California State Rail Plan

2001-02 to 2010-11

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California Department of Transportation

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EXECUTIVE SUMMARY

PART I. – PASSENGER RAIL ELEMENT

CHAPTER I - INTRODUCTION

Government Code Section 14036 requires the California Department of Transportation (the Department) to complete a 10-year State Rail Plan with both passenger and freight rail elements. The law also requires that the State Rail Plan be updated every two years. The passenger rail element of the *California State Rail Plan 2001-02 to 2010-11* (the State Rail Plan) is an examination of intercity passenger rail transportation in California. This element reviews the current operations of State-supported intercity rail passenger service and outlines 10-year plans for the period 2001-02 through 2010-11 for capital improvements and service expansions. The passenger rail element is covered in Part I (Chapters I through VIII) of the State Rail Plan; the freight rail element is contained in Part II, which begins with Chapter IX.

Public Participation

The October 2001 draft of the State Rail Plan was submitted to the California Transportation Commission, as required by State law. The passenger rail element of the State Rail Plan was also reviewed by the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency (LOSSAN), the San Joaquin Valley Rail Committee, the Capitol Corridor Joint Powers Authority (CCJPA), the Coast Rail Coordinating Council and the Regional Transportation Planning Agencies. Two public meetings were held statewide in August 2000, in Oakland and Los Angeles, to review the freight rail element.

The Department's Vision for Intercity Rail

This was developed in 1998 and includes the following elements:

- Provide a rail transportation alternative to other travel modes.
- Provide relief to highway and airway congestion.
- Improve air quality, conserve fuel, and contribute to efficient and environmentally superior land use.

Chapter I of the State Rail Plan establishes standards for the achievement of the Department's 10-year goals in terms of congestion relief, air quality, energy efficiency and improved land use.

Amtrak's California Rail Passenger 20-Year Plan

With the publication of Amtrak's *California Passenger Rail System 20-Year Improvement Plan* (the Amtrak Plan) in March 2001, Amtrak's blueprint for a comprehensive passenger rail system in California was created. The Amtrak Plan was developed with the involvement of four task forces, one for

each intercity corridor, including the Pacific Surfliners, San Joaquins, Capitol Corridor and the proposed Coast Route.

Interregional Strategic Planning

The Department's *Interregional Transportation Strategic Plan* (ITSP) is the strategic planning document for interregional capital projects, and is the framework for implementing the Department's interregional transportation funding program. It relies heavily upon the State Rail Plan for its intercity rail portion.

Statewide Rail Assessment

Chapter 597, Statutes of 2001 (AB 1706 - Committee on Transportation), provides for the Department, in conjunction with the Office of Planning and Research, to conduct a statewide rail transportation assessment, incorporating both a passenger and a freight rail systems portion. The assessment will be submitted to the Legislature by October 1, 2002. It will examine rail interconnectivity, identify track congestion, report on plans for capital projects, and examine the cost-effectiveness of current funding for rail projects. Stakeholder committees will be formed to facilitate input on the assessment from public and private entities.

CHAPTER II - THE CALIFORNIA RAIL NETWORK

The State's Role in Rail Passenger Service

The State supports three intercity rail routes: the Pacific Surfliner between San Diego and San Luis Obispo, the San Joaquin between Oakland/Sacramento and Bakersfield, and the Capitol Corridor between San Jose and Auburn. Intercity services are components of the State's overall transportation system. Services intended to meet primarily local needs are developed as commuter and urban rail services rather than intercity. In California, Amtrak currently operates all State-supported intercity rail service under the provisions of the Federal Rail Passenger Service Act (49 U.S.C. 24101).

Relationship to Freight Rail Services

Most rail lines in California are owned and operated by private freight railroad companies, such as the Burlington Northern and Santa Fe (BNSF) and Union Pacific (UP). Upon request of Amtrak (for intercity rail passenger service) and local or regional entities (for commuter rail passenger service), these freight railroads enter into contracts to permit operation of rail passenger services on their lines. They are compensated by Amtrak and other public entities under the provisions of the applicable operating contracts.

CHAPTER III - FUNDING AND CAPITAL

Intercity Rail Funding

Public Transportation Account (PTA). The PTA is the exclusive source of intercity rail operating funds and a potential source of intercity rail capital funds. The 2001-02 Budget includes $91 million in PTA funds for track improvements on all three State-supported routes.

State Highway Account (SHA). The bulk of the SHA supports the State's highway system, but a portion of the account also supports rail projects in the STIP. In the 1996 STIP, 1998 STIP, 1998 STIP Augmentation, and 2000 STIP, $356.4 million was programmed for intercity rail projects. Intercity rail projects can be programmed in both the Interregional Transportation Improvement Program (ITIP) and the Regional Transportation Improvement Program (RTIP).

Traffic Congestion Relief Fund (TCRF). Chapter 91, Statutes of 2000 (AB 2928 - Torlakson), established the Governor's Traffic Congestion Relief Program (TCRP) to be funded from the TCRF. The TCRP includes $201.5 million for specific intercity rail capital projects out of a total program amount of approximately $8.572 billion.

State Bond Funds. In 1990 the voters approved the Passenger Rail and Clean Air Bond Act (Proposition 108), which provided $1 billion in rail bonds, including $225 million for intercity rail capital projects. The Clean Air and Transportation Improvement Act of 1990 (Proposition 116) provided a $1.99 billion one-time source of funding for rail and transit projects, including about $382 million for intercity rail capital projects. Most of these bond funds have been allocated.

State General Funds. The 1999-00 and 2000-01 State Budgets provided General Fund money for intercity rail capital projects. The 1999-00 Budget included $17.5 million for new intercity rail rolling stock. The 2000-01 Budget provided $30 million for new equipment and $20 million for track improvements on the San Joaquin Route.

Local Funds. Although intercity rail passenger services are funded primarily by the State, a substantial amount of local funds have been invested, mainly on the Pacific Surfliner Route, to fund commuter rail development. Also, intercity rail stations are often owned by cities and funded with local funds in addition to STIP funding.

Federal Funds. Federal transportation funds from various programs benefit intercity rail service, particularly through station projects. However, federal flexible transportation funds, such as are provided through the Surface Transportation Program, are generally not available for intercity rail projects.

Amtrak Funds. Amtrak develops and funds some California intercity rail capital projects. The largest investment has been in maintenance facilities and rolling stock, including the purchase of 40 new passenger cars and 14 locomotives for the Pacific Surfliner Route at a cost of about $135 million.

Railroad Funds. The State and the railroad that owns the right-of-way of an intercity passenger route sometimes share in the cost of track and signal improvement projects.

Intercity Rail Capital Program

To date, over $2.4 billion have been invested or reserved for intercity rail capital funding in California. Even with the new funding sources for intercity rail, rail equipment continues to lack an ongoing funding source. This is because restrictions under Article XIX of the State Constitution do not allow rail equipment to be funded from SHA funds. Although the State has provided about 64 percent of the total investment, local entities, the federal government, Amtrak, and the private railroads have made major contributions.

The Department concurs with the "Immediate" and "Near-term" (up to 8 years) increments of the Amtrak Plan, which project $4.0 billion in capital funding needs for service expansions and new routes. The "Vision" increment of the Amtrak Plan extends it to 20 years and over $10 billion in funding needs. The Department's 10-year capital program uses the "Immediate" and "Near-term" increments of the Amtrak Plan as input to development of the Department's 10-year capital needs.

The Department's priorities for implementation of capital projects in the State Rail Plan are:

- Increase the cost-effectiveness of State-supported intercity rail.
- Increase capacity on existing routes.
- Reduce running times to attract riders and to provide an efficient service.
- Improve the safety of State-supported intercity rail service, including grade crossing improvements and closures.
- Initiate new cost-effective routes.

Full implementation of this $4.0 billion 10-year capital program would require major federal funding. If such federal funding is not made available, implementation of this capital program will be delayed to reflect the level of funding available from future STIP programming cycles, as supplemented by other available funding.

CHAPTER IV - OPERATIONS AND MARKETING

Operating Program

Relationship with Amtrak. Section 24101(c)(2) of the Federal Rail Passenger Service Act authorizes Amtrak to operate intercity rail passenger service beyond its basic system services when requested to do so by a state. Although Amtrak intends to phase out its need for federal operating subsidies beyond 2001-02, it expects to continue to be able to fund its share of the California State-supported services by use of available funds generated by the balance of its national system. If Amtrak were unable to continue to fund its current share of these services, the amount of State funds needed to continue the present level of service could increase by as much as

$11.3 million in 2010-11. Alternatively, service levels could be reduced to avoid such a cost increase.

Funding for Intercity Rail Service Operations. The 10-year intercity rail ridership and financial projections shown in Figures 4A, 4B and 4C (see Chapter 4) were produced by Amtrak for both current service levels on existing routes and for the increased service levels identified by the Department on these routes. These projections are based upon state-of-the-art ridership and revenue models. The Department concurs that Amtrak's projections are reasonable and appropriate for planning purposes. They reflect the operational enhancements, such as increased frequencies, and reduced running times, made possible by the capital improvements included in the State Rail Plan. The operational enhancements differ from Amtrak's more optimistic assumptions for frequency increases.

Short-Term Operating Strategies. The focus of the Department's short-term operating strategies is to improve customer service and amenities and increase the cost-effectiveness of the services. These two strategies are complementary, as an improvement in customer satisfaction should increase ridership and revenue. The Department and the CCJPA are working with the railroads and Amtrak to improve train schedules, on-time performance, bus-train connections and destinations, and passenger amenities.

Service Evaluation Standards and Goals. The Department's goal is to provide cost-effective services that will achieve at least 50 percent coverage of costs from the farebox. The Department's standards for adding or removing services are:

- Where the cost-effectiveness of an existing service will be improved by adding or removing frequencies or route segments.
- Where the cost-effectiveness of the State-supported services as a whole will be improved.
- Where the Department has already paid for capacity increases and where others agree to fund capital and/or operating needs.

On all three routes, the goal is frequent service (up to hourly as demand requires) during business hours, and adequate coverage for leisure travelers in the evenings and weekends. For service reliability, the goal is 90 percent on-time performance.

New routes are proposed for intercity markets that have identified demand and support from local entities for rail service. All proposed new routes would utilize existing rail lines that in almost all cases currently have freight traffic and in some cases have Amtrak service.

The Department's Marketing Program

Marketing and Advertising. As service improvements, such as increased frequencies and reduced running times, are made possible by the Department's ongoing capital improvement program, the long-term marketing strategy will focus on these improvements and the new markets they create. The Department's ability to market service improvements that

make the train more closely competitive with the automobile will result in significant ridership and revenue gains.

Public Relations. The Department's public relations activities include special promotions, media relations, printed materials and special events.

Passenger Information. The Department produces informational materials designed to inform customers about routes, schedules, fares, connecting buses and other Amtrak services. Passenger information devices include printed materials, signage, an internet web site and telephone information. In addition, the Department, CCJPA, the Southern California Regional Rail Authority (Metrolink) and Amtrak are working together to develop real-time information displays at selected stations.

CHAPTER V - THE PACIFIC SURFLINERS (SAN LUIS OBISPO-SANTA BARBARA-LOS ANGELES-SAN DIEGO)

Principal 2001-2011 Route Objectives:

- Increase annual ridership 52 percent, from 1,662,000 to 2,518,000 passengers.
- Increase annual revenues 68 percent, from $20.4 to $34.3 million, for the State-supported 67 percent of the route operation.
- Increase revenue/cost (farebox) ratio from 53.5 percent to 57.7 percent.
- Reduce the State cost per passenger mile from 16 cents to 13 cents.
- Increase frequency of daily round-trip service, from 11 to 16 trains between Los Angeles and San Diego, from 4 to 6 between Los Angeles and Santa Barbara/Goleta, and from 1 to 2 trains extended beyond Goleta to San Luis Obispo.
- Reduce train-running times to less than two hours between Los Angeles and San Diego, two hours between Los Angeles and Santa Barbara/Goleta and two hours between Santa Barbara and San Luis Obispo.
- Improve the reliability (on-time performance) of trains.
- Provide real-time information to passengers on train status (e.g., anticipated arrival time), particularly at unstaffed stations.

Performance - In 2000-01, ridership for all trains was 1,661,704 and the farebox ratio for State-supported trains was 53.5 percent. In Amtrak's 2000-01 fiscal year, the on-time performance of the Pacific Surfliner has averaged 78.2 percent.

Potential Train Service Improvements - The Department, in conjunction with Amtrak, anticipates there will be eventual demand for hourly round-trips on the Pacific Surfliners.

It is important to note that the start-up dates for new service on all routes are based on projected service needs. Demonstrated ridership demand, institutional barriers, availability of funding and equipment, and technical problems outside the control of the Department will affect when each of the service improvements can be implemented.

The Department's proposed expansion of the Pacific Surfliner Route is as follows:

2003-04 Los Angeles - San Diego, twelfth and thirteenth round-trips, plus two round-trips from Los Angeles to Santa Barbara and one round-trip from Santa Barbara to San Luis Obispo.

2005-06 Los Angeles - San Diego, fourteenth round-trip.

2006-07 Los Angeles - San Diego, fifteenth round-trip.

2008-09 Los Angeles - San Diego, sixteenth round-trip.

CHAPTER VI - THE SAN JOAQUINS (BAY AREA-SACRAMENTO-FRESNO-LOS ANGELES)

Principal 2001-2011 Route Objectives:

- Increase annual ridership 121 percent, from 711,000 to 1,572,000 passengers.
- Increase annual revenues 132 percent, from $19.7 to $45.8 million.
- Increase revenue/cost (farebox) ratio from 45.3 percent to 58.4 percent.
- Reduce the State cost per passenger mile from 18 cents to 11 cents.
- Increase frequency of daily round-trip service from 4 to 5 between Oakland and Bakersfield and from 1 to 3 between Sacramento and Bakersfield.
- Reduce train running times to five and a half hours between Oakland and Bakersfield and four hours forty minutes between Sacramento and Bakersfield.
- Improve the reliability (on-time performance) of trains.

Performance - Ridership for all trains in 2000-01 was 710,833 and the farebox ratio was 45.3 percent. In Amtrak's 2000-01 fiscal year, on-time performance has averaged 67.4 percent. The TCRP contains funding to double track portions of the San Joaquin Route, which will improve the reliability and on-time performance of the San Joaquins.

Potential Train Service Improvements - The most immediate need will be for additional round-trips between Sacramento and Bakersfield. The Department will add the sixth round-trip in 2001-02, which will be the second train between Sacramento and Bakersfield.

The Department's proposed expansion of the San Joaquin Route is as follows:

2001-02 Sacramento - Bakersfield, second train to extend from Stockton to Sacramento (sixth round-trip on route).

2004-05 Sacramento - Bakersfield, third train to extend from Stockton to Sacramento (seventh round-trip on route).

2006-07 Oakland - Bakersfield, fifth train to extend from Stockton to Oakland (eighth round-trip on route).

CHAPTER VII - THE CAPITOLS (AUBURN-SACRAMENTO-OAKLAND-SAN JOSE)

Principal 2001-2011 Route Objectives:

- Increase annual ridership 193 percent, from 1,031,000 to 3,018,000 passengers.
- Increase annual revenues 203 percent, from $11.1 to $33.6 million.
- Increase revenue/cost (farebox) ratio from 40.1 percent to 53.5 percent.
- Reduce the State Cost per passenger mile from 21 cents to 11 cents.
- Increase frequency of daily round-trips from 4 to 10 between San Jose and Oakland, from 9 to 16 between Oakland and Sacramento, and from 1 to 5 between Sacramento and Roseville.
- Reduce train-running times to an hour and a half between Sacramento and Oakland.
- Improve the reliability (on-time performance) of trains.
- Provide real-time information to passengers on train status (e.g., anticipated arrival time), particularly at unstaffed stations.

Performance - Ridership for all trains in 2000-01 was 1,030,837 and the farebox ratio was 40.1 percent. In Amtrak's 2000-01 fiscal year, the on-time performance has averaged 77.8 percent.

Potential Train Service Improvements - The Department's proposed expansion of the Capitol Corridor is as follows:

2001-02 Sacramento - Oakland, eighth and ninth round-trips (began 4/29/01). Oakland - San Jose, fifth and sixth round-trips (weekend round-trips began 4/29/01). Sacramento - Roseville, second and third round-trips.

2003-04 Sacramento - Oakland, tenth and eleventh round-trips. Oakland – San Jose, seventh round-trip.

2004-05 Sacramento - Oakland, twelfth round-trip. Oakland - San Jose, eighth round-trip. Sacramento - Roseville, fourth round-trip.

2005-06 Sacramento - Oakland, thirteenth round-trip.

2006-07 Sacramento - Oakland, fourteenth round-trip. Oakland - San Jose, ninth round-trip.

2008-09 Sacramento - Oakland, fifteenth round-trip. Oakland - San Jose, tenth round-trip. Sacramento - Roseville, fifth round-trip.

2010-11 Sacramento - Oakland, sixteenth round-trip.

The CCJPA assumed responsibility for management of this service on July 1, 1998, and has proposed an enhanced level of service for the 10-year period of the State Rail Plan. The CCJPA proposal includes 16 round-trips between Sacramento, Oakland and San Jose within 10 years, with 10 round-trips extending to Roseville and 4 to Auburn.

CHAPTER VIII - POTENTIAL NEW SERVICES

High-Speed Rail

In 1996, the California High-Speed Rail Act founded the California High-Speed Rail Authority (CHSRA) to direct the development and implementation of intercity high-speed rail service. The Authority's June 2000 business plan, *Building a High-Speed Train System for California*, found that a high-speed train system is a smart investment in mobility, an evolutionary step for transportation, and a project in keeping with California's standards for environmental quality and economic growth. The Authority determined that the next step in the development of the project is to proceed to develop a program environmental impact report (EIR). The EIR is expected to be completed by June 2003.

California Maglev Project

The initial corridor study area of the California Maglev Project extends from Los Angeles International Airport (LAX) to Union Station in downtown Los Angeles and further east to Ontario International Airport and on to March Field in Riverside County, a distance of approximately 85 miles. The Southern California Association of Governments and the California Business, Transportation and Housing Agency are the project sponsors.

Proposed Intercity Rail Routes

The Department proposes five new routes and Amtrak is supporting an additional route.

Los Angeles to Las Vegas. Amtrak proposes to start service in late 2002 using state-of-the-art Talgo tilt train equipment to achieve a five and one-half hour travel time between Los Angeles and Las Vegas. The Department includes no operating costs in its 10-year plan for this service because the State of Nevada has agreed to arrange for operating support.

San Francisco to Los Angeles via Coast Route. The Department's 10-year operating plan includes one round-trip train between San Francisco and Los Angeles, starting in 2003-04, that would use tilt-train equipment (if available). The Department projects adding a second train in 2006-07.

San Francisco to Monterey. The Department's 10-year operating plan includes two weekday round-trips (and three weekend round-trips) using high quality equipment to start in 2005-06.

Los Angeles to Coachella Valley. The Department is proposing to start one round-trip in 2006-07 and a second round-trip in 2008-09. The service would run from Los Angeles to Palm Springs, Palm Desert and Indio in the Coachella Valley.

Sacramento to Reno. The Department is proposing to extend one round-trip of the Capitol Corridor from Sacramento to Reno/Sparks in 2007-08. This service would require an appropriate level of financial participation from the State of Nevada and Nevada business interests.

Sacramento to Redding. The Department is proposing to extend one daily round-trip of existing Sacramento rail service to Redding in 2008-09.

PART II. – FREIGHT RAIL ELEMENT

CHAPTER IX - CALIFORNIA'S RAIL SYSTEM

The freight rail element of the State Rail Plan provides a detailed account of California's freight rail system, how it operates and serves the people living in the Golden State. This document was developed as part of the State's overall planning process to provide information to transportation officials, policy makers, railroad managers, and transportation planners. The freight rail element begins with an overview of the State's rail system. It discusses the routes operated by the Union Pacific and Burlington Northern and Santa Fe Railroads. The plan looks at the one regional railroad and 28 short line railroads operating on 25 percent of California's rail mileage. It points out the important role they play in moving international freight to and from California's seaports. The plan also discusses the various types of commodities shipped by rail in and out of California.

CHAPTER X -MAJOR FREIGHT ISSUES

Several freight issues are discussed that impact the railroad's ability to move freight efficiently. Areas include: mainline choke points caused by geographic restrictions and mainline congestion caused by the tremendous growth in intermodal traffic and the sharp increase in the number of passenger trains operating on freight railroads. Port projects in Southern California show a doubling of international container shipments from 10 to 20 million by 2020. Capacity issues are a growing concern among California's railroads and rail shippers.

Short line railroad issues include the industry's movement to heavier rail cars to try to keep transportation costs down and take advantage of the economies of scale. The problem is most short line railroads do not have the infrastructure to accommodate these heavier 286,000-pound rail cars. Short line railroads operate on a very tight budget and do not have the revenue base to make these major capital improvements. Without some kind of financial assistance to make these capital improvements, these shipments will have to be moved by truck at a greater cost to the shipper and an increase in highway maintenance and congestion cost to the State.

Rail shipper concerns are also discussed. Their issues include: congestion at intermodal terminals, lack of equipment, lost rail cars, delays to rail shipments to due increased passenger trains and grade crossing accidents.

CHAPTER XI - SHORT LINE ANALYSIS

Short line railroads play an important role in California's overall transportation system, especially for rural communities not served by Class I railroads. There are 28 short line railroads operating on 1,832 miles or 33 percent of the State's rail mileage. The results of a survey of California's short line railroads are included in this section. Key issues of concern include: the inability to upgrade their infrastructure to accommodate 286,000-pound rail cars on their lightweight track and bridge infrastructure, the need for improved grade crossing protection devices, and the need for the State to take a more active role in preserving rail service to rural areas of California.

Commodities shipped by short lines are identified in the plan with wood products making up the largest proportion at 24 percent followed by food products at 22 percent. The project team estimated upgrade costs for all California short lines using a methodology developed specifically to handle 286,000-pound cars. The total statewide short line upgrade cost is on the order of $290 million. Potential impacts to highway congestion and maintenance costs due to railroad closures are also discussed.

CHAPTER XII - FUNDING

In 1999, California short line railroads handled over 750,000 carloads of international freight. Many California short lines serve industries along the I-5, I-10, I-40 and I-80 corridors. They also provide switching services to the Ports of Los Angeles, Long Beach, Oakland, Hueneme, and Stockton. Short line railroads also provide services to business in the rural portions of California who would otherwise have to rely strictly on trucks to move their freight.

The American Association of State Highway and Transportation Officials (AASHTO) estimates that the 10-year infrastructure needs for American short lines total between $8 and $12 billion, of which only 20 percent can be funded by the railroads themselves. Federal rail funding programs are discussed including: Local Freight Rail Assistance (LFRA), Light Density Line (LDL), Rail Rehabilitation and Improvement and Financing (RRIF), Congestion Mitigation and Air Quality Improvement (CMAQ), National Coordinated Planning and Development (NCPD), Coordinated Border Infrastructure (CBI), Transportation and Community System Preservation (TCSP), Highway Rail Crossing (Section 130) and the Transportation Infrastructure Finance Assistance (TIFIA) programs.

State funding programs for railroads are examined noting that when the LDL program was not funded under TEA 21, thirty other states began or continued to provide state funds for loan or grant programs to assist short line railroads in making infrastructure improvements. Of the $2 billion made available to short line railroads during the period of 1976 to 1995, 26 percent was from federal grants, 40 percent was from state grants, 26 percent from local funds and 8 percent from state loans.

CHAPTER XIII - ENVIRONMENTAL REVIEW

Environmental issues are discussed in detail to stress the need for an integrated planning effort to better address the needs of California's transportation system. Topics include: noise impacts, vibrations, railroad crossing safety, accidents, air quality and locomotive emissions. The impacts to local communities from locomotive horn blowing at grade crossings are discussed as well as the US Environmental Protection Administration's (EPA) standards for noise emissions. The Federal Railroad Administration is charged with enforcing these noise standards.

Delays at railroad crossings and accidents due to the increase in train traffic are also discussed. The Alameda Corridor project will eliminate 200 grade crossings improving safety and reducing traffic delays between Long Beach and Los Angeles. Locomotive emissions are discussed in detail noting the new EPA standards.

CHAPTER XIV - NEW TECHNOLOGY

Eight new technology areas are discussed:

- Global positioning system applications
- Positive train control
- Information technology applications
- Electronic commerce
- Alternating current locomotive technology
- Electronic banking
- Increased car capacity
- Rail car improvements

CHAPTER XV - FUTURE NEEDS

California's rail system is rapidly running out of capacity due to a large increase in passenger train activity as well as tremendous growth in international trade moving by rail. While the needs of passenger rail operations are being addressed by the State, the landside freight transportation system is not. In order for California to remain competitive in a global economy, more funds need to be devoted to improving the State's system of highways and railroads that handle this international cargo.

The case for funding for short line railroads is a compelling one. Without outside assistance, many of the State's short line railroads will be unable to accommodate the heavier rail cars forcing more freight to move by truck and impacting the railroads ability to stay in business. The environmental, economic, safety and mobility benefits need to be considered when evaluate infrastructure projects.

PART I

PASSENGER RAIL ELEMENT

CHAPTER I
INTRODUCTION

Government Code Section 14036 requires the California Department of Transportation (the Department) to complete a 10-year State Rail Plan with both passenger rail and freight rail elements. The law also requires that the State Rail Plan be updated every two years.

The passenger rail element of the *California State Rail Plan 2001-02 to 2010-11* (the State Rail Plan) is an examination of intercity passenger rail transportation in California. This element reviews the current operations of State-supported intercity rail passenger service and outlines 10-year plans for the period 2001-02 through 2010-11 for capital improvements and service expansions. The passenger rail element is covered in Chapters I through VIII of the State Rail Plan; the freight rail element begins with Chapter IX.

This chapter provides an overview of the public process used in developing the State Rail Plan, the vision of the Department's Division of Rail and the strategic planning efforts of Amtrak and the Department.

PUBLIC PARTICIPATION

The October 2001 draft of the State Rail Plan was submitted to the California Transportation Commission (CTC), as required by State law. The passenger rail element of the State Rail Plan was also reviewed by the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency (LOSSAN), the San Joaquin Valley Rail Committee, the Capitol Corridor Joint Powers Authority (CCJPA), the Coast Rail Coordinating Council and the Regional Transportation Planning Agencies. For the freight rail element, in August 2000 two public meetings were held statewide, one in Oakland and one in Los Angeles. Participants included representatives from the California Short line Railroad Association, California Trade and Commerce Agency, CTC, Port of Oakland, Santa Cruz Regional Transportation Planning Agency, Fresno Council of Governments, Southern California Association of Governments, Southern California Regional Rail Authority (Metrolink), Los Angeles County Metropolitan Transportation Authority, Los Angeles World Airports (including Los Angeles International, Ontario International, Van Nuys and Palmdale Regional Airports), Port of Los Angeles, San Diego Association of Governments, several California short line railroads, and Department districts.

THE DEPARTMENT'S VISION FOR INTERCITY RAIL

The Department developed an Intercity Rail Program Vision in 1998 that summarizes and guides the program's efforts.

1. Provide Relief to Highway and Airway Congestion - In many intercity corridors highway demand is near capacity or already exceeded, and it is not financially or environmentally feasible to add capacity. Intercity rail

currently provides congestion relief in corridors where capacity has already been exceeded, and rail service can be expanded to provide additional congestion relief. Intercity rail thus provides an alternative to building new highway capacity. Current investment in rail facilities and infrastructure will ensure rail capacity is protected, to be available in the future to provide critical relief to highway and airway systems.

On the air transportation network, it is also environmentally and financially difficult to build additional airport capacity. Intercity rail provides an alternative to short haul air travel, such as from the Central Valley to the Bay Area and Southern California, relieving congestion at airports by eliminating the need for some short distance flights.

2. Provide a Rail Transportation Alternative to Other Travel Modes - Rail service provides a safe, efficient and cost-effective alternative to auto, bus and air travel. There has never been a passenger fatality on State-supported Amtrak service in California. For trips between certain cities, rail provides the only alternative travel mode to the auto. Rail travel (and other mass transit) often provides the only viable mode of travel for disabled, senior and low-income travelers. Business and leisure travelers may choose rail for cost efficiency, and ease of travel. Rail can provide a cost-effective alternative to all travelers in some short haul air markets characterized by high fares, such as within the San Joaquin Valley.

3. Improve Air Quality, Conserve Fuel, and Contribute to Efficient and Environmentally Superior Land Use – Rail service contributes to improved air quality through a reduction in vehicle miles traveled and vehicle emissions; reduces fuel consumption, helping to limit dependence on foreign petroleum; helps reduce the need for highway construction, which often causes the loss of economically, environmentally, and historically valuable land, and can contribute to inefficient land use patterns.

To achieve the vision for intercity rail in California, service must be frequent and reliable, and available for trips to major intercity destinations with travel times competitive with the auto. Projects to increase capacity need to be accomplished in order to add frequencies; projects to improve on-time performance will increase reliability; and projects to reduce running time will attract riders and provide an effective service.

STANDARDS FOR ACHIEVEMENT OF TEN-YEAR GOALS

This section of the State Rail Plan establishes standards for the achievement of the Department's 10-year goals in terms of congestion relief, air quality, energy efficiency and improved land use. Progress in meeting these goals will be measured in future plans.

Congestion Relief

Because congestion relief is difficult to quantify, a calculation of the rail share of total intercity corridor travel is used here to estimate the impact of increased rail service in each corridor. Measuring increases in mode share for rail travel is an appropriate way to measure congestion relief because an

increase in the rail mode share represents trips that would have otherwise been made on another mode, primarily by auto. Measuring changes in mode share also eliminates the effect of increases in population and economic activity on rail ridership. This method shows the true effectiveness of the service in attracting riders from other modes, rather than just showing ridership resulting from an overall increase in travel across all modes.

The Department and the National Railroad Passenger Corporation (Amtrak) have just completed a comprehensive Pacific Coast Market Study. This study was a broad based random telephone survey designed to determine a profile of intercity travel behavior in the Pacific Coast Market and specifically California. One of the key segments of the survey was the development of mode share calculations based on actual trips taken and modes used.

Based on the data collected from the study, the current (FY 2001) mode share for intercity rail along the Surfliner Route is 3.9 percent, while it is 3.5 percent for the Capitol Corridor and San Joaquin Route. (By comparison, air travel has a mode share of 13.9 percent along the Surfliner Route and 13.7 percent for the combined Capitol Corridor and San Joaquin Routes.) For this analysis, the corridors served by the Capitols and San Joaquins were combined because many of their population areas overlap. The analysis also excluded points served by San Joaquin Route buses south of Los Angeles. The Department will replicate this comprehensive market study in 2005 and 2010 and provide updates on changes in the rail mode share in future State Rail Plans.

Another Department planning tool provides an indication of the mode share change that can be expected from implementation of the 10-year program in the State Rail Plan. The Rail Ridership/Revenue Forecasting Model was utilized to generate the forecasts of ridership and ticket revenues that can be expected as a result of improvements proposed in the State Rail Plan (its methodology is summarized on Page 66). The forecasting model shows that implementing the improvements in the 10-year program of the State Rail Plan would attract enough riders to increase the rail mode share by 2 1/2 to 3 times compared to today's level.

The Department's first goal in order to continue to meet its vision of providing relief to highway and air congestion is therefore to increase the intercity rail mode share by 2 1/2 to 3 times by 2011, based upon implementation of the improvements proposed in the State Rail Plan for the three existing State-supported routes.

In addition to calculating mode share change, the impact of intercity rail on congestion was measured by calculating the vehicle miles saved as a result of intercity rail. The first step in the calculation was to estimate the vehicle (automobile) miles that would be saved by passenger use of the base State-supported intercity rail service in 2002 and of the expanded service proposed in the State Rail Plan for 2011. The vehicle miles saved were derived by estimating the number of State-supported intercity train passenger miles for each year. The passenger miles were then used to calculate the reduction in vehicle miles traveled. An average vehicle occupancy rate of 1.43 passengers

per automobile was applied to the passenger miles to derive vehicle miles saved in each of the two years.

The vehicle miles saved as a result of State-supported intercity rail service came out to 265 million miles in 2002 and 493 million miles in 2011.

The Department's second goal in order to continue to meet its vision of providing relief to highway and air congestion is therefore to cut annual vehicle miles traveled in the State by 493 million miles by 2011 (a reduction of 228 million annual vehicle miles traveled compared with 2002).

Please note that the studies and forecasts outlined above relate solely to intercity passenger rail service and do not include any data about commuter rail traffic or service.

Alternative to Other Travel Modes

Already 98 percent of the State's population lives in counties served by the State-supported intercity rail and connecting bus network. The challenge is to increase the share of this population that will ride the trains and buses. As has already been demonstrated in California and elsewhere, people will ride intercity trains and connecting buses if they are frequent, reliable, and provide competitive travel times. In terms of train frequency, the State-supported intercity rail service will become significantly more competitive as a travel mode when the 40 daily statewide round-trips proposed as 10-year goals in the State Rail Plan (16 on the Pacific Surfliner Route, 16 on the Capitol Corridor, 8 on the San Joaquin) are provided.

As described above, these frequency increases, together with the other improvements proposed for the ten-year period through 2011, would raise the intercity rail mode share for the State-supported routes by 2 1/2 to 3 times. The Pacific Surfliner Route would have a mode share of 10 to 12 percent, while the Capitol Corridor and San Joaquin Route would have a mode share of 9 to 10.5 percent. This 10 percent threshold approaches the current 13% mode share for air travel in these corridors. Achieving such a mode share would demonstrate that intercity rail is providing a true alternative mode for travelers.

The Department's goal of increasing the intercity rail mode share by 2 1/2 to 3 times by 2011 supports the vision of providing a true alternative to other travel modes.

Air Quality

To address air quality, four pollutants were examined: hydrocarbons, carbon monoxide, nitrogen oxides (NO_x), and particulate matter of less than 10 microns (PM_{10}). These were measured in grams of pollutant for each. The pollution saved by reductions in vehicle miles in 2011, compared to 2002, were weighed against the increases in train pollution resulting from additional train miles traveled in 2011, compared to 2002.

The first step in the comparison was to convert the vehicle (automobile) miles saved as a result of State-supported intercity rail service in 2002 and 2011

(described above under Congestion Relief) to automobile emissions. In order to do this, the vehicle miles saved were multiplied by the average pollutants per vehicle mile for the average automobile in California. Next, the train miles to be covered by the three State-supported services in 2002 and 2011 were calculated. The total amount of automobile pollution saved due to the new train services were then compared directly to the additional pollutants generated by the increased train miles covered by the added train services.

The analysis showed a net annual decrease in pollution from hydrocarbons and carbon monoxide.

The Department's first goal in order to meet its vision of improving air quality is therefore to continue to cause a net annual decrease in pollution from hydrocarbons and carbon monoxide in the State through 2011.

The analysis also showed a net annual increase in pollution from NO_x and PM_{10}, resulting from increased use of intercity rail in 2011 compared to 2002. The increase in pollution from NO_x and PM_{10} is due to the fact that diesel fuel, which is used by the intercity rail trains, produces substantially more NO_x and PM_{10}, on a gallon per gallon basis, than does gasoline. The net reduction in gasoline consumption resulting from increased use of intercity rail does not make up for this difference between diesel fuel and gasoline in relation to NO_x and PM_{10}.

If the increase in intercity rail ridership by 2011 exceeds current projections, then the net decrease in hydrocarbons and carbon monoxide would be even greater, while there would be less of a net increase in NO_x and PM_{10} emissions. This is because, as explained above, the estimate of the reduction in vehicle miles traveled is based on projected intercity rail ridership.

In addition, the U.S. Environmental Protection Agency is instituting new emissions requirements for diesel locomotives. The type of locomotive that is predominantly used in the State-supported rail system, the new F59 engines purchased by the State and Amtrak, meets the Tier 0 requirements, which went into effect in 2001. The State had ordered F59s that met this requirement before being required to do so. The next set of standards, called Tier 1, will take effect on January 1, 2004. These will require that passenger locomotives purchased after that time emit 25 percent less NO_x and 33 percent less particulates than previously allowed. Tier 2 standards, which will take effect in 2005 or later (the exact date has yet to be determined), will require that passenger locomotives purchased after that time emit 35 percent less NO_x and less than half the particulates than previously allowed. The F59s used in the State-supported rail system already meet the Tier 2 requirements regarding particulate emissions, hydrocarbons and carbon monoxide.

The Department's second goal in order to meet this vision is to continue to keep emissions below State and federal maximum allowable levels for all pollutants, and to pursue funding for research and development into cleaner locomotive engines.

Energy Efficiency

To address energy efficiency, the energy use from the automobile trips that would be avoided due to the use of the expanded intercity rail passenger services included in the State Rail Plan were compared to the additional energy use resulting from these expanded intercity rail passenger services. The analysis used 2002 as the base year and 2011 as the out year.

In order to convert vehicle miles to energy use, the vehicle miles saved as a result of use of the State-supported intercity rail service in 2002 and 2011 were multiplied by the average amount of energy use per vehicle mile, as expressed in British Thermal Units (BTUs), for the average automobile in California. Next, the energy use resulting from train miles to be covered by the three State-supported services in 2002 and 2011 were converted to BTUs. The total amount of automobile energy use saved due to the new train services was then compared directly to the additional energy use generated by the increased train miles covered by the added train services.

The vehicle miles saved for 2002 would have otherwise resulted in the consumption of 11.4 million gallons of gasoline. Concurrently, the train miles traveled in 2002 would result in the usage of diesel fuel equivalent to 4.1 million gallons of gasoline. The result is a net saving of 7.3 million gallons of gasoline in 2002, or about 20,000 gallons of gasoline per day.

The increase in annual vehicle miles saved in 2011, compared to 2002, would result in the saving of an additional 9.8 million gallons of gasoline in 2011. Concurrently, the additional train miles traveled in 2011, compared to 2002, would result in the usage of additional diesel fuel in 2011 equivalent to 4.1 million gallons of gasoline. The result is a net saving of 5.7 million additional gallons of gasoline in 2011, compared to 2002, or a total of 13.0 million gallons of gasoline conserved annually by 2011.

The Department's goal in order to continue to meet its vision of conserving fuel and energy is therefore to save the State a net of at least 13 million gallons of gasoline annually by 2011.

Land Use

The Department has been supportive of efforts by cities and counties to promote transit-oriented development projects, which enhance community livability by providing housing options, jobs, retail and services within easy walking distance of transit stations.

The Department plans to continue to support local and regional efforts to promote transit-oriented development in order to meet its vision of contributing to efficient and environmentally superior land use.

The following are a few examples of stations where transit-oriented development has recently occurred, or which are slated for transit-oriented development.

Emeryville - In 1998, construction began on the first phase of a project that will result in a three-building, 550,000 square foot mixed-use complex on the north, east and south sides of the Amtrak station. The first phase, now completed, is a 240,000 square foot, five-story office building with ground floor retail and two levels of parking below. Approximately 150 units of owner-occupied lofts and townhouses, plus senior housing, have also been constructed. The site was formerly industrial and had remained vacant for over 20 years before the City coordinated and facilitated toxic remediation and redevelopment of the site. The second phase will consist of 100 units of rental apartments, with at least 20 percent set aside as affordable housing. The station is served by the Capitol Corridor, San Joaquin, and the Coast Starlight and California Zephyr long-distance Amtrak trains, AC Transit buses, and the Emery Go-Round free shuttle bus that connects to the MacArthur Bay Area Rapid Transit District (BART) station and various businesses, work sites, and retail and entertainment centers.

Fullerton - A transit-oriented development project is under construction adjacent to the station. It will consist of 192 apartments located over 30,000 square feet of ground-floor commercial space. The station is served by the Pacific Surfliner, Southwest Chief long-distance Amtrak train, and Metrolink commuter rail.

Los Angeles (Union Station) - This station has the highest ridership in the entire State-supported intercity rail system. Over the last decade, it has evolved into a vibrant transit hub where passengers can transfer between State-supported Amtrak trains and buses, long-distance Amtrak trains (Coast Starlight, Southwest Chief, and Sunset Limited), Metrolink commuter rail trains, the Los Angeles Metro subway, local transit buses, and downtown circulator shuttle buses. In the early 1990s, the Los Angeles Metropolitan Transportation Authority built its high-rise headquarters adjacent to the east entrance to the station. More recently, new businesses have opened within the station to meet the demand for services brought about by the significant growth in passenger activity at the station. The City has approved in concept the development of several million square feet of office space surrounding the station. This development would occur in response to private sector demand.

Oakland (Jack London Square) - A large, high-density housing complex was recently constructed across the railroad to the west of the station. To the north of this project, the Jack London Square area has undergone a great deal of transformation in recent years from a predominantly industrial port area to a busy retail and entertainment district. Also, major new housing and business projects are being constructed near the station to the east of the railroad. In order to accommodate increased ridership at the station, the Department and CCJPA are planning to widen the platform at the station. The station is served by the Capitol Corridor, San Joaquin and Coast Starlight.

Oakland Coliseum (future station) - Once completed, the station will provide a direct connection by way of a raised walkway between the Capitol Corridor, the Coliseum BART station, and the planned Oakland Airport Connector train. Currently, the City is participating in a collaborative effort to develop an Area Plan and Redevelopment Strategy for

the Coliseum Redevelopment Area. Due to the expected importance of this station area as a transit hub, the Area Plan and Redevelopment Strategy will explore long-range opportunities to create a Transit-Oriented District.

Richmond - A planned pedestrian-oriented transit village will break ground later this year at this station, a transit node where passengers can transfer between BART urban rail trains and San Joaquins or Capitols. The Richmond Transit Village will consist of 228 townhouses, 27,000 square feet of retail, and a 30,000 square foot performing and cultural arts facility. In order to accommodate increased ridership at the station, the Department and CCJPA recently constructed a new center boarding platform at the station with a passenger shelter, seating, and a new stairwell and elevator providing a direct connection to the BART station. During the next phase of the project, a new station building to be shared by BART and Amtrak will be constructed. It will include restroom facilities, an Amtrak passenger waiting area, and an information and directional signage kiosk with an electronic display of real-time train information.

San Diego - A high-density condominium project adjacent to the station is in the planning stages and will feature a direct pedestrian connection to the station to be funded by the developer. The station is served by the Pacific Surfliner and by Coaster commuter rail.

Simi Valley - The City of Simi Valley, in partnership with the County of Ventura, is currently developing a transit village plan (CA Gov. Code Sec. 65460 et seq) to evaluate the use of a transit-oriented development overlay zone. The zone would be used to encourage the implementation of transit village design within a .25 mile radius of the City's multi-modal transit station boundaries. Nearly 800 single-family and multi-family homes are currently under development or consideration in the proposed overlay area. The proposed transit overlay zone would include a 7 acre commercial center,

a 45 acre park and community center, 40 acres of other commercial and industrial uses, 75 acres of residential property, and 20 acres of open space. The City's multi-modal transit station is currently served by Metrolink commuter rail, the Pacific Surfliner, City buses, Los Angeles County buses, San Joaquin connecting buses, local taxis and the City's extensive pedestrian/bike trail system.

AMTRAK'S CALIFORNIA RAIL PASSENGER 20-YEAR PLAN

Amtrak is pursuing an aggressive strategy of developing high-speed rail corridors nationwide. After the Northeast Corridor, where Acela Express has recently begun operation, California is well positioned to be the next region where Amtrak invests substantial funds to develop high-speed rail. California's existing intercity rail service and infrastructure, coupled with the State's history of impressive commitment to and partnership with Amtrak, make California a leading candidate for Amtrak high-speed rail corridor development.

With the publication of *Amtrak's California Passenger Rail System 20-Year Improvement Plan* (the Amtrak Plan) in March 2001, Amtrak's blueprint for a comprehensive passenger rail system in California was created. The Amtrak Plan was developed with the involvement of four task forces, one for each intercity corridor, including the San Joaquins, Capitol Corridor, Pacific Surfliner and Coast Route. The membership in each task force included local representation, the Department, host railroads (as owners of the infrastructure), the California High-Speed Rail Authority, and the Federal Railroad Administration (FRA).

The Amtrak Plan does the following:

- Establishes goals for the state's existing and emerging rail corridors.
- Creates a comprehensive vision statement representing local, regional, and statewide consensus on rail transportation investments.
- Lists the improvements required to achieve each corridor's goals.
- Identifies and prioritizes specific improvement projects that will achieve the greatest return on investment in terms of increasing capacity, train frequency, reliability, speed, and safety. The Department has adopted the "Immediate" and "Near-term" increments of the Amtrak Plan for its 10-year capital program and cost projections.
- Optimizes the integration of all passenger rail services to ease transfers.
- Specifies the funding required at both the corridor and project level to improve infrastructure and purchase trains.
- Provides a blueprint to guide future rail planning and investment decisions in the immediate (up to 3 years), near term (4 to 8 years), and long term (9 to 20 years).

AMTRAK'S STRATEGIC BUSINESS PLAN

The purpose of the *Strategic Business Plan 1999-2002* (the Amtrak Strategic Plan), published by Amtrak in October 1998, is to articulate Amtrak's business vision and define strategies and actions that are necessary to successfully meet the business vision. Amtrak's 1999-02 vision is: "maximizing Amtrak's potential in the marketplace." While Amtrak has a federal mandate to become operationally self-sufficient by the end of federal fiscal year (FFY) 2002, the Amtrak Strategic Plan stresses that continued federal capital investment is necessary to achieve operational self-sufficiency. The Taxpayer Relief Act (TRA) of 1997 provided $2.2 billion towards a $5 billion need over the five-year 1997-2002 period identified in the FY 1997-2002 Strategic Capital Plan. The Amtrak Strategic Plan assumes that federal capital support will continue in addition to the TRA.

The Amtrak Strategic Plan is focused on the 5 Key Corporate Strategies and their relationships to 11 Operational Initiatives. The key strategies are:

- Build a market-based network to create economic viability that is critical for the survival of a national network.
- Develop corridor services as the engine of long-term survival.
- Develop consistent quality service to ensure that Amtrak's passengers return again and again, creating the foundation for economic health.
- Revitalize the Amtrak brand to reflect the changing product and corporate culture.
- Leverage public and private partnerships to permit each partner, including Amtrak, to build on its strengths, facilitating service where it might otherwise not be viable.

In February 2001, the Amtrak Strategic Plan was revised with the release of *Building a Commercial Enterprise: FY01-05 Financial Plan Update* (the Financial Plan Update), which extends the Amtrak Strategic Plan over the period 2001 to 2005. The Financial Plan Update adds a 6th key strategy to the list above:

- Operating a cost-effective business.

The Operational Initiatives in the Amtrak Strategic Plan are:

- Launch high-speed rail.
- Grow mail and express business lines.
- Manage the sales and distribution network.
- Improve fleet quality and management.
- Contain core-operating costs.
- Pursue new commercial ventures.
- Continue safety excellence.
- Advance information technology.

- Conclude labor negotiations.
- Capitalize on human resources.
- Develop contract commuter services.

The Financial Plan Update focuses on mail and express growth, cost management, and high-speed corridor development from among the above list of initiatives. It also focuses on service quality and ticket revenue enhancement. These initiatives together stress improving operating efficiency and rigorous cost management.

INTERREGIONAL STRATEGIC PLANNING

The Department's Interregional Transportation Strategic Plan (ITSP) is the strategic planning document for interregional capital projects, and is the framework for implementing the Department's interregional transportation funding program. The ITSP addresses the development of both the State highway interregional road system and intercity rail in California and includes strategies for other eligible fund uses such as interregional mass transit guideways and grade separations. It relies heavily upon the State Rail Plan for its intercity rail portion.

The first ITSP was developed for the 1998 State Transportation Improvement Plan (STIP). It laid out the goals and objectives for the interregional program and identified a small subset of highways to complete to freeway standards to ensure interregional mobility in areas not served by the Interstates (referred to as Trunk Routes). The 2001 ITSP update will address primarily the priorities for using interregional funds to improve mobility to and through urbanized areas.

STATEWIDE RAIL ASSESSMENT

Chapter 597, Statutes of 2001 (AB 1706 – Committee on Transportation), provides for the Department, in conjunction with the Office of Planning and Research, to conduct a statewide rail transportation assessment, incorporating both a passenger and a freight rail system portion. Under pending legislation, the assessment will be submitted to the Legislature by October 1, 2002.

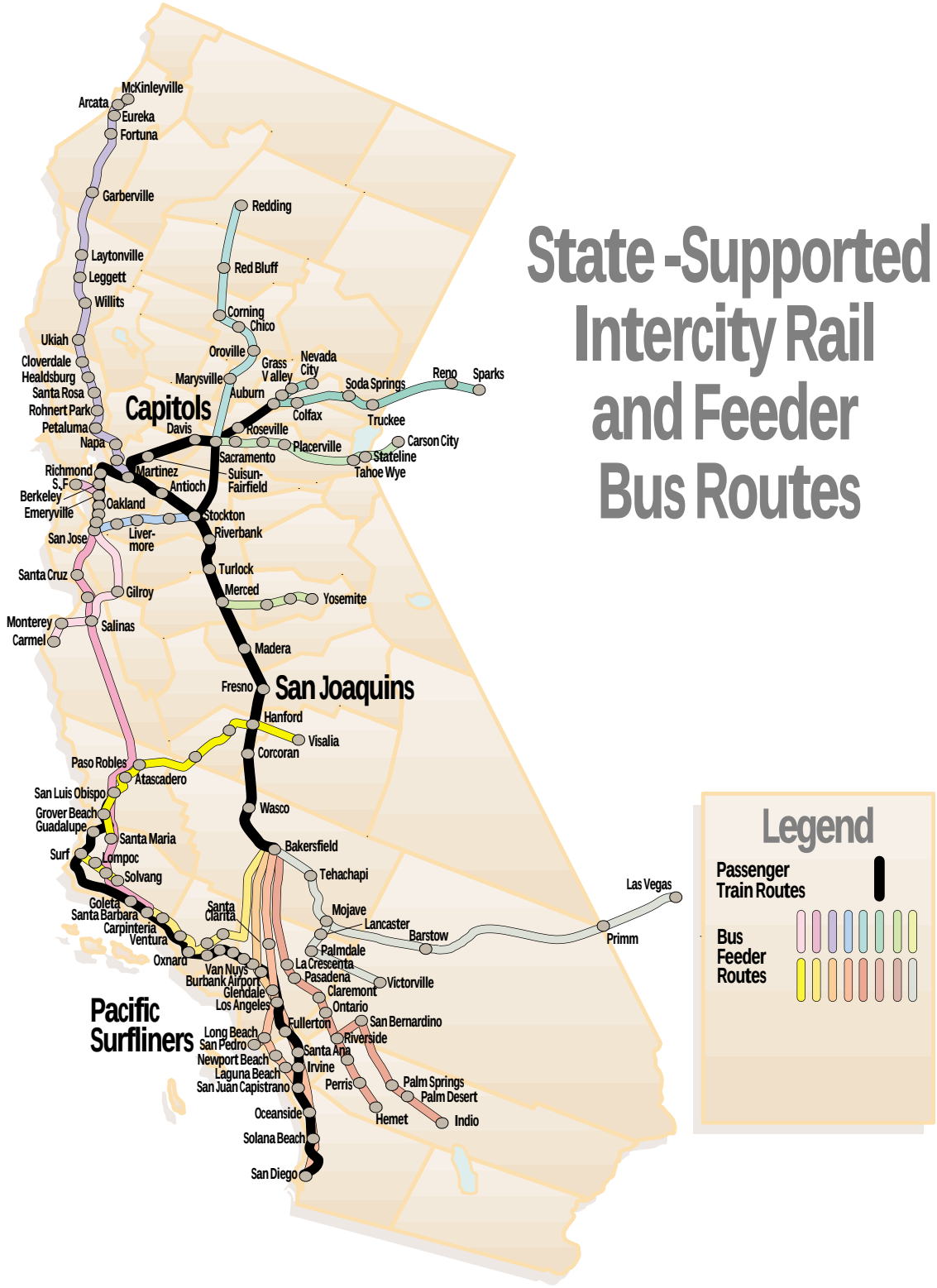
The statewide rail transportation assessment will address all of the issues identified in AB 1706, which covers four areas:

- Examining how the different modes of rail transportation interconnect with each other and other forms of transportation;
- Identifying where there are currently high levels of track congestion affecting passenger rail services and publicly-owned freight rail facilities, as well as where agencies project future rail congestion problems;
- Reporting on plans for capital projects for both public and private passenger rail transportation agencies and public freight rail operations over the next 10 years;

- Examining the cost effectiveness of current funding for rail projects.

The assessment is intended to rely primarily on existing plans and documents as well as input from public and private stakeholders. To facilitate input, stakeholder committees will be formed. These committees will include representatives from the Department, the Office of Planning and Research, freight railroads/operators, Amtrak, the CCJPA, commuter railroads, local transit agencies, Metropolitan Planning Organizations, and other interested parties.

Figure 2A


State -Supported Intercity Rail and Feeder Bus Routes
Capitols
San Joaquins
Pacific Surfliners
McKinleyville
Arcata
Eureka
Fortuna
Garberville
Redding
Laytonville
Leggett
Willits
Red Bluff
Corning
Chico
Ukiah
Oroville
Cloverdale
Healdsburg
Santa Rosa
Rohnert Park
Petaluma
Napa
Marysville
Grass Valley
Nevada City
Auburn
Soda Springs
Reno
Sparks
Colfax
Truckee
Davis
Roseville
Placerville
Carson City
Sacramento
Stateline
Tahoe Wye
Richmond
S.F
Berkeley
Emeryville
Martinez
Antioch
Suisun-Fairfield
Oakland
Stockton
Riverbank
San Jose
Liver-more
Turlock
Santa Cruz
Gilroy
Merced
Yosemite
Monterey
Carmel
Salinas
Madera
Fresno
Hanford
Visalia
Corcoran
Paso Robles
Atascadero
San Luis Obispo
Grover Beach
Guadalupe
Wasco
Santa Maria
Surf
Lompoc
Solvang
Bakersfield
Tehachapi
Goleta
Santa Barbara
Carpinteria
Ventura
Santa Clarita
Mojave
Lancaster
Barstow
Las Vegas
Primm
Oxnard
Van Nuys
Burbank Airport
Glendale
Los Angeles
Palmdale
La Crescenta
Pasadena
Claremont
Victorville
Ontario
San Bernardino
Fullerton
Riverside
Long Beach
San Pedro
Newport Beach
Laguna Beach
San Juan Capistrano
Santa Ana
Irvine
Perris
Palm Springs
Palm Desert
Hemet
Indio
Oceanside
Solana Beach
San Diego
Legend
Passenger Train Routes
Bus Feeder Routes

CHAPTER II
THE CALIFORNIA RAIL NETWORK

This chapter describes the California Rail Network and the State's responsibility vis-à-vis this network. The chapter concentrates primarily on passenger service, since that is the subject of this element of the State Rail Plan.

A varied and extensive network of intercity, commuter and urban rail passenger services is operated in the State of California. Figure 2A is a map displaying the State-supported intercity rail and connecting bus routes. Figure 2B summarizes all of the intercity, commuter and urban rail services in California.

PASSENGER RAIL SERVICES

Types of Rail Services

There are three general types of services, as follows:

- **Intercity Rail -** operates largely between several regions of the State, using the Railroad Mode (see description below). Basic system trains are funded exclusively by Amtrak. State-supported trains are funded by both the State and Amtrak. The Pacific Surfliner Route includes both State-supported service and basic system service. The Capitol Route is funded by the State but administered by the CCJPA.
- **Commuter Rail -** operates primarily within a single region of the State, serving regional and local transportation needs, using the railroad mode.
- **Urban Rail -** operates locally within an urban region of the State, serving local transportation needs, using either the Heavy Rail, Light Rail, or Cable Car Modes (see descriptions below).

Rail Modes

The three types of services use four modes. These modes are as follows:

- **Railroad -** Rail passenger service using tracks owned by a freight railroad (or purchased or leased by a public entity from such a railroad). Generally, rail freight service uses the same tracks. In California, all such rail passenger service is presently diesel powered, except for certain steam-powered trains on tourist rail services. In the Northeast and Midwest certain intercity and commuter rail services are electric powered. This mode is regulated by the Surface Transportation Board and the Federal Railroad Administration (FRA), with the California Public Utilities Commission (CPUC) regulating railroad safety, including grade crossings.
- **Heavy Rail -** Transit service using rail cars with motive capability, driven by electric power usually drawn from a third rail, configured for

passenger traffic and usually operated on exclusive rights-of-way. Utilizes generally longer trains and consists of longer station spacing than light rail. Formerly rail rapid transit (Federal Transit Administration [FTA] definition). This mode is regulated entirely by the CPUC.

Figure 2B

RAIL PASSENGER SERVICES IN CALIFORNIA

Type of Service	Mode	Operator	Service Name	Service Area
Intercity Rail	Railroad	Amtrak (State Supported)	Pacific Surfliner*	San Luis Obispo-Santa Barabara-Los Angeles-San Diego
			San Joaquin	Bay Area/Sacramento-Fresno-Bakersfield
			Capitol Corridor	Auburn-Sacramento-Oakland-San Jose
		Amtrak (Basic System)	Coast Starlight	Los Angeles-Oakland-Sacramento-Seattle
			Southwest Chief	Los Angeles-Kansas City-Chicago
			Sunset Limited	Los Angeles-Houston-New Orleans-Orlando
			Texas Eagle	Los Angeles-Dallas/Fort Worth-St. Louis-Chicago
			Pacific Surfliner*	San Luis Obispo-Santa Barabara-Los Angeles-San Diego
Commuter Rail	Railroad	Peninsula Corridor Joint Powers Board	Peninsula Commute Service (Caltrain)	San Francisco-San Jose-Gilroy
		Altamont Commuter JPA	ACE	Stockton-San Jose
		Southern California Regional Rail Authority	Metrolink •San Bernardino Line •Antelope Valley Line •Riverside Line •Ventura County Line •Orange County Line	Los Angeles- •San Bernardino •Lancaster •Riverside (via East Ontario and Fullerton) •Oxnard •Oceanside
			•Inland Empire-Orange County Line	San Bernardino-San Juan Capistrano
		North County Transit District	Coaster	Oceanside-San Diego
Urban Rail	Heavy Rail	San Francisco Bay Area Rapid Transit District	BART	San Francisco – •Richmond •Pittsburg/Bay Point •Daly City/Colma •Dublin/Pleasanton •Fremont
				Richmond-Fremont
		Los Angeles Co. Metropolitan Transportation Authority (LACMTA)	Metro Rail Red Line	Los Angeles – •Wilshire/Western •North Hollywood
	Light Rail	Sacramento Regional Transit District	RT Light Rail	Sacramento – •Watt/I-80 •Mather Field/Mills
		San Francisco Municipal Railway	Muni Metro •F •J •K •L •M •N	San Francisco – •Market-Wharves •Church •Ingleside •Taraval •Oceanview •Judah
		Santa Clara Valley Transportation Authority	VTA Light Rail	San Jose – •Baypointe •Santa Teresa •Almaden
				Mountain View – Baypointe
		LACMTA	Metro Rail Blue Line Metro Rail Green Line	Los Angeles-Long Beach Norwalk-Redondo Beach
		San Diego Trolley, Inc.	San Diego Trolley •Blue Line •Blue Line •Orange Line	San Diego – •San Ysidro/Tijuana •Qualcom Stadium/Mission San Diego •Santee
	Cable Car	San Francisco Municipal Railway	Muni Cable Car	San Francisco – •California Street •Powell-Mason/Hyde

* - State supports 67% of all service; Amtrak supports 33%.

- **Light Rail -** A fixed-guideway mode of urban transportation utilizing predominantly reserved but not necessarily grade-separated rights-of-way. It uses primarily electrically propelled rail vehicles, operated singularly or in trains. A raised platform is not necessarily required for passenger access. (In generic usage, light rail includes streetcars, [vintage] trolley cars, and tramways. In specific usage, light rail refers to very modern and more sophisticated developments of these older rail modes.) (FTA definition.)
- **Cable Car -** A streetcar type of vehicle that is propelled by means of an attachment to a moving cable located below the street surface and powered by engines or motors at a central location not on board the vehicle. (FTA definition.)

THE STATE'S ROLE IN RAIL PASSENGER SERVICE

Intercity Rail Services

Intercity train services operate largely between several regions of the State. In California, Amtrak currently operates all State-supported intercity rail service under the provisions of the Federal Rail Passenger Service Act (49 U.S.C. 24101). Until 1998 all intercity rail services were planned and administered by the State. In July 1998, the CCJPA assumed administration of the Capitol Corridor, while the State continues to pay operating costs. The State encourages local and regional planning agencies to share their ideas and concerns regarding service to their respective areas.

Intercity services are components of the State's overall transportation system. Services intended to meet primarily local needs are developed as commuter and urban rail services rather than intercity.

The State and Amtrak each pay a portion of the operating costs of State-supported intercity rail services. The State pays for the majority of capital improvements to intercity rail services. Local agencies often pay for station improvements, and railroads have also made contributions. In the past, the federal government and Amtrak have paid for a minimal amount of capital improvements, but recently Amtrak has increased its capital contributions, particularly for rolling stock acquisition.

Commuter and Urban Rail Services

Because commuter and urban rail services primarily serve local and regional transportation needs, they are planned and administered by local and regional transportation agencies. Funding is available at the local, State, and federal levels. Operating funds generally come from local funds and State Transit Assistance (STA) funds. Capital funds also come from a variety of local, federal and State sources. The Department is primarily responsible for administering the State grant programs for commuter and urban rail services.

DEFINITION OF COMMUTER VERSUS INTERCITY RAIL

The Federal Rail Passenger Service Act (RPSA) and related legal decisions define commuter and intercity rail service.

The RPSA (49 U.S.C. 24102) states that:

"Commuter rail passenger transportation" means short-haul rail passenger transportation in metropolitan and suburban areas usually having reduced fare, multiple-ride, and commuter tickets and morning and evening peak period operations.

The Penn Central Transportation Company Discontinuance decision (338 ICC 318) was issued by the Interstate Commerce Commission (ICC) after a 1971 investigation held to determine whether certain trains constituted commuter service, thus placing them outside the jurisdiction of Amtrak, which at the time had just been created.

Specifically, the ICC concluded that a commuter service:

…would likely include some or all of the following features..:

- The passenger service is primarily being used by patrons traveling on a regular basis either within a metropolitan area or between a metropolitan area and its suburbs;
- The service is usually characterized by operations performed at morning and evening peak periods of travel;
- The service usually honors commutation or multiple-ride tickets at a fare reduced below the ordinary coach fare and carries the majority of its patrons on such a reduced fare basis;
- The service makes several stops at short intervals either within a zone or along the entire route;
- The equipment used may consist of little more than ordinary coaches;
- The service should not extend more than 100 miles at the most, except in rare instances; although service over shorter distances may not be commuter or short haul within the meaning of the exclusion.

The RPSA (49 U.S.C. 24102) also states that:

"Intercity rail passenger transportation" means rail passenger transportation, except commuter rail passenger transportation.

Thus, both the RPSA and the ICC specifically defined commuter rail service in the manner detailed above, and stated that intercity rail service is all other service not falling within the commuter rail definition. The inclusion of State-supported rail services under the RSPA definition of "intercity" is critical. This results from Amtrak's right under RSPA to access freight railroad tracks for the operation of intercity rail services. Also, Amtrak may only be charged the incremental cost to the railroad for such access.

Currently, there is no definition in State law for commuter or intercity rail service. Prior definitions, which essentially referred to the federal definitions, were deleted under Chapter 622, Statutes of 1997 (SB 45 - Kopp).

AMTRAK BASIC SYSTEM SERVICES

At present, Amtrak operates basic system trains over six routes in California. The Pacific Surfliner Route between San Luis Obispo, Santa Barbara, Los Angeles and San Diego is unique because it is partially a basic system service and partially State-supported. The other five services are interstate routes that provide varying levels of intrastate service in California

The following paragraphs briefly describe the various basic system routes serving California and their significance to the State's transportation needs. (California's State-supported trains are the subjects of Chapters V, VI, and VII of the State Rail Plan.) Ridership figures are for Amtrak's 1999-00 fiscal year ending September 30, 2000 and include the total route ridership, not just the portion in California. Figure 2C is a map displaying the basic system routes in California.

ROUTE DESCRIPTIONS

Pacific Surfliner Route (San Luis Obispo-Los Angeles-San Diego)

Ridership on the Pacific Surfliner Route is only exceeded by routes in the Northeast Corridor between Boston, New York and Washington, D.C. Eleven daily round-trips operate on Monday through Thursday and twelve daily round-trips operate on Friday through Sunday between Los Angeles and San Diego. Four round-trips are extended north between Los Angeles and Santa Barbara, one of which continues to San Luis Obispo. Amtrak pays for 33 percent of the entire service as part of Amtrak's basic system. The State pays most of the costs on the remaining 67 percent of the service. Ridership in 1999-00 was 1,577,900, an increase of 2.4 percent from the previous year. Chapter V of this Plan discusses this route in detail.

The Coast Starlight (Los Angeles-Oakland-Sacramento-Portland-Seattle)

The Coast Starlight is the most popular long distance train in the Amtrak system. For many years demand has often outstripped capacity during summer and holiday travel periods. Ridership in 1999-00 on the service's one daily round-trip totaled 502,100, a slight decrease over the previous year.

The Coast Starlight serves many major urban areas in California and the Pacific Northwest, including Portland and Seattle, with a bus connection to Vancouver, British Columbia. A substantial portion of its ridership is generated by intrastate California travel. Direct connections with the Pacific Surfliner at Los Angeles effectively extend the route south to San Diego. Connections with the San Joaquin at Sacramento and Martinez provide Central Valley access for travelers to and from the north. State-funded intermodal facilities have been developed at several stops along the Starlight route.

The California Zephyr (Emeryville-Reno-Denver-Chicago)

The California Zephyr provides local service in the Emeryville-Sacramento-Reno corridor, and extra coaches are often carried on this portion of the route to handle heavy loads to and from Reno. A stop in Truckee serves Lake Tahoe and nearby Sierra ski areas. Salt Lake City, Denver, Lincoln and Omaha are also on the route. Dedicated feeder buses link Emeryville with San Francisco. Ridership on the one daily round-trip California Zephyr in FY 1999-00was 382,900, a decrease of 6.1 percent from the prior year.

The Southwest Chief (Los Angeles-Chicago)

The Southwest Chief provides access to the Grand Canyon at Flagstaff and to Albuquerque. The route also provides the only direct rail service from California to Kansas City. Ridership on the service's one daily round-trip totaled 268,300 in 1999-00, a decrease of 6 percent from the prior year.

The Sunset Limited (Los Angeles-New Orleans-Orlando)

The Sunset Limited operates three days a week in each direction and connects California to many major cities (such as Tucson, El Paso, San Antonio, Houston, New Orleans, Mobile, Tallahassee, Jacksonville and Orlando). It is Amtrak's only transcontinental passenger train. Ridership in 1999-00 totaled 114,400, a slight increase from the previous year.

The Texas Eagle (Los Angeles-Chicago)

The Texas Eagle operates three days per week in each direction between California points and such major cities as Fort Worth, Dallas, Little Rock, St. Louis and Chicago. It is combined with the Sunset Limited between Los Angeles and San Antonio. Ridership in 1999-00 was 145,100, an increase of 30.7 percent from the previous year, due largely to the increase in frequency to daily service between San Antonio and Chicago.

Figure 2C

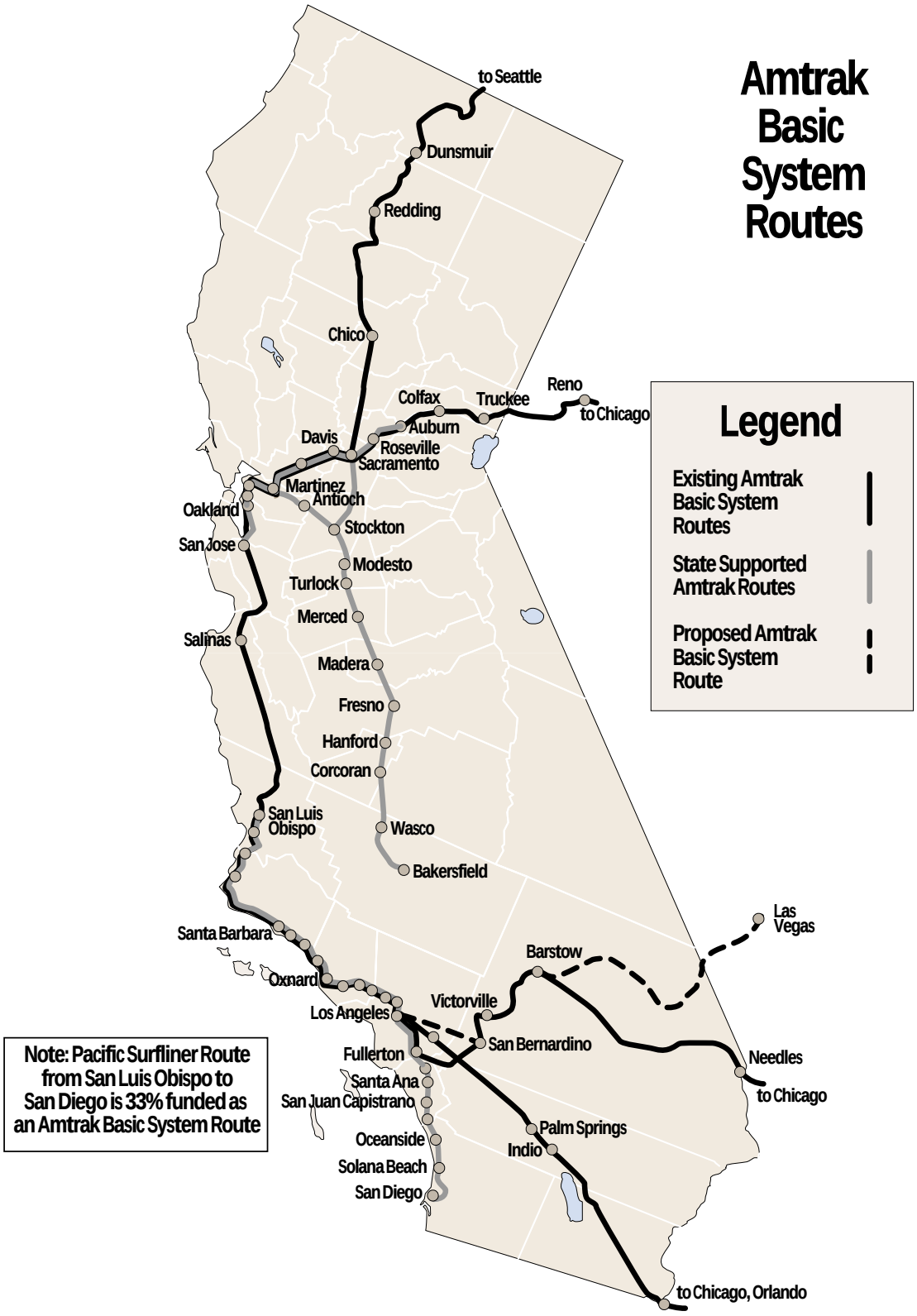

Amtrak Basic System Routes
to Seattle
Dunsmuir
Redding
Chico
Reno
to Chicago
Colfax
Truckee
Auburn
Davis
Roseville
Sacramento
Martinez
Antioch
Oakland
Stockton
San Jose
Modesto
Turlock
Merced
Salinas
Madera
Fresno
Hanford
Corcoran
San Luis Obispo
Wasco
Bakersfield
Santa Barbara
Las Vegas
Barstow
Oxnard
Victorville
Los Angeles
San Bernardino
Fullerton
Needles
to Chicago
Santa Ana
San Juan Capistrano
Palm Springs
Oceanside
Indio
Solana Beach
San Diego
to Chicago, Orlando
Legend
Existing Amtrak Basic System Routes
State Supported Amtrak Routes
Proposed Amtrak Basic System Route
Note: Pacific Surfliner Route from San Luis Obispo to San Diego is 33% funded as an Amtrak Basic System Route

Figure 2D

AMTRAK TRAIN AND BUS RIDERSHIP BY STATION
FEDERAL FISCAL YEARS 1998-1999 and 1999-2000 (See Note)

99-00 Rank	Station	County	1999-00 Ridership	1998-99 Ridership	Routes Serving Station *								Ticket Agent	Checke Baggag
					PS	SJ	CC	CS	CZ	TE	SC	SL		
1	L. A. Union Station	Los Angeles	1,119,453	1,066,254	TB	B		T		T	T	T	A	Bg
2	Sacramento	Sacramento	690,632	599,143		TB	T	T	T				A	Bg
3	San Diego	San Diego	666,787	653,018	TB	B							A	Bg
4	Emeryville	Alameda	659,093	548,367		T	T	T	T				A	Bg
5	Bakersfield	Kern	612,908	533,714	B	T							A	Bg
6	Stockton	San Joaquin	280,880	292,603		TB							A	Bg
7	Martinez	Contra Costa	280,818	274,246		T	T	T	T				A	Bg
8	Oakland	Alameda	274,045	222,963		T	TB	T	B				A	Bg
9	Fullerton	Orange	269,025	274,111	T						T		A	Bg
10	Oceanside	San Diego	262,679	258,310	TB	B							A	Bg
11	San Francisco	San Francisco	250,705	215,922		B	B	B	B				A	Bg
12	Solana Beach	San Diego	242,453	241,786	TB	B							A	Bg
13	San Jose	Santa Clara	241,703	258,895		B	TB	T					A	Bg
14	Santa Barbara	Santa Barbara	228,800	222,703	TB	B	B	T					A	Bg
15	Fresno	Fresno	220,692	236,322		T							A	Bg
16	San Juan Capistrano	Orange	216,836	206,946	TB	B							A	
17	Davis	Yolo	202,295	143,106		B	T	T	T				A	Bg
18	Anaheim	Orange	150,605	152,795	T								A	Bg
19	Irvine	Orange	145,755	129,648	T								A	
20	Santa Ana	Orange	142,993	153,390	TB	B							A	Bg
21	Hanford	Kings	133,027	150,741		T							A	Bg
22	Santa Clara-Great America	Santa Clara	99,314	25,591			TB							
23	Merced	Merced	98,652	81,174		T							A	Bg
24	San Luis Obispo	San Luis Obispo	89,526	89,899	TB	B	B	T					A	Bg
25	Oxnard	Ventura	81,421	77,198	TB	B		T					A	Bg
26	Richmond	Contra Costa	76,280	57,845		T	T							
27	Santa Cruz	Santa Cruz	75,478	82,523		B	B							
28	Van Nuys	Los Angeles	69,195	64,056	TB	B							A	
29	Modesto Δ	Stanislaus	68,289	67,016		T							A	Bg
30	Suisun-Fairfield	Solano	49,085	36,077			T							
31	Glendale	Los Angeles	44,671	40,931	TB	B		T						
32	Fremont	Alameda	43,806	22,305		B	TB							
33	Berkeley	Alameda	42,445	30,011			T							
34	San Bernardino	San Bernardino	35,177	33,100		B					T		A	Bg
35	Simi Valley	Ventura	34,351	33,316	TB	B		T						
36	Salinas	Mont	33,000	32,516		B	B	T					A	Bg
37	Yosemite Natl. Park	Mariposa	28,405	18,245		B								
38	Burbank Airport	Los Angeles	27,303	25,358	T	B								
39	Roseville	Placer	25,998	31,243			TB		T					
40	Ventura	Ventura	24,896	22,969	TB	B								
41	Corcoran	Kings	22,702	22,171		T								
42	Hayward	Alameda	20,982	9,366			TB							
43	Antioch-Pittsburg	Contra Costa	20,302	19,912		T								
44	Chatsworth	Los Angeles	20,064	18,920	TB									
45	Auburn	Placer	18,919	9,574		B	TB							
46	Chico	Butte	17,348	15,116		B	B	T						
47	Needles	San Bernardino	17,346	7,725							T			
48	Goleta	Santa Barbara	16,539	14,590	T									
49	Turlock-Denair	Stanislaus	15,484	14,963		T								
50	Grover Beach	San Luis Obispo	14,448	14,682	TB	B	B							

* Route and Symbol Key:

PS Pacific Surfliner (San Diego-Los Angeles-San Luis Obispo)
SJ San Joaquin (Oakland/Sacramento-Bakersfield)
CC Capitol Corridor (Auburn-Sacramento-Oakland-San Jose)
CS Coast Starlight (Los Angeles-Oakland-Sacramento-Seattle)
CZ California Zephyr (Emeryville-Chicago)
TE Texas Eagle (Los Angeles-Chicago)
SC Southwest Chief (Los Angeles-Chicago)
SL Sunset Limited (Los Angeles-Orlando)

T Train at this location
A Ticket Agent at this location
Δ- Includes Riverbank for part of year
B Connecting bus at this location
Bg Checked baggage at this location

NOTE: Official Amtrak ridership data for two Federal Fiscal Years (October 1998 through September 2000). Includes all passengers originating or terminating at each station on all routes shown above.

Figure 2D (Continued)

AMTRAK TRAIN AND BUS RIDERSHIP BY STATION
FEDERAL FISCAL YEARS 1998-1999 and 1999-2000

99-00 Rank	Station	County	1999-00 Ridership	1998-99 Ridership	Routes Serving Station *								Ticket Agent	Checke Baggag
					PS	SJ	CC	CS	CZ	TE	SC	SL		
51	Redding	Shasta	14,235	15,027		B	B	T						
52	Paso Robles	San Luis Obispo	13,515	12,991	B	B	B	T						
53	Santa Rosa	Sonoma	12,272	11,917		B	B							
54	Madera	Madera	12,152	13,244		T								
55	Wasco	Kern	12,121	15,339		T								
56	Truckee	Nevada	10,398	10,480		B	B		T					
57	Vallejo-Marine World	Solano	9,938	14,657		B	B							
58	Carpinteria	Santa Barbara	9,814	7,455	TB	B								
59	Monterey	Monterey	8,956	8,307		B	B							
60	Long Beach	Los Angeles	7,957	7,127	B	B								
61	Moorpark	Ventura	7,709	7,870	TB									
62	Nevada City	Nevada	7,219	6,319		B	B							
63	Riverside	Riverside	6,749	6,174		B								
64	Disneyland	Orange	6,728	5,239	B									
65	Camarillo	Ventura	6,580	5,636	T									
66	Rocklin	Placer	6,407	2,407		B	TB							
67	Ontario	San Bernardino	5,855	4,936		B				T		T		
68	Santa Maria	Santa Barbara	5,752	5,345	B	B	B							
69	Napa	Napa	5,592	4,588		B	B							
70	Pasadena	Los Angeles	5,574	4,809		B								
71	Guadalupe	Santa Barbara	5,548	6,355	TB									
72	Dunsmuir	Siskiyou	4,834	5,239				T						
73	South Lake Tahoe	El Dorado	4,611	4,167		B	B							
74	Barstow	San Bernardino	4,479	4,637		B					T			
75	Colfax	Placer	4,470	5,696		B	B		T					
76	Lompoc	Santa Barbara	4,430	5,538	B									
77	Claremont	Los Angeles	4,041	3,503		B								
78	Solvang	Santa Barbara	3,481	3,401	B		B							
79	Santa Clarita-Saugus	Los Angeles	3,433	2,908	B	B								
80	Grass Valley	Nevada	3,363	3,376		B	B							
81	Arcata	Humboldt	3,059	3,152		B	B							
82	Millbrae	San Mateo	3,002	1,347		B	B							
83	Victorville	San Bernardino	2,884	2,947							T			
84	Lancaster	Los Angeles	2,826	2,788		B								
85	Placerville	El Dorado	2,704	2,391		B	B							
86	Eureka	Humboldt	2,615	2,795	B	B								
87	Marysville	Yuba	2,601	4,122		B	B							
88	Palm Springs	Riverside	2,565	2,069		B				T		T		
89	Oroville	Butte	2,364	2,028		B	B							
90	Petaluma	Sonoma	2,138	1,850		B	B							
91	Rohnert Park	Sonoma	1,970	1,818		B	B							
92	McKinleyville	Humboldt	1,948	2,039		B	B							
93	Ukiah	Mendocino	1,455	1,355		B	B							
94	Palmdale	Los Angeles	1,444	1,516		B								
95	Tehachapi	Kern	1,401	1,521		B								
96	Palm Springs Airport	Riverside	1,395	1,407		B								
97	East Dublin-Pleasanton	Alameda	1,234	1,121		B								
98	Indio	Riverside	1,030	1,407		B								
99	Mojave	Kern	1,012	887		B								
100	Red Bluff	Tehama	1,000	943		B	B							

* Route and Symbol Key:

PS	Pacific Surfliner (San Diego-Los Angeles-San Luis Obispo)	CZ	California Zephyr (Emeryville-Chicago)
SJ	San Joaquin (Oakland/Sacramento-Bakersfield)	TE	Texas Eagle (Los Angeles-Chicago)
CC	Capitol Corridor (Auburn-Sacramento-Oakland-San Jose)	SC	Southwest Chief (Los Angeles-Chicago)
CS	Coast Starlight (Los Angles-Seattle)	SL	Sunset Limited (Los Angeles-Orlando)
T	Train at this location	B	Connecting bus at this location
A	Ticket Agent at this location	Bg	Checked baggage at this location

Figure 2D (Continued)

AMTRAK TRAIN AND BUS RIDERSHIP BY STATION
FEDERAL FISCAL YEARS 1998-1999 and 1999-2000

99-00 Rank	Station	County	1999-00 Ridership	1998-99 Ridership	Routes Serving Station *								Ticket Agent	Checked Baggage
					PS	SJ	CC	CS	CZ	TE	SC	SL		
101	San Pedro	Los Angeles	947	433		B								
102	Cameron Park	El Dorado	881	778		B	B							
103	Hemet	Riverside	872	118		B								
104	Pomona	Los Angeles	810	853						T		T		
105	Willits	Mendocino	777	770		B	B							
106	Tracy	San Joaquin	728	758		B								
107	Livermore	Alameda	750	726		B								
108	Santa Paula	Ventura	689	452		B								
109	Atascadero	San Luis Obispo	665	628	B	B								
110	Garberville	Humbolt	653	525		B	B							
111	Fortuna	Humbolt	635	546		B	B							
112	Rancho Cordova	Sacramento	552	680		B	B							
113	Mariposa	Mariposa	537	509		B								
114	Corning	Tehama	492	370		B	B							
115	Gilroy	Santa Clara	492	480		B	B							
116	Lake of the Pines Jct.	Nevada	442	382		B	B							
117	Palm Desert	Riverside	427	377		B								
118	Fillmore	Ventura	423	281		B								
119	Soda Springs	Nevada	297	166		B	B							
120	Watsonville	Santa Cruz	296	366		B	B							
121	MorenoValley	Riverside	253	**		B								
122	Healdsburg	Sonoma	250	258		B	B							
123	Cloverdale	Sonoma	246	176		B	B							
124	Rosamond	Kern	232	215		B								
125	Laguna Beach	Orange	222	167		B								
126	Seaside-C.S.U.M.B.	Monterey	221	247		B	B							
127	Rio Dell-Scotia	Humbolt	203	168		B	B							
128	Beaumont	Riverside	192	**		B								
129	La Crescenta	Los Angeles	162	**		B								
130	Midpines	Mariposa	154	**		B								
131	Laytonville	Mendocino	141	**		B	B							
132	Boron	Kern	122	111		B								
133	King City	Monterey	112	124		B	B							
	Buellton	Santa Barbara	**		B									
	El Portal	Mariposa	**			B								
	Goshen Jct.	Tulare	**			B								
	Kettleman City	Kings	**			B								
	Leggett	Mendocino	**			B	B							
	Lemoore	Kings	**			B								
	Littlerock	Los Angeles	**			B								
	Newport Beach	Orange	**		B	B								
	San Clemente	Orange	**		T									
	Soledad	Monterey	**			B	B							
	Surf/Lompoc	Santa Barbara	**		TB									
	Visalia	Tulare	**			B								

* Route and Symbol Key:

PS Pacific Surfliner (San Diego-Los Angeles-San Luis Obispo)
SJ San Joaquin (Oakland/Sacramento-Bakersfield)
CC Capitol Corridor (Auburn-Sacramento-Oakland-San Jose)
CS Coast Starlight (Los Angeles-Oakland-Sacramento-Seattle)
CZ California Zephyr (Emeryville-Chicago)
TE Texas Eagle (Los Angeles-Chicago)
SC Southwest Chief (Los Angeles-Chicago)
SL Sunset Limited (Los Angeles-Orlando)

T Train at this location
A Ticket Agent at this location
B Connecting bus at this location
Bg Checked baggage at this location
** New station. Ridership data not available for this year.

AMTRAK RIDERSHIP IN CALIFORNIA

Figure 2D shows ridership at each Amtrak train and bus station in California for FFYs 1998-99 and 1999-00. This table includes ridership on State-supported trains as well as Amtrak's basic system routes. The availability of a ticket agent or checked baggage service is also shown.

OTHER PASSENGER RAIL SERVICES

Other railroads in California offer more limited rail passenger service, which is generally tourist oriented. These non-Amtrak intercity rail passenger services remain subject to the regulatory jurisdiction of the California Public Utilities Commission (CPUC), FRA, and the Surface Transportation Board (STB).

The California Western Railroad (CWR) between Fort Bragg and Willits in Mendocino County is the principal privately owned railroad in California offering regularly scheduled rail passenger service. Excursion related passenger traffic on the CWR's 40-mile route is its primary business, with 60,225 passengers handled in their fiscal year ending May 2000. Round-trip service between Fort Bragg and Willits is offered daily from the end of May until the end of October. Service to intermediate stations between Fort Bragg and Northspur is offered from the beginning of March to the end of December.

Other railroads offer rail passenger tourist service on less than a year-round, daily basis, usually daily and/or weekends during the summer and holidays. For additional information on rail passenger tourist service, call California Tourism at 1-800-862-2543.

RELATIONSHIP TO FREIGHT RAIL SERVICES

Most rail lines in California are owned and operated by private railroad companies, such as Burlington Northern and Santa Fe (BNSF) and Union Pacific (UP). The primary function of private railroads in California is to provide rail freight service to shippers within California, and between California and other points in the United States, Canada and Mexico. Upon request of Amtrak (for intercity rail passenger service) and local or regional entities (for commuter rail passenger service), these freight railroads enter into contracts to permit operation of rail passenger services on their lines. Under such contracts the railroads typically provide use of their tracks, signal and dispatching systems, and certain station and yard facilities. They are compensated by Amtrak and other public entities under the provisions of the applicable operating contracts. Contracts with Amtrak for provision of intercity service are executed pursuant to the Federal Rail Passenger Service Act (49 U.S.C. 24101).

Capital improvement projects are often needed to provide sufficient capacity to allow both the new rail passenger service and the existing freight service to operate efficiently on main line tracks of the private freight railroads.

To facilitate introduction of new or expanded intercity and commuter rail passenger services, the Department and other public entities will often fund improvement projects that also often benefit the freight railroads. The actual improvements are usually constructed by the railroad. Freight rail service in California is discussed in the freight rail element of the State Rail Plan beginning with Chapter IX.

CHAPTER III
FUNDING AND CAPITAL

This section contains a discussion on Intercity Rail Funding and the Intercity Rail Capital Program, including a 10-year capital plan.

INTERCITY RAIL FUNDING

Funding for intercity rail systems comes primarily from State sources, but also includes local, federal, Amtrak, and railroad funding sources. Below is an overview of these funding sources.

Public Transportation Account (PTA)

The PTA is the exclusive source of intercity rail operating funds (as discussed in Chapter IV) and a potential source of intercity rail capital funds. Proposition 116 designated the PTA as a trust fund to be used only for transportation planning and mass transportation purposes. The PTA is primarily funded from a 4.75 percent portion of the 7.0 percent state sales tax on diesel fuel and a 4.75 percent portion of the 7.0 percent state sales tax on half of the State's eighteen-cent excise tax on gasoline. However, the passage of legislation, Chapter 156, Statutes of 2001 (AB 426), reduces diesel fuel sales tax revenues because diesel fuel used in farming activities and food processing are exempt from sales taxes beginning September 1, 2001. The Board of Equalization estimates that the impact on the PTA will be a reduction of approximately $21 million annually.

The Public Utilities Code (Sections 99312 and seq.) governs the uses of PTA funds. Chapter 622, Statutes of 1997 (SB 45 - Kopp), changed the funding formula for the PTA, increasing the funds going to the State Transit Assistance (STA) Program, and decreasing the funds available for the inter-city rail program. Fifty percent of the sales tax revenues fund the STA Program, while the remaining monies are available to fund a number of State programs including intercity rail operations; rail, mass transportation and planning staff support; and mass transit capital projects. Additionally, SB 45 eliminated the Transit Capital Improvement (TCI) Program, which had been a regular funding source for intercity rail capital projects.

Prior to the passage of the 2000-01 Budget, the PTA was projected to have a significant deficit by 2003-04. However, the Governor's Traffic Congestion Relief Program (TCRP), [Chapter 91, Statutes of 2000 (AB 2928 - Torlakson)], enacted two changes that provided major relief to the PTA:

- AB 2928 authorized the annual transfer of all non-Article XIX funds in the SHA into the PTA. Article XIX of the Constitution does not allow the use of SHA funds for rail equipment or operations. The unrestricted SHA funds include funds from the sale of documents, charges for miscellaneous services to the public, rental of State property, etc., and are estimated at approximately $45 million a year.

- AB 2928 also required that over $50 million be transferred annually to the PTA from sales taxes deposited in the General Fund (GF) from the sale, storage, use or other consumption of motor vehicle fuel for the five-year period between July 1, 2001, and June 30, 2006.

Chapter 113, Statutes of 2001 (AB 438), a Transportation Refinancing Plan approved by the Legislature and Governor as a budget trailer bill, defers the transfer of gasoline sales tax revenues from the GF for two years. Thus the transfers from the GF to the Transportation Investment Fund (TIF) and to the TCRF and PTA will commence on July 1, 2003. This deferral eliminates the transfer of $177 million in gasoline sales tax funds from the Transportation Investment Fund (TIF) to PTA in Fiscal Years 2001-02 and 2002-03. The deferral of funds in FY 2001-02 and 2002-03 will be offset by extending the PTA transfers under the TCRP for two years to 2006-07 and 2007-08.

The cash flow needs of the TCRP will be met by short-term and long-term loans. The short-term loans are to be repaid within the fiscal year. The long-term loans, up to $280 million from PTA, to the TCRF are to be repaid no later than June 30, 2008.

The amount of gasoline sales tax revenues to be transferred to the PTA under the "spillover" formula was capped at $81 million in 2001-02 and $37 million in 2002-03, with any revenues exceeding these caps split evenly between PTA and the GF. The spillover formula was added to the law when gasoline was made subject to the sales tax base. At the same time, the GF sales tax rate was reduced by 1/4 percent. The idea was that that adding gasoline to the sales tax base should not increase GF revenues - the revenue loss from the 1/4 percent reduction was intended to offset the additional revenue from taxing gasoline. To ensure that the GF did not benefit from taxing gasoline, the spillover formula was added. It says that when the revenue from gasoline sales is greater than 1/4 percent of all other sales, the additional revenue goes to the PTA.

The 2001-02 Budget included $91 million in PTA funds for track improvements on all three State-supported routes.

The Legislature approved a constitutional amendment, to permanently dedicate the sales tax on gasoline to transportation beginning in 2003-04. ACA 4 (Dutra) will be on the ballot and voted on by the electorate in March 2002. Beginning in 2008-09, the sales tax on gasoline would be transferred from the GF to the TIF, with 20 percent being distributed to the PTA.

An updated five-year 2002 STIP Fund Estimate (2002-03 through 2006-07) was presented to the CTC in July 2001, and reflects the impact of changes made by AB 2928, AB 426 and AB 438. The CTC adopted the final Fund Estimate in August 2001. The Fund Estimate identifies funds for existing intercity rail services and proposed new services. Additionally, the Fund Estimate shows a projected $182 million in PTA funds available for capital funding during the Fund Estimate period.

State Highway Account (SHA)

The bulk of the SHA supports the State's highway system, but a portion of the account also supports rail projects in the STIP.

The SHA receives its funds from State gasoline taxes, diesel fuel taxes, State vehicle weight fees and federal funds made available to the State under Title 23, U.S. Code, Highways. Use of the State generated portion of the SHA is governed by Article XIX of the State Constitution that allows the funds to be used for research, planning, construction, improvement, maintenance and operation of public streets and highways. Additionally, the SHA can be used for the research, planning, construction, and improvement of public mass transit guideways (which includes intercity, commuter and urban rail, and electric trolley bus services) and their fixed facilities. The SHA cannot be used for mass transit vehicle acquisition or maintenance and operating costs.

The 1989 Blueprint Legislation allowed intercity rail to receive more capital funding from the SHA. Chapter 622, Statutes of 1997 (SB 45 - Kopp), increased this amount by giving intercity rail and grade separation projects a minimum of 9 percent of the interregional portion of the STIP as part of the Interregional Transportation Improvement Program (ITIP). As a result, in the 1996 STIP, 1998 STIP, the 1998 STIP Augmentation, and the 2000 STIP, $356.4 million was programmed for intercity rail projects. Intercity rail projects can also be programmed in the Regional Transportation Improvement Program (RTIP).

Traffic Congestion Relief Fund (TCRF)

Chapter 91, Statutes of 2000 (AB 2928 - Torlakson), established the Governor's TCRP to be funded from the TCRF. AB 2928 appropriated to TRCF $1.5 billion from the GF and $0.5 billion from retail sales and use taxes, for a total of $2 billion, and a transfer of $3.3 billion from gasoline sales tax revenues in the GF.

AB 438 defers the gasoline sales tax revenue transfers from the GF until July 1, 2003. The legislation also extends the program over five years from July 1, 2003, through June 30, 2008, with total transfers estimated at $5.314 billion. The TCRP includes $201.5 million for specific intercity rail capital projects.

The estimate of the total TCRP is $8.572 billion, which includes the initial transfer of $2 billion in 2000-01.

The Passenger Rail and Clean Air Bond Act of 1990 (Proposition 108)

The 1989 Blueprint Legislation authorized three $1 billion rail bond measures to be placed on the ballot in 1990, 1992 and 1994. In 1990 the voters approved the first $1 billion rail bond measure - The Passenger Rail and Clean Air Bond Act of 1990. To date, almost all of these bond proceeds have been used to fund new rail projects and improvements to existing

systems, including $225 million for intercity rail capital projects. The voters did not approve the subsequent two bond measures in 1992 and 1994.

Clean Air and Transportation Improvement Act of 1990 (Proposition 116)

Proposition 116 provided a $1.99 billion one-time source of funding for rail and transit projects. Proposition 116 contained about $382 million for intercity rail capital projects, $1.37 billion for urban and commuter rail projects, and $235 million for other transit and transit related projects. Most of these bond funds have been allocated.

General Fund (GF)

The 1999-00 and 2000-01 State Budgets provided GF money for intercity rail capital projects. The 1999-00 Budget included $17.5 million for new intercity rail rolling stock. The 2000-01 Budget provided $30 million for new equipment, and $20 million for track improvements on the San Joaquin Route.

Local Funds

Although intercity rail passenger services are funded primarily by the State, a substantial amount of local funds have been invested, mainly on the Pacific Surfliner Route, to fund commuter rail development. These funds serve to enhance intercity rail service where used to improve tracks, signals and stations also used by intercity trains. Also, intercity rail stations are often owned by cities and funded with local revenue in addition to STIP funding. The Department will work with local and regional entities that may wish to fund higher levels of service than State resources are able to provide.

Federal Funds

Federal transportation funds from various programs are used for intercity rail projects. In particular, funding has been provided for station projects from the FTA Section 5307 and 5309 capital programs. However, federal flexible transportation funds, such as are provided through the Surface Transportation Program, are generally not available for intercity rail projects.

Currently, the High-Speed Rail Investment Act of 2001 (proposed in S. 250 and H.R. 2329) is pending in Congress. This act would provide $12 billion in bonding authority ($1.2 billion per year over a 10-year period) for rail capital improvements on qualifying routes nationwide, which include all of California's existing State-supported routes. The federal government would provide tax credits to bondholders in lieu of interest payments. The funds would be invested in upgrading existing lines to high-speed rail, constructing new high-speed rail lines, purchasing high-speed rail equipment, eliminating or improving grade crossings, station development and other capital upgrades. California would be eligible for up to $3 billion. States would be required to provide 20 percent of the cost of the funded projects.

Subsequent to the events of September 11, 2001, several additional bills were introduced in Congress to provide financial assistance to intercity rail passenger services. These bills included various funding provisions, such as grants, direct loans, loan guarantees, and tax exempt and tax credit bonds. The proposals would fund capital projects for high-speed rail passenger service, increase intercity rail security and safety, and provide economic stimulus.

Amtrak Funds

Amtrak develops and funds some California intercity rail capital projects. The largest investment has been in maintenance facilities and rolling stock. As a result of the Taxpayer Relief Act of 1997, Amtrak was provided over $2 billion in capital funds for its nationwide system. Amtrak recently began to increase its investment in California. For example, Amtrak purchased 40 new passenger cars and 14 locomotives for the Pacific Surfliner Route at a cost of about $135 million.

On November 9, 2001, the Amtrak Reform Council (ARC), an oversight agency created by the Amtrak Reform and Accountability Act of 1997 (ARAA), found (6-5 vote) that Amtrak will fail to meet operating self-sufficiency by December 2, 2002. This action triggers a 90-day period in which the ARC must develop a plan for restructuring Amtrak and Amtrak must develop a plan for liquidation to be submitted to Congress. Funding to Amtrak to prepare the liquidation plan has been deferred by Congress until an Amtrak Reauthorization Act is passed.

Railroad Funds

The State and the railroad owning the right-of-way of an intercity passenger route sometimes share in the cost of track and signal improvement projects.

INTERCITY RAIL CAPITAL PROGRAM

Background

Since the Amtrak era began in 1971, over $2.5 billion has been invested in intercity rail capital projects in California. The largest investor is the State. However, there also have been significant investments by local entities, Amtrak railroads and the federal government.

As is discussed in Chapter IV, intercity rail service in California has grown dramatically since 1971. These service increases were dependent on the implementation of capital projects. Track and signal projects have increased capacity and speed. Station projects have allowed for new services, new stops and improved accommodations at renovated stations. New rolling stock has allowed for new services, and improved passenger service and comfort. For example, the Department has purchased 88 new California Car passenger cars and 15 new F-59 locomotives.

The intercity rail capital program was originally funded from special legislation and the Intermodal Facilities Program. This program was then

broadened to become the TCI Program, which had a number of eligible project categories, using both Transportation Planning and Development (TP&D) Account funds and SHA funds. In the late 1980s, some capital funding was provided through direct appropriations in the Budget Act or in other legislation.

In 1989, capital funding for intercity rail increased dramatically with the passage of legislation authorizing the placement on the ballot of a bond measure in 1990 (Proposition 108) for $1 billion in bond funds for rail projects, including about $225 million for intercity rail. Additionally, in 1990, Proposition 116, an initiative measure, passed. It provided $2 billion for rail, including about $382 million for intercity rail. To date, practically all available Proposition 108 and 116 funds for intercity rail have been used.

The 1989 legislation also allowed intercity rail to receive more capital funding from the SHA. Later, Chapter 622, Statutes of 1997 (SB 45 - Kopp), was passed which gives intercity rail projects a minimum of 9 percent of the interregional portion of the STIP as part of the ITIP. Intercity rail projects can also be funded in the RTIP. As a result, in the 1996 STIP, 1998 STIP, the 1998 STIP Augmentation, and the 2000 STIP, a total of $356.4 million has been programmed for intercity rail projects.

Chapter 91, Statutes of 2000 (AB 2928 - Torlakson), established the Governor's TCRP to be funded from the TCRF. The TCRP contains $201.5 million for specific intercity rail capital projects, including $148.5 million for the Pacific Surfliners for the Los Angeles run-through project to reduce running times through Union station in Los Angeles, a triple track project in Los Angeles County, double track projects in San Diego County, a new San Diego area maintenance facility, and a parking structure at Oceanside. Also, $25 million is reserved to double track portions of the San Joaquins, and $28 million is reserved for the Capitols for track and signal improvements between Oakland and San Jose, for track improvements at the Emeryville and Oakland stations, and for a new station at Hercules.

Two recent State Budgets provided funding from the GF for intercity rail capital projects. The 1999-00 Budget provided $17.5 million for equipment acquisition. The 2000-01 Budget included $30 million for equipment, and $20 million for track improvements on the San Joaquin Route.

Also, in 1999-00 $17.0 million in proceeds from leveraged leaseback of the existing California Car and locomotive fleet was received for purchase of new intercity rail equipment. The 2001-02 Budget included $91 million in PTA funds for track improvements on all three State-supported routes.

Even with these new funding sources for intercity rail, rail equipment continues to lack an ongoing funding source. This is because restrictions under Article XIX of the State Constitution do not allow rail equipment to be funded from SHA funds.

Historical Capital Funding

Figure 3A provides a summary of all capital funding for intercity rail in California since close to the beginning of the Amtrak era. The summary reflects all expended and allocated funds, including funds from Propositions 108 and 116, funds provided by the TCRP, and funds programmed in the 1996, 1998 and 2000 STIPs. To date, over $2.5 billion has been invested or reserved, including projects for stations, track and signal improvements, maintenance and layover facilities and rolling stock. Although the State has provided about 64 percent of the total investment, local entities, the federal government, Amtrak, and the private railroads have made major contributions. The Department has proposed an additional $89.5 million in intercity rail capital projects for the 2002 STIP.

The Department's publication, the *California Intercity Rail Capital Program*, September 1, 2001, details the projects shown in Figure 3A.

Figure 3A

Intercity Rail Capital Program
1976-77 through 9/1/01
Expended and Reserved Funds

SUMMARY OF PROJECTS BY PROJECT TYPE
($ in Millions)

Route	Project Type: Stations	Track and Signal	Maintenance and Layover Facilities	Rolling Stock	Total
Pacific Surfliner-North	$ 89.4	$ 183.2			$ 272.6
Pacific Surfliner-South	$ 117.7	$ 670.8			$ 788.5
Total *Pacific Surfliner*	$ 207.1	$ 854.0			$ 1,061.1
San Joaquin	$ 127.0	$ 336.6			$ 463.6
Capitol Corridor	$ 71.3	$ 164.6			$ 235.9
Other Projects	$ 38.6	$ 50.0			$ 88.6
Maintenance and Layover Facilities			$ 120.7		$ 120.7
Rolling Stock				$ 571.6	$ 571.6
Grand Total	**$ 444.0**	**$ 1,405.2**	**$ 120.7**	**$ 571.6**	**$ 2,541.5**

SUMMARY OF PROJECTS BY FUNDING SOURCE
($ in Millions)

Route	Funding Source: State	Local	Federal	Amtrak	Railroad	Other	Total
Pacific Surfliner-North	$ 213.6	$ 53.7	$ 1.9	$ 3.3			$ 272.5
Pacific Surfliner-South	$ 530.1	$ 86.8	$ 134.4	$ 17.7	$ 7.1	$ 12.4	$ 788.5
Total *Pacific Surfliner*	$ 743.7	$ 140.5	$ 136.3	$ 21.0	$ 7.1	$ 12.4	$ 1,061.0
San Joaquin	$ 353.9	$ 24.0	$ 21.3	$ 2.6	60.1	$ 1.7	$ 463.6
Capitol Corridor	$ 170.7	$ 20.3	$ 22.8	$ 1.1	$ 20.9	$ 0.1	$ 235.9
Other Projects	$ 25.8	$ 8.4	$ 19.6	$ 14.7	$ 20.1		$ 88.6
Maintenance and Layover Facilities	$ 60.9	$ 0.1		$ 59.8			$ 120.8
Rolling Stock	$ 266.2		$ 0.1	$ 299.0		$ 6.3	$ 571.6
Grand Total	**$ 1,621.2**	**$ 193.3**	**$ 200.1**	**$ 398.2**	**$ 108.2**	**$ 20.5**	**$ 2,541.5**

Projected Capital Funding

As discussed in Chapter I, Amtrak has conducted a vision exercise, including the issuance of the *California Passenger Rail System 20-Year Improvement Plan* (the Amtrak Plan) in March 2001. The Department concurs with the "Immediate" and "Near-term" (up to 8 years) increments of the Amtrak Plan. The "Vision" increment of the Amtrak Plan extends it to 20 years and over $10 billion in funding needs. The Department's 10-year capital program uses the "Immediate" and "Near-term" increments of the Amtrak Plan as input to development of the Department's 10-year capital needs.

Figure 3B shows a projected $4.0 billion in 10-year capital funding needs for the existing and new routes discussed in the operating section above. The "Vision" increment of the Amtrak Plan extends it to 20 years and over $10 billion in funding needs.

Figure 3B

10-Year Intercity Rail Capital Program
FY 2001-02 through FY 2010-11
Project Cost (in millions, based on year 2000 dollars)

Route	Project Development (PE, EIR/S, CM) *	Right of Way	Track & Signal	Stations	Grade Crossings	Rolling Stock & Maintenance Facilities	Total Cost
EXISTING ROUTES							
Pacific Surfliner	$ 225.5	$ 30.1	$ 1,368.4	$ 47.0	$ 29.7	$ 28.1	$ 1,728.8
San Joaquin	$ 146.2	$ 3.5	$ 668.7	$ 7.1	$ 72.6	$ 40.1	$ 938.2
Capitol	$ 55.8	$ 3.9	$ 285.6	$ 54.1	$ 15.4	$ 43.1	$ 457.9
Subtotal	$ 427.5	$ 37.5	$ 2,322.7	$ 108.2	$ 117.7	$ 111.3	$ 3,124.9
PROPOSED ROUTES **							
Coast	$ 66.4	$ 18.2	$ 415.8	$ 8.1	$ 14.9	$ 26.7	$ 550.1
Monterey	$ 5.9		$ 17.5	$ 2.5	$ 1.1	$ 26.7	$ 53.7
Redding				$ 4.0		$ 16.6	$ 20.6
Reno			$ 35.0			$ 17.0	$ 52.0
Las Vegas			$ 50.0				$ 50.0
Coachella Valley			$ 125.0	$ 25.0			$ 150.0
Subtotal	$ 72.3	$ 18.2	$ 643.3	$ 39.6	$ 16.0	$ 87.0	$ 876.4
TOTAL	$ 499.8	$ 55.7	$ 2,966.0	$ 147.8	$ 133.7	$ 198.3	$ 4,001.3

* Preliminary Engineering, Environmental Impact Report/Study, Construction Management

** Represents preliminary estimates subject to change based on the results of capacity and engineering studies

The specific capital categories in the table are project development, right of way, track and signal, stations, grade crossings, rolling stock and maintenance facilities. For new routes, estimates are preliminary and subject to change based on the results of capacity and engineering studies.

The Department's priorities for implementation of capital projects in the State Rail Plan are:

- Increase the cost-effectiveness of State-supported intercity rail service by increasing revenues and reducing costs, thereby increasing the farebox ratio to reach or exceed the Department's 50 percent standard.
- Increase capacity on existing routes to allow increased frequencies and improved reliability as a result of better on-time performance.

- Reduce running times to attract riders and to provide an efficient service, with travel times directly competitive with the automobile.
- Improve the safety of State-supported intercity rail service, including grade crossing improvements and closures.
- Initiate new cost-effective routes.

Full implementation of this $ 4.0 billion 10-year capital program would require major federal funding, such as would be provided by passage of the High-Speed Rail Investment Act of 2001 mentioned previously. California hopes to receive up to $3 billion of the $12 billion in proposed federal rail bond funds to implement much of this $4.0 billion program. California should be able to fund the 20 percent State contribution needed to receive the full $3 billion in federal funds. The balance needed to fund the full capital program would come from other available State, local, Amtrak, and private railroad funding sources.

If such federal funding is not made available, implementation of this capital program will be delayed to reflect the level of State funding available from future STIP programming cycles, as supplemented by other available funding. Figure 3C shows only the fiscally constrained level of State capital funding that can be expected (from the 2002 through 2010 STIP cycles) if major federal funding is not made available.

Figure 3C

Constrained 10-Year Intercity Rail Capital Program

FY 2001-02 through FY 2010-11

Project Cost (in millions, based on year 2000 dollars)

Route	Project Development (PE, EIR/S, CM) *	Right of Way	Track & Signal	Stations	Grade Crossings	Rolling Stock & Maintenance Facilities	Total Cost
Pacific Surfliner	$ 42.9	$ 5.7	$ 260.6	$ 8.9	$ 5.7	$ 5.4	$ 329.2
San Joaquin	$ 27.8	$ 0.7	$ 127.3	$ 1.4	$ 13.8	$ 7.6	$ 178.6
Capitol	$ 10.6	$ 0.7	$ 54.4	$ 10.3	$ 2.9	$ 8.2	$ 87.2
Subtotal	$ 81.3	$ 7.1	$ 442.3	$ 20.6	$ 22.4	$ 21.2	$ 595.0

* Preliminary Engineering, Environmental Impact Report/Study, Construction Management

About $60 million a year would be needed to provide the State's 20 percent share of the $300 million annual anticipated federal funding. The $201.5 million provided in the TCRP will provide a significant portion of the 20 percent State share of the proposed federal bond funds for the initial years of the 10-year program. This will be supplemented by additional funding from the STIP as needed, particularly in the later years of the 10-year federal program. An estimated $60 million a year contribution from the STIP to provide the 20 percent State share should not negatively impact the overall level of funding available for other ITIP projects funded from the STIP, if funding levels continue at the 1996 STIP and 1998 STIP levels. For example, the 1996 STIP provided $119 million in funding for intercity rail projects, while the 1998 STIP, as augmented, provided an additional $185 million. However, the 2000 STIP funding provided $50.3 million. Indeed, the availability of this federal bond funding could serve to reduce demands on the ITIP to fund intercity rail projects. Other potential funding sources could include additional general funds, future bond issues, and funding from local entities and railroads.

The Department's policy is to maximize the use and benefit of all federal funding available for intercity rail capital projects. Therefore, federal rail bond funding would be used to complete the funding package for all of the intercity rail projects included in the TCRP. If these federal funds are not available, STIP funding will be used and supplemented by all other available funding sources.

Since the passage of SB 45 in 1997, most intercity rail funding provided by the State has come from projects proposed by the Department from the ITIP, which receives only 25 percent of all STIP funding. The RTIP, for which projects are proposed by the Regional Transportation Planning Agencies (RTPAs), receives the remaining 75 percent of STIP funding. However, as part of the partnership between the Department and the RTPAs, the RTPAs should be expected to provide significant additional resources for intercity rail capital projects.

Projected Capital Projects

The following is a summary of key elements in the projected 10-year capital program (summarized in Figure 3B above) for existing routes:

Pacific Surfliner Route

- New trainsets
- Additional track at Los Angeles Union Station
- Third main track Fullerton-Los Angeles
- Second main track (20 miles)
- Facility improvements
- Station improvements
- Additional sidings
- Flyovers and track realignments
- Cab signals
- Environmental studies

- Track and signal upgrades
- Roadway/rail intersection improvements
- Right-of-way acquisition

San Joaquin Route

- New trainsets
- Additional mainline track
- Curve realignment
- Signal upgrades
- Siding extensions
- Environmental studies for passenger-only track
- Roadway/rail intersection improvements
- Demonstration train to San Jose
- Right-of-way acquisition

Capitol Corridor

- Station improvements
- New trainsets
- Higher speed switches
- Superelevation on curves
- Additional mainline track
- Track upgrades
- Crossing signal upgrades
- Right-of-way acquisition

Rail-Highway Grade Crossing Improvement and Separation Programs (State and Federal)

Sites where a railroad track and a street or road cross each other at the same grade are called rail-highway grade crossings. Grade crossings pose safety and operational considerations for both freight and passenger rail, as well as road traffic. Programs to improve or eliminate grade crossings benefit both passenger and freight operations.

Federal Section 1010/1103(c) Railway-Highway Crossing Hazard Elimination in High Speed Rail Corridors Program

Section 1010 of the Intermodal Surface Transportation Efficiency Act (ISTEA) (23 U.S.C. Sec. 104(d)), which was enacted in 1991, provides $5 million per year for elimination of hazards at railway-highway crossings (when ISTEA was reauthorized in 1998 as the Transportation Efficiency Act for the 21st Century, or TEA-21, Section 1010 was revised as Section 1103[c]). In order for rail corridors to be eligible to compete for Section 1010 funding, they must include rail lines where railroad speeds of 90 mph are occurring or can reasonably be expected to occur in the future. California's existing State-supported intercity passenger rail routes, plus the Coast Route between San Jose and San Luis Obispo, together comprise one of the nationally designated corridors eligible to compete for the Section 1010 funding. Since FY 1992-93, the Department has received $6.3 million in Federal funds from the program. The Department's Division of Rail uses the

Section 1010 funds for improvements in signaling at grade crossings, private grade crossing closures, and other grade crossing safety improvements.

Federal Section 130 Crossing Improvement Program

Section 14036.4 of the Government Code requires the Department to report on the amount of funds available to the State under the Federal rail-highway crossing program (23 U.S.C. Sec. 130), including the cash balance, funds encumbered during the last year, and amounts anticipated to be received during the subsequent year.

The Section 130 Program currently provides about $10.2 million per year in federal highway funds for grade crossing safety projects. Improvements include the installation of grade crossing safety devices such as flashers, gates, cantilevered flashing lights, constant time warning devices, surface improvements, crossing closures and coordinated traffic signal preemption at crossings.

Proposed improvements are determined and prioritized by the CPUC in consultation with the railroads, the Department and the appropriate State and local agencies. Based on available funds, the Department selects projects from the prioritized list for inclusion in the Multi-year Section 130 Program Funding Plan approved by the CPUC and the Department.

The program funds 90 percent of the cost of the improvements, including all signal and surfacing work projects. The other 10 percent is usually paid by the local entity responsible for the road or highway involved, generally a city or county. On State highways, the State will pay the 10 percent non-federal share. However, projects involving railroad-protective devices only are 100 percent federally funded. Under federal law, the annual grade crossing improvement program must be included in the Transportation Improvement Programs (TIPs) of the appropriate Metropolitan Planning Organizations prior to obligation of funding.

The Department's Division of Rail administers Section 130 funding for projects involving railroad crossings of both State Highways and local streets and roads. The program funds eligible projects and monitors the expenditure of Section 130 funds, ensuring statewide policies are observed, issuing agreements to railroad companies and local agencies, providing follow-up on project delivery for grade crossing projects, and publishing a multi-year listing of planned Section 130 projects.

The Highway/Railroad Grade Crossing Safety Committee was formed to provide policy direction for the Section 130 Program. The committee's membership includes representation from UP, BNSF, the short-line railroads in California, the Federal Highway Administration, the CPUC, the Joint City/County/State Cooperation Committee, and the Department.

Figure 3D shows the status of the Section 130 Program funds estimated as of September 2001. It is expected that $10.2 million in Section 130 funds will be available in 2001-02.

Figure 3D

Section 130 Federal Crossing Improvement Program Funding Status * ($ in thousands)				
For Projects on	Rollover from 1999/00	Allocations in 2000/01	Estimated Obligations in 2000/01	Estimated Balance on Sept. 30, 2001
Local Roads	$(1,291)	$8,171	$9,779	$448
State Highways	$3,859	$2,012	$593	$1,931
Total	$2,568	$10,183	$10,372	$2,379

*Includes the following Apportionment Accounts: 138, 139, 33M, 33N, Q26 and Q27.

State Section 190 Grade Separation Program

The Grade Separation Program is a State-funded safety program that provides for the elimination of existing at-grade railroad crossings. Most projects funded under this program are grade separations. However, consolidations or track removal projects that eliminate grade crossings can also be considered. Eligible projects are identified on the basis of the priority list established by the CPUC. This list is developed every two years, with a new list to be effective in July 2002. Projects can be nominated by local agencies, railroad companies or the Department. Nominated projects are prioritized on the basis of a formula that incorporates such factors as traffic volumes (both roadway and railroad), projected state contribution, accident history, and physical conditions at the crossing to be eliminated.

Once the CPUC list has been established, the program itself is administered by the Department's Division of Rail. The annual amount of State funding for the program is $15 million, with a maximum amount of $5 million per project. In general, the State contribution for any one project is limited to 80 percent of the project cost if the grade crossing to be eliminated has been in existence for at least 10 years prior to the date of allocation of the funds. The railroad must contribute a minimum of 10 percent of the total cost of the project, and the lead agency must cover the rest. (Note: if the lead agency elects to use federal funding for a portion of the project, the railroad contribution requirement is reduced to 5 percent, in accordance with federal regulations.) If the grade crossing to be eliminated has been in existence for less than 10 years prior to the allocation date, the project may receive up to 50 percent State funding, with a 50 percent matching-fund requirement. As above, the railroad must contribute a minimum of 10 percent of the total cost of the project.

The total project cost includes design, right-of-way acquisition, utility relocation, environmental clearance, and all construction elements (structures, approaches, ramps, connections, drainage, etc.) required to make the grade separation operable.

Projects that include multiple grade separations are eligible to receive up to $20 million if they provide projected cost savings of at least 50 percent to the State and/or local jurisdiction by eliminating the need for future projects, and if they alleviate traffic and safety problems or provide improved rail service not otherwise possible. Such projects are funded over a multiyear period lasting up to five years, with up to $5 million allocated each year.

Requests for allocations are due to the Department on April 1 of each fiscal year. Within the limits of available funding, allocations are made by the Department, pursuant to a delegation from the CTC, in priority order to all projects that meet the requirements. If a project only receives a partial allocation because of limited funding, it will be automatically eligible for the balance of its funding in the following fiscal year. Projects that do not receive an allocation within the two-year life of the CPUC priority list must be re-nominated in order to remain eligible. Grade separation projects are also eligible for STIP funding.

Decrepit Stations

Section 14036.2 of the Government Code requires the identification of the three most decrepit intercity rail passenger stations in the State used by trains operated by Amtrak.

Webster's New World Dictionary, Third College Edition Copyright 1988, defines decrepit as "broken down or worn out by old age or long use."

Madera (Avenue 15 1/2 at 29th Road): This station is a shelter in a residential industrial area. It is unattractive. It has a transit type bench in disrepair and covered with graffiti. There is no lighting in the shelter or landscaping at the station. The parking lot is paved, but many of the lights are broken. Representatives of the City, County, Amtrak and the Department are planning to move the station to a new location. A project study report for the new station was completed in May 2001. The Department is pursuing funds for design, right-of-way acquisition and construction.

Needles (900 Front Street): This station serves Amtrak's Southwest Chief. The station is boarded up and fenced off from the adjacent park. . Nearly $1.2 million in State and other funds are available for the planned rehabilitation of the station. Additional funding, however, is needed and is being pursued for the rehabilitation. Under Amtrak's operating agreement, only the platform is used for passenger service at this station.

San Bernardino (1170 W. Third): This staffed station is the eastern terminal of a Metrolink line, as well as an Amtrak station for both long distance trains and Amtrak feeder buses from the San Joaquin Valley. Major repairs are needed to the exterior and interior of the structure. A new platform also is needed. Approximately $12.4 million dollars in federal and local funds are available to rehabilitate the station and this project is now underway. The City of San Bernardino is the lead agency for the project. The tentative date for the start of construction is January 2002 and rehabilitation will take 18 to 24 months. A modular structure that is now being used as a Metrolink crew base will be moved and another erected to

house Amtrak personnel. Ultimately the rehabilitated station will house Metrolink, Amtrak and possibly the San Bernardino Association of Governments.

Upgraded Parking Facilities

Section 14036.2 of the Government Code requires the identification of those rail passenger stations which require upgraded parking facilities to encourage automobile drivers to utilize available rail passenger service.

Additional parking was recently constructed in conjunction with the building of a new station in Martinez. Parking projects have also been completed in conjunction with the construction of new stations at Bakersfield, Merced and Modesto.

As far as existing stations are concerned, additional parking was completed in 2000 in Santa Ana, Oceanside and Auburn. Land for a further expansion of parking at Oceanside has been acquired by the City and construction funds are being pursued by the Department. Also, expanded parking is under construction at the station in San Luis Obispo. For the Suisun City station, the environmental process has been completed for a parking expansion project, and the design phase will start in early 2002. Finally, the design phase is nearing completion on a parking reconfiguration project at the Sacramento station, with construction to begin in spring 2002.

CHAPTER IV
OPERATIONS AND MARKETING

This section contains a discussion on the Intercity Rail Operating Program, including a 10-year plan, and the Intercity Rail Marketing Program.

OPERATING PROGRAM

The Department's and CCJPA's Relationships with Amtrak

The Department provides operating funding for three intercity rail passenger services – the Pacific Surfliners, San Joaquins and Capitols. Amtrak operates all three services under the provisions of the Federal Rail Passenger Service Act (49 U.S.C. 24101 et seq.). The Department directly administers the Pacific Surfliners and San Joaquins. Since July 1998, the CCJPA has administered the Capitol Corridor service under an interagency transfer agreement with the State.

Section 24101(c)(2) of the Federal Rail Passenger Service Act authorizes Amtrak to operate intercity rail passenger service beyond its basic system services when requested to do so by a state, group of states, or a regional or local agency.

Over the years the share of service costs (called cost basis) that Amtrak has required states to pay has increased considerably. Between Federal Fiscal Year (FFY) 1991-92 and FFY 1998-99 the cost basis increased each year. (The increase varied from year to year and was relatively minor in 1997-98.) Amtrak has stated that the current cost basis, which started in FFY 1998-99, will remain essentially constant. Amtrak West (the Western Business Unit [WBU] of Amtrak) now bills the State the equivalent of 100 percent of the direct cost of train operations and product line support costs (which are related to specific routes), and a portion of the WBU support costs, for the Pacific Surfliner and San Joaquin Routes.

The Department, in an effort to lower costs, has converted certain cost elements of the Department/Amtrak operating contract to a fixed cost basis. For example, reservations and information, and sales and marketing are now fixed-price elements. Also, the CCJPA has entered into a fixed price-operating contract with Amtrak for the Capitol Corridor service.

Amtrak pays 100 percent of all costs for 33 percent of the Pacific Surfliner service as part of its basic system. For the remaining 67 percent of this service, the State pays costs on the same basis as on the San Joaquin Route, in the manner described above.

The Department pays any net operating loss of the feeder buses that serve the State-supported routes. The operating loss consists of the entire bus operating costs (as billed by the contract bus operator) minus the feeder bus revenue credits. The bus revenue credits represent a proportional share of the passenger's entire rail-bus fare assigned to the bus portion of the trip.

Amtrak pays for operation of 33 percent of the Pacific Surfliner Route that it funds as part of its basic system. This cost was $8.8 million in 2000-01. Although Amtrak is working to reduce its need for federal subsidies beyond 2001-02, it expects to continue to be able to fund its share of these California State-supported services (and any funding needs for their 33 percent share of the Surfliner) by use of available funds generated by the balance of its national system, including the Northeast Corridor.

The Department will continue to monitor Amtrak's overall financial status and address potential circumstances impacting the California State-supported services. Potential problems could include the inability of Amtrak to continue to fund its current share of these services up to the worst case scenario of Amtrak shutting down. If any of these events were to happen, the amount of State funds needed to continue the present level of service could increase by as much as $ 11.3 million in 2010-11. Alternatively, service levels could be reduced to avoid such an increase.

Amtrak, in operating service for the State or the CCJPA in California, performs many functions. Amtrak employees staff and maintain trains and staff stations with ticket offices. The equipment (whether owned by Amtrak or the Department) is maintained by Amtrak at Amtrak operated facilities. Many Amtrak WBU or national functions also provide service to California's trains.

Amtrak maintains control over many operational functions related to State-supported service. For example, Amtrak administers fare policy in accordance with its national goal to maximize revenues and eliminate its need for federal operating support. However, the Department and the CCJPA work with Amtrak to develop special California or route-specific promotions. Amtrak also has national service requirements and standards that it maintains. The Department has been successful in working with Amtrak to adapt some of these policies (such as food service) to specific California conditions.

Funding for Intercity Rail Services Operations

The Department's 10-year operating program is an ambitious plan for State-supported service extensions and new routes. The program was developed in conjunction with Amtrak and regional groups including the CCJPA, the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency (LOSSAN), and San Joaquin Valley Rail Committee, and largely corresponds to the service goals Amtrak has developed for its ongoing 20-year strategic planning exercise. Additionally, the Department considered the CCJPA's current business plan in developing near-term projections for the Capitol Corridor.

The start-up date projections for the operating program are for planning purposes only. These projections were developed based on projected service needs. Demonstrated ridership demand, institutional barriers, availability of operating funding and equipment, availability of capital funding for capacity improvements requested by operating railroads, and technical problems outside the control of the Department will affect when each of the service improvements can be implemented.

The 10-year intercity rail ridership and financial projections shown in Figures 4A, 4B and 4C were produced by Amtrak for both current service levels on existing routes and for the increased service levels identified by the Department on these routes. These projections are based upon state-of-the-art ridership and revenue models. The Department concurs that Amtrak's projections are reasonable and appropriate for planning purposes. They reflect the operational enhancements, such as increased frequencies, and reduced running times, made possible by the capital improvements included in the State Rail Plan. The operational enhancements differ from Amtrak's more optimistic assumptions for frequency increases.

Figure 4A presents the ridership, service frequencies and best train running times associated with the data and projections in Figures 4B and 4C.

Figure 4B presents the revenue, expense and farebox ratio data for existing routes, including planned increased service levels. The Department's long-term standard for financial performance of rail service operations is achievement of a 50 percent farebox ratio – the point at which passenger revenues cover half of the operating costs.

The left portion of Figure 4C provides a historical perspective on intercity rail operating funding. It shows actual State and Amtrak operations expenditures and State administration and marketing expenditures for the three State-supported routes from 1998-99 through 2000-01. For 2001-02, the allocation amounts for operations are shown and administration and marketing costs are projected.

During the 1998-99 through 2000-01 period the following route expansions occurred:

Pacific Surfliner Route

10/25/98 Eleventh San Diego-Los Angeles round-trip added.

5/21/01 Twelfth weekend (Friday-Sunday) San Diego-Los Angeles round-trip added.

San Joaquin Route

2/21/99 Fifth San Joaquin added (first Amtrak train to run from Sacramento to Bakersfield).

Capitol Corridor

10/25/98 Fifth Oakland-Sacramento round-trip added.

2/21/99 Sixth Oakland-Sacramento round-trip added.

2/27/00 Seventh Oakland-Sacramento round-trip added; fourth Oakland-San Jose round-trip added.

4/29/01 Eighth and ninth Oakland-Sacramento round-trips added; fifth and sixth weekend Oakland-San Jose round-trips added.

Figure 4A

RIDERSHIP, FREQUENCIES AND RUNNING TIMES FOR INTERCITY RAIL PASSENGER OPERATIONS
1998-99 - 2010-11

	Actual			Current	Projected								
	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
RIDERSHIP (thousands)													
Pacific Surfliners (total)	1,563	1,567	1,662	1,733	1,785	2,027	2,079	2,175	2,254	2,307	2,394	2,449	2,506
San Joaquins	681	671	711	791	866	901	1,080	1,125	1,336	1,389	1,439	1,514	1,572
Capitols	516	684	1,031	1,096	1,172	1,525	2,059	2,176	2,312	2,388	2,823	2,917	3,018
Total Ridership	**2,760**	**2,922**	**3,404**	**3,620**	**3,823**	**4,453**	**5,218**	**5,476**	**5,902**	**6,084**	**6,656**	**6,880**	**7,096**
FREQUENCIES													
Pacific Surfliners *(total)*													
LA- San Diego	11	11	11	11	11	13	13	14	15	15	16	16	16
LA-Goleta	4	4	4	4	4	6	6	6	6	6	6	6	6
Goleta-San Luis Obispo	1	1	1	1	1	2	2	2	2	2	2	2	2
Total	**11**	**11**	**11**	**11**	**11**	**13**	**13**	**14**	**15**	**15**	**16**	**16**	**16**
San Joaquins													
Oakland-Bakersfield	4	4	4	4	4	4	4	4	5	5	5	5	5
Sacramento-Bakersfield	1	1	1	2	2	2	3	3	3	3	3	3	3
Total	**5**	**5**	**5**	**6**	**6**	**6**	**7**	**7**	**8**	**8**	**8**	**8**	**8**
Capitols													
San Jose-Oakland	3	4	4	6	6	7	8	8	9	9	10	10	10
Oakland-Sacramento	6	7	9	9	9	11	12	13	14	14	15	15	16
Sacramento-Roseville	1	1	1	3	3	3	4	4	4	4	5	5	5
Roseville-Auburn	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	**6**	**7**	**9**	**9**	**9**	**11**	**12**	**13**	**14**	**14**	**15**	**15**	**16**
BEST RUNNING TIMES													
Pacific Surfliners Δ													
LA- San Diego	2:40	2:40	2:38	2:38	2:25	2:25	2:10	2:10	2:10	2:10	1:57	1:57	1:57
LA-Goleta	2:44	2:44	2:43	2:43	2:30	2:30	2:07	2:07	2:07	2:07	2:04	2:04	2:04
Goleta-San Luis Obispo	2:18	2:18	2:19	2:19	2:19	2:19	2:12	2:12	2:12	2:12	2:11	2:11	2:11
San Joaquins													
Oakland-Bakersfield	6:00	6:05	6:10	6:10	6:01	6:01	5:48	5:48	5:35	5:35	5:35	5:35	5:35
Sacramento-Bakersfield	5:25	5:28	5:33	5:33	5:25	5:25	5:02	5:02	4:40	4:40	4:40	4:40	4:40
Capitols													
San Jose-Oakland	1:03	1:03	1:03	1:03	1:03	1:03	1:00	1:00	1:00	1:00	0:58	0:58	0:58
Oakland-Sacramento	2:01	1:55	1:55	1:55	1:55	1:55	1:38	1:38	1:38	1:38	1:30	1:30	1:30
Sacramento-Roseville	0:27	0:27	0:27	0:27	0:27	0:27	0:26	0:26	0:26	0:26	0:25	0:25	0:25
Roseville-Auburn	0:34	0:34	0:34	0:34	0:34	0:34	0:34	0:34	0:34	0:34	0:34	0:34	0:34

Δ - Financial and ridership results reflect less aggressive trip time reductions.

Figure 4B

REVENUES, EXPENSES AND FAREBOX RATIO FOR INTERCITY RAIL PASSENGER OPERATIONS
1998-99 - 2010-11
(Dollars in Millions)

	Actual			Current	Projected								
	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
REVENUES													
Pacific Surfliners §	$ 16.4	$ 17.9	$ 20.4	$ 23.5	$ 23.5	$ 27.9	$ 28.6	$ 29.8	$ 30.9	$ 31.6	$ 32.7	$ 33.5	$ 34.3
San Joaquins ¶	$ 16.5	$ 18.1	$ 19.7	$ 23.0	$ 23.9	$ 25.9	$ 31.3	$ 32.6	$ 39.0	$ 40.6	$ 42.1	$ 44.0	$ 45.8
Capitols ∞	$ 6.9	$ 8.5	$ 11.1	$ 13.5	$ 14.5	$ 16.8	$ 22.7	$ 24.0	$ 25.5	$ 26.4	$ 31.4	$ 32.5	$ 33.6
Total Revenues	**$ 39.8**	**$ 44.5**	**$ 51.2**	**$ 60.0**	**$ 61.9**	**$ 70.6**	**$ 82.6**	**$ 86.4**	**$ 95.4**	**$ 98.6**	**$ 106.2**	**$ 110.0**	**$ 113.7**
EXPENSES Δ													
Pacific Surfliners §	$ 40.4	$ 37.5	$ 38.2	$ 45.5	$ 45.5	$ 48.2	$ 48.7	$ 50.8	$ 53.1	$ 53.4	$ 55.6	$ 55.9	$ 56.2
San Joaquins ¶	$ 37.3	$ 41.8	$ 43.4	$ 49.1	$ 58.1	$ 53.3	$ 61.5	$ 61.9	$ 71.1	$ 71.7	$ 72.1	$ 72.8	$ 73.4
Capitols ∞	$ 22.3	$ 25.0	$ 27.7	$ 38.8	$ 41.4	$ 43.0	$ 48.2	$ 50.5	$ 54.0	$ 54.4	$ 58.7	$ 59.1	$ 61.7
Total Expenses	**$ 100.0**	**$ 104.3**	**$ 109.3**	**$ 133.4**	**$ 145.0**	**$ 144.5**	**$ 158.4**	**$ 163.3**	**$ 178.2**	**$ 179.5**	**$ 186.4**	**$ 187.8**	**$ 191.2**
FAREBOX RATIO													
Pacific Surfliners	40.6%	47.7%	53.5%	51.6%	51.6%	57.9%	58.7%	58.6%	58.2%	59.1%	58.8%	59.9%	61.1%
San Joaquins	44.3%	43.2%	45.3%	46.8%	41.1%	48.6%	50.9%	52.6%	54.9%	56.7%	58.4%	60.4%	62.4%
Capitols	31.1%	34.1%	40.1%	34.8%	35.0%	39.1%	47.1%	47.5%	47.2%	48.5%	53.5%	55.0%	54.5%

§ - Reflects Revenues, Expenses and Farebox Ratio for state supported 67% portion of service.
¶ - 2001-02 adjusted for partial year of operation of sixth train.
∞ - 2001-02 adjusted to reflect anticipated service level.
Δ - Train operation expense does not include equipment capital costs (depreciation and interest)

Figure 4C

FUNDING FOR INTERCITY RAIL SERVICES OPERATIONS
1998-99 - 2010-11
(Dollars in Millions)

	Actual			Current	Projected								
Costs	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
OPERATIONS													
Existing Routes													
State Costs													
Pacific Surfliners §	$ 22.1	$ 20.8	$ 21.9	$ 21.1	$ 21.1	$ 24.2	$ 24.0	$ 24.9	$ 26.2	$ 25.7	$ 26.8	$ 26.3	$ 25.8
San Joaquins ¶	$ 19.9	$ 24.2	$ 24.4	$ 26.9	$ 28.9	$ 27.1	$ 30.0	$ 29.1	$ 31.8	$ 30.8	$ 29.9	$ 28.6	$ 27.5
Capitols ∞	$ 14.5	$ 16.5	$ 16.7	$ 22.1	$ 23.6	$ 26.2	$ 25.5	$ 26.5	$ 28.5	$ 28.0	$ 27.2	$ 26.6	$ 28.0
Equipment-Heavy Overhaul			$ 4.9	$ 5.0	$ 8.7	$ 11.0	$ 10.0	$ 6.0	$ 8.0	$ 16.0	$ 6.0	$ 12.0	$ 8.0
State Total	**$ 56.5**	**$ 61.5**	**$ 67.9**	**$ 75.1**	**$ 82.3**	**$ 88.5**	**$ 89.5**	**$ 86.5**	**$ 94.5**	**$ 100.5**	**$ 89.9**	**$ 93.5**	**$ 89.3**
Amtrak Total (All 3 routes) Δ	$ 6.7	$ 2.2	$ 1.0	$ 1.1	$ 1.2	$ 1.3	$ 1.3	$ 1.3	$ 1.4	$ 1.5	$ 1.3	$ 1.4	$ 1.3
New Routes													
State Costs													
Coast Route (SF-LA)						$ 8.6	$ 8.8	$ 5.5	$ 5.7	$ 11.6	$ 11.9	$ 12.1	$ 12.1
Monterey Service								$ 5.0	$ 5.0	$ 5.0	$ 5.0	$ 5.0	$ 5.0
Coachella Valley									$ 3.1	$ 3.1	$ 6.3	$ 6.4	$ 6.6
Reno Service										$ 3.4	$ 3.4	$ 3.5	$ 3.6
Redding Service											$ 3.7	$ 3.8	$ 3.9
State Total						**$ 8.6**	**$ 8.8**	**$ 10.5**	**$ 13.8**	**$ 23.1**	**$ 30.3**	**$ 30.8**	**$ 31.2**
Amtrak Total (All new routes)						$ 0.1	$ 0.1	$ 0.2	$ 0.2	$ 0.3	$ 0.4	$ 0.5	$ 0.5
New and Existing Routes													
State Total-New and Existing	**$ 56.5**	**$ 61.5**	**$ 67.9**	**$ 75.1**	**$ 82.3**	**$ 97.1**	**$ 98.3**	**$ 97.0**	**$ 108.3**	**$ 123.6**	**$ 120.2**	**$ 124.3**	**$ 120.5**
Amtrak Total-New and Existing	$ 6.7	$ 2.2	$ 1.0	$ 1.1	$ 1.2	$ 1.4	$ 1.4	$ 1.4	$ 1.6	$ 1.8	$ 1.8	$ 1.8	$ 1.8
STATE SUPPORT													
Pacific Surfliners													
Administration	$ 1.0	$ 1.4	$ 1.5	$ 1.6									
Marketing	$ 2.1	$ 2.4	$ 2.4	$ 2.3									
Totals	$ 3.1	$ 3.8	$ 3.9	$ 3.9									
San Joaquins													
Administration	$ 1.0	$ 1.2	$ 1.3	$ 1.4									
Marketing	$ 1.1	$ 1.4	$ 1.4	$ 1.5									
Totals	$ 2.1	$ 2.6	$ 2.7	$ 2.9									
Capitols													
Administration	$ 1.0	$ 1.2	$ 1.3	$ 1.3									
Marketing	$ 1.2	$ 1.2	$ 1.2	$ 1.2									
Totals	$ 2.2	$ 2.4	$ 2.5	$ 2.5									
Totals - All Routes													
Administration	$ 3.0	$ 3.8	$ 4.1	$ 4.3									
Marketing	$ 4.4	$ 5.0	$ 5.0	$ 5.0									
Total - All Routes	**$ 7.4**	**$ 8.8**	**$ 9.1**	**$ 9.3**									

§ - Reflects State Costs for state supported 67% portion of service.

¶ - 2001-02 adjusted for partial year of operation of sixth train.

∞ - 2001-02 adjusted to reflect anticipated service level.

Δ - Represents only billed amounts covered by Amtrak. Amtrak contribution includes unbilled amounts such as the Amtrak share of general support, reservations, sales and marketing.

Figure 4D

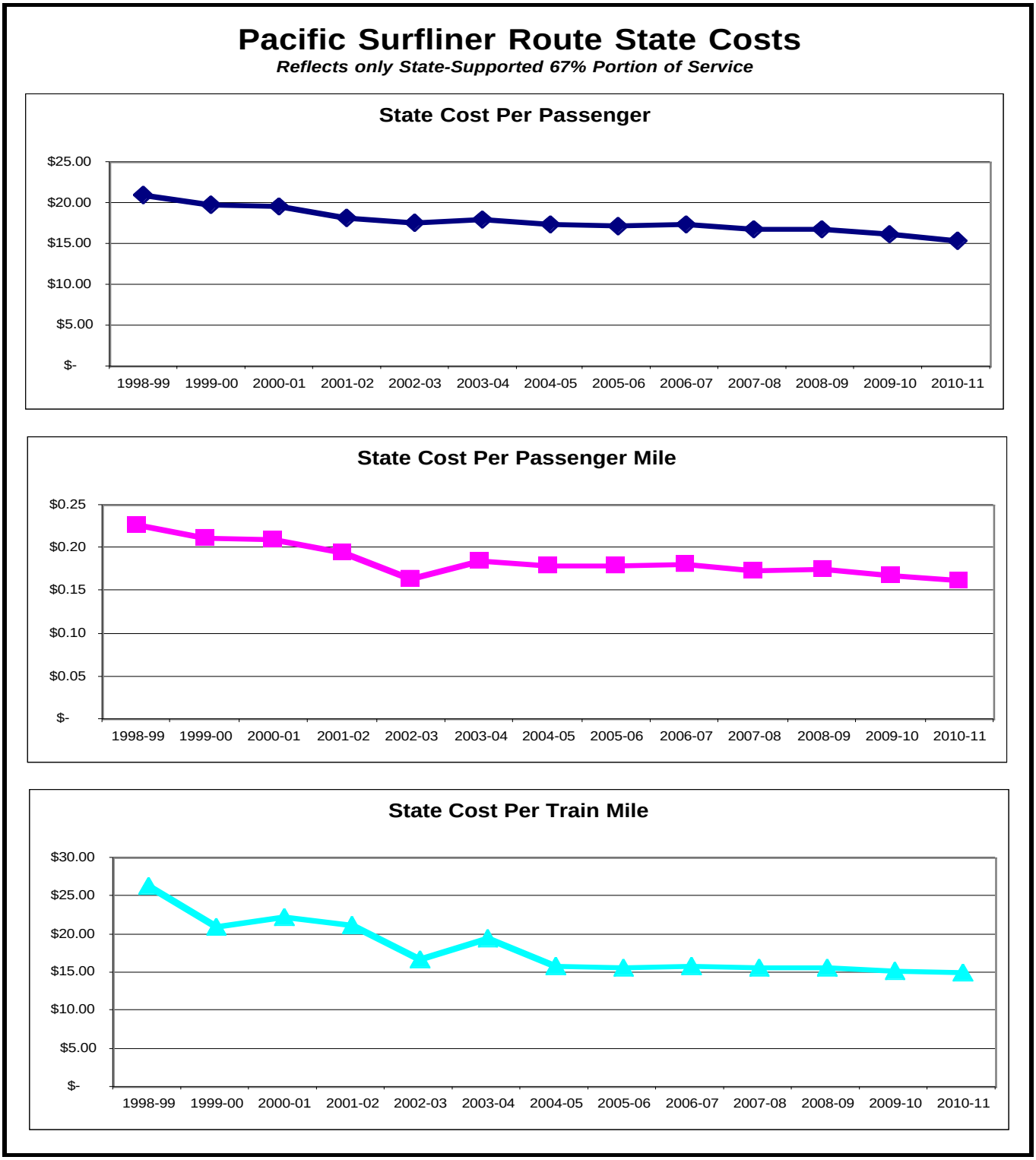

Pacific Surfliner Route State Costs
Reflects only State-Supported 67% Portion of Service
State Cost Per Passenger
$25.00
$20.00
$15.00
$10.00
$5.00
$-
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
State Cost Per Passenger Mile
$0.25
$0.20
$0.15
$0.10
$0.05
$-
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
State Cost Per Train Mile
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11

Figure 4E

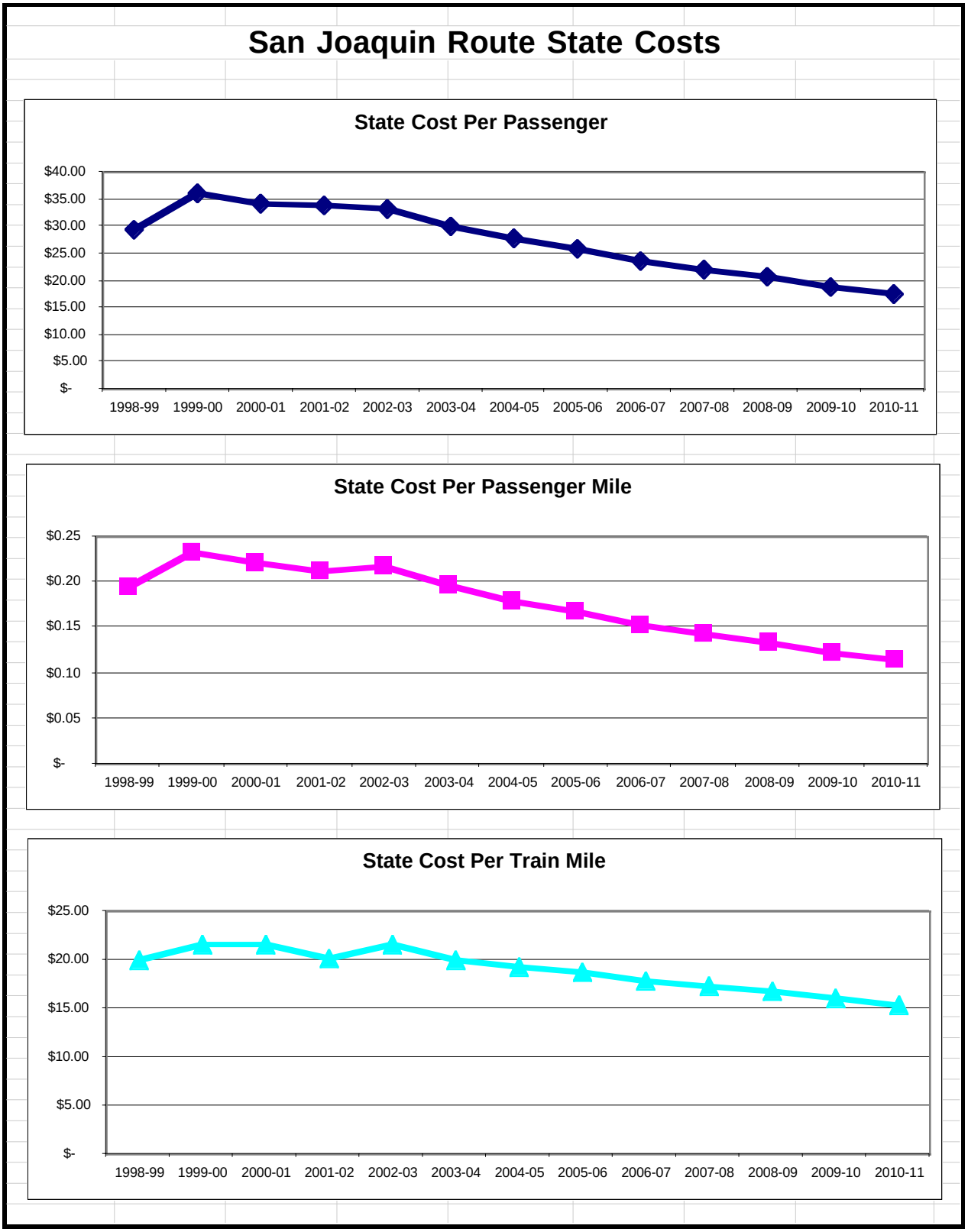

San Joaquin Route State Costs
State Cost Per Passenger
$40.00
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
State Cost Per Passenger Mile
$0.25
$0.20
$0.15
$0.10
$0.05
$-
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
State Cost Per Train Mile
$25.00
$20.00
$15.00
$10.00
$5.00
$-
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11

Figure 4F

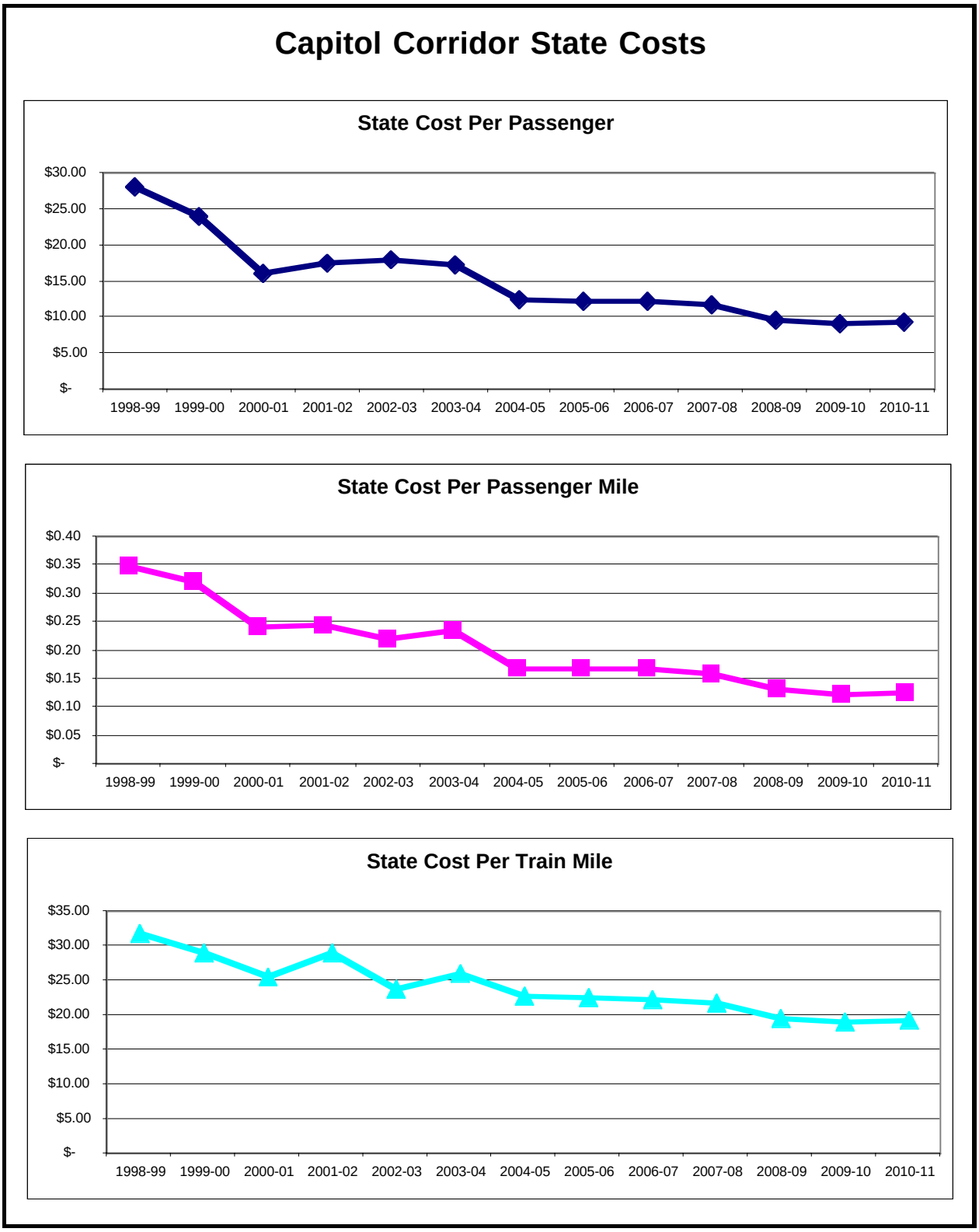

Capitol Corridor State Costs
State Cost Per Passenger
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
1998-99 1999-00 2000-01 2001-02 2002-03 2003-04 2004-05 2005-06 2006-07 2007-08 2008-09 2009-10 2010-11
State Cost Per Passenger Mile
$0.40
$0.35
$0.30
$0.25
$0.20
$0.15
$0.10
$0.05
$-
1998-99 1999-00 2000-01 2001-02 2002-03 2003-04 2004-05 2005-06 2006-07 2007-08 2008-09 2009-10 2010-11
State Cost Per Train Mile
$35.00
$30.00
$25.00
$20.00
$15.00
$10.00
$5.00
$-
1998-99 1999-00 2000-01 2001-02 2002-03 2003-04 2004-05 2005-06 2006-07 2007-08 2008-09 2009-10 2010-11

Figure 4C also presents the State and Amtrak operating funding projections for new routes. They use either the State cost per train mile methodology that was developed in conjunction with Amtrak and reflects estimated State cost levels for new trains or a specific Amtrak route cost estimate. Costs assume that in 2005-06 and beyond, all new equipment would be purchased (the purchase costs are included in the 10-year capital program proposed in Chapter III), and thus no operating costs are attributed to equipment rental. The expansion starting in 2003-04 includes equipment rental costs through 2004-05.

Figures 4D, 4E and 4F graph the State cost per passenger, per passenger mile and per train mile for each of the three State-supported routes.

Short-Term Operating Strategies

The focus of the Department's short-term operating strategies is to improve customer service and amenities and increase the cost-effectiveness of the services. These two strategies are complementary, as an improvement in customer satisfaction should increase ridership and revenue.

Train time schedules are reviewed to ensure that they provide optimum flexibility and coverage given the number of round-trips on the route. For example, passengers should be able to make convenient business or day trips to the major urban destinations such as San Francisco, Oakland, Los Angeles, Sacramento and San Diego. On-time service is also important. The Department and CCJPA are working with the railroads and Amtrak to achieve improved on-time performance.

Bus services are reviewed to see if any improvement is possible in bus-train connections and destinations. Strategies to ease the transition between the train and bus, including baggage handling, are being reviewed. Additionally, the program is always striving to improve passenger amenities, including pricing incentives and promotions, food service, baggage handling and reserved seating.

The Department and the CCJPA, in an effort to reduce costs, are closely monitoring Amtrak billed expenses for accuracy. Additionally, the CCJPA has entered into a fixed-price-operating contract with Amtrak.

These strategies for each corridor are detailed in the 2001-02 business plans. The Department produced the San Joaquin and Pacific Surfliner plans, while the Capitol Corridor plan was produced by the CCJPA. Corridor business plans for 2002-03 will be published in Spring 2002.

Service Evaluation Standards and Goals

The Department's vision for intercity rail passenger service in California is stated at the beginning of Chapter I. To implement this vision, the Department has adopted the following service evaluation standards.

The Department's goal is to provide cost-effective services that will achieve at least 50 percent coverage of costs from the farebox. Our standards for adding or removing services are:

- Where the cost-effectiveness of an existing service will be improved by adding or removing frequencies or segments on the route.
- Where the cost-effectiveness of the State-supported services as a whole will be improved by adding new routes. The relative cost-effectiveness would be compared between potential new routes with the higher-ranking route receiving priority.
- Where the Department has already paid for capacity increases through investment in capital improvements and where others agree to fund capital and/or operating needs.

Within the above standards defining cost-effective service changes, the Department's goal is to have a comprehensive service on the three existing routes that offers enough schedule flexibility to meet a wide range of traveler's needs. On all three routes, the goal is for frequent service (up to hourly as demand requires) during business hours, and adequate coverage for leisure travelers in the evenings and weekends. For service reliability, the goal is 90 percent on-time performance. Chapters V, VI and VII discuss specific expansion proposals for each route.

New routes are proposed for intercity markets that have identified demand and support from local entities for rail service. All proposed new routes would utilize existing rail lines that in almost all cases currently have freight traffic and in some cases have Amtrak service. Chapter VIII discusses each proposed new route in more detail.

The Department's priorities for service increases on both existing and new routes are directly related to the availability of capacity to operate such expanded services. Capacity issues include currently available capacity, capacity improvements funded by the TCRP, and capacity to be obtained by the availability of future capital funding.

Passenger Safety and Security

Immediately following the events of September 11, 2001, Amtrak enhanced its security measures on trains and at stations and other facilities. Among these measures, all passengers age 18 older are now required to produce valid photo identification when purchasing tickets or checking baggage.

Nationwide, Amtrak has requested $3.2 billion in accelerated federal funding for increased security, safety and capacity measures. A portion of the funds would support security and safety upgrades, including bomb detection technology, surveillance enhancements and the addition of 150 police officers to Amtrak's police force.

Evaluation of Intercity Rail Connecting Bus Routes

Figure 4G shows the performance of currently operated bus routes for FY 1999-2000 and 2000-2001. The columns headed Net Generated Revenue require an explanation: few connecting bus passengers would use the train if the feeder bus did not exist; therefore, Generated Revenue represents the total bus/train revenue generated by such passengers. The cost of the bus service is deducted from Generated Revenue to determine Net Generated

Revenue, which shows the economic impact of the bus service on the rail network in California. Amtrak estimates that, of all bus trips operated, only 2.8 trips per day operated without any passengers, representing 1.2 percent of all trips.

The Department is continually evaluating new Amtrak connecting bus routes, as well as expansions of existing routes, to determine what route changes might increase ridership and improve the financial performance of the service. In evaluating a route, many outside factors that influence ridership, such as economic trends and competing modes, are considered.

All routes with a positive Net Generated Revenue serve to link communities with the train route, and to contribute to the economic success of the rail network.

If a route has a negative Net Generated Revenue, the Department evaluates the reasons for this performance. If the service is relatively new, negative results may occur during its initial growth period. If ridership and revenue continue to increase, the service will be continued to allow further growth, even though the service is not yet making a positive economic contribution to the rail network. If ridership and revenue do not increase, the service is reviewed for potential withdrawal to allow more effective use of State funding.

Transit Coordination

A key element of the State's and the CCJPA's management of intercity train services is trying to ensure the maximum possible degree of coordination with commuter and urban rail services. Such coordination serves to enhance ridership on all types of rail services by making the passenger's trip from origin to ultimate destination as convenient and seamless as possible by use of all available rail services.

Passengers can transfer between intercity and other rail modes at many stations. The following are some examples of transfer opportunites.

- The Pacific Surfliner Route is supplemented by Metrolink and Coaster commuter rail services between many commonly served points in Southern California (such as Oxnard, Los Angeles, Oceanside and San Diego).
    - The Pacific Surfliner, Coaster commuter rail and the San Diego Trolley all serve the San Diego Amtrak station.
    - At Los Angeles Union Station, passengers can transfer between the Surfliners, Metrolink and the Metro Rail Red Line, which connects with the Blue Line downtown.
    - Some trips, such as Santa Barbara to San Bernardino via Los Angeles, can best be made by a combination of Amtrak and Metrolink service.
- The Capitol Corridor and San Joaquin routes connect with various commuter and urban rail systems.

Figure 4G

AMTRAK CONNECTING BUS PERFORMANCE

Bus Route Number	Bus Route End Points	Bus Passengers	One-Way Bus Trips	Psgrs per Bus Trip	Net Generated Revenue per Bus Route	Net Generated Revenue per Bus Passenger
July 2000 through June 2001						
1	Los Angeles-Bakersfield	209,209	16,514	12.7	$ 5,079,038	$ 24.28
3	Stockton-Redding	100,916	6,823	14.8	$ 2,610,947	$ 25.87
4	Los Angeles-Santa Barbara	9,027	2,300	3.9	$ 110,386	$ 12.23
6	Stockton-San Jose	37,737	5,106	7.4	$ 632,532	$ 16.76
7	Martinez-McKinleyville	49,427	2,225	22.2	$ 708,075	$ 14.33
9	Bakersfield-Las Vegas	14,370	1,500	9.6	$ 129,419	$ 9.01
10	Bakersfield-Santa Barbara	24,855	2,238	11.1	$ 542,796	$ 21.84
12	Bakersfield-Palmdale	6,081	749	8.1	$ 75,535	$ 12.42
15*	Merced-Yosemite	2,001	1,006	2.0	$ (34,000)	$ (16.99)
17	Santa Barbara-San Luis Obispo	22,326	5,928	3.8	$ 97,036	$ 4.35
18	Hanford-San Luis Obispo	10,155	1,716	5.9	$ (120,030)	$ (11.82)
19	Bakersfield-Indio	39,453	3,129	12.6	$ 760,907	$ 19.29
20	Sacramento-Sparks	56,315	4,933	11.4	$ (15,117)	$ (0.27)
21A	San Jose - Monterey	3,985	2,197	1.8	$ (217,062)	$ (54.47)
21B	Oakland - San Jose	12,343	2,920	4.2	$ (11,922)	$ (0.97)
21C	San Jose- Santa Barbara	11,529	730	15.8	$ 72,445	$ 6.28
22**	San Jose-Santa Cruz	45,951	7,665	6.0	$ 535,181	$ 11.65
23	Sacramento-Carson City	14,039	4,029	3.5	$ (189,834)	$ (13.52)
28	Emeryville-Millbrae	12,819	2,921	4.4	$ (107,384)	$ (8.38)
	TOTALS	**682,538**	**74,629**	**9.1**	**$ 10,658,947**	**$ 15.62**
July 1999 through June 2000						
1	Los Angeles-Bakersfield	178,449	15,857	11.3	4,004,172	$ 22.44
3	Stockton-Redding	89,355	6,725	13.3	2,264,096	$ 25.34
4	Los Angeles-Santa Barbara	9,159	2,257	4.1	90,341	$ 9.86
6	Stockton-San Jose	40,133	3,671	10.9	693,058	$ 17.27
7	Martinez-McKinleyville	37,736	6,270	6.0	458,486	$ 12.15
9	Bakersfield-Las Vegas	13,375	1,480	9.0	100,361	$ 7.50
10	Bakersfield-Santa Barbara	21,092	2,232	9.4	411,470	$ 19.51
12	Bakersfield-Palmdale	4,980	735	6.8	77,563	$ 15.57
15*	Merced-Yosemite	935	2,192	0.4	(132,715)	$ (141.94)
17	Santa Barbara-San Luis Obispo	22,246	5,535	4.0	263,441	$ 11.84
18	Hanford-San Luis Obispo	7,810	1,485	5.3	9,141	$ 1.17
19	Bakersfield-Indio	34,672	3,037	11.4	561,413	$ 16.19
20	Sacramento-Sparks	40,125	8,483	4.7	(227,497)	$ (5.67)
21A	San Jose - Monterey	3,186	2,198	1.4	(232,046)	$ (72.83)
21B	Oakland - San Jose	8,256	2,928	2.8	(67,835)	$ (8.22)
21C	San Jose- Santa Barbara	10,626	732	14.5	25,299	$ 2.38
22**	San Jose-Santa Cruz	43,316	7,285	5.9	470,072	$ 10.85
23	Sacramento-Carson City	13,034	3,769	3.5	(157,134)	$ (12.06)
28	Emeryville-Millbrae	14,230	3,331	4.3	(87,751)	$ (6.17)
	TOTALS	**592,715**	**80,202**	**7.4**	**$ 8,611,685**	**$ 14.53**

* Represents summer season service

** Represent only passengers with connecting Amtrak train trips (excludes local passengers purchasing tickets from operator)

- Passengers can transfer between the BART heavy rail service and the Capitol Corridor or San Joaquin at Richmond.
- At San Jose, the Capitols connect with the Caltrain and Altamont Commuter Express (ACE) commuter rail services.
- The Santa Clara (Great America) station on the Capitol Corridor is a short walk from the Valley Transportation Authority (VTA) Light Rail line.
- At Sacramento, Regional Transit (RT) light rail is a short walk from the Amtrak station, which is served by both Capitol Corridor and San Joaquin trains. RT plans to extend light rail to the Sacramento Amtrak station by the end of 2003.
- The CCJPA has also implemented a joint ticketing program with local transit agencies, including AC Transit and Sacramento RT.

These stations and most other Amtrak stations in California are served by bus routes operated by local transit districts. The State and CCJPA will continue to pursue and enhance coordination between intercity, commuter and urban rail services, as well as local bus transit.

The Department is working closely with Metrolink to create a seamless Southern California travel network by standardizing headways and coordinating departures. One proposal includes the coordination of Pacific Surfliner and Metrolink schedules to allow timed transfers of passengers between the two systems by an easy cross-platform transfer at Los Angeles Union Station. The creation of such a hub would allow the Department to expand connecting bus service linking smaller cities to the intercity-commuter network. This Southern California rail and bus network could eventually provide easy connections between Santa Barbara, Bakersfield, Indio and San Diego.

Metrolink has taken the very positive step of procuring ticket machines capable of selling Amtrak tickets as well as Metrolink tickets for key stations on Metrolink's San Bernardino line, making through trips between the Surfliner and Metrolink more convenient. The Department intends to continue incremental efforts to make schedules connect and market Metrolink-Amtrak through-service.

Airport Access

State Section 14036.7 requires that the Department report on the status of all existing intercity rail station facilities that serve airports directly and indirectly and on the Department's activities in improving other linkages between rail service and airports.

Amtrak and Metrolink trains provide rail service to the Burbank-Glendale-Pasadena Airport. The station integrates the airport shuttle, Amtrak train and feeder bus service, Metrolink trains and local transit service. Currently, four daily round-trip Amtrak trains (Pacific Surfliners) serve the Burbank Airport station. This stop is the closest rail-air interface in the Western United States.

San Diego Transit offers direct bus service from the San Diego Amtrak Station to the San Diego Airport. Bus service connects all of the Pacific Surfliner trains with the airport via a 10-minute trip.

In Northern California, the CCJPA is currently planning access to Oakland International Airport. The station will be one block from the BART Coliseum/Oakland Airport Station, which is linked by shuttle bus to the airport. The Capitol Corridor stop will also feature a direct pedestrian connection to the BART station. A shuttle bus from the Emeryville station provides a timed connection between San Francisco International Airport and most Capitol Corridor and San Joaquin trains each day.

THE DEPARTMENT'S MARKETING PROGRAM

Marketing

The Department expends $5 million annually on intercity rail marketing. Amtrak supplements the Department's annual budget with an additional contribution for media advertising, which in 2000-01 was $1.2 million. Amtrak contributed $800,000 of this for the Pacific Surfliners, with $200,000 each going to the San Joaquins and Capitols. Amtrak plans similar California advertising expenditures in 2001-02.

The CCJPA and the State have agreed that $1,173,800 of State funds annually go to the CCJPA for marketing. Together with the Amtrak advertising supplement, $1,373,800 are available for the Capitols.

The balance of $4,826,800 ($3,826,200) in State funds and $1 million in Amtrak funds) is expended on marketing for the San Joaquins and Pacific Surfliners. Typically, media advertising receives about $3.8 million of this and the remainder, approximately $1 million, is divided between public relations, rail safety, passenger information, and market research.

As service improvements, such as increased frequencies and reduced running times, are made possible by the Department's ongoing capital improvement program, our long-term marketing strategy will focus on these improvements and the new markets they create. The Department's requests for new services will be accompanied by requests for resources to reach new markets. These new markets will be tapped through both media advertising and public relations efforts. Our success at implementing and marketing service improvements that make the train more closely competitive with the automobile, or that even provide better service in some instances, will result in significant ridership and revenue gains.

Advertising

Since the creation of the Amtrak West Strategic Business Unit in 1995, the Department and Amtrak have combined resources to create a single advertising program for California services. In October 2000, the Department started a new contract with Glass-McClure Advertising of Sacramento. Contract services include strategic planning, media planning, production and creative services, and media buys. By design, Glass-

McClure's agreement with the Department maximizes the State's commitment to rider-producing media by paying a lower-than-standard commission rate on media buys. Also, no mark-up is paid for production or creative work.

A detailed plan is now being formulated for the 2001-02 fiscal year. This is being done in conjunction with Amtrak. The plan's first cut includes three distinct fare promotion campaigns including one done in conjunction with a national campaign. The plan also continues this year's successful strategy of targeting constituent groups with a high likelihood of riding the train. This means that Hispanics, the mature market, business travelers and families will be targeted with campaigns and media addressing their particular travel needs.

Since 1996, the Department's advertising has focused on the virtues of train travel, positioning Amtrak California as "...a unique and relaxing way to travel." In executing this positioning, the advertising strategy combines an emotional element reflecting train travel as a unique experience with price and destination messages. This overall advertising appeal will be adjusted when tailoring messages for each of the different targets listed above.

Pacific Surfliner and San Joaquin Routes – 2001-02

The primary objectives that will be implemented for the 2001-02 fiscal year are:

- To establish a position for California train travel in consumers' minds. Research shows that most California travelers do not even consider rail when making travel decisions. Rather, most automatically choose their automobiles. Part of advertising's mission is to reveal rail as a fun, easy –to-use option relevant to travel needs.
- To implement fare promotion campaigns to increase price-sensitive ridership.
- To develop ridership in specific target areas, such as seniors, families, business travelers and college student markets.
- To promote major recent improvements to the corridors, including the new Pacific Surfliner equipment, and the opening of new stations, such as Bakersfield.
- To work with cities and other local agencies to identify special events such as festivals, conventions, and sporting events whenever train travel can be a viable transportation option and then include train information in event brochures and information packets.
- To coordinate with local business, chambers of commerce and convention bureaus to promote the use of the train.

Pacific Surfliner Route

- To build ridership on the northern segment of the route from Los Angeles to San Luis Obispo.

San Joaquin Route

Last year, San Joaquin marketing programs were designed to capitalize on a new reservations system and the potential of Amtrak's "yield management" system. With these systems in place, blocks of low fare seats could be reserved during low demand off-peak periods in order to encourage ridership, while higher fare tickets could be sold during peak periods in order to maximize fare revenue. The success of these programs has established them as permanent parts of the San Joaquin fare structure. The inventories will now be continually refined and adjusted to reflect demand, with advertising strategies being adjusted accordingly.

Capitol Corridor – 2001-02

According to the CCJPA's *FY 01/02 - FY 02/03 Business Plan Update*, "The focus of the CCJPA's marketing program is to bring the marketing down to the local level so there is an awareness of the Capitol Corridor Service - train route and stations, fare options and destinations and attractions near the stations." The Business Plan Update includes the following initiatives in 2001-02 for accomplishing this objective.

Corridor-Wide Cross-Promotional Marketing Efforts - Develop major media campaigns to inform leisure travel and business travel markets about service expansions/improvements and special events and destinations/attractions (e.g., Cal Expo). Explore optimizing regularly scheduled feeder bus stops at high traffic generators, such as Marine World and Pier 39 and new opportunities such as service to the new baseball stadium (Pac Bell Park) in San Francisco.

Joint Marketing Efforts - Work with Amtrak and the Department on joint media and promotion opportunities to achieve cost-efficiencies in marketing both the Capitol Corridor and San Joaquin services (e.g., joint Oakland Raiders/Oakland A's promotions).

Real Time Passenger Information System - Monitor the installation and operation of web-based internet information kiosks and real-time information signs at train and bus stations to update customers on train and bus status and arrival/departure times.

Outreach Efforts with Capitol Corridor Communities - Expand the joint outreach pilot program to interested Capitol Corridor communities to develop and implement local marketing strategies in order to raise support for and awareness of the importance of the service in those communities.

Web Site - Continue operation and monitoring of the Capitol Corridor web site. The web site provides up-to-date information on the service operations, marketing promotions, local stations and attractions, and other relevant information on the CCJPA and the service. The web site also provides

reciprocal connections to CCJPA member agencies, Amtrak, the Department, and local community web sites.

Rail Safety - Continue involvement in safety issues that concern rail passenger trains and stations. Working with Amtrak and the Department, the CCJPA will provide initiatives in support of the California Operation Lifesaver program on rail safety through education, engineering and enforcement. Operation Lifesaver is a voluntary effort of railroads, safety experts, law enforcement, public agencies and the general public.

Public Relations

The Department contracts for its public relations effort with Charles Seifert and Associates of Greenbrae, California. In 2001-02, the second year of a two-year contract, public relations activities are budgeted at about $220,000. The public relations program is far more personal and hands-on than the advertising program, but is designed to work in conjunction with and support advertising efforts. The contract allows a customized, corridor-specific program to be constructed from an array of the following activities.

Special Promotions - Promotions have the advantage of using a tailored message to spotlight aspects of service of particular appeal to a corridor audience. Promotions will continue to include ticket giveaways in conjunction with media buys on local radio stations; arrangements with destinations that may include overnight accommodations and tickets to a special event/theme park; and a variety of cooperative efforts with well known promotional partners. These partnerships offer the chance for both parties to obtain exposure for their products while sharing an audience and the cost of that exposure. In 2001-02, partners included Holiday Inn, Sea World, Yosemite, Disneyland and the Oakland Raiders. A new Amtrak-arranged promotion that will occur at no cost to the State/Amtrak includes sponsorship of selected college and professional sports teams whose team demographics coincide with potential train riders. As part of this, the Amtrak California train message will be communicated to sports fans in new and previously unused advertising media.

Media Relations - The contractor conducts press tours, produces press kits for special events, conducts media familiarization trips, and otherwise generates travel and rail-related articles for publication. These activities are coordinated with Amtrak, the Department's Public Affairs Office and district offices where appropriate.

Printed Materials - Each quarter, the contractor produces Making Tracks, the on-board rider newsletter, and prints approximately 30,000 for distribution in station racks and by mail statewide. The contractor also produces brochures, flyers, and coupons on demand designed to highlight various aspects of the service. Examples of these are posters promoting dining car service, a brochure advertising special packages to Yosemite, and the San Joaquin Route guide.

Special Events - In any given year, as State-sponsored rail facilities and services have grown, ceremonial events marking this growth have been staged under the public relations banner. Such events introduce potential

Amtrak customers to the product, but they also generate important free publicity that is frequently more effective at reaching an audience than paid advertising. In 1999-00, new stations were started, opened or reopened at Modesto, Merced, Corcoran, Surf, Santa Barbara and Solana Beach. In 2000-01, stations opened in Bakersfield and Merced and a new grade separation on private agricultural property in the San Joaquin Valley was commemorated in Stockton. New equipment has been introduced on the Pacific Surfliners, coincident with the rebranding of the service that was launched when the name of the service was changed from the San Diegan to the Pacific Surfliner. Each of these service changes affords the opportunity to stage an appropriate special event to the program's marketing benefit. The Department works with Amtrak West to organize these events. Already in 2001-02, a new station has opened at Richmond and, in September 2001, a new station was put into service at Martinez. A second Sacramento-Bakersfield San Joaquin will soon be inaugurated with appropriate ceremony.

Rail Safety Campaign

Rail passenger service expansion in California has meant significantly increased traffic along largely privately owned railroad tracks. To help ensure that the increase occurs without a corresponding increase in hazard, the Department budgets $70,000 annually toward rail safety information and education programs. In the past, these dollars have been used to erect warning signs near schools adjacent to railroad tracks; to develop safety programs designed to educate Californians on the dangers of trespassing on rail rights of way and ignoring grade crossing warning devices; and to conduct public service advertising campaigns on these subjects. Approximately $20,000 of the budgeted amount is part of the Charles Seifert Public Relations contract. The remainder is financed by non-contract advertising dollars. The CCJPA participates with the Department in this important effort.

The Department coordinates its rail safety activities with California Operation Lifesaver, the State affiliate of the national nonprofit organization whose major focus is encouraging safe behavior at railroad grade crossings and discouraging, for safety reasons, trespassing on railroad property. The State organization is a coalition of railroads; federal, State and local agencies (such as the FRA, the CPUC, local police organizations and transit operators); and private businesses and individuals concerned about promoting safety. The Department is a member of the California Operation Lifesaver Board of Directors.

Passenger Information

Using staff from the Division of Rail, the Department produces informational materials designed to inform customers about routes, schedules, fares, connecting buses and other Amtrak services. Passenger information devices include printed materials, signage, an Internet web site and telephone information.

Printed Information – Other than special purpose brochures, the Department produces two primary printed materials, the State operating timetable and public timetable folders. The operating timetable is designed predominantly for internal use by Amtrak's reservation sales agents, station agents and bus operators. It is the official reference document, covering routes and schedules for Amtrak California trains and buses, although it also covers national system trains serving the West Coast and selected non-Amtrak rail services in the State. For the public, individual folders are produced by the Department for the Pacific Surfliners and San Joaquins and by the CCJPA for the Capitols. In 2000-01 the Department spent about $128,000 on schedule production for two schedule changes on its corridors. Over a million timetable folders are handed out each year. This is expected to continue in 2001-02.

Signage – Each of the 150 bus stops in Amtrak California's feeder bus network is signed with up-to-date route and schedule information compiled, installed and maintained by the Department. The information is contained on information inserts placed in long metal signs marking the stops called infoposts. (Generally these are supplemented by signs in Amtrak California colors reading "Bus Stop.") These inserts must be redesigned and reinserted at every schedule change. Emulating what has become a service standard for the buses, Amtrak West and the Department are developing similar standard information displays at and within train stations. The first phase, which was launched in the summer of 2001, is a pilot project of large passenger information displays located on the platforms at Central Valley stations on the San Joaquin Route and at the stations north of Los Angeles on the Pacific Surfliner Route. During the next phase, the platform signs will be installed in Bay Area stations along the San Joaquin Route. In conjunction with this effort, the Department is pursuing consistent deployment of pathfinder signs, directing automobile drivers from adjacent State highways and local roads to Amtrak stations. Although some of these kinds of signs already exist, many are outdated, worn out, damaged, or no longer provide correct information. Since 1999, the Department has been installing new signs on State highways pointing to train stations on all three State-supported routes. Signs on local streets and roads are under the jurisdiction of cities and counties, so the Department coordinates sign placement with them.

The Internet – In 1996, the Department established its Amtrak California web site, www.amtrakcalifornia.com, which has become a successful communications device. The site contains information about fare promotions and fare discounts, Amtrak California news, an easy-order publications page, and general background information about Amtrak California. It also contains local information to aid trip planning, such as local transit information and links to web sites for visitor and convention bureaus. The Amtrak California web site provides a direct link to Amtrak's national web site, www.amtrak.com, where on-line reservations can be made for the San Joaquins and tickets can be purchased for all Amtrak trains. The CCJPA's web site, www.amtrakcapitols.com, links to the Amtrak and Amtrak California web sites.

Telephone Information – Amtrak's national telephone information number, 1-800-USA-RAIL, is the most widely used source of information for Amtrak California customers. In 1997-98, concerns over its rising cost and reputed poor quality caused the Department to consider contracting for a separate telephone service to be operated within the State. Coincident with these deliberations, however, Amtrak converted all calls within California's major markets to a Voice Response Unit (VRU) automated system designed to eliminate inaccuracies and cut costs. As a result, complaints about routine errors dropped significantly and, because personnel costs dropped, the State and Amtrak agreed to a fixed amount to cover telephone services at roughly a third of pervious costs. Still, during FY 2001-02, the Department intends to further explore the feasibility of contracting out telephone services.

Real-Time Information – Real-time passenger information systems are being developed for the State-supported intercity rail network. The CCJPA is working with the Department and Amtrak on developing a Request for Proposals (RFP) for a demonstration project of real-time information displays at selected Capitol Corridor stations. One of the principal route objectives for the Pacific Surfliner is to provide real-time information to passengers on train status (e.g., anticipated arrival time), particularly at unstaffed stations. Metrolink has already begun installing electronic information displays at stations, including those shared with Pacific Surfliner trains. Department staff are working with Metrolink and consultants to develop a system for displaying real-time information using the electronic signs.

Market Research

The Department contracts with Amtrak West for $500,000 per year in market research services. With the Department's participation, Amtrak contracts with various market research firms to measure customer attitudes, desires and preferences in order to match services to customer needs. Past market research has included seasonal on-board surveys; telephone surveys of non-users; license plate surveys to obtain data for ridership, modeling, and advertising; and promotion tracking studies. In addition, each year's research plan includes a contingency fund designed to conduct spot research on subjects that arise during the course of a given year. In this category, the Department and Amtrak conducted research on timetable formats that resulted in a redesign of the State's public timetable folders. Customer attitudes about the San Diegan brand name and its possible replacements were also solicited. This branding exercise resulted in the new name for the San Diegan corridor, the Pacific Surfliner.

In 1999-00, the Department conducted extensive research into on-board food services. This lead to improvements in the service itself and in promotional efforts designed to alert customers that on-board dining is available.

In 2000-01, the research program included about $150,000 in advertising research, including creative and concept testing and awareness tracking. Another $100,000 was set aside for follow-up research into the effectiveness of the Pacific Surfliner brand. Similar amounts were allocated for frequent traveler customer research, Surfliner station and parking research and

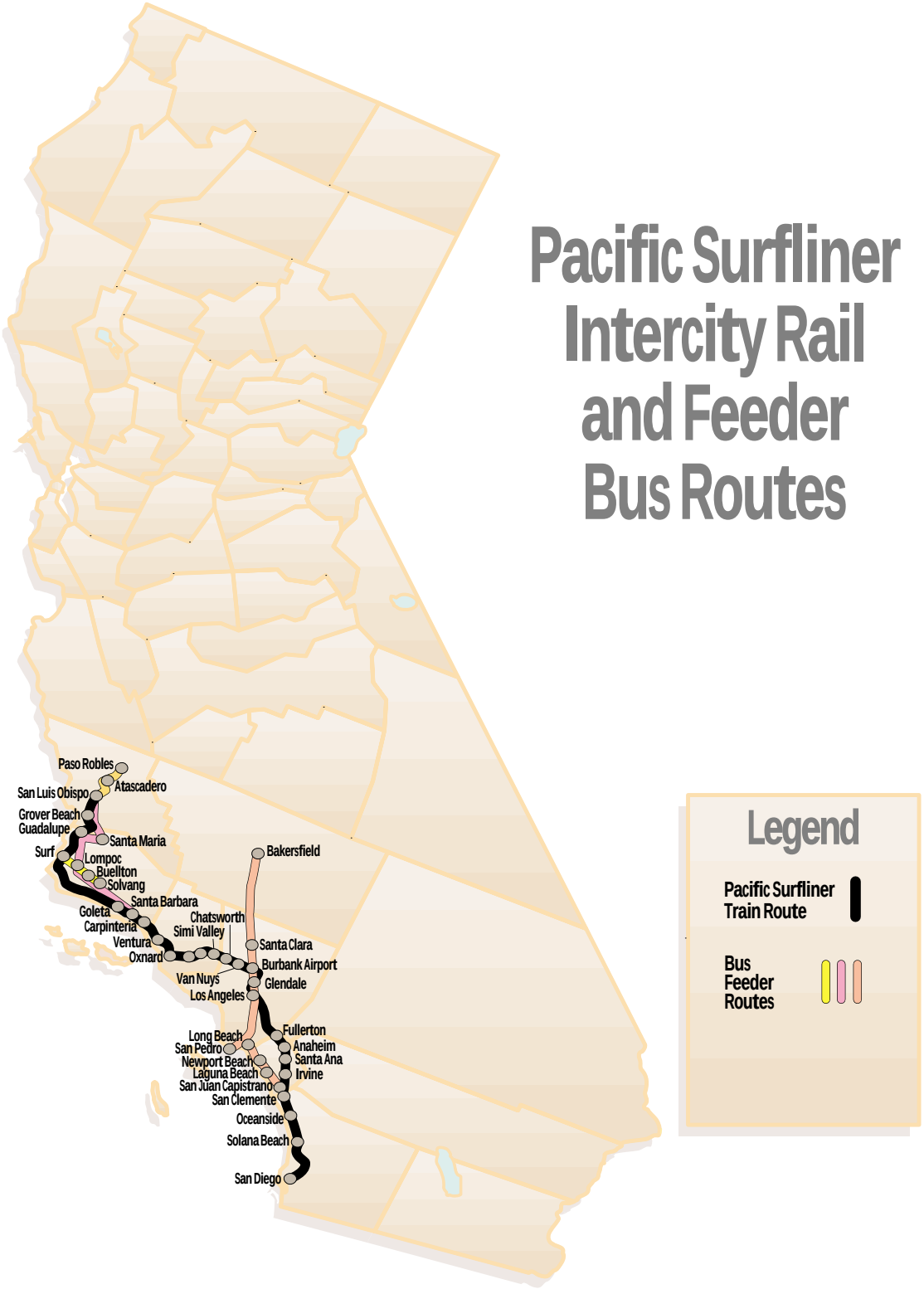
follow-up research to implementation of the California Rail Pass. In addition, the Department participated in a joint marketing research effort with CCJPA and Amtrak for the Capitol Corridor.

Rail Ridership/Revenue Forecasting Model

The Department contracts with Amtrak for operation and development of the Rail Ridership/Revenue Forecasting Model. It is used by the Department, Amtrak and CCJPA in conjunction with Amtrak's consultant, AECOM Consulting Transportation Group, to estimate the ridership and revenue impacts of major service changes, such as new services, route extensions or truncations, frequency changes and fare changes.

The first state of the model predicts automobile and rail travel volumes for each origin-destination pair. The second stage predicts the share of intercity travel that is expected to use each available modal alternative (automobile, rail) in the future. Both model stages are conditional on the characteristics of the modal services to be offered and the characteristics of the population. Further information is given on the forecasting model in *Development of Techniques for Forecasting Intercity Rail Travel within California*, December 2000.

Figure 5A


Pacific Surfliner Intercity Rail and Feeder Bus Routes
Paso Robles
Atascadero
San Luis Obispo
Grover Beach
Guadalupe
Santa Maria
Surf
Lompoc
Buellton
Solvang
Santa Barbara
Goleta
Carpinteria
Ventura
Oxnard
Chatsworth
Simi Valley
Bakersfield
Santa Clara
Burbank Airport
Glendale
Van Nuys
Los Angeles
Long Beach
San Pedro
Newport Beach
Laguna Beach
San Juan Capistrano
San Clemente
Fullerton
Anaheim
Santa Ana
Irvine
Oceanside
Solana Beach
San Diego
Legend
Pacific Surfliner Train Route
Bus Feeder Routes

CHAPTER V
PACIFIC SURFLINER ROUTE

SAN LUIS OBISPO-SANTA BARBARA-LOS ANGELES-SAN DIEGO

PRINCIPAL 2001-2011 ROUTE OBJECTIVES

- Increase annual ridership 52 percent, from 1,662,000 to 2,518,000 passengers.
- Increase annual revenues 68 percent, from $20.4 to $34.3 million, for the State-supported 67 percent of the route operation.
- Increase revenue/cost (farebox) ratio from 53.5 percent to 57.7 percent.
- Reduce the State cost per passenger mile form 16 to 13 cents.
- Increase frequency of daily round-trip service, from 11 to 16 trains between Los Angeles and San Diego, from 4 to 6 between Los Angeles and Santa Barbara/Goleta, and from 1 to 2 trains extended beyond Goleta to San Luis Obispo.
- Reduce train-running times to less than two hours between Los Angeles and San Diego, two hours between Los Angeles and Santa Barbara/Goleta and two hours between Santa Barbara and San Luis Obispo.
- Improve the reliability (on-time performance) of trains.
- Provide real-time information to passengers on train status (e.g., anticipated arrival time), particularly at unstaffed stations.

BACKGROUND

When Amtrak was established in May 1971, the San Luis Obispo-Santa Barbara-Los Angeles segment of the Pacific Surfliner Route was served only by the daily Coast Starlight train. The Los Angeles-San Diego portion of the route was served by two daily local round-trips, plus tri-weekly train connections with the Coast Starlight, instead of the three daily local round-trips previously operated by the private railroad. Later in 1971, the third Los Angeles-San Diego train resumed daily operations. For the next five years, this three-train level remained constant and functioned primarily to connect passengers to long-haul trains at Los Angeles.

In 1976, the State began State-supported service on the route. The Pacific Surfliner Route was unique among the State-supported routes in California because some individual trains were entirely supported by Amtrak, and considered basic system service. However, the State paid most of the costs of the other trains, which were considered State-supported

service. In October 1995, the cost allocation system changed and the State began support of 64 percent of all service, instead of supporting individual trains. This percent was increased to 67 percent in November 1997.

Service on the Pacific Surfliners has increased from the original three round-trips to the current schedule of eleven round-trips on Monday through Thursday and twelve round-trips on Friday through Sunday as follows:

9/1/76 Los Angeles - San Diego, fourth round-trip added, State-supported.

4/24/77 Los Angeles - San Diego, fifth round-trip added, State-supported.

2/14/78 Los Angeles - San Diego, sixth round-trip added, State-supported.

10/26/80 Los Angeles - San Diego, seventh round-trip added, Amtrak basic system.

10/25/81 State-supported Spirit of California Los Angeles - Sacramento round-trip overnight train provided Los Angeles to Santa Barbara service. Service discontinued October 1, 1983.

10/25/87 Los Angeles - San Diego, eighth round-trip added, State-supported.

6/26/88 First train extended to Santa Barbara, State-supported.

10/28/90 Second train extended to Santa Barbara, State-supported.

10/25/92 Los Angeles - San Diego, ninth round-trip added, Amtrak basic system.

2/1/94 Third train extended to Santa Barbara, State-supported.

5/15/95 Los Angeles - San Diego, ninth round-trip discontinued.

10/29/95 Los Angeles - San Luis Obispo, first round-trip (fourth round-trip, Los Angeles - Santa Barbara).

10/26/97 Los Angeles - San Diego, ninth round-trip restored and tenth round-trip added.

10/25/98 Los Angeles - San Diego, eleventh round-trip added.

5/21/01 Los Angeles - San Diego, twelfth Friday through Sunday round-trip added.

Figure 5A is a map displaying the route, including the connecting bus services.

ROUTE DESCRIPTION

The Pacific Surfliner Route presently extends 351 rail miles between San Luis Obispo and San Diego (222 miles north of Los Angeles and 129 miles south of Los Angeles). To facilitate the implementation of commuter rail service, regional and local agencies in Ventura, Los Angeles, Orange and San Diego counties purchased (from the Southern Pacific and Santa Fe railroads) most segments of the rail line between Moorpark and San Diego. The UP continues to own 175 miles between San Luis Obispo and Moorpark. The BNSF owns 22 miles between Redondo Junction in Los Angeles and Fullerton. Figure 5B describes the current ownership,

segment mileage, and track and signal characteristics of the Pacific Surfliner Route.

Figure 5B

PACIFIC SURFLINER ROUTE
OWNERSHIP AND TRACK CHARACTERISTICS

Between	Mile Post	And	Mile Post	Miles	Owner of Track	*No. of Tracks	Max. Speed	Signal System
San Luis Obispo	248.5	East San Luis Obispo	251.5	3.0	UP	2	60	DTC
East San Luis Obispo	251.5	West Santa Barbara	365.2	113.7	UP	1	60	DTC
West Santa Barbara	365.2	East Santa Barbara	368.6	3.4	UP	2	40	DTC
East Santa Barbara	368.6	Moorpark	423.1	54.5	UP	1	70	DTC/CTC
Moorpark	423.1 = 426.4	Ventura/LA County Line	442.0	15.6	(a)UP/VCTC	1	70	CTC
Ventura/LA County Line	442.0	Raymer (West of Van Nuys)	453.1	11.1	(a)UP/LACMTA	1	70	CTC
Raymer (West of Van Nuys)	453.1	Burbank Jct.	462.6	9.5	(a)UP/LACMTA	2	79	CTC
Burbank Jct.	462.6 = 11.4	Glendale (Fletcher Drive)	4.9	6.5	(a)UP/LACMTA	2	79	CTC
Glendale (Fletcher Drive)	4.9	C.P. Dayton	2.1	2.8	LACMTA	2	79	CTC
C.P. Dayton (b)	2.1	Mission Tower	0.8	1.3	LACMTA	2	50	CTC
Mission Tower	0.8	L.A. Union Station	0.0	1.6	Catellus	3	15	CTC
Mission Tower	0.0	Redondo Jct.		3.2	LACMTA	1	65	CTC
Redondo Jct.	143.2	Fullerton	165.0	21.8	BNSF	1	79	CTC
Fullerton	165.0	Santa Ana (Aliso)	175.2	10.2	OCTA	2	79	CTC
Santa Ana (Aliso)	175.2	Orange/San Diego Co. Line	207.4	32.2	OCTA	2	90	CTC/ATS
Orange/San Diego Co. Line	207.4	Del Mar/San Diego City Limits	245.6	38.2	NSDCTDB	1	90	CTC/ATS
Del Mar/San Diego City Limits	245.6	Sorrento	249.1	3.5	MTDB	1	90	CTC/ATS
Sorrento	249.1	San Diego	267.6	18.5	MTDB	1	79	CTC
Total (includes round trip between Union Station and Mission Tower)				350.6				

* General number of mainline tracks

(a) On this segment LACMTA (VCTC between Moorpark and the Ventura/LA County Line) purchased a 40 foot wide portion of UP's right-of-way. Between Raymer and Burbank Junction, LACMTA constructed and owns a second main line track.

(b) Via West Side of Los Angeles River (Downey Avenue Bridge)

Owners:

- BNSF - The Burlington Northern and Santa Fe Railway Company
- Catellus - Catellus Develop. Corp. (a real estate develop co.; owner of L.A. Union Station)
- LACMTA - Los Angeles County Metropolitan Transportation Authority
- MTDB - Metropolitan Transit Development Board
- NSDCTDB - North San Diego County Transit Development Board
- OCTA - Orange County Transportation Authority
- UP - Union Pacific Railroad Company
- VCTC - Ventura County Transportation Commission

Signal Systems:

- ATS - Automatic Train Stop - Allows speeds of 90 miles per hour. System automatically applies train brakes if a restrictive signal indication is not observed or warning alarm is not acknowledged.
- CTC - Centralized Traffic Control - Wayside signals protect possession of blocks. Signals and powered switches are also remotely controlled from the dispatching center to direct the movement of trains.
- DTC - Direct Traffic Control - Dispatching center gives authority for train movement by radio to train crew directly.

Scheduled running time between Los Angeles and San Diego varies from two hours thirty-five minutes to three hours. Overall average speed, including station dwell time, varies from 43 to 50 mph. This segment includes more than 70 miles where the maximum track speed is 90 mph, the only location on the State-supported routes where trains operate above 79 mph. Scheduled train running time between Los Angeles and Santa Barbara varies from two hours forty-three minutes to three hours twenty minutes. Overall average speed varies from 32 to 39 mph. Scheduled running time between Santa Barbara and San Luis Obispo varies from two hours twenty-one minutes to two hours fifty-seven minutes. Overall average speed varies from 39 to 49 mph.

CONNECTING BUS SERVICES

The Pacific Surfliner Route has a smaller network of connecting buses than the San Joaquin or Capitol Routes. Nonetheless, the Pacific Surfliner buses provide an important extension to the Pacific Surfliner Route. The Department contracts with Amtrak for the provision of dedicated feeder bus services, and Amtrak then contracts with bus operators. The bus routes function as direct parts of the Amtrak system, with coordinated connections, guaranteed seating, integrated fares and ticketing procedures, and inclusion in Amtrak's central information and reservation system in the same manner as the trains.

Unlike the trains, the bus operating costs are borne entirely by the State, although much of the bus operating costs are offset by bus revenues. A mileage/yield-based portion of the revenue from each through bus/rail ticket is allocated to the bus portion of the trip. This allocated revenue is then transferred to the cost of the bus, reducing the actual State expense.

Below is a listing of the Pacific Surfliner bus routes and their origins/destinations and main stops. Route 1 is a San Joaquin bus route, but also feeds passengers to the Pacific Surfliners and functions as an important supplement to train service on the north end of the Pacific Surfliners. Cities that are Pacific Surfliner train connection points are in *italics*.

Route 1 - Los Angeles Basin (San Joaquin Route bus)
San Juan Capistrano - Laguna Beach - San Pedro - Long Beach - *Los Angeles* - Bakersfield

Route 4 - South Coast
Los Angeles - Oxnard - Santa Barbara

Route 17A - Central Coast
Santa Barbara - San Luis Obispo - Paso Robles

Route 17B - Santa Ynez Valley
Surf - Lompoc - Solvang

LOS ANGELES-SAN DIEGO-SAN LUIS OBISPO RAIL CORRIDOR AGENCY (LOSSAN)

LOSSAN acts as a planning agency and an advisory group for intercity rail in Southern California. Following actions taken at its June 2001 meeting, LOSSAN added the San Luis Obispo Council of Governments as a voting member of its Board and transferred the Ventura County Transportation Commission, the Santa Barbara County Association of Governments, and the San Diego Association of Governments from ex-officio members to voting members.

The members of the LOSSAN Technical Advisory Committee (TAC) are now Amtrak, BNSF, the Department's Division of Rail, the CPUC, Los Angeles County Metropolitan Transportation Authority, San Diego Metropolitan Transit Development Board, North San Diego County Transit District, Orange County Transportation Authority, San Diego Association of Governments, San Luis Obispo Council of Governments, Santa Barbara County Association of Governments, Southern California Association of Governments, Southern California Regional Rail Authority (Metrolink), UP, and Ventura County Transportation Commission.

These actions were taken following the dissolution of the Southern California Intercity Rail Group, originally created by Joint Powers Agreement in October 1996 to plan intercity rail service in Southern California.

PERFORMANCE

Figure 5C shows ridership and financial performance data on an annual (State FY) basis from the start of State-supported service in 1976-77 through 2000-01. Total ridership reached a peak of 1.8 million in 1992-93. The introduction of Metrolink commuter rail service in the Los Angeles basin in October 1992 and Coaster commuter rail service in the San Diego area in 1995 has had a major effect on ridership. Since commuter rail service was introduced, overall ridership on the corridor has increased significantly. However, intercity ridership has not returned to its levels previous to the introduction of commuter rail. Farebox ratio was near or over 100 percent for six consecutive years from 1987-88 through 1992-93, and has since declined significantly. This is because, in addition to the introduction of commuter rail service, Amtrak has steadily increased the amount and type of costs that are included in the farebox ratio. (See Chapter IV for more information on this subject.)

The average monthly on-time performance on the Pacific Surfliners between October 1995 and September 1999 was 71.6 percent. In Amtrak's 2000-01 fiscal year, the on-time performance has averaged 78.2 percent. As discussed in Chapter III, the TCRP contains funding for a triple track project in Los Angeles County and double track projects in San Diego County. These projects will improve the reliability and on-time performance of the Pacific Surfliners by facilitating both passenger and freight train movements and by providing more opportunities for trains to pass each other.

Figure 5C

PACIFIC SURFLINER Route

Annual Operating Performance - State Fiscal Years

State Fiscal Year		Ridership Data			Financial Data for Operations - State Supported Train and Bus Service Only*						
		All Trains		State Supported*							
		Ridership	PM/TM	Ridership	Revenue	Expense	Loss	State Cost	Amtrak Cost	Train Loss per PM	Farebox Ratio
	Notes		(F1)			(F2)		(F3)	(F4)	(F5)	(F6)
1973-74	(S1)	381,844									
1974-75		356,630									
1975-76		376,900									
1976-77	(S2)	607,976	146	101,572	$ 598,140	$ 1,662,714	$ 1,064,574	$ 548,534			36.0%
1977-78	(S3)	753,246	128	258,800	$ 1,446,036	$ 3,768,065	$ 2,322,029	$ 1,325,087			38.4%
1978-79		967,316	163	415,865	$ 2,203,403	$ 4,333,602	$ 2,130,199	$ 1,178,667			50.8%
1979-80		1,218,196	177	557,113	$ 3,341,561	$ 5,536,840	$ 2,195,279	$ 1,064,713			60.4%
1980-81	(S4)	1,238,135	152	555,418	$ 4,032,480	$ 6,572,539	$ 2,540,059	$ 1,233,490			61.4%
1981-82		1,167,718	144	533,093	$ 4,097,254	$ 6,607,395	$ 2,510,141	$ 1,217,418		6.3¢	62.0%
1982-83		1,131,146	138	488,606	$ 4,094,750	$ 6,928,334	$ 2,833,584	$ 1,374,097		8.3¢	59.1%
1983-84		1,221,256	143	524,857	$ 4,842,400	$ 6,337,083	$ 1,494,683	$ 1,452,450		4.1¢	76.4%
1984-85		1,240,003	152	568,902	$ 5,410,502	$ 6,411,308	$ 1,000,806	$ 1,212,261		2.5¢	84.4%
1985-86		1,394,320	167	597,025	$ 5,658,915	$ 6,424,634	$ 765,719	$ 1,097,966		1.8¢	88.1%
1986-87		1,461,003	173	624,618	$ 6,072,523	$ 6,510,113	$ 437,590	$ 955,509		1.0¢	93.3%
1987-88	(S5)	1,661,512	174	749,996	$ 8,223,462	$ 7,859,783	$ (363,679)	$ 1,145,330		(0.7¢)	104.6%
1988-89		1,717,539	164	865,003	$ 11,458,084	$ 10,563,459	$ (894,625)	$ 794,159		(1.2¢)	108.5%
1989-90		1,746,673	174	882,167	$ 12,189,942	$ 11,808,251	$ (381,691)	$ 988,847		(1.4¢)	103.2%
1990-91	(S6)	1,791,781	159	946,988	$ 13,306,307	$ 13,364,150	$ 57,843	$ 1,170,448		(0.7¢)	99.6%
1991-92		1,673,107	161	884,224	$ 13,152,063	$ 13,245,924	$ 93,861	$ 1,012,564		(0.5¢)	99.3%
1992-93	(S7)	1,810,572	155	951,987	$ 13,692,612	$ 13,254,709	$ (437,903)	$ 958,857		(0.8¢)	103.3%
1993-94	(S8)	1,699,882	133	876,766	$ 12,725,094	$ 14,017,591	$ 1,292,497	$ 1,525,074	$ 727,987	0.9¢	90.8%
1994-95	(S9)	1,464,577	119	790,781	$ 11,805,859	$ 16,061,849	$ 4,255,990	$ 3,642,588	$ 1,700,424	5.0¢	73.5%
1995-96	(S10)	1,480,674	125	912,905	$ 13,553,553	$ 23,983,026	$ 10,429,473	$ 11,107,071	$ 863,230	11.4¢	56.5%
1996-97		1,617,641	135	1,035,290	$ 14,804,355	$ 39,563,546	$ 24,759,191	$ 16,189,103	$10,020,544	24.5¢	37.4%
1997-98	(S11)	1,624,693	120	1,069,547	$ 15,194,498	$ 44,769,723	$ 29,575,225	$ 20,369,417	$10,600,767	29.1¢	33.9%
1998-99	(S12)	1,563,275	102	1,047,394	$ 16,401,625	$ 40,391,845	$ 23,990,220	$ 22,078,192	$ 4,014,071	25.3¢	40.6%
1999-00		1,567,318	99	1,050,103	$ 17,883,725	$ 37,497,489	$ 19,613,764	$ 20,806,672	$ 1,381,986	19.8¢	47.7%
2000-01	(S13)	1,661,704	106	1,113,342	$ 20,430,153	$ 38,215,732	$ 17,785,579	$ 21,911,398	$ 335,197	16.6¢	53.5%
TOTAL		**36,596,637**		**18,402,362**	**$236,619,296**	**$385,689,704**	**$149,070,408**	**$136,359,912**			

* *Through September 1995, the State supported specific trains; Amtrak operated the remaining trains as basic system trains not receiving State funding. Between October 1995 and October 1997, the State supported 64 percent of the operation of all trains on the Pacific Surfliner Route; Amtrak supports 36 percent as basic system trains. Effective November 1997, State support increased to 67%. State supports 100 percent of net cost of connecting buses; all data shown includes bus operations.*

(S1) Three round trips between Los Angeles and San Diego (LA-SD) (not State-supported) through 8/30/76.

(S2) Fourth LA-SD round trip (first State-supported train) added 9/1/76; fifth LA-SD round trip (second State-supported train) added 4/24/77.

(S3) Sixth LA-SD round trip (third State-supported train) added 2/14/78.

(S4) Seventh LA-SD round trip (not State-supported) added 10/26/80.

(S5) Eighth LA-SD round trip (fourth State-supported train) added 10/25/87; first State-supported round trip between Los Angeles and Santa Barbara (LA-SB) added 6/26/88.

(S6) Second State-supported LA-SB round trip added 10/28/90.

(S7) Ninth LA-SD round trip (not State-supported) added 10/25/92.

(S8) Third State-supported LA-SB round trip added 2/1/94.

(S9) Ninth LA-SD round trip (State-supported in one direction only) discontinued 5/15/95.

(S10) Los Angeles-San Luis Obispo round trip added 10/29/95, also represents fourth LA-SB round trip.

(S11) Ninth LA-SD round trip restored and tenth LA-SD round trip added 10/26/97.

(S12) Eleventh LA-SD roundtrip added 10/25/98.

(S13) Twelfth LA-SD round trip on weekends only added on 5/21/01.

(F1) Passenger-miles per train mile (PM/TM), a measure of the average load on a train over its entire route. Actual passenger-mile data was not provided by Amtrak prior to August 1981. PM/TM figures shown for All Trains are calculated by Amtrak and cover the Amtrak Fiscal Year (October through September).

(F2) Prior to October 1983, all trains billed on solely related cost basis. From October 1983 through September 1995, all Los Angeles- San Diego trains and the first Los Angeles-Santa Barbara train billed on short-term avoidable cost basis. The second and third Los Angeles- Santa Barbara trains billed on long-term avoidable cost basis. Between October 1995 and September 1996, all trains billed on long-term avoidable cost basis. Effective October 1996, all trains billed on Full Cost (Train, Route and System) Basis. Depreciation and interest (equipment capital cost) included in operating cost under solely-related basis but excluded and charged separately under short-term, long-term avoidable and full cost bases.

(F3) From October 1976 through September 1983, State cost was 48.5 percent of operating loss (including equipment costs). For third Los Angeles-Santa Barbara train, State cost was 100 percent of operating loss from February 1994 through September 1994, and 70 percent through September 1995. For all other trains, effective October 1983, through September 1995, State cost was 65 percent of operating loss plus 50 percent of depreciation and interest (equipment capital cost). Between October 1995 and September 1996, State cost was 100 percent of operating loss and 60 percent of equipment capital cost for the State supported 64 percent of train service on the route. Between October 1996 and September 1997, State cost was 55 percent of operating loss and 100 percent of equipment capital cost for the 64 percent State share. Effective October 1997, State is billed contractually specified percentages of most individual cost elements, plus a fixed amount for certain other cost elements. In November 1997, the State share increased to 67 percent of train service on the route to reflect additional State supported service. Also includes State payment of special payments to Amtrak for additional service and State payment for entire net cost of all connecting bus routes.

(F4) Beginning in State Fiscal Year 1993-94, Amtrak cost is based on billings submitted and reflects cost bases and Amtrak shares as stated in notes (F2) and (F3) above, but does not include the unbilled Amtrak share of fixed cost elements. Prior to FY 1993-94, data to calculate Amtrak cost is not available. Does not represent the difference between Loss and State Cost, as the latter includes bus expenses and equipment capital costs not included in Amtrak costs.

(F5) Train loss (deficit) per train passenger mile. Separate passenger-mile data for State-supported trains was not provided by Amtrak prior to August 1981. Connecting buses not included in loss per passenger mile data.

(F6) Farebox Ratio, the ratio of Revenue to Expense.

OPERATIONAL AND SERVICE IMPROVEMENTS

The focus of short-term operating strategies is to improve customer service and amenities, and increase the cost-effectiveness of the services. These two strategies are complementary, as an improvement in customer satisfaction should increase ridership and revenue.

Annual operational and service improvement strategies are detailed in the *Pacific Surfliner Route FFY 2001-02 Business Plan* and will be discussed in future business plans. For example, the 2001-02 Plan discusses issues such as operational improvements with new stations, equipment, marketing strategies, Amtrak buses, Amtrak reporting and billing, the Amtrak reservation and information center, and Pacific Class Service.

POTENTIAL TRAIN SERVICE IMPROVEMENTS

The Department, in conjunction with Amtrak, anticipates there will be eventual demand for hourly round-trips on the Pacific Surfliners.

It is important to note that the start-up dates for service are based on projected service needs. Demonstrated ridership demand, institutional barriers, availability of operating funding and equipment, availability of capital funding for capacity improvements requested by operating railroads, and technical problems outside the control of the Department will affect when each of the service improvements can be implemented.

The Department's proposed expansion of the Pacific Surfliner Route is as follows:

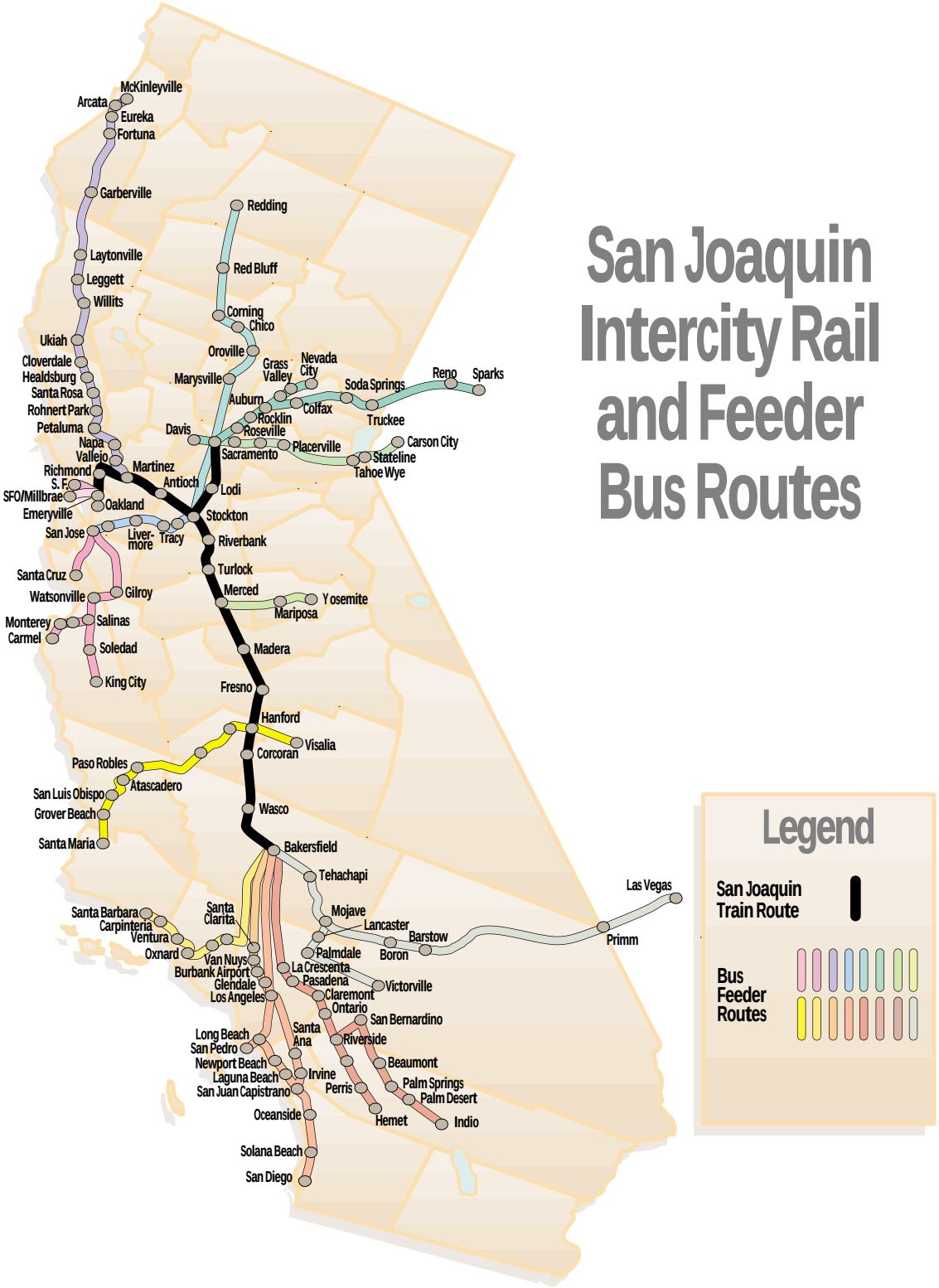
2003-04 Los Angeles - San Diego, twelfth and thirteenth round-trips, plus two round-trips from Los Angeles to Santa Barbara and one round-trip from Santa Barbara to San Luis Obispo.

2005-06 Los Angeles - San Diego, fourteenth round-trip.

2006-07 Los Angeles - San Diego, fifteenth round-trip.

2008-09 Los Angeles - San Diego, sixteenth round-trip.

Figure 6A


San Joaquin Intercity Rail and Feeder Bus Routes
Legend
San Joaquin Train Route
Bus Feeder Routes
McKinleyville
Arcata
Eureka
Fortuna
Garberville
Redding
Laytonville
Red Bluff
Leggett
Willits
Corning
Chico
Ukiah
Oroville
Cloverdale
Grass Valley
Nevada City
Healdsburg
Marysville
Reno
Sparks
Santa Rosa
Soda Springs
Auburn
Rohnert Park
Colfax
Rocklin
Truckee
Petaluma
Davis
Roseville
Napa
Placerville
Carson City
Vallejo
Sacramento
Stateline
Richmond
Martinez
Tahoe Wye
S. F.
Antioch
Lodi
SFO/Millbrae
Oakland
Emeryville
Stockton
San Jose
Liver-more
Tracy
Riverbank
Turlock
Santa Cruz
Merced
Yosemite
Watsonville
Gilroy
Mariposa
Monterey
Salinas
Carmel
Soledad
Madera
King City
Fresno
Hanford
Visalia
Corcoran
Paso Robles
Atascadero
San Luis Obispo
Grover Beach
Wasco
Santa Maria
Bakersfield
Tehachapi
Las Vegas
Santa Barbara
Santa Clarita
Mojave
Carpinteria
Lancaster
Barstow
Ventura
Primm
Oxnard
Palmdale
Boron
Van Nuys
La Crescenta
Burbank Airport
Pasadena
Glendale
Victorville
Los Angeles
Claremont
Ontario
San Bernardino
Long Beach
Santa Ana
Riverside
San Pedro
Beaumont
Newport Beach
Irvine
Laguna Beach
Palm Springs
San Juan Capistrano
Perris
Palm Desert
Oceanside
Hemet
Indio
Solana Beach
San Diego

CHAPTER VI
SAN JOAQUIN ROUTE

BAY AREA-SACRAMENTO-FRESNO-LOS ANGELES

PRINCIPAL 2001-2011 ROUTE OBJECTIVES

- Increase annual ridership 121 percent, from 711,000 to 1,572,000 passengers.
- Increase annual revenues 132 percent, from $19.7 to $45.8 million.
- Increase revenue/cost (farebox) ratio from 45.3 percent to 58.4 percent.
- Reduce the State cost per passenger mile form 18 to 11 cents.
- Increase frequency of daily round-trip service from 4 to 5 between Oakland and Bakersfield and from 1 to 3 between Sacramento and Bakersfield.
- Reduce train running times to five and a half hours between Oakland and Bakersfield and four hours forty minutes between Sacramento and Bakersfield.
- Improve the reliability (on-time performance) of trains.

BACKGROUND

Two daily trains served the San Joaquin Valley prior to 1971 when Amtrak came into existence. Each train used a different route in the Valley. The SP's San Joaquin Daylight operated between the Bay Area and Los Angeles, and SP's Sacramento Daylight provided a Sacramento connector service to the San Joaquin Daylight at Lathrop or Tracy. The ATSF's San Francisco Chief operated between the Bay Area and Chicago via Bakersfield.

Amtrak's initial route structure in May 1971 used the SP's Coast Line for service between Northern and Southern California, leaving most of the San Joaquin Valley without rail passenger service. Public pressure for the restoration of the rail service began almost immediately after Amtrak came into existence. Specific funding for San Joaquin Valley service was included in Amtrak's 1973-74 appropriation. Amtrak selected a joint SP-ATSF route using a connection between the two railroads at Port Chicago (near Martinez). On March 6, 1974, the new San Joaquin entered service between Oakland and Bakersfield and was entirely funded by Amtrak.

In 1979, a major reduction in Amtrak's nationwide route structure was proposed, and the San Joaquin was scheduled to be eliminated on October 1, 1979. The State, however, reached an agreement with Amtrak to continue the train with State support under the provisions of Section 403(b)

of the Amtrak Act. Since then, the State has shared the costs of the service with Amtrak.

Service on the San Joaquins has increased from the original single round-trip to the current five daily round-trips as follows:

2/3/80 Oakland - Bakersfield, second round-trip added.

12/17/89 Oakland - Bakersfield, third round-trip added.

10/25/92 Oakland - Bakersfield, fourth round-trip added.

2/21/99 Sacramento - Bakersfield, first train to extend from Stockton to Sacramento added (fifth round-trip on route).

Figure 6A is a map displaying the route, including the connecting bus services.

ROUTE DESCRIPTION

The San Joaquin Route presently extends 314 route miles between Oakland and Bakersfield with 13 intermediate stops. The route between Sacramento and Bakersfield is 282 miles. Total route miles are 363.

Predominant right of way ownership is by the BNSF (Port Chicago - Bakersfield). The UP owns 39 miles at the northerly end of the route (Oakland-Port Chicago) and 49 miles in the new segment between Stockton and Sacramento. Amtrak operates the San Joaquins under provisions of its contracts with BNSF and UP. Figure 6B describes the current ownership, segment mileage, and track and signal characteristics of the San Joaquin Route.

Scheduled train running time between Bakersfield and Oakland varies from six hours ten minutes to six hours twenty-five minutes. Overall average speed, including station dwell time, varies from 49 mph to 51 mph. Scheduled train running time between Sacramento and Bakersfield is five hours thirty-three minutes to five hours thirty-five minutes, and overall average speed is 51 mph.

CONNECTING BUS SERVICES

The extensive network of buses connecting with the San Joaquins is essential to the route as more than half of all San Joaquin riders use one or more buses for a portion of their trip. Ridership analysis shows that bus feeder riders make longer than average trips, and therefore produce higher revenues per trip.

The Department contracts with Amtrak for the provision of dedicated feeder bus services, and Amtrak then contracts with bus operators. The bus routes function as direct parts of the Amtrak system, with coordinated connections, guaranteed seating, integrated fares and ticketing procedures, and inclusion in Amtrak's central information and reservation system in the same manner as the trains.

Unlike the trains, the bus operating costs are borne entirely by the State, although much of the bus operating costs are offset by bus revenues. A mileage/yield-based portion of the revenue from each through bus/rail ticket is allocated to the bus portion of the trip. This allocated revenue is then transferred to the cost of the bus, reducing the actual State expense.

Below is a listing of the San Joaquin bus routes and their origins/destinations and main stops, as well as the Capitol Corridor bus routes that also connect to the San Joaquins. Cities that are San Joaquin train connection points are in *italics*.

Figure 6B

SAN JOAQUIN ROUTE
OWNERSHIP AND TRACK CHARACTERISTICS

Between	Mile Post	And	Mile Post	Route Miles	Owner of Track	*No. of Tracks	Max Speed	Signal System
Oakland Jack London Square	7.0	Oakland 10th Street	**4.2	2.8	UP	2	40/60	ABS
Oakland 10th Street	**2.2	Martinez	31.7	29.5	UP	2	40/60	ABS
Martinez	31.7 = 1169.3	Port Chicago	1164	5.8	UP	1	30	ABS/DTC
Port Chicago	1163.5	Stockton	1121	42.1	BNSF	1-2	79	ABS/CTC
Sacramento	89.0	Sacramento (Elvas)	91.8	2.8	UP	2	35	ABS/CTC
Sacramento (Elvas)	91.8= 38.8	Stockton	84.7	45.9	UP	1	60	CTC
Stockton	1121.4	Bakersfield	887.7	233.7	BNSF	1	79	CTC
			Total	362.6				

* General Number of Mainline Tracks

** Miles represent distances between post miles from both directions to an approximate location near 10th Street in Oakland.

Owners:

BNSF - The Burlington Northern and Santa Fe Railway Company
UP - Union Pacific Railroad Company

Signal Systems:

ABS - Automatic Block Signals - Possession of a segment of track (block) is protected by a wayside signal. Switches must be thrown manually by train crews entering sidings.
CTC - Centralized Traffic Control - Wayside signals protect possession of blocks. Signals and powered switches are also remotely controlled from the dispatching center to direct the movement of trains.
DTC - Direct Traffic Control - Dispatching center gives authority for train movement by radio to train crew directly.

San Joaquin Bus Routes

Route 1 Network- Los Angeles Basin
1A - *Bakersfield* - Los Angeles - San Diego
1B - *Bakersfield* - Los Angeles - Long Beach - San Pedro - Laguna Beach
1C - *Bakersfield* - Santa Clarita - Van Nuys - Simi Valley

Route 2 - Visalia - Hanford
Hanford - Visalia

Route 3 - Sacramento Valley
Stockton - *Sacramento* - Davis - Chico - Redding

Route 6 - South Bay
Stockton - San Jose - Santa Cruz

Route 7 - North Bay/Redwood Empire
Martinez - Vallejo - Napa - Santa Rosa - Ukiah - Eureka - McKinleyville

Route 9 - Barstow - Las Vegas
Bakersfield - Barstow - Las Vegas

Route 10 - South Coast
Bakersfield - Oxnard - Santa Barbara

Route 12 - Antelope Valley
Bakersfield - Mojave - Palmdale - Victorville

Route 15 - Yosemite
Merced - Yosemite National Park

Route 18 - Central Coast
Hanford - San Luis Obispo - Santa Maria

Route 19 - Inland Empire - Coachella Valley
Bakersfield - San Bernardino - Riverside - Hemet - Palm Springs - Indio

Route 99 - TransBay
Emeryville - San Francisco

Capitol Corridor Bus Routes

Route 20 - High Sierra/Sierra Foothill
Sacramento - Grass Valley - Nevada City - Reno - Sparks

Route 21 - Monterey Bay/Central Coast
Via Route 6 to: San Jose - Salinas - Monterey - King City

Route 22 - Santa Cruz
Via Route 6 to: San Jose - Santa Cruz

Route 23 - Lake Tahoe
Sacramento - Stateline - Carson City

Route 28 - Peninsula
Emeryville - San Francisco International Airport - Millbrae

SAN JOAQUIN VALLEY RAIL COMMITTEE

The San Joaquin Valley Rail Committee consists of representatives from each county served by the San Joaquin trains and other key bus-served counties. Agency associate members represent Amtrak, the CPUC, UP, BNSF, the Metropolitan Transportation Commission (MTC), the Southern California Association of Governments, and the Department.

The committee is informed of all significant matters affecting the San Joaquins. It provides valuable input to the Department on all aspects of the service. Section 14074.8 of the Government Code provides that the committee may confer with the Secretary of the Business, Transportation and Housing Agency (BT&H) to coordinate intercity passenger rail service for the San Joaquin Corridor.

PERFORMANCE

Figure 6C shows ridership and financial performance data on an annual (State FY) basis from the start of State-supported service in 1979-80 through 2000-01. Ridership and revenues have increased at a fairly steady rate over that period, as have expense, total loss and State cost. Farebox ratio was at a high in 1988-89, and has since dropped. This is largely because Amtrak has been steadily increasing the amount and type of costs that are included in the farebox ratio. (See Chapter IV for more information on this subject.)

On-time performance on the San Joaquins has varied widely over the last few years. In Amtrak's 2000-01 fiscal year, on-time performance has averaged 67.4 percent. As discussed in Chapter III, the TCRP contains funding to double track portions of the San Joaquin Route. This project will improve the reliability and on-time performance of the San Joaquins by facilitating both passenger and freight train movements and by providing more opportunities for trains to pass each other.

OPERATIONAL AND SERVICE IMPROVEMENTS

The focus of short-term operating strategies is to improve customer service and amenities and increase the cost-effectiveness of the services. These two strategies are complementary, as an improvement in customer satisfaction should increase ridership and revenue.

Annual operational and service improvement strategies are detailed in the *San Joaquin Route FFY 2001-02 Business Plan* and will be discussed in future business plans. For example, the 2001-02 Plan discusses issues such as fares, Amtrak buses, service amenities, marketing activities, coordination with other Amtrak services, reservations, on-time performance and improving Stockton station access.

Figure 6C

SAN JOAQUIN Route

Annual Operating Performance - State Fiscal Years

State Fiscal Year		Ridership Data		Financial Data for Operations						
		Ridership	PM/TM	Revenue	Expense	Loss	State Cost	Amtrak Cost	Train Loss per PM	Farebox Ratio
	Notes		*(F1)*		*(F2)*		*(F3)*	*(F4)*	*(F5)*	*(F6)*
1973-74	*(S1)*	38,770	83.6							
1974-75		66,990	44.2							
1975-76		66,530	43.8							
1976-77		87,642	56.0							
1977-78		80,611	52.7							
1978-79		87,645	60.2							
1979-80	*(S2)*	123,275	63.6	$ 1,174,065	$ 3,975,185	$ 2,801,120	$ 518,206		18.4¢	29.5%
1980-81		159,498	55.3	$ 2,224,137	$ 6,940,934	$ 4,716,797	$ 1,360,391		18.4¢	32.0%
1981-82		189,479	65.3	$ 3,115,710	$ 7,774,029	$ 4,658,319	$ 2,228,585		14.0¢	40.1%
1982-83		186,121	62.9	$ 3,342,137	$ 7,991,697	$ 4,649,560	$ 2,490,275		14.6¢	41.8%
1983-84		248,275	85.3	$ 4,730,431	$ 8,094,789	$ 3,364,358	$ 2,518,066		7.3¢	58.4%
1984-85		269,837	94.6	$ 5,210,951	$ 8,641,293	$ 3,430,342	$ 2,802,955		7.7¢	60.3%
1985-86		280,798	101.1	$ 5,425,329	$ 8,610,554	$ 3,185,225	$ 2,658,895		6.8¢	63.0%
1986-87		304,668	106.1	$ 6,084,677	$ 9,179,133	$ 3,094,456	$ 2,929,148		5.1¢	66.3%
1987-88		340,573	121.1	$ 7,457,686	$ 9,633,659	$ 2,175,973	$ 2,605,572		2.2¢	77.4%
1988-89		370,190	133.7	$ 9,527,268	$ 10,968,216	$ 1,440,948	$ 1,887,450		1.3¢	86.9%
1989-90	*(S3)*	418,768	116.9	$ 11,845,743	$ 15,286,520	$ 3,440,777	$ 3,544,332		3.2¢	77.5%
1990-91		463,906	104.1	$ 12,691,986	$ 18,456,785	$ 5,764,799	$ 5,803,565		4.9¢	68.8%
1991-92		483,593	104.3	$ 12,369,805	$ 18,633,777	$ 6,263,972	$ 6,472,598		4.3¢	66.4%
1992-93	*(S4)*	516,113	109.6	$ 12,628,496	$ 22,227,149	$ 9,598,653	$ 10,789,651		6.5¢	56.8%
1993-94		558,569	94.6	$ 13,894,624	$ 26,678,861	$ 12,784,237	$ 12,335,021	$ 3,937,150	8.3¢	52.1%
1994-95		524,680	88.8	$ 12,244,668	$ 25,077,153	$ 12,832,485	$ 12,668,018	$ 3,705,069	9.7¢	48.8%
1995-96		526,088	86.6	$ 12,477,497	$ 25,386,099	$ 12,908,602	$ 14,483,048	$ 1,360,327	11.8¢	49.2%
1996-97		652,544	106.1	$ 13,817,681	$ 34,528,165	$ 20,710,484	$ 16,265,387	$ 5,672,236	18.6¢	40.0%
1997-98		702,178	118.0	$ 15,230,966	$ 36,517,290	$ 21,286,324	$ 17,190,515	$ 4,493,597	17.7¢	41.7%
1998-99	*(S5)*	680,687	102.8	$ 16,496,457	$ 37,269,835	$ 20,773,378	$ 19,938,254	$ 1,712,168	17.6¢	44.3%
1999-00		671,295	92.7	$ 18,061,512	$ 41,791,782	$ 23,730,270	$ 24,232,326	$ 652,236	19.0¢	43.2%
2000-01		710,833	97.9	$ 19,667,681	$ 43,404,325	$ 23,736,644	$ 24,350,127	$ 540,809	18.2¢	45.3%
TOTAL		**9,810,156**		**$ 219,719,507**	**$ 427,067,230**	**$ 207,347,723**	**$ 190,072,385**			

(S1) Service started 3/6/74 with one round-trip between Oakland and Bakersfield. Data is for four months only.

(S2) State support started 10/1/79. Data is for nine months, during which time ridership totaled 93,206. Second round trip added 2/3/80.

(S3) Third round trip added 12/17/89.

(S4) Fourth round trip added 10/25/92.

(S5) Service started 2/21/99 between Sacramento and Bakersfield.

(F1) Passenger-miles per train mile (PM/TM), a measure of the average load on a train over its entire route.

(F2) Prior to October 1983, all trains billed on solely related cost basis. From October 1983 through September 1995, all trains billed on short term avoidable cost basis, except fourth round trip billed at long term avoidable cost basis. Effective October 1995, all trains billed on long term avoidable cost basis. Effective October 1996, all trains billed on Full Cost (Train, Route and System) Basis. Includes cost of connecting buses. Depreciation and interest (equipment capital cost) included in operating cost under solely-related cost basis but excluded and charged separately under short-term, long-term avoidable and full cost bases.

(F3) From October 1979 through September 1983, State cost increased in stages from 18.5 to 48.5 percent of operating loss (including equipment costs). Between October 1983 and September 1995, State cost was 65 percent of train operating loss for first three round trips, plus 50 percent of depreciation and interest (equipment capital cost). For the fourth round trip, State cost was 70 percent of train operating loss plus equipment capital cost. Between October 1995 and September 1996, State cost was 100 percent of train operating loss and 60 percent of equipment capital cost. Between October 1996 and September 1997, State cost was 65 percent of train operating loss. Effective October 1997, State is billed contractually specified percentages of most individual cost elements, plus a fixed amount for certain other cost elements. Also includes State payment of costs of special agreements with Amtrak for use of equipment, and State payment of entire net cost of all connecting bus routes.

(F4) Beginning in State Fiscal Year 1993-94, Amtrak cost is based on billings submitted and reflects cost bases and Amtrak shares as stated in notes (F2) and (F3) above, but does not include the unbilled Amtrak share of fixed cost elements. Prior to FY 1993-94, data to calculate Amtrak cost is not available.

(F5) Train loss (deficit) per train passenger-mile. Connecting buses not included in loss per passenger mile data.

(F6) Farebox Ratio, the ratio of Revenue to Expense.

POTENTIAL TRAIN SERVICE IMPROVEMENTS

The Department, in conjunction with Amtrak, anticipates that there will be eventual demand for eight round-trips on the San Joaquins. The most immediate need will be for additional round-trips between Sacramento and Bakersfield. The Department will add in 2001-02 the sixth round-trip that will be the second train between Sacramento and Bakersfield. The equipment for this train will be State-owned.

It is important to note that the start-up dates for service are based on projected service needs. Demonstrated ridership demand, institutional barriers, availability of operating funding and equipment, availability of capital funding for capacity improvements requested by operating railroads, and technical problems outside the control of the Department will affect when each of the service improvements can be implemented.

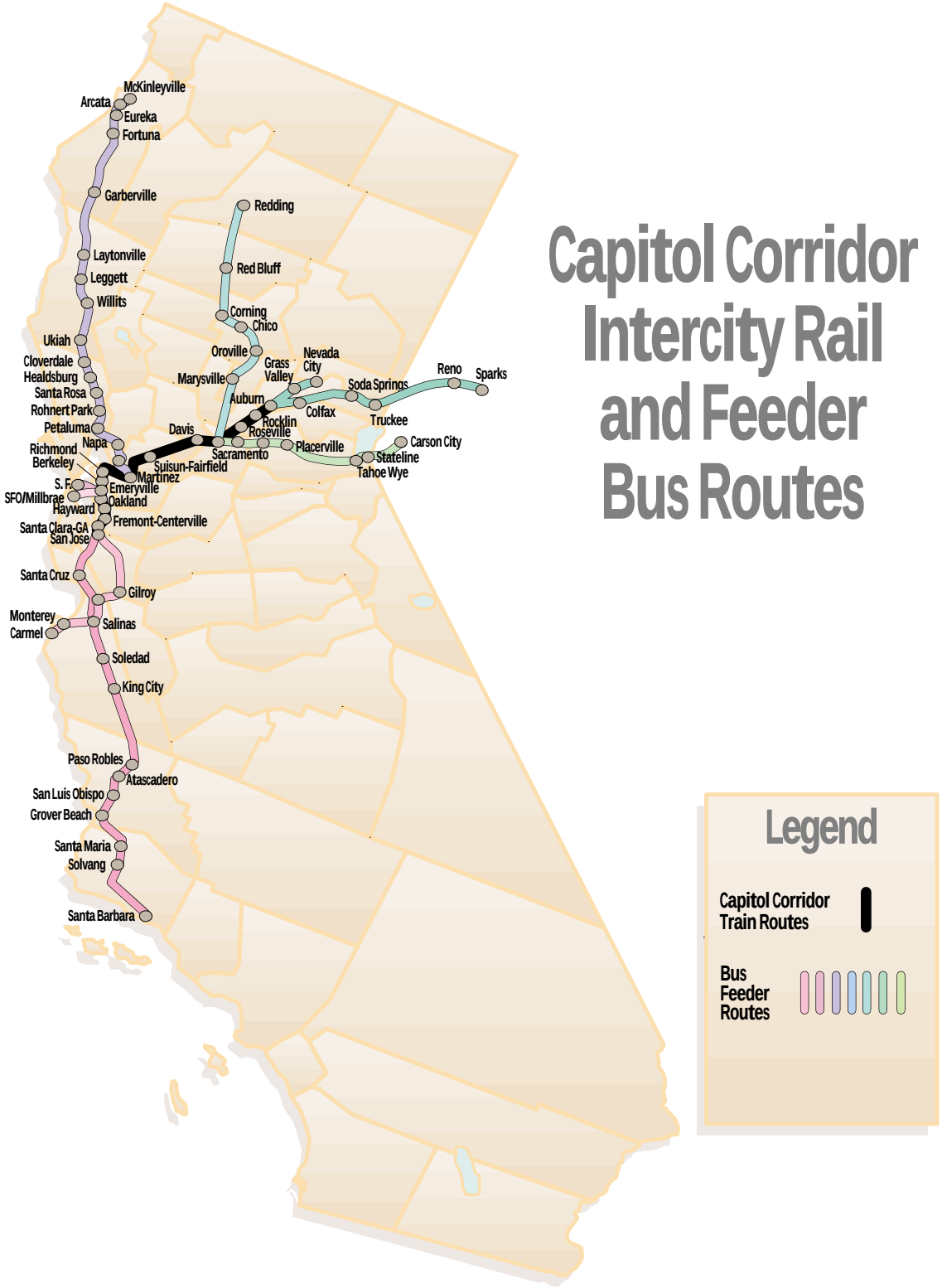
The Department proposed expansion of the San Joaquin Route is as follows:

2001-02 Sacramento - Bakersfield, second train to extend from Stockton to Sacramento (sixth round-trip on route).

2004-05 Sacramento - Bakersfield, third train to extend from Stockton to Sacramento (seventh round-trip on route).

2006-07 Oakland - Bakersfield, fifth train to extend from Stockton to Oakland (eighth round-trip on route).

Figure 7A


Capitol Corridor Intercity Rail and Feeder Bus Routes
McKinleyville
Arcata
Eureka
Fortuna
Garberville
Redding
Laytonville
Red Bluff
Leggett
Willits
Corning
Chico
Ukiah
Oroville
Nevada City
Cloverdale
Grass Valley
Healdsburg
Marysville
Reno
Sparks
Soda Springs
Santa Rosa
Auburn
Colfax
Rohnert Park
Rocklin
Truckee
Petaluma
Davis
Roseville
Carson City
Napa
Placerville
Richmond
Sacramento
Stateline
Berkeley
Suisun-Fairfield
Tahoe Wye
Martinez
S. F.
Emeryville
SFO/Millbrae
Oakland
Hayward
Fremont-Centerville
Santa Clara-GA
San Jose
Santa Cruz
Gilroy
Monterey
Salinas
Carmel
Soledad
King City
Paso Robles
Atascadero
San Luis Obispo
Grover Beach
Santa Maria
Solvang
Santa Barbara
Legend
Capitol Corridor Train Routes
Bus Feeder Routes

CHAPTER VII
CAPITOL CORRIDOR

AUBURN-SACRAMENTO-OAKLAND-SAN JOSE

PRINCIPAL 2001-2011 ROUTE OBJECTIVES

- Increase annual ridership 193 percent, from 1,031,000 to 3,018,000 passengers.
- Increase annual revenues 203 percent, from $11.1 to $33.6 million.
- Increase revenue/cost (farebox) ratio from 40.1 percent to 53.5 percent.
- Reduce the State cost per passenger mile form 21 to 11 cents.
- Increase frequency of daily round-trips from 4 to 10 between San Jose and Oakland, from 9 to 16 between Oakland and Sacramento, and from 1 to 5 between Sacramento and Roseville.
- Reduce train-running times to an hour and a half between Sacramento and Oakland.
- Improve the reliability (on-time performance) of trains.
- Provide real-time information to passengers on train status (e.g. anticipated arrival time), particularly at unstaffed stations.

BACKGROUND

Intercity rail service started on the Capitol Corridor in 1991, making this route the most recent of the three State-supported routes. Assembly Concurrent Resolution (ACR) 132 (Hannigan), Statutes of 1988, directed the MTC, with assistance from the Sacramento Area Council of Governments and the Department to conduct a study of the Auburn-Sacramento-Oakland-San Jose intercity rail corridor. The final report titled ACR 132 Intercity Rail Corridor Upgrade Study was published by MTC in November 1990. This study provided the basis for the initiation of three round-trips on the route on December 12, 1991. Three round-trips went from San Jose to Oakland to Sacramento, and one of them continued from Sacramento to Roseville.

Service on the Capitols has increased from the original three round-trips to the current seven round-trips as follows:

4/2/95 Oakland - San Jose, one round-trip discontinued except on Saturday northbound and Friday, Saturday, Sunday southbound.

4/14/96 Oakland - Sacramento, fourth round-trip added.

6/17/96 Oakland - San Jose round-trip that was discontinued April 2, 1995, is restored.

1/26/98 Train to Roseville extended to Colfax.

10/25/98 Oakland - Sacramento, fifth round-trip added.

2/21/99 Oakland - Sacramento, sixth round-trip added.

2/27/00 Oakland - Sacramento, seventh round-trip added.

2/27/00 Oakland - San Jose, fourth round-trip added.

2/27/00 Colfax round-trip cut back to Auburn.

Figure 7A is a map displaying the route, including the connecting bus services.

CAPITOL CORRIDOR JOINT POWERS AUTHORITY

Local agencies have always had an active role in planning and promoting the Capitol Corridor. Initially the ACR Policy Advisory Committee, formed as part of the ACR 132 study, acted in an advisory capacity to make recommendations about the route.

Chapter 263, Statutes of 1996 (SB 457 - Kelly), allowed the State to enter into an interagency transfer agreement (ITA) with a joint powers authority to assume responsibility for intercity rail services on the Capitol Route. The Department and the CCJPA executed an ITA on July 1, 1998, transferring the responsibilities of management for the Capitols to the CCJPA. The BART General Manager and designated BART staff provide administrative support to the CCJPA.

Pursuant to the ITA, BT&H has responsibility for allocating operating funds to the CCJPA. BT&H also reviews and approves the CCJPA's business plan that includes future service levels and funding needs.

Chapter 263 specified the required composition of the CCJPA. The CCJPA Board must have the following members: six representatives from the BART Board of Directors of which two are residents of Alameda County, two are residents of Contra Costa County, and two are residents of the City and County of San Francisco; two members each from the Board of Directors of the Sacramento Regional Transit District, the Board of Directors of the Santa Clara County Transit District, the Yolo County Congestion Management Agency, the Solano County Congestion Management Agency, and the Placer County Transportation Planning Agency.

ROUTE DESCRIPTION

The Capitol Corridor presently extends 169 rail miles from Auburn to San Jose. There are 134 rail miles from Sacramento to San Jose. Except for three miles of right-of-way owned by the Peninsula Corridor Joint Powers Board, ownership is exclusively by the UP. Amtrak operates the Capitols under provisions of its contract with UP. Amtrak shares partial responsibility with the State for funding the Route. Figure 7B describes the current ownership, segment mileage, and track and signal characteristics of the Capitol Corridor.

Scheduled train running times between Oakland and Sacramento vary from one hour fifty-five minutes to two hours ten minutes. Overall speeds are 41 mph to 47 mph. Capitol train-running times between Oakland and San Jose vary from 63 to 85 minutes and the average overall speed varies from 31 mph to 40 mph. Running times between Sacramento and Auburn are 67 and 72 minutes, with overall average speeds of 32 mph and 30 mph.

Figure 7B

CAPITOL CORRIDOR
OWNERSHIP AND TRACK CHARACTERISTICS

Between	Mile Post	And	Mile Post	Route Miles	Owner of Track	*No. of Tracks	Max. Speed	Signal System
San Jose	47.3	Santa Clara	44.4	2.9	PCJPB	3	60	CTC
Santa Clara	44.4	Newark	31.4	13.8	UP	1	70	CTC
Newark	34.9	Niles Tower	29.7	5.2	UP	1	79	CTC
Niles Tower	29.7	West Elmhurst	13.5	16.2	UP	1	70	CTC
West Elmhurst	13.5	Oakland Jack London Square	7.0	6.5	UP	2	60	ABS
Oakland - Jack London Square	7.0	Oakland 10th Street	**4.2	2.8	UP	2	40/60	CTC
Oakland 10th Street	**2.2	Martinez	31.7	29.5	UP	2	40/60	CTC
Martinez	31.7	Davis	75.5	43.8	UP	2	79	CTC
Davis	75.5	West Causeway	81.1	5.6	UP	2	79	CTC
West Causeway	81.1	East Causeway	85.2	4.1	UP	1	79	CTC
East Causeway	85.2	Sacramento River	88.4	3.2	UP	2	79	CTC
Sacramento River	88.4	Sacramento	89.0	0.5	UP	2	30	CTC
Sacramento	89.0	Elvas	91.8	2.8	UP	2	35	ABS
Elvas	91.8	Roseville	106.6	14.8	UP	2	60	CTC
Roseville	106.6	Auburn	124.2	17.6	UP	1	50	ABS
			Total	169.3				

*General number of mainline tracks

**Mileage represents distance between mile posts to an approximate location at 10th Street in Oakland

Owners:
PCJPB - Peninsula Corridor Joint Powers Board
UP - Union Pacific Railroad Company

Signal Systems:
ABS - Automatic Block Signals - Possession of a segment of track (block) is protected by a wayside signal. Switches must be thrown manually by train crews entering sidings.
CTC - Centralized Traffic Control - Wayside signals protect possession of blocks. Signals and powered switches are also remotely controlled from the dispatching center to direct the movement of trains.
DTC - Direct Traffic Control - Dispatching center gives authority for train movement by radio to train crews directly.

CONNECTING BUS SERVICES

The network of buses connecting with the Capitols is important to the route's success as the buses significantly extend the route's range as far north as Arcata and Redding, northeast to Grass Valley/Nevada City, Reno, Lake Tahoe and Carson City, and south to Monterey and Santa Barbara.

The CCJPA contracts with Amtrak for the provision of dedicated feeder bus services, and Amtrak then contracts with bus operators. The bus routes function as direct parts of the Amtrak system, with coordinated connections,

guaranteed seating, integrated fares and ticketing procedures, and inclusion in Amtrak's central information and reservation system in the same manner as the trains.

Unlike the trains, the bus operating costs are borne entirely by the State, although much of the bus operating costs are offset by bus revenues. A mileage per yield-based portion of the revenue from each through bus/rail ticket is allocated to the bus portion of the trip. This allocated revenue is then transferred to the cost of the bus, reducing the actual State expense.

Below is a listing of the Capitol Corridor bus routes and their origins/destinations and main stops, as well as the San Joaquin bus routes that also connect to the Capitols. Cities that are Capitol Corridor train connection points are in *italics*.

Capitol Corridor Bus Routes

Route 20 - High Sierra/Sierra Foothills
Sacramento - Grass Valley - Nevada City - Reno - Sparks

Route 21 - Monterey Bay/Central Coast
Oakland - San Jose - Santa Cruz - Salinas - Monterey - San Luis Obispo - Santa Barbara

Route 22 - Santa Cruz
Oakland - San Jose - Santa Cruz

Route 23 - Lake Tahoe
Sacramento - Stateline Casinos - Carson City

Route 28 - Peninsula
Emeryville - San Francisco International Airport - Millbrae

Route 99 - TransBay
Emeryville - San Francisco

San Joaquin Bus Routes

Route 3 - Sacramento Valley
Sacramento - Chico - Redding

Route 7 - North Bay/Redwood Empire
Martinez - Vallejo - Napa - Santa Rosa - Ukiah - Eureka - McKinleyville

PERFORMANCE

Figure 7C shows ridership and financial performance data on an annual (State FY) basis from the start of State-supported service in 1991-92 through 2000-01. Ridership and revenues have increased over that period, as have expense, total loss and State cost. At the time the Capitol service started, Amtrak had already begun to increase the costs that are included in the farebox ratio. Also, the Capitol service is still relatively new and has added frequencies at a relatively fast rate. Consequently, the Capitol service has never had as high a farebox ratio as the other two routes. The farebox ratio has ranged between a high of 43.4 percent in 1995-96 and a low of 29 percent in 1996-97.

On-time performance on the Capitols had been fairly low during the initial years of the service. With the substantial completion in early 1999 of major track and signal work over much of the route, on-time performance has improved considerably. In Amtrak's 2000-01 fiscal year, the on-time performance has averaged 77.8 percent. As discussed in Chapter III, the TCRP contains funding for new trackage and signal improvements between Oakland and San Jose. This project should further improve the reliability and on-time performance of the Capitols by facilitating both passenger and freight train movements and by providing more opportunities for trains to pass each other.

Figure 7C

CAPITOL CORRIDOR

Annual Operating Performance - State Fiscal Years

State Fiscal Year		Ridership Data		Financial Data for Operations						
		Ridership	PM/TM	Revenue	Expense	Loss	State Cost	Amtrak Cost	Train Loss per PM	Farebox Ratio
	Notes		*(F1)*		*(F2)*		*(F3)*	*(F4)*	*(F5)*	*(F6)*
1991-92	*(S1)*	173,672	96.3	$ 1,973,255	$ 4,848,967	$ 2,875,712	$ 1,592,907		15.0¢	40.7%
1992-93		238,785	67.7	$ 2,970,103	$ 8,333,093	$ 5,362,990	$ 6,712,017		20.1¢	35.6%
1993-94		364,070	101.2	$ 3,598,978	$ 9,911,735	$ 6,312,757	$ 6,714,761	$ 1,697,460	15.7¢	36.3%
1994-95	*(S2)*	349,056	101.7	$ 3,757,146	$ 9,678,401	$ 5,921,255	$ 6,012,315	$ 1,584,692	14.9¢	38.8%
1995-96	*(S3)*	403,050	111.9	$ 4,805,072	$ 11,077,485	$ 6,272,413	$ 6,434,940	$ 273,025	14.9¢	43.4%
1996-97		496,586	111.3	$ 5,938,072	$ 20,509,999	$ 14,571,927	$ 9,701,519	$ 4,871,345	31.6¢	29.0%
1997-98	*(S4)*	484,458	109.4	$ 6,212,150	$ 20,597,133	$ 14,384,983	$10,830,123	$ 3,555,755	31.8¢	30.2%
1998-99	*(S5)*	515,768	90.8	$ 6,939,702	$ 22,343,915	$ 15,404,213	$14,543,722	$ 969,291	32.6¢	31.1%
1999-00	*(S6)*	684,334	90.1	$ 8,546,453	$ 25,048,098	$ 16,501,645	$16,484,503	$ 194,422	28.2¢	34.1%
2000-01	*(S7)*	1,030,837	106.0	$11,091,742	$ 27,670,759	$ 16,579,017	$16,688,003	$ 92,014	21.0¢	40.1%
TOTAL		**4,740,616**		**$55,832,673**	**$160,019,585**	**$ 104,186,912**	**$95,714,810**			

(S1) Service started 12/12/91 with three State-supported round trips between Sacramento and San Jose, with one round trip extended to Roseville. Data is for six and one-half months only.

(S2) One round trip discontinued 4/2/95 between Oakland and San Jose (except on Saturday northbound and Friday, Saturday, Sunday southbound.) Feeder bus connection substituted for train.

(S3) Fourth round trip added 4/14/96 between Sacramento and Oakland. Effective 6/17/96, round trip referred to in *(S2)* above restored to daily service between Oakland and San Jose.

(S4) Effective 1/26/98, the round trip that previously originated and terminated at Roseville was extended to Colfax.

(S5) Fifth round trip added 10/25/98 and sixth round trip added 2/21/99 between Sacramento and Oakland.

(S6) Effective 2/27/00, seventh round trip added between Sacramento and Oakland; fourth round trip added between Oakland and San Jose; the round trip to Colfax was cut back to Auburn.

(S7) Effective 4/29/01, eighth and ninth round trips added between Sacramento and Oakland; fifth and sixth round trips added between Oakland and San Jose on weekends only.

(F1) Passenger-miles per train mile (PM/TM), a measure of the average load on a train over its entire route.

(F2) Through September 1995, all trains billed on long term avoidable cost basis; includes cost of connecting buses. Effective October 1996, all trains billed on Full Cost (Train, Route and System) Basis.

(F3) Though September 1995, State cost was 65 percent of train operating loss. Between October 1995 and September 1996, State cost was 100 percent of train operating loss. Between October 1996 and September 1997, State cost was 55 percent of the train operating loss. Effective October 1997, State is billed contractually specified percentages of most individual cost elements, plus a fixed amount for certain other cost elements. Also includes State payment of costs of special agreements with Amtrak for use of equipment, special payments for service continuation and State payment for entire net cost of all connecting bus routes. Effective October 1999, the Capitol Corridor Joint Powers Authority (CCJPA) and Amtrak entered into a 12 month fixed price operating contract, including all train and bus services. The State Costs shown represent the fixed price contract payment less any performance assessments.

(F4) Beginning in State Fiscal Year 1993-94, Amtrak cost is based on billings submitted and reflects cost bases and Amtrak shares as stated in notes (F2) and (F3) above, but does not include the unbilled Amtrak share of fixed cost elements. Prior to FY 1993-94, data to calculate Amtrak cost is not available. Does not represent the difference between Loss and State Cost, as the latter includes bus expenses and equipment capital costs not included in Amtrak costs.

(F5) Train loss (deficit) per train passenger-mile. Connecting buses not included in loss per passenger mile data.

(F6) Farebox Ratio, the ratio of Revenue to Expense.

OPERATIONAL AND SERVICE IMPROVEMENTS

The focus of short-term operating strategies is to improve customer service and amenities and increase the cost-effectiveness of the service. These two strategies are complementary, as an improvement in customer satisfaction should increase ridership and revenue. Cost efficiencies should reduce operating expenses, and thereby should improve the farebox ratio and service performance.

Annual operational and service improvement strategies are detailed in the *Business Plan Update FY 01/02 – 02/03* produced by the CCJPA and will be discussed in future business plans. For example, the Business Plan Update has a discussion on the FY 2001-02 and FY 2002-03 action plans, fares, service amenities and food and beverage services, and marketing strategies.

POTENTIAL TRAIN SERVICE IMPROVEMENTS

The Department, in conjunction with Amtrak and the CCJPA, anticipates that there will be eventual demand for sixteen round-trips on the Capitols. The CCJPA has developed operational plans for the Capitols that are detailed in the CCJPA's Business Plan Update. The Department's and the CCJPA's specific proposed timing for new frequencies may differ. The CCJPA and the Department work with Amtrak on their long-range service plan for incremental improvements and increased train service levels.

It is important to note that the start-up dates for service are based on projected service needs. Demonstrated ridership demand, institutional barriers, availability of operating funding and equipment, availability of capital funding for capacity improvements requested by operating railroads, and technical problems outside the control of the Department and the CCJPA will affect when each of the service improvements can be implemented.

The Department's proposed expansion of the Capitol Corridor is as follows:

2001-02 Sacramento - Oakland, eighth and ninth round-trips (began 4/29/01). Oakland - San Jose, fifth and sixth round-trips (weekend round-trips began 4/29/01). Sacramento - Roseville, second and third round-trips.

2003-04 Sacramento - Oakland, tenth and eleventh round-trips. Oakland - San Jose, seventh round-trip.

2004-05 Sacramento - Oakland, twelfth round-trip. Oakland - San Jose, eighth round-trip. Sacramento - Roseville, fourth round-trip.

2005-06 Sacramento - Oakland, thirteenth round-trip.

2006-07 Sacramento - Oakland, fourteenth round-trip. Oakland - San Jose, ninth round-trip.

2008-09 Sacramento - Oakland, fifteenth round-trip. Oakland - San Jose, tenth round-trip. Sacramento - Roseville, fifth round-trip.

2010-11 Sacramento - Oakland, sixteenth round-trip.

The CCJPA has proposed an enhanced level of service for the 10-year period of the State Rail Plan. Specifically, the CCJPA proposes operation of the following number of round-trips between the points shown.

Between	In Five Years	In Ten Years
San Jose and Oakland	11	16
Oakland and Sacramento	16	16
Sacramento and Roseville	8	10
Roseville and Auburn	3	4

CHAPTER VIII
POTENTIAL NEW SERVICES

HIGH-SPEED RAIL

Background

High-speed rail has been studied in California for at least a decade. The Department participated in a number of studies in the late 1980s and early 1990s. The Department was a member of the Los Angeles-Fresno-Bay Area/Sacramento High-Speed Rail Corridor Study Group. The group published its report in June 1990 as required by Chapter 197, Statutes of 1988 (AB 971 - Costa). Under Chapter 1104, Statutes of 1990 (SB 1307 - Garamendi), the Department, in April 1991, completed a work plan for a feasibility study for the development of an integrated public, private, or combined public/private high-speed intercity and commuter rail system. Under Proposition 116, the Department completed a preliminary engineering and feasibility study on high-speed service between Bakersfield and Los Angeles.

Senate Concurrent Resolution 6 (1993) established the California Intercity High-Speed Rail Commission. This Commission, while using some the Department staff resources, was not part of the Department. The Final Report of the Commission was sent to the Legislature at the end of 1996. The Report indicated that high-speed rail is technically, environmentally, and economically feasible, and once constructed, could be operationally self-sufficient. The Commission recommended a San Francisco/San Jose/ Sacramento-Central Valley-Los Angeles-San Diego alignment. The commission also recommended using either very high-speed technology of steel-wheel-on-steel-rail or Maglev.

California High-Speed Rail Authority

The California High-Speed Rail Act, enacted by Chapter 796, Statutes of 1996 (SB 1420 - Kopp and Costa), founded the California High-Speed Rail Authority (CHSRA) to direct the development and implementation of intercity high-speed rail service. The act defined high-speed rail as "intercity passenger rail service that utilizes an alignment and technology that make it capable of sustained speeds of 200 miles per hour or greater."

In September 2000, Chapter 791, Statutes of 2000 (AB 1703 - Florez), modified the CHSRA's exclusive authorization and responsibility for planning, construction, and operation of high-speed passenger train service to cover speeds exceeding 125 miles per hour. Previously, the CHSRA had such authorization and responsibility for speeds exceeding 100 miles per hour. AB 1703 also extended the tenure of the CHSRA through 2003.

The CHSRA is composed of nine members. The Governor appoints five members, the Senate Committee on Rules appoints two members, and the Speaker of the Assembly appoints two members.

The CHSRA has met its legislative mandate of preparing a plan for the construction, operation and financing of a statewide high-speed train system. The CHSRA's business plan, *Building a High-Speed Train System for California*, was completed and presented to the Legislature and Governor in June 2000.

In its business plan, the CHSRA found that a high-speed train system is a smart investment in mobility, an evolutionary step for transportation, and a project in keeping with California's standards for environmental quality and economic growth. The CHSRA determined that the next step in the development of the project is to proceed to develop a program environmental impact report (EIR). The CHSRA concluded that this is the next logical phase for the following reasons:

- The further engineering and environmental analyses that are part of the initial environmental phase of the project will define with greater specificity the high-speed train technology, corridors and station locations included in the business plan.
- The official input of federal, State and local agencies about the project (which is required during this phase) will help further hone the capital costs of the project – even though the CHSRA is assured by the best technical advisors in the world that the system can be built for the $25 billion estimate included in the CHSRA's business plan. It is reasonable to anticipate that the federal government would become a financial partner in this project, reducing the capital needs to be borne by the California taxpayer.
- The financial plan will benefit from substantive discussions with the private sector about investing in the project. Potential investors will be most interested in how the ridership and revenue projections compare with those of other agencies and their assessment of the future.

The CHSRA recommended that the Governor and Legislature take the following actions:

- Initiate a formal environmental clearance process with a State-level program EIR. At the conclusion of the program EIR, decision-makers can re-evaluate funding options and strategies based on more detailed analyses and information. The financial commitment required to initiate this process is $25 million over the next two years. If the project is deemed viable at the conclusion of this phase, an additional $350 million will be required over the following three to four years to achieve full environmental clearance and achieve a 30 percent level of engineering design. The CHSRA, or its successor, would then have the option to entertain proposals from the private sector to enter into a design-build contract and a franchise with the private sector to operate and maintain the system.

- Increase funding and accelerate planning and programming for intercity and commuter rail improvements that can provide enhanced, higher-speed service to Californians earlier and ultimately become part of the high-speed train network. These improvements should occur concurrent with the environmental studies and engineering work on the high-speed train network.
- Begin an aggressive statewide effort to increase federal funding for both conventional and high-speed trains in California. In addition, this effort should include working with the FRA and high-speed train manufacturers to resolve safety and compatibility issues.
- Encourage state, regional and local entities to include high-speed trains in their planning for the future.

In addressing the requirements for a project of this scale and magnitude, the Authority is currently preparing a California Environmental Quality Act (CEQA) Program Environmental Impact Report (EIR) and a National Environmental Policy Act (NEPA) Tier 1 Environmental Impact Statement (EIS). The Authority is the state lead agency for CEQA and the FRA is the federal lead agency for NEPA. The program document is expected to be completed by June 2003. The document will enable the Authority to select a preferred alignment, station locations and technology. It will allow the Authority to begin corridor preservation for the system and, if funding is available, purchase right-of-way where needed. Figure 8A displays the proposed high-speed rail routes being studied in the environmental study phase. The statewide system cannot be constructed all at once. If the Authority determines to move forward with the project, an implementation/phasing plan will be developed and early implementation pieces of the system identified for project-specific environmental work and construction.

Parsons Brinckerhoff Quade and Douglas provide program management services for this program. Four contracts have been awarded for engineering and environmental analysis in each of the following corridors:

San Francisco Bay Area-Merced: Parsons Transportation Group

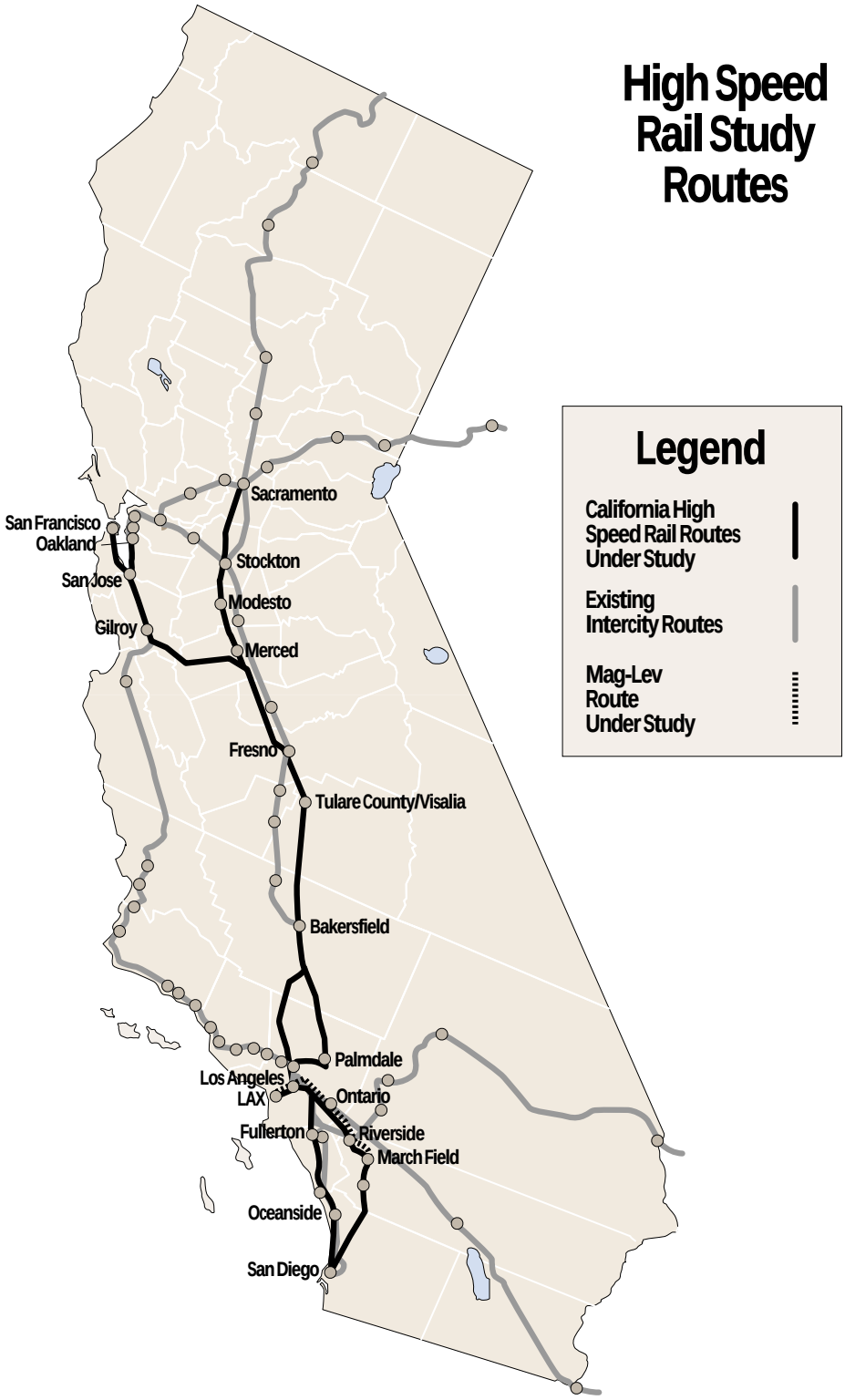
Sacramento – Bakersfield: DMJM-Harris

Bakersfield - Los Angeles Union Station: P&D Technology

Los Angeles – San Diego via Orange County: IBI Group

Los Angeles – San Diego via Inland Empire: HNTB

Figure 8A


High Speed Rail Study Routes
Legend
California High Speed Rail Routes Under Study
Existing Intercity Routes
Mag-Lev Route Under Study
Sacramento
San Francisco
Oakland
San Jose
Stockton
Modesto
Gilroy
Merced
Fresno
Tulare County/Visalia
Bakersfield
Palmdale
Los Angeles
LAX
Ontario
Fullerton
Riverside
March Field
Oceanside
San Diego

California Maglev Project

The background information in the first three paragraphs of this section is primarily abstracted from the web site of the Federal Railroad Administration (www.fra.dot.gov)

Maglev is an advanced technology in which magnetic forces lift, propel, and guide a vehicle over a guideway. Utilizing state-of-the-art electric power and control systems, this configuration eliminates contact between vehicle and guideway and permits cruising speeds of up to 300 mph. Maglev offers competitive trip-time savings to auto and aviation modes in the 40- to 600-mile travel markets.

The Maglev Deployment Program was established in the TEA-21 with the purpose of demonstrating the feasibility of Maglev technology. Of this program's $60 million, $55 million is available to fund preconstruction planning activities and design/construction of the selected project. The remaining $5 million is available only for research and development grants related to low-speed superconductivity Maglev technology for public transportation purposes in urban area. An additional $950 million is authorized for the construction and deployment of a single project.

In May 1999, the U.S. Department of Transportation (USDOT) awarded grants to seven states and authorities for preconstruction planning for Maglev high-speed ground transportation. The FRA selected projects in California, Florida, Georgia, Louisiana, Maryland, Nevada and Pennsylvania for funding. Each of the grants provided the selected projects with sufficient federal funds to pay up to two-thirds of the cost of preliminary engineering, market studies, environmental assessments, and financial planning needed to determine the feasibility of deploying a Maglev project. In January 2001, USDOT selected two projects, in Maryland and Pennsylvania, to continue to the next stage of the competition.

The initial corridor study area of the California Maglev Project extends from Los Angeles International Airport (LAX) to Union Station in downtown Los Angeles and further east to Ontario International Airport and on to March Field in Riverside County, a distance of approximately 85 miles. Figure 8A displays the proposed California Maglev route. The Southern California Association of Governments (SCAG) and the California BT&H are the project sponsors.

By 2020, the population of Southern California will grow from 16 million to 22 million people. Demand at the region's airports will increase more than 85 percent to approximately 154 million annual passengers. Air cargo volume will triple to nine million annual tons. The prospect of these increases in population, employment and travel demands, led SCAG to adopt the development of high-speed, intra-regional Maglev service as part of its Regional Transportation Plan in 1998.

On June 30, 2000, the California Maglev Project sponsors submitted a Project Description to the FRA for consideration in its evaluation of the projects competing for Federal Maglev funding. Highlights of the Project Description are:

- The proposed system design is based upon Maglev technology developed by the German consortium Transrapid.
- The proposed project serves a very dense corridor defined by the federal government as a Corridor of National Significance. By 2020, about one million long distance trips will be made in the corridor. The system will serve 80,000 to 100,000 riders per day by 2020. Travel-time savings from one end of the line to the other are estimated to be 80 minutes.
- The 83- to 92-mile system is estimated to cost about $5 to $6 billion to construct. Approximately 24 percent of this cost is for the system elements – vehicles, communications, propulsion, and operation control. The cost of the monorail guideway is about $2.4 to 2.7 billion, or 43 percent of the total cost. Stations, yards and shops, right-of-way and other civil works comprise the remainder of the project costs.
- Preliminary financial analyses indicate that the project can be funded from operating revenues, with support of the $950 million Federal Maglev demonstration funds authorized in TEA-21. Bond proceeds would be used to finance construction costs. Federal Transportation Infrastructure Finance and Improvement Aid (TIFIA) loans and loan guarantees would enable the reduction of borrowing costs and ensure that revenues from passenger fares, cargo fees, and other miscellaneous sources such as station parking fees and station area development, would be sufficient to retire the bonds and short-term loans.
- As stated above, the California Maglev Project was not one of the two projects selected by USDOT in January 2001 to go forward in the national competition. However, Congress earmarked $1 million for the California project in the FY 2001 Transportation Appropriation Act. This funding, reduced to about $875,000 due to Federal funding constraints, will be matched by about $435,000. With this funding, SCAG will perform additional studies on this Project, including evaluation of the impacts of the Project on use of highway and railroad rights-of–way, on Los Angeles Union Station, and on the Metrolink commuter rail system. SCAG will also do further work in the areas of technology transfer agreements, cost and revenue projections, financial plan, public/private partnering agreements, environmental studies and public participation. A subsequent phase is completion of more detailed engineering and a State mandated EIR and Federal Environmental Impact Statement. This phase, budgeted at $30 million, will take about 18 months to complete.
- The Maglev Deployment Program has significant hurdles to overcome. Additional engineering and environmental assessment is required to detail the initial concept design plans. The system is planned to be located in existing freeway or railroad rights of way, generally following the I-10 corridor from LAX to San Bernardino/Riverside. Extensive coordination will be required with the Department, railroad operators and local agencies along the corridor

Figure 8B

Proposed Routes
Legend
Proposed Routes
Existing Routes
Redding
Redding Extension
Reno
Reno Extension
Sacramento
San Francisco
Oakland
San Jose
Stockton
Gilroy
Monterey
Salinas
Coast Route
San Luis Obispo
Bakersfield
Goleta
Santa Barbara
Los Angeles
Fullerton
Santa Ana
San Juan Capistrano
Oceanside
Solana Beach
San Diego
Coachella Valley Service
Indio

PROPOSED INTERCITY RAIL ROUTES

This section includes a description of the five new routes that the Department proposes in this 10-year plan as well as one other new route that Amtrak is supporting. Additionally, a route not proposed for service within the time frame of the State Rail Plan is discussed below. The routes are discussed in order of potential implementation by year. Included for each route is a summary of current service to the area, recent studies of the route, and the Department current service proposal. The implementation of all new service is subject to demonstrated ridership demand, approval from Amtrak and the relevant railroad, operating funding and equipment, and availability of capital funding for capacity improvements requested by operating railroads. Figure 8B displays the new routes proposed for service within the time frame of the State Rail Plan.

See Chapters III and IV (Figures 3B and 4C) for capital and operating estimates for the proposed new services.

Los Angeles to Las Vegas

In 1997, Amtrak's Desert Wind from Los Angeles to Chicago via Las Vegas three times per week was discontinued. Currently San Joaquin trains provide connecting buses to Las Vegas. Buses connect from Bakersfield and travel through Lancaster to Las Vegas.

On February 12, 1998, Amtrak announced that $9 million would be invested in track improvements and facility construction in preparation for the initiation of new daily Los Angeles-Las Vegas train service. Amtrak proposes to start service in late 2002 using state-of-the-art Talgo tilt train equipment to achieve about a five and one-half hour travel time between Los Angeles and Las Vegas.

The Department includes no operating costs in its 10-year plan for this service because the State of Nevada has agreed to arrange for operating support ($2 million in the first year of service).

San Francisco to Los Angeles via Coast Route

The main passenger rail route between Northern California and Southern California is the San Joaquin Route, which travels through the Central Valley and requires the use of connecting bus service between Bakersfield and the Los Angeles Area. Currently only one daily round-trip Coast Starlight train connects Oakland and San Jose with Los Angeles via the coast with intermediate stops including Salinas, San Luis Obispo and Santa Barbara. Additionally, one bus connects the Capitols in San Jose to Santa Barbara.

There has been interest for many years in providing additional Coast Route service. As far back as October 1981 the State-supported Spirit of California was added that provided overnight train service from Los Angeles to Sacramento. That service was discontinued in October 1983.

In September 1992, H.R. 39 was passed requesting that an intercity rail corridor upgrade study on the Coast Corridor be conducted by the regional transportation planning agencies along the Corridor in cooperation with the Department. As a result, concerned local agencies began meeting and formed the Coast Rail Coordinating Council that is currently staffed by the San Luis Obispo Council of Governments.

The *Coast Rail Improvement Study* that was issued in the fall of 1994 resulted from H.R. 39. Then, in 1996 the *Coast Route Infrastructure Assessment Report* was completed. In June 1999, the Coordinating Council received an $80,000 State Planning and Research grant to conduct a Coast Daylight Implementation Plan.

The Department's 10-year operating plan includes one round-trip train between San Francisco and Los Angeles, starting in 2003-04, that would use tilt-train equipment (if available). The Department projects adding a second train in 2006-07.

San Francisco to Monterey

Currently, only very limited Amtrak service exists between Monterey and San Francisco, and only in conjunction with connecting bus service. The Coast Starlight provides one daily round-trip from Oakland to Salinas, with bus connections to San Francisco from Oakland and to Monterey from Salinas. The Capitol Corridor provides train service from Emeryville/Oakland to San Jose with bus connections to San Francisco from Emeryville and to Monterey from San Jose.

The Transportation Agency for Monterey County (TAMC) has conducted a number of studies on train service from San Francisco to Monterey. The most recent is the *San Francisco-Monterey Intercity Rail Service Implementation Plan* dated January 1998.

TAMC proposes daily service, southbound in the morning and northbound in the evening between San Francisco and Seaside/Fort Ord. Intermediate stops are planned at Millbrae, Burlingame, San Mateo, Palo Alto, Mountain View, San Jose Diridon, Tamien, Pajaro, and Castroville. Bus connections would be provided between Seaside/Fort Ord and downtown Monterey, hotels and other tourist destinations. Ultimately, train service would be extended directly to downtown Monterey.

The proposed route would use the current Caltrain owned right-of-way from San Francisco to San Jose. The route between San Jose and Castroville is owned by the UP and used for passenger service by Caltrain to Gilroy and by the Coast Starlight to Castroville – and beyond to Los Angeles. The Monterey Branch Line between Castroville and Monterey is owned by the UP, and currently there is no regular rail passenger service on this line. TAMC is currently negotiating with the UP to purchase the line.

TAMC is also working to extend the Caltrain commuter rail service to Salinas from its current terminus in Gilroy. This extension would serve the new stations in Pajaro and Castroville that would also be used by the proposed new intercity rail service to Monterey.

The 10-year operating plan includes two weekday round-trips (and three weekend round-trips) using high quality equipment to start in 2005-06. The Department believes there are the following advantages to this service: (1) Monterey is an important tourist destination that currently has very inadequate access via intercity mass transportation; (2) TAMC is a strong advocate of this service and is endeavoring to provide in-kind contributions for the service; (3) $14 million dollars in Proposition 116 capital funds are available for this service; and (4) most of the proposed route currently has passenger service.

TAMC is working with the local hospitality industry to secure marketing and sales funds, to supplement the state-provided operating funds. As noted above $14 million in Proposition 116 funds are available. Additionally, TAMC has secured a $2.1 million federal grant for grade crossing safety enhancements to the Monterey Route. Finally, Chapter 103, Statutes of 1999 (SB 886, McPherson) allows TAMC to be a party in an operations contract between the Department and Amtrak.

Los Angeles to Coachella Valley

Currently, San Joaquin trains provide connecting buses to the Coachella Valley. Buses connect from Bakersfield to San Bernardino, Hemet, Palm Springs and Indio.

There has been strong local interest in rail service to the Coachella Valley since 1991. In 1991, the Riverside County Transportation Commission published the *Los Angeles-Coachella Valley-Imperial County Intercity Rail Feasibility Study* that evaluated the feasibility of operating three daily round-trip State-supported trains on the route. In 1995, the Department published the *Calexico-Coachella Valley-Los Angeles Rail Corridor Study* for the CTC.

The most recent study was completed in February 1999. It is titled the *Coachella Valley Passenger Rail Feasibility Study* and it was prepared for the Coachella Valley Association of Governments. The study proposes two daily round-trip trains as a three-year demonstration service.

The Department is proposing to start one round-trip in 2006-07 and a second round-trip in 2008-09. The service would run from Los Angeles to the Coachella Valley with station stops at Los Angeles, Fullerton, Riverside, Palm Springs, a new station near Palm Desert, and the former Amtrak Indio station. Amtrak would operate the service on the BSNF alignment between Los Angeles and Colton and on the UP from Colton to the Coachella Valley.

Sacramento to Reno

Amtrak's California Zephyr and connecting buses to the Capitols and San Joaquins serve Reno and intermediate I-80 Corridor points. The California Zephyr makes stops at Reno, Truckee, Colfax, Roseville and Sacramento once daily in each direction. Also, buses connect to four San Joaquins and five Capitols and serve Reno, Truckee, Soda Springs, Colfax, Auburn, Roseville and Rocklin. The buses connect to the Capitols in

Sacramento via Interstate 80 and to the San Joaquins in Stockton. Ridership on this bus route was 56,314 in Fiscal Year 2000-01.

In August 1995, the Department and the Nevada Department of Transportation published a final report entitled *Sacramento-Tahoe-Reno Intercity Rail Study*. One goal of the study was to examine the feasibility of expanding passenger rail service along the I-80/Tahoe corridor from Sacramento to Truckee and Reno/Sparks on the UP line on which the California Zephyr currently operates. A number of scenarios were studied that involved extending varying numbers of round-trip Capitols from Sacramento to Reno/Sparks.

The most significant finding of the study was that all of the scenarios to Reno/Sparks would improve the overall Capitols farebox return. That is, while net costs to the State would increase, the ratio of revenues to costs would improve with the extension of Capitols to Reno/Sparks.

The Department is proposing to extend one round-trip from Sacramento to Reno/Sparks in 2007-08. This service would require an appropriate level of financial participation from the State of Nevada and Nevada business interests. This rail service would also be supplemented by bus service, in a manner similar to the current Stockton – Sacramento single round-trip extension of the San Joaquins. The Department believes this corridor is a good candidate for rail corridor service because: (1) I-80 is extremely congested at tourist peak periods; (2) there is a very strong gaming, skiing and general recreation market in the Reno/Truckee area; and (3) current bus ridership on this route is strong.

Another advantage of the route is that Amtrak currently operates passenger service (the California Zephyr) on the route. Stations at the major destination points already exist.

Sacramento to Redding

Connecting buses to the San Joaquin and Capitol trains currently serve the northern Sacramento Valley. Buses connect to three of the San Joaquins at Stockton, and travel north through Sacramento, Marysville, Chico and Redding. These buses also connect to three Capitols in Sacramento. Ridership on this bus route is quite strong. Additionally, the single daily round-trip of the Coast Starlight connects Redding and Chico with Sacramento, the Bay Area and Los Angeles.

The most recent study on the Sacramento – Redding corridor is the *Northern Sacramento Valley Intercity Passenger Rail Study, Interim Findings Report*, produced in December 1995 by ICF Kaiser Engineers, Incorporated for the Butte County Association of Governments. The route studied is the UP route currently used by the Coast Starlight. The study examined self-propelled rail diesel cars and a combination of self-propelled rail diesel cars and conventional locomotive-hauled passenger trains. The study looked at two service options: one option concentrated service in the southern more populated part of the corridor (Sacramento – Chico, with more frequent service between Sacramento – Marysville/Yuba City). The other option included service all the way from Sacramento to Redding.

The Department is proposing to extend one daily round-trip of existing Sacramento rail service to Redding in 2008-09. This rail service would be supplemented by bus service, in a manner similar to the current Stockton - Sacramento single round-trip extension of the San Joaquins. That is, a bus would run over the same route as the train, but in alternate time spots. The Department believes this corridor is a good candidate for rail service because: (1) it has a fast growing population; (2) Redding represents the urban hub for the northern part of the State; (3) the California State University at Chico is a focus of activity and population; and (4) current bus ridership on this route is substantial.

Another advantage of the route is Amtrak currently operates passenger service (the Coast Starlight) on the route. Stations at the major destination points (except Marysville) already exist.

San Francisco Bay Area to Santa Cruz

Currently Capitol Corridor trains provide connecting buses to Santa Cruz. Buses connect from the Oakland or San Jose train stations to Santa Cruz. Caltrain commuter service provides train service to San Jose where bus connections to Santa Cruz are available on Capitol Corridor buses.

There has been local interest in rail service from the Bay Area to Santa Cruz since the early 1990s. In 1993, the *Santa Cruz Fixed Guideway Rail/Corridor Refinement Study* was completed. In 1996, the Santa Cruz County Regional Transportation Commission (SCCRTC) published the *Intercity Recreational Rail Study*. In late 1997, the SCCRTC completed a project study report to examine capital improvements for weekend intercity rail service. In 1998, the *Around the Bay Study* was jointly produced by SCCRTC and TAMC. Finally, a major transportation investment study on the Watsonville-Santa Cruz-UCSC corridor was completed in 1998; in 1999, the SCCRTC agreed to move forward with acquisition of the Santa Cruz and Davenport Branch rail lines for future transportation purposes.

Currently, the SCCRTC is in negotiations with Union Pacific to acquire the two branch lines and environmental review of the acquisition is underway. Regional share STIP funds have been programmed for the acquisition as Proposition 116 funds require a rail operating plan.

PART II

FREIGHT RAIL ELEMENT

CHAPTER IX
INTRODUCTION

Railroads have been involved in moving freight in the Golden State for over 140 years. From the 1850s to the present, they have served shippers of thousands of commodities in virtually all parts of the State, and have linked California with the rest of the nation. The purpose of this chapter is to provide a broad overview of freight rail operations and associated commerce, business and institutional issues in California.

According to the American Association of Railroads (AAR), there are 31 freight railroads in California, operating 7,420 miles of track[1]. The Union Pacific (UP) Railroad operates the largest portion of the rail lines with 3,708 miles of track or 50 percent of the total miles. The Burlington Northern and Santa Fe Railway (BNSF) operates 1,889 miles of track or 25 percent. The remaining 25 percent are operated by regional and short line railroads. More than 55 million tons of freight rail traffic originated in the State in 1999. Freight rail traffic that terminated in California was even higher, at over 87 million tons. These figures point to the State's role as a major user/producer of import and export rail-borne commodities that impact the rest of the United States. The *California State Rail Plan 2001-02 – 2010-11* (the State Rail Plan) points out the magnitude of California's industrial and consumer market dependence on the freight railroads. The State Rail Plan presents the status and importance of freight railroads in California, as well as a discussion of the major issues facing the railroads in the State.

MAJOR FREIGHT RAILROADS

The two Class I railroads in California[2] – UP and BNSF – move the majority of freight by rail. These railroads have large networks that connect California with important rail hubs such as Chicago, Kansas City and New Orleans, as well as routes running the length of California, linking the Pacific Northwest with the Los Angeles area. Many of the routes in California are the products of railroad combinations or mergers, involving some of the most historic names in California rail history. The UP and BNSF rail systems in California can be seen on the following page in Figure 9A.

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[1] *Railroads and States*, American Association of Railroads, 1999.

[2] There are three classes of railroads in the United States: Class I railroads having an annual operation revenue greater than $258.5 million, Class II or regional railroads having an annual operating revenue between $40 million and $258.5 million, and Class III or local railroads commonly known as "short lines" having annual operating revenues of less that $40 million.

Figure 9A

Class 1 Railroad System Map
Freight Rail Network
BNSF
UP
Other *
* Freight service provided by BNSF or UP under Trackage Rights Agreement

Union Pacific Railroad

UP is the largest railroad in the State, operating on 3,708 miles of track including trackage rights.[3] In California, the UP system is made up primarily of three historic railroad properties:

- The historic UP, with a main line running between Las Vegas, Nevada and Southern California.
- The former Southern Pacific (SP), with main and branch lines that at one time reached virtually every corner of the State.
- The former Western Pacific (WP), with a main line running between Nevada and the San Francisco Bay Area.

Main line routes are part of the national rail systems. Comparatively high revenue ton-mile figures[4] are generated on these segments, manifesting their importance to the UP system. Other UP lines include branch lines and secondary main lines, which feed traffic to the main lines and contribute relatively low revenue ton-miles.

Figure 9B presents tons of freight handled by UP in California. The largest amount of freight handled is in the southern part of the State. The least amount of freight handled is in the northeastern corner of the State. The majority of freight moves through the Central Valley rather than along the coast.

Burlington Northern and Santa Fe Railway

BNSF is the second largest railroad in California. BNSF operates on 1,889 miles of track (including trackage rights) in the State.[5] BNSF was created from the merger of the former Burlington Northern Railroad (BN) and the former Atchison, Topeka and Santa Fe Railway (ATSF) in 1995. The ATSF originally had a line that ran from the San Francisco Bay Area, through the San Joaquin Valley and into Southern California. BN had a line running from the Oregon border to a junction with the former WP in Bieber in Northeastern California. As part of the 1996 UP/SP merger, BNSF was allowed to purchase the former WP line from Bieber to Keddie and obtain trackage rights to Stockton, thereby giving California shippers a competing north/south rail option. Figure 9C presents tons of freight handled by BNSF in California.

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3 *Railroads and States*, American Association of Railroads (AAR), 1999.

4 One ton moved in revenue service one mile is one revenue ton-mile.

5 *Railroads and States*, American Association of Railroads (AAR), 1999.

Figure 9B

UP Railroad Freight Handled

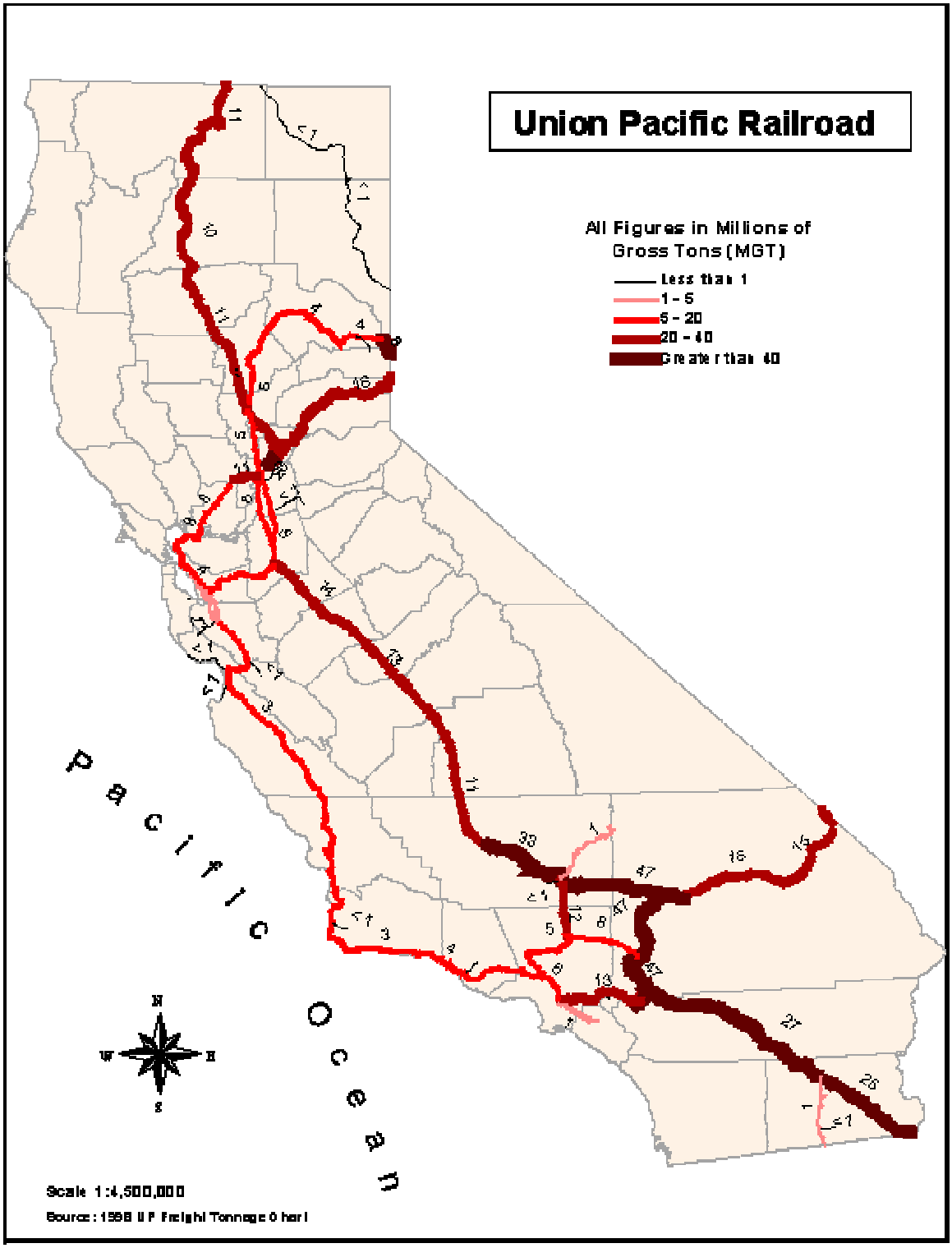
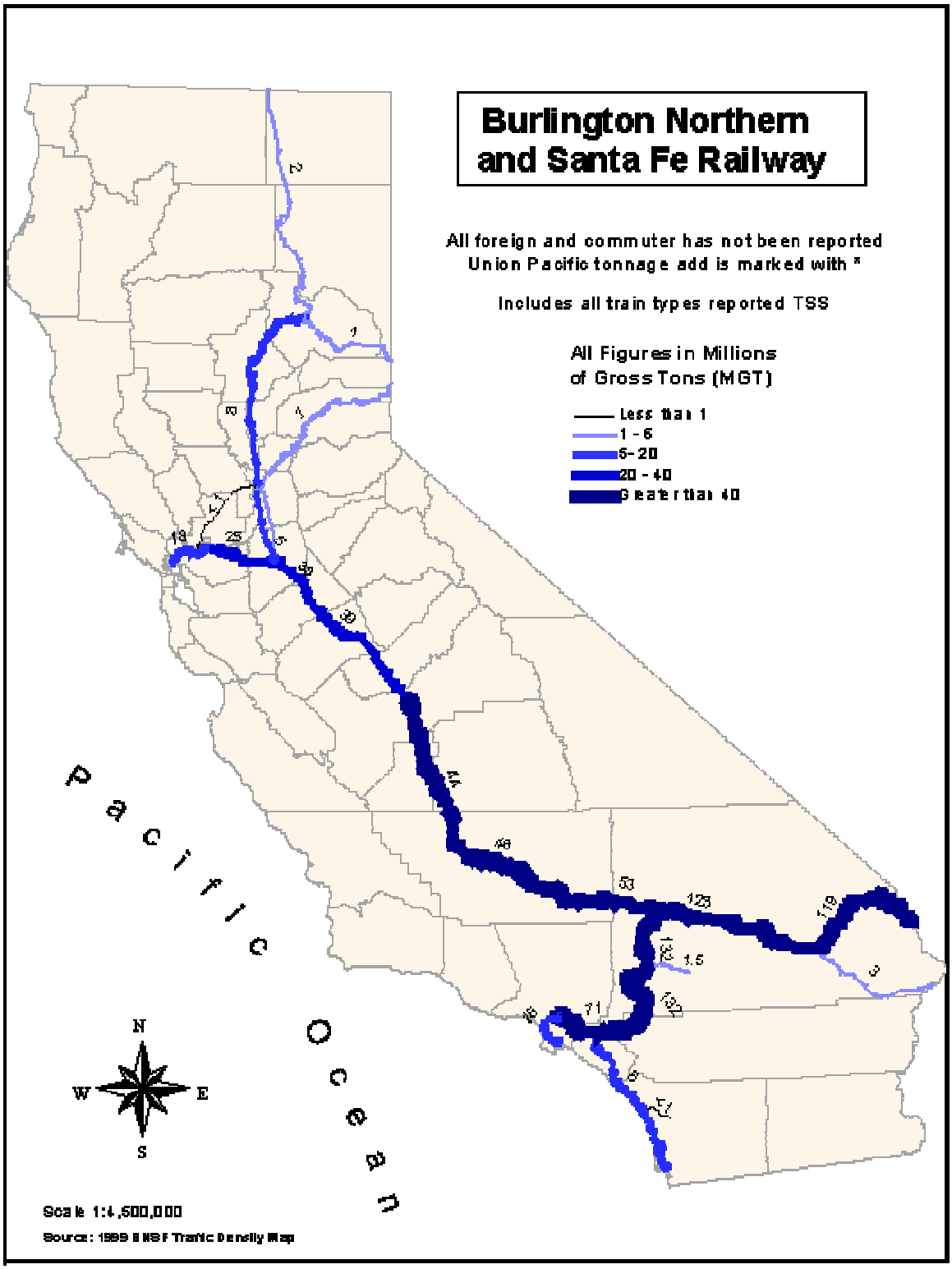


Figure 9C

BNSF Railway Freight Handled



Regional Railroads

California has one Class II regional railroad operating in the State. The Central Oregon and Pacific (CORP), with its headquarters in Roseburg, Oregon, operates a 449-mile railroad between Eugene, Oregon and Black Butte near Weed, California. The CORP, which handles mostly forest products from Southern Oregon, provides freight service in California on 58 miles of track between Hilt and Black Butte.

Short Line Railroads

There are 28 Class III short line railroads operating on 1,832 miles or 25 percent of California's rail mileage. During the 1980s and 1990s, many California short lines began operations as spin-offs of Class 1 branch and secondary main lines. Short line railroads in California provide switching services and/or interchange freight to the Class 1 carriers for transportation to other parts of the United States as well as to international markets. They play an important role in California's overall transportation system, especially for local communities not served by a Class I railroad.

Short line railroads are classified as either local carriers serving multiple shippers in one or more communities or switching and terminal carriers operating in one industrial area such as a port or industrial park. Some short line railroads are owned by a single shipper. For example, the Trona Railway's only traffic consists of carloads of borax outbound from Trona for shipment to overseas markets. Other short lines include terminal railroads that perform switching for Class 1 railroads. Examples are the Pacific Harbor Line serving the Ports of Los Angeles and Long Beach, and the Oakland Terminal Railway serving the Port of Oakland.

In 2000, California short line railroads handled over 750,000 carloads of international freight. Many short lines serve industries along the I-5, I-10, I-40 and I-80 corridors. They provide switching services to the Ports of Los Angeles, Long Beach, Oakland, Hueneme, and Stockton. The majority of the analysis for short lines was provided by a survey of California's short line railroads.

The California short line railroads are listed in Figure 9D along with route miles and millions of gross ton-miles per mile (MGTM/M).[6] These railroads are typically referred to as short, light density lines because most of them average less than 1 MGTM/M. The short line railroads that are currently in service are displayed in Figure 9E.

[6] *MGTM/M is the standard railroad metric of traffic density.*

Figure 9D

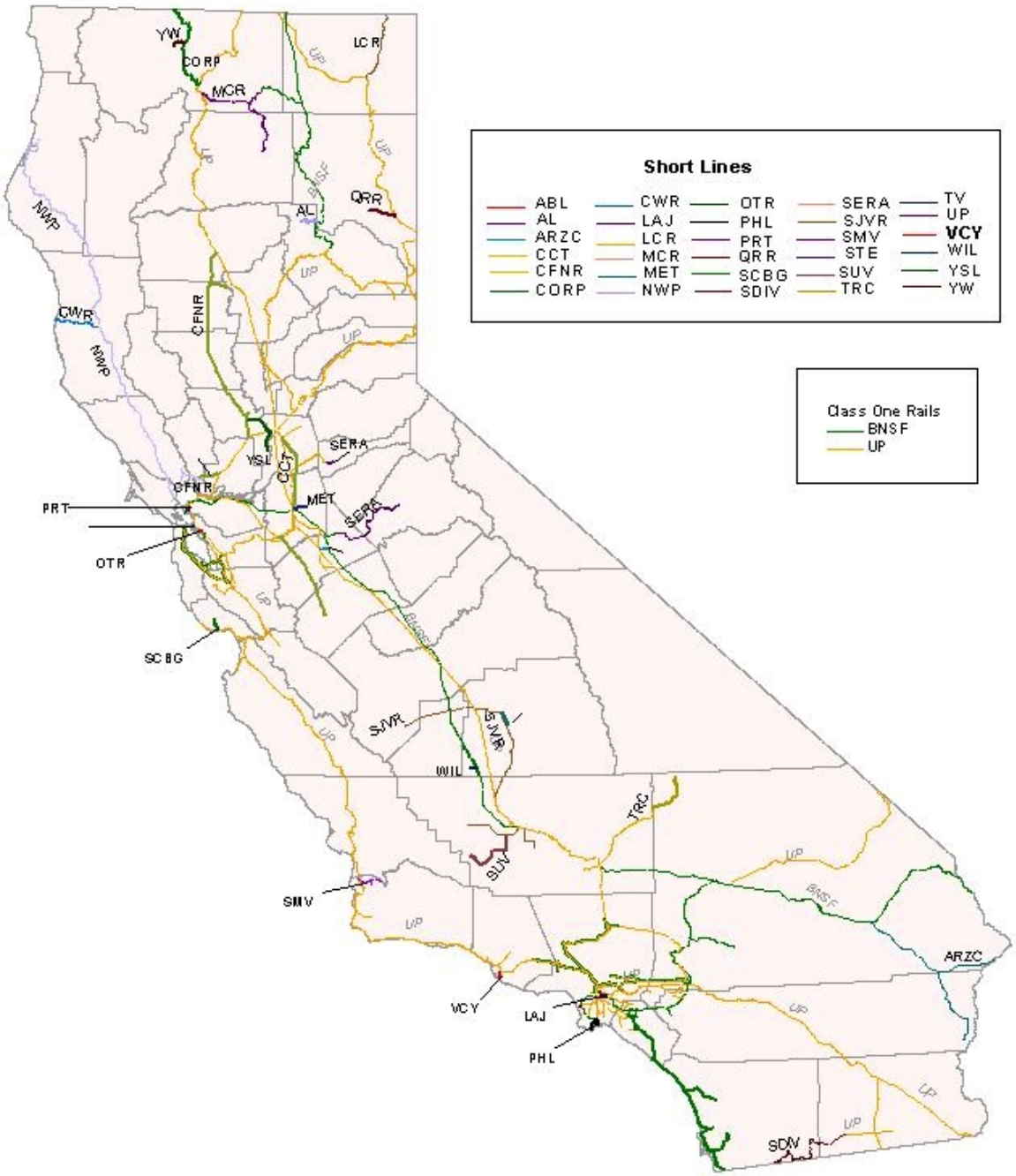
Regional Railroads and Short Lines in California[7]		
Regional and Local Railroads	**Miles of Railroad in California**	**Million Gross Ton-Miles/Mile[8]**
Almanor Railroad (AL)	13	0-0.99
Arizona & California Railroad (ARZC)	134	1-4.99
California Northern Railroad (CFNR)	250	0-0.99
Central Oregon & Pacific RR (CORP)	58	1-4.99
McCloud Railway (MCR)	128	0-0.99
Northwestern Pacific Railway (NWP)	306	0-0.99
San Diego & Imperial Valley RR (SDIV)	33	0-0.99
Santa Maria Valley Railroad (SMV)	18	0-0.99
Sierra Railroad (SERA)	57	0-0.99
Stockton Terminal & Eastern RR(STE)	48	0-0.99
Sunset Railway (SUV)	37	0-0.99
Trona Railway (TRC)	31	1-4.99
Ventura County Railroad (VCRR)	13	0-0.99
Yreka Western Railroad (YW)	9	0-0.99
Switching and Terminal Railroads		
Alameda Belt Line (ABL)	3	0-0.99
California Western Railroad (CWR)	40	0-0.99
Central California Traction (CCT)	46	0-0.99
Lake County Railroad (LCR)	41	0-0.99
Los Angeles Junction Railway (LAJ)	64	1-4.99
Modesto & Empire Traction (MET)	33	1-4.99
Oakland Terminal Railway (OTR)	12	0-0.99
Pacific Harbor Line (PHL)	21	5-9.99
Parr Terminal Railway (PRT)	2	0-0.99
Quincy Railroad (QRR)	25	0-0.99
San Joaquin Valley Railroad (SJVR)	348	0-0.99
Santa Cruz, Big Trees & Pacific Railway (SCBG)	10	0-0.99
Tulare Valley Railway (TV)	18	0-0.99
West Isle Line (WI)	6	0-0.99
Yolo Shortline Railroad (YSLR)	28	0-0.99
TOTAL MILES	1,832	

7 *The short lines and their route miles were obtained from Railroads and States, American Association of Railroads, 1997. Please note that the West Isle Line began operation in January 1998. The miles of railroad operated were obtained directly from the West Isle Line. Accordingly, BNSF route miles for 1997 should be reduced by 5.5 miles.*

8 *Ton-mile figures from U.S. Railroad Traffic Atlas, by Harry Ladd, 1998.*

Figure 9E

Regional and Short Line Railroad System Map



Commodities Shipped

The primary commodities handled by rail in California include bulk shipments of chemicals, petroleum, food products, farm products, primary metals, paper products and lumber. These general carload commodities are less time sensitive than the high value cargo that tends to be shipped by truck and air. Overall, the general carload base business[9] for railroads has remained strong. This has prompted the UP to make substantial investments in improving throughput at classification yards such as the $145 million upgrade of their Roseville Yard that officially opened in May of 1999. Increasingly, the railroads have been able to attract more time sensitive shipments using expedited rail intermodal service. This premium service allows trailers and containers the ability to move quickly on fast transcontinental routes with penalties assessed to the railroad if shipments are late. To capitalize on this growing demand, the Class 1 railroads have been building new intermodal yards. Among these are the UP's facility in Lathrop and the BNSF's facility in Stockton.

Figure 9F shows commodities originated and terminated in California for 1997. Tons terminated outnumber tons originated by almost two to one. Mixed freight includes international containerized freight going through the Ports of Los Angeles, Long Beach, and Oakland, as well as domestic containers handled at both the UP and BNSF facilities statewide.

Figure 9F

Commodities Originated and Terminated in California for 1999

Tons Originated			Tons Terminated		
Commodity	**Tons**	**%**	**Commodity**	**Tons**	**%**
Mixed Freight	24,311,415	44%	Mixed Freight	21,102,220	24%
Food Products	5,931,412	11%	Chemicals	8,878,928	10%
Chemicals	3,346,040	6%	Food Products	8,605,608	10%
Primary Metal Products	3,284,650	6%	Farm Products	8,436,827	10%
Petroleum	2,454,476	4%	Primary Metal Products	6,524,872	7%
All Other	15,920,644	29%	All Other	34,023,362	39%
	55,248,637	100%		87,571,817	100%

9 *General carloads include traffic in traditional railroad equipment such as gondolas, boxcars, hopper cars, tank cars, lumber cars, etc. By contrast, intermodal shipments, consisting of trailers and containers, travel on flat cars or "double stack" cars, where containers are placed one on top of another. Intermodal service tends to operate on tight schedules and have faster transit times compared to general carload business.*

CHAPTER X
MAJOR FREIGHT ISSUES

GROWING BUSINESS AND CAPACITY CONCERNS

Class I railroads are facing increasing traffic levels system-wide. For 1998, UP revenues were up 20 percent to $10.6 billion from 1996.[10] Similarly, BNSF revenues were up 10.2 percent to $8.9 billion in the same period. As business grows, maintaining sufficient capacity to ensure reliable operations has become the single largest concern of Class I operators. This concern drives the freight railroads' major investment strategies.

A survey of the UP and BNSF Railroads indicates their major choke points are areas were they both operate on the same facility. Capacity improvements are needed at:

- Cajon Pass between San Bernardino and Cajon Summit
- Tehachapi Pass between Bakersfield and Tehachapi Summit
- Colton Crossing in San Bernardino

In addition, both railroads noted capacity improvements were needed between San Bernardino and Los Angeles along State Route 91, Interstate 5 and Interstate 10 corridors to accommodate additional commuter rail service. The Alameda East Construction Authority, the San Bernardino Associated Governments, Riverside County Transportation Commission, Orange County Transportation Authority and the On-Trac Project are working with the railroads to address the need for grade separations to reduce delays at grade crossings between these two cities.

Capacity can be measured in terms of the level of investment across three elements: freight handling facilities or yards, main line track, and rolling stock. UP's capital investments for 1998 totaled $2.1 billion, or about 20 percent of revenues. In the same year, BNSF spent $2.1 billion for capital investments, or about 23 percent of revenues. While expensive, these investments are needed to move the freight on ever more crowded main lines and through ever more congested intermodal and general classification yards.

Intermodal Shipments

Intermodal derives its name from the rail carriage of truck trailers. BNSF's intermodal revenue jumped 21 percent between 1996 and 1998. Over the same period, UP intermodal revenues stagnated as a result of service problems that hampered their operations through 1998. However, intermodal traffic has since been returning to UP. As the growth leader, intermodal traffic is making heavy demands on existing railroad capacity.

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[10] *Included the effect of the completion of the Southern Pacific Rail Corporation acquisition that occurred in September 1996.*

The predominance of intermodal freight in California's railroad operations is based on a large consumer demand for intermodal-borne freight as well as California being the primary gateway for containerized products coming in from the rapidly expanding Pacific Rim economies. Over time, the term "intermodal" has come to include the interface of railroads with ocean going ships for the transfer of marine containers between these modes. International container shipments have been growing rapidly to and from West Coast ports over the last 10-year period, as can be seen from Figure 10A.

Figure 10A

Container 20' Equivalent Units (TEUs)
Major Ports of the Continental U.S.[11]

Port	1991	2000	Change
Long Beach	1,767,824	4,600,787	160%
Los Angeles	2,038,537	4,879,429	139%
Oakland	1,139,748	1,780,000	56%
Seattle	1,154,854	1,490,000	29%
Tacoma	1,020,707	1,380,000	35%

Together, The Ports of Los Angeles and Long Beach make up the third largest container port facility in the world. Fifty percent of all the containers handled at the Ports of Los Angeles and Long Beach travel to U.S. destinations by rail. The vast majority of these are bound for inland destination points such as Chicago, Kansas City and Memphis, illustrating the importance of the rail/ship interface.

In order to facilitate further growth, the ports and railroads have been making substantial investments to improve rail/ship interface. Recent planned improvements include:

- On-dock facilities[12] in both the Ports of Los Angeles and Long Beach
- The Alameda Corridor project between Long Beach and downtown Los Angeles
- The Joint Intermodal Terminal (JIT) at the Port of Oakland

[11] *American Association of Port Authorities*

[12] *An on-dock rail facility refers to track and loading equipment inside a marine terminal to enable the movements of containers between ships and trains without leaving the marine terminals.*

Shared Use of Rights-of-Way

In many areas of the State, passenger services share rail rights-of-way with freight railroads. For both passenger and freight railroads sharing a right-of-way, a primary issue is the capacity of the route to accommodate all train movements. Before a freight railroad grants a passenger operator use of its facilities, the railroad will require various capacity improvements to ensure the reliability of both freight and passenger services. The cost of these improvements may be borne by the passenger operator or can be shared.

In recent years, freight railroads and various public agencies have entered into negotiations for the use of freight rail lines for commuter and intercity passenger services. Some of the freight railroads sold their lines to the passenger operators, but retained the rights to provide freight services on them. In California shared use of rights-of-way include:

- State-sponsored Amtrak intercity services: Pacific Surfliner Route, San Joaquin Route and Capitol Corridor
- The Southern California Metrolink commuter rail system
- The San Diego County Coaster commuter rail system
- The Caltrain commuter rail system in the San Francisco Bay Area
- The Altamont Commuter Express (ACE) rail system

In recent years, ridership and train service has increased on all commuter and intercity rail lines in California. Passenger operators have plans for adding more trains over the next several years. In some cases, capacity has proven insufficient to handle existing levels of both freight and passenger service, particularly in metropolitan areas with substantial freight and passenger traffic. Metrolink trains operate on time 95 percent of the time on Metrolink controlled trackage. On tracks owned by UP and BNSF, Metrolink trains operate on time 70 to 85 percent on time. When the trains ran late, the cause of the delay was attributed to BNSF freight trains 37 percent of the time, UP freight trains 25 percent of the time, other Metrolink trains 4 percent of the time and Amtrak trains 2 percent of the time.

Freight interference causes major operating problems for Metrolink especially on UP's Los Angeles Subdivision between Riverside and Los Angeles. Heavy UP port rail traffic is results in Metrolink trains operating late almost on a daily basis. Heavy BNSF port rail traffic on their San Bernardino Subdivision between Los Angeles and San Bernardino also causes delays for Metrolink trains.

Joint Dispatching of Freight Operations

In California, five Class l rail segments have joint freight train operations. Three segments in California are owned and dispatched by the UP. These are:

- The UP Sacramento and Canyon Subdivisions between Stockton and Keddie.

- The UP Martinez and Roseville Subdivisions between Oakland and Sparks, NV.
- The UP Mojave Subdivision between Bakersfield and Mojave.

Two segments are owned and dispatched by the BNSF. They are:

- The Mojave Subdivision between Mojave and Barstow.
- The Cajon and Needles Subdivisions between San Bernardino and Daggett.

Railroads operate on joint facilities to take advantage of more direct routes and to share in the maintenance costs. Both railroads share in the maintenance costs based on the number trains using this facility. However, the tenant railroad can be subject to delays cause by the railroad that owns the infrastructure because the owner's trains will typically take priority. Both UP and BNSF have established a joint dispatching center in San Bernardino so that both railroads can be in direct contact with each other to help make these joint train operations work as smoothly as possible.

The problems of joint train operations are compounded when steep mountainous grades and curves force trains to operate at reduced speeds thereby slowing down the efficiency of the rail system. For trains operating over Tehachapi Pass, the operations are especially time consuming due to the fact that it is a single track railroad with many sharp curves and the steepest grade in the State. There are a number of passing sidings on this segment, but a train can encounter a delay of a minimum of at least 20 minutes when being passed. The steep grade also requires trains to stop and put on helper locomotives at Bakersfield and remove them at Tehachapi Summit, thereby creating more delays. This rail segment sees 28 to 30 trains per day causing a major bottleneck in the rail connection to California's Central Valley. In order to double track this railroad, several new tunnels would have to be constructed at great cost.

Fresno Rail Consolidation

Currently both UP and BNSF operate freight service through the City of Fresno. There is considerable public support by civic and political groups to consolidate both rail lines onto the UP rail corridor to the west of Downtown Fresno. Many important issues need to be analyzed and solved including how to service existing freight customers, operational and dispatching questions and optimal track structure required to accommodate the increased traffic demand. A study is underway by the Fresno Council of Governments to more accurately determine alignment and costs.

SHORT LINE RAILROAD ISSUES

Securing Infrastructure Funding Source

For independently owned and operated short lines, securing adequate funding for infrastructure upgrades and other capital investments is their most pressing issue. Some short line railroads were spin-offs from the

Class 1s, and when sold, were already suffering from years of deferred maintenance. Maintenance-of-way procedures on these railroads typically are highly labor intensive and expensive. Because short line railroads operate on low profit margins, the railroads are unable to take on major infrastructure improvement projects.

Trend towards Heavier Cars

A major trend in the railroad industry is the use of heavier rail cars as a means of maximizing load potential, thereby generating cost savings. The upper limit of these new car weights has been increased to 286,000 pounds. To handle these heavier cars, short lines must have track, roadbed and bridges capable of handling the increased loads. This means a substantial investment that many short lines cannot afford given the limited revenues that they earn moving cars between shippers and the Class 1 railroads.

Without the necessary infrastructure, many of the commodities moving by rail today will be trucked to/from a transload facility located at a major railroad facility. This will create additional trucks on the State's already congested highway system, creating more delays, increased air pollution and highway maintenance costs. The loss of this revenue to the short line railroads could force some to go out of business leaving California businesses without rail services. The additional truck transportation costs will have to be passed on to the consumer, making goods more costly to purchase.

Short Line Bill of Rights

The continuing consolidation of Class 1 railroads is a concern for short line railroad operators. In 1975, there were 22 Class 1 railroads operating in the U.S. Presently, there are eight. Since 1995, the number of Class 1s operating in California has decreased by half, from four to two.

The American Short Line and Regional Railroad Association (ASLRRA) is a national non-profit trade association representing the interests of over 400 member short lines and regional railroads. In order to protect the viability of short lines, ASLRRA expressed to the U.S. Surface Transportation Board its opinion that a "Short Line Bill of Rights" should be made a condition for the approval of all future Class 1 railroad mergers[13] and consolidation transactions. The ASLRRA, has proposed four rights as follows:

1. Small railroads have the right to compensation for Class 1 service failures.
2. Short line and regional railroads have a right to interchange and routing freedom.

[13] *STB ExParte No. 582,* Public Views on Major Rail Consolidations, *Statement of Frank K. Turner, President, ASLRRA.*

3. Short line and regional railroads have the right to competitive and nondiscriminatory pricing.
4. Short line and regional railroads have a right to fair and nondiscriminatory car supply.

MAJOR ISSUES FOR CALIFORNIA RAIL SHIPPERS

A recent study entitled the *Western Transportation Trade Network (WTTN)* surveyed 53 shippers in 13 western states for their perspectives on Class 1 railroad performance.[14] The Department participated in the study, which was conducted during 1998 and early 1999. Two issues of primary concern to the shippers were (1) reliable transit times and (2) car availability and condition. Interestingly, the cost of rail service and effective customer service were of substantially less interest to shippers than those two issues.

Given the importance of intermodal traffic to railroads in California, the focus of this effort was on intermodal shippers. One company studied was a California intermodal marketing company (IMC)[15], which leases trailers and containers from both railroads and "stack train operators" and solicits loads for this equipment from shippers for transport in rail intermodal service to points throughout North America. The other was a container train operator who owns containers and pays the railroads to deliver their containers to points throughout North America. Of particular concern to both of these parties were the following issues:

- Congested intermodal terminals that delay shipments
- Lack of trailers, containers, and rolling stock to handle traffic in and out of Southern California
- Congestion on main lines and in terminals of eastern railroads that delays shipments to and from California
- Information technology problems causing lost rail cars
- Delays to rail shipments related to increasing shared use of main lines by commuter and intercity passenger operations
- Grade crossing accidents

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[14] Western Transportation Trade Network Study, *Western Association of State Highway and Transportation Officials, August 1999.*

[15] *As noted above, an IMC leases containers and trailers from railroads like BNSF and UP, and in turn solicits loads for these containers from shippers. It then arranges for the pick-up of the trailers and containers from the shippers, their transport on the railroad, and their deliveries to receivers. For these logistical arrangements, the IMC charges its fees to shippers.*

CHAPTER XI
SHORT LINE ANALYSIS

Short line railroads play an important role in moving goods to and from California regions and local communities. The commodities moved tend to have a low transportation cost to weight/volume ratio, which contributes to their attraction to short lines, instead of trucks.

There are 29 short line and regional railroads in California today.[16] Most of them are privately owned and employ between ten and 50 employees, as shown by the summary from the American Association of Railroads in Figure 11A on the following page. Revenues for the majority of the short lines are less than $5 million annually.

None of the short lines have revenues exceeding $40 million per year. Operating costs were not cited. However, in California, operating costs range from about 75 percent to 110 percent of revenues.[17] The latter figure would suggest that short lines with operating costs higher than revenue have other income sources such as income from rental property.

A detailed survey sent to all California short lines provided much of the basis for analysis. The summary that follows is focused on California and the 19 short line railroads that responded. Topics covered relate to the economic future of the short lines, service and infrastructure, commodities carried, and upgrade costs.

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16 *The West Isle Line began operations in January 1998.*

17 *Per conversation with Mr. Andrew Fox, CSLRRA current president, August 2, 2000.*

Figure 11A

Regional and Short Line Railroad Ownership and Size

	Short Line	RR Type	Owner	Employees	Revenues (millions)
1	Alameda Belt Line	S&T	Class 1	12	<$5
2	Almanor Railroad Co.	Local	Shipper	4	<$5
3	California Northern Railroad	Local	Private	46	$10-$20
4	California Western Railroad, Inc.	S&T	Private	5	<$5
5	Central California Traction Co.	S&T	Class 1	23	<$5
6	Los Angeles Junction Railway	S&T	Class 1	48	$5-$10
7	McCloud Railway Co.	Local	Private	23	<$5
8	Modesto & Empire Traction Co.	S&T	Private	65	$10-$20
9	Napa Valley Railroad Co.	S&T	Private		<$5
10	Northwestern Pacific Railroad	Local	Gov't	50	<$5
11	Oakland Terminal Railway	S&T	Class 1	12	<$5
12	Pacific Harbor Line, Inc.	S&T	Private	45	<$5
13	Parr Terminal Railroad	S&T	Private	12	<$5
14	Quincy Railroad	S&T	Shipper	1	<$5
15	San Diego & Imperial Valley Railroad	Local	Private	15	<$5
16	San Joaquin Valley Railroad Co.	S&T	Private	79	$5-$10
17	Santa Cruz, Big Trees & Pacific Railway	S&T	Private	5	<$5
18	Santa Maria Valley Railroad	Local	Private	12	<$5
19	Sierra Railroad	Local	Private	13	<$5
20	Stockton Terminal & Eastern	Local	Private	14	<$5
21	Trona Railway	Local	Shipper	29	$5-$10
22	Tulare Valley Railroad Co.	S&T	Private	0	<$5
23	Ventura County Railroad Company	Local	Private	5	<$5
24	West Isle Line, Inc.	Local	Private	0	<$5
25	Yolo Shortline Railroad Co.	S&T	Private	8	<$5
26	Yreka Western Railroad	Local	Private	3	<$5
27	Arizona & California Railroad Co.[18]*	Local	Private	34	$10-$20
28	Central Oregon & Pacific[18] *	Regional	Private	130	$20-$40
29	Lake County Railroad[18]*	S&T	Gov't	2	<$5
	Total			**695**	

* — Data for entire line, not only California

S&T – Switching and terminal carriers

[18] *Arizona & California Railroad Co., Central Oregon & Pacific Railroad, and Lake County Railroad have their corporate offices outside California.*

Survey Results

During late spring and early summer 2000, the Department surveyed 29 short line carriers. A total of 19 responses (66 percent of the 29 companies) were received. The survey inquired about service and infrastructure characteristics, commodity movements, and issue areas. The following summarizes responses received for the key issue areas:

Track and Right of Way

- Track and right of way (ROW) improvements are needed to accommodate 286,000-pound cars.
- The increase in operating weight will place a further maintenance expense burden on the short lines.

Safety

- Improve at-grade crossing protection devices.
- Additional funding for grade separations is needed.
- Replace outdated signal systems.

Intermodal Facilities

- Seven of the respondents operate some type of intermodal facility.
- Of these, four identified the need for upgrades and improvements totaling approximately $19 million.

State Role

- Because of thin short line operating margins (revenues less operating costs), the short lines request State assistance in capital funding.
- Assume responsibility for flood protection due to State actions diverting or increasing flood flows.
- Take an active role to preserve existing corridors for future passenger and freight services.

Local Jurisdictions

- Local government should consider the provision of rail access in approval of new commercial and industrial properties.

Service and Infrastructure

The longest short line railroad is the San Joaquin Valley Railroad with 310 miles of track. The Modesto & Empire Traction Company has the shortest line with just five track miles. The California Western has by far the highest number of bridges of any reporting short line in the State. The California Northern Railroad Company in 1999 transported the most freight with 34,637 cars, closely followed by San Joaquin Valley with 30,231 cars, Pacific Harbor Line with 24,195 cars, and Modesto & Empire Traction with 23,294 cars. These four lines alone accounted for 75 percent of all reported short line movements.

Seven short line railroads reported having intermodal facilities, defined as: Container on Flat Car (COFC), Trailer on Flat Car (TOFC), team tracks, or bulk transfer facilities. Of the 19 short lines in the survey sample, 12 reported not owning or operating any intermodal facility.

Commodity Movements

In 1999, the AAR[19] reported 5 million carloads of freight originating and terminating in California, accounting for the movement of over 136 million tons of commerce.

The reporting short lines handle over three percent of the number of annual cars and nearly eight percent of the total tonnage. The majority of all movements were interstate in nature. Many of them were bridge movements originating and terminating in other Pacific Rim countries and moving through California to and from other U.S. inland or East/Gulf Coast points.

The reported commodity shipments via the short lines can be aggregated into seven commodity categories:

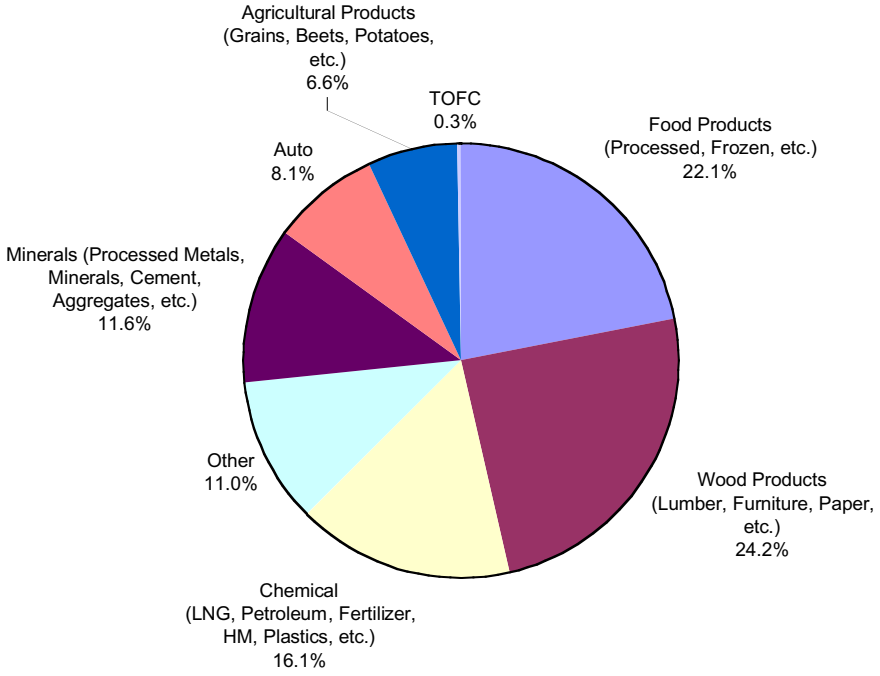
- Agricultural Products – grains, beets, potatoes, etc.
- Automobiles
- Chemical – petroleum products, liquefied natural gas (LNG), fertilizer, hazardous materials, etc.
- Food Products – processed foods, tomato paste, frozen foods, etc.
- Minerals – processed metals, minerals, cement, gypsum, aggregates, etc.
- TOFC or COFC mixed freight shipments
- Wood Products – lumber, logs, paper, furniture, etc.

The number of carloads by commodity was used to estimate the statewide short line commodity mix. The results are shown in the pie chart labeled Figure 11B. Wood and food products each accounted for over 20 percent of the movements.

[19] American Association of Railroads, *1999 Traffic Report for California.*

Figure 11B

California Short Line Railroad Commodity Distribution



UPGRADE COSTS

The magnitude of costs required to up grade short line infrastructure to keep the railroads competitive and in business is the subject of significant debate. Most lines identified the cost of upgrading the current infrastructure as a major impediment to the success of future operations. A number of the lines submitted specific estimates for upgrading and improving track, ROW, and intermodal facilities. These reported costs amount to over $110 million for track and ROW and $19 million for intermodal facilities.

The project team estimated upgrade costs for all California short lines using a methodology developed specifically to handle 286,000-pound cars[20]. This methodology provides unit costs for each track element based on national data.

Since the upgrade cost is primarily mileage driven, the longest short lines, such as the San Joaquin Valley Railroad and the California Northern Railroad Company, exhibit the highest upgrade estimates ($31.7 million and $22.6 million, respectively). The total statewide short line upgrade cost is on the order of $190 million.

[20] An Estimation of the Investment in Track and Structures Needed to Handle 286,00 lb. Rail Cars, *American Short Line and Regional Association, May 2000.*

To arrive at a grand total improvement cost estimate, other infrastructure projects need to be added in, as well as intermodal facility projects. Doing so would bring the total estimated upgrade and improvement cost for short lines statewide to allow handling of 286,000-pound cars well in excess of $200 million. With operating ratios (the percent of revenues consumed by operating costs) of 75 percent or more, California short lines would seem hard pressed to cover capital costs for handling 286,000-pound cars, plus all other ongoing capital needs.

POTENTIAL SHORT LINE CLOSURE EFFECTS

An analysis of total rail carloads was conducted to determine what effects there would be on highway mobility if the short lines were to go out of business. In addition, potential highway maintenance impacts were analyzed.

For the majority of short lines, the Average Annual Daily Traffic (AADT) on adjacent highways was less than 20,000. Only four were greater than 40,000, with Pacific Harbor having the highest expected AADT of 203,000.

Short line closures would result in less than a one percent increase in AADT for a majority of the short lines responding. Closures of only two would result in a greater than 5 percent increase in traffic, while closure of the Arizona and California Railroad Company would result in an 11 percent increase.

Volume to Capacity Analysis

The projected increase in vehicular traffic is not sufficient without knowledge of existing conditions on the highway network. The volume to capacity (v/c)[21] ratio was determined along each analyzed highway segment using the 1997 Department Route Segment Report. A v/c ratio of 1.0 indicates that the highway segments do not have any additional capacity.

Using the Department's Transportation Concept Reports, it was determined that little congestion exists along routes parallel to 14 of the 19 responding railroads, where v/c ratios are below 0.6. Figure 11C shows that v/c ratios for routes parallel to the remaining five vary between 0.62 and 1.00. Considering the additional traffic that would result from short line closures, only the Modesto & Empire Traction Company's closure would cause any strain on capacity, likely increasing traffic by 3.55 percent. The other closure of the other four short lines would cause a less than two percent increase in traffic.

[21] Volume represents the number of vehicles per hour that presently travel the highway as represented by the present design hour volume (PDH). Capacity represents the maximum number of vehicles per hour the highway can carry as indicated in the Highway Capacity Manual. *1997 Route Segment Report, State of California Department of Transportation.*

Figure 11C

Existing Volume to Capacity Ratio

Short Line Survey Respondents	Nearest Competing Highway	Additional Traffic (% Automobile)	Existing V/C
Pacific Harbor	I-710, I-405	0.28%	1.00
Modesto & Empire Traction Company	SR-132	3.55%	0.78
Central California Traction Company	SR-99	0.03%	0.78
Stockton Terminal & Eastern	SR-4	0.21%	0.69
Sierra Railroad Company	SR-120, SR-108	1.82%	0.62

Impact on Maintenance

Any increase in traffic has an impact on highway maintenance costs. Traffic diverted from railroads to trucks increases highway volumes, reduces roadway life expectancy, and requires additional highway maintenance (e.g., resurfacing). Unscheduled costs may result in postponement of other projects or the need for additional funding.

The Federal Highway Administration has determined that the marginal pavement cost of an 80,000-pound five-axle combination truck on a rural interstate highway is approximately 13 cents per mile as of 2000.[22] Factoring the FHWA rate and the total 1999 projected truckload equivalents for each short line's route[23], an annual California highway deterioration rate was determined.

If the California short line railroads were to cease operations, the mode shift of railcars to truckloads would cost the State $9,328,030 in highway deterioration costs. Combined, the San Joaquin Valley Railroad and California Northern Railroad Company represent 83 percent of this total statewide figure.

In addition to the highway deterioration costs from the increase in truck traffic throughout the State, other social costs could increase (e.g., safety, noise, air pollution).

[22] Highway Cost Allocation Study, *FHWA 1997.*

[23] *The length of each short line was used as a proxy for competing highway length.*

CHAPTER XII
FUNDING

ECONOMIC ROLE OF SHORT LINE AND REGIONAL RAILROADS

There are about 500 short lines and regional railroads in North America. Though their individual roles may vary, they typically feed traffic to the high volume, main-line rail routes owned by the Class 1s.

The total number of short lines and regional railroads has been growing. In 1980, there were about 220 companies versus 500 today. Driving this growth has been the rationalization efforts of Class 1 railroads, spinning off numerous light density branch lines[24] in an effort to control costs. The Class 1s either sold many lines outright or leased components of their operations to private operators.[25]

The short line railroads, with 1,832 miles (25 percent) of the State's rail mileage, are facing significant problems. Many California short line railroads serve industries along the I-5, I-10, I-40 and I-80 corridors and near the Ports of Los Angeles, Long Beach, Oakland, Hueneme, Stockton and Sacramento. These railroads handle over 750,000 annual carloads of international freight. Their primary concern is their inability to handle the new industry standard 286,000-pound rail cars on lightweight track and bridge infrastructure. Short line railroad infrastructure that provides congestion relief along the major global gateways needs to be upgraded to accommodate the 286,000-pound rail cars that carry international freight.

Sustainability of Short Lines and Regional Railroads

Like Class 1 railroads, short lines and regional railroads are paid for handling cars. In cases where short lines interline cars with Class 1s, Class 1 carriers share their revenue with the short lines. For a sustainable operation, short line revenues must be sufficient to cover both operating costs and capital costs. Operating costs include labor and fuel, among other things. Capital costs include improvements to rolling stock (i.e., vehicles) and track and bridges, among other things. Often revenues have proven inadequate to cover both operating and capital costs of short lines, and public funding sources have been needed to sustain the lines.

Exacerbating this issue is the "286 problem." The term refers to the 286,000-pound total weight of a loaded railcar. According to the

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24 *The term "light density lines" is applied generally a to branch line that generates significantly less rail traffic compared to the main line or a heavily used branch line.*

25 *Class I route miles declined from more than 200,000 in 1970 to less than 120,000 in 1995. Over the same period, route mileage of Class 2 and 3 railroads increased from less than 15,000 to over 45,000 in 1995.*

American Short Line and Regional Railroad Association (ASLRRA), 286,000-pound equipment is rapidly becoming the norm for commodities that are the bread-and-butter for many small railroads – grain, lumber and paper products. This heavier equipment puts significant strains on track infrastructure. Many short lines today cannot handle 286,000-pound cars. To do so would require "heavier rail,"[26] and upgrading costs are significant, as described earlier.[27] For short lines with thin operating margins (where revenues barely cover operating costs), upgrades are cost prohibitive.

According to the ASLRRA, these short lines must quickly find funds for massive capital spending to upgrade track and bridges to handle larger, heavier freight cars that shippers and larger railroads are bringing on line in record numbers. The American Association of State Highway and Transportation Officials (AASHTO) estimated that total 10-year infrastructure needs for American short lines and regional railroads total between $7.9 and $11.8 billion, of which only 19 to 23 percent can be funded by the railroads themselves.[28] Beyond internal company sources and private sector financing, sources have included programs put in place by the federal government and numerous state governments

The California Short Line Railroad Association (CSLRRA) asserts that government support of many short lines is a necessity if these lines are to fulfill their economic role.[29] This fact is recognized by the federal government as well as by 30 states, which have funding programs for short line railroads.

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[26] *Upgrades for 286-pound cars would call for rail in excess of 100 pounds; 112-pound rail would be typical of an upgrade.*

[27] *In its* 1998 286,000# Upgrading Study Report, *the Iowa Department of Transportation estimated the cost of upgrading a typical branch line to a level capable of handling 286,000-pound cars totaled $170,000 per mile. This figure did not include any costs for bridges.*

[28] The Ten-Year Needs of Short Line and Regional Railroads, *AASHTO Standing Committee on Rail Transportation, December 1999. This effort surveyed short line and regional railroads regarding their capital needs. The responses indicated that the railroads have needs totaling about $92,000 per mile for track, excluding signal and bridge improvements. This figure is significantly less than the $170,000 per mile estimated by the Iowa Department of Transportation as the cost of upgrading a branch line to handle 286,000 pound cars and the $137,000 per mile estimated by ASLRRA. At least in part, the difference appears to lie in the fact that not all railroads responding to the AASHTO survey reported a need to upgrade track for 286,000-pound cars. The AASHTO needs calculation also included $1.7 billion for equipment, including cars and locomotives.*

[29] *Per conversations with Mr. David Parkinson, CSLRRA former president, April 4, 2000.*

FUNDING SOURCES FOR SHORT LINES

Federal Rail Programs

Local Rail Freight Assistance

The federal rail service assistance program was established by the Federal Railroad Revitalization and Regulatory Reform Act of 1976 (4R Act), and was amended by the Local Rail Service Assistance (LRSA) Act of 1978, and the Omnibus Budget Reconciliation Act of 1981. The LRSA program provided funding on a federal/local matching share basis for four types of projects: rehabilitation, new construction, substitute service, and acquisition. The LRSA program permitted states to provide funds on a grant or loan basis.

In 1990, the Local Rail Service Reauthorization Act was passed, and the name of the program was changed to Local Rail Freight Assistance (LRFA). The criteria for lines eligible to receive assistance also were revised. Funds for the program were dramatically reduced in the 1990s, and congressional appropriations ceased in 1995. Over $544 million in federal funds were expended between 1976 and 1985.

TEA-21 Rail Funding

In 1998, the Transportation Equity Act for the 21st Century (TEA-21) reauthorized the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). TEA-21 contains several provisions for rail assistance project funding. Two of these, Section 7202, Light Density Line Pilot Programs, which is intended to replace LRFA, and Section 7203, Rail Rehabilitation and Improvement Financing (RRIF), are specifically designated for freight railroad infrastructure projects. TEA-21 rail initiatives are concentrated in seven sections:

§ 7202: Light Density Line Pilot Program – The purpose of this section is to fund capital improvements and rehabilitation for publicly and privately owned light density lines (LDLs). An annual total of $17.5 million was authorized for the life of TEA-21, but funds have yet to be appropriated.

§ 7203: Rail Rehabilitation and Improvement Financing (RRIF) – This section provides loans / loan guarantees for acquisition, development, improvement, or rehabilitation of intermodal[30] or rail equipment or facilities. It permits an aggregate unpaid balance of $3.5 billion over the life of TEA-21 with $1 billion to be designated for non-Class 1 carriers.

§ 1110: Congestion Mitigation and Air Quality Improvement Program (CMAQ) – This section continues the eligibility of rail projects and expands eligibility to air quality maintenance and non-attainment areas. Total available funding is $8.1 billion over a 6-year period (1998-2003), with annual authorization amounts increasing each year during this period.

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[30] *Intermodal in this sense refers to the movement of freight traffic between modes. For example, an intermodal rail movement would include movement of a truck trailer or marine container on a railroad flatcar.*

The primary purpose of the CMAQ program is to fund transportation projects and programs in non-attainment and maintenance areas that reduce transportation-related emissions. CMAQ funding was used by Riverside County to assist the Arizona and California Railroad (ARZC) in constructing an intermodal facility in the City of Blythe.

§ 1119: Coordinated Border Infrastructure and Safety Program – The purpose of this program is to improve the safe movement of people and goods in the vicinity of our borders with Canada and Mexico. Funding of $700 million is to be coordinated with the National Corridor Planning and Development Program. Improvements to existing infrastructure and operations that facilitate international trade are eligible for funding.

§ 1221: Transportation and Community and System Preservation Pilot Program (TCSP) – Allocations of $25 million annually are available for initiatives regarding relationships between transportation, community and system preservation, and private-sector initiatives. States, local governments, and metropolitan planning organizations (MPOs) are eligible for discretionary grants to:

- Plan and implement strategies improving transportation efficiency
- Reduce environmental impacts
- Reduce future infrastructure investments
- Ensure efficiencies in access to jobs and centers of trade
- Examine related private-sector development and investment patterns that support these goals.

Funding from this section has been used by the State of Washington to acquire abandoned rail lines for service resumption purposes.

§ 1108: Highway Rail Grade Crossing Program – Under this section, the §130 Program of the Federal Highway Act is continued. It increased the Surface Transportation Program (STP) Safety Set Aside ($466 million) with the §152 Hazard Elimination Program. The minimum funding in each state is tied to FY 1991 levels. However, all of the STP set aside is eligible at the state's option.

A number of states, working through their Congressional delegations, secured specific freight rail assistance projects under ISTEA. Examples include the repair of the Coos Bay Bridge ($5.5 million) of the Central Oregon and Pacific, and construction of the San Ysidro Intermodal Yard ($10 million) on the San Diego and Imperial Valley Railroad (operator of the San Diego and Arizona Eastern Railroad).

TIFIA Funding

The Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) provides loans for improvements to freight facilities on or adjacent to the National Highway System (NHS); theoretically, freight rail facilities on or near the NHS may therefore be eligible for funding. This TEA-21 program provides assistance in the form of credit (direct loans, loan guarantees and standby lines of credit) for major transportation projects of critical or national

significance. The project must cost at least $100 million or be worth 50 percent of the state's annual apportionment of federal aid funds, whichever is less.

State Programs

Most of the states participated in the federal program in the 1970s and 1980s when it was well funded, although many states, mostly outside of the Northeast and Midwest, were slow to get involved. At that time, most light density lines were owned by the Class 1 railroads. The principal issue was branch line abandonment as the larger carriers sought to rationalize their systems in an attempt to address their financial problems. Abandonment cases were common and were fought on both the planning (with assistance funding) and regulatory fronts.

Today, the problem is assisting short line operators. As a result of the spin-off process that was made possible by railroad deregulation, short line operators have inherited the vast majority of the remaining Class 1 branch lines. Although abandonment is always the ultimate issue, many short line operators manage to continue service in cases where the Class 1s would have filed for abandonment.

State Survey

Based on a survey of the states conducted by the AASHTO Standing Committee on Rail Transportation (SCORT), published in early 1997,[31] just over $2 billion was expended on rail assistance projects between 1976 and 1995.

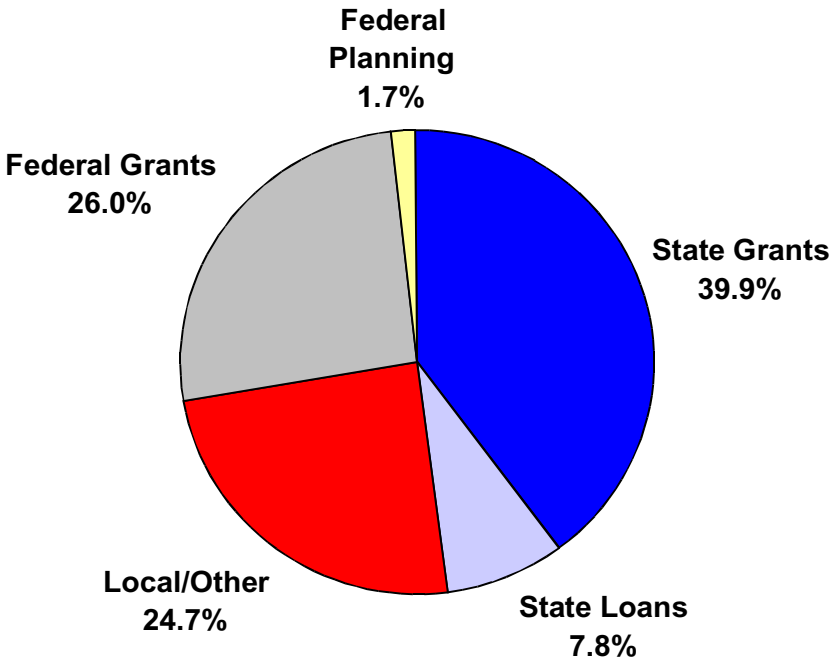
The funding was distributed as shown in Figure 12A. Of the total of $2.1 billion, it should be noted that only 28 percent was derived from federal funds, while 48 percent came from state sources. Matching funds from local and other sources accounted for almost as much (25 percent) as federal sources. The federal program thus served the purpose of providing inducement and seed money for a national effort. The $2.1 billion funded 3,173 projects. There are 30 states that provide assistance for short line railroad infrastructure improvement projects (see Figure 12B).

[31] State Programs for Light Density Rail Lines, 1976 - 1995, *a report prepared by the Standing Committee on Rail Transportation of the American Association of State Highway and Transportation Officials, February 1997.*

Figure 12A

DISTRIBUTION OF RAIL ASSISTANCE FUNDING 1976 – 1995

Total Program = $2.094 Billion



Source: *State Programs for Light Density Rail Lines*, 1976 – 1995[32].

[32] Ibid.

Figure 12B

Short Line Railroad Assistance Programs

State	Name of Program	Funds Available	Grant or Loan
Connecticut	70/30 Freight Program	0.5 Million	Grant
Florida	Transportation Trust Fund	Currently Unfunded	Grant
Georgia	Industrial Rail Access	$400,000	Grant
Idaho	Rail Service Preservation	Currently Unfunded	Grant or Loan
Illinois	State Loan Fund	$2.9 Million	Loan
Indiana	Industrial Rail Service Fund	$1.4 Million	Loan
Iowa	Rail Assistance Program	$8.3 Million	Grant and Loan
Maine	Industrial Rail Access	$2 Million	Grant
Massachusetts		$2 Million	Grant
Michigan	Rail Loan Assistance	$3 Million	Loan
Minnesota	Rail Service Improvement	$7 Million	Grant and Loan
Mississippi	Railroad Revitalization Fund	Currently Unfunded	Grant
Missouri	Rail Preservation Fund	$2.4 Million	Grant and Loan
Montana	Rail Service Assistance	$700,000	Loan
Nebraska	Revolving Loan Fund	$1.9 Million	Loan
New Hampshire	Rail Line Revolving Loan	$4 Million	Loan
New Jersey	State Rail Assistance	$1.3 Million	Grant
New York	Industrial Rail Access	$1 Million	Grant
North Carolina	Rail Industrial Access	$800,000	Grant
North Dakota	Freight Railroad Improvement	$1 Million	Loan
Ohio	Rail Development Program	$6.5 Million	Grant and Loan
Oklahoma	Railroad Maintenance Fund	$1 Million	Grant
Oregon	Economic Development Fund	$4.5 Million	Grant
Pennsylvania	Rail Freight Assistance Program	$7 Million	Grant
Tennessee	Transportation Equity Fund	$3.5 Million	Grant
Vermont	Rail Economic Enhancement	$500,000	Grant
Virginia	Railroad Preservation Fund Rail Industrial Act Fund	$2.5 Million $2 million	Grant Grant
Washington	Essential Rail Assistance	$7 Million	Grant and Loan
Wisconsin	Freight Rail Assistance	$8.2 Million	Grant and Loan

Traffic Congestion Relief Program

The State Legislature approved AB 2928, Governor Davis' Traffic Congestion Relief Plan (TCRP), in June 2000. The $5.3 billion TCRP package was designed to relieve traffic congestion, improve system connectivity and goods movement. The Program did include $60 million for improvements to the Northwestern Pacific Railroad, as part of the effort to reduce truck congestion by allowing bulk shipments and lumber products to return to the rails. The program provides $39.4 million for track upgrades and long-term stabilization projects, $4.1 million for environmental work, $15.5 million for debt repayment, and $1.0 million for administrative costs for the NCRA.

In addition, TCRP provided $150 million to the San Gabriel Valley Council of Governments to build grade separations along the Alameda Corridor East in Los Angeles County. The Cross Valley Rail Corridor Joint Powers Agency, made up of represenatives of the cities of Huron, Lemoore and Visalia, received $4 million in TCRP funds to improve the rail infrastructure along the San Joaquin Valley Railroad Huron Line in Fresno, Kings and Tulare Counties.

Northwestern Pacific Railroad

The Northwestern Pacific Railroad (NWP) provides a link between the North Coast and the San Francisco Bay Area. Construction through the rugged Eel River Canyon was completed in 1914, thus allowing for the movement of people and goods between Eureka and Tiburon/Sausalito with ferry connections to San Francisco. The NWP was jointly owned by the Atchison Topeka and Santa Fe (ATSF) and the Southern Pacific (SP) railroads. In 1929, the ATSF sold their interest in the NWP to the SP.

By 1980, SP had applied to the Interstate Commerce Commission (ICC) to abandon the NWP between Willits and Eureka. During 1983 ICC public hearings, numerous parties were opposed to the abandonment and the ICC denied SP's request. In 1984, SP sold the 172 mile section of the NWP from Willits to Eureka to a shortline railroad operator and the Eureka Southern Railroad (ESR) was born. Undercapitalized and saddled with huge monthly loan payments, ESR filed for bankruptcy in late 1986. A federal bankruptcy Court determined the loss of the line would have a crucial impact on the North Coast economy and ruled that a trustee should be appointed to continue operating the railroad.

In 1989, the North Coast Rail Authority (NCRA) was created by the State Legislature to preserve and maintain a transportation corridor along the North Coast Region. The NCRA is a local agency made up of members from Humboldt, Mendocino and Sonoma Counties. On April 1, 1992, the NCRA purchased the ESR out of bankruptcy and renamed the Eureka to Willits line the North Coast Railroad.

The Northwestern Pacific Railroad Authority (NWPRA) is a Joint Powers Agency composed of the Golden Gate Bridge, Highway and Transportation District (GGBD), Marin County and the NCRA. On April 30, 1996, the NWPRA acquired the line between Lombard in Napa County and Healdsburg

in Sonoma County. At the same time, the NCRA also purchased the Healdsburg to Willits segment, and the entire rail line was again renamed the Northwestern Pacific Railroad.

The NCRA and the NWPRA are both working to restore rail services to the North Coast. The NCRA's primary objective is to preserve freight rail service. It oversees the freight railroad operations of the 306 mile long NWP from Arcata in Humboldt County to Lombard in Napa County. The NCRA is also interested in operating passenger excursion trains along this scenic line.

The NWPRA is interested in operating a rapid transit system from the Tiburon/Sausalito Area to Healdsburg.

This railroad has a history of being plagued by high maintenance costs due to frequent flooding along the Eel River. North of Willits, the railroad has been out of service since February 1998 due to rail damage from the El Niño storms. The southern end of operations has seen sporadic operations since being shut down by the Federal Railroad Administration in November 1998 due to unsafe track conditions and the lack of operating grade crossing warning devices. The line has been repaired as far north as Healdsburg and there is a construction project currently underway to restore the line up to Willits.

A capital needs assessment of the entire line is underway. It will produce a design work plan to validate and refine NCRA's Strategic Plan. The current Plan includes reopening of the north segment to FRA Class 1 standards from Willits to Samoa, along with upgrading the entire line to FRA Class 2 and Class 3 standards where practical (based on cost, operational, maintenance and environmental issues) and future long-term stabilization of the rail line through the canyon. The TCRP provided $60 million to fund major portions of this program.

CHAPTER XIII
ENVIRONMENTAL REVIEW

INTRODUCTION

California is aggressively working at improving the State's environment. Careful stewardship is necessary to continue these advances in the natural and human environment while providing the infrastructure necessary for a vibrant economy. Freight rail is an integral tool of commerce. The State Rail Plan provides a decision platform to consider the current rail conditions, identify associated environmental issues, and develop candidate responses.

Numerous elements contribute to the complex issue of providing a viable freight system and balancing environmental considerations. Some of these elements include the following facts:

- Urban areas have serious air quality problems.
- Rail corridors have been in place for well over a hundred years.
- Land uses have evolved and grown around these routes.
- Interstate commerce drives Class 1 railroad practices.
- Private railroads provide a public conveyance.
- Railroad rights-of-way (ROW) are generally privately held.
- Federal positions and responsibilities may preempt state actions.

For this overview, California's Livable Communities objectives will be used for identifying issue areas for the State to consider and further analyze as the freight element of the State Rail Plan is implemented. This overview also provides a baseline understanding of the following environmental impacts of rail:

- Noise
- Vibration
- Highway-Rail Crossings
- Hazardous Material
- Air Quality

NOISE

The impacts of noise vary as a function of urban or rural settings, ambient background levels, sensitivity of the receptor, physical features of the surrounding landscape, noise sources, and the intensity and frequency of the noise event. Some noise sources are necessary; the FRA currently is in a rulemaking process to assure the appropriate use of train horns for warnings at highway-rail grade crossings.

The Department adopted a series of thresholds, beyond which noise abatement is required for highway related projects. Figure 13A presents the five noise abatement categories and a general description of typically associated activities.

Figure 13A

Noise Abatement Criteria (NAC) and Activity Categories[33]

Activity	NAC, Hourly A-Weighted Noise Level, dBA Leq (h)	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands
E	52 Interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

[33] Traffic Noise Analysis Protocol, California Department of Transportation, October 1998

Noise Sources

There are three sources of noise from rail operations[34]:

- Propulsion or machinery noise
- Mechanical noise resulting from wheel/rail interaction
- Aerodynamic noise resulting from airflow moving past the train

Propulsion and mechanical noise account for the major noise sources in the operation of freight-rail trains. At slower speeds, propulsion (engine, fan and braking noise) is the primary source of noise. Diesel-electric engines generate electricity that drives electric traction motors to power freight locomotives. There are large fans located near the top of the power unit to cool the engines. As train speed increases, mechanical and structural sources become the predominant noise source. Mechanical noise sources include wheel/track interaction and structural vibrations.

Figure 13B provides a general planning level understanding of the noise level generated by a mainline freight rail corridor typically carrying five to ten trains per day traveling between 30 and 40 mph. This is a weighted value between day and night values.

Figure 13B

Noise Exposure from Mainline Railroad[35]

Distance from Railroad Lines (In Feet)	Noise Exposure Estimate (dBA) Ldn
10-29	75
30-59	70
60-119	65
120-239	60
240-499	55
500-799	50
800+	45

Federal Preemption of Local Horn Whistle Bans

The sounding of locomotive horns for advance warning at public highway-rail crossings has been a standard practice for over a hundred years. To abate the impact of noise from operations and locomotive horn use, local communities have adopted speed limits and prohibitions on horn use. Whistle bans are currently controlled by California Public Utility Commission rules under California Law. Communities within three counties in California, (Los Angeles, Orange, and Sacramento) have passed such bans at 64 at-grade crossings.

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34 High-Speed Ground Transportation Noise and Vibration Impact Assessment, USDOT Federal Railroad Administration, December 1998

35 Ibid.

A 1995 FRA study "Nationwide Study of Train Whistle Bans" found an 85 percent increase in the collision rate during ban hours. In 1994, Congress passed "The Swift Rail Development Act" requiring the sounding of horns upon approach of every public grade crossing. The Act and subsequent legislation allow exceptions. The FRA is currently in the formal Rulemaking process to require horns to be sounded on approach of every public highway-rail grade crossing. Specifics of the plan include:

- Horn level set at either 104 dB or 111 dB
- Length of time a horn is sounded would be limited
- Localities or states would be allowed to establish approved "quiet zones"

Impacted Population

Nationally, FRA estimates 365,000 persons may be impacted by increased noise exposure from the Swift Rail Development Act, with 151,000 severely impacted. Setting the maximum sound limit and directionality of a horn may temper this impact. However, the exception for quiet zones might relieve as many as 3 million of the 5.8 million persons currently affected by horn noise exposure nationally.

Noise Standards

The US Environmental Protection Administration (EPA)[36] standards for noise emission of Interstate Rail Carriers are dependent on equipment and operational conditions. Generally, the EPA sets at a distance of 30 meters or 100 feet an 87 dBA standard at any throttle setting except at idle. The idle standard is 70 dBA. Noise standards for rail cars moving at 45 miles per hour or less are set at 88 dBA and for movement over 45 mph are set at 93 dBA. The FRA is empowered to force a railroad to correct the noise defect or remove the equipment from service.[37]

Mitigation of Noise Impacts

Receptors can be shielded from the noise of a passing train by a number of tools including noise barriers and sound attenuators. Noise barriers do not generally mitigate aerodynamic noise because of the height of the sources. Noise mitigation measures focus on addressing noise at the source or along the path to the receptor. Source mitigation attempts to quiet vehicles, while path mitigation diverts or buffers the noise.

VIBRATIONS

In December 1998, in the *High-Speed Ground Transportation Noise and Vibration Impact Assessment*, the FRA concluded that, "Vibration can be perceptible and intrusive to building occupants and can cause secondary rattling of windows, items on shelves, and pictures hanging on walls. In addition, sound reradiated from vibrating room surfaces, referred to as

[36] 40 CFR 201 – Noise Emission Standards For Transportation Equipment; Interstate Rail Carrier

[37] 49 CRF 210 – Railroad Noise Emission Compliance Regulations

ground-borne noise, often will be audible in the form of a low-frequency rumbling sound."

Vibration is very similar to noise, in that its intensity is a function of the wave energy passing through a medium, in this case the earth. A vibration experience will usually be a ten-second event. The intensity of vibration will vary with operations, geologic conditions, proximity, structural design, and configuration.

Designs which attempt to minimize vibrations include: resilient fasteners to attach rails to concrete track slabs (generally not used by freight rail), ballast mats, resiliently supported ties and floating slabs. Other solutions include heavier rail, thicker ballast, heavier ties, or resilient elements beneath the tracks. Wood ties do not transmit motion as readily as concrete ties. However, none of these mitigation measures have shown great success. More costly but also more effective solutions include building modifications, trenches, buffer zones, and operational changes.

AT-GRADE HIGHWAY / RAIL CROSSINGS

One of the most noticeable impacts of rail within a community is related to highway-rail grade crossings. The impacts are manifest in delays to highways, roadways, and pedestrian users, and in increased risk exposure for accidents. In 1999, there were 9 deaths and 19 injuries resulting from California public highway-rail crossing accidents.[38]

The California Public Utilities Commission (CPUC) administers the State highway-railroad grade crossings. It has promulgated a series of General Orders establishing standards and regulations for operations, warning devices, geometrics, construction and maintenance, railroad crossing occupancy, etc.

The CPUC works in conjunction with the Department to prioritize projects eligible for federal Section 130 funding for local at-grade crossing safety programs. The 2001 to 2002 funding plan includes twenty-seven such efforts ranging from hundreds of thousands of dollars to over eight million dollars in size and scope.

Existing Conditions

According to the FRA, California has 12,815 rail crossings of which 4,799 are private, 7,863 are public and 153 are pedestrian. The types of warning devices used at a particular crossing are a function of the amount of vehicular traffic coupled with the number of rail movements.

Most rail lines have been in existence for a hundred or more years. In most communities, land uses have grown up to and around the rail alignments. At-grade crossings present a difficult safety problem for the traveler, railroad, and community. The ideal public policy would have all crossings separated or closed, eliminating any at-grade conflicts. Considering local

[38] FRA Office of Safety Analysis Database, May, 2000

access and mobility impacts and the significant monetary cost, this is an unreasonable general policy. California has approximately 5,000 at-grade crossings with cross-bucks, the most rudimentary warning protection. Current funding streams do not allow for an aggressive response to these safety and community impact issues.

Highway-Railroad Accidents

California had 157 motor vehicle/rail incidents in 1999. Nineteen of these resulted in a casualty. The more severe accidents in terms of casualties tended to involve mainline rail operations with trains traveling at higher speeds.

Los Angeles County accounted for 46 of a total of 205 public and private crossing incidents. As discussed earlier, removal and separation of at-grade highway-rail crossings is the ideal mitigation solution. The Alameda Corridor Project will connect the two San Pedro Bay Ports with the UP and BNSF railheads close to downtown Los Angeles through a 20-mile fully grade separated corridor. It will entail the elimination of 200 at-grade crossings. The corridor will pass mostly through south-central Los Angeles via a depressed (below grade) right-of-way, returning to the surface at the southern end of the corridor. Street traffic will cross the trench on bridges. The benefits of the corridor are: (1) eliminating grade crossings and their inherent dangers and delays, and (2) facilitating faster freight transit time between the ports and the downtown railheads, shortening overall transit time for time-sensitive international intermodal shipments.

The State and a number of communities have also taken steps to utilize new and emerging technology to improve crossing safety and reduce crossing impacts. In Southern California, there are operational tests using Intelligent Transportation Systems (ITS) technology to accomplish these objectives. These efforts have included advanced vehicle sensors, four-quadrant gates, variable message signs, and wayside warning horns.

Following Los Angeles County in incidents for 1999 is Fresno County with 21, and Riverside County with 15. While Stanislaus County had 10 incidents, it accounted for five of the 24 public and private crossing fatalities. Similarly, Monterey County only had five incidents, but these accounted for 10 of the 73 statewide public and private crossing injuries.

At-grade highway-rail incidents are problematic in all areas of the State, in both urban and rural settings. Ideally, mitigation actions should be taken to improve crossing safety devices, and when practical, the crossing should be grade-separated or closed. At the present time, “California Operation Lifesaver” is expanding efforts to reach out to reduce the number of pedestrian/train collisions through a three fold attack: education to promote awareness of the hazards of crossing tracks, engineering for improved warning devices and signals, and enforcement of traffic regulations at grade crossings and along rail lines.

AIR QUALITY

California air quality programs are directed by the California Air Resources Board (ARB). Established in 1967, the ARB is charged to attain and maintain healthy air quality, conduct research, and systematically address major causes of air pollution in 15 air basins and 58 counties. One of the means through which the ARB accomplishes this is through the monitoring of emissions standards.

There is a clear linkage between rail operations and air quality. As part of normal operations, trains produce pollutants, such as nitrogen oxides and carbon monoxide. In 1996, California rail operations contributed 4.5 percent of nitrogen oxides (NO_x) and 2.8 percent of sulfur oxides (SO_x) total statewide emissions.

Through various emission standards and programs, there has been a significant reduction in pollution over the years. Continued growth, physical conditions, and public health considerations demand continued diligence.

Emissions Contributions

In 1996, ARB conducted a statewide emission inventory[39] including stationary sources (e.g., utilities, industrial, waste disposal, cleaning, surface condition and petroleum production), area-wide sources (solvent evaporation, farming, construction and unpaved roads), mobile sources (on-road vehicles, aircraft, trains, ships and recreational vehicles), and natural (non-anthropogenic) sources (wildfires, windblown dust, and geogenic sources). Figure 13C illustrates the locomotive contribution to key emission categories.

Total organic gases (TOG) includes all hydrocarbons (HC). Reactive organic gases (ROG) include organic gases but exclude methane and a number of low molecular weight halogenated organics. CO is carbon monoxide. Particulate matter (PM) refers to small solid and liquid particles such as dust, sand, salt spray, and smoke. PM_{10} is a subset of PM with particle sizes of an aerodynamic diameter of 10 micrometers or smaller.[40] In comparing locomotive total emissions to total truck emissions, truck contributions to statewide daily emissions are considerably higher. Normalizing this data through ton-miles transported provides a comparable emission value per efficiency between modes. On a ton-mile basis, locomotives generate from one-third to one-twelfth the emissions of heavy diesel trucks.

[39] 1996 Emission Inventory, California Air Resources Board, October 1998

[40] Ibid.

Figure 13C

1996 Estimated Average Daily Emissions by Summary Category
Tons Per Day

Source	TOG	ROG	CO	NO_x	SO_x	PM	PM_{10}
Stationary	2,700	700	350	630	150	220	140
Area-wide	2,000	770	2,700	93	5.4	3,600	2,000
Mobile	1,900	1,700	15,000	2,600	100	120	110
Natural	130	53	580	8.7	-	94	82
Total	**6,700**	**3,200**	**19,000**	**3,300**	**260**	**4,000**	**2,300**
Trains	7.5	7.3	23	150	7.4	3.2	3.1
% Total Sources	0.1	0.2	0.1	4.5	2.8	0.1	0.1
% Mobile Sources	0.4	0.4	0.2	5.8	7.4	2.7	2.8
Diesel Truck	57	56	293	473	23	39	37
% Mobile Sources	3.0	3.3	2.0	18.2	23.0	32.5	33.6

As can be derived from Figure 13C, pollutants to which trains contribute the most are NO_x (4.5 percent of total emissions, 5.8 percent of mobility emissions) and SO_x (2.8 percent of total emissions and 7.4 percent of mobile emissions).

Emission Standards for Rail Vehicles

The smoke for newly manufactured and remanufactured diesel-powered locomotives and locomotive engines, which had previously been unregulated.[41] The standards become more rigorous over time and are set out in a step or tier standard.

The new standards result in nearly a two-thirds reduction in NO_x emissions and nearly half the HC and PM emissions nationwide. This equates to a 304,000 ton NO_x emission reduction in 2005, equivalent to removing nearly 20 million cars from the road. Because NO_x contributes to the reduction of ambient concentrations of secondary PM, the new standards result in a reduction of 12,000 tons per year of PM.[42]

EPA estimates that the lifetime cost per locomotive will be approximately $70,000 for the Tier 0 standards, $186,000 for the Tier 1 standards and $252,000 for Tier 2 standards. Lifetime cost components consist of initial equipment costs; remanufacturing costs; fuel economy costs; and certification, production line and in-use testing costs. The average annual cost of this program is estimated to be $80 million. This would be about 0.2 percent of the total freight revenue for railroads in 1995. The average cost-effectiveness of the standards is expected to be about $163 per ton of NO_x, PM and HC.[43]

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41 Technical Highlights, Emission Factors for Locomotives, US EPA EPA420-F-97-051, December 1997

42 ibid

43 Regulatory Announcement – Final Emissions Standards for Locomotives, US EPA EPA420-F-97-048, December 1997

The EPA adopted regulations preempt certain local and state requirements for controlling locomotive emissions. This condition is driven by the interstate nature of railroads.

Enforcement

The EPA rules established an enforcement regime including individual locomotive/engine certification, requirements for maintenance records for actions that might impact emission performance, and an annual fleet testing program to monitor the in-use emissions. Short line railroads are exempt from EPA locomotive emissions standards by virtue of being small businesses with less than 500 employees.

ARB entered into a memorandum of mutual understandings and agreements with BNSF and UP to establish the South Coast Locomotives Program. The agreement sets a series of fleet performance measures that will "result in 100 percent replacement with the lower-emitting locomotives over 5 years from 2005-2009."[44] This program further establishes an annual report regime for the railroads. If established objectives are not met, liquidated damages apply.

Additional statewide solutions/programs include alternative fuels, liquefied natural gas, electrification and conversion incentive programs.

[44] Memorandum of Mutual Understandings and Agreements, South Coast Locomotive Fleet Average Emission Program, July 2, 1998

CHAPTER XIV
NEW TECHNOLOGY

GLOBAL POSITIONING SYSTEM APPLICATIONS

Small, low-cost global positioning system (GPS) devices allow tracking of equipment and personnel with a great degree of precision. GPS is being adapted to transit use and is an integral part of positive train control (PTC) systems now being tested (see PTC discussion below). GPS technology can be used to monitor engines, work equipment, and service vehicles, and enable rapid dispatch of safety or maintenance vehicles to a specific location. As an example, BNSF is purchasing high-tech refrigerated boxcars equipped with GPS to provide precise real-time location information, along with a satellite communications system that allows remote monitoring and control of the on-board refrigeration equipment.

POSITIVE TRAIN CONTROL

New technologies for tracking and controlling train movements are being tested by Class 1 carriers, in association with the FRA, Association of American Railroads (AAR), Amtrak, and state transportation agencies. Nomenclature includes communications-based train control (CBTC), communications-based train management (CBTM), positive train separation (PTS), and positive train control (PTC). PTC seems to be a generic term most often employed to describe the developing technology.

PTC systems permit faster overall train operation, with both closer headways and increased safety. PTC improves on today's Centralized Traffic Control (CTC) systems[45] by utilizing GPS technology to locate trains with much greater levels of precision. It can be supplemented by computer-aided dispatching to forecast optimal train movements.

Typical features of the various systems under development include:

- GPS tracking of train movements
- Wireless data transmission network
- On-board computers to receive and process data
- Wayside equipment with track database[46]

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[45] Centralized Traffic Control is a technology used on most main lines whereby track switches and signals are remotely controlled by dispatchers working in a centralized location. Train movements are governed by the signals, supplemented by radio instructions.

[46] The track database includes allowable speeds and other restrictions affecting train operations in the immediate area. It reduces the need for on-board computers to maintain an extensive track database covering a much larger operating area.

- Dispatch center monitoring and control equipment
- Links to grade crossing equipment.

PTC systems have been tested by UP and BNSF. Amtrak and FRA are testing PTC on part of the Chicago-Detroit corridor, and the AAR and Illinois DOT will fund an installation between Chicago and Springfield. Amtrak is also installing a variation of PTC in the Northeast corridor. Contracts have been issued for testing on CSX Transportation (CSX) and Norfolk Southern (NS). Ultimately, FRA will need to develop updated rules that include these new train control systems. Testing of alternative systems will continue, but widespread application is not anticipated for several years. The promise of PTC as the "next generation" train control system is that it will enable increased capacity and speed over existing main traffic routes with high volumes, with a greater level of safety than provided by current systems. With on-board equipment that displays instructions to the engineer, PTC can be employed on non-signaled trackage. In California, PTC would be particularly applicable to the State's many joint use (freight and passenger) routes, as well as to freight-only routes with volumes sufficient to justify the installation costs.

INFORMATION TECHNOLOGY APPLICATIONS

Information technology (IT) applications are being adapted by railroads to improve productivity of accounting and reporting functions, and to provide better service to customers. Many of these applications have been around since the early part of the computer age. The challenge facing railroads today is to expand IT use to improve communication between carriers and modes, and to enhance the ability of shippers to interact easily and rapidly via the internet.

Operating practices that benefit from IT applications are train dispatching, crew assignments, operations monitoring, equipment and facility maintenance records, and car tracking. Support functions include purchasing, personnel management and employment functions, invoicing and billing, and exchange of data between railroads that cooperate with interchange of equipment and run-through trains. Customer services include equipment tracing, switching requests, car supply and delivery forecasts, and marketing and pricing inquiries. The value of electronic access will become evident with growing competition between carriers and between modes and with the increasing desire of shippers for real-time responses to inquiries and needs.

One example of an IT application is the development of techniques to expand congestion pricing or yield management to encourage use of empty back-haul moves with favorable rates. Previously, this kind of transportation marketing was often impractical before the widespread use of interrelated computer systems. All of these factors, as discussed above, will further the development of IT applications and encourage their use on the rails.

ELECTRONIC COMMERCE

Class I carriers have begun to partner with outside or affiliated internet companies to integrate many of the functions described above. Services being developed by such companies promise a greater degree of integration of both internal railroad functions and customer services, expanding the ease of use with a unified internet "face." Integration of interline shipments is a goal, providing the customer with a single interface for dealing with all aspects of moving a commodity or product from one location to another over two or more carriers or modes.

The internet services have the ability to package the individual railroad computer and internet applications together with like services for other transportation modes. Railroad applications are likely to be implemented first, with later inclusion of other shipping modes. Ultimately, regional and short line carriers could become affiliated with one or more of these services in order to expand their own contact with their customers.

LOCOMOTIVE TECHNOLOGY

Diesel electric engines using alternating current (AC, as opposed to DC or direct current) to drive the traction motors provide greater adhesion, and thus greater pulling power, than comparable DC locomotives. About half of the new locomotives ordered in the past two years have used the newer AC technology. The AC share is expected to increase in the future, but a market for DC technology locomotives will remain, particularly for railroads that do not need the higher tractive effort capability that comes at a premium price. AC traction will reduce the number of locomotives necessary to power a train, although at somewhat higher cost per unit. AC locomotives are particularly suited to hauling heavy tonnage over grades at lower speeds. Test units appeared in the late 1980s, and full-scale production locomotives were available by 1993. AC technology also has been adapted to produce high horsepower locomotives for higher speed trains, allowing railroads to replace two 3,000 hp units with a single 6,000 hp AC unit.

AC traction motors generally are more efficient and reliable than DC motors. Their primary advantage is greater adhesion. Adhesion is measured as the percent of a locomotives weight on the driving wheels that is converted into tractive effort. The typical large DC locomotive attains about 30 percent adhesion on dry rails, while AC locomotives attain up to 38 percent adhesion in varied weather conditions. The upper limits of AC locomotive adhesion are still to be determined, but some engineers believe 50 percent is a practical number. The greater simplicity of AC traction motors reduces the potential for down time. AC traction motors have the ability to withstand higher thermal loads, and thus can operate a greater length of time under a heavy load before overheating.

ELECTRONIC BRAKING

For over a century, US railroads have used the air brake technology developed in the late 1870s. The system employs air pressure changes controlled from the locomotive and extending through a continuous air line running the length of the train, to apply and release the brakes on the individual cars. With the advance of electronics, several versions of electro-pneumatic braking systems have been developed and are currently being tested. TSM, a subsidiary of Rockwell International, developed the first such system, and other manufacturers are following closely behind. Electronic braking uses electronic signals to control and operate brake valves simultaneously, whereas the standard system has a lag time as the air pressure changes sequentially throughout the train.

Use of the new technology has centered on unit trains, where all the cars have the new system. However, several systems under development can operate with electronically-equipped cars intermixed with cars having traditional air brakes, so they allow for gradual replacement of braking systems on existing cars. With over a million freight cars in interchange today, it is estimated that it will take over 10 years before the entire car fleet can be equipped with this technology. Electronic braking has numerous advantages, including shorter stopping distances, reduced wheel wear, and fewer mechanically related train delays. The electronic approach also allows systems to incorporate diagnostic sensing and other reporting of train operating information.

INCREASED CAR CAPACITY

Larger freight cars capable of carrying heavier loads are a technological improvement with mixed blessings. Larger cars have potential for transportation savings, but they also require heavier, better-engineered and maintained track and structures (bridges, trestles, etc.) to withstand the greater forces applied to the track. This is a particular problem for many short lines that have infrastructure that is unable to accommodate the heavier cars, as described previously.

The heavier-weight cars represent a reduction to the railroad in car moves and switch moves, provided the railroad is able to handle the cars with its track structure. There are indications that the industry is moving toward even greater weights per carload, with cars capable of up to 315,000 pounds.

ROLLING STOCK IMPROVEMENTS

RoadRailer is an intermodal technology, which allows highway trailers[47] to be moved in trains by placing the forward and rearward portions of the trailer onto freight car wheel units. The trailers can be moved over the road

[47] The trailers, while sized for highway operation, are specially designed and built with sufficient longitudinal strength to pull the weight of 75 to 100 similar trailers when mounted on railroad wheel sets.

with their highway wheels attached, and at a rail head require only the highway tractor to position the trailer and engage or disengage the railroad wheel units. RoadRailer technology avoids the high investments needed at intermodal facilities to lift and move containers between highway trailers and railroad flat cars. This is particularly advantageous for low volume operations or for starting up service at a yard whose location may later be changed (a fail-safe investment policy). Pioneered initially by Norfolk Southern with trains between the Midwest and the Southeast, this technology is now being used by many Class I railroads. Swift operates a RoadRailer train over UP's I-5 corridor between Los Angeles and Seattle. Amtrak has begun moving mail and time-sensitive express shipments using RoadRailer equipment behind many of its long distance passenger trains.

SUMMARY

Nearly all of the technologies described above have productivity implications for both Class 1s and short lines, dealing with means to make more effective use of labor, to improve maintenance methods, or to operate trains more efficiently over a constrained rail network. Several technologies promise improved levels of customer service or satisfaction, and a few will contribute to enhanced safety in railroad operations.

The table below summarizes expected benefits for each of these categories.

Figure 14A

New Technology Benefits

Technology	Productivity	Customer Service	Safety
Locomotive Remote Control	4		4
GPS Locating	4	4	4
Remote Control Switches	4		
New Train Control Systems	4		4
Information Technology	4	4	
Internet Commerce	4	4	
A-C Locomotives	4		
Electronic Brakes	4		2
Increased Car Size	4	4	
RoadRailers	4	4	

Key: Strong Benefit - 4, Moderate Benefit - 2, Little or No Benefit - 0

CHAPTER XV
FUTURE NEEDS

In order to examine and address state policy as it relates to freight railroads, it is important to recognize the costs and revenues associated with providing freight rail service, including customer service, safety, environmental and community impact issues among others.

It is also important to consider the recent history of the industry, especially in light of the recent consolidations and abandonments. The two large Class 1 railroads, UP and BNSF, will continue to dominate the Western United States for the foreseeable future. The survival of the 29 short line railroads currently active in California is threatened by an aging infrastructure, and the inability to keep up with the much more powerful Class 1s and their heavier cars.

Freight rail operations are deeply intertwined with intercity and commuter rail operations. This complicates policy making significantly, since public benefits are clearly impacted by any decisions affecting the freight railroads.

While Class I freight railroads receive benefits from infrastructure improvements designed to make passenger rail operations more efficient, short line railroads have no funding sources available to them to make the necessary infrastructure improvements to allow them to continue to serve rural communities.

Class I railroads re-invest in track and rolling stock in ways that sustain and improve their bottom line. The magnitude of their operations nationwide enables them to selectively invest on an as-needed basis. However, it is important to note that even Class 1s have historically benefited directly and indirectly from state-funded capital investment projects predicated upon improving passenger rail services and highway-rail grade crossings. Recent examples are the track and signal improvements on California's three State supported intercity rail passenger corridors, the Alameda Corridor, and the Alameda Corridor East, a major grade crossing improvement program, that is in the development stage and moving into implementation at present.

Continuous upgrades and improvements are a necessity if the rail freight system in California is to continue to run efficiently and safely.

The short line railroads provide a wide range of public benefits including providing service to California's agricultural and lumber industries in the more rural portions of the State. Other real or potential public benefits include improving corridor mobility, the environment, and safety. Figure 15A illustrates the public benefits brought about by Class 1 railroads and short line railroads.

Figure 15A

Freight Railroad Public Benefits

Potential Criteria	Short Line	Class 1
Economic Benefit to Local Economies	4	2
Safety Benefit	4	4
Mobility Benefit	2	2
Environmental Benefit	2	4

Key: Strong Benefit - 4, Moderate Benefit - 2

The first point in the exhibit addresses the extent of the public economic benefit. To what extent are the short line railways providing an economic benefit to regional and local economies? How can this benefit be measured? Short line railroads act as feeders to high volume main line rail routes owned by Class 1s. In this instance, they are providing a direct benefit to the Class 1 railroads. They also provide a benefit to the shippers located along branch lines providing economical transportation and helping to retain businesses and jobs in California's rural regions. In several instances short lines have taken over where the Class 1s no longer operate. Class 1 railroads move high volumes of freight and avoid the need for many truck trips.

Another public benefit brought upon by the freight railroads is mobility. For example, if a short line railroad were to shut down, what impact would the additional truck traffic have on the adjoining roadways? If the adjacent local roads and highways are already congested, this could significantly add to an already big problem. Any increase in traffic would also result in increased highway maintenance costs. More trucks transporting goods means more highway deterioration and thus more maintenance. Finally, along with highway maintenance costs there are the social costs of traffic accidents and increased pollution. More trucks on the highway equates to more maintenance costs and more pollution from increased diesel emissions.

Freight railroads have the ability to take trucks off the State's highways. The Department has developed a model that can measure the benefits and costs involved in removing trucks from the highway. This model can provide the amount of dollar savings as a result of reduced highway maintenance, congestion, accidents and noise. A reduction in air pollutants can also be calculated and used as credits toward air quality attainment

A final question in relation to funding is, can investments be justified on the basis of safety? Since technology of railcars is heading towards larger and heavier cars, there is a significant need to upgrade the infrastructure for the track, bridges and turnouts. Without adequate infrastructure, railroads would be subject to frequent derailments that would prevent them from staying in business.