<b>Route 4 - College Route</b>							
<b>Runs</b>	<b>Hub</b>	<b>College Heights/ China Lake Blvd</b>	<b>College Heights/ Kendall</b>	<b>College</b>	<b>College Heights/ Kendall</b>	<b>College Heights/ China Lake Blvd</b>	<b>Hub</b>
1	6:00 AM	6:07 AM	6:15 AM	6:30 AM	6:40 AM	6:48 AM	6:54 AM
2	7:00 AM	7:07 AM	7:15 AM	7:30 AM	7:40 AM	7:48 AM	7:54 AM
3	8:00 AM	8:07 AM	8:15 AM	8:30 AM	8:40 AM	8:48 AM	8:54 AM
4	11:00 AM	11:07 AM	11:15 AM	11:30 AM	11:40 AM	11:48 AM	11:54 AM
5	12:00 PM	12:07 PM	12:15 PM	12:30 PM	12:40 PM	12:48 PM	12:54 PM
6	3:00 PM	3:07 PM	3:15 PM	3:30 PM	3:40 PM	3:48 PM	3:54 PM
7	4:00 PM	4:07 PM	4:15 PM	4:30 PM	4:40 PM	4:48 PM	4:54 PM
8	5:00 PM	5:07 PM	5:15 PM	5:30 PM	5:40 PM	5:48 PM	5:54 PM

*Source: LSC, 2007.*

### Demand-Response Service

During the off-peak times, RTS will use two of the fleet buses to operate demand-response service within the study area. The service will operate for an estimated 16 revenue-hours per day, which will be an increase of four revenue-hours per day. These additional four revenue-hours will allow for increased ADA service and rural service during the peak hours, thereby reducing the need for the four routes to flex. The estimated annual cost of the service is \$233,500.

### Summary

As in Phase I, RTS should continue to focus on stable transit-user markets, such as the elderly and disabled. It will be difficult for transit to become a com-

petitor of the automobile in the near future since the automobile continues to play a key role in the region (particularly in developments with low density).

The annual cost for the Phase II transit service in 2011 will be approximately \$1.05 million (without inflation), which is an increase of \$182,000. By using federal transit funding, the local annual cost will only be 50 percent (less fare-box revenue) of the \$1.05 million (which equates to approximately \$528,300). Local funding could be generated from intergovernmental agreements, contracts, and the city general fund.

The estimated annual ridership is 64,800 passengers, which equates to a cost per passenger of \$16.31. Based on the forecasted ridership and an assumed average fare of \$1.50, the total farebox revenue is estimated at \$97,100. This amount of revenue equates to 9.2 percent of the operational costs, which will not meet the California minimum farebox revenue of 10 percent. This phase grows the percentage close to the required 10 percent. Following is a summary of the estimated additional costs and passengers for Phase II transit service:

\$	\$16.31 cost per passenger
\$	\$1.05 million annual cost
\$	4.96 passengers per hour
\$	64,800 annual passengers

### **Phase III – Service Expansion (2014)**

Phase III will include an increase in flex-route and demand-response services. Table X-11 shows the level of service for Phase III. Phase III will operate 72 revenue-hours per day, for a total of 18,360 revenue-hours per year. Based on the modeling in Chapter IX, the estimated ridership will increase to 95,250 passengers per year. The capital costs of Phase III are detailed in Chapter XI.

**Table X-11  
Level of Service - Phase Three (2014)**

Options		# of Veh.	Total Daily		Total Annual		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost per Passenger
			Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours					
Flex Routes	6:00 am to 6:00 pm	4	528	48	134,640	12,240	255	78,336	6.4	\$742,234	\$9.48
Demand-Response/Paratransit	6:00 am to 6:00 pm	2	216	24	55,080	6,120	255	13,065	2.1	\$350,186	\$26.80
Demand-Response (Weekend)	8:00 am - 4:00 pm	2	144	16	7,488	832	52	3,848	4.6	\$47,607	\$12.37
<i>Fixed Costs</i>										\$280,700	
<b>Total/Average</b>			<b>888</b>	<b>88</b>	<b>197,208</b>	<b>19,192</b>		<b>95,249</b>	<b>4.96</b>	<b>\$1,420,727</b>	<b>\$14.92</b>

*Note: Costs based on LSC Analysis 2007.*

Flex-Route Service

In Phase III, the flex-route service will be increased to operate from 6:00 a.m. to 6:00 p.m. Monday through Friday. This will add 16 revenue-hours per day, for a total of 4,080 revenue-hours per year. No additional vehicles will be needed for the service to operate on 60-minute headways. The estimated annual cost of the service is \$247,400. Tables X-12 through X-15 detail the draft schedules for Phase III.

<b>Table X-12 Route 1 - North Service</b>							
<b>Runs</b>	<b>Hub</b>	<b>China Lake/ Drummond</b>	<b>Inyokern/ Norma</b>	<b>Drummond/ Mahan</b>	<b>Inyokern/ Norma</b>	<b>China Lake/ Drummond</b>	<b>Hub</b>
1	6:00 AM	6:06 AM	6:15 AM	6:26 AM	6:37 AM	6:46 AM	6:52 AM
2	7:00 AM	7:06 AM	7:15 AM	7:26 AM	7:37 AM	7:46 AM	7:52 AM
3	8:00 AM	8:06 AM	8:15 AM	8:26 AM	8:37 AM	8:46 AM	8:52 AM
4	9:00 AM	9:06 AM	9:15 AM	9:26 AM	9:37 AM	9:46 AM	9:52 AM
5	10:00 AM	10:06 AM	10:15 AM	10:26 AM	10:37 AM	10:46 AM	10:52 AM
6	11:00 AM	11:06 AM	11:15 AM	11:26 AM	11:37 AM	11:46 AM	11:52 AM
7	12:00 PM	12:06 PM	12:15 PM	12:26 PM	12:37 PM	12:46 PM	12:52 PM
8	1:00 PM	1:06 PM	1:15 PM	1:26 PM	1:37 PM	1:46 PM	1:52 PM
9	2:00 PM	2:06 PM	2:15 PM	2:26 PM	2:37 PM	2:46 PM	2:52 PM
10	3:00 PM	3:06 PM	3:15 PM	3:26 PM	3:37 PM	3:46 PM	3:52 PM
11	4:00 PM	4:06 PM	4:15 PM	4:26 PM	4:37 PM	4:46 PM	4:52 PM
12	5:00 PM	5:06 PM	5:15 PM	5:26 PM	5:37 PM	5:46 PM	5:52 PM

Source: LSC, 2007.

<b>Table X-13 Route 2 - Central Route</b>							
<b>Runs</b>	<b>Hub</b>	<b>Las Flores/ Norma</b>	<b>Drummond/ Downs</b>	<b>Las Flores/ Primavera</b>	<b>Drummond/ Downs</b>	<b>Las Flores/ Norma</b>	<b>Hub</b>
1	6:00 AM	6:08 AM	6:16 PM	6:26 PM	6:41 PM	6:49 PM	6:57 PM
2	7:00 AM	7:08 AM	7:16 PM	7:26 PM	7:41 PM	7:49 PM	7:57 PM
3	8:00 AM	8:08 AM	8:16 PM	8:26 PM	8:41 PM	8:49 PM	8:57 PM
4	9:00 AM	9:08 AM	9:16 PM	9:26 PM	9:41 PM	9:49 PM	9:57 PM
5	10:00 AM	10:08 AM	10:16 PM	10:26 PM	10:41 PM	10:49 PM	10:57 PM
6	11:00 AM	11:08 AM	11:16 PM	11:26 PM	11:41 PM	11:49 PM	11:57 PM
7	12:00 PM	12:08 PM	12:16 AM	12:26 AM	12:41 AM	12:49 AM	12:57 AM
8	1:00 PM	1:08 PM	1:16 AM	1:26 AM	1:41 AM	1:49 AM	1:57 AM
9	2:00 PM	2:08 PM	2:16 AM	2:26 AM	2:41 AM	2:49 AM	2:57 AM
10	3:00 PM	3:08 PM	3:16 AM	3:26 AM	3:41 AM	3:49 AM	3:57 AM
11	4:00 PM	4:08 PM	4:16 AM	4:26 AM	4:41 AM	4:49 AM	4:57 AM
12	5:00 PM	5:08 PM	5:16 AM	5:26 AM	5:41 AM	5:49 AM	5:57 AM

Source: LSC, 2007.

Table X-14 Route 3 - Cross Town Route							
Runs	Hub	Richmond/ Church	Ridgecrest/ Sunland	Downs/ Church	Downs/ Upjohn	Church/ Norma	Hub
1	6:00 AM	6:08 AM	6:17 AM	6:27 AM	6:37 AM	6:41 AM	6:45 AM
2	7:00 AM	7:08 AM	7:17 AM	7:27 AM	7:37 AM	7:41 AM	7:45 AM
3	8:00 AM	8:08 AM	8:17 AM	8:27 AM	8:37 AM	8:41 AM	8:45 AM
4	9:00 AM	9:08 AM	9:17 AM	9:27 AM	9:37 AM	9:41 AM	9:45 AM
5	10:00 AM	10:08 AM	10:17 AM	10:27 AM	10:37 AM	10:41 AM	10:45 AM
6	11:00 AM	11:08 AM	11:17 AM	11:27 AM	11:37 AM	11:41 AM	11:45 AM
7	12:00 PM	12:08 PM	12:17 PM	12:27 PM	12:37 PM	12:41 PM	12:45 PM
8	1:00 PM	1:08 PM	1:17 PM	1:27 PM	1:37 PM	1:41 PM	1:45 PM
9	2:00 PM	2:08 PM	2:17 PM	2:27 PM	2:37 PM	2:41 PM	2:45 PM
10	3:00 PM	3:08 PM	3:17 PM	3:27 PM	3:37 PM	3:41 PM	3:45 PM
11	4:00 PM	4:08 PM	4:17 PM	4:27 PM	4:37 PM	4:41 PM	4:45 PM
12	5:00 PM	5:08 PM	5:17 PM	5:27 PM	5:37 PM	5:41 PM	5:45 PM

Source: LSC, 2007.

Table X-15 Route 4 - College Route							
Runs	Hub	College Heights / China Lake Blvd	College Heights / Kendall	College	College Heights/ Kendall	College Heights/ China Lake Blvd	Hub
1	6:00 AM	6:07 AM	6:15 AM	6:30 AM	6:40 AM	6:48 AM	6:54 AM
2	7:00 AM	7:07 AM	7:15 AM	7:30 AM	7:40 AM	7:48 AM	7:54 AM
3	8:00 AM	8:07 AM	8:15 AM	8:30 AM	8:40 AM	8:48 AM	8:54 AM
4	9:00 AM	9:07 AM	9:15 AM	9:30 AM	9:40 AM	9:48 AM	9:54 AM
5	10:00 AM	10:07 AM	10:15 AM	10:30 AM	10:40 AM	10:48 AM	10:54 AM
6	11:00 AM	11:07 AM	11:15 AM	11:30 AM	11:40 AM	11:48 AM	11:54 AM
7	12:00 PM	12:07 PM	12:15 PM	12:30 PM	12:40 PM	12:48 PM	12:54 PM
8	1:00 PM	1:07 PM	1:15 PM	1:30 PM	1:40 PM	1:48 PM	1:54 PM
9	2:00 PM	2:07 PM	2:15 PM	2:30 PM	2:40 PM	2:48 PM	2:54 PM
10	3:00 PM	3:07 PM	3:15 PM	3:30 PM	3:40 PM	3:48 PM	3:54 PM
11	4:00 PM	4:07 PM	4:15 PM	4:30 PM	4:40 PM	4:48 PM	4:54 PM
12	5:00 PM	5:07 PM	5:15 PM	5:30 PM	5:40 PM	5:48 PM	5:54 PM

Source: LSC, 2007.

### Demand-Response Service

In Phase III, RTS will use two of the fleet buses to operate demand-response service within the study area for an estimated 12 hours per day each. Therefore, Phase III will have a total of 24 revenue-hours per day, which will be an increase of eight hours per day over the Phase II transit service. This will allow for increased ADA and rural service, thereby reducing the need for the four routes to flex. The estimated annual cost of the service is \$350,190.

## Summary

RTS should continue to focus on stable transit-user markets such as the elderly and disabled. It will be difficult for transit to become a competitor of the automobile in the near future since the automobile continues to play a key role in the region (particularly in developments with low density).

The annual cost for the Phase III transit service in 2014 is approximately \$1.42 million (without inflation), which is an increase of \$350,000. By using federal transit funding, the local annual cost will only be 50 percent (less farebox revenue) of the \$1.42 million (which equates to approximately \$710,000). Local funding could be generated from intergovernmental agreements, contracts, and the city general fund.

The estimated annual ridership is 95,300 passengers, which equates to a \$14.92 cost per passenger. Based on the forecasted ridership and an assumed average fare of \$1.50, the total farebox revenue is estimated at \$142,000. This amount of revenue equates to 10 percent of the operational costs and will meet the California minimum farebox revenue of 10 percent. Following is a summary of the estimated additional costs and passengers for Phase III transit service:

\$	\$14.92 cost per passenger
\$	\$1.42 million annual cost
\$	4.96 passengers per hour
\$	95,249 annual passengers



## Transit Implementation Plan (2008 to 2014)

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### INTRODUCTION

Based on the preferred transit service plan and analysis presented in the previous chapters, LSC has prepared the following transit implementation plan. The transit implementation plan identifies the steps to be taken within the planning horizon (next seven years). Chapter XI includes a timeline showing the projects and programs that could be implemented over the planning horizon.

### SERVICE PLAN

The proposed transit service changes for the City of Ridgecrest include restructuring the current system to a flex-route system with demand-response service, and creating transfer stations and bus stops. The financial details are discussed later in this chapter.

#### Flex-Route and Demand-Response Services

The first service recommendation is for RTS to restructure the existing service into a flex-route hub-and-spoke system with demand-response service. In this system, as detailed in Chapter X, the routes interconnect at a major point. For RTS, this would be the new transit transfer station which needs to be developed at the City Administration Offices. The critical element of this flex-route system is that the system operates on a pulse. The buses all arrive and depart from the transfer point at the same time. This allows the transit users to easily transfer between routes.

The annual operating cost for the existing transit service in 2008 is approximately \$928,240 (with inflation). LSC has assumed an inflation rate of five percent for this planning process. By 2010, the annual operating cost is estimated at \$1.02 million. In 2011, the annual operating cost is estimated at \$1.3 million, which would include an increase in the level of service. In 2014, the

annual operating cost is estimated at \$2 million, which would include another increase in the level of service.

### Benefits

- \$ The residents of the City of Ridgecrest would obtain increased connectivity and mobility.

### Timing

- \$ The restructured service should be implemented in FY 2008 depending upon the availability of local match funding and the marketing of the new service. Additional expansions would be implemented in 2011 and 2014.

### Responsibility

- \$ RTS would be responsible for planning and implementing the restructured service hours for the City of Ridgecrest.

### Implementation Steps

- \$ RTS should educate the public about the new transit system and how to use the new transit services.
- \$ RTS should work with the Ridgecrest City Council, Ridgecrest City Budget Office, Kern Council of Governments, and Caltrans to secure existing and additional funding for capital and operations.
- \$ RTS should print and distribute copies of the new schedules throughout the service area.
- \$ RTS should advertise the new system with the local newspaper, radio, and television stations.
- \$ RTS should apply for the appropriate Federal Transit Administration (FTA) operational funding for the service.
- \$ RTS should continue to collect passenger ridership data and evaluate service on a monthly basis.

## **CAPITAL PLAN**

### **Bus Stops and Shelters**

In order to improve the RTS flex-route service, bus stops and shelters should be installed at key locations. The bus stops would allow the public to easily identify the transit pick-up locations and the routes that serve that location. Bus stops would increase the public profile of the service. Based on the recom-

mended flex-route service, LSC has estimated a bus stop every 2,200 feet (on average). Those routes that are bi-directional would need a bus stop on each side of the roadway. The total number of bus stops that should be implemented is estimated at 100 for the entire service area.

Of these bus stops, LSC recommends that 20 shelters be installed at key locations. The shelters are normally placed at major employment, shopping, and medical destinations. Shelters should also be placed at locations where there is an identified high number of ridership with no building or shelter near the bus stop. The following is a short list of the major locations where shelters should be installed or agreements made with businesses that allow RTS customers to wait inside for the bus to arrive:

- Albertsons Food & Drug Store
- Food City
- Ridgecrest Regional Medical Center
- Kmart
- Mesquite High School
- Cerro Coso College
- Wal-Mart
- SA-Tech
- Home Depot
- Drummand Medical Group
- Stater Bros. Markets
- Desert Area Resources & Training

Each bus stop should include a sign on a pole. On the pole, there should be a sign that displays the schedule and route that serves that location. Each bus stop should also have a concrete pad for the transit users to stand on. A bench is optional depending upon if RTS can obtain an agreement with an outdoor advertising firm to share the cost of the benches. Appendix D presents details on the layout and amenities of bus stops and shelters.

The cost is estimated at \$700 to \$1,000 for each standard bus stop. The bus stops with shelters would have all of the amenities that the standard bus stop has, but would include a shelter and a larger concrete pad. The average cost for

the implementation of a shelter ranges from \$10,000 to \$15,000 depending upon the level of amenities.

The total estimated cost for the bus stops and shelters is \$280,000. LSC has estimated that RTS could implement about \$70,000 worth of bus stops and shelters per year. This would complete the installation in about four years.

### Transfer Station

A major capital investment would be the development of a new transit facility at the City Administration offices. The transfer station would need to be planned and designed in 2007 in order for construction to begin in 2008. The facility could be completed by the end of 2009. The transfer station should include a concrete pad, benches, shelter, kiosk, information center, bus pullouts, and outside waiting area. Figure XI-1 presents a concept design for the transfer station. The estimated cost of the new transfer station is \$100,000.

### New and Replacement Vehicles

LSC recommends that RTS purchase nine vehicles over the short term at a total estimated cost of \$711,000. The funding breakdown is \$568,800 in federal transit funding and \$142,200 in local funding. Table XI-1 shows details on the recommendations for new and replacement vehicle purchases.

<b>Table XI-1</b>							
<b>Vehicle Replacement (Seven-Year Plan)</b>							
	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Replacement Body-on-Chassis	2	1		1	1		2
New Body-on-Chassis				2			
<i>Source: LSC, 2007.</i>							

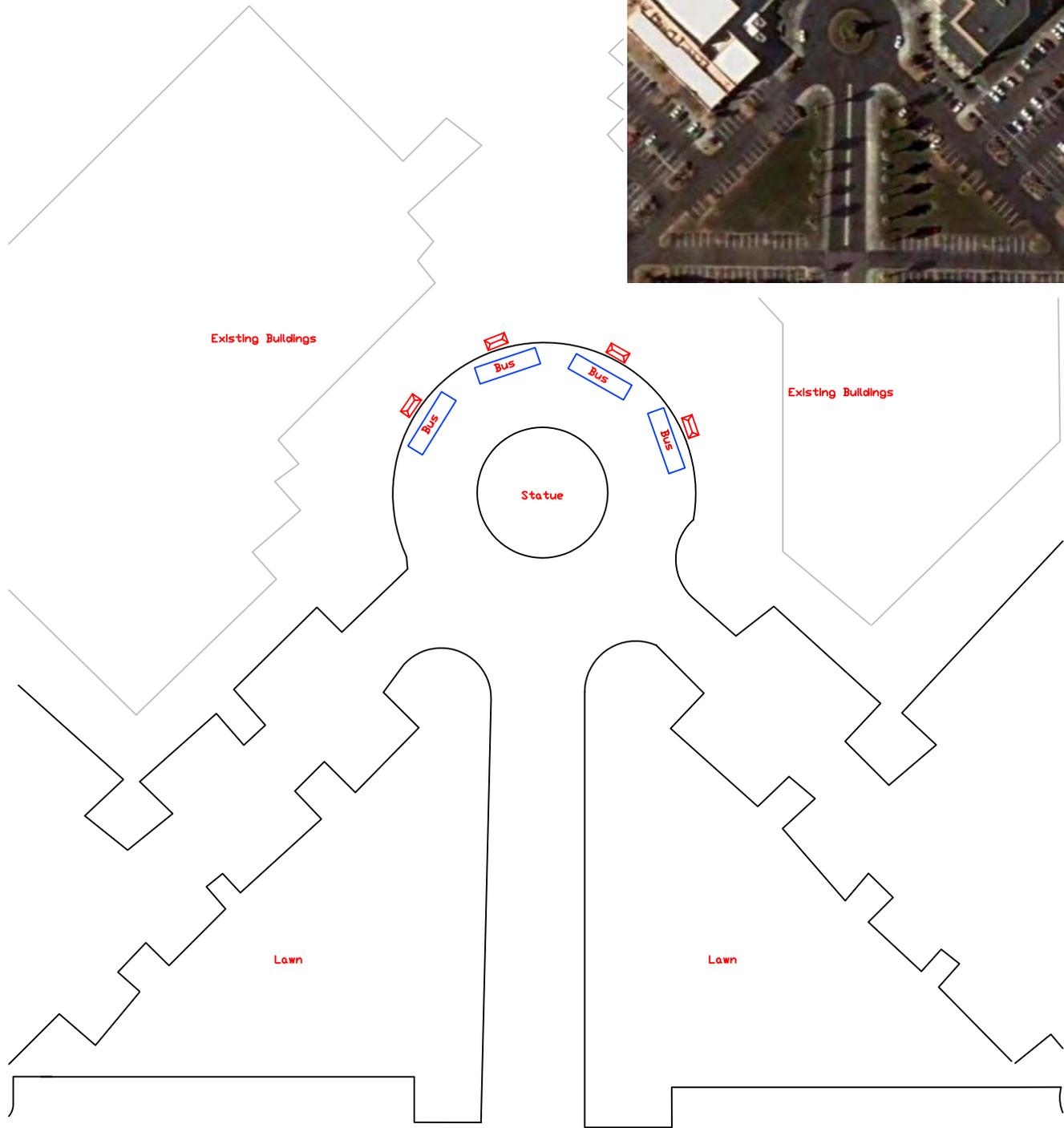


Figure XI-1

RTS Transit Improvement Standards - Alternative 2



## **Bicycle Racks**

LSC recommends that RTS install bicycle racks on all of the buses in the fleet. Each bicycle rack should have enough room for two bicycles. The bicycle rack should be installed on the front of the bus for safety reasons so that the bus driver can see the individual loading or off-loading the bicycle.

The cost of a bicycle rack ranges from \$500 to \$1,000. LSC has included the bicycle rack implementation costs for all RTS vehicles in the seven-year financial plan presented in Table XI-2. LSC has estimated \$10,000 for the purchase and installation of six bicycle racks over the years 2008 to 2011. The funding breakdown is \$8,000 in federal funding and \$2,000 in local funding over the next four years. Appendix E details the types of capital and facilities that RTS could need over the next eight years.

## **Administrative and Maintenance**

The administrative and maintenance capital includes the purchase of office equipment, hardware, software, dispatching software, and maintenance equipment. LSC has estimated a total of \$85,000 over the next seven years. The funding breakdown is \$68,000 in federal funding and \$17,000 in local funding over the next seven years. The annual local cost is estimated at about \$2,500.

**Table XI-2  
Alternative III Transit Plan, 2008-2014 (assumed 5% inflation)**

<b>EXPENSES</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Total</b>
<b>OPERATING</b>								
Phase I	\$ 900,753	\$ 900,753	\$ 900,753	\$ 900,753	\$ 900,753	\$ 900,753	\$ 900,753	\$ 6,305,268
Phase II	\$ -	\$ -	\$ -	\$ 204,921	\$ 211,069	\$ 217,401	\$ 223,923	\$ 857,315
Phase III	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 447,846	\$ 447,846
Marketing Program	\$ 10,000	\$ 17,609	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 77,609
<b>Subtotal</b>	<b>\$ 910,753</b>	<b>\$ 918,362</b>	<b>\$ 910,753</b>	<b>\$ 1,115,674</b>	<b>\$ 1,121,822</b>	<b>\$ 1,128,154</b>	<b>\$ 1,582,522</b>	<b>\$ 7,688,037</b>
<b>CAPITAL</b>								
Replacement Transit Buses	\$ -	\$ -	\$ 136,500	\$ 79,008	\$ 165,917	\$ -	\$ 182,923	\$ 564,348
New Transit Buses	\$ -	\$ -	\$ -	\$ 79,008	\$ -	\$ -	\$ -	\$ 79,008
Bus Bike Racks (6)	\$ 6,000	\$ -	\$ -	\$ 4,000	\$ -	\$ -	\$ -	\$ 10,000
Transit Stop Improvements (100 stops)	\$ 26,000	\$ 26,000	\$ 26,000	\$ 26,000	\$ 26,000	\$ 26,000	\$ 26,000	\$ 182,000
Transit Hub	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ -	\$ -	\$ -	\$ 100,000
Office / Administration / Maintenance Equipment	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	\$ 35,000
<b>Subtotal</b>	<b>\$ 62,000</b>	<b>\$ 56,000</b>	<b>\$ 192,500</b>	<b>\$ 218,016</b>	<b>\$ 196,917</b>	<b>\$ 31,000</b>	<b>\$ 213,923</b>	<b>\$ 970,355</b>
<b>TOTAL EXPENSES</b>	<b>\$ 972,753</b>	<b>\$ 974,362</b>	<b>\$ 1,103,253</b>	<b>\$ 1,333,690</b>	<b>\$ 1,318,738</b>	<b>\$ 1,159,154</b>	<b>\$ 1,796,445</b>	<b>\$ 8,658,395</b>
<b>REVENUES</b>								
FTA 5311 Program (operating)	\$ 60,000	\$ 63,000	\$ 66,150	\$ 69,458	\$ 72,930	\$ 76,577	\$ 80,406	\$ 488,521
<b>Subtotal</b>	<b>\$ 60,000</b>	<b>\$ 63,000</b>	<b>\$ 66,150</b>	<b>\$ 69,458</b>	<b>\$ 72,930</b>	<b>\$ 76,577</b>	<b>\$ 80,406</b>	<b>\$ 488,521</b>
CMAQ	\$ -	\$ -	\$ 154,000	\$ 174,413	\$ 157,533	\$ 24,800	\$ 171,138	\$ 681,884
<b>Subtotal</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 154,000</b>	<b>\$ 174,413</b>	<b>\$ 157,533</b>	<b>\$ 24,800</b>	<b>\$ 171,138</b>	<b>\$ 681,884</b>
<b>Local Revenues</b>								
Local Match (capital)	\$ 12,400	\$ 11,200	\$ 38,500	\$ 43,603	\$ 39,383	\$ 6,200	\$ 42,785	\$ 194,071
LTF/TDA Funding	\$ 734,241	\$ 695,753	\$ 687,752	\$ 884,801	\$ 867,166	\$ 889,388	\$ 1,310,330	\$ 6,069,431
State Transit Assistance Funds	\$ 80,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 500,000
Local Match Contract / Charter (operating)	\$ 6,519	\$ 6,845	\$ 7,187	\$ 7,547	\$ 7,924	\$ 8,320	\$ 8,736	\$ 53,078
General Operating Assistance	\$ 2,029	\$ 50,000	\$ 2,100	\$ -	\$ 19,932	\$ -	\$ 21,975	\$ 96,036
Advertising	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 7,000
Fares (based on 8.5% to 10%)	\$ 76,564	\$ 76,564	\$ 76,564	\$ 82,869	\$ 82,869	\$ 82,869	\$ 90,075	\$ 568,375
<b>Subtotal</b>	<b>\$ 912,753</b>	<b>\$ 911,362</b>	<b>\$ 883,103</b>	<b>\$ 1,089,820</b>	<b>\$ 1,088,274</b>	<b>\$ 1,057,777</b>	<b>\$ 1,544,901</b>	<b>\$ 7,487,990</b>
<b>TOTAL REVENUES</b>	<b>\$ 972,753</b>	<b>\$ 974,362</b>	<b>\$ 1,103,253</b>	<b>\$ 1,333,690</b>	<b>\$ 1,318,738</b>	<b>\$ 1,159,154</b>	<b>\$ 1,796,445</b>	<b>\$ 8,658,395</b>

Source: LSC, 2007.

## FUNDING PLAN

The following section presents the proposed budget for the next seven years. Table XI-2 presents the RTS expenditures and revenues for 2008 through 2014, with the assumption of a five percent inflation rate.



### Federal Funding

LSC recommends that the RTS continue to apply for federal funding in order to support public transportation services in the City of Ridgecrest. Federal funding is expected to remain relatively stable over the next few years. RTS should also continue to work toward establishing new revenue sources. Additional funds may be generated by pursuing grants from agencies and foundations other than Caltrans or the FTA.

### RTS Funding

The 2008 to 2014 Transit Plan anticipates \$1.23 million in FY 2008 for operational and capital costs. After 2008, the cost of the service would increase at the rate of inflation, until 2011 and 2014, when additional service is implemented. The additional costs could be covered by FTA funding at 50 percent, with the remainder from local match.

On the revenue side of the financial plan, LSC estimated an 8.5 to 10 percent farebox ratio depending on the planning year and phase of implementation. LSC also made the assumption that the level of state and federal funding would remain the same in Phase I, but would increase in the years 2011 and 2014. RTS is currently not receiving 50 percent of operational reimbursement from 5311 funding. Therefore, LSC has increased the amount that RTS would receive from 5311 operational funding. Due to these assumptions, the amount of local funding does not have a major increase until 2014. Until 2014, the local operational match increases mainly by the rate of inflation. The service expansion costs for 2011 would be covered by FTA 5311 or state funding since the City of Ridgecrest is currently covering most of the operational costs of the transit service. In the long term (2014 to 2020), the City of Ridgecrest Council Board

should examine the possibility of increasing the local percentage of funding that is dedicated to transit services.

The transit improvements over the next four years will aid in marketing the transit system to the region's voters, thereby improving the chances that an increase in dedicated funding for transit could be implemented in the long term. This means increasing the ¼-cent tax that is currently being used for transit in order to fund the increase in transit's level of service. The City of Ridgecrest may wish to explore this funding option in 2010 or 2011, depending on the success of Phase I and/or Phase II. Appendix F presents the different funding types that could be used to fund the capital and operations of the preferred system.

#### Benefits

- \$ Local funding displays a level of commitment on the part of the local governments and citizens, and can aid in obtaining increased federal funding.
- \$ The local match funds are needed to help secure matching federal funds.
- \$ The funding helps to provide a service needed by the local citizens.

#### Timing

- \$ The Transit Manager and the Ridgecrest City Council should begin the process of acquiring the needed capital in 2007 for the restructuring of the service. This includes building a downtown transit transfer station (in 2008), purchasing two replacement transit vehicles, and implementing 100 bus stops (2008 through 2011).
- \$ The community's budgetary offices should be prepared to incorporate local transit funding when the transit budget is presented for the fiscal year 2008 to 2009.
- \$ In 2011 and 2014, the Transit Manager would need to work with the Ridgecrest City Council to obtain additional funding for the implementation of the transit service expansions.

#### Responsibilities

- \$ The Transit Manager would be responsible for presenting the initial information to the Ridgecrest City Council in order to build support for local transit funding.
- \$ The Transit Manager would be responsible for developing the transit budget and presenting the budget to the local governments.

- \$ The Transit Manager and Ridgecrest City Council should educate the public on the benefits of the RTS services in order to obtain political support for the development of dedicated transit funding in the future.

### Implementation Steps

- \$ The Transit Manager should meet with the Ridgecrest City Management and Ridgecrest City Council to present the need for local funding.
- \$ The Transit Manager should prepare the detailed transit operating budget for approval.
- \$ The Transit Manager and Ridgecrest City Management should present the approved transit budget to the Ridgecrest City Council, which would be asked to financially support the transit service.
- \$ A grassroots group should be created and should meet every month. The grassroots group should develop the public education programs regarding the benefits of supporting the intergovernmental agreements and local commitment to transit service.

## **IMPLEMENTATION TIMELINE**

Figure XI-2 presents an implementation timeline as a guide to the phased development of the transit service improvements. Figure XI-2 also shows the planning phase for each recommended project and program which should be conducted the year before implementation. LSC recommends that RTS evaluate each project or program after implementation.

In the timeline, the existing system is restructured to the flex-route system with demand-response service in 2008. During this same time, the City of Ridgecrest would need to begin construction of a downtown transit transfer station. The transfer station should be completed in 2009. Service expansion would occur in 2011 and 2014. The implementation of the 100 bus stops should begin in 2008 and be completed in 2011.

In the first two or three years, RTS should be able to operate the flex-route system with the existing fleet. As the transit service matures, there would be a need to move to more fixed-route vehicles (20-passenger transit buses). The purchase of these vehicles is estimated to start in 2014 and be completed by 2020. During this same time period, there would be a need to purchase replacement cut-away vehicles.

# Figure XI-2 Short-Term Plan Timeline



- LEGEND**
- Planning Phase / Intergovernmental Agreements
  - Implementation/Construction Year
  - Full Year of Operations
  - Feedback
  - Purchase Vehicles

## MARKETING PLAN

This section outlines several effective preliminary marketing strategies which could be used by Ridgecrest Transit System (RTS). These strategies represent “Best Practices” from across the nation. They are taken from the *Transit Cooperative Research Program, Report 50: A Handbook of Proven Marketing Strategies for Public Transit*, sponsored by the Federal Transit Administration and the Transportation Research Board. This TCRP report discusses national examples of effective marketing campaigns along with program results and a timeline for implementation. RTS staff may also wish to review the document *Marketing Public Transportation in Kern County* produced by the Kern Council of Governments.

Marketing in the broadest context should be viewed as a management philosophy focusing on identifying and satisfying customers’ wants and needs. The basic premise of successful marketing is providing the right product (or service), offering it at the right price, and adequately promoting or communicating the existence and appropriateness of the product or service to potential customers. Unfortunately, for too many persons the word “marketing” is associated only with advertising and promotional efforts that accompany “selling” the product or service to a customer. Instead, such promotional efforts are only a part of an overall marketing process. Without a properly designed and developed product or service offered at the right price, the expenditure of promotional funds is often ill-advised.

The following sections outline some of these strategies appropriate for investigation for RTS.

### **What constitutes an effective strategy?**

One of the first questions to ask when designing a marketing strategy or plan is “what is an effective marketing strategy?” While there may not be one correct answer to this question, it at least can lead to a discussion on effective strategies.

An effective marketing strategy should at a minimum:

1. Become a strategy under the transit agency's Goals and Objectives for service;
2. Be clearly and concisely presented and implementable in the sense that something is produced or attained through the strategy;
3. Be able to be measured by some performance measure or data element;
4. Cost-effective in the sense that there is a benefit from the strategy and it is not implemented just for the sake of having a marketing campaign, one which may not even work;
5. Be flexible in respect to service changes and market segment changes, but be focused enough to convey a message about specific information; and finally,
6. It should accurately represent the transit service as a whole.

Although there are many other definitions of what a marketing strategy should be, it should be something that is a comprehensive part of the agency's overall goal of providing safe and efficient transit service. It should not be something that is forgotten or discarded, even if there are no funding dollars available to support a comprehensive marketing strategy. Many strategies only take some initiative, foresight, and dedication to make and implement the strategy. The strategies should support the goals and objectives in a clear and concise way.

### **Preliminary Marketing Steps**

One of the primary steps in determining how to tailor a marketing program to the agency is to determine how RTS is perceived. One of the best ways to determine public perceptions is to ask questions of users, non-users, and the agency as a whole. Ask the following questions:

- Do you have a marketing team of business leaders, customers, key representatives, government officials, etc. who meet regularly to discuss marketing efforts or service efforts?
- Do you talk to your customers on a regular basis?
- Do you have an open submission policy or openly accept new service ideas from persons outside your direct organization?

- Do you regularly survey passengers to determine if their needs are being met?
- Do you regularly meet with drivers to discuss how to better improve the overall service to patrons?
- Do drivers discuss feedback they get from customers with each other or with supervisors and key leadership?
- If you asked customers what they would change about the system, do you have any idea what they would say?
- If you asked customers how they heard about the service for the first time, do you think they could tell you?
- If you sampled the general community population, would they be able to tell you anything about RTS service—how much it costs, where it goes, how to use it?
- Would local businesses, clubs, organizations, etc. donate to your organization?
- How would customers rank service on a scale of 1 to 10? Would you be surprised by their responses?

These are the key questions which need to be addressed as you continue to improve and market RTS as the public transportation provider in Ridgecrest. Many agencies are shocked when they evaluate themselves in regard to the above questions. Marketing often is a key to raising the perceptions about a service.

## **Effective Strategies**

### National Examples

The following presents marketing examples from across the United States, along with the strategy's effectiveness at meeting the respective agency's goals. The strategies are not categorized or presented in any certain order. They are presented as a basis for discussion and to present how "others" campaign for transit ridership.

### **Transit Brochure Distribution – Rural Transit**

Rural Transit in Bloomington, Indiana informs customers and potential riders of services through brochure distribution. The brochures are easy to read and informative. They are distributed to businesses and agencies along the rural transit routes. The implementation time for this program was one year with the objective of increasing awareness of Rural Transit's services. The agency

reported the successes of the program were an increased public awareness of transit services in the area, increased working relationships with local businesses and agencies, and increased ridership.

#### **The RRTA Senior Game – Red Rose Transit Authority**

Red Rose Transit Authority (RRTA) in Lancaster, Pennsylvania conducted a six-week-long frequent rider promotion for senior citizens age 65 and over. The RRTA Senior Game cards were distributed by operators and punched each time a senior used the system. A card was entered into drawings for prizes after four rides. Weekly drawings were held with small prizes awarded. The agency advertised with a mailing to the local senior citizen groups, ads in senior citizen publications, and interior bus ads. The objective of the “game” was to get new seniors to try the bus system as well as to reward current patrons. Implementation time is two to three weeks per year. Ridership for the RRTA was noted as increasing, and feedback from seniors was very positive.

#### **The Transit Connection – Connecting the Worker to the Workplace**

The Triangle Transit Authority (TTA) in Research Triangle Park, North Carolina held job fairs that focused on the importance of public transit options for the workplace. The objective of the job fairs was to bring employers and potential employees together for mutual benefit. Education of both segments was another objective. While this project took considerable funding and time spent organizing the job fair, the TTA sees this strategy as a huge success and is now asked to make presentations to different groups on welfare-to-work issues, and is represented on several area agency boards for work-related transportation issues.

#### **Get On Board – Erie Metropolitan Transit Authority**

The Erie Metropolitan Transit Authority (EMTA) conducts a transit awareness program called “Get On Board.” The agency holds awareness assemblies in each of the local elementary schools. Coloring books and other materials are distributed to the children, and education lessons are given to teachers. The main objective is to educate schoolchildren on the value and use of the transit system. EMTA spends money primarily on copying and stickers. Free advertise-

ment is garnered on a local radio station with other prizes donated from local advertisers on the station. In the first year of implementation, 10 of 14 schools were involved, and working relationships with sponsors continues to grow.

## **Other Approaches**

Recent research has cataloged marketing efforts that have helped transit systems around the country increase their public exposure and their ridership, and some of these successful initiatives may be useful for RTS. Many systems have found print advertising (e.g., newspapers, flyers, and direct mail) to be the most effective use of advertising dollars. Examples of successful marketing strategies are listed below.

- ***Volunteers to Assist Potential Riders.*** Under this program, a volunteer is used to explain the working of the transit system to the potential patron and to accompany the person on a round-trip ride. Such programs have resulted in a newfound independence for residents, particularly elderly persons and persons with disabilities, who are now able to travel throughout the community without relying on friends and family to provide them with mobility.
- ***Publish transit schedules and service hours in the newspaper.*** Publication of the transit schedule and basic information about the system in the local newspaper twice a year would be a cost-effective way to ensure that the residents of the communities are familiar with the transit service. The newspaper may agree to print the schedule as a public service. Alternatively, some systems have covered the cost of such an initiative through a reciprocal agreement to carry advertising for the newspaper on the buses.
- ***Direct Mail Program.*** If new areas or services are added to the transit system, it may be advantageous to institute a direct mail campaign to households in the new areas. Such a campaign will ensure that residents of the neighborhoods know about the service. It would be useful to include coupons in the mailing to encourage residents to make their first transit trip.

- **Shopping Center Underwriting.** Some transit systems have developed arrangements with shopping centers that provide coupons for riders. These coupons would provide an incentive for riders and would be beneficial to the transit system and the shopping center.

While each of the listed marketing strategies may or not be effective, they can all be modified in some way to fit RTS' needs. The goal of marketing is to increase awareness, support, and ultimately, ridership for the system.

### **Marketing to Business**

Marketing techniques to reach business should receive its own attention. An excellent resource is the *TCRP – Report 51: A Guidebook for Marketing Transit Services to Business*, sponsored by the Federal Transit Administration and Transportation Research Board. Much of what is documented in this section is taken from that report as well as LSC's varied experience in other areas across the United States. This guidebook states a very important point worth mentioning right away: "No matter who makes up the target market, understanding what the customer wants is the first step toward meeting those needs." This statement translates into every aspect of a transit system, not just the marketing program.

Local businesses are often unaware that general public transit service even exists. In many cases, local businesses do not know about tax benefits and other incentives available through the use of public transportation. This information can be provided through the development of a brief summary of those benefits to the employers given by a spokesperson for RTS. It is then up to RTS to respond to those business needs, such as getting employees to and from work. For example, subscription employee routes could provide a needed service to businesses. This could be in the form of vanpools, buspools, fixed-route intercity service, etc.

Once a service is proposed to be offered, support for that service must come in terms of commitment and support. This is not only financial support, but may require the business participating to promote the service to employees. Effective programs across the United States have employed such innovative ideas as

public-private profit sharing, where revenues are shared with the business after operating costs have been recouped. How do you begin such a daunting task?

There are many ways to approach a business to determine if a market exists and what form of transportation is appropriate for that business:

1. Direct Mailings – inform businesses of existing service and benefits.
2. Site-Based Sales – informal visits with employers and employees to determine needs and possible solutions.
3. Chamber of Commerce – an excellent means to communicate with businesses since many are members of the Chamber.
4. Telemarketing – businesses can be contacted during business hours and be “pitched” information.
5. Word of Mouth – it is possible that an existing employee uses transit and can spread the benefits of transportation to fellow employees and employers.
6. Decision Makers – obviously having the ear of local decision-makers and business leaders is an effective way to promote the service.

There are a variety of ways to market transit to businesses in a community. The first thing you have to do, or be willing to do, is offer a convenient, cost-effective service. Cost, convenience, and reliability are the important things to remember in any transit system and must be the priority of the transit agency. If this is concentrated on, marketing will come much more easily.

### **RTS Preliminary Transit Marketing Strategies**

The best marketing that can be done is to provide services that the people want. Enhancing service is an element of marketing because it provides a desirable service to those who will use it. In order to provide good service, it is essential to have information which may be used by management for evaluation of the service and continuous improvement of that service. RTS must maintain a customer orientation in every part of the plan. Promotion activities have been identified which could enhance the overall implementation and marketing efforts. The following represent realistic efforts which could be done under a limited budget.

## Human Interest Stories

RTS should work with the local newspaper to provide periodic human interest stories. Human interest stories can be used to reinforce the benefit of transit service for the community. Examples of good stories would be individuals who are able to work or attend school because of the availability of public transportation. Another example is someone with a disability who is able to make a contribution in the community because of the public transportation or who is able to obtain medical treatment because of the coordinated efforts between the RTS and social service agencies.

RTS should also make use of news advisories for any significant event or accomplishment of any employee. The most cost-effective way to reach large groups of the general population is via the news media. A system should be developed to disseminate news advisories to the media announcing new schedules, fares, services, community involvement activities, outstanding employees, safety record, major management changes, awards, etc. It is important to keep in mind, however, that the media should not be overwhelmed with too much information that is not meaningful and which might otherwise dilute the attention paid to other more important communications. RTS should use the media in the beginning to talk about the new service change.

## Vehicle Logo Design/Bus Wrap

A vehicle logo should be designed that is both distinctive and attractive. The logo should convey the message that this is a transit bus or a transit stop. It should be colorful, easy to read, and reproducible. Additionally, bus wraps offer an attractive alternative to paint schemes. Many times the cost of a bus wrap can be offset by advertising a local business or the community college. Additionally, a "Design a Bus Wrap" contest could be sponsored throughout the region. Recently, a high school student in Tempe, Arizona won the 2004 Valley Metro "Design a Bus Wrap" contest.

RTS should contact a local business or agency who may be willing to pay for the bus wrap. Bus wraps have a wide range of price depending on the design, amount of the vehicle to wrap, geographical location, and type of vehicle. Vendors have stated that a three-year wrap for a body-on-chassis vehicle can

run between \$7,000 and \$15,000. Many smaller agencies are just not financially capable of having this done to vehicles. However, there may be a local business or other agency which may be willing to cover the cost of design, materials, and installation.

### Passenger Information

Passenger information is a broad topic of discussion. One main element of passenger information appropriate for RTS is a new brochure and flyer program. Passenger brochures should describe the services and include detailed information on the transit system without providing irrelevant information. The brochures should include service hours, destinations/service area, phone numbers, fare information, etc. The brochure should also describe how to request a pick-up and drop-off. The brochure should be attractive, informative and bi-lingual (English and Spanish).

Another element of passenger information should include posters and signs. Posters and signs should be prepared which may be displayed in businesses, at places of employment, hospitals, and community bulletin boards.

### Local Advertisement

Local advertising in media is a very effective means of advertising and promoting transit services. Local television time is usually cost-prohibitive for most agencies. Radio, newspaper, Internet, and others usually provide a cost-effective means of communicating with the public. Many times a local paper or radio station will donate ad costs for the agency.

Local advertisement also means working with local businesses and agencies to advertise on the buses, bus stops, etc. Many times this can be a revenue generating initiative.

### Guidelines for Preparing Radio and Newspaper Stories or Releases

It is important to remember that local people read local papers. Several written communication strategies may be used to “sell” the transit system. These should be considered if not already being used—yellow pages, directories, classified ads, newspaper, event flyers, referral flyers, and promotional flyers.

What follows are brief guidelines for preparing news advertisement or releases. These guides are general “rules of thumb” for news releases and advertisement.

- Determine the goal: Why are we releasing this news story? Does it help to promote service? Does it reach our markets effectively? What market are we trying to reach with the advertisement or story? Determination of the overall goal of a news release or advertisement may help to assess if it is worth the cost to place the advertisement versus what the return may be. Overall, will we gain anything from the release or advertisement?
- What do we need? A determination of the objectives is necessary to assess how much is needed to convey the message. It is unlikely that one or two lines of text will suffice for releasing information about service changes or improvements in local papers. Having several “eyes” read and critique the piece will help to know if the message is being conveyed as intended.
- When you do write a release follow this simple strategy: Don’t forget about the primary goals, don’t go overboard, don’t use empty useless statements, and don’t forget to be accurate.
- Read, re-read, and then read it again. Have someone else read and check the advertisement and/or release.

Appendix G presents a number of ad slicks which could be used by RTS in local papers. A number of simple, but effective radio ads are also presented.

### Public Relations and Service Announcements

Public relations and service announcements are activities by which RTS can be “sold” without having to incur the costs associated with paid advertisement. Public relations are vitally important to any company, but especially to transit systems because of the dependence of the system upon the public to sustain it financially. The fact that the system must provide dependable, convenient, and timely service to the public is fundamental. Without this element of efficiency, no amount of public relations, advertising, or other marketing strategies will be effective. RTS staff should develop service announcements describing the new service change. This is a cost-effective way of spreading the word over the air-waves.



## CHAPTER XII

# Service Monitoring and Performance Evaluation Plan

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## INTRODUCTION

Monitoring of service should begin immediately. Data collection is essential to evaluate the service performance and to determine if changes should be made in the service delivery. This chapter provides information on data collection, databases, and standard reports which should be prepared. While RTS staff currently collects some of this information, detailed information such as passenger boardings and alightings by stop would greatly enhance the amount of analysis which could be performed for future service changes as well as defining stops that are appropriate for shelters or benches.

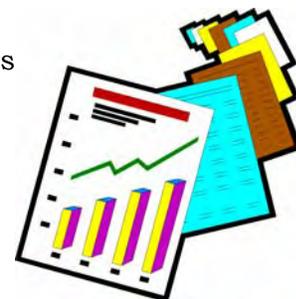
## HOW DO YOU MEASURE SUCCESS?

How do you measure success? It can be very easy to measure the success of a transit agency's performance. Many times it comes down to two points:

- H** Operating Effectiveness
- H** Operating Efficiency

Measures of effectiveness can be tested with performance factors such as:

- Passenger-trips per mile
- Passenger-trips per hour
- Passenger-trips per capita



Measures of efficiency can be tested using the following measures:

- Cost per passenger-trip
- Cost per hour
- Cost per mile
- Cost per capita

LSC recommends that RTS develop a Transit Advisory Committee (TAC) made up of customers and prominent individuals in the community to develop performance standards using the measures stated above that will be used to “grade” the service. Performance standards should be realistic and obtainable. RTS staff could provide current data to the TAC as a reference point.

A monitoring and performance evaluation plan is essential to determine the efficiency and effectiveness of the service which is being recommended, since the recommended service is a radical departure from the demand-response service now being provided in Ridgecrest. Quarterly reports should be prepared by the RTS staff and presented to the TAC and the City Commission. Information contained in these reports should include productivity and costs.

Productivity measures for both flex-route and demand-response services should be reported for each month in the quarter. Productivity should be reported by route (service base), indicating the number of passengers per revenue-hour and passengers per revenue-mile. The actual productivity should be compared with the productivity standards which have been established.

## **Data to Be Collected**

Data to be collected fall into three basic categories—ridership data, on-time performance, and financial.

### Ridership

Passenger boarding data should be collected continually. There is a trade-off between data collection efforts and the value of information. It is just as easy to collect too much data as it is to collect insufficient data.

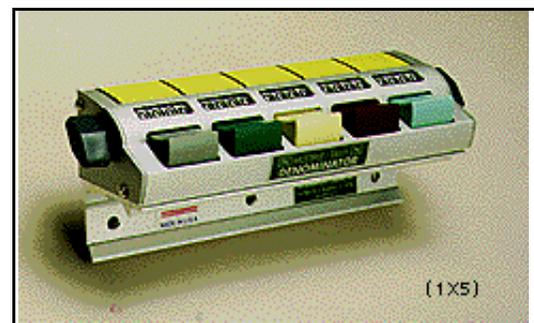
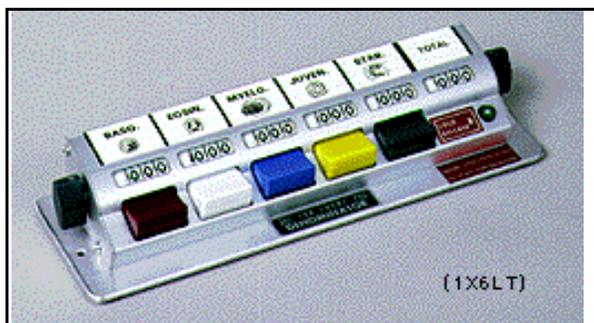
Passenger boardings should be recorded daily by route, fare category, and by trip. One goal all transit agencies should strive for is the implementation of Intelligent Transportation Systems, such as Mobile Data Terminals (MDT). Mobile Data Terminals include features such as recording each passenger by fare category as they board. This capability should be programmed into the



capability of the software as it is implemented. Mobile Data Terminals also allow both data and voice communication between operator and dispatcher. It is similar to having an alphanumeric pager on the dashboard. Successful agencies across the United States implementing MDTs include Central Ohio Transit Authority, Mountain Metro Transit in Colorado Springs, Tri-Met - Oregon, Milwaukee County Transit System, Ann Arbor Transportation Authority, and Montgomery County Transportation Authority.

Passenger boarding data can also be collected using tally boards on the buses. Two sample counters are shown in Figure XII-1. Sufficient buttons are required to record passengers in each fare category. A driver's log sheet should then be used to record passengers in each fare category. A driver's log sheet should then be used to record the passenger counts at the end of each trip. The drivers do not need to calculate the number of passengers for that trip, but record the running total by fare category. As data are entered, the calculation of passengers on each trip can be made. An effective approach is to prepare the driver's log sheet for each of the driver's runs. This will provide preprinted route and trip information, and the driver will need only to record the date and the passenger count data.

**Figure XII-1  
Manual Passenger Boarding Counters**



Twice each year, a full boarding and alighting count should be completed. If passenger boardings are counted using the MDTs and integrated with Automatic Vehicle Location (AVL), the data can be recorded automatically. If it must be done manually, this is a more intense effort and will require the use of additional personnel. Passenger counts are recorded for passengers boarding and alighting by stop for a full day. This information records the passenger activity at individual

stops and is useful to determine if stops are appropriately placed and what amenities should be provided. If a stop has little or no activity, it would not warrant a bench or shelter, and may not even be appropriate as a designated stop. Data collection forms should be prepared for each route showing the stops and providing space to record the passenger counts. An example used for an existing system is provided. Similar sheets should be prepared in advance for the boarding and alighting data collection.

Time: \_\_\_\_\_ am / pm

# Breckenridge Route

# of carryover passengers: \_\_\_\_\_

ID	Bus Stop	ON	OFF	W/CH ON	W/CH OFF
34	Frisco Station				
46	Summit Boulevard @ School Road				
89	Main St @ 6th				
94	Granite Street				
50	Ophir Mountain Village				
21	County Commons				
95	Hwy 9 @ Farmer's Korner				
74	Hwy 9 @ Tiger Run				
97	Hwy 9 @ Vienna Townhomes				
13	Hwy 9 @ Breckenridge Rec. Ctr				
18	Park Ave. @ City Market				
6	Park Ave. @ 4 O'Clock Road				
110	Breckenridge Station				
110	Breckenridge Station				
108	Park Ave. @ River Mountain Lodge				
18	Park Ave. @ City Market				
98	Hwy 9 @ Breck Inn				
97	Hwy 9 @ Vienna Townhomes				
74	Hwy 9 @ Tiger Run				
95	Hwy 9 @ Farmer's Korner				
50	Ophir Mountain Village				
21	County Commons				
109	Summit Co Comm. Ctr				
94	Granite Street				
89	Main St @ 6th				
46	Summit Boulevard @ School Road				
34	Frisco Station				

**EXTRAS**


Finally, an onboard passenger survey should be conducted periodically. We recommend that a survey be conducted six months after service changes have been implemented. Following that, passenger surveys should be conducted at least every two years. Survey instruments with questions appropriate for RTS should collect information about passenger demographics, trip characteristics, and perceptions of the transit service.

Special attention should be paid to monitoring efforts in the months before and throughout the six months immediately after any major service or fare change. The data collected during this period are crucial for the before-and-after evaluations. These data should be compared to the forecast number of passengers, revenues collected, and costs incurred, determining whether the change produced the desired results. Furthermore, these data can be used to calculate local elasticity values for future planning purposes. Elasticity is defined as the percentage change in the dependent variable (ridership or revenues) resulting from a percentage change in the independent variable (fares or headways).

**Guest of Springs Transit:**

Please take a few minutes to complete this survey during your bus ride today. Your answers and suggestions will help us improve service. You may receive more than one survey form.

Thank you!  
Springs Transit

1. **Where did you come from before you got on this bus:** *(check only one)*
- Home
  - School/College
  - Shopping/Errands
  - Work
  - Doctor/Dentist
  - Social Visit/Recreation
  - Other *(please specify)* \_\_\_\_\_

2. **How did you get to this bus?** *(check only one)*
- Walking \_\_\_ blocks
  - Having someone drive me
  - Bicycle
  - Driving myself
  - Transfer from \_\_\_\_\_ Bus
  - Other \_\_\_\_\_ *(please specify)*

3. **Where did you board this bus?**  
Address/cross streets \_\_\_\_\_

- 3a. **How long did you wait for this bus?** \_\_\_\_\_ (# of minutes)

4. **Where are you going to now?** *(check only one)*
- Home
  - School/College
  - Shopping/Errands
  - Work
  - Doctor/Dentist
  - Social Visit/Recreation
  - Other *(please specify)* \_\_\_\_\_

5. **Where will you get off this bus?**  
Address/cross streets \_\_\_\_\_

6. **How will you get from this bus to the place that you are going?**  
*(check any that apply)*
- Walking \_\_\_ blocks
  - Having someone drive me
  - Bicycle
  - Driving myself
  - Transfer to \_\_\_\_\_ Bus
  - Other \_\_\_\_\_ *(please specify)*

7. **Was a vehicle available for you to use on this trip instead of taking the bus?**
- Yes                       No

8. **What is the zip code of your primary residence?** \_\_\_\_\_

9. **What is the average amount of time you spend on the bus for this part of your trip?**  
\_\_\_\_\_ (# of minutes)

10. **How many transfers will this trip require for you to get to your destination?**
- None                       One                       Two or more

11. **Have you previously filled out this survey?**
- Yes                       No

**If Yes, please stop here. If No, please continue and complete all questions.**

12. **I usually ride the bus \_\_\_\_\_? \_\_\_\_\_ days a week.** *(check only one)*
- One Day
  - Two Days
  - Three Days
  - Four Days
  - Five Days
  - Six Days
  - Less than Once a Month
  - One -Three Days/Month
  - This is my first time

13. **What is the most important reason you ride the bus?** *(check only one)*
- Family doesn't have a car
  - Parking is a problem
  - Bus is economical
  - Other *(please specify)* \_\_\_\_\_
  - Someone else uses car
  - I don't drive
  - Bus is convenient
  - Traffic is bad
  - Weather conditions

14. **How do you RATE your present bus service?** *(check answers below for each part)*

	Poor	Fair	Good	Very Good	Don't Know
Comfort	<input type="checkbox"/>				
Service Frequency	<input type="checkbox"/>				
Condition of Buses	<input type="checkbox"/>				
Transfer Convenience	<input type="checkbox"/>				
Schedules	<input type="checkbox"/>				
Driver Courtesy	<input type="checkbox"/>				
Bus Routes/Area Served	<input type="checkbox"/>				
Safety	<input type="checkbox"/>				
Convenience	<input type="checkbox"/>				
Evening Service	<input type="checkbox"/>				
Fares	<input type="checkbox"/>				
Overall Service Quality	<input type="checkbox"/>				

**Please Continue on Other Side**



15. Are you a licensed driver and able to drive?  Yes  No

16. How many vehicles in operating condition does your household have?

None  One  Two  Three or more

17. Sex:  Female  Male

18. Age in Years \_\_\_\_\_

19. The combined Total Annual Income of all members of my household is:

Less than \$10,000 per year  \$35,000 - \$45,000 per year  
 \$10,000 - \$25,000 per year  \$45,000 - \$55,000 per year  
 \$25,000 - \$35,000 per year  More than \$55,000 per year

20. For what purpose do you MOST OFTEN ride the bus? (check only one)

Personal Business/Errands  Shopping  
 Recreation  Work  
 School/College  
 Other (please specify) \_\_\_\_\_

21. What is your occupation?

Homemaker  Service Worker  
 Laborer  College Student  
 Managerial/Professional  Secondary Student  
 Production/Craft/Repair/Machine Operator  Technical/Administration  
 Retired  Unemployed  
 Sales  
 Other (please specify) \_\_\_\_\_

22. What is your ethnicity?

American Indian/Alaskan Native  Asian  
 Black/African American  Hispanic/Latino  
 Pacific Islander  White  
 Other (please specify) \_\_\_\_\_

23. Number of persons over 15 years of age in your household? \_\_\_\_\_

23a. Of these, how many are employed full-time? \_\_\_\_\_ part-time? \_\_\_\_\_

24. What is your primary language? \_\_\_\_\_

25. How did you first learn about Springs Transit? (check only one)

Bus stop sign  Family member  
 Saw bus  Advertisement  
 Friend/coworker  Saw bus guide  
 Other \_\_\_\_\_

26. How did you pay for this trip?

Cash  Pass  
 Transfer  Other \_\_\_\_\_

27. What are your suggestions to improve the Springs Transit service or any other comments?

**You can receive a FREE 30-day bus pass!**

28. Would you be willing to complete a one-day travel diary?

Yes  No

If yes, fill out the information below and you may be contacted to participate!

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

S P R I N G S



**THANK YOU!!**

## On-Time Performance

A vital component of any successful transit service is its ability to provide transit service on time. On time for transit is generally defined as having the bus arrive no later than five minutes after the posted time for the stop on the schedule for fixed-route service. This on-time performance definition can sometimes prove to be difficult in a flexible-route service since one never knows how much the vehicle will have to flex off-route when developing a schedule. For transit systems that use the flex-route type of service, it may be advisable to define on time as on time or 10 minutes after the scheduled time.

Once RTS has decided on the definition of on time, a goal should be set stating the acceptable percentage of on-time trips per month. For instance, a goal could be made that states RTS will strive to maintain an on-time performance ratio of 90 percent. This means that 90 percent of the time, RTS buses will be on time. The importance of an on-time performance goal is to assure that the routes and schedules are properly constructed. It is also an effective marketing tool that assures transit riders that they can rely on the bus being on time. If the service routes are unable to meet this goal, then it will be necessary to research why this goal cannot be met. Many times, schedule and route adjustments can be made that will rectify the situation.

There are several methods of gathering data to assure that RTS is meeting its on-time performance goal. One method is to conduct daily time checks where RTS supervisory staff will select a scheduled stop along a bus route and record the time the bus arrives and departs at the stop. With the Transfer Station recommended to be located at City Hall where the RTS administrative staff is located, time checks could easily be performed. Another method would be to add Automated Vehicle Locators (AVL) on each bus. The AVL uses the Global Satellite Positioning System (GPS) to allow dispatch to know where each vehicle is located. A computer software package allows for each bus with AVL to be displayed on a computer monitor and can also record timed stops.

## Financial Data

RTS does a very commendable job of gathering financial data. Developing financial performance goals is a key to assuring the community that RTS is being operated

in an efficient manner. Key performance measures to be established by RTS would be monthly reports on:

- Cost per passenger-trip
- Cost per hour
- Cost per mile
- Cost per capita

Goals should be set for each measure. It is recommended that RTS staff use national averages established by the National Transit Data base for rural or small urban area transit systems to establish the goals and to compare the efficiency of RTS service.

# Appendix A: TCRP Trip Rates

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## APPENDIX A

### TABLE 1

#### Recommended Methodology for Estimating Annual Program-Related Rural Passenger Transportation Demand (From TCRP Report 3)

---

##### D= Annual One-Way Person-Trips

##### Program Type

##### ***Developmental Services: Adult***

Participants < 25;     $D = 358 \times \text{Number of Participants}$

Participants  $\geq 25$ ;     $D = 430 \times \text{Number of Participants} - 1,686$

##### ***Developmental Services: Case Management***

$D = 39.2 \times \text{Number of Participants}$

##### ***Developmental Services: Pre-School***

$D = 224 \times \text{Number of Participants}$

##### ***Group Home***

Participants < 10;     $D = 2.05 \times \text{Number of Participants} \times \text{Days of Operation}$   
or, if the number of days of operation is not known,  
 $D = 615 \times \text{Number of Participants}$

Participants  $\geq 10$ ;     $D = (1.42 \times \text{number of Participants} + 5.94) \times \text{Days of Operation}$   
or, if the number of days of operation is not known,  
 $D = 291 \times \text{Number of Participants} + 3,760$

##### ***Headstart***

$D = 263 \times \text{Number of Participants}$

##### ***Headstart: Home Base***

$D = 0.16 \times \text{Number of Participants} \times \text{Days of Operation}$   
or, if the number of days of operation is not known,  
 $D = 30.5 \times \text{Number of Participants}$

---

**TABLE 1, continued**

**Recommended Methodology for Estimating Annual Program-Related  
Rural Passenger Transportation Demand  
(from TRCP Report 3)**

---

**D = Annual One-Way Person-Trips**

Program Type

***Headstart: Other***

D = 1.86 x Number of Participants

***Job Training***

D = 137 x Number of Participants

***Mental Health Services***

D = 347 x Number of Participants

***Mental Health Services: Case Management***

D = 6.35 x Number of Participants

***Nursing Home***

Participants < 50; D = 9.10 x Number of Participants

Participants > = 50; D = 12.5 x Number of Participants - 173

***Senior Nutrition***

D = 248 x Number of Participants

***Shelter Workshop***

D = 1.58 x Number of Participants x Days of Operation  
or, if the number of days of operation is not known,  
D = 384 x Number of Participants

---

**TABLE 2**

**Recommended Methodology for Estimating Annual Non-Program-Related  
Rural Passenger Transportation Demand**  
(from TRCP Report 3)

---

$$D = R_e E \left( \frac{1}{1 + k_e e^{-U_e}} \right) + R_m M \left( \frac{1}{1 + k_m e^{-U_m}} \right) + R_p P \left( \frac{1}{1 + k_p e^{-U_p}} \right)$$

where:

D = annual demand for Non-Program-Related passenger transportation.  
(One-Way Trips Per Year)

$R_e = 1,200$

$R_m = 1,200$

$R_p = 1,200$

E = number of persons age sixty or over.

M = number of mobility-limited persons age sixteen to sixty-four.

P = number of persons, age sixty-four or less, in families with incomes below the poverty level.  
The definition of the poverty level is that used for the 1990 U.S. Census.

$k_e = e^{6.38}$

$k_m = e^{6.41}$

$k_p = e^{6.63}$

$U_e = 0.000510 \times \frac{\text{Annual Vehicle-Miles Available to Elderly Market}}{\text{Area of the County}}$

$U_m = 0.000400 \times \frac{\text{Annual Vehicle-Miles Available to Mobility-Limited Market}}{\text{Area of the County}}$

$U_p = 0.000490 \times \frac{\text{Annual Vehicle-Miles Available to Low-Income Market}}{\text{Area of the County}}$

---

# Appendix B: Onboard Survey Questionnaire

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**Guest of Ridgecrest Transit System (RTS):**

Please take a few minutes to complete this survey during your bus ride today. Your answers and suggestions will help us improve service.

Thank you!  
The Ridgecrest Transit Team

1. **Where did you come from before you got on this bus?** (check only one)
- Home
  - School/College
  - Restaurant/Bar
  - Employment
  - Doctor
  - Other (please specify)
  - Shopping/Errands
  - Visiting/ Other Recreation \_\_\_\_\_

2. **Where did you get on the bus?** (check only one)
- Wal-Mart
  - Kmart
  - Home Depot
  - Albertsons (South)
  - Albertsons (North)
  - Ridgecrest Regional Hospital
  - Cerro Coso Community College
  - Inyokern
  - China Lake
  - Randsburg
  - Johannesburg
  - Other areas in Ridgecrest (specify address or cross streets): \_\_\_\_\_
  - Other cities/ towns (please specify): \_\_\_\_\_

3. **Where are you going on this trip?** (check only one)
- Home
  - School/College
  - Restaurant/Bar
  - Employment
  - Doctor
  - Other (please specify)
  - Shopping/Errands
  - Visiting/Other Recreation \_\_\_\_\_

4. **Where did you get off this bus?** (check only one)
- Wal-Mart
  - Kmart
  - Home Depot
  - Albertsons (South)
  - Albertsons (North)
  - Ridgecrest Regional Hospital
  - Cerro Coso Community College
  - Inyokern
  - China Lake
  - Randsburg
  - Johannesburg
  - Other areas in Ridgecrest (specify address or cross streets): \_\_\_\_\_
  - Other (please specify): \_\_\_\_\_

5. **Have you filled out this survey earlier today?**
- Yes
  - No

**If Yes, please stop here. If No, please continue and complete all questions.**

6. **How many cars are in your household?**
- 0
  - 1 car
  - 2 cars
  - 3 cars or more

7. **How many blocks are you willing to walk to catch a bus?** \_\_\_\_\_

8. **Would you prefer a system where a bus comes by at a set time?**
- Yes
  - No

9. **I usually ride the bus \_\_\_\_\_? \_\_\_\_\_ days a week.** (check only one)
- 1-2 days/week
  - 1-3 days/month
  - 3-4 days/week
  - 1-10 days/year
  - 5-6 days/week

10. **What is the most important reason you ride the bus?** (check only one)
- Family doesn't have a car
  - Someone else uses car
  - Parking is a problem
  - I don't drive
  - Traffic is bad
  - Bus is economical
  - Bus is convenient
  - Other (please specify) \_\_\_\_\_

11. **Do you have a valid Driver's License?**  Yes  No

12. **How do you rate your present bus service?** (check answers below for each part)

	Poor	Fair	Good	Very Good	Don't Know
Service Frequency	<input type="checkbox"/>				
Condition of Buses	<input type="checkbox"/>				
Response Time	<input type="checkbox"/>				
Time in Bus	<input type="checkbox"/>				

**Drivers/Operators**

Friendly/Helpful	<input type="checkbox"/>				
Courteous	<input type="checkbox"/>				
Safety	<input type="checkbox"/>				
Appearance	<input type="checkbox"/>				

**Dispatchers**

Friendly/Helpful	<input type="checkbox"/>				
Courteous	<input type="checkbox"/>				

13. **What is your gender?**  Female  Male

14. **What is your age in years?** \_\_\_\_\_

15. **The combined Total Annual Income of all members of my household is:**
- Less than \$15,000 per year
  - \$35,000 - \$45,000 per year
  - \$15,000 - \$25,000 per year
  - \$45,000 - \$55,000 per year
  - \$25,000 - \$35,000 per year
  - More than \$55,000 per year

**Please Continue on Other Side**





# Appendix C: Comments and Suggestions

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## APPENDIX C

### Q20. If new services were to be implemented, what would you recommend?

1. Bus stops.
2. Bus stops.
3. A system that they have today.
4. Anything convenient.
5. Be able to get rides to doctor same day call or emergency.
6. Better service.
7. Bi-weekly service to Lancaster; monthly service to Bakersfield. Many county services are not offered here.
8. Expanded services on Saturday.
9. Fixed-route.
10. Fixed-route for normal passengers; door-to-door for disabled riders.
11. Fixed-route to college.
12. Fixed-route to Inyokern.
13. Fixed times for pickup for regular weekly schedules.
14. Good services in RC.
15. Helpers.
16. I like it as is; am handicapped.
17. I like it the way it is.
18. Later hours!
19. Later times available.
20. Leave it alone.
21. More buses.
22. More dispatchers and phone lines so the waiting is not as long. More rides available.
23. More routes from R/C to Inyokern; bus stops maybe except senior citizens and handicap citizens.
24. Night-time service and Sunday.
25. Please come and pick me up at my house; on the route.
26. Ridgecrest to Inyoken and Trona.
27. Ridgecrest/Inyokern areas.
28. Running the bus at a set schedule with set bus stops. I think that would be better.
29. Sundays and scheduled routes.

30. Well, I don't know if it would last long. Would like it to run past 10:30 and go to Inyo about 9:15 p.m.

**Q21. What are your suggestions to improve the City Transit service?**

1. A computerized system for the dispatchers and an online service so that rides may be booked through the Internet.
2. A little more on time.
3. A mix due to special needs of handicap.
4. Be able to have my entire route/schedule made for the entire semester regular, rather than having to call weekly.
5. Better response time and pick up.
6. Bigger range of pick-up and drop-off time.
7. Bus passes for the week, not just the month.
8. Bus stops, no-shows will kill ya. Sometimes lives are busy and it's hard to get through. Sometimes the line to cancel a ride the machine does not give the #. Although I think R/C is doing just fine. The bus system is very economical and convenient. I love
9. Do all you can do and thank you!
10. Do something about the shocks or the roads.
11. Get more drivers and train them and give them a chance.
12. Have someone answer the phone at all times to arrange rides.
13. I don't like calling in appt. A lot of the times rides are booked.
14. I don't like the wait from 11:30 to the 12:15 pick up to go home, but other than that me and my kids love it. Thanks.
15. It's fine as is. You can add more buses if funds are there.
16. Keep the service implemented.
17. Later hours, get to place gotta be on time!
18. More bus drivers and set schedules.
19. More buses.
20. Need more bus service on Saturday; need more dispatchers; need to put more drivers on duty.
21. To be on time.
22. To have a bus line.
23. Two dispatchers to rectify the number of times called in and cannot get through. Today it took 45 minutes to get through,
24. Use of a passenger minivan for runs where there are handicapped passengers for greater efficiency and savings in fuel. Radio should be turned low for background music -- we don't all like sad country music.
25. We need more buses on line and services on Sunday.

**Q22. Please share any other comments:**

1. I truly appreciate the bus service and the staff.
2. It's extremely difficult to do this on a moving bus. Almost impossible to make meaningful comments in a short time and without notice. Not enough time to do this properly. People going to work should be dropped off before those going shopping/visiting. Try to limit time on bus to half an hour or less.
3. Keep up the good work!
4. My safety for my family.
5. Thank all of you and may God bless Christina. She's driving buses in heaven. How about that. Amen. You go girl
6. The drivers are wonderful and I am always treated with the highest respect. Most of the dispatchers are wonderful, but I have been treated very rudely by one of them on several occasions.

# Appendix D: Bus Stops and Shelters

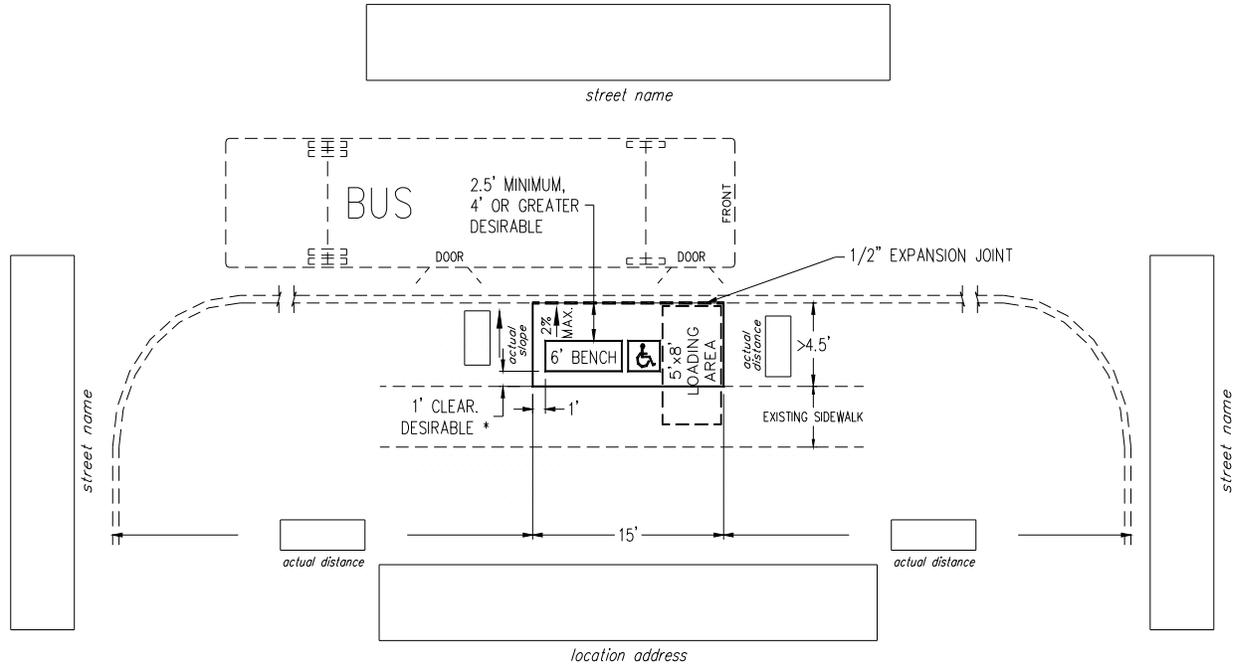
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Figure D-1

## Typical Bus Bench Placement

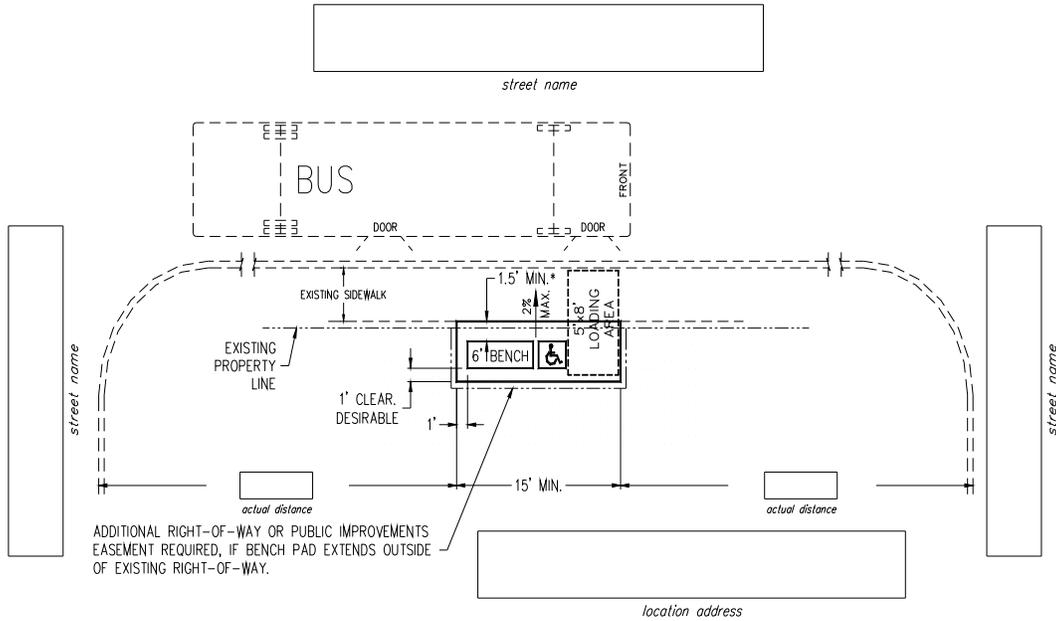
FOR BUS STOPS WITH DETACHED SIDEWALKS AND AN AREA BETWEEN CURB AND SIDEWALK GREATER THAN 4.5 FEET WIDE.



- \* IF EXISTING SIDEWALK IS ALSO A BIKE TRAIL, THEN A 3' CLEARANCE MUST BE PROVIDED
- ALL NEW SIDEWALK AND BENCH PADS SHALL BE A MINIMUM OF 4" THICK, 4000psi CONCRETE.
- BETWEEN EDGE OF SIDEWALK AND BENCH.
- ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.

## Figure D-2 Typical Bus Bench Placement

FOR BUS STOPS WITH DETACHED SIDEWALKS AND AN AREA BETWEEN CURB AND SIDEWALK LESS THAN 4.5 FEET WIDE.



ADDITIONAL RIGHT-OF-WAY OR PUBLIC IMPROVEMENTS EASEMENT REQUIRED, IF BENCH PAD EXTENDS OUTSIDE OF EXISTING RIGHT-OF-WAY.

\* IF EXISTING SIDEWALK IS ALSO A BIKE TRAIL, THEN A 3' CLEARANCE MUST BE PROVIDED BETWEEN EDGE OF SIDEWALK AND BENCH.

\*\* IF COMBINED DISTANCE OF DETACHED AREA AND EXISTING SIDEWALK IS MORE THAN 8 FEET, THEN PAD LENGTH MAY BE REDUCED TO 10 FEET.

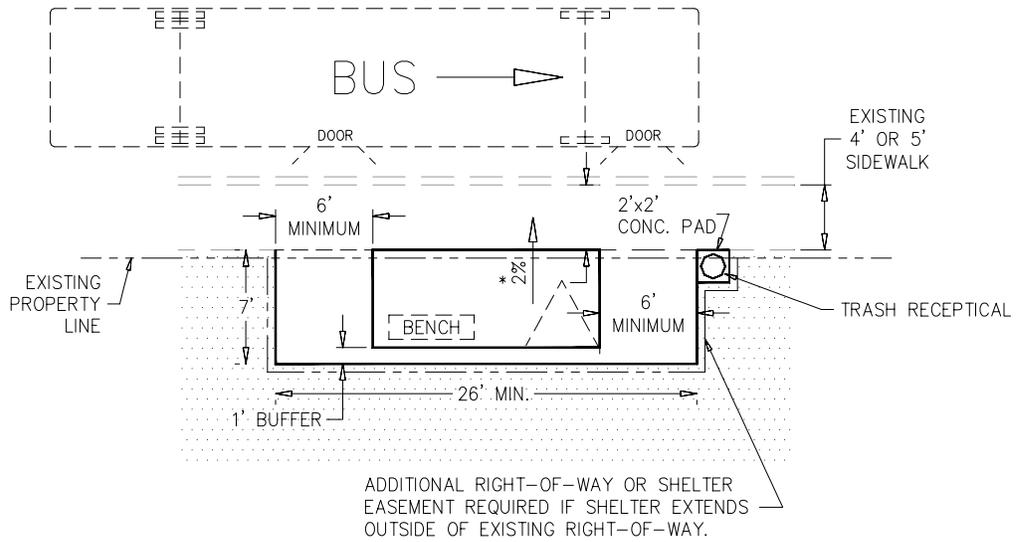
ALL NEW SIDEWALK AND BENCH PADS SHALL BE A MINIMUM OF 4" THICK, 4000psi CONCRETE.

ALL DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.

**Figure D-3**

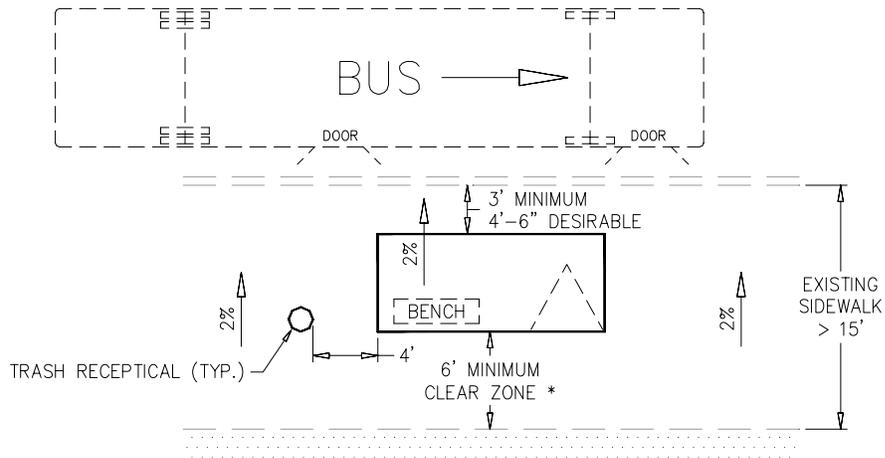
**Typical Bus Shelter General Notes**

FOR BUS STOPS WITH ATTACHED SIDEWALKS



\* MATCH EXISTING SIDEWALK WIDTH.

FOR BUS STOPS WITH ATTACHED SIDEWALKS MORE THAN 15 FEET WIDE



\* PROVIDED THAT THE SIDEWALK IS NOT ALSO A BIKE LANE OR TRAIL, IN WHICH CASE THE SIDEWALK MAY NOT BE OBSTRUCTED AND THE SHELTER WILL NEED TO BE LOCATED BEHIND THE BACK OF SIDEWALK.

Figure D-4  
Typical Bus Shelter General Notes

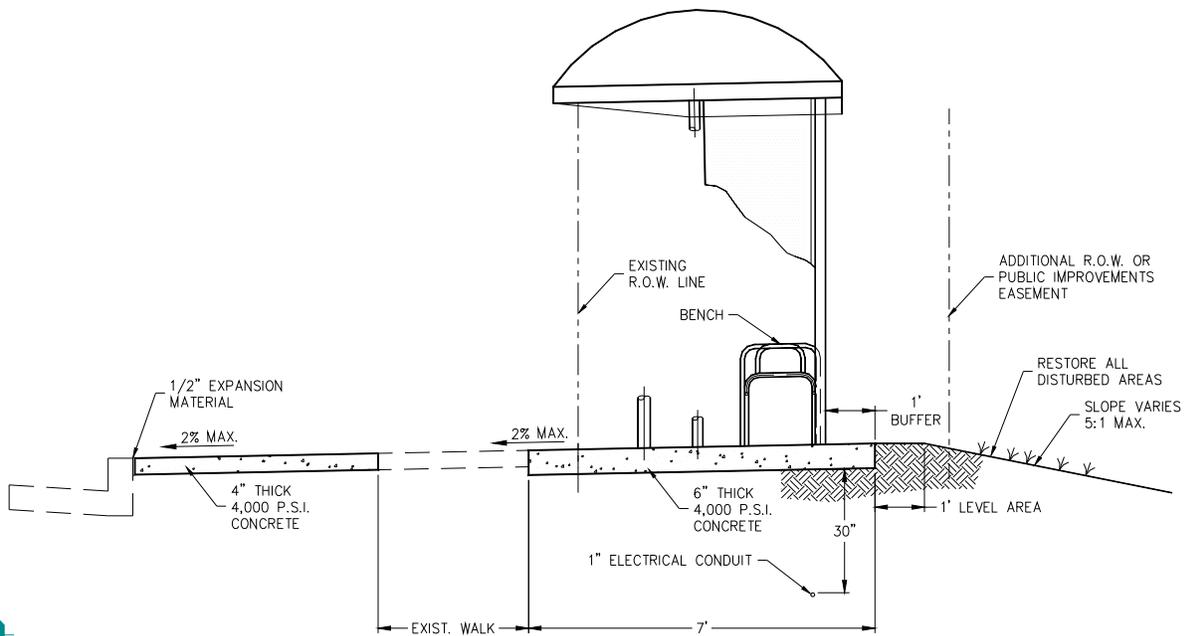
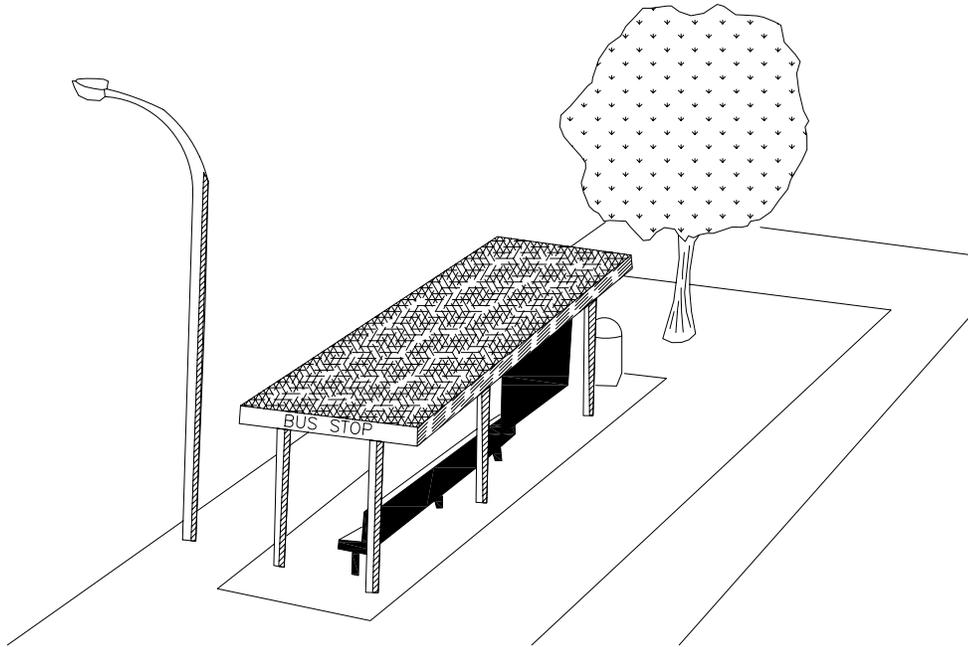
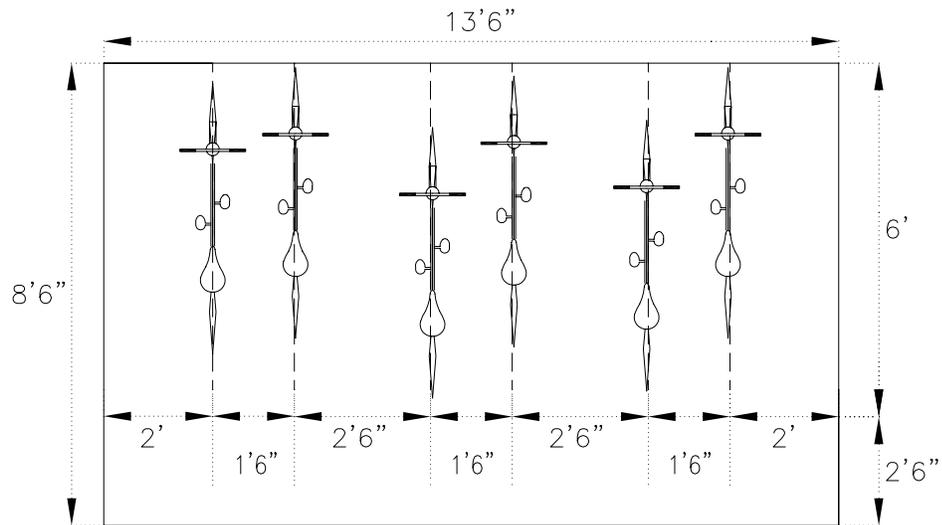


Figure D-5



**EXAMPLE OF COORDINATING BUS STOP LOCATION WITH AN EXISTING STREET LIGHT**

SOURCE: TCRP REPORT 19, *GUIDELINES FOR THE LOCATION AND DESIGN OF BUS STOPS*



**RECOMMENDED SPACE FOR PARKING SIX BICYCLES**

# Appendix E: Types of Capital Equipment and Facilities

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# Types of Capital Equipment and Facilities

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## INTRODUCTION

There are myriad capital items required to provide transit services in any area. Appendix E lists the types of capital and facilities that most transit agencies need in order to operate their service. This includes capital items required for public transit service such as vehicles, office facilities, passenger amenities, administrative computer programs, bicycle and pedestrian facilities, and advanced public transportation system technologies.

One of the principal challenges facing any transit service is developing a funding system that supports capital investment (buses, maintenance facility, etc.) and provides a stable source of revenue for operations and maintenance.

## VEHICLES

RTS's fleet ranges from a 2002 bus to a 2006 bus. The buses have an average vehicle-life of approximately four years or 100,000-150,000 miles, according to the Federal Transit Administration (FTA) guidelines. Several of the vehicles will require replacement in the upcoming years. The replacement costs are detailed in the financial plan as presented in Chapter XI.



### Bicycle Racks on Buses

The concept of bicycle racks on public buses has gained widespread acceptance and popularity in recent years, particularly in smaller transit systems. Bicycle racks are utilized as an inducement to increase transit ridership as well as to encourage non-motorized forms of transportation. A reasonable cost for a two-position, front-



mounted bicycle rack is approximately \$800 to \$1,000 per vehicle. This cost could be reduced if a local bicycling store could be recruited to provide the rack at a reduced cost.

The Los Angeles County Metropolitan Transportation Authority, for example, uses stainless steel racks that hold two bicycles each. The Central Contra Costa Transit Authority of Concord, California; Summit County Transit (Summit Stage), Colorado; and Mountain Metropolitan Transit of Colorado Springs, Colorado are currently providing front-mounted bicycle racks on their entire fleet. MET Transit in Billings, Montana has installed bicycle racks with a very positive response from the community.

The most common type of bicycle rack is placed on the front of the vehicle (so the driver can watch the loading and unloading) and has space for two or four bikes. These racks are available on a “first-come/first-served” basis and are provided with a notice indicating that the passenger is liable for all damages. Passengers must be able to load and unload their bicycles on their own. Bicycles fitted with child seats are typically prohibited from utilizing the racks as the seat could block the bus’s turn signals.



The initiation of bicycle racks on transit buses could be a good opportunity for a promotional campaign for the environmentally-friendly citizens of Ridgecrest. The only drawback to bicycle racks is the additional time necessary for loading and unloading the bicycles. Operational problems associated with use of the bicycle racks can be minimized through the development and distribution of a pamphlet regarding the correct use of the rack.

RTS currently does not have bike racks installed on their buses. An important benefit of adding bike racks to the transit fleet is that the system is able to expand the service range of the transit system without increasing operational cost of the service.

For route systems, bicycle parking at certain transit locations may need to be provided at accessible and convenient locations. The cost to install bicycle racks (for parking two bicycles) would be approximately \$150 and would vary depending on the type and design. Some transit agencies like the City of San Luis Obispo, California have installed bicycle racks for little or no cost by allowing individuals to donate bicycle racks to the city for public use. The donated bicycle rack is then installed with a dedicated plaque from the donor.

## PASSENGER AMENITIES



The “street furniture” (shelters, benches, lighting, etc.) provided by the transit system is a key determinant of the system’s attractiveness to both passengers and community residents. In addition, the “street furniture” increases the physical presence of the transit system within the community. Bus benches and shelters can play a large role in improving the overall image of a transit system and in improving the convenience of transit as a travel mode. More importantly, shelters are vital to those waiting for buses in harsh weather conditions, especially true in the City of Ridgecrest.

Adequate shelters and benches are particularly important in attracting ridership among the non-transit-dependent population—those that have cars available as an alternative to the bus for their trips. Preference should be given to locations with a high proportion of elderly or disabled passengers and areas with a high number of daily boardings. Lighting and safety issues are equally important. Lighting could range from overhead street lighting to a low-power light to illuminate the passenger waiting area.

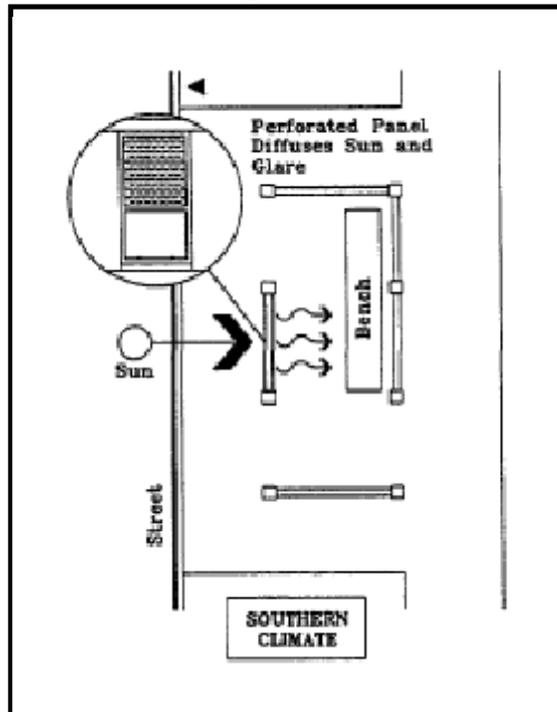
The cost of modern glass and steel shelters averages approximately \$8,000 to \$15,000 depending on type, size, and design. The maintenance and repair of vandalism to bus benches and shelters is a very minor cost. Modern benches and shelters are very durable and resistant to vandalism. Many transit agencies

have even had benches provided by advertising firms at no cost to the transit agency.

Within the City of Ridgecrest, there are a few passenger shelters. Unlike major route systems, a demand-response system (like RTS) offers limited bus shelters because passengers are picked up at their place of residence and dropped off at their requested locations. Additional shelters, transfer stations, kiosks, and benches may be needed if service in Ridgecrest moves from a demand-response system to a route system.

Another important aspect is the orientation of bus shelters, especially in extreme climates. Information about orientation and design of bus shelters is taken from TCRP Report 19, “*Guidelines for the location and Design of Bus Stops.*” This report recommends that in hot temperatures with few trees, bus shelters should not face east or west. Figure E-1 shows a bus shelter design for hot climates.

Figure E-1



As shown in the figure, perforated panels should be used to allow ventilation and prevent direct sunlight. Other suggestions include trees to reduce heat and provide shade for patrons waiting at a bus stop and incorporation of technology such as misters or evaporating towers to make passengers comfortable. The only disadvantage with incorporating such technology is that it has higher installation and maintenance costs. Appendix D details the layouts of several different types of bus stop and shelter layouts that could be used in the City of Ridgecrest.

## **ADVANCED PUBLIC TRANSPORTATION SYSTEM TECHNOLOGIES**

A key consideration in long-term planning is the impact of technological improvements that could benefit transit services. In recent years, technological research and development programs have been incorporated into the Intelligent Transportation System (ITS) concept. The application element of ITS for public transportation is known as Advanced Public Transportation Systems (APTS). RTS should look for future technologies beyond the time frame of this study. Thorough review of these technologies should be undertaken before utilizing RTS existing grants which are available for APTS.

Most of the APTS developments have come from the military and financial arenas. One such military development is the use of Global Positioning Satellites (GPS) to determine the exact location of an object through triangulation, radio frequencies, and computers. The same concepts used to track nuclear warheads and submarines and spy on other countries can be employed for other purposes, notably to improve our transportation systems. Likewise, from the financial arena, the same principles used in credit/debit cards and building security systems can be applied to the transportation field. These technologies can be utilized to monitor the people using the transit service by noting where they board, noting where they alight, debiting their fares from bank accounts, or charging their fares to the appropriate human service agency.

Several key conditions have evolved to make APTS applications more attractive. Technology has progressed to the point that the applications are finding their way into the general market. The cutting edge applications of yesterday are now relatively commonplace. Currently, APTS applications are being used in many western states and are realistic options for RTS.

Automated vehicle location (AVL) systems employ one of several means of determining the location of a vehicle. By monitoring the historical locations and demands of the vehicles, transit planners can better refine schedules and networks to optimize the workload of vehicles. Logical links to the AVL systems are real-time ride-matching and on-demand dispatching through sophisticated matching and scheduling programs. These systems function by examining where vehicles are, where the vehicles are heading, and how full the vehicles are at the time a ride request call is received. Through a series of decision trees, the computer matches the ride request to a vehicle and dispatches the ride order to the driver or, if no capacity exists on the vehicle, schedules the ride request to be filled by the first available vehicle. Providing transportation services in this flexible format may have significant and fundamental impacts on how demand-response and fixed-route services are provided.

The Regional Transportation District in Denver, Colorado has implemented an AVL system for 833 fixed-route buses and 66 supervisor vehicles at an estimated cost of \$10,400,000. The Dallas, Texas rapid transit system is installing an AVL system for a total of 844 buses, 216 commuter coaches, 245 demand-response vans, and 300 supervisor vehicles. Similar systems are being developed in Milwaukee, Wisconsin and Baltimore, Maryland. The Baltimore system will include signal preference for buses running behind schedule.

The existence of real-time dispatching and ride-matching systems creates the need for linking the public to the service. The smart traveler system concept provides a quick link by phone, kiosk, or computer to the service dispatching system. A caller would request a ride. The system would examine vehicle availability in response to the ride request, and inform the caller where and when

the rider would be met. The system may also suggest other mode choices available to the caller. The entire transaction need take only a few minutes. If an acceptable match cannot be made, the system may offer to fill the request with a taxi ride.

As an element of AVL technology, ridership data and monitoring can also be included in the database. This allows for improved tracking of ridership information such as trip purpose, origin, and destination. The information could then be used to analyze the effectiveness and efficiency of transit services over time.

These new technologies may seem quite advanced for the City of Ridgecrest. However, these developments are realistically the wave of the future for transportation systems. Such technological advancements improve transit efficiency, quality of service, and service for all types of public transportation in urban and rural areas.

# Appendix F: Funding Sources

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## APPENDIX F

# Funding Sources

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The purpose of this appendix is to list the potential funding categories that RTS could use to fund and operate the transit service in Ridgecrest. Successful transit systems are strategic about funding and attempt to develop funding bases that enable them to operate reliably and efficiently within a set of clear goals and objectives according to both long-range and short-range plans. Potential strategies for funding the transit services in Ridgecrest area are described below.



### CAPITAL FUNDING

The transit system for this region will require capital funding for bus fleet procurement and for bus stops and shelters. The following strategies for funding capital development should be considered.

- Federal funding (along with any state matching funds) should be maximized, both within the existing Federal Transit Administration (FTA) Sections 5310 and 5311 programs and through pursuit of discretionary grants from the FTA channels and direct Congressional earmarked funding. Small transit systems often underachieve their potential for federal grant assistance because they assume they cannot compete in that arena. Close coordination with the California Department of Transportation will help the transit systems be aware of funding opportunities and compete for funding.
- In general, the best use of federal discretionary grant funding is for capital needs since this is a highly speculative source of money that requires extensive political effort at a level that is feasible only as a one-time or occasional undertaking.
- Planning for capital facilities should take into account long-range system development needs. Many transit systems outgrow their facilities quickly and face costly relocation and expansion needs because of inadequate space or other constraints.

- The transit financial management system should include specific provisions for fleet replacement and other capital investments. A sinking fund for capital replacement should be established, and some amount of money from local funding sources should be set aside annually based upon a recapitalization plan. Note that buses and certain other capital facilities purchased with federal participation (80 percent under SAFETEA-LU) are also eligible for federal participation for replacement costs once the buses and facilities reach maturity (as defined in the FTA rules).

## OPERATIONS AND MAINTENANCE FUNDING



Over time, the primary financial requirement of a local or regional transit system will be funding the routine operations and maintenance—including daily transit service, vehicle maintenance, and system administration. Labor represents about 75 percent of the costs for running a transit system, with the majority of that amount going to drivers' salaries. The following strategies for funding operations and maintenance should be considered.

- Reliance on general fund appropriations from local governments should be avoided, if possible. It is common for local and regional transit agencies in many states, including California, to be dependent upon the annual appropriations from their constituent towns, cities, and counties. As a practical matter, such appropriations mean that it will not be possible to forecast future funding levels given the exigencies of local government funding. A transit agency that relies upon such appropriations will be unable to undertake capital planning and will continually face potential service cutbacks. This, in turn, makes it difficult or impossible for the transit agency to enter into partnership arrangements with other agencies or private entities. Transit agencies, like highway agencies, require that most or all of their operations and maintenance funding come from dedicated sources so that they can undertake responsible planning and offer reliable, consistent service.
- Operations and maintenance funding mechanisms should be designed to anticipate transit system growth. Successful rural and small urban transit systems around the United States are experiencing annual growth in ridership. It is important to be able to respond to such growth by increasing the service levels to meet the demand. This means that the ideal funding sources for operations and maintenance are those that have the flexibility to be increased or expanded as demand grows. Such flexibility will, in most cases, require voter approval. The important consideration is that the need for growth has been anticipated, and the potential for larger budgets is not precluded by the choice of a source of funding.

## **OVERALL SERVICE CONSIDERATIONS**

There are also a few overarching considerations in developing a coherent transit system funding strategy including:

- Issues of funding and service equity are of paramount importance in designing a strategy for future funding. Informal systems based upon annual appropriations, as well as systems without specific accounting for the distribution of costs and benefits, struggle with the local elected bodies to find acceptable allocations of cost responsibility. This can become a significant barrier to transit system establishment and, later, to system growth.
- The strongest regional transit systems are those that make extensive use of partnerships. Examples include partnerships with private companies, national parks, other major public facilities, and adjacent jurisdictions. Partnership arrangements enable a transit system to broaden its base of beneficiaries, expand its funding source alternatives, achieve better governance, and improve public support.

## **POTENTIAL LOCAL AND REGIONAL FUNDING SOURCES**

In California, statutory municipalities and counties have the power to fund transit according to a state statute. The principal funding sources for local and regional transit systems in California are described below.

### **General Fund Appropriations**

Counties and municipalities may appropriate funds for transit operations, maintenance, and capital needs. Money to be appropriated generally comes from local property taxes and sales taxes. Competition for such funding is high and local governments generally do not have the capacity to undertake major new annual funding responsibilities for transit.

### **Advertising**

One modest but important source of funding for many transit agencies is on-vehicle advertising. The largest portion of this potential is for exterior advertising, rather than interior “bus card” advertising. The potential funds generated by advertising placed within the vehicles are comparatively low. Advertising on bus shelters has also been used to pay for the cost of providing the shelter. Some systems have used full bus “wraps” as a means of generating significant revenue.

## **Voluntary Assessments**

The voluntary assessments alternative requires each participating governmental entity and private business to contribute to the funding of the transit system on a year-to-year basis. This alternative is common with transit agencies that provide regional service rather than service limited to a single jurisdiction. The main advantage of voluntary assessment funding is that it does not require voter approval. However, the funding is not steady and may be discontinued at any time.

## **Private Support**

Financial support from private industries could assist in providing adequate transportation services in the Ridgecrest area. The major employers in the Ridgecrest area are potential sources of revenue. Many firms may be willing to help support the cost of alternative fuel vehicles or the operating costs for employee transportation.

## **Transportation Impact Fees**

Traditional methods of funding the transportation improvements required by new development raise questions of equity. Sales taxes and property taxes are applied to both existing residents and new residents attracted by the development. However, existing residents then inadvertently pay for the public services required by the new residents. As a means of correcting this inequity, many communities nationwide (faced with strong growth pressures) have implemented development impact fee programs that place a fee upon new developments equal to the costs imposed on the community.

Previous work by LSC indicates that the levy of impact fees on real estate development has become a commonplace tool in many regions, to ensure that the costs associated with a development do not fall entirely upon the existing residents. Impact fees have been used primarily for highways and roadways, followed by water and sewer projects. A program specifically for mass transit has been established in San Francisco. However, this is not a likely source for transit funding in rural California.

A number of administrative and long-term considerations must be addressed:

- It is necessary to legally ensure that the use on which the fees are computed would not change in the future to a new use with a high impact by placing a note restricting the use on the face of the plat recorded in public records.
- The fee program should be reviewed annually.
- The validity of the program, and its acceptability to the community, is increased if a time limit is placed on the spending of collected funds.
- TIF funds need to be strictly segregated from other funds.
- The imposition of a TIF program could constrain capital funding sources developed in the future, as a new source may result in a double payment.
- TIF fees should be collected at the time that a building permit is issued.

## **Hotel Bed Tax**

The appropriate use of lodging taxes (occupancy taxes) has long been the subject of debate. Historically, the bulk of lodging taxes are used for marketing and promotion efforts for conferences and general tourism. In other areas, such as resorts, the lodging tax is an important element of the local transit funding formula. A lodging tax can be considered a specialized sales tax placed only upon lodging bills. As such, it shares many of the advantages and disadvantages of a sales tax. Taxation of this type has been used successfully in Park City, Utah; Sun Valley, Idaho; Telluride, Colorado; and Durango, Colorado. A lodging tax creates inequities between different classes of visitors as it is only paid by overnight visitors. The day visitors (particularly prevalent in the summer) and condominium/second home owners, who may use the transit system as much as the lodging guests, do not contribute to this transit funding source.

## **Sales Tax**

A sales tax could be held with funds to go to transit services. Sales tax is the financial base for many transit services in the western United States. The required level of sales tax would depend upon the service alternatives chosen. One advantage is that sales tax revenues are relatively stable and can be forecast with a high degree of confidence. In addition, sales tax can be collected efficiently, and it allows the community to generate revenues from visitors in the area. This source, of course, would require legislative approval and a vote of the people to implement. In addition, a sales tax increase could be seen as inequitable to residents not served by



transit. This disadvantage could be offset by the fact that sales taxes could be rebated to incorporated areas not served by transit. Transit services, moreover, would face competition from other services which may seek to gain financial support through sales taxes.

### **Local College Funding**

A strategy successfully applied in several similar cities to generate transit revenues from campus communities is to levy a student activity fee for transit services or an established amount from the college general fund. An activity fee would have to be approved by a majority of students and would be applied each semester or quarter of school. The small size of Cerro Coso Community College and the number of students with vehicles indicate that this is an unlikely source of significant funding in the City of Ridgecrest.

### **Regional Public Transportation Authority**

This was established by the state legislature. This organization was given taxing authority through the legislation. Although this structure could be established for the Ridgecrest area, it would require state legislation to do so. The advantages of the structure are that it has dedicated funding, is legitimized by the state government, and operates independently of the local governments. The independent nature of the organization may also be seen as a major disadvantage by the local governments and citizens who would see it as an additional taxing authority.

## **FEDERAL TRANSIT FUNDING SOURCES**

Through SAFETEA-LU, the federal government has substantially increased the transit funding levels for small urban and rural areas. In addition, changes in program requirements have provided increased flexibility regarding the use of federal funds. Following are discussions of the federal transit funding programs available for which the City of Ridgecrest is eligible.



In addition, there are two newer funding categories: New Freedom funding and the FTA Section 5340 program. The New Freedom program is designed to provide public transportation services to disabled individuals beyond what is

required by the Americans with Disabilities Act of 1990. FTA Section 5340 is designed to accommodate the growth factor and high-density factor and consists of two components. The first component (50 percent) of the funds is apportioned based on the state population forecast of 15 years from the most recent census. That amount is then distributed to rural and urban populations within those states. The second component (50 percent) of the funds is apportioned to states with population densities above 370 persons per square mile. That amount is then distributed to only urbanized populations within those areas.

### **FTA Section 5311 - Public Transportation for Rural Areas**

FTA funding for rural areas is currently provided through the Section 5311 program. A 20 percent local match is required for capital expenditures, and a 50 percent local match is required for operating expenditures. These funds are segmented into “apportioned” and “discretionary” programs. The bulk of the funds are apportioned directly to rural counties based upon population levels. This program has historically been the source of FTA funds for many rural areas within California. California received \$20 million annually in FY2007 from the FTA Section 5311 program.

### **FTA Section 5312 - Research, Development, Demonstration, and Training Projects**

The FTA Section 5312 program provides funding for research, development, demonstration, and training projects. The Secretary of Transportation may provide grants or contracts that will help reduce urban transportation needs, improve mass transportation service, or help mass transportation service meet the total urban transportation needs at a minimum cost. The Secretary of Transportation may also provide grants to nonprofit institutions of higher learning to conduct research and investigation into the theoretical or practical problems of urban transportation and to train individuals to conduct further research or obtain employment in an organization that plans, builds, operates, or manages an urban transportation system. The grants may be provided to state and local governmental authorities for projects that will use innovative techniques and methods in managing and providing mass transportation.

## **FTA Section 5319 - Bicycle Facilities**

The FTA Section 5319 program provides funds for improved bicycle access to mass transportation facilities or for bicycle shelters and parking facilities in or around mass transportation facilities. The FTA Section 5319 program provides funding for 90 percent of the project cost, with some exceptions. The installation of equipment for transporting bicycles on mass transportation vehicles is a capital project that is eligible for assistance under the FTA Section 5309 and 5311 programs.

## **Transit Benefit Program**

The transit benefit program is a provision within the Internal Revenue Code (IRC) that permits an employer to pay for an employee's cost to travel to work in other than a single-occupancy vehicle. The program is designed to improve air quality, reduce traffic congestion, and conserve energy by encouraging employees to commute by means other than single-occupancy motor vehicles. Under Section 132 of the Internal Revenue Code, employers can provide up to \$110 per month to those employees who commute to work by transit or vanpool. A vanpool vehicle must have a seating capacity of at least six adults, not including the driver, to qualify under this rule. The employer can deduct these costs as business expenses. Employees do not report the subsidy as income for tax purposes since the subsidy is considered a qualified transportation fringe benefit.

Under SAFETEA-LU, the transit benefit program has become more flexible. Prior to TEA-21, the transit benefit program could only be provided in addition to the employee's base salary. With SAFETEA-LU, the transit benefit program may be provided as before or can be provided in lieu of salary. In addition, the program may be provided as a cash-out option for employer-paid parking for employees. To summarize, the transit benefit program may not necessarily reduce an employer's payroll costs. Rather, it enables employers to provide additional benefits for employees without increasing the total payroll expenses.

## **Job Access and Reverse Commute Program (FTA 5316)**

The job access and reverse commute (JARC) program, funded through SAFETEA-LU, has an emphasis on using funds to provide transportation within

rural areas that currently have little or no transit service. The list of eligible applicants includes states, metropolitan planning organizations, counties, and public transit agencies, among others. A 50 percent non-Department of Transportation match is required, but other federal funds may be used as part of the match. FTA gives a high priority to applications that address the transportation needs of areas that are unserved or underserved by public transportation. According to SAFETEA-LU, JARC funding is now a competitive process at the state level and not at the federal level. Any transit provider that wishes to receive JARC funding now has to develop a state application.

### **Congestion Mitigation Air Quality (CMAQ) Funding**

The CMAQ program—jointly administered by the FHWA and the Federal Transit Administration (FTA)—was reauthorized in 2005 under the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The SAFETEA-LU CMAQ program provides over \$8.6 billion dollars in funds to State DOTs, MPOs, and transit agencies to invest in projects that reduce criteria air pollutants regulated from transportation-related sources over a period of five years (2005-2009). The current CMAQ program is similar to its TEA-21 predecessor. Funding is available for areas that do not meet the National Ambient Air Quality Standards (nonattainment areas) as well as former nonattainment areas that are now in compliance (maintenance areas). The formula for distribution of funds—which considers an area’s population by county and the severity of its ozone and carbon monoxide problems within the nonattainment or maintenance area, with greater weight given to areas that are both carbon monoxide and ozone nonattainment/maintenance areas—is continued.

The SAFETEA-LU requires states and MPOs to give priority in distributing CMAQ funds to diesel engine retrofits and other cost-effective emission reduction and congestion mitigation activities that provide air quality benefits. SAFETEA-LU also requires the Secretary to evaluate and assess the effectiveness of a representative sample of CMAQ projects to determine the direct and indirect impact of the projects on air quality and congestion levels, and to ensure the effective implementation of the program.

## **Transportation and Community System Preservation Program**

The transportation and community system preservation program is funded by the Federal Highway Administration to provide discretionary grants for developing strategic transportation plans for local governments and communities. The goal of the program is to promote livable neighborhoods. Grant funds may be used to improve the safety and efficiency of the transportation system; reduce adverse environmental impacts caused by transportation; and encourage economic development through access to jobs, services, and centers of trade.

## **Other Federal Funds**

A wide variety of other federal funding programs provide support for transportation programs. Some of these are currently being utilized in the region and others can be explored further including the following:

### Surface Transportation Program (STP)

The funds from this program may be spent on any road that is functionally classified as a Collector or Arterial for urban streets or as a Major Collector or Arterial for rural areas. The type of projects may range from rehabilitation to new construction. These funds may also be used for transit capital projects, vehicles, and bus terminal facilities. The City of Ridgecrest could be eligible for this source of funding.

### Older Americans Act

Through the Administration on Aging's Title III-B program, funds are awarded on a formula basis to state and area agencies on aging for the purpose of providing supportive services for older persons, including the operation of multi-purpose senior centers. Many area agencies on aging use these funds to help meet the transportation needs of older persons.

### Department of Commerce, Economic Development Administration

Grants support capital facilities in economically-distressed areas, including transportation facilities and infrastructure improvements. Funds also are available for planning and adjustment assistance in communities experiencing severe economic deterioration. Public bodies and private nonprofit organizations are eligible applicants.

### Supportive Housing for Persons with Disabilities

This Department of Housing and Urban Development, Office of Housing program helps private nonprofit entities provide housing and necessary supportive services for low-income persons with disabilities. Transportation is among the supportive services that may be funded through this program.

### Supportive Housing Program

The Supportive Housing Program provides a broad range of assistance for housing and related services for homeless persons. Transportation to link supportive housing residents with other necessary services may be funded. State and local governments, private nonprofit agencies, and community mental health associations are eligible to apply.

### Office of Public Housing, Public Housing Drug Elimination Program

The Public Housing Drug Elimination Program (DEP) provides grants to reduce drug-related crime and criminal activities in and around public housing developments. Funds may be used to support transportation activities or services to reduce the incidence of drug-related crime and other criminal activities. Public and Indian housing authorities are eligible applicants.

### Resident Opportunities and Self-Sufficiency Program

Known as ROSS, this program links public housing residents to needed services by providing grants for supportive services, resident empowerment activities, and activities that assist residents in becoming economically self-sufficient. Transportation-related activities and services are allowable uses of this program's funds.

### Department of Justice Weed and Seed Program

This program seeks to combat violent crime through a multi-faceted approach of crime prevention and community improvement strategies, including the improvement of facilities and services (such as those related to transportation) in high-crime areas. Much of Weed and Seed's activity is the provision of training and technical assistance to areas seeking to implement these strategies. In addition, the program funds local efforts being carried out by coalitions of community groups, local governments, and US Attorneys' offices.

### Senior Community Service Employment Program

This program, authorized by Title V of the Older Americans Act, provides formula grants to states and grants to national nonprofit organizations for subsidized employment and related services for low-income elders. Transportation is among the services provided through this program.

### Workforce Investment Pilot and Demonstration Programs

This is a program of demonstrations and innovations in providing job training services. Particular emphases are to initiate pilot projects operating in more than one state and to serve groups with particular labor market disadvantages. Transportation services that are part of these projects can be supported.

### Workforce Investment Act Programs

The Workforce Investment Act (WIA) provides funding to state and local workforce development agencies for a variety of youth, adult, and dislocated worker employment and training services. States may use these funds to help provide transportation to training programs for program participants. State employment and training agencies receive these funds, which then are passed on to area workforce development boards, who allocate program resources according to local workforce development plans.

### Veterans' Employment and Training Service, Homeless Veterans' Reintegration Project

This is a program of discretionary grants to local public and private nonprofit organizations to provide employment and training services that help urban and rural homeless veterans re-enter the workforce. Funds may be used to provide transportation, outreach, and other support services.

## Department of Education, Federal TRIO Programs

TRIO is a program of outreach and support targeted to help disadvantaged students progress from middle school to college. TRIO's Student Support Services program provides supportive services to disadvantaged college students with the goal of helping these students successfully complete their studies. Grants are awarded to institutions of higher education, which then may provide a broad range of supportive services (including services to help students with disabilities overcome transportation or other access barriers) to eligible students.

## Vocational Rehabilitation Grants

Vocational rehabilitation funds are distributed to state rehabilitation agencies on a formula basis to provide a full range of rehabilitative services. Funds may be used for transportation to these services.

## Centers for Independent Living

This program provides support to local nonprofit centers for independent living, enabling them to provide training, counseling, advocacy, and supportive services to individuals with significant disabilities. Transportation services are provided through this program. These funds are only awarded to local nonprofit centers.

## Temporary Assistance for Needy Families

States receive these formula grants, known as TANF, to provide cash assistance, work opportunities, and necessary support services for needy families with children. States may choose to spend some of their TANF funds on transportation and related services needed by program beneficiaries.

## Head Start

Head Start is a program of comprehensive services for economically-disadvantaged preschool children. Funds are distributed to local public and nonprofit agencies to provide child development and education services, as well as supportive services such as transportation. Head Start funds are used to pro-

vide transportation services, acquire vehicles, and provide technical assistance to local Head Start centers.

### Developmental Disabilities Basic Support and Advocacy Grants

This program provides formula grants to state agencies serving the developmentally-disabled for the purpose of enabling persons with developmental disabilities to become fully integrated into their communities. Funds are used to support the activities of state developmental disabilities planning councils, and to provide a variety of support services, including transportation.

### Social Services Block Grants

Also known as Title XX, this program provides formula funds to state welfare agencies to provide social services, including transportation services, that help individuals reduce welfare dependency, achieve self-sufficiency, or forestall unnecessary use of institutional care. Since the advent of welfare reform in 1996, there has been a decline in federal support for this program.

### Community Health Centers

This program supports primary health care centers in medically-underserved areas, migrant communities, public housing sites, and at organizations providing medical care to homeless persons. Funds may be used to provide transportation services as necessary to provide health care services. Private nonprofit and public health agencies are eligible applicants.

### Rural Health Outreach and Research

Funds are provided for demonstration grants to expand or enhance the availability of health services in rural areas, and for applied research in the field of rural health services. Transportation services that improve the availability of rural health care can be funded through this program. Public agencies and private nonprofits are eligible applicants.

### Medicaid

Medicaid is a program of medical assistance for qualified low-income persons and persons with disabilities. Under this program, states are required to arrange for transportation of beneficiaries to and from medical care. Individual

states determine how transportation costs are to be paid and which transportation providers are eligible program participants.

### Corporation For National Service, National Senior Service Corps

The National Senior Service Corps provides volunteer and community service opportunities for older persons through three programs—the Foster Grandparent Program, the Retired Senior Volunteer Program, and the Senior Companion Program. In each of these, program funds may be used to support the transportation needs of program participants.

## **FUNDING SUMMARY**

Experience with transit systems across the nation underscores the critical importance of dependable (preferably dedicated) sources of funding if the long-term viability of transit service is to be assured. Transit agencies that are dependent upon annual appropriations and informal agreements have suffered from reduced ridership (because passengers are not sure if service will be provided from one year to the next), high driver turnover (contributing to low morale and a resulting high accident rate), and inhibited investment in both vehicles and facilities. Such transit agencies include those in Teton County, Wyoming and Prowers County (SEATS), Colorado.

The advantages of financial stability indicate that a mix of revenue sources is prudent. The availability of multiple revenue sources helps to avoid large swings in available funds which can lead to detrimental reductions in service. As the benefits of transit service extend over more than one segment of the community, dependence upon more than one revenue source helps to ensure that costs and benefits are equitably allocated.

State funding in California is potentially a significant source of revenue. Federal funds are limited, although the current trend is a small to large annual increase depending on the state. A strong local transit funding source is needed to allow the many plans and proposals for transportation improvements to reach implementation with an assurance of ongoing operating funding. Though all of the options regarding local funding have drawbacks and restrictions, it is clear that

a hybrid of these alternatives will be necessary if the short-term and long-range goals of the transit system and the community are to be met.

At is time RTS is mostly funded by local resources. The point of the above information is to list the existing funding resources that RTS and the City of Ridgecrest could tap into in order to fund transit services. At present, based on FTA grant funding requirements, Ridgecrest is over matched for operational dollars for 5311. Therefore there is the potential to receive additional 5311 operational funding. RTA would have to work with the Kern Council of Governments and Caltrans to see the level of future FTA funds for which RTS could be eligible.

# Appendix G: Sample Ads

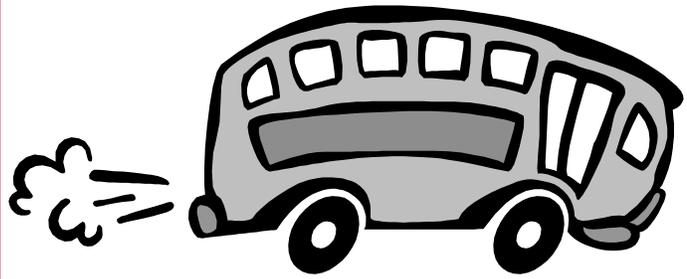


**Beware of**



**THE EXPRESS**

**THE EXPRESS**



## The Express is on its way!!!

County Express is changing its image. The bus service will further be known simply as *The Express* and will continue to efficiently and effectively serve the northeastern Colorado Region with an alternative transportation option to driving your own car. The Express is available to all persons and charges a small fee for rides.

GIVE THE EXPRESS A CALL FOR YOUR NEXT RIDE....

PHONE: 1-866-734-6666

WWW.THEEXPRESS.ORG

## LOCAL NEWS RELEASE

TITLE: SHOPPER SPECIAL  
MUSIC: AS SELECTED

Do a good deed and take a friend shopping. That's today's advice from The Express, where a special shopper shuttle makes it attractive to follow up on that suggestion. Larry Worth announced today that a two-for-the-price of one policy for shoppers will be in effect all during the month of December. Bus service to the downtown area of both Sterling and Fort Morgan is expected to increase the number of riders as a result of the **two-for-one fare**.

The shopper special is not restricted to shoppers, but will be available for any bus rider. "We want to encourage bus use by shoppers because of its convenience during the Holiday season," said Larry. "But that does not mean that only shoppers will benefit from the reduced price. Anyone can bring a friend for free during this 'sale!'"

The shopper special promotion is one of a number of creative marketing steps by the transit system in recent month. Larry said that public transportation must be marketed like any other product. Figures for the transit system show an increase in ridership of % during the last fiscal year. Larry is optimistic that further growth will continue as a result of such promotions as the shopper special.

## THE EXPRESS

The Express  
231 Main Street  
Fort Morgan, Colorado 80000

Phone: 555-555-5555  
Fax: 555-555-5555  
E-mail: someone@example.com

THE EXPRESS

## LOCAL RADIO AD

TITLE: MANY REASONS  
MUSIC: AS SELECTED

- ANNCR: Lots of people are using The Express...here's who...
- **Voice 1: When I'm going to work...**
- **Voice 2: Going to school...**
- **Voice 1: When I go shopping in Sterling...**
- **Voice 2: To save myself gas... \$2 a gallon ugh, I can't afford that and maintenance costs.**
- **Voice 1: After band practice...**
- **Voice 2: When it's snowing, I have to protect my truck.**
- **Voice 1: To save money on car expenses.**
- **Voice 2: When my car always breaks down.**
- **Voice 1: To visit my daughter.**
- **ANNCR: There are many reasons to ride the Express. Depend on the bus for your next trip.... Try it once, I dare you... You might even find that you like it.**
- **Voice 1: .**
  
- **ANNCR: Call 1-888-888-8888 for your transportation needs. The Express can get you there cheaply and quickly. Call now for details.**

### THE EXPRESS

The Express  
231 Main Street  
Fort Morgan, Colorado 80000

Phone: 555-555-5555

Fax: 555-555-5555

E-mail: someone@example.com

THE EXPRESS

## LOCAL RADIO AD

TITLE: THE BALL GAME  
MUSIC: LOCAL FIGHT SONGS

- **Voice 1: Oh No!!! The Battery's dead and the games about to start in Sterling!**
  - **Voice 2: Let's call your dad.**
  - **Voice 1: He's working.**
  - **Voice 2: Call Brad.**
  - **Voice 1: We're not speaking.**
  - **Voice 2: We could try to catch a ride with someone.**
  - **Voice 1: Everyone is already gone.**
  - **Voice 2: Let's call the bus that we see around town.**
  - **Voice 1: The Express, I'm not sure about riding in a bus to the game.**
  - **Voice 2: Common, it'll be fine, and we *have to get there*.**
  - **Voice 1: Everyone is already gone.**
  - **Voice 2: Let's call the bus that we see around town.**
  - **Voice 1: The Express, I'm not sure about riding in a bus to the game.**
  - **Voice 2: Common, it'll be fine, and we *have to get there*.**
  - **Voice 1: Okay, call them, but can we put our pom-poms out the window?**
  - **Voice 2: No, it's a public bus, not a *PEP bus*.**
- 
- **ANNCR: Call 1-888-888-8888 for your transportation needs. The Express can get you there cheaply and quickly, and maybe the driver will let you hang out the window...I doubt it though.**

### THE EXPRESS

The Express  
231 Main Street  
Fort Morgan, Colorado 80000

Phone: 555-555-5555  
Fax: 555-555-5555  
E-mail: someone@example.com

THE EXPRESS

## LOCAL RADIO AD

TITLE: CAR WON'T START  
MUSIC: AS SELECTED

- **Voice 1:** Larry, what are you doing back at work? I thought you went home.
- **Voice 2:** I tried to, the car won't start.
- **Voice 1:** Are you going to call your wife?
- **Voice 2:** Nope.
- **Voice 1:** What are you going to do, then?
- **Voice 2:** I'm gonna call The Express and ride the bus. You can depend on that at least, it always runs.
- **ANNCR:** For dependable transportation, you can't beat the bus. It's clean, comfortable, and convenient, and its low cost too. All day, rain or shine...when it's time to go to work, to school, or anywhere, anytime, just call The Express and get on the bus and ride. Call The Express at 1-888-888-8888 from anywhere in Morgan, Logan, Philips, Sedgwick, Washington or Yuma Counties.

### THE EXPRESS

The Express  
231 Main Street  
Fort Morgan, Colorado 80000

Phone: 555-555-5555  
Fax: 555-555-5555  
E-mail: someone@example.com