State of California
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

M e m o r a n d u m

To: CHAIR AND COMMISSIONERS

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Action Item

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Chief Financial Officer

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Chief
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Subject: **ADVICE AND CONSENT ON DRAFT CALIFORNIA STATE RAIL PLAN 2007-8 – 2017-18**

SUMMARY:

Pursuant to Section 14036 of the Government Code, attached for advice and consent is the *Draft California State Rail Plan 2007-08 to 2017-18* (Plan). The Draft Plan contains a passenger element prepared by the California Department of Transportation's (Department) Division of Rail and a freight element prepared by the Department's Division of Transportation Planning.

The focus of the passenger rail element is intercity rail. It reviews the current operations and presents ten-year operational and marketing plans for the three State-supported intercity rail passenger routes (*Pacific Surfliner, San Joaquin, and Capitol Corridor*). It provides ten-year projections for ridership and state costs for existing routes, including planned intercity rail service expansions, and state costs for planned new routes. The ten-year capital program includes a list of specific projects for the three existing routes and for the Coast Route (which extends the Pacific Surfliner's from San Luis Obispo to San Francisco). It presents the Department's vision for intercity rail and the relationship of the Administration's and the Department's transportation goals to intercity passenger rail--intercity rail furthers mobility, congestion relief, reduction of the carbon footprint, and smart land use patterns. The passenger rail element also includes the four commuter rail agencies ten-year operational and capital plans for their services (Metrolink, Coaster, ACE, and Caltrain).

The freight element provides a description of the freight rail network, issues concerning the freight rail industry, and policy recommendations and goals for the maintenance, preservation improvement, and funding of the system. The policies are based on Proposition 1B, the Goods Movement Action Plan, the State's involvement with the American Association of State Highway and Transportation Officials, and evolving relationship with the railroads. California faces a huge task in the movement of people and goods within the State. A well maintained and improved freight system can be an important component in the transportation solutions to relieving traffic congestion, improving air quality, and prudently using fuel resources. The freight element is based in part on preliminary information from California's railroads. The final version will incorporate their full technical and analysis inputs.

Attachment

California State Rail Plan 2007-08 to 2017-18

DRAFT

October 2007
California Department of Transportation

ARNOLD SCHWARZENEGGER, Governor
DALE E. BONNER, Secretary, Business, Transportation and Housing Agency
WILL KEMPTON, Director, California Department of Transportation

CALIFORNIA STATE RAIL PLAN

2007-08 TO 2017-18

October 2007

California Department of Transportation

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California State Rail Plan 2007-08 to 2017-18

EXECUTIVE SUMMARY

DRAFT

October 2007
California Department of Transportation

ARNOLD SCHWARZENEGGER, Governor
DALE E. BONNER, Secretary, Business, Transportation and Housing Agency
WILL KEMPTON, Director, California Department of Transportation

Executive Summary

Introduction

Government Code Section 14036 requires the California Department of Transportation (Department) to complete a ten-year rail plan with both passenger and freight rail elements, and that the Rail Plan be updated every two years. The passenger rail element been prepared by the Division of Rail and is covered in Part I (Chapters I through XII). The freight rail element has been prepared by the Division of Transportation Planning, and is covered in Part II (Chapters XIII through XIX).

PART I
Passenger Rail Element

Chapter I
California's Vision for Intercity Passenger Rail

Transportation in California is guided by the Governor's Strategic Growth Plan, the Global Warming Solutions Act (AB 32), the California Transportation Plan (2025), and the Department of Transportation's Mission/Vision and Strategic Goals.

ADMINISTRATION'S STRATEGIC GROWTH PLAN (SGP)

California's rapid population growth continues to put pressure on the State's ageing infrastructure. To meet the challenges of this growth and its ramifications, the Administration has initiated the Strategic Growth Plan (SGP) that encompasses an infrastructure improvement program for the State's transportation system, education, housing and waterways. A major source of funding in the SGP comes from the $19.9 billion of transportation projects contained in the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act (Proposition 1B) approved by the electorate in the November 2006 election. A $400 million segment of Proposition 1B is specifically designated for intercity passenger rail.

WARMING SOLUTIONS ACT (AB 32)

The SGP is also closely aligned with the Administration's "Global Warming Solutions Act" (AB 32, Chapter 488, 2006). This landmark bill requires the State's greenhouse gas emissions to be reduced to 1990 levels by 2020.
The Department's strategy to reduce global warming emissions has two elements. The first is to make transportation systems more efficient through operational improvements. The second focuses on the integration of emission reduction measures into the planning, development, operations and maintenance of transportation elements.

CALIFORNIA TRANSPORTATION PLAN 2025

As a complement to the SGP, the Department produced the "California Transportation Plan 2025" (CTP) which offers a blueprint for meeting the State's future mobility needs. The CTP includes goals to improve mobility and accessibility, support the economy, enhance public safety and security, and improve the environment.

DEPARTMENT'S MISSION/VISION – STRATEGIC GOALS

The Department's Mission/Vision "Caltrans improves mobility across California" and its five Strategic Goals: safety, mobility, delivery, stewardship, and service support the SGP, AB 32, and the CTP.

INTERCITY PASSENGER RAIL VISION

The Department's Intercity Passenger Rail Vision includes the following elements:

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

Intercity rail is an important component of the transportation system and its expansion furthers the Department's mission and goals, and supports the Administration's transportation, environmental, and land use goals.

Chapter II–Capital Program

CAPITAL PROGRAM GOALS

- Expand capacity on existing routes for increased frequencies, reliability, and on-time performance.
- Reduce train running times.
- Improve equipment, stations, facilities and multi-modal connectivity.
- Increase farebox ratio to reach or exceed 50 percent.
- Improve the safety of intercity rail service, including grade crossings.
- Implement projects to allow new cost-effective routes.

TEN-YEAR INTERCITY RAIL CAPITAL PROGRAM

The Department's ten-year $4.03 billion capital program for the three existing state-supported routes and for new routes represents an unconstrained program based on project needs, and not funding expectations. Full implementation of this capital program would require major federal funding. All projects in the program, including costs, are listed in the chapter.

The Department's constrained $700 million ten-year capital program represents State funds reasonably expected to be available over the next ten years. The program includes $25 million per year in STIP funds, $50 million in Transportation Congestion Relief Program (TCRP) funds and $400 million in Proposition 1B funds.

CAPITAL PROGRAM FUNDING

Through 2005, over $2.8 billion has either been invested or reserved for capital funding for California intercity rail passenger service. The State has provided about 62 percent of the total. Local entities, the Federal government, Amtrak, and the private railroads have also made major contributions.

However, adequate State funding is not projected to be available to fund the unconstrained capital program. The only ongoing capital funding source is a limited portion of the STIP. This is a major concern and the Department will continue to explore mechanisms for stable funding. Article XIX of the State Constitution excludes rail equipment from State Highway Account (SHA) funding in the STIP.

INTERCITY RAIL ROLLING STOCK PROGRAM

The State has an intercity rail rolling stock program unparalleled by any other state in the nation. The State owns its own fleet of 88 cars and 17 locomotives and has spent over $300 million on equipment since the early 1990s with the majority of funding from bonds. In addition to equipment procurement, the Equipment Program also includes warranty, rework, and modification of procured equipment; scheduled maintenance; heavy equipment overhaul; equipment modernization; inspection and safety monitoring; and rehabilitation of damaged equipment. The 2007-08 Budget Act provides $250 million in Proposition 1B funds for rail car acquisition.

RAIL-HIGHWAY GRADE CROSSING IMPROVEMENT AND SEPARATION PROGRAMS

The Department has a number of programs to improve safety at rail-highway grade crossings as well as improve rail and road operations. The new Proposition 1B Highway-Railroad Crossing Program includes $250 million for improving grade crossings and constructing grade separations. The 2007-08 Budget Act includes $122.5 million for this program. The Federal Section 130 Program focuses on improving safety and operations at grade crossings. The State Section 190 Program focuses on constructing grade separations. These programs combined receive, in general, approximately $35 million a year in funds.

Chapter III–Operations Program

OPERATIONS PROGRAM GOALS

- Provide cost-effective, operationally efficient service that meets or exceeds the Department's 50 percent farebox ratio standard.
- Improve service access and attractiveness by making the service more passenger friendly with amenities such as on-line ticket reservations and payment, improved real-time passenger information and notification, and on-board internet access.
- Provide safe, reliable, and convenient intercity rail and connecting Amtrak bus service with frequent service during business hours, and travel options

during evenings and weekends.

- Create "seamless" multimodal connectivity between intercity rail services and local rail, transit, and airports, with convenient connections to all major urban, and many tourist and rural destinations.

TEN-YEAR INTERCITY RAIL SERVICE LEVELS AND FINANCIAL PLAN

This chapter presents the Department's 10-year proposed intercity passenger rail ridership and service levels; projected revenue, expense, and farebox ratio for existing routes; and projected state costs for existing and new routes. The increased service levels, service extensions, and new services are consistent with the operations goals.

Also, the Department's progress in meeting principal route objectives is assessed. Actual results and future objectives in the prior California State Rail Plan are compared with those in the current State Rail Plan.

OPERATIONS PROGRAM

The Department's operations, marketing and capital programs are all interrelated. The operations program focuses on: operational efficiency, passenger amenities, emerging technologies, connecting Amtrak bus services, and multimodal connectivity. Operational efficiency which is heavily dependant on implementation of capital improvements includes the goal of 90 percent on-time performance on all three routes. Emerging technologies is a new program focus and includes implementation of on-board wireless internet service, automated ticket validation and on-line ticketing, and a comprehensive wireless network with many operational applications. All three routes have connecting Amtrak buses service, with the San Joaquins' extensive bus network being integral to the Route. Multimodal connectivity to each route is continually being refined, including ticket transfer programs and schedule and station stop coordination.

Chapter IV – Marketing Program

MARKETING PROGRAM GOALS

- Increase ridership by promoting new and expanded train and feeder bus services.
- Develop strategic partnerships with entities such as Air Quality Districts, transit agencies, and the private sector to leverage scarce media funds.
- Develop new ways to reach our target audience more cost effectively with an emphasis on the emerging online technology.
- Develop ridership in primary target markets including the Hispanic, the "mature" (travelers over 50 years old), and family markets. Secondary markets include business travelers, solo travelers, and college students.
- Promote recent improvements to the rail corridors including the opening of new and renovated stations and other capital programs.

MARKETING PROGRAM

The purpose of the marketing program is to create awareness of Amtrak California train travel as an option in consumer's minds. Market research shows that most California travelers do not consider taking the train when making travel decisions. Creating this awareness is essential for increasing demand and thus, ridership and revenue.

The Marketing Program has a number of components. Advertising is a joint program with Amtrak and focuses on the "Travel Made Simple" concept. Public Relations/Outreach includes special promotions, media relations, printed materials, and special events. Group Travel includes programs for children, seniors, and college students. The Department coordinates its Rail Safety activities with California Operation Lifesaver, and contracts for market research. The Capitol Corridor Joint Powers Authority (CCJPA) has its own marketing program, which includes a combination of local marketing efforts and broad-based media campaigns. The CCJPA coordinates its marketing efforts with the State, Amtrak, and CCJPA member agencies.

Chapter V–The California Passenger Rail Network

THE STATE'S ROLE IN RAIL PASSENGER SERVICE

The State rail system combines intercity, commuter, and freight rail. Intercity rail includes State-supported corridor routes and Amtrak long-distance routes. All three systems share the same infrastructure that is generally owned by private railroads, and in some cases, public entities. The State Rail Plan focuses on these rail systems because they share the same infrastructure. The State supports: the *Pacific Surfliners* between San Diego and San Luis Obispo, the *San Joaquins* between Bay Area/Sacramento and Bakersfield, and the *Capitol Corridor* between San Jose and Auburn. 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 services under provisions of the Federal Rail Passenger Service Act (49 U.S.C. 24101).

Chapter VI–*Pacific Surfliner* Route

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

PRINCIPAL 2007-08 TO 2017-18 ROUTE OBJECTIVES

Improve On-Time Performance (OTP) to 90 percent by 2017-18.

Streamline operations and improve passenger amenities:

- Study Premium Class Service.
- Implement passenger on-board wireless internet service.
- Implement automated ticket validation and internet ticket purchase.
- In the long-term implement comprehensive wireless network for improved on-board and equipment operations, safety and equipment repair.

Improve multimodal connectivity:

- Cross-ticketing and coordinated schedules with Metrolink and Coaster.
- Improved coordination with urban transit.

- Improved Amtrak Thruway service.

Reduce Travel Times:

- San Diego to Los Angeles in under 2 hours-30 minutes.
- Los Angeles to San Luis Obispo in under 5 hours.
- Implement express service between Los Angeles and San Diego.

Increase annual ridership 50 percent from 2,707,000 to 4,061,000.

Increase annual revenues 94 percent from $34.5 million to $67.0 million for the state-supported portion of the Route.

Increase revenue/cost (farebox) ratio from 67.1 percent to 68.2 percent.

Increase Service Frequency:

- From 11 to 13 daily round-trips between San Diego – Los Angeles.
- From 5 to 6 daily round-trips between Los Angeles – Santa Barbara.
- From 2 to 3 daily round-trips between Santa Barbara – San Luis Obispo.

Expand Service:

- San Francisco – San Luis Obispo – first daily round-trip in 2010-11, second daily round-trip in 2013-14.

Chapter VII–*San Joaquin* Route

BAY AREA/SACRAMENTO-FRESNO-BAKERSFIELD-(L.A.)

PRINCIPAL 2007-08 TO 2017-18 ROUTE OBJECTIVES

Improve On-Time Performance to 90 % by 2017-18.

Streamline operations and improve passenger amenities:

- Study Premium Class Service.
- Implement passenger on-board wireless internet service.
- Implement automated ticket validation and internet ticket purchase.
- Implement Electronic Train Management System.
- In the long-term implement comprehensive wireless network for improved on-board and equipment operations, safety and equipment repair.

Improve multimodal connectivity:

- Improved coordination with Altamont Commuter Express (ACE), *Capitol Corridor*, and local transit systems.
- Improved Amtrak Thruway bus service.

Reduce Travel Times:

- Oakland to Bakersfield in under six hours.
- Sacramento to Bakersfield in under five hours.

Increase annual ridership 78 percent from 805,000 to 1,432,000.

Increase annual revenues 124 percent from $ 26.5 million to $ 59.4 million.

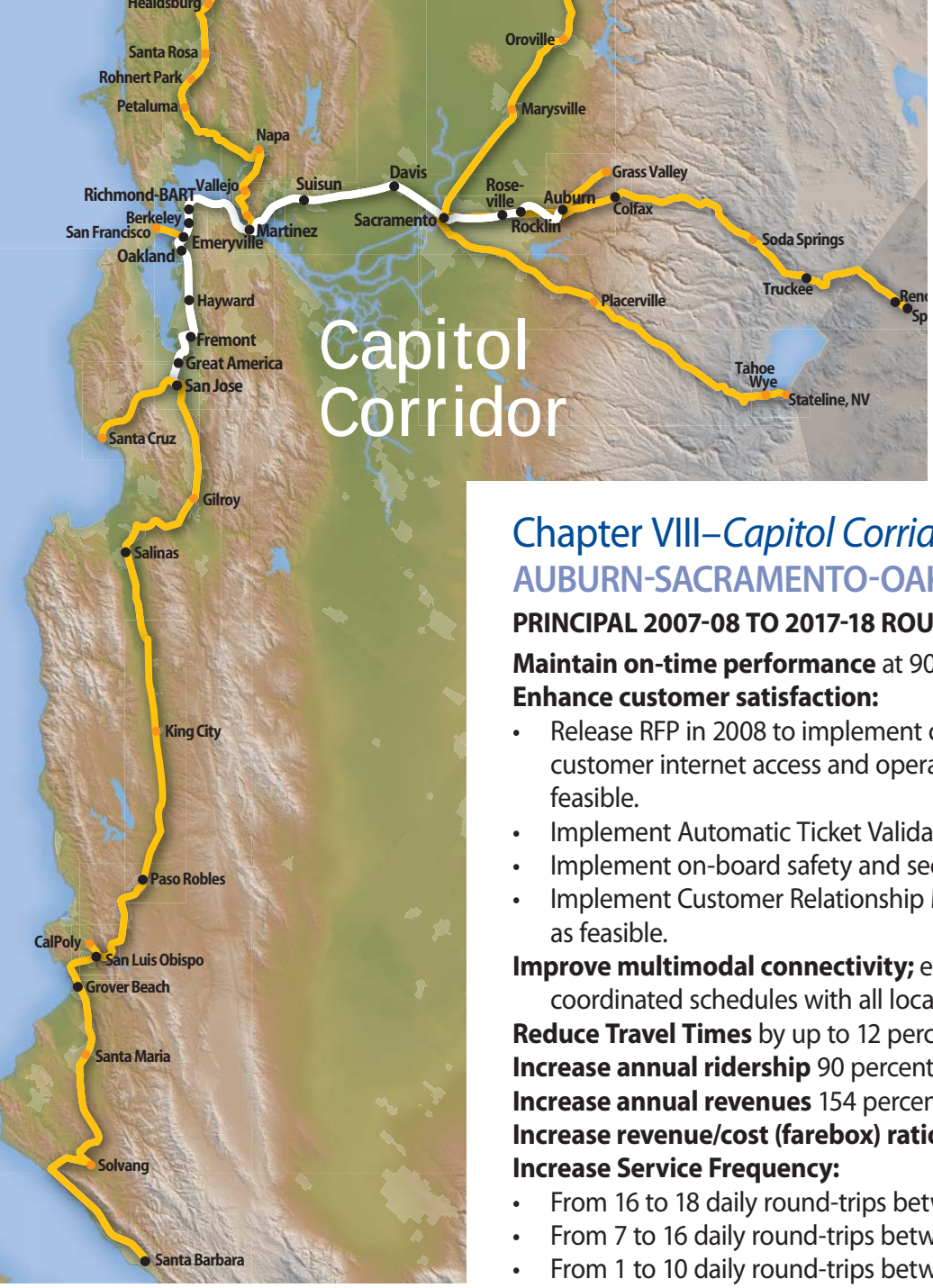
Increase revenue/cost (farebox) ratio from 46.3 percent to 52.3 percent.

Increase Service Frequency:

- Two new roundtrips from Stockton to Oakland.
- Seventh Bakersfield – Stockton round trip, with a third daily round-trip from Stockton to Sacramento.
- Eighth Bakersfield – Stockton round trip, with a fifth daily round-trip from Stockton to Oakland.

Other Service Expansions:

- Pursue options to originate some trains in Fresno.
- Study options to extend rail service from Bakersfield to Los Angeles.



Chapter VIII–*Capitol Corridor*

AUBURN-SACRAMENTO-OAKLAND-SAN JOSE

PRINCIPAL 2007-08 TO 2017-18 ROUTE OBJECTIVES

Maintain on-time performance at 90% throughout the ten-year period.

Enhance customer satisfaction:

- Release RFP in 2008 to implement comprehensive wireless network for customer internet access and operating applications. Implement system as feasible.
- Implement Automatic Ticket Validation System.
- Implement on-board safety and security cameras.
- Implement Customer Relationship Management ticketing database system, as feasible.

Improve multimodal connectivity; establish transfer agreements and coordinated schedules with all local transit systems.

Reduce Travel Times by up to 12 percent.

Increase annual ridership 90 percent from 1,450,000 to 2,759,000.

Increase annual revenues 154 percent from $18.1 million to $46.0 million.

Increase revenue/cost (farebox) ratio from 40.0 percent to 46.1 percent.

Increase Service Frequency:

- From 16 to 18 daily round-trips between Oakland and Sacramento.
- From 7 to 16 daily round-trips between San Jose and Oakland.
- From 1 to 10 daily round-trips between Sacramento and Roseville.
- From 1 to 4 daily round-trips between Roseville and Auburn.

Expand Service:

- Sacramento-Reno – first daily round-trip in 2014-15, second daily round-trip in 2016-17.
- Support Auburn-Oakland Regional Rail Service commuter system planning.
- Coordinate with Caltrain on the Dumbarton Rail Corridor commuter rail expansion.

Chapter IX–Commuter Rail Services

COASTER COMMUTER RAIL (SAN DIEGO–OCEANSIDE)

PRINCIPAL 2007-08 TO 2017-18 ROUTE OBJECTIVES:

- Increase ridership and improve mobility in the region.
- Implement and improve timed transfers at various stations and transit centers.
- Initiate and continue implementation of the Customer Amenities Program.
- Implement incremental service increases, if feasible, including: supplementary mid-day service, reverse peak service, evening service, special events service and weekend service.

CAPITAL IMPROVEMENT OBJECTIVES – FUNDED:

- Construct Oceanside passing track.
- Replace single-track Santa Margarita River bridge with new two-track concrete bridge and connect with double track siding.
- Extend platform at Sorrento Valley Station.
- Build 500-space parking structure at Solana Beach Station for mixed-use development.

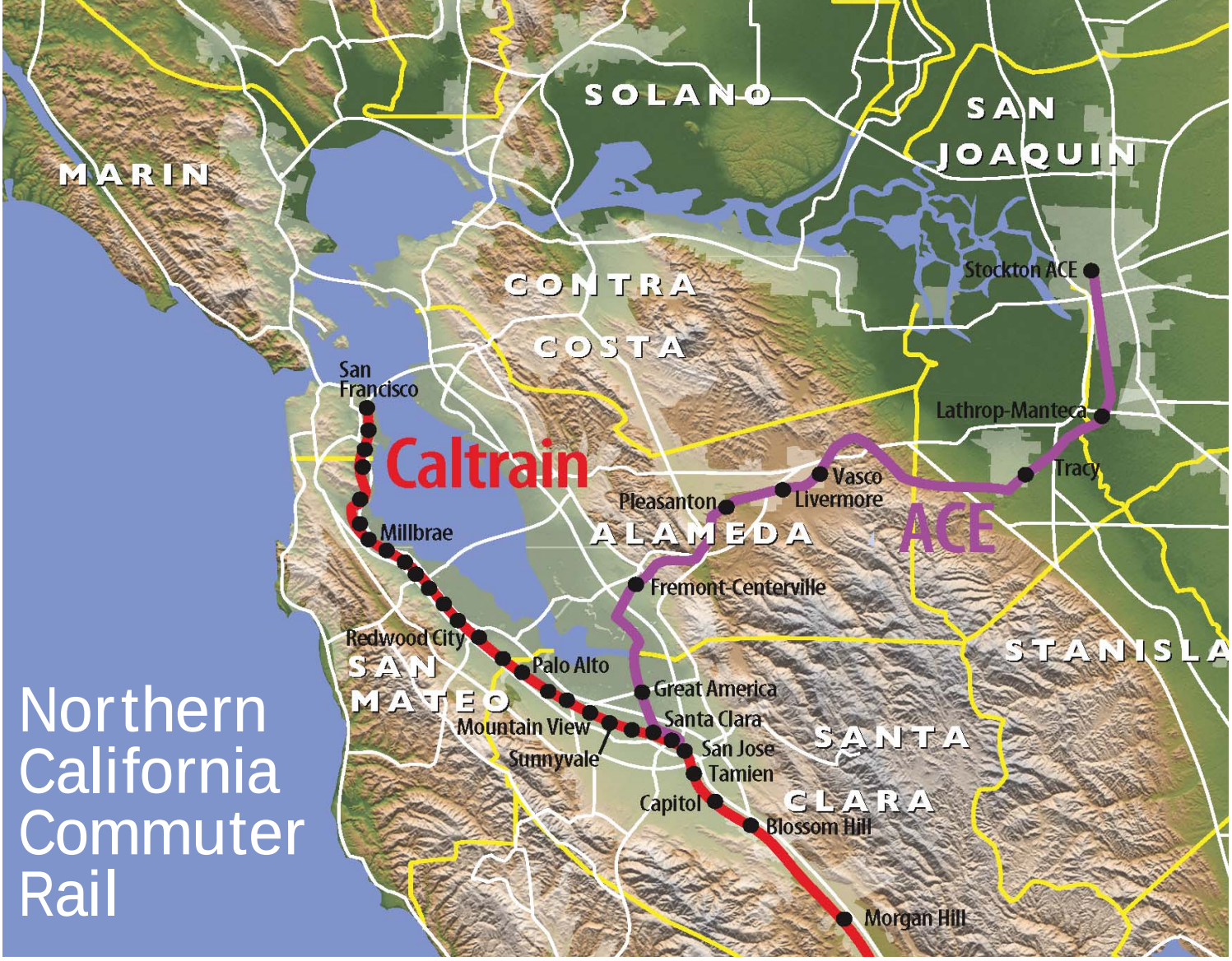
UNFUNDED OR UNDERFUNDED:

- Replace single-track San Dieguito River bridge with new two-track concrete bridge.
- Replace single-track San Luis Rey River bridge with new two-track concrete bridge and connect to with double track siding.
- Replace single-track San Mateo Creek bridge's north approach with new concrete bridge approach.
- Replace other single-track timber bridges with new double-track concrete bridges, including seven bridges in Sorrento Valley and one bridge in Cardiff.
- Sorrento to Miramar second track and curve straightening.
- Continue stabilization of Del Mar Bluffs.
- Extend platforms at Poinsettia Station.

METROLINK COMMUTER RAIL (LOS ANGELES, ORANGE, RIVERSIDE, SAN BERNARDINO, AND VENTURA COUNTIES)

PRINCIPAL 2007-08 to 2017-18 ROUTE OBJECTIVES

- Improve customer service and accessibility.
- Improve integration with other transit services.
- Purchase 107 new rail cars.
- Design and construct Sealed Corridor safety improvements on SCRRA-owned lines.
- Complete system-wide rail line rehabilitation/renovation projects.
- Construct Eastern Area maintenance facility.
- Perform various projects to improve system performance.
- Purchase and rebuild 15 used locomotives.
- Complete Lincoln Avenue double-track.
- Construct additional platform and track at LAUS (mail dock).



- Construct new rolling stock storage facility at Keller Street in Los Angeles.
- Implement Perris Valley extension, Redlands extension, Santa Paula Branch Line, and Fullerton-Laguna Niguel/Mission Viejo service enhancements.

CALTRAIN COMMUTER RAIL (SAN FRANCISCO–GILROY)

PRINCIPAL 2007-08 to 2017-18 OBJECTIVES

- Evaluate the service to meet growing demand.
- Evaluate an increase in parking at stations impacted by initiation of Baby Bullet service.
- Increase employer bus shuttles as demand grows.
- Implement Translink regional ticketing system.
- Participate in planning efforts for extensions to downtown San Francisco, across the Dumbarton Bridge, and to Salinas.
- Complete and commission Centralized Equipment Maintenance and Operations Facility.
- Improve operational capacity at targeted stations and other route locations, including outside boarding platforms and additional crossovers.
- Complete customer service improvements, including improved station access and amenities at selected stations.

- Improve ROW by designing grade separations in San Mateo County, and rehabilitate bridges, culverts, tracks, and tunnels.
- Prepare design plans, specifications, and estimates to electrify the route between San Francisco and Gilroy.
- Implement Dumbarton rail service extension.
- Procure eight bi-level passenger cars.
- Define long-term planning and capital improvement efforts related to Caltrain 2025.

ALTAMONT COMMUTER EXPRESS (STOCKTON–SAN JOSE)

PRINCIPAL 2007-08 to 2017-18 ROUTE OBJECTIVES

- Continue service improvements.
- Improve on-time performance.
- Increase ridership on existing routes.
- Pursue the Purchase of an Agency owned rail corridor for the ACE Service.
- Improve service coordination with other service providers such as BART, Caltrain, Capital Corridor, and shuttle service providers.
- Acquire ROW, perform engineering work, and begin construction of rail maintenance and layover facility in San Joaquin County.
- Purchase passenger rail cars and locomotive for fifth and sixth trains.
- Upgrade signal system between Stockton and Fremont.
- Upgrade passenger cars and locomotives.
- Evaluate potential extensions and new services in the Central Valley.

PROPOSED COMMUTER RAIL SERVICES

VENTURA AND SANTA BARBARA COMMUTER RAIL SERVICE

There is interest in expanding commuter rail service in Ventura and Santa Barbara Counties. Southern California Association of Governments has initiated an alternatives study.

SONOMA MARIN-AREA RAIL TRANSIT (SMART)

Current implementation plans include service start up in 2009-10 along a 70-mile corridor with service from Cloverdale to the existing Larkspur ferry terminal.

AUBURN-OAKLAND REGIONAL RAIL SERVICE

Six agencies have partnered to develop a service concept plan for a new regional commuter rail service in the urban corridor extending from Auburn to Oakland that would be integrated with the Capitol Corridor.

Chapter X–Potential New Services

PROPOSED INTERCITY RAIL ROUTES

The Department proposes three routes for service in this ten-year plan.

- **San Francisco to San Luis Obispo (and Los Angeles) via Coast Route.** One round-trip train between San Francisco and San Luis Obispo, starting in 2010-11, with a second train in 2013-14.
- **Sacramento to Reno.** One Capitol Corridor round-trip from Sacramento to Reno/Sparks in 2014-15, and a second round-trip in 2016-17.
- **Sacramento to Redding.** One round-trip between Sacramento and Redding in 2015-16.

This section also discusses potential intercity rail service from Los Angeles to Indio (Coachella Valley), San Francisco to Monterey, and Los Angeles to Las Vegas.

HIGH-SPEED RAIL

California High-Speed Rail Authority

In 1996, the California High-Speed Rail Act established the California High-Speed Rail Authority (CHSRA) to direct the development and implementation of intercity high-speed rail service. In 2000, the CHSRA completed its Business Plan, "Building a High-Speed Train System for California". The CHSRA certified the Final Environmental Impact Report/Environmental Impact Study (FEIR/EIS) on November 2, 2005. The FEIR/EIS identifies a high-speed train system as the preferred system alternative to meet California's future intercity travel demand. Service to urban centers would be on shared tracks with other passenger rail services at moderate speeds. Stations would be in close proximity to most major airports, and there would be station connections with major transit hubs in metropolitan areas. The FEIR/EIS identifies preferred alignments.

The 2006-07 enacted State budget provided $14.3 million "to begin project implementation". The funding supported the preparation of a project financial plan, project management activities, identification of critical rights-of-way acquisitions and the initiation of detailed project design and related environmental studies. However, bond funding for the project must still be authorized by voters.

DesertXpress

DesertXpress is a proposed completely new high-speed, steel wheel on rail double track interstate passenger rail line running 190 miles between Victorville, California and Las Vegas, Nevada. It would run primarily at-grade; but be completely grade separated from all streets and highways, and would largely follow the I-15 freeway alignment. The estimated capital cost is

$3.5 billion in private funding for design, construction, rolling stock, systems, testing and commissioning, with construction taking up to four years following completion of the environmental review process. Revenues from fares and advertising are expected to cover the on-going operating costs, including maintenance.

The proposed service will make the trip nonstop at speeds of up to 125 miles per hour, for a one hour and 40 minute trip between Victorville and Las Vegas. Equipment would be proven European design steel wheel on rail trains, with each car self-propelled to provide the high power-to-weight ratio needed to follow the I-15 alignment and climb its relatively steep grades through two desert mountain passes. Trains would operate as frequently as 20 to 30 minutes during peak periods, and one to two hour intervals at other times. Ridership is projected at 5.1 million passenger round-trips in the first year, based on an average $50 one-way fare. This ridership level represents 28 percent of the projected 18.2 million trips between Southern California and Las Vegas. Much of the route would use property along the I-15 alignment that is owned by the federal Government and administered by the Bureau of Land Management (BLM). Between Victorville and Barstow, a passenger-exclusive alignment within existing railroad rights of way is also being evaluated.

MAGNETIC LEVITATION

Southern California Maglev Project

The Southern California Maglev Project's initial operating segment that is under development extends 54 miles from West Los Angeles to the Ontario Airport. The Southern California Association of Governments (SCAG) is the project sponsor. Additional feasibility studies are focusing on other heavily congested corridors in the SCAG region.

Los Vegas – Anaheim Maglev Project

The California – Nevada Super Speed Train Commission was formed in 1988 to promote the development of a 269-mile maglev system connecting Las Vegas with Anaheim, and has completed several feasibility studies on this project. With Federal funding, Nevada is undertaking environmental studies of this proposed maglev route.

Chapter XI–Amtrak

AMTRAK STATE–SUPPORTED SERVICE

The Federal Rail Passenger Service Act authorizes Amtrak to operate intercity rail passenger service beyond its long-distance system services when requested to do so by a state, group of states, or a regional or local agency. In California, Amtrak operates the *Pacific Surfliners*, *San Joaquins*, and the *Capitol Corridor* and the Department provides operating funding. 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.

AMTRAK PLANNING

In April 2005, Amtrak released its Amtrak Strategic Reform Initiatives and FY 06 Grant Request. This document included comprehensive reform initiatives the railroad is undertaking as corporate actions and others it intends to pursue in legislative actions to "revitalize U.S. Passenger rail service." Legislative initiatives included an 80 percent Federal/20 percent state capital grant program and competition among operators, including Amtrak, for route operation. Amtrak's 2004 Strategic Business Plan released in June 2004 includes $90.1 million for projects which impact California. Of these funds, $41.5 million is for projects wholly in California and $48.6 million is for multi-state projects that partially impact California.

AMTRAK FFYS 2007 AND 2008 FUNDING

Amtrak's final FFY 07 appropriation was $1.294 billion with no appropriation for Strategic Investment Options. In early 2007 the Passenger Rail Investment and Improvement Act of 2007 was introduced into the Senate. It provides a six-year funding framework for Amtrak's operating and capital needs but at this point no companion legislation has been introduced in the House nor any funding mechanism identified for the proposed capital grant program. To date, a FFY 08 Amtrak funding level has not been approved.

Chapter XII–Intercity Rail Funding

FUNDING SOURCES

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 TCRP, enacted in 2000, and Proposition 42, passed in 2002, added additional funds to the PTA. In 2005-06 total PTA revenue from all sources was $571 million.

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 through the 2006 STIP biennial cycles, $567 million was programmed for intercity rail projects and $402 million has been allocated.

Traffic Congestion Relief Fund (TCRF). The program established in 2000 included $206.5 million for specific intercity rail capital projects, of which $150 million has been allocated.

State Bond Funds. Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act was approved in 2006 and authorizes the issuance of $19.9 billion for specific transportation purposes. It makes $400 million available specifically for intercity rail improvements, of which $125 million is reserved for intercity rail equipment. The Act also includes $250 million for high priority grade separation and railroad crossing safety improvements. The 2007-08 Budget Act appropriates to the Department $187 million for intercity rail improvements and $122.5 million for grade separation and crossing projects.

In 1990 voters approved two bond measures that provided funds for rail projects. The Passenger Rail and Clean Air Bond Act (Proposition 108) 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 $1.99 billion for rail and transit projects, including about $382 million for intercity rail capital projects. Most of the bond funds from both Propositions 108 and 116 have been expended.

Tribal Compact Bonds. In 2004, the issuance of bonds secured by Indian gaming revenue was authorized. Although the revenue is uncertain, the PTA could receive additional funding.

State General Funds. The 1999-00 and 2000-01 State Budgets provided General Fund money for intercity rail capital projects. These Budgets included $17.5 and $30 million respectively for new intercity rail rolling stock.

Local Funds. Although intercity rail passenger services are funded primarily by the State, a substantial amount of local funds have also been invested, mainly on the *Pacific Surfliner* Route, to fund commuter rail development. Further, 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, like those provided through the Surface Transportation Program, are generally not available for intercity rail projects.

Amtrak Funds. Amtrak develops and funds certain California intercity rail capital projects. The largest investment has been for 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 railroads owning the right-of-way of intercity rail passenger routes sometimes share in the cost of track and signal improvement projects.

PART II
Freight Rail Element

Chapter XIII–Introduction

The freight rail element discusses policy statements/recommendations, illustrates the key features of the freight rail system, and issues facing this system. It also focuses on potential methods for the maintenance, preservation, and enhancement of the freight rail system in California.

CHAPTER XIV–Policy Statement/Recommendations

This chapter provides an overview of the importance of the freight rail system to California, and Administration initiatives for state infrastructure improvement. In addition, a number of policy statements/recommendations are discussed. They are:

- **California Strategic Interest:** In order to maintain the position and contributions the freight rail system makes to California and the nation,

it is in the strategic interest of the State to maintain, preserve and improve California's freight rail system.

- **System Planning:** A long range, sustainable, system planning program to identify freight rail system needs and projects which increase mobility and enhance the environment should be undertaken.
- **Rail Preservation:** To maintain the State's economic health, at a minimum the State's rail network, and the system's freight market share, must be preserved to the maximum extent feasible.
- **Environment:** California must expand and improve its freight rail system and operations and simultaneously work to reduce associated health risks and community impacts. Local, state, and federal agencies must work together as partners with private citizens and business concerns to provide a clean environment and a healthy business climate. These goals are fundamental to Governor Schwarzenegger's Strategic Growth Plan.
- **Funding:** In order to maintain and strengthen the position and contributions the freight rail system makes to California, the regions and the nation, the State must be an active partner with the private sector and other government entities in the funding of major freight rail improvements.
- **Partnerships:** To foster the maintenance, preservation, and improvement of the State freight rail system, its planning and development must be undertaken as an ongoing partnership between the State and other levels of government, and the freight railroads and private sector interests. This partnership should seek to maximize mutual benefit, including public mobility, safety, and environmental objectives, and private sector business opportunities and return on investment.

Importance of the Freight Rail System to California

California has a rapidly growing population and an expanding economy. In addition it serves as the entryway for goods from Pacific Rim countries. In order to provide mobility for its citizens and efficient movement of goods investments in the ageing infrastructure are extremely important. Particularly important are the four major goods movement corridors: Los Angeles-Long Beach/Inland Empire; San Diego/Border; Bay Area; and Central Valley.

The Strategic Growth Plan

To address funding needs for an improved infrastructure the Governor's Strategic Growth Plan (SGP) has been initiated. The SGP includes policies and actions which directly impact freight rail in the State. An important element of the SGP is the Goods Movement Action Plan, which is an initiative for economic growth, enhanced security and improved quality of life.

CHAPTER XV–System Overview

This chapter provides a short written description of the rail network in the state and the economic significance of California ports in the Pacific Rim economies. It also illustrates, by map and tables, freight rail traffic and other economic data.

CHAPTER XVI–Major Freight Rail Issues

This chapter focuses on a variety of issues facing the freight rail industry today. They include international trade growth and its impact on California, the changing nature of commodity movements and a brief description of logistics practices. Also discussed are freight rail-passenger rail issues and shared use of right-of-way between railroads. Attention is also paid to short line rail issues and problems they face in infrastructure and capital needs. The chapter includes a discussion of short haul intermodal potential and the need for public/private sector coordination.

CHAPTER XVII–Environmental Considerations

The Governor's SGP highlights environmental quality as an important element in the state's overall quality of life. This chapter discusses air quality particularly as it relates to freight rail and goods movement. It provides an overview of state mandates for emission reduction, air quality, and emission characteristics. It also portrays air quality and emission regulation, emission reduction strategies and environmental justice aspects of air quality. A second section of the chapter notes highway-grade crossing considerations.

CHAPTER XVIII–Funding

This chapter contains a discussion of funding issues confronting the freight rail industry today, and possible remedies to close the gap between needs and dollars. The issue of public investment in private infrastructure, alternative funding schemes at the state and federal levels, and public/private partnerships and local initiatives are also discussed. It offers a number of examples that have been used for partnerships and stresses that these examples could provide substance for funding strategies in California.

CHAPTER XIX–Freight Rail Research And Studies

This chapter discusses investment models and illustrates investment models that have been used in other states, particularly Washington and Florida. These models cover a number of economic impacts. The chapter also discusses the U.S. Department of Transportation's Guide to Quantifying the Economic Impacts of Investments in Large-Scale Freight Transportation Projects.

INTRODUCTION

Government Code Section 14036 requires the California Department of Transportation (the Department) to complete a ten-year State Rail Plan with both passenger rail and freight rail elements. The law also provides that the State Rail Plan be submitted to the California Transportation Commission by October of odd-numbered years for its advice and consent, and to the Legislature, Governor, and the Public Utilities Commission by March 1, of the following year.

Part I of the California State Rail Plan 2007-08 to 2017-18 (State Rail Plan), prepared by the Division of Rail, is the Passenger Rail Element and examines intercity and commuter passenger rail services in California and reviews their current operations. It also outlines ten-year plans for capital improvements and service expansions. The Passenger Rail Element is covered in Part I, Chapters I through XII.

Part II of the State Rail Plan, prepared by the Division of Transportation Planning, is the Freight Rail Element. It provides a description of the freight rail network, issues concerning the freight rail industry, and policy recommendations and goals for the maintenance, preservation, improvement, and funding of the system. The Freight Rail element is covered in Part II, Chapters XIII through XIX.

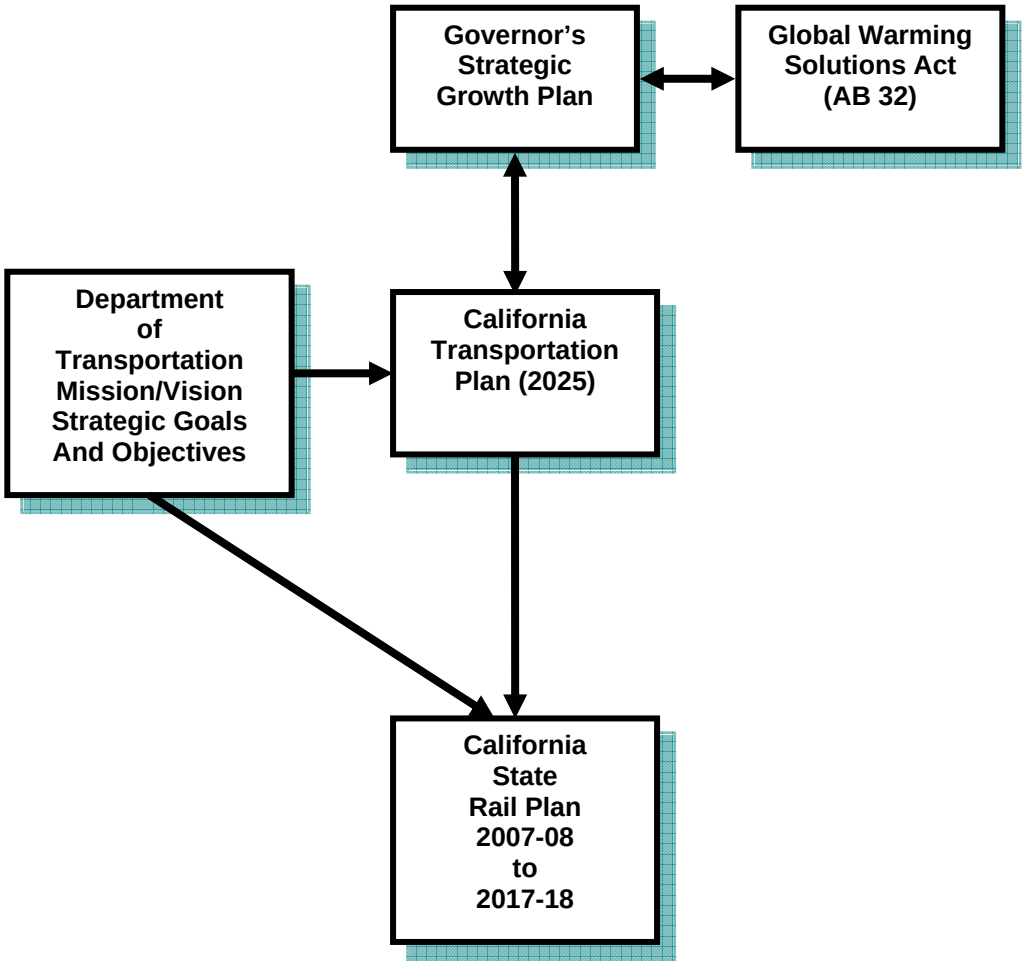
PART I

PASSENGER RAIL ELEMENT

CHAPTER I
CALIFORNIA'S VISION FOR INTERCITY PASSENGER RAIL

This chapter provides an overview of the Administration's and Department's key policy documents on transportation mobility and its connection to environmental and land use goals. The chapter then provides an explanation of how intercity passenger rail furthers the Administration's and Department's mobility, environmental and land use goals. **Figure 1A** illustrates the Administration's and Department's key policy documents related to transportation mobility.

Figure 1A



THE ADMINISTRATION'S STRATEGIC GROWTH PLAN – A FRAMEWORK FOR THE FUTURE

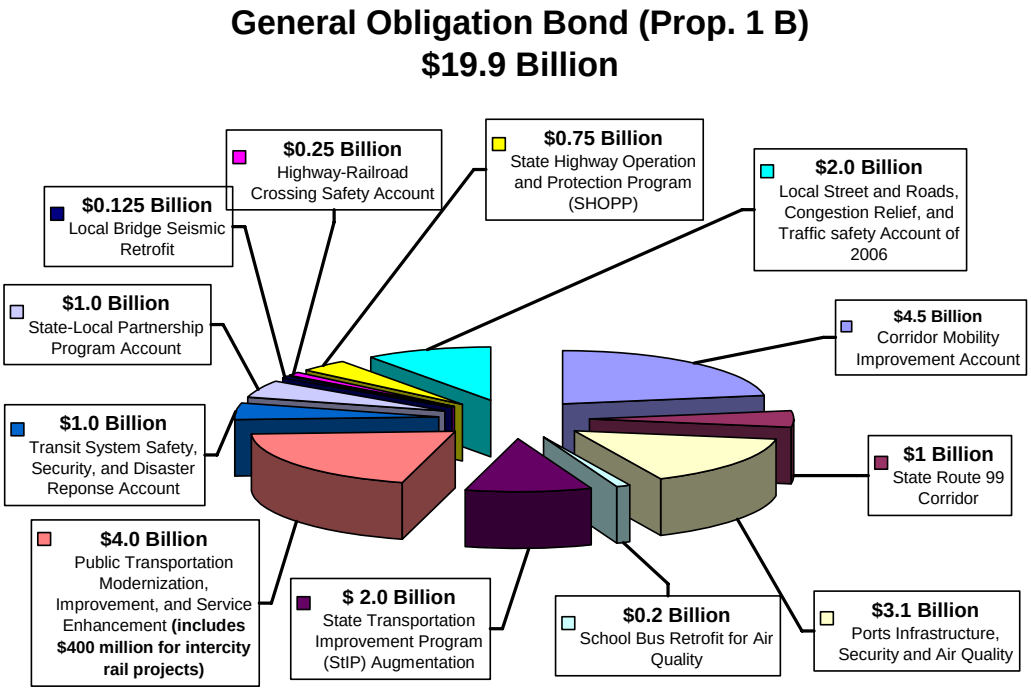
As California progresses into the second decade of the 21st Century, it faces difficult challenges. In 1955, the State's population was about 13 million. Currently it is about 37 million, and by 2025 it is anticipated there will be a population of 46 million, bringing even more pressure on the ageing infrastructure of the State. One very important component of this infrastructure is the transportation system, which provides a foundation for the movement of people and goods.

The Administration has initiated plans for meeting the challenges of mobility brought about by this growth. A framework for meeting these challenges is incorporated into the Administration's Strategic Growth Plan (SGP). It encompasses an infrastructure improvement program for the State's transportation system, education, housing and waterways. The SGP will be the first installment of a 20-year investment on a future that will ensure California's quality of life and foster continued economic growth. It balances the necessity of meeting infrastructure needs with prudent and fair approaches to funding those needs.

A major source of funding infrastructure investments is general obligation bonds. For transportation projects $19.9 billion is to come from the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act (Proposition 1B) approved by the electorate in the November, 2006 election (**Figure 1B**). A $400 million segment of Proposition 1B is specifically earmarked for intercity passenger rail. Other segments of the Bond, such as funding for rail-highway grade crossing improvements and public transportation modernization will also benefit the intercity passenger rail system. Additional information on Proposition 1B and its impact on funding for intercity rail is available in Chapter 12 of this report.

The SGP is also closely aligned with the Administration's "Global Warming Solutions Act" (AB 32, Chapter 488, 2006). This landmark bill requires the State's global warming emissions to be reduced to 1990 levels by 2020.

Figure 1B



AIR QUALITY INITIATIVES

On July 1, 2005, the Governor signed Executive Order S-3-05 which established climate change reduction targets for the State. The Climate Action Team (CAT), consisting of representatives from various State agencies, was created to coordinate the statewide effort. Subsequently, AB 32 gave new weight to the State's renewable energy goals by requiring the reduction of greenhouse gas emissions (GHG) to 1990 levels by 2020. Executive Order S-20-06 further directs state agencies to begin implementing AB 32 and recommendations made by the CAT. The Department is a member of the CAT and is committed to implementing transportation strategies that will help reduce fossil fueled energy and GHG emissions.

The Department's Climate Action Program promotes clean and energy efficient transportation. The framework is provided by the Director's Policy 23 – Energy Efficiency and Conservation, and is intended to implement a comprehensive, long-term departmental energy policy, interagency collaboration, and a coordinated effort in energy and climate policy, planning and implementation.

Department strategy to reduce GHG emissions has two elements. The first is to make transportation systems more efficient through operational improvements, smart land use, reducing congestion and lowering the rate of growth in fuel consumption and emissions from motor vehicles. The second focuses on the

integration of energy and GHG emission reduction measures into planning, project development, operations, and maintenance of transportation facilities, fleets, buildings and equipment.

Activities which most strongly pertain to the Department strategy are included throughout this document. Two recent examples of these activities are the improvement in equipment efficiency of state owned rail equipment and land use applications at or near rail stations, both of which are subsequently described in more detail in this chapter.

CALIFORNIA TRANSPORTATION PLAN

As a complement to the SGP, the Department produced the "California Transportation Plan 2025" (CTP) which offers a blueprint for meeting the State's future mobility needs. It envisions a balanced transportation system that promotes sustainability, illustrates the overall vision of the SGP, and incorporates the "Three E's" of Quality of Life. These include; Prosperous Economy, Quality Environment, and Social Equity. To realize the vision a number of goals are promulgated. Among them are goals to improve mobility and accessibility, support the economy, enhance public safety and security, and improve the environment. The attainment of these goals will have a salutary effect on the state's transportation system and the realization of the 3E vision.

THE DEPARTMENT'S MISSION & VISION AND STRATEGIC GOALS

The Department's Mission & Vision is: **Caltrans improves mobility across California**.

To realize this Mission & Vision the Department has five Strategic Goals:

- **Safety** – Provide the safest transportation system in the nation for users and workers
- **Mobility** – Maximize transportation system performance and accessibility
- **Delivery** – Efficiently deliver quality transportation projects and service
- **Stewardship** – Preserve and enhance California's resources and assets
- **Service** – Promote quality service through an excellent workforce

THE DEPARTMENT'S MISSION AND VISION FOR INTERCITY PASSENGER RAIL

The Department's Intercity Passenger Rail Mission and Vision as shown in this California State Rail Plan 2007-08 to 2017-18 (Plan) supports the SGP, AB 32, the CTP, and the Department's Mission and Goals, and summarizes and guides the Department's efforts in relation to intercity rail.

INTERCITY PASSENGER RAIL MISSION

The Intercity Passenger Rail Mission for California is to:

Provide and promote Intercity Passenger Rail services while improving, expanding, and integrating all rail service into California's transportation system.

INTERCITY PASSENGER RAIL VISION

The vision for intercity passenger rail has three key goals. They are:

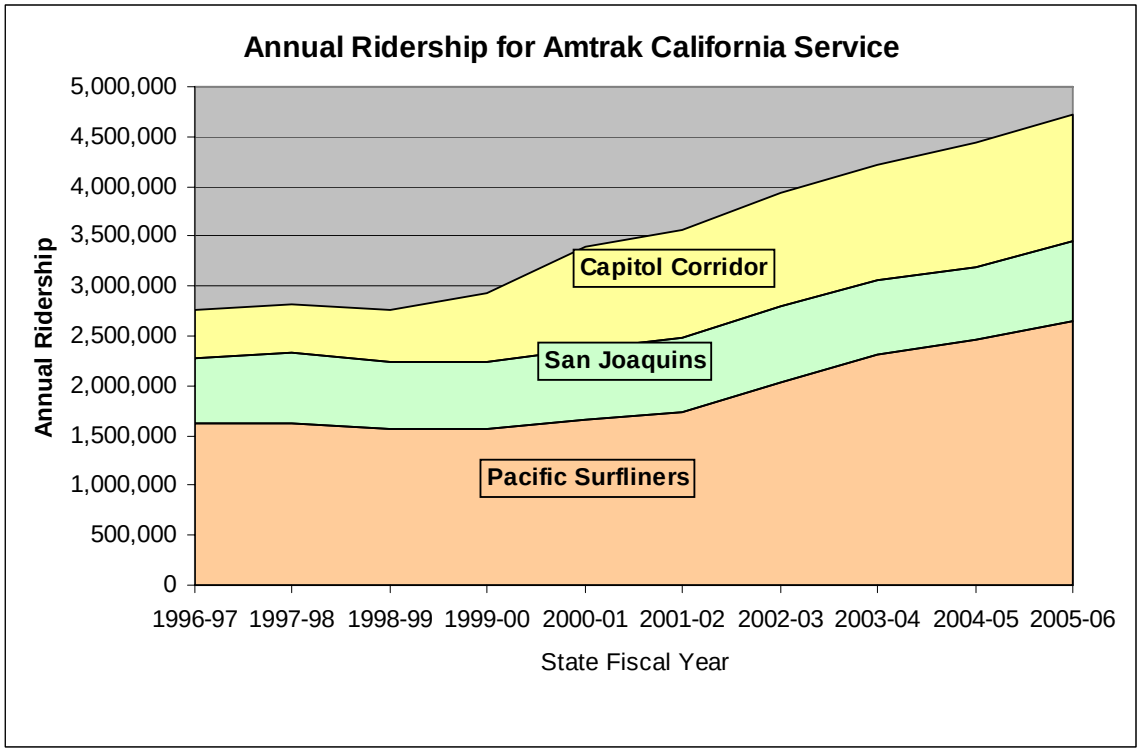
Provide a Rail Transportation Alternative to Other Travel Modes – Rail service provides a safe, efficient and cost-effective alternative to auto and air travel. There has never been a passenger fatality on State-supported Amtrak service in California. For trips between certain cities, rail provides the only alternative travel mode to the auto. Rail travel 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 for air travel within the San Joaquin Valley.

Provide Relief to Highway and Air Transportation Congestion – In many intercity corridors highway demand is near or has already exceeded capacity, and in many instances, 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 protect rail capacity so it is available in the future to provide critical relief to highway and airway systems.

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

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

Figure 1C



INTERCITY RAIL IS A KEY COMPONENT OF CALIFORNIA'S VISION FOR TRANSPORTATION

Intercity rail is an important component of the transportation system and its expansion enhances transportation mobility. Ridership on the state-supported intercity rail system continues to expand. In the five year period from 1996 to 2001 ridership on the three state supported systems rose 32.5 percent while California's population increased by 8.8 percent. From 2001 to 2006 ridership increased 35 percent while the State's population rose by 7.1 percent. Service levels also increased during this period (**Figure 1C**). With additional service, which will be substantially funded by Proposition 1B, even more opportunities will arise to expand ridership.

The maintenance and expansion of the intercity rail system will have a positive impact on the future mobility and environmental enhancement of the state. Greater utilization of the intercity rail system will take vehicles off the road that would otherwise be additional contributors to air pollution. As well, less fuel will be consumed, and congestion reduced.

For the most recent data available, consistent gains in ridership, revenues and farebox ratios are shown for all three state-supported corridors. On-time performances have shown declines on all corridors, but an expanded capital plan, supported by funds from Proposition 1B should be instrumental in improving on-time performance and providing more frequencies which will attract more riders. See Chapter III, Figure 3E, for a graphic assessment of the various intercity passenger rail routes objectives.

RAIL FURTHERS THE DEPARTMENT'S MISSION & GOALS

Figure 1D summarizes how the Intercity Passenger Rail Program furthers the Department's Strategic Goals. It also provides references to where actions to further each goal are discussed in more detail in the Plan.

Figure 1D

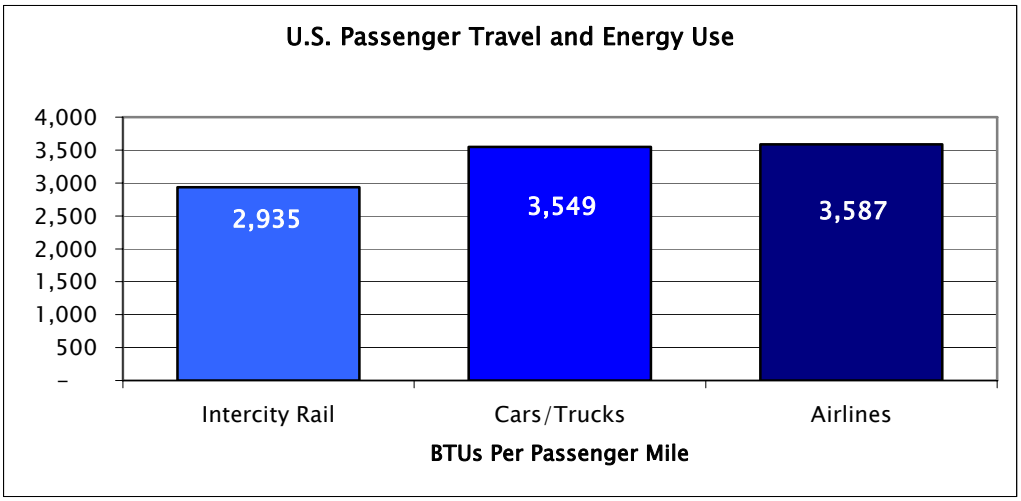
Relationship of Intercity Passenger Rail to the Department's Strategic Goals		
Department Strategic Goals	**Intercity Rail Program Actions**	**State Rail Plan Reference**
SAFETY Provide the safest transportation system in the nation for users and workers	All Capital Projects have a goal of improved safety. The Division inspects rail equipment, facilities, and personnel to evaluate compliance with safety standards. The Division supports Operation Lifesaver, a rail safety campaign, with the goal of improved safety at rail crossings. The Division administers the Federal Section 130 Crossing Improvement Program and the Section 190 State Grade Separation Program to improve and construct rail/vehicle crossings for increased safety.	Ch. 2; Ch. 3; Ch. 4
MOBILITY Maximize transportation system performance and accessibility	Increase Intercity Rail Ridership through operational and marketing initiatives. Expand the Intercity Rail System through added train frequencies on existing routes, route expansions, and new routes. Improve Intercity Rail multimodal connectivity with other transportation modes. All existing train stations and rail cars are "Americans With Disabilities Act" (ADA) accessible, and capital projects continue to improve accessibility. Rail service, particularly at peak travel periods, reduces the need for costly and oftentimes environmentally infeasible highway expansion projects.	Ch. 2; Ch. 3; Ch. 4; Ch. 6; Ch. 7; Ch. 8; Ch. 9; Ch. 10; Ch. 11
DELIVERY Efficiently deliver quality transportation projects and services	The goal of the intercity rail capital program is to deliver $4 billion in projects: $2.3 billion on the *Pacific Surfliner* Route; $592 million on the *San Joaquin* Route; $550 million on the *Capitol Corridor*; and $590 million on the Coast Route. Capital projects are delivered efficiently.	Ch. 2; Ch. 6; Ch. 7; Ch. 8; Ch. 10; Ch. 11; Ch. 12
STEWARDSHIP Preserve and enhance California's resources & assets	The Division preserves California's investment in State-owned rail cars and locomotives through frequent inspections and maintenance cycles. Rebuilt locomotives now meet EPA clean air standards. California has the largest fleet of State-owned rail equipment in the country.	Ch. 1; Ch. 2; Ch. 3
SERVICE Promote quality service and an excellent workforce	The Division provides passenger service through the rail marketing program. The Division monitors Amtrak employees' performance on-board trains.	Ch. 4; Ch. 6; Ch. 7; Ch. 8

INTERCITY RAIL SUPPORTS THE ADMINISTRATION'S TRANSPORTATION, ENVIRONMENTAL AND LAND USE GOALS

The common theme in all of the Administration and Department transportation documents discussed above (SGP, AB 32, CTP and the Department's Mission & Goals) is that the improvement of the state's transportation infrastructure will improve mobility, which will in turn improve the economy, the environment, and support social equity.

Intercity Passenger Rail supports the Administration's "Global Warming Solutions Act" (AB 32, 2006). This landmark bill requires the State's global warming emissions to be reduced to 1990 levels by 2020. Intercity rail becomes increasingly more efficient as the number of passengers increase per train. Data confirms that intercity passenger rail is more fuel-efficient than cars and airlines, thus it conserves fuel and improves air quality. (**Figure 1E**)

Figure 1E



Source: U.S. Department of Energy, Transportation Energy Data Book: Edition 25 - 2006, Table 2.10. BTu(s) is used to describe the heat value (energy content) of fuels.

Intercity Rail Supports the Environment

The Department is also improving the fuel efficiency and emission reduction of its State-owned locomotives. During the past decade the Environmental Protection Agency has instituted new emission requirements for diesel locomotives. Tier 0 standards were instituted in 2001, and required that all locomotives purchased after January 1, 2001 meet certain emission standards. The F59 locomotives, the type that is predominantly used in the State-supported rail system, meet the Tier 0 requirements, which went into effect in 2001. The next set of standards, called Tier 1, took effect on January 1, 2004 and requires that passenger locomotives purchased after that date emit 25 percent less nitrogen oxides (NOx) and

33 percent less particulates than previously allowed. Tier 2 standards, which took effect January 1, 2005, required that passenger locomotives purchased after that date emit 35 percent less NOx and less than half the particulates than previously allowed.

The State owns 17 locomotives (15 EMD F59 and two General Electric [GE] units) all of which were purchased before 2001. Although purchased before 2001 the F59 locomotives were upgraded to Tier 0 before being required to do so. The two GE locomotives will be overhauled in early 2008 at which time they will be brought up to Tier 0 standards. The F59 locomotives will receive Tier 2 engine kits for the main engines at their next overhaul. Overhauls are scheduled to begin during the summer of 2008.

Additionally, the Head End Power (HEP) units on the locomotives, which generate electricity to supply power for lighting and utilities within the passenger cars, are being updated. All F59 locomotives are scheduled to be equipped with Automatic Start Stop (AESS) systems within the next two years. This system reduces excessive engine idling resulting in reduced exhaust emissions and fuel savings. To date five systems have been installed and preliminary analysis show a marked reduction in emissions and increased fuel savings.

Intercity Rail Supports Smart Land Use

The Department continues to promote integrated land use and transportation wherever possible. The CTP makes note of the impacts of community planning on travel behavior. In particular, in the past several decades factors such as lack of coordinated decision making between various community and governmental bodies, zoning ordinances that tend to isolate employment and service activities, and urban sprawl have all negatively affected the economy, social equity and community patterns. With continued increases in population and congestion, a viable transportation system tied to appropriate land use is of great benefit to the State.

The Department supports efforts by cities, counties and the private sector to develop and maintain transit-oriented development projects near Amtrak stations that enhance community livability by providing housing options, jobs, retail, and services within easy walking distance of the station. The Department has developed and built a number of intercity station projects with integrated land use and transit linkages playing a prominent role. As well, substantial improvements in parking have been made at intercity rail stations, often in partnership with local agencies.

The following are examples of Amtrak stations where transit-oriented development has recently occurred or is planned: The Appendix provides a complete list of Amtrak stations on the intercity passenger rail routes, and describes transit connections and mixed-use developments at the stations.

Bakersfield – The Bakersfield station opened in July 2000. The station is located in the heart of the civic center entertainment complex, which includes the Bakersfield Convention Center and Centennial Garden Arena. New developments near the station include additional entertainment and recreation facilities, retail and office space, and multi-family housing. Bakersfield is served by an extensive network of Amtrak thruway buses in addition to Golden Empire Transit and Kern Regional Transit bus service.

Emeryville – A large, three building 550,000 square foot mixed use project is being developed near the Emeryville station. The project contains office and commercial space as well as owner occupied lofts and town houses and senior housing. The station is served by the *Capitol Corridor*, *San Joaquins*, *Coast Starlight* and *California Zephyr* long-distance Amtrak trains, AC Transit buses, and a free shuttle bus that connects to the MacArthur BART station and various businesses, work sites, and retail and entertainment centers.

Fullerton – Two major high-density transit-oriented development projects adjacent to the station were completed in 2004. There are approximately 400 residential units in these two developments, and both include office and retail space at street level. Residents are eligible to receive free commuter passes through a Metrolink program. A conceptual master plan has been prepared for the UP Recreation Trail and Neighborhood Park, a one-acre park with a recreation trail from the station to Independence Park. Fullerton station is served by the *Pacific Surfliners*, the Amtrak long distance *Southwest Chief*, and Metrolink commuter rail.

Oakland (Jack London Square) – A large, high-density housing complex was 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 changing 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 the CCJPA are planning to widen the platform at the station. The station is served by the *San Joaquin*, *Capitol Corridor*, *Coast Starlight* trains, Amtrak thruway buses, and AC Transit. The station is within several blocks of the Oakland-Alameda Ferry Terminal and the Lake Merritt BART station.

Richmond – This station is a transit node where passengers can transfer between BART trains and *San Joaquins* or the *Capitol Corridor*. The station is also served by AC Transit and Golden Gate Transit. A pedestrian-oriented transit village has been built at this station. The completed project comprises 231 townhouses, 27,000 square feet of retail space and a 30,000 square foot performing and cultural arts facility. In order to accommodate increased ridership at the station, the Department and CCJPA 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. A new Amtrak station building and plaza has also been constructed.

San Diego – A high-density condominium project adjacent to the station has been completed and a second large scale innovative project is underway. It combines art museum facilities and rail maintenance and supply storage space. In addition a major high-rise residential development within the perimeter of the Historic Electrical Building and across the street from the station has been built. Several other developments with commercial and residential units are being constructed within walking distance of the rail depot. The station is served by the *Pacific Surfliners* and by Coaster commuter rail as well as the San Diego Trolley, San Diego Transit and Mexicoach buses.

Simi Valley – The City of Simi Valley, in partnership with the County of Ventura, is developing a transit village plan near the Simi Valley station. Nearly 650 single-family and multi-family homes are currently under development or consideration in the proposed area. The plan would include a seven-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 multimodal transit station is currently served by Metrolink commuter rail, the *Pacific Surfliners*, Amtrak's long distance *Coast Starlight*, city buses, Los Angeles County buses, *San Joaquin* Route connecting buses, local taxis and the city's extensive pedestrian/bike trail system.

CHAPTER II
CAPITAL PROGRAM

This chapter describes the intercity rail capital program. It includes the unconstrained and constrained ten-year capital program funding levels and project list, a discussion of historical funding for the capital program, and the equipment, grade-crossing, and station programs.

CAPITAL PROGRAM GOALS

The Department's goals for its Capital Program are as follows:

- Increase capacity on existing routes to allow increased frequencies, improved reliability, and better on-time performance.
- Reduce train-running times to provide travel times directly competitive with the automobile.
- Improve operational functioning and attractiveness of equipment, stations and facilities, including improved multimodal connectivity.
- Increase farebox ratio to reach or exceed the Department's 50 percent standard. (Furtherance of the three above goals will result in improved cost-effectiveness and increased farebox ratio.)
- Improve safety of State-supported intercity rail service, including grade crossings.
- Implement projects to allow new cost-effective routes.

These goals are used to guide the development of the ten-year capital program described below. Every capital project furthers one or more of these goals.

UNCONSTRAINED TEN-YEAR CAPITAL PROGRAM

Figure 2A presents the Department's ten-year unconstrained capital program for the three existing State-supported routes and the Coast Route. This $4.03 billion capital program is based on project needs, and not funding expectations. It only includes projects where the state or other public entity is anticipated to be a funding partner, and does not include projects that will be fully funded by a railroad. Full project costs are included. Figure 2B is a list of projects included in the unconstrained program. (See Figure 2C below for a constrained capital program consistent with expected future State funding levels.)

The unconstrained Ten-Year Intercity Rail Capital Program was developed from a number of sources. First, the near-term projects include all projects currently

underway, and programmed in the STIP, TCRP Program, and anticipated to be funded in the Proposition 1B Bond Program.

For the *Pacific Surfliner* Route, longer range projects are based on projects in the LOSSAN Corridor Strategic Plan (Los Angeles to San Diego), and the LOSSAN North Corridor Strategic Plan (Los Angeles to San Luis Obispo). The unconstrained program contains all immediate and near term projects in the LOSSAN Plans, and a few long-term projects.

The *San Joaquin* Route longer-term projects are based on preliminary results of the route's Strategic Business Plan which is currently underway, and it is anticipated to be completed in early 2008. Some preliminary project costs have been developed; however it is anticipated that with the submission of the final Plan cost figures for proposed projects will be further refined.

The *Capitol Corridor* longer-term project list was developed in conjunction with CCJPA staff. It is based on the CCJPA Vision Plan of 2005 which is updated periodically. The Coast Route projects are based on Amtrak's California Passenger Rail System 20-Year Improvement Plan. See "Corridor Strategic Planning" in this chapter for a more detailed description of the Strategic Plans.

Timely implementation of this capital program is dependent on receipt of a large portion of the Federal funding and/or receipt of funds from tax credit bonds. If such Federal funding is unavailable, implementation of this capital program will have to be delayed to reflect the level of State funding made available from future STIP programming cycles, as supplemented by any other available funding sources. It is certain that State funding alone would not be adequate to fund this program.

Figure 2A

Unconstrained Ten-Year Intercity Rail Capital Program Project Costs FY 2007-08 through FY 2017-18 ($ in millions)					
Route	**Track and Signal**	**Stations**	**Grade Crossings**	**Rolling Stock and Maintenance Facilities**	**Total Cost**
EXISTING ROUTES					
Pacific Surfliner - North	$ 599.0	$ 57.3	$ -	①	$ 656.3
Pacific Surfliner - South	$ 1,000.2	$ 151.5	$ 365.0	$ 125.0	$ 1,641.7
San Joaquin	$ 472.9	$ 36.3	$ -	$ 83.0	$ 592.2
Capitol Corridor	$ 286.6	$ 114.7	$ 67.0	$ 82.0	$ 550.3
Subtotal	**$ 2,358.7**	**$ 359.8**	**$ 432.0**	**$ 290.0**	**$ 3,440.5**
PROPOSED ROUTES ②					
Coast	$ 495.9	$ 10.3	$ 14.0	$ 70.0	$ 590.2
TOTAL	**$ 2,854.6**	**$ 370.1**	**$ 446.0**	**$ 360.0**	**$ 4,030.7**

① Included in *Pacific Surfliner* - South.
② Based on Amtrak's California Passenger Rail 20-Year Improvement Plan.
Capital Costs for other proposed routes (Reno and Redding) were not studied in the Amtrak Plan, and current comparable cost estimates are not available.

PROJECTED CAPITAL PROJECTS

Figure 2B is the proposed list of projects that comprise the unconstrained capital program for the *Pacific Surfliners*, *San Joaquins*, *Capitol Corridor* and Coast Route. The projects are not listed in priority order.

Figure 2B

Unconstrained Capital Program Projects *Pacific Surfliner* Route Capital Projects 2007-08 through 2017-18		
Project	**Description**	**Cost ($000)**
***Pacific Surfliner* Route - North**		
STATION PROJECTS		
Station Improvements*	Multiple Stations	$ 11,725
Oxnard Station Parking		$ 1,100
Camarillo Station Pedestrian Crossing		$ 1,000
Van Nuys	2nd platform and track work	$ 25,600
Goleta Station Improvements		$ 700
Camarillo Station Improvements		$ 10,200
Simi Valley Station Improvements		$ 6,000
Moorpark Station Imps		$ 1,000
Subtotal of Station Projects		**$ 57,325**
TRACK AND SIGNAL PROJECTS		
Waldorf Siding Extension	Santa Barbara County	$ 15,000
Tangair Siding Extension	Santa Barbara County	$ 22,000
Ortega Siding		$ 30,000
Seacliff Siding Realignment		$ 35,000
Moorpark to Simi Valley Rail Replacement		$ 24,000
Simi Valley to CP Strathern Second Main Track		$ 37,000
Burbank Jct. Track Realignment		$ 8,500
CP Raymer to CP DeSoto Second Main Track	Los Angeles County	$ 50,000
Burbank Siding Extension		$ 8,500
San Luis Obispo-Santa Barbara Signal Upgrades		$ 250,000
Moorpark-Burbank Track & Signal Imps		$ 1,500
Leesdale Siding Extension		$ 15,000
Narlon, Honda, Concepcion Island CTC		$ 30,000
Capiton Siding and CTC		$ 10,000
Goleta Service Track Extension		$ 10,000
Sandyland Siding		$ 15,000
Santa Clara River Curve Alignment		$ 6,000
Montalvo Curve Alignment		$ 2,000
CP West Camrillo Curve Realignments		$ 5,000
Strathearn Siding Curve Realignment		$ 1,000
Selected Corridor Improvements*	Security and Communications upgrades	$ 20,100
Capitalized Maintenance*		$ 3,350
Subtotal Track and Signal Projects		**$ 598,950**
Subtotal *Pacific Surfliner* Route - North		**$ 656,275**
* - *Pacific Surfliner* Route project split: North 33.5%-South 66.5%, includes North portion of these projects.		

Figure 2B (continued)

Unconstrained Capital Program Projects *Pacific Surfliner* Route Capital Projects 2007-08 through 2017-18		
Project	**Description**	**Cost ($000)**
***Pacific Surfliner* Route - South**		
STATION PROJECTS		
Station Improvements*	Multiple Stations	$ 23,275
Solana Beach Station	Parking Structure	$ 18,000
LA Storage Track		$ 38,100
Fullerton Station Parking Structure		$ 25,200
Multiple Stations Ticket Vending Machinges		$ 10,400
Multiple Stations Electronic Passenger Information Systems		$ 1,500
LA Union Station	Station Tracks and Platforms	$ 35,000
Subtotal Station Projects		**$ 151,475**
TRACK AND SIGNAL PROJECTS		
Oceanside Double Track	1.2 miles of double track	$ 13,603
Del Mar Bluff Stabilizations	Stabilze Bluff Area	$ 12,735
San Dieguito River Bridge	Construct double track concrete bridge	$ 34,428
Sorrento-Miramar Double Track	Construct second main track	$ 27,600
Carlsbad	Double Track Project	$ 17,700
Double Track - San Diego County	Various Locations	$ 80,000
Replace wooden trestle and bridges and Construct Second Spans	Various Locations	$ 100,000
LA Union Station Run Through Tracks		$ 500,000
LA-Fullerton Triple Tracks		$ 100,000
Santa Margarita Bridge	Replace bridge-construct double track	$ 39,200
CP Pulgas to MP 423 Second Main Track	San Diego County	$ 28,400
Selected Corridor Improvements*	Security and Communications upgrades	$ 39,900
Capitalized Maintenance*		$ 6,650
Subtotal Track and Signal Projects		**$ 1,000,216**
GRADE SEPARATION PROJECTS		
City of Encinitas Grade Separation	3 Pedestrian Grade Separations	$ 15,000
Leucadia Grade Separation	Grade Separation San Diego County	$ 50,000
LA-Fullerton Grade Separations	6 Grade Separations	$ 300,000
Subtotal Grade Separation Projects		**$ 365,000**
MAINTENANCE FACILITIES AND EQUIPMENT PROJECTS		
San Diego Layover Facility		$ 50,000
Equipment	3 Train Sets	$ 75,000
Subtotal Maintenance Facilities and Equipment Projects		**$ 125,000**
Subtotal *Pacific Surfliner* Route - South		**$ 1,641,691**
GRAND TOTAL - *PACIFIC SURFLINER* ROUTE		**$ 2,297,966**
* - *Pacific Surfliner* Route project split: North 33.5%-South 66.5%, includes South portion of these projects.		

Figure 2B (continued)

Unconstrained Capital Program Projects *San Joaquin* Route Capital Projects 2007-08 through 2017-18		
Project	**Description**	**Cost ($000)**
STATION PROJECTS		
Elk Grove Station	Construct 8" above top of rail platform with shelter and lighting for the new station	$ 800
Stockton ACE Station	Renovate former SP Depot for use by ACE and San Joaquin Route trains, upgrading platforms and station tracks	$ 4,400
Richmond Station	Complete design and construction of station	$ 4,900
Richmond Station	Design and construct 800 space parking garage	$ 5,200
Martinez Station	Acquire land for additional parking and construct parking structure	$ 11,000
Stockton BNSF Station	Design, environmental documentation for new station, purchase ROW and construct new station	$ 7,500
Madera Station	Construct station	$ 2,543
Subtotal of Station Projects		**$ 36,343**
TRACK AND SIGNAL PROJECTS		
Sacramento - Stockton Track infrastructure projects	Improve infrastructure including bridges	$ 100,000
Port Chicago to Oakley Double Track - Phase I	Environmental, engineering and design for 17.6 miles of double track; install CTC	$ 33,900
Port Chicago to Oakley Double Track - Phase II	Construct double track	$ 75,000
Stockton Northwest Quadrant Track Connections	Design, purchase land, construction of track connection	$ 1,500
Merced Crossover	Design and construct crossover	$ 5,000
Wheat to Avena - San Joaquin County	Construction of second track	$ 40,000
Escalon to Avena - San Joaquin County	Extend double track	$ 30,000
Hanford to Shirley	Extend double track	$ 10,000
Guernsey to Hanford	Double track	$ 36,000
Gregg Double Track - Fresno County	Double track	$ 22,500
Merced to Le Grand	Double track	$ 69,000
Shafter to Jastro - Kern County	Double track	$ 40,000
San Joaquin Route Capitalized Maintenance		$ 10,000
Subtotal of Track and Signal Projects		**$ 472,900**
MAINTENANCE FACILITIES AND EQUIPMENT PROJECTS		
Equipment	2 sets equipment (6 cars-1 locomotive)	$ 50,000
Fresno Layover Facility	Design and construct layover facility	$ 15,000
Sacramento Layover Facility	Design and construct layover facility	$ 18,000
Subtotal of Maintenance Facilities and Equipment Projects		**$ 83,000**
GRAND TOTAL *SAN JOAQUIN* ROUTE		**$ 592,243**

Figure 2B (continued)

Unconstrained Capital Program Projects *Captiol Corridor* Capital Projects 2007-08 through 2017-18		
Project	**Description**	**Cost ($000)**
STATION PROJECTS		
Fairfield - Vacaville		$ 38,000
Hercules		$ 31,000
Emeryville - Station and Track Improvements		$ 10,000
Sacramento - Track Improvements		$ 23,000
Ticketing, Passenger Info		$ 12,700
Subtotal of Station Projects		**$ 114,700**
TRACK AND SIGNAL PROJECTS		
Sacramento - Martinez Track Improvements		$ 38,000
Yolo Causeway Crossover		$ 7,000
Hayward Double Track		$ 22,000
Travel Time Reliability		$ 22,000
San Jose 4th Track		$ 20,600
Oakland - Embarcadero		$ 27,000
Solano -Yolo Track Improvements		$ 19,000
Dumbarton Passenger Rail		$ 34,000
Santa Clara to Alviso Double Track		$ 27,000
Sacramento - Roseville 3rd Track		$ 60,000
Annualized maintenance		$ 10,000
Subtotal of Track and Signal Projects		**$ 286,600**
GRADE SEPARATION PROJECTS		
Grade Separation Projects		$ 67,000
Subtotal of Grade Separation Projects		**$ 67,000**
MAINTENANCE FACILITIES AND EQUIPMENT PROJECTS		
Rolling Stock		$ 82,000
Subtotal of Maintenance Facilities and Equipment Projects		**$ 82,000**
GRAND TOTAL *CAPITOL CORRIDOR*		**$ 550,300**

Figure 2B (continued)

Unconstrained Capital Program Projects Coast Route Capital Projects 2007-08 through 2017-18		
Project	**Description**	**Cost ($000)**
STATION PROJECTS		
Pajaro, King City and Salinas Stations	Station Improvements	$ 7,280
Passenger Service Enhancements		$ 3,000
Subtotal of Station Projects		**$ 10,280**
TRACK AND SIGNAL PROJECTS		
San Jose (Tamien) to Gilroy Second Main Track	Second Main Track	$ 75,470
Gilroy to San Luis Obispo Track Upgrades	Track Upgrades	$ 84,530
Gilroy to San Luis Obispo Signal Upgrades	Signal Upgrades	$ 71,870
Sargent to Aromas Curves Realignments	Curves Realignments	$ 122,150
Watsonville Wye Curve Realignments	Curves Realignments	$ 11,230
San Lucas Siding	New Siding	$ 7,560
Bradley Siding Extension - near Paso Robles	Siding Extension	$ 8,170
Cuesta Second Main Track	Second Main Track	$ 114,910
Subtotal of Track and Signal Projects		**$ 495,890**
GRADE CROSSING PROJECTS		
Safety and Mobility Enhancements		$ 14,000
Subtotal Grade Crossing Projects		**$ 14,000**
MAINTENANCE FACILITIES AND EQUIPMENT PROJECTS		
Equipment	Rolling Stock - 2 Sets	$ 60,000
Layover Facility Improvements		$ 10,000
Subtotal of Maintenance Facilities and Equipment Projects		**$ 70,000**
GRAND TOTAL COAST ROUTE		**$ 590,170**

CORRIDOR STRATEGIC PLANNING

PACIFIC SURFLINER ROUTE

In November 2003, the Department released the LOSSAN Corridor Strategic Plan - Los Angeles to San Diego Proposed Rail Corridor Improvement Study. This Plan analyzes rail improvements from a corridor wide perspective. It establishes a program of projects for immediate, near-term and long-term improvements on the corridor needed to support existing and proposed levels of rail service which include intercity and commuter passenger rail and freight rail. It complements the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) process discussed below, and served as the project screening process to determine which alternatives and design options should be examined in the EIR/EIS.

The work on the EIR/EIS started in 2002, when the Department, in cooperation with the Federal Railroad Administration (FRA), California High-Speed Rail Authority (CHSRA), Amtrak and regional and local planning agencies, participated in technical studies that analyzed alternatives and opportunities for rail corridor improvements between Los Angeles and San Diego. As part of these studies, the Department and FRA jointly undertook a program level EIR/EIS to

evaluate potential rail corridor improvements. The EIR/EIS was completed in Spring 2005. This document will facilitate environmental reviews of specific project improvements under both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA).

In June 2005, the Draft LOSSAN North Corridor Strategic Plan was released; it covers the route from Los Angeles to San Luis Obispo. The Department, in cooperation with regional planning agencies, Amtrak, Southern California Regional Rail Authority (SCRRA), Union Pacific Railroad (UP) and other stakeholders, completed this Plan. The Plan outlines a list of capital projects required to improve rail service for the immediate period (up to three years), near-term (four to eight year), and vision (nine to 20 years).

After a period of review and comment, it was decided that additional work would be undertaken before the Plan was finalized. Detailed rail capacity modeling was done and potential alternatives for commuter rail service between Ventura and Santa Barbara counties were studied. This information was included in a revised final draft LOSSAN North Strategic Plan, released in June 2007. In August 2007, a LOSSAN Strategic Business Plan corridor-wide summary document was released that included highlights from both Strategic Plans including a capital funding program.

Please note that the term LOSSAN now refers to the entire *Pacific Surfliner* corridor from San Diego to San Luis Obispo, even though the term originally referred to only the Los Angeles-San Diego segment. LOSSAN also refers to the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency.

SAN JOAQUIN ROUTE

In April 2006, the Department initiated a vision plan for the *San Joaquin* Route. The Strategic Business Plan is being developed in conjunction with the San Joaquin Valley Rail Committee, Amtrak, BNSF, UP and the public. The overall goal is to further develop the *San Joaquins* as an alternative transportation system that relieves highway and air congestion and supports efficient, environmentally compatible land use. The Plan will include a long-term capital program and identify possible Route extensions and their revenue and ridership. The Department anticipates the Plan will be completed in early 2008.

CAPITOL CORRIDOR

The CCJPA has issued a new Vision Plan, updated June 2005. This updates the original Vision Plan, issued in May 2002. The Plan provides objectives, implementing strategies and actions for continued growth and expansion on the Corridor. The Plan, in conjunction with the 2005-06 CCJPA Business Plan, includes Tier I (1-5 year) capital projects and Tier II (6-20 year) capital projects. (The CCJPA identified which Tier II projects are within the ten-year timeframe of the State Rail Plan.)

OTHER PROPOSED ROUTES

The Department's intercity rail program of new services shown in Figure 3A includes three route extensions/new routes: the Coast Route between San Luis Obispo and San Francisco, Sacramento-Reno and Sacramento-Redding. Of these, only the Coast Route has been studied in detail. Amtrak's 2001 California Passenger Rail System 20-Year Improvement Plan describes a $550 million program of capital improvements for the Route, including immediate and near-term projects.

CONSTRAINED CAPITAL PROGRAM

The Department has also developed a constrained capital program based on State funding levels reasonably anticipated to be available over the next ten years. This $700 million program is shown in Figure 2C. This program funding level assumes:

- $25 million a year in the State Transportation Improvement Plan (STIP) or $250 million over the ten-year period.
- $50 million in remaining Traffic Congestion Relief Program (TCRP) intercity rail project funding.
- $400 million in Proposition 1B intercity rail funds

It is difficult to project future available STIP funding for intercity rail, because so many variables are involved in projecting funding levels. $25 million in annual projected STIP funding is a conservative estimate. The 1996 STIP provided $117 million in funding for intercity rail projects, while the 1998 STIP, as augmented, provided an additional $181 million. The 2000 STIP provided $46 million, and the 2002 STIP increased funding by $106 million. No additional funds were made available in the 2004 STIP. The 2006 STIP and STIP Augmentation provide an additional $117 million over five years, for an average annual amount of $23 million.

The TCRP specified a list of projects to be funded, including over $200 million for specific intercity rail capital projects. To date about $150 million in projects have been allocated. Thus the constrained program includes $50 million in unallocated TCRP funds. Proposition 1B makes available $400 million for intercity rail projects. From the Proposition 1B total, the 2007-08 Budget Act appropriates $187 million for intercity rail projects. The remaining amount of $213 million is expected to be appropriated in 2008-09.

This program includes only State funds estimated to be spent on each route. At this time, it does not include estimates of non-state funds to be spent in the program. Specific projects are those that are programmed in the 2006 STIP and Augmentation and from the Proposition 1B Bond list and include track and

signals, stations, grade separations/crossings and rolling stock and maintenance facilities. Any remaining funds would be used for the next highest priority projects.

Figure 2C

Constrained Ten-Year Intercity Rail Capital Program Project Costs **FY 2007-08 through FY 2017-18** ($ in millions)	
Route	**Estimated Amount to be Spent on Each Route**
Pacific Surfliner - North	$ 133.5
Pacific Surfliner - South	$ 334.0
San Joaquin	$ 120.5
Capitol Corridor	$ 112.0
Total	**$ 700.0**

CAPITAL PROGRAM FUNDING

HISTORY

In the early 1970's the intercity rail capital program was originally funded from special legislation and the Intermodal Facilities Program. This program was then broadened to become the Transit Capital Improvement (TCI) Program, which used both Transportation Planning and Development Account funds (which subsequently became the PTA) and SHA funds. In the late 1980s, some capital funding was provided through direct appropriations in the Budget Act or in other legislation. Proposition 108 provided $1 billion in bond funds for rail projects, including about $225 million for intercity rail. Proposition 116, a vo initiative measure, also was approved. 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 new bond programs allowed the Department to begin its intercity rail equipment acquisition program. Prior to passage of the bonds there was limited funding available for the acquisition of intercity rail equipment. This is because Article XIX of the State Constitution does not allow rail equipment to be funded from SHA funds that are generated by excise taxes on fuel. Proposition 116 specifically required that the Department design and acquire intercity rail equipment and provided a funding source for equipment.

In 1997, Chapter 622, Statutes of 1997 [Senate Bill (SB) 45-Kopp], was passed which gives intercity rail projects a minimum of nine percent of the interregional portion of the STIP as part of the Interregional Transportation Improvement Program (ITIP). Intercity rail projects can also be funded in the Regional Transportation Improvement Program (RTIP). As a result, in the 1996 STIP, 1998 STIP, the 1998 STIP Augmentation, the 2000 STIP, the 2002 STIP and the 2006 STIP and STIP Augmentation (due to severe funding constraints, the 2004 STIP did not program any new funding for intercity rail projects), a total of $567 million was programmed. Of this amount $402 million has been allocated.

Since the passage of SB 45 in 1997, most intercity rail funding provided by the State has come from projects proposed by the Department in 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, significant intercity rail expansions will require funding commitments from RTPAs in the RTIP.

Chapter 91, Statutes of 2000 [Assembly Bill (AB) 2928–Torlakson], established the Governor's TCRP to be funded from the TCRF. The TCRP contained $201.5 million for specific intercity rail capital projects, including $148.5 million for the *Pacific Surfliners*, $25 million for the *San Joaquins*, and $28 million for the *Capitol Corridor*.

The 1999-00 Budget provided $17.5 million for equipment acquisition. Also in 1999-00, $17 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.

Additional funding will come from Proposition 1B. The intercity rail program will receive $400 million from this Act. A total of $187 million has been appropriated for projects in the 2007-2008 Budget, including $150 million for new equipment.

Figure 2D provides a summary of all capital funding for intercity rail in California since the beginning of State-supported rail service. The summary reflects all expended and allocated funds, including funds from Propositions 108 and 116, funds provided by the TCRP, and funds from all sources programmed in the 1996, 1998, 2000, and 2002 STIPs and carried over to the 2004 STIP. As of December 2005 over $2.8 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 63 percent of the total investment, local entities, the Federal government, Amtrak, and the private railroads have made substantial contributions.

The Department's publication, the California Intercity Rail Capital Program, December 1, 2005 (IRCP) details the projects shown in Figure 2C. The Department expects to update this publication to include new funding sources, including the 2006 STIP and Proposition 1B bond funds by December 2007.

Figure 2D

Intercity Rail Capital Program Funding History

July 1976 through December 2005

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	$ 103.8	$ 240.6			$ 344.4
Pacific Surfliner - South	$ 143.9	$ 666.1			$ 810.0
Total *Pacific Surfliner*	$ 247.7	$ 906.7			$ 1,154.4
San Joaquin	$ 150.5	$ 392.7			$ 543.2
Capitol Corridor	$ 100.0	$ 196.9			$ 296.9
Other Routes	$ 44.3	$ 24.4			$ 68.7
Maintenance and Layover Facilities			$ 143.8		$ 143.8
Rolling Stock				$ 609.6	$ 609.6
Grand Total	**$ 542.5**	**$ 1,520.7**	**$ 143.8**	**$ 609.6**	**$ 2,816.6**

SUMMARY OF PROJECTS BY FUNDING SOURCE
($ in Millions)

Route	Funding Source: State	Local	Federal	Amtrak	Railroad	Other	Total
Pacific Surfliner - North	$ 229.5	$ 85.4	$ 25.1	$ 3.1	$ 1.3		$ 344.4
Pacific Surfliner - South	$ 516.2	$ 104.9	$ 153.3	$ 16.1	$ 7.1	$ 12.4	$ 810.0
Total *Pacific Surfliner*	$ 745.7	$ 190.3	$ 178.4	$ 19.2	$ 8.4	$ 12.4	$ 1,154.4
San Joaquin	$ 395.3	$ 33.1	$ 32.7	$ 2.0	$ 78.4	$ 1.7	$ 543.2
Capitol Corridor	$ 198.6	$ 51.4	$ 31.1	$ 1.2	$ 14.5	$ 0.1	$ 296.9
Other Projects	$ 30.3	$ 7.8	$ 21.4	$ 3.0	$ 6.2		$ 68.7
Maintenance and Layover Facilities	$ 80.8	$ 0.5		$ 62.5			$ 143.8
Rolling Stock	$ 306.3		$ 0.5	$ 296.5		$ 6.3	$ 609.6
Grand Total	**$ 1,757.0**	**$ 283.1**	**$ 264.1**	**$ 384.4**	**$ 107.5**	**$ 20.5**	**$ 2,816.6**

OUTLOOK

The intercity rail program has received significant capital funding, as is discussed above. However, as it also mentioned above, adequate State funding is not projected to be available to fund the unconstrained capital program presented in Figure 2A. The only ongoing and guaranteed capital funding source is the nine percent of the ITIP that was provided by SB 45. Other major intercity rail capital funding sources, such as Proposition 108, Proposition 116 and Proposition 1B

bond funds and TCRP funds do not provide ongoing funding. As well, funding from sources such as the GF was on a project specific basis. There have been a number of proposals on the Federal level for an ongoing intercity rail capital grant program, but, to date, no program has been enacted.

The lack of a stable and adequate ongoing funding source for the intercity rail capital program is a major concern. It is difficult to develop long-range service plans that are dependent upon new equipment and capital projects when funding levels are uncertain. Also, it is difficult to determine the most cost-effective capital projects in the short-term, when the magnitude of the long-term capital program is uncertain. The Department will continue to explore mechanisms for a stable intercity rail capital funding source.

While Proposition 1B is anticipated to provide $150 million for intercity rail equipment, this amount may not be adequate to fund all equipment necessary for the new frequencies, expansions, and new routes planned through 2017-18. Stable funding for equipment acquisition remains a concern. This is because Article XIX of the State Constitution does not allow rail equipment to be funded from SHA funds that are generated by excise taxes on fuel. Equipment in the past has been funded primarily from Propositions 108 and 116 and one-time budget appropriations from sources such as the General Fund. As there is a very limited supply of existing equipment that could be available for lease, new intercity rail service is dependent on the State purchasing new equipment.

Additionally, existing equipment requires funding for maintenance and overhaul. To date, PTA funds have been used for this purpose. However, as existing equipment ages and new equipment is acquired, overhaul needs will increase, and additional funds will be needed.

Funding for intercity rail operations is considerably more stable than capital funding. The PTA, which is designed under law as a trust fund for transportation planning and mass transportation purposes, has been the exclusive source for intercity rail operations. Under Proposition 42, enacted in March 2002, it is anticipated that the transfer of certain gasoline sales tax revenue to the PTA could increase PTA funding available for expansion of intercity rail operations.

ROLLING STOCK PROGRAM

ROLLING STOCK FLEET

The State has an intercity rail rolling stock program unparalleled by any other state in the nation. The State owns its own fleet of 88 cars and 17 locomotives. The State has spent over $300 million on the design and acquisition of cars and locomotives since the early 1990's. Proposition 116, passed by the voters in 1990, provided the initial funds for the design and purchase of equipment. This fleet has allowed significant frequency increases on all three routes.

In the mid-1990s, the State designed and acquired the innovative 66-unit California Car fleet, plus nine locomotives. The cars were delivered between 1995 and 1997, and the locomotives were delivered between 1994 and 1995. The cars are bi-level, with many amenities that bring a new level of comfort to passengers, and are fully compliant with the Americans with Disabilities Act (ADA). The General Motors F59PHI locomotives have a maximum operating speed of 110 mph, emission reduction technology, and features to improve operational and functional safety. Two additional General Electric Dash-8 locomotives were purchased from Amtrak in 1994.

In 2002, the State purchased and placed in service an additional 22 cars and six locomotives. The cars were acquired as an option to Amtrak's 40-car *Pacific Surfliner* fleet order for Southern California. Twelve of the State-owned cars were for Northern California operations, and ten cars were for *Pacific Surfliner* operations. The locomotives are General Motors model F59PHI.

The Northern California fleet, which is used on both the *San Joaquins* and *Capitol Corridor*, is entirely State-owned. It includes 78 cars – the original 66 California cars and 12 new *Pacific Surfliner* cars, and 17 locomotives – 15 General Motors F59PHI and two General Electric Dash-8 units. The *Pacific Surfliner* fleet includes 50 cars and 14 locomotives. The only State-owned equipment in this fleet is ten cars.

The Department is currently developing technical specifications for new cars and locomotives for use on the three State-supported routes. The 2007-08 Budget Act provides $150 million in Proposition 1B funds for rail cars. Because Amtrak does not have any additional equipment for use, or leased equipment that would be suitable for California intercity rail service, the Department has to procure its own equipment in order to expand service. The Department is currently developing specifications for new cars. While the new cars will be compatible with existing equipment, they will include federal structural requirements introduced since the purchase of the *Pacific Surfliner* cars in 2002.

ROLLING STOCK MAINTENANCE AND OVERHAUL PROGRAM

In addition to equipment procurement, the equipment program also includes warranty, rework, and modification of procured equipment; scheduled maintenance; heavy equipment overhaul; equipment modernization; inspection and safety monitoring; and repair of damaged equipment.

In 2001-02, the Department started its heavy equipment overhaul program for its fleet of California Cars and locomotives. Different components of the equipment need to be overhauled on a cyclical basis. The overhaul cycle varies from two to eight years depending on the component being serviced. The principal overhaul is at eight years and is called the mid-life overhaul. Thus, the overhaul program is ongoing, and in each year different cars and components receive this service.

Funding for the overhaul program varies by budget year based on the specific overhauls planned for that particular budget year. The overhaul program has been funded through PTA funds appropriated each year by the Budget Act. Article XIX of the State Constitution prohibits the use of SHA funds for mass transit vehicle acquisition or maintenance. Thus, SHA funds cannot be used for the overhaul program, nor is there any dedicated funding source for the overhaul work needed in the future as the equipment ages.

In 2003-04, the Department contracted for the mid-life (eight-year) overhaul of the original 66 California Cars. Design, engineering and the completion of the overhaul and testing of the four pilot (prototype) cars (cab, coach, foodservice and baggage) was completed in 2004-05, and overhauls of the remainder of the fleet will be completed by December 2007. This overhaul cycle includes many mechanical components; heavy cleaning of vehicle interior including upholstery and carpets; rebuilding and new flooring in toilet rooms; new side door and end door operating systems; 110 volt convenience outlets at every seat; as well as other additions and improvements to the cars. The Department oversees and inspects the contractor's overhaul work. In future years, the newer 22 cars (12 in the Northern California fleet and ten in the Southern California fleet) will need their mid-life overhaul as will the remaining eight locomotives.

The Department also has an overhaul program for its 17 locomotives (15 GM F59 and two GE Dash-8) which includes improving locomotive fuel efficiency and emission reduction. The Environmental Protection Agency instituted emission requirements for diesel locomotives in 2001. ll locomotives purchased after January 1, 2001 must meet Tier 0 emission requirements. The next set of standards, called Tier 1, took effect on January 1, 2004. t requires passenger locomotives purchase after that date emit 25 percent less nitrogen oxides (NOx) and 33 percent less particulates than previously allowed. Tier 2 standards, which took effect January 1, 2005, required that passenger locomotives purchased after that date emit 35 percent less NOx and less than half the particulates than previously allowed.

In early 2004, the Department completed the mid-life overhaul of the nine original F59PHI locomotives acquired in 1994-95, which met Tier 1 standards when purchased. This project improved both the reliability and appearance of the locomotives, with graphics that match the new F59PHIs. Also, the remote locomotive health monitoring system currently in place on the six new F59PHI locomotives was installed on the nine locomotives in 2003-04.

The two GE locomotives will be overhauled in early 2008 at which time they will be brought up to Tier 0 standards. All 15 F59 locomotives will receive Tier 2 engine kits for the main engines at their next overhaul. Overhauls are scheduled to begin during the summer of 2008.

Figure 2E provides information on the overhaul program. For the ten-year period, it shows annual funding needs and the number of vehicles (cars and locomotives) needing overhaul. The figure includes costs and numbers of vehicles for all overhaul cycles – the eight year mid-life cycle as well as other cycles for specific components. The figure assumes that equipment purchases projected in the ten-year capital plan will be made and overhaul of this equipment will begin within the ten-year period.

Figure 2E

Intercity Rail Rolling Stock Overhaul Program
($ in millions)

Fiscal Year	Projected Overhaul Funding Needs	Projected Number of Units for Overhaul
2005-06	$ 13.8	48
2006-07	$ 14.4	52
2007-08	$ 13.8	66
2008-09	$ 9.3	43
2009-10	$ 13.2	36
2010-11	$ 12.7	72
2011-12	$ 13.5	53
2012-13	$ 13.8	58
2013-14	$ 14.1	64
2014-15	$ 14.5	66
2015-16	$ 16.5	74

RAIL-HIGHWAY GRADE CROSSING IMPROVEMENT AND SEPARATION PROGRAMS

The Department has a number of programs to improve safety at rail-highway grade crossings as well as improve rail and road operations. Locations where a railroad track and a street or road cross each other at separate grades are called rail-highway grade separations. The State Section 190 Program focuses on constructing grade separations Locations where a railroad track and a street or road cross each other at the same grade are called rail-highway grade crossings. The Federal Section 1010/1103 Program and the Federal Section 130 Program focus on improving safety and operations at grade crossings. These programs combined receive approximately $35 million a year in funds. Additionally, Proposition 1B includes $250 million for high-priority grade separation and railroad crossing safety improvements.

STATE SECTION 190 GRADE SEPARATION PROGRAM

The Section 190 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, and becomes effective in July of even numbered years. Local agencies, railroad companies or the Department can nominate projects. 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 Department administers the program. The annual amount of State funding for the program is $15 million, with a maximum amount of $5 million annually per project. In general, the State contribution for any one project is limited to 80 percent or $5 million, whichever is less, of the project cost if the grade crossing to be eliminated has been in existence for at least ten years prior to the date of allocation of the funds. The railroad must contribute a minimum of ten 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 is subject to statutory requirements which may reduce the railroad contribution to five percent).

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

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 California Transportation Commission, in priority order for 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 renominated in order to remain eligible. Grade separation projects are also eligible for STIP funding.

PROPOSITION 1B HIGHWAY-RAILROAD CROSSING PROGRAM

Proposition 1B includes $250 million for high-priority grade separation and railroad crossing safety improvements from the new Highway-Railroad Crossing Safety Account. One hundred and fifty million dollars of these funds will

supplement the existing Section 190 Grade Separation Program. However, a dollar for dollar match will be required for these funds (unlike the existing Section 190 Program). One hundred million dollars of the funds will be used for high-priority grade crossings. The 2007-08 Budget Act includes $122.5 million for the Highway-Railroad Crossing Safety Account.

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. 130), including the cash balance, funds encumbered during the last year, and amounts anticipated to be received during the subsequent year. This information is included in Figure 2F.

Prior to Federal Fiscal Year (FFY) 2005-06, the Federal Section 130 Program provided about $10.2 million per year in Federal highway funds for grade crossing safety projects. Beginning in FFY 2005-06 however, additional funds were made available. Pursuant to the Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users (SAFETEA-LU), this amount increased to $16.2 million. The Department supplements this program each year with other Federal funds to pay for grade crossing improvements on State routes. With the supplemental Federal funds, the total statewide financial commitment to grade crossing improvements will range from about $19 million to $21 million per year, with $16 million allocated to projects to eliminate hazards at rail crossings on local streets and roads and the balance ($3 to $5 million) allocated to projects on State routes. Improvements include any treatment contained in the California Manual for Uniform Traffic Control Devices as determined by an engineering study at sites where data show a high hazard index.

Figure 2F

Section 130 Federal Crossing Improvement Program Funding Status
Federal Fiscal Year 2006-07 – 2007-08
($ in thousands)

Obligated/ Encumbered	2006-07 Entitlement	Expected in 2007-08	Cash Balance 10/1/07 (Includes prior entitlements)
$12,500	$16,000	$16,000	$29,128

Based on available funds, the Department selects projects from the priorities identified by the data for inclusion in the Section 130 Program Funding Plan programmed in the Federal STIP. Under Federal law, the annual grade crossing improvement program must be included in the Federal Transportation Improvement Programs (FTIPs) of the appropriate Metropolitan Planning Organizations and the statewide FSTIP prior to obligation of funding.

The Department administers Section 130 funding for projects involving railroad crossings of both State highways and local streets and roads. Program staff develops the financing for the construction of eligible projects; ensures that Federal and State law, policies, practices and standards are observed; issues agreements to railroad companies and local agencies; provides follow-up on project delivery for grade crossing projects; and monitors Section 130 expenditures.

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

STATION PROGRAMS

PARKING FACILITIES AT INTERCITY RAIL STATIONS

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. Below is a description of the status of parking facilities at stations on the three intercity passenger rail routes.

Much progress has been made, and continues to be made, in providing additional parking at stations on the *San Joaquin* Route. Projects were completed in conjunction with the construction of new stations at Modesto in 1999, Bakersfield and Merced in 2000, and Martinez in 2001. A new parking structure was completed at Lodi in 2002. A new station was completed at Wasco in 2006 with 36 parking spaces. At Fresno, parking improvements include new paving and security fencing.

A number of parking projects are now planned for *San Joaquin* stations. For the Emeryville station, funds are programmed to construct a 337-space parking garage. For the Richmond station, funds have been allocated to design a new 800-space parking garage. For the Martinez station, funds are programmed to acquire land for additional parking. At the Sacramento station, a project started in the spring 2005 to upgrade surface parking lots, auto and bus circulation, and security and lighting continues. An additional 20-35 parking places are under construction. Light rail service to the Amtrak station is provided by an extension to the Sacramento system. Service was initiated in December, 2006.

On the *Pacific Surfliners* progress has also been made in adding parking. At existing stations, additional parking was completed in 2000 in Santa Ana, and in 2001 at San Luis Obispo. The Surf station, opened in 2000, included parking. The Camarillo station project, including parking improvements, was completed in 2006. At the Fullerton station, a multi-level parking structure is under development. At Irvine, funds are reserved to construct a parking structure at the station. At the Oceanside station, a 450-space parking structure was completed in 2006, and at Oxnard preliminary work on an additional 95 parking spaces is underway.

On the *Capitol Corridor*, significant additional parking capacity has also been added in the recent past to meet growing ridership. A satellite parking facility of about 80 spaces was constructed at the Roseville station in summer 2004. The interim parking lot at the Rocklin station was replaced in fall 2004 with 70 permanent parking spaces and an improved access road. A new parking lot with over 100 spaces and an improved access road were constructed at the Santa Clara/Great America station in summer 2004. At the Auburn station, the second phase of parking (about 50 spaces) was added in summer 2005. While the primary upgrades at the Berkeley station that were completed in August 2005 focused on a new platform and landscaping, the project also includes improved access for transit and parking. The new Oakland Coliseum station opened in June 2005 and includes parking as well as connections to Bay Area Rapid Transit (BART) and the Oakland International Airport. Funds are also programmed for a second parking lot at the Fremont-Centerville station.

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 Amtrak operated trains. Webster's New World Dictionary, Third College Edition, copyright 1988, defines decrepit as "broken down or worn out by old age or long use." The following stations are those identified by the Department as the three most decrepit:

Madera (Avenue 15½ at 29th Road): This station serves the *San Joaquins* and is in a residential-industrial area. It is unattractive, and the shelter has been removed. There is no landscaping at the station. The parking lot is paved but deteriorated with many potholes, and a number of the lights are broken. Representatives of the City, County, Amtrak and the Department are planning to move the station to a new location that is adjacent to a major road serving Madera's population center. The project will include purchase of ROW, construction of a two-lane access road, a new parking lot, platform, and shelter for the new station. The project is planned for completion in 2008-09. In FY 2005-06 a total of 13,239 passengers used the station.

Dunsmuir (5750 Sacramento Avenue): This station serves Amtrak's *Coast Starlight*. The premises are very old and dilapidated with poor passenger amenities. The exterior has deteriorated paint and brickwork and the interior waiting room is sparsely furnished. Heating facilities are minimal. The parking lot is also in a deteriorated state. In FY 2005-06 there were 4,218 passengers using the Dunsmuir station.

Salinas (Foot of Station Place): This station is also on the *Coast Starlight* Route. While the station exterior is adequate, the interior of the station is a marked state of disrepair. There are broken tiles and peeling paint. Restrooms are in a degraded state, with missing and broken toilets. Security when the station is not staffed is also an issue. Pedestrians often cross the tracks in proximity to the station which is a safety and security issue as well. In FY 2005-06 a total of 27,586 passengers used this station.

CHAPTER III
OPERATIONS PROGRAM

This chapter describes the State's intercity rail operations program. First, 10-year ridership and service levels and the 10-year operations financial plan (revenue, expenses, and farebox ratio) are presented. Then the Department's past progress in meeting these goals is assessed. Finally, the operations program is discussed, including the following five components: operational efficiency, passenger amenities, emerging technologies, connecting Amtrak bus services, and multimodal connectivity including airport access.

OPERATIONS PROGRAM GOALS

The Department's goals for its Operations Program are:

1. Provide cost-effective, operationally efficient service that meets or exceeds the Department's 50 percent farebox ratio standard. (Furtherance of the three goals below will increase revenues and reduce costs, with the resulting increase in farebox ratio.)
2. Improve service access and attractiveness by making the service more passenger friendly with amenities such as on-line ticket reservations and payment, improved real-time passenger information and notification, and on-board internet access.
3. Provide safe, reliable, and convenient intercity rail and connecting Amtrak bus service with frequent service during business hours, and travel options during evenings and weekends.
4. Create "seamless" multimodal connectivity between intercity rail services and commuter/urban rail, transit, and airports with convenient connections to all major urban, and many tourist and rural destinations.

TEN-YEAR INTERCITY RAIL SERVICE LEVELS AND OPERATIONS FINANCIAL PLAN

Figure 3A presents the Department's 10-year projected intercity passenger rail ridership and service levels (as well as actual ridership and service levels for 2005-06 and 2006-07). The Department developed the service levels for the *Pacific Surfliners* and *San Joaquins*. In conjunction with the Capitol Corridor Joint Powers Authority (CCJPA), the Department also developed the *Capitol Corridor* service levels. The Department is proposing the service levels for route extensions and new routes. The ridership estimates for the three existing routes were developed in conjunction with Amtrak and with the use of the Rail Ridership/Revenue Forecasting Model. The ridership levels are conservative with

growth primarily projected to be the result of general population increases, and new frequencies.

Figure 3A shows that in 2017-18, combined ridership on the three routes is projected to be 8.3 million, an increase of 67 percent over 2006-07 ridership. Projected service frequencies are: 13 San Diego-Los Angeles round-trips on the *Pacific Surfliner*, eight round-trips on the *San Joaquins*, and 18 Oakland-Sacramento round-trips on the *Capitol Corridor*.

In the development of increased service levels, service extensions, and new services, the Department considers the following:

- Ridership demand based on actual train ridership, or in the case of extensions or new routes, based on bus ridership and overall travel demand in the corridor.
- Potential to improve cost-effectiveness of existing services, and positive cost-effectiveness of new routes.
- Feasibility of increased service based on route capacity, equipment availability, and infrastructure quality.
- Local support for the service.

It is important to note that implementation is subject to demonstrated ridership demand, approval from Amtrak and the relevant railroad(s), availability of operating and capital funding and equipment, and completion of necessary capital projects. The service expansions are described in more detail in later chapters. Chapters VI, VII, and VIII describe the increased frequencies and service expansions for each route. Chapter X describes the new routes the Department is recommending.

Figure 3B summarizes the ten-year operations financial plan. Figure 3B presents: revenue, expense and farebox ratio for existing routes; and projected State costs for existing and new routes for the ten-year period from 2008-09 through 2017-18. This data was developed by the Department in conjunction with Amtrak based on the Department's service levels shown in Figure 3A. The Figure also shows actual and projected costs for the Department's heavy equipment overhaul program, as well as actual data for 2005-06 and 2006-07 and current data for 2007-08. Figure 3B shows in 2017-18 the farebox ratio on the *Pacific Surfliners* is projected to be 68.2 percent, on the *San Joaquins* 52.3 percent and on the *Capitol Corridor* 46.1 percent. State costs for the three existing routes are projected to be $156.6 million, and for new routes, $20.3 million.

Figure 3C shows in graph form the projected trend of the three key performance measures (ridership, revenue and farebox ratio) on each route. These performance measures are projected to improve on all three routes over the ten-year period.

Figure 3D shows in graph form the State cost per passenger, per passenger mile and per train mile for each of the three State-supported routes over the ten-year period. By the end of the period State-cost per passenger mile is projected to decrease slightly on all three routes. The cost per passenger is projected to be highest on the *San Joaquins* because the average trip length per passenger on this Route is the longest of the three routes. The State cost per passenger mile and per train mile is projected to remain relatively stable on the *Pacific Surfliners*, and show some fluctuation on the other two routes related to new frequencies.

PROGRESS IN MEETING ROUTE OBJECTIVES

Figure 3E assesses the Department's progress in meeting its principal route objectives. First, the Figure assesses the Department's success in meeting the goals established in the previous 2005-06 to 2015-16 Sate Rail Plan. To do so, the Figure compares the route objectives in the 2005-06 Plan for the 2006-07 year with actual results. In general, the ridership and farebox ratio goals for 2006-07 and actual results were consistent. Actual revenue on all three routes was higher than projected. Actual OTP on all three routes was below projected OTP, primarily as the result of increased freight traffic. On the *Capitol Corridor*, four additional Oakland-Sacramento trains were projected for 2007-08 that actually started earlier in 2006-07.

Next, the Figure compares the difference in the long-term goals between the 2005-06 and 2007-08 Rail Plan by comparing the route objectives for 2015-16 presented in the 2005-06 California State Rail Plan with those in the current 2007-08 California State Rail Plan. These objectives are very similar. On the *Pacific Surfliner* Route the same level of service is projected. On the *San Joaquin* Route, the same level of service is projected, except in the current Plan, two round-trip Oakland-Stockton trips are projected. And on the *Capitol Corridor*, three more Oakland to San Jose round-trips and two more Sacramento-Roseville round-trips were projected in the 2005-06 Plan as compared to the 2007-08 Plan.

Finally, the goals for the last year of the 2007-08 to 2017-18 Rail Plan are presented.

Figure 3A

INTERCITY RAIL RIDERSHIP AND SERVICE LEVELS
Federal Fiscal Years 2005-06 - 2017-18

	Actual		Current	Budget	Projected									
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
RIDERSHIP (thousands) #														
Pacific Surfliners (total)	2,454	2,655	2,707	2,773	2,846	2,920	2,992	3,113	3,184	3,574	3,837	3,914	3,989	4,061
San Joaquins	743	801	805	825	852	880	909	1,058	1,092	1,127	1,163	1,200	1,388	1,432
Capitol Corridor	1,239	1,270	1,450	1,483	1,525	1,567	1,609	1,885	1,933	2,175	2,402	2,458	2,533	2,759
Total Ridership	**4,436**	**4,726**	**4,962**	**5,081**	**5,223**	**5,367**	**5,510**	**6,056**	**6,209**	**6,876**	**7,402**	**7,572**	**7,910**	**8,252**
FREQUENCIES														
Pacific Surfliners *(total)*														
San Diego-Los Angeles	11	11	11	11	11	11	11	12	12	12	13	13	13	13
Los Angeles-Goleta	5	5	5	5	5	5	5	5	5	6	6	6	6	6
Goleta-San Luis Obispo	2	2	2	2	2	2	2	2	2	3	3	3	3	3
Total	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**12**	**12**	**12**	**13**	**13**	**13**	**13**
San Joaquins														
Oakland-Bakersfield	4	4	4	4	4	4	4	4	4	4	5	5	5	5
Sacramento-Bakersfield	2	2	2	2	2	2	2	3	3	3	3	3	3	3
Oakland-Stockton								2	2	2	2	2	2	2
Total	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**7**	**7**	**7**	**8**	**8**	**8**	**8**
Capitol Corridor														
San Jose-Oakland	4	4	7	7	7	7	7	11	11	11	13	13	13	16
Oakland-Sacramento	12	12	16	16	16	16	16	16	16	18	18	18	18	18
Sacramento-Roseville	1	1	1	1	1	1	1	4	4	4	6	6	8	10
Roseville-Auburn	1	1	1	1	1	1	1	2	2	2	4	4	4	4
Total	**12**	**12**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**18**	**18**	**18**	**18**	**18**
Route Extensions/New Routes														
San Francisco-San Luis Obispo							1	1	1	2	2	2	2	2
Sacramento-Reno											1	1	2	2
Sacramento-Redding												1	1	1

- Does not include ridership for route extensions, only included is ridership for existing and additional frequencies.

Figure 3B

INTERCITY RAIL OPERATING FINANCIAL PLAN
Federal Fiscal Years 2004-05 - 2017-18
(Dollars in Millions)

	Actual		Current •	Budget	Projected									
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
REVENUES														
Pacific Surfliners §	$ 26.7	$ 32.6	$ 34.5	$ 36.1	$ 37.6	$ 39.4	$ 41.3	$ 44.1	$ 46.1	$ 53.4	$ 58.9	$ 61.6	$ 64.2	$ 67.0
San Joaquins	$ 22.6	$ 26.5	$ 26.5	$ 29.0	$ 28.8	$ 30.4	$ 32.0	$ 38.6	$ 40.6	$ 42.7	$ 45.0	$ 47.3	$ 56.5	$ 59.4
Capitol Corridor	$ 14.8	$ 15.7	$ 18.8	$ 20.7	$ 20.5	$ 21.5	$ 22.6	$ 27.3	$ 28.6	$ 33.1	$ 37.5	$ 39.1	$ 41.5	$ 46.0
Total Revenues	**$ 64.1**	**$ 74.8**	**$ 79.8**	**$ 85.8**	**$ 86.9**	**$ 91.3**	**$ 95.9**	**$ 110.0**	**$ 115.3**	**$ 129.2**	**$ 141.4**	**$ 148.0**	**$ 162.2**	**$ 172.4**
EXPENSES														
Pacific Surfliners §	$ 48.1	$ 57.8	$ 55.9	$ 58.7	$ 60.3	$ 62.7	$ 64.0	$ 67.5	$ 69.5	$ 81.6	$ 89.9	$ 92.6	$ 95.4	$ 98.3
San Joaquins	$ 49.9	$ 58.2	$ 57.2	$ 61.0	$ 61.3	$ 63.1	$ 65.0	$ 83.4	$ 85.9	$ 88.5	$ 91.2	$ 93.9	$ 110.2	$ 113.5
Capitol Corridor	$ 39.2	$ 38.8	$ 47.0	$ 44.4	$ 52.6	$ 54.2	$ 55.8	$ 65.7	$ 67.7	$ 76.5	$ 85.0	$ 87.6	$ 91.6	$ 99.7
Total Expenses	**$ 137.2**	**$ 154.8**	**$ 160.1**	**$ 164.1**	**$ 174.2**	**$ 180.0**	**$ 184.8**	**$ 216.6**	**$ 223.1**	**$ 246.6**	**$ 266.1**	**$ 274.1**	**$ 297.2**	**$ 311.5**
FAREBOX RATIO														
Pacific Surfliners §	55.5%	56.4%	61.7%	61.5%	62.4%	62.8%	64.5%	65.3%	66.3%	65.4%	65.5%	66.5%	67.3%	68.2%
San Joaquins	45.3%	45.5%	46.3%	47.5%	47.0%	48.2%	49.2%	46.3%	47.3%	48.2%	49.3%	50.4%	51.3%	52.3%
Capitol Corridor	37.8%	40.5%	40.0%	46.6%	39.0%	39.7%	40.5%	41.6%	42.2%	43.3%	44.1%	44.6%	45.3%	46.1%
STATE COSTS *														
Existing Routes														
Pacific Surfliners §	$ 21.4	$ 21.9	$ 22.1	$ 23.1	$ 23.1	$ 23.1	$ 23.1	$ 23.8	$ 23.8	$ 28.6	$ 31.5	$ 31.5	$ 31.6	$ 31.8
San Joaquins	$ 27.3	$ 27.6	$ 27.4	$ 32.5	$ 32.9	$ 33.2	$ 33.4	$ 45.3	$ 45.8	$ 46.2	$ 46.7	$ 47.1	$ 54.2	$ 54.6
Capitol Corridor	$ 24.4	$ 23.6	$ 23.6	$ 24.1	$ 32.6	$ 33.1	$ 33.7	$ 38.8	$ 39.5	$ 43.9	$ 48.0	$ 48.9	$ 50.5	$ 54.2
Sub Total	**$ 73.1**	**$ 73.1**	**$ 73.1**	**$ 79.7**	**$ 88.6**	**$ 89.4**	**$ 90.2**	**$ 107.9**	**$ 109.1**	**$ 118.7**	**$ 126.2**	**$ 127.5**	**$ 136.3**	**$ 140.6**
Equipment-Heavy Overhaul	$ 13.5	$ 13.8	$ 14.0	$ 13.8	$ 9.3	$ 13.1	$ 12.6	$ 13.6	$ 14.6	$ 15.6	$ 16.0	$ 16.0	$ 16.0	$ 16.0
Total	**$ 86.6**	**$ 86.9**	**$ 87.1**	**$ 93.5**	**$ 97.9**	**$ 102.5**	**$ 102.8**	**$ 121.5**	**$ 123.7**	**$ 134.3**	**$ 142.2**	**$ 143.5**	**$ 152.3**	**$ 156.6**
Route Extensions and New Routes														
San Francisco-San Luis Obispo							$ 4.6	$ 5.1	$ 5.1	$ 10.3	$ 10.4	$ 10.5	$ 10.6	$ 10.7
Sacramento-Reno											$ 3.1	$ 3.1	$ 6.3	$ 6.3
Sacramento-Redding												$ 3.3	$ 3.3	$ 3.3
Total							**$ 4.6**	**$ 5.1**	**$ 5.1**	**$ 10.3**	**$ 13.5**	**$ 16.9**	**$ 20.2**	**$ 20.3**
Existing and New Routes Grand Total	**$ 86.6**	**$ 86.9**	**$ 87.1**	**$ 93.5**	**$ 97.9**	**$ 102.5**	**$ 107.4**	**$ 126.6**	**$ 128.8**	**$ 144.6**	**$ 155.7**	**$ 160.4**	**$ 172.5**	**$ 176.9**

• - 2006-07 revenues and expenses are partial year actual and projected for the remainder of the year.
- Expenses do not include equipment lease costs, as all new equipment will be State owned.
* - Reflects operating contract maximum from 2004-05 through 2006-07. In all years, includes payment to Amtrak for minor capital projects not included in any other line item.
§ - Reflects Revenues, Expenses, Farebox Ratio and State Costs for state supported portion of the service.

Figure 3C

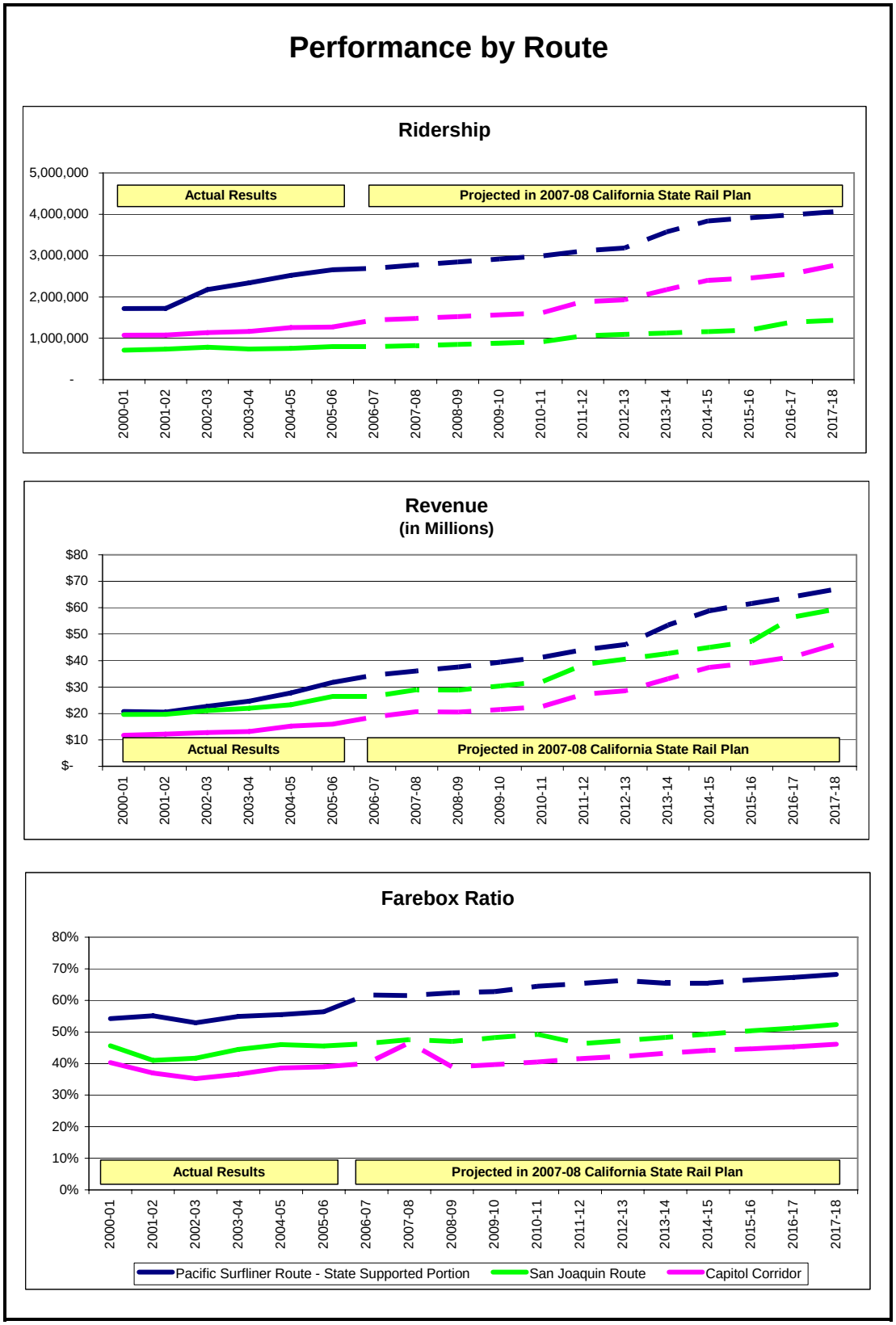

Performance by Route
Ridership
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
-
Actual Results
Projected in 2007-08 California State Rail Plan
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
Revenue
(in Millions)
$80
$70
$60
$50
$40
$30
$20
$10
$-
Actual Results
Projected in 2007-08 California State Rail Plan
Farebox Ratio
80%
70%
60%
50%
40%
30%
20%
10%
0%
Actual Results
Projected in 2007-08 California State Rail Plan
Pacific Surfliner Route - State Supported Portion
San Joaquin Route
Capitol Corridor

Figure 3D

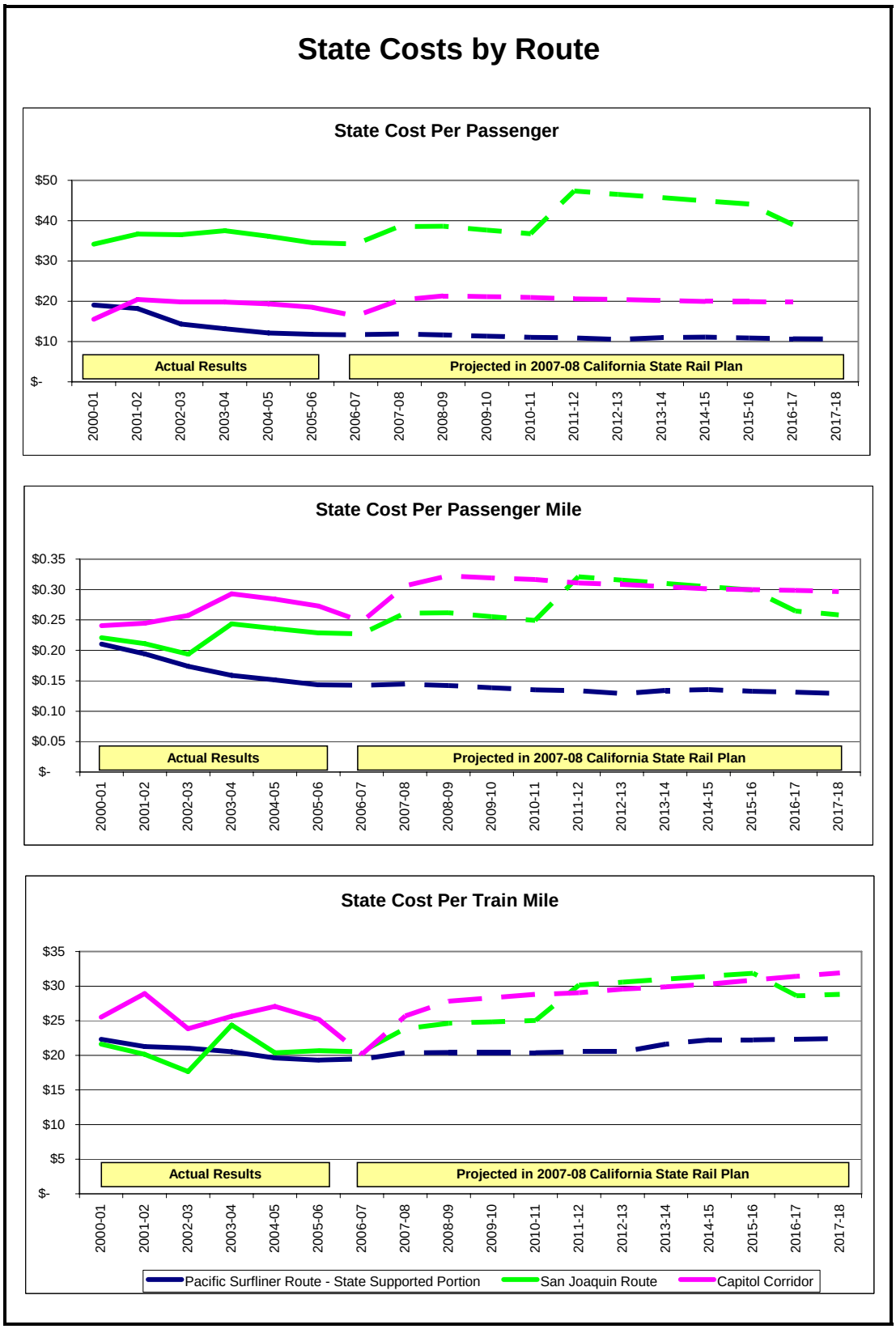

State Costs by Route
State Cost Per Passenger
$50
$40
$30
$20
$10
$-
Actual Results
Projected in 2007-08 California State Rail Plan
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
State Cost Per Passenger Mile
$0.35
$0.30
$0.25
$0.20
$0.15
$0.10
$0.05
$-
Actual Results
Projected in 2007-08 California State Rail Plan
State Cost Per Train Mile
$35
$30
$25
$20
$15
$10
$5
$-
Actual Results
Projected in 2007-08 California State Rail Plan
Pacific Surfliner Route - State Supported Portion
San Joaquin Route
Capitol Corridor

Figure 3E

ROUTE OBJECTIVES BY CORRIDOR					
FFY	**2006-07**		**2015-16**		**2017-18**
	2005-06 Rail Plan	**Actual Results**	**2005-06 Rail Plan**	**2007-08 Rail Plan**	**2007-08 Rail Plan**
***Pacific Surfliner* Route**					
Ridership (thousands)	2,637	2,707	3,611	3,914	4,061
Revenue (millions)	$29.4	$34.5	$45.4	$61.6	$67.0
Farebox Ratio	59.8%	61.7%	65.0%	66.5%	68.2%
On Time Performance	82%	74.8%	90%	90%	90%
Frequency: Los Angeles-San Diego	11	11	13	13	13
Los Angeles-Goleta	5	5	6	6	6
San Joaquin Route					
Ridership (thousands)	791	805	1,133	1,200	1,432
Revenue (millions)	$25.0	$26.5	$40.7	$47.3	$59.4
Farebox Ratio	47.4%	46.3%	49.1%	50.4%	52.3%
On Time Performance	75%	67.9%	90%	90%	90%
Frequency: Oakland-Bakersfield	4	4	5	5	5
Sacramento-Bakersfield	2	2	3	3	3
Capitol Corridor					
Ridership (thousands)	1,429	1,450	2,483	2,458	2,759
Revenue (millions)	$16.9	$18.8	$29.8	$39.1	$46.0
Farebox Ratio	38.9%	40.0%	44.6%	44.6%	46.1%
On Time Performance	90%	74.6%	90%	90%	90%
Frequency: Sacramento-Oakland	12	16	18	18	18
Oakland-San Jose	7	7	16	13	16

ADMINISTRATION AND MARKETING COSTS

Figure 3F shows State support levels for administration and marketing costs for 2005-06 through 2007-08. These costs have remained constant over the three-year period.

Figure 3F

Intercity Rail Administration and Marketing Costs ($ in Millions)			
	Actual		Current
FFY	2005-06	2006-07	2007-08
STATE SUPPORT			
Pacific Surfliners			
Administration	$1.5	$1.5	$1.5
Marketing	$2.3	$2.3	$2.3
Totals	$3.8	$3.8	$3.8
San Joaquins			
Administration	$1.3	$1.3	$1.3
Marketing	$1.5	$1.5	$1.5
Totals	$2.8	$2.8	$2.8
Capitol Corridor			
Administration	$1.3	$1.3	$1.3
Marketing	$1.2	$1.2	$1.2
Totals	$2.5	$2.5	$2.5
Totals - All Routes			
Administration	$4.1	$4.1	$4.1
Marketing	$5.0	$5.0	$5.0
Grand Total	**$9.1**	**$9.1**	**$9.1**

OPERATIONS PROGRAM

The Department manages the Operations Program for the *Pacific Surfliner* and *San Joaquin* Routes, while the CCJPA manages Operations for the *Capitol Corridor*. However, there is coordination between the Department and the CCJPA concerning operations. This Section primarily discusses the Department's Program. The CCJPA's Program can be found in Chapter VIII, The *Capitol Corridor*. While the Department's operations, marketing and capital programs are all interrelated, the operations program is focused on operational efficiency, passenger amenities, emerging technologies, connecting Amtrak bus services, and multimodal connectivity. Each of these areas is discussed below. Also, the Department's 10-year operations goals for the *Pacific Surfliner* and *San Joaquin* Routes are presented in Chapters VI and VII.

OPERATIONAL EFFICIENCY

Improvements in operational efficiency are heavily dependent on the implementation of the 10-year capital improvement program discussed in Chapter II. For example, double and triple track improvement projects increase

the route's capacity by allowing passenger and freight trains to travel on separate tracks, thus avoiding the delays associated with single track operations. The addition of sidings at key locations on the route also allow trains to wait en-route while other trains pass through. Increased capacity and improved on-time performance (a measurement of the timeliness of train arrivals at specific destinations) are essential to operational efficiency.

On-Time Performance (OTP)

The ten-year OTP goal for all three routes (*Pacific Surfliner*, *San Joaquin*, and *Capitol Corridor*) is 90 percent.

***Pacific Surfliner* Route –** In FFY 2006-07, the Department's OTP goal for the *Pacific Surfliner* Route was 82 percent, with the actual year results of 74.8 percent. While the *Pacific Surfliner* Route handles high volumes of traffic, freight, commuter rail (Metrolink and Coaster), Amtrak California and Amtrak national service, the route is still operating with 70 percent single-track. The Department has added double and triple track at key locations in prior years, and will continue to increase capacity with several additional projects as funding becomes available.

The Lincoln Avenue double track project in Orange County, completed in 2007, closed a 1.8-mile gap in double-track territory, allowing trains to pass more efficiently and improve OTP. Another 1.8-mile double track project north of Oceanside was completed in early 2007, with resulting improvements to OTP and reliability. Also, work is progressing on the large Los Angeles-Fullerton third main track and six grade separations project. To date, four miles of triple track have been completed. Segments are being completed sequentially and each new segment improves reliability and OTP for both commuter and *Pacific Surfliner* services. Other projects currently programmed that will improve OTP include the Oceanside double-track project to extend a siding, and the Santa Margarita double-track bridge project.

***San Joaquin* Route –** In FFY 2006-07, the Department's OTP goal for the *San Joaquin* Route was 75 percent, with the actual results of 67.9 percent (extensive track work in January and February significantly lowered the percentage). Over 75 percent of the 365-mile route from Bakersfield to Oakland is single-track and therefore susceptible to increases in traffic and service disruptions (i.e., crossing accidents, broken rails, and maintenance of way work).

OTP should improve significantly due to the completion of two important double-track projects on the route: the Shirley to Hanford project, completed in early 2006, reduced the running time on four trains by five minutes; the Calwa to Bowles (near Fresno) double track project, completed in January 2007, will further improve reliability and OTP. Performance measures were contained in the contracts for these capital projects that require the BNSF, upon project completion, to maintain 90 percent OTP, excluding a number of delays outside its

control, such as weather problems, on the track it owns. Also, the installation of Centralized Traffic Control (CTC) between Port Chicago and Oakley should be completed in 2007-08 and will improve OTP.

The Department applies additional operational strategies to increase OTP and reliability on the *San Joaquin* Route. First, OTP incentives are contained in the Amtrak operating agreement with BNSF and UP, and incentive payments are only made when OTP standards are met. Second, weekly operations conference calls involving the railroads (both the UP and the BNSF), Amtrak, and periodically, the Department, identify issues identified in the prior week's performance, and review OTP projections for the upcoming week(s). Third, the Department participates with the railroads and Amtrak in developing schedules to minimize freight and passenger train operation conflicts.

Capitol Corridor – On the *Capitol Corridor*, where much of the route is already double-track, the goal is to maintain OTP at 90 percent. The actual FFY 2006-07 OTP was 74.6 percent, which is due primarily to freight and passenger train congestion, track construction work, bridge opening delays, and mechanical incidents.

New capital projects will further improve OTP. For example, the Phase 1 of the Oakland to San Jose track improvements and the Yolo Causeway second main track project, completed in 2004, cut running time by 10 minutes between Sacramento and Oakland.

SCHEDULE PLANNING

In schedule planning, an essential component of the Operations Program, the Department reviews and revises train schedules to improve ridership, yield, and operational efficiency within the established number of round-trips on the route. Intercity passenger rail serves a key role in a variety of travel patterns, which tend to become more complex as population growth and business centers move further away from cities. Thus, train schedules, particularly in regard to equipment usage and crew schedules, are designed to provide optimum flexibility and coverage so that passengers can plan convenient business or day trips to major urban destinations, such as San Francisco, Oakland, Los Angeles, Sacramento, and San Diego. Also, the Department works together with other rail and transit providers to develop schedules that easily connect with these services. Additionally, optimal schedules for the traveler are considered when the benefits of capital projects are modeled. The goal is for capital projects to allow more train scheduling flexibility as well as improved OTP and reliability.

Cost-Effectiveness Planning

The Department also works with Amtrak to increase revenue yields and contain costs through analysis of segment profitability, yield pricing and other mechanisms, and establish fares that maximize yields and ridership. This effort is coordinated with the market research and ridership/revenue modeling work

described in Chapter IV. Additionally, the Department monitors Amtrak billings for accuracy.

Another potential avenue for reducing costs and increasing service quality is the competitive bidding of either the entire intercity rail service function or of specific ancillary services. The Department has examined these options in the past and will continue to study the feasibility of competitively bidding rail services. This is a timely issue as there has been strong interest from the Federal administration and many in Congress to introduce competition to Amtrak. Amtrak's own strategic reform initiatives concerning competition are discussed in the "Amtrak Planning Section" of Chapter XI.

PASSENGER AMENITIES

On Board Amenities

A hallmark of intercity rail service includes enhanced passenger amenities. All trains on each of the three State routes include a food service car that provides table seating, snacks, drinks, beer and wine. Passengers can also take food and beverages back to their own seat. The *San Joaquin* Route also provides a full meal on a tray, including vegetarian items. Food service is evaluated and adjusted on an ongoing basis to improve quality, variety and cost effectiveness.

Seating reservations are made at the time of ticket purchase on the *San Joaquins*. Reserved seating on the *Pacific Surfliners* is available with Business Class Service, which includes large reclining seats, extra legroom, and at-seat service of food, beverages, and a newspaper. The *Capitol Corridor* provides one "quiet car" per train for passengers who want to sleep or relax. The CCJPA is also exploring the development of a Business/Custom Class Car with the objective of providing additional services and amenities not found in other Coach Cars. Checked baggage is available on the *San Joaquins* at all staffed stations and on the *Pacific Surfliners* at most staffed stations.

The fleet of California Cars (*San Joaquin* and *Capitol Corridor*) and Surfliner Cars (*Pacific Surfliner*) were designed to provide superior passenger amenities including on board bicycle facilities, and complete accessibility consisting of on-board wheelchair lifts, two designated spaces per train car for passengers in wheelchairs, and one wheelchair-accessible lavatory on the lower level of each train car. Current upgrades underway for the California Car provide 110-volt convenience outlets at every seat. In the longer term, the Department is in the process of developing specifications for new rail cars that will increase on-board amenities as well as operational efficiency.

The Department is also exploring new technologies to improve on-board amenities (see the Section below titled "Emerging Technologies").

Station Amenities

Passenger amenities are also provided at stations on all three State routes. The 10-year capital program includes several station improvement and parking projects, including the Emeryville and Richmond Stations (on the *San Joaquin* and *Capitol Corridor* Routes), and new station projects in Elk Grove, Stockton and Madera on the *San Joaquin* Route. The 10-year plan also includes new parking projects at the Oxnard, Fullerton, and Solana stations on the *Pacific Surfliner* Route. Over the years, most of the existing stations were either rebuilt or significantly upgraded. Near-term projects involve deployment of next-generation ticket machines on the *Pacific Surfliners* to allow cross ticketing between Amtrak and Metrolink. Also, the Department encourages mixed-use development, at or near stations that can provide improved access to food, entertainment and transportation services.

Passenger Information

Passenger information serves both a marketing and operational function. The Department is continually looking for new ways to inform customers and potential customers about: rail service; transit, air and auto connections to trains and connecting buses; and locations served by trains and connecting buses. Passenger information is disseminated in various forms, including: telephone information; printed timetables; signage and displays at stations and bus stops; and via the internet. The Department seeks to provide passengers with information on the "total trip", including extensive information on destinations.

Amtrak's national telephone information number, 1-800-USA-RAIL, is the most widely used source of information for Amtrak California customers. The train timetable (for each of the three State routes) provides essential passenger information. Timetables, which are updated with every schedule change, provide train and connecting Amtrak bus schedules, a list of connecting transit services (including detailed information on commuter rail connections), and a list of passenger amenities for each station.

Passenger information is also provided at train stations, bus stops, and on the internet. The timetable is displayed on "Info Posts" at all train stations (on the platform) and bus stops (at the stop). These displays include local area maps with information (including phone numbers) for hotels, restaurants, rental car agencies and other services located near the station. All Info Posts are updated with every schedule change. Electronic Passenger Information Display Systems (at all stations on the three State routes) provide passengers with real-time audio and visual information on train arrivals and departures. These information displays are especially helpful at un-staffed stations. Future projects include displaying real-time information on the train status of connecting commuter and transit systems

In 1996, the Department established the Amtrak California web site, www.amtrakcalifornia.com, that provides detailed information on California

routes, fare promotions and discounts, and downloadable timetables. The website also provides local information to assist with trip planning, station information, local transit information, links to local transit operators, and direct links to Amtrak's national web site, www.amtrak.com, that provides general information, on-line reservations, ticket purchasing for all Amtrak trains, and Amtrak tour and vacation package information. The Amtrak California web site also includes a direct link to the CCJPA's web site, www.amtrakcapitols.com, which provides information on the *Capitol Corridor*.

The Department launched "Caltrans in Transit", a web-based travel planner for Caltrans employees in Summer 2007. This tool will provide employees with the "best bets" for using public transportation when traveling on State business between Headquarters and District offices. The "Caltrans in Transit" web-based travel planner will present employees with transportation options, trip costs, and detailed travel instructions. In addit, the Department's Internet Travel Reservation service will be enhanced in 2007 to allow making Amtrak reservations with the same ease as making airline and car rental reservations. Finally, Amtrak installed a "Quik-Trak" ticket machine at the Department's Headquarters location that is available to the public to purchase Amtrak tickets. The Department will monitor the success of the program and possibly expand it to District offices.

EMERGING TECHNOLOGIES

Due to emerging technology primarily related to wireless networking, possibilities to streamline operations and improve passenger amenities exist that previously would have been very costly or not available. Some of these improvements are related to technology that is currently available and some involve development of a comprehensive wireless system. These applications are discussed below, while the specific applications to each Route are discussed in Chapters VI, VII, and VIII.

Passenger On-Board Wireless Internet Service

Wireless internet service is becoming commonplace. The *Capitol Corridor* offered internet service in selected cars on a pilot basis, but it was determined to not be cost-effective at the time. The Department would like to add passenger on-board wireless internet capabilities to its Routes. However, as is discussed below, this may not be cost effective unless the wireless system is linked to a more comprehensive system-wide network involving operational applications. Also, application to each route could differ as the Department owns all of the equipment on the *San Joaquins*, while the majority of equipment on the *Pacific Surfliners* is owned by Amtrak.

Automated Ticket Validation

Automated Ticket Validation and on-line ticketing is a wireless application that can be implemented in advance of a full wireless network. It would improve customer service, operations, and safety. Rail passengers have been able to make

reservations and purchase tickets over the internet for some time now, but the tickets purchased are traditional paper tickets and must be mailed to the purchaser or picked up at an Amtrak ticket office prior to departure. Airlines went one step farther and introduced "paperless" ticketing several years ago where passengers can make their own reservations on-line that are used to print a boarding pass prior to departure, either on the passengers' own computer or at a check-in terminal at the airport. A similar system for train travel would be much more convenient for many passengers, particularly those boarding at small unstaffed stations along the route, because it would eliminate the need to obtain actual paper tickets prior to traveling, or purchasing them on board.

The system would have many operational advantages. Conductors would scan the tickets with hand-held bar code readers and the information would be stored electronically, eliminating the manual processing of tickets, both on-board the trains and in Amtrak's central accounting offices. Tickets could be also purchased on-board, and on-board credit card sales could be checked for invalid credit card usage. The hand-held system will also print out a seat check for each ticket validation or on-board ticket sale. By cross reference to the maintained ticket sale database and the validation of ticket use or sale while in service, it will be feasible to produce a passenger manifest. This is a significant safety and security feature and will be similar to that currently required of the passenger airline industry. This system would also allow actual trip origin-destination information, instead on the current estimates (particularly for 10-ride and monthly tickets), to better inform management of actual usage, thus allowing better insight and management of the service delivered to the customer.

The CCJPA in 2007 is undertaking an automated ticket validation pilot project that is funded by the Department. Depending upon the results, the Department will develop a plan for project implementation on the *Pacific Surfliners* and *San Joaquins*.

Wireless Train Management System

The Department is investigating the use of wireless train management that is a wireless network of communication between locomotives, wayside signaling systems, and dispatchers that functions as a safety overlay on top of existing train control and signal systems. The purpose is to improve safety and to prevent train collisions and accidents. A computerized system is installed inside each locomotive that receives information from the railroad's existing Global Positioning System (GPS) network, and once the train is underway, the system tracks the train's location. The system can: override and automatically control train speed, relay information such as speed limits and track switch positions to a computer screen inside the locomotive cab, sending warnings to the crew, and automatically starting the braking process (if the crew does not respond promptly). Wireless train management is a significant safety milestone for the rail industry.

The Electronic Train Management System (ETMS) is a patented system that is used by BNSF. As a pilot project in 2004, BNSF installed ETMS on 50 of its locomotives along a 135-mile stretch of track in Illinois. In January 2007, the Federal Railroad Administration (FRA) gave approval to begin using (ETMS) on other parts of the BNSF network. The Department first plans to implement ETMS on the *San Joaquin* Route because a majority of the railroad track is owned by BNSF who plans to install ETMS in the next few years. The BNSF's current tentative timeline is to begin work in FY 2009-10 and complete work in FY 2010-11. Funding for the project still needs to be finalized.

Installation of a wireless train management system on the *Pacific Surfliners* would be more complex because of the multiple railroad ownership on the Route. On the *Capitol Corridor*, the CCJPA would have to work with the UP on installation of a similar system.

Comprehensive Wireless Network

A comprehensive wireless network could have many applications for improvement of safety, operations, cost-control, and customer service. The network would include hardware installations on the State-owned rolling stock and would likely include equipment installations along the right-of-way and other fixed facilities. Systems such as this are in use today in Europe. This network could use similar technology to an ETMS system, however would be completely separate, as ETMS must be a totally closed-system in order to maintain the high level of accuracy and lack of failure necessary for a signal safety system.

The applications that can be developed based on a comprehensive wireless network represent options that would have previously been very costly or impossible, and as such, a wireless network has a very strong potential to be one of the most significant changes to passenger rail service and operations in the future. The applications listed in Figure **3G** below are initial options for development and implementation. Figure **3G** describes specific applications of the wireless network, their applications and their benefits. Additionally, when new and innovative means to improve customer service, safety, security, and improve the efficiency of operations (maintenance, fare collection, etc.) are identified, a stable and cost effective network exists for development and deployment.

Business model analysis indicates that providing customer internet access, either "free" (included with the train ticket fare), or charged separately, and the potential use of on-train digital advertising, could provide an ongoing flow of revenue to support much of, if not all of, the capital and operating expenses for the network. Thus, customer access may be able to support the costs of the operational and safety components of the system.

Figure 3G

Comprehensive Wireless Network Applications		
Application	**Uses**	**Benefits**
Right-of-Way (ROW) Cameras	Placed at grade crossings, at other crucial infrastructure points, or in key spots along the ROW and viewed in the train engineer's cab. The real-time video image provides a 'look ahead' for the engineer within sufficient braking distance to avoid damage to life and property. Remote viewing at an operations center can track and record illegal dumping and trespassing, unauthorized entry or any unauthorized placement of objects/devices in the ROW. Remote viewing of the ROW can be enhanced by video analytics which analyzes image for incident abnormalities and then alerts a decision maker to view the affected camera.	• Reduces loss of life and injury, property damage to rail equipment, track infrastructure. • Reduces cascading and multi-hour delays to passenger and freight trains and costs to "rescue" passengers stranded while incident damage is evaluated and restored. • Reduces liability/legal costs from reduced number of incidents. • Keeps more trains in service to fulfill the service plan. • Video analysis allows for action and response after unauthorized entry or placement of devices. • Reduces train repairs for strike incidents that often exceeds $100,000 per incident.
On-Train Security Cameras	Cameras placed in passenger cars, and on the front of locomotives can provide remote viewing capability at an operations or an emergency response (police/fire) unit, and it may be activated via video and/or audio analytics. The images can also be saved for later access.	• Real-time decision and analysis tool for train crew, emergency personnel, and operations personnel to respond more effectively to incidents. • Legal record of incident leads to improved prosecution, or reduction/elimination of claims.
Conductor Hand-held Cameras	Conductor activated, mobile camera powered via Wi-Fi equipped device to allow remote viewing of incidents, passenger actions, and remote mechanical viewing and repair management. They are a tool for conductors to use in situations where conductors determine that remote direction and guidance would help them respond to incidents.	• Allows for more rapid repair and diagnostics from mechanical delays which improves on-time performance. • Likely to reduce extreme delay waiting for mechanical staff to arrive at train. • Provides a record of conductor's actions when activated for an incident.

Figure 3G (continued)

Comprehensive Wireless Network Applications		
Application	**Uses**	**Benefits**
Automated Ticket Validation Program	A Wi-Fi enabled hand-held bar code scanner can be programmed to record and sell valid Amtrak passenger train tickets which, through a database of ticket sales, can be used to establish a real-time passenger manifest. Also a tool to track, validate, and sell tickets to passengers.	• Real-time passenger manifest updates available in the event of an incident. • Real-time processing of on-board credit card sales reduces revenue loss (due to post processing) of invalid credit card usage. • Also provides a platform for richer ridership data and analysis.
Mechanical Diagnostic Real-Time Feed	Data feed that tracks locomotive and en-route fleet performance can provide mechanical diagnostics information on a real-time basis for en route monitoring. It improves scheduling for actionable repair and updating of the maintenance log for scheduled or targeted maintenance.	• Improves maintenance and fewer incidents due to road failures; and more rapid and thorough understanding of road failure reason. • Improves on-time performance through more rapid incident resolution and by overall reduction of maintenance delay incidents.
Food Service Real-Time Inventory	Maintain a real-time inventory of food stock and sales for en route re-stocking and for long-term sales tracking.	• Can reduce food spoilage costs. • Vastly improves sales to inventory tracking and revenue monitoring. • Data can provide for a menu change to improve sales.
Changeable Customer Information Video Screen	Wi-Fi updated, in car mounted LCD screen that conveys customer information and/or media content. Providing customer alerts, internal train status, and an opportunity for advertisement (revenue).	• Most effective on-train communications tool and new customer touch point. • Opportunity for advertisement revenue for use of screen space.
Train Delay Database Reporting	Via the same Wi-Fi handheld units for the ATV project, conductors do direct electronic entry to delay incident reporting database.	• Reduces data entry costs. • Real-time accuracy and tracking.

The CCJPA has taken the lead on researching the use of technology to improve customer service and railroad operations. The Department has funded and supported this work. To date the CCJPA has developed a Request for Information (RFI) and worked with consultants. By 2008, the CCJPA expects a Request for

Proposal (RFP) process to be in place that seeks to find the best technology and business model fit with a network operator or service provider to establish and maintain such a network. Based on the results of the RFP process, the Department will develop plans to implement a wireless network on the *Pacific Surfliner* and *San Joaquin* routes.

Customer Relationship Management (CRM)

Customer Relationship Management (CRM) also uses new technology to improve the information exchange between the rail operator and the customer that is initiated with ticket sales. CRM is centered on a greatly improved ticket sales database system. CRM ties together the sales, customer service, marketing, and supply chain/operations activities to deliver service to the customer. Many businesses are using CRM to gain better sales and customer data and streamline customer service processes. In many other industries, and most notably, the airline industry, customers are accustomed to a detailed level of customer service that is typically delivered via CRM.

The train customer could use this system to get train-related information tailored to their needs, such as electronic alerts on specific trains, general rail service updates, special promotions/offers, and other communication as requested by the customer. In turn, Amtrak California would gain valuable demographic customer data that would provide a better understanding of the customers and provide a tool to deliver service that is more closely aligned with the customer's needs and desires. Data from a CRM system would allow management to use predictive analytics to determine customer travel and usage patterns. As well, in the marketing arm of customer relations, the data would allow for improved promotions and techniques to build customer trust and loyalty, which is nearly impossible with today's system.

The relationship between the wireless network, automated ticket validation, and CRM is inter-connected. They are linked through the use of technology and databases to gain a unified, cost-effective platform for improving passenger rail operations in general. The Department will continue to research the feasibility of implementing these systems.

CONNECTING AMTRAK BUS SERVICES

All three State routes include connecting Amtrak bus service. On the *San Joaquins*, the bus network is an essential element of the system, with at least 70 percent of *San Joaquin* passengers using at least one connecting bus at the beginning or end of their trips. The buses are utilized to reach markets that are not directly served by intercity passenger rail. The Amtrak buses are guaranteed connections; if a train is late, the bus connection waits until the train arrives. Government Code Section 14035.55 requires that Amtrak bus riders must use the train for part of their trips; thus Amtrak has specific ticketing policies to ensure bus access is not provided to non-train riders.

Bus routes are evaluated for their cost-effectiveness. Under Government Code Section 14035.2, the Department is required to conduct cost recovery analyses on bus routes, and restructure or discontinue routes if they do not meet standards. The Department developed written standards to implement the law, including twice-yearly route and segment evaluations. Cost recovery (or break-even) is defined (under the law) by subtracting bus route operations costs from bus route revenue plus the train revenue contributed from bus route passengers. Utilizing this financial analysis, it is evident that the bus system provides a net incremental gain to the trains. The Department continues to evaluate bus routes on this basis and restructures or eliminates routes as necessary. Also, certain stops may be added, relocated, or eliminated, and frequencies may be adjusted to reflect market conditions.

Figure 3H shows the performance of currently operated bus routes for FY 2004-05 and 2005-06. The column headed "Net Generated Revenue" requires further explanation: few connecting bus passengers would use the train if the feeder bus service 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. 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.

Figure 3H

AMTRAK CONNECTING BUS PERFORMANCE						
Bus Route Number	**Bus Route End Points**	**Bus Passengers**	**One-Way Bus Trips**	**Passengers per Bus Trip**	**Net Generated Revenue**	**Net Generated Revenue per Bus Passenger**
October 2005 through September 2006						
1	Los Angeles-Bakersfield	249,266	12,779	19.5	$ 6,585,116	$ 26.42
3	Stockton-Redding	104,150	4,674	22.3	$ 630,782	$ 5.83
4	Los Angeles-Santa Barbara	10,982	772	14.3	$ 163,481	$ 14.26
6	Stockton-San Jose	24,063	4,380	5.5	$ (501,680)	$ (21.16)
7	Martinez-McKinleyville	43,920	5,844	7.5	$ 162,214	$ 1.75
9	Bakersfield-Las Vegas	16,077	2,190	7.3	$ 54,093	$ 1.98
10	Bakersfield-Santa Barbara	27,954	2,922	9.6	$ 286,968	$ 9.97
12	Bakersfield-Palmdale	11,619	1,460	8.0	$ 6,557	$ (0.17)
17A	Santa Barbara-Paso Robles	47,631	2,576	18.5	$ (191,908)	$ (4.03)
17C	Paso Robles-San Francisco	7,589	730	10.4	$ (326,897)	$ (43.08)
18	Hanford-San Luis Obispo	20,006	1,460	13.7	$ 34,298	$ 1.71
19	Bakersfield-Indio	31,812	2,920	10.9	$ (105,430)	$ (3.31)
20	Sacramento-Reno/Sparks	51,227	3,288	15.6	$ 150,854	$ 2.94
21B	Oakland - San Jose	36,034	3,650	9.9	$ (21,358)	$ (0.59)
21C	San Jose- Santa Barbara	13,149	728	18.1	$ 100,870	$ 7.67
23	Sacramento-Carson City	17,365	2,184	8.0	$ (191,000)	$ (11.00)
34	Stockton-San Francisco	11,982	1,460	8.2	$ 54,456	$ 4.54
36 (2)	Oakland - San Luis Obispo	17,047	756	22.5	$ 478,953	$ 28.10
37 (3)	Merced-Monterey	3,893	1,336	2.9	$ 219,887	$ 56.48
	TOTALS	**745,766**	**56,109**		**$ 7,590,256**	
October 2004 through September 2005						
1	Los Angeles-Bakersfield	234,541	12,045	19.5	$ 6,003,672	$ 25.60
3	Stockton-Redding	84,452	5,082	16.6	$ 1,112,784	$ 13.18
4	Los Angeles-Santa Barbara	12,389	758	16.3	$ 221,320	$ 17.86
6	Stockton-San Jose	26,633	5,856	4.5	$ (438,934)	$ (16.48)
7	Martinez-McKinleyville	37,974	5,867	6.5	$ (24,719)	$ (0.65)
9	Bakersfield-Las Vegas	15,191	2,007	7.6	$ 40,521	$ 2.67
10	Bakersfield-Santa Barbara	25,792	2,743	9.4	$ 201,889	$ 7.83
12	Bakersfield-Palmdale	9,870	1,368	7.2	$ (32,196)	$ (3.26)
17A	Santa Barbara-Paso Robles	20,924	2,509	8.3	$ 136,769	$ 6.54
17C	Paso Robles-San Francisco	18,536	733	25.3	$ 171,012	$ 9.23
18	Hanford-San Luis Obispo	16,613	1,462	11.4	$ 20,029	$ 1.21
19	Bakersfield-Indio	33,049	2,925	11.3	$ 300,839	$ 9.10
20	Sacramento-Reno/Sparks	50,648	8,030	6.3	$ 210,096	$ 4.15
21A (1)	San Jose - Monterey	2,301	496	4.6	$ (29,346)	$ (12.75)
21B	Oakland - San Jose	24,639	3,064	8.0	$ 19,620	$ 0.80
21C	San Jose- Santa Barbara	12,216	730	16.7	$ 58,401	$ 4.78
23	Sacramento-Carson City	16,472	2,190	7.5	$ (93,699)	$ (5.69)
34	Stockton-San Francisco	19,407	1,476	13.1	$ 228,573	$ 11.78
36 (2)	Oakland - San Luis Obispo	13,016	817	15.9	$ 322,374	$ 24.77
	TOTALS	**674,663**	**60,158**		**$ 8,429,005**	

(1) Effective June 2005, San Jose-Monterey service discontinued
(2) Effective November 2004, Route 36 service began
(3) Effective November, 2005 Route 37 service began

MULTIMODAL CONNECTIVITY

The Department strives to make the intercity passenger rail system as "seamless" as possible with excellent connectivity to other transportation systems. Designing for connectivity enters into virtually every aspect of operations, marketing and capital planning. The Department will continue to improve connectivity wherever possible by expanding the programs discussed below, and implementing new programs.

Amtrak: The State-supported routes connect with each other and with Amtrak's national intercity passenger rail network. Many passengers use the State-supported routes as part of a longer rail trip. Coordination of schedules with other services generates additional ridership and can improve overall efficiency. The *Pacific Surfliners* connect to the: *San Joaquins* and *Capitol Corridor* (via Amtrak bus), *Coast Starlight*, *Southwest Chief*, and *Sunset Limited*. The *San Joaquins* connect to the: *Pacific Surfliner* (via Amtrak bus), *Capitol Corridor*, *Coast Starlight*, *California Zephyr*, *Sunset Limited*, and *Southwest Chief*. The *Capitol Corridor* connects to: the *San Joaquins*, *Pacific Surfliners* (via Amtrak bus), *Coast Starlight* and *California Zephyr*.

Commuter and Urban Rail: In Southern California, the Department works with both Metrolink and Coaster to promote the Rail 2 Rail Program, which connects the *Pacific Surfliners* to Metrolink in the Los Angeles area, and Coaster in the San Diego area. Additionally, the *Pacific Surfliners* stop at stations with connections to Los Angeles Metro Rail, San Diego Trolley, and Caltrain in San Jose (via Amtrak bus service). In central California, the *San Joaquins* stop at stations with connections to Caltrain, BART, San Francisco Muni, Santa Clara Valley Transit Authority (VTA), and Sacramento Regional Transit. In addition, the network of commuter rail and transit systems in Southern California is accessible to *San Joaquin* Route passengers by utilizing the dedicated connecting bus service at Bakersfield. In Northern California, the *Capitol Corridor* stops at stations with connections to Caltrain, Altamont Commuter Express (ACE), BART, VTA and Sacramento Regional Transit (fall 2006).

Transit: Under the Free Transit Transfer Program, the Department and the CCJPA have agreements with many local transit agencies, serving communities along all three State routes, to offer Amtrak passengers free transfer passes as follows:

Pacific Surfliner Route:

- City of Guadalupe Transit
- Regional Transit Authority (San Luis Obispo, Santa Maria, Atascadero, Paso Robles)
- San Luis Obispo Regional Transit (SLO Transit)
- Santa Barbara Metro Transit District

- South County Area Transit (Grover Beach)

San Joaquin Route:

- Alameda-Contra Costa Transit District (AC Transit)
- Benicia Breeze
- Contra Costa County Connection
- Fresno Area Express
- Merced County Transit
- Rio Vista Delta Breeze
- Sacramento Regional Transit

Capitol Corridor:

- Alameda-Contra Costa Transit District (AC Transit)
- Contra Costa County Connection
- Davis Unitrans
- Fairfield/Suisun Transit
- Sacramento Regional Transit
- Santa Clara Valley Transportation Authority (VTA)
- Yolobus (Davis and Sacramento)

In the 10-year period, the goal is to expand the program to all major transit providers with connections to the State-supported routes.

Streets and Highways: Finally, the Department works to ensure that the trains are well connected to streets and highways through proper design of stations and signage, including pathfinder signs on local streets and roads and State highways that guide passengers to Amtrak stations.

Rail 2 Rail Program

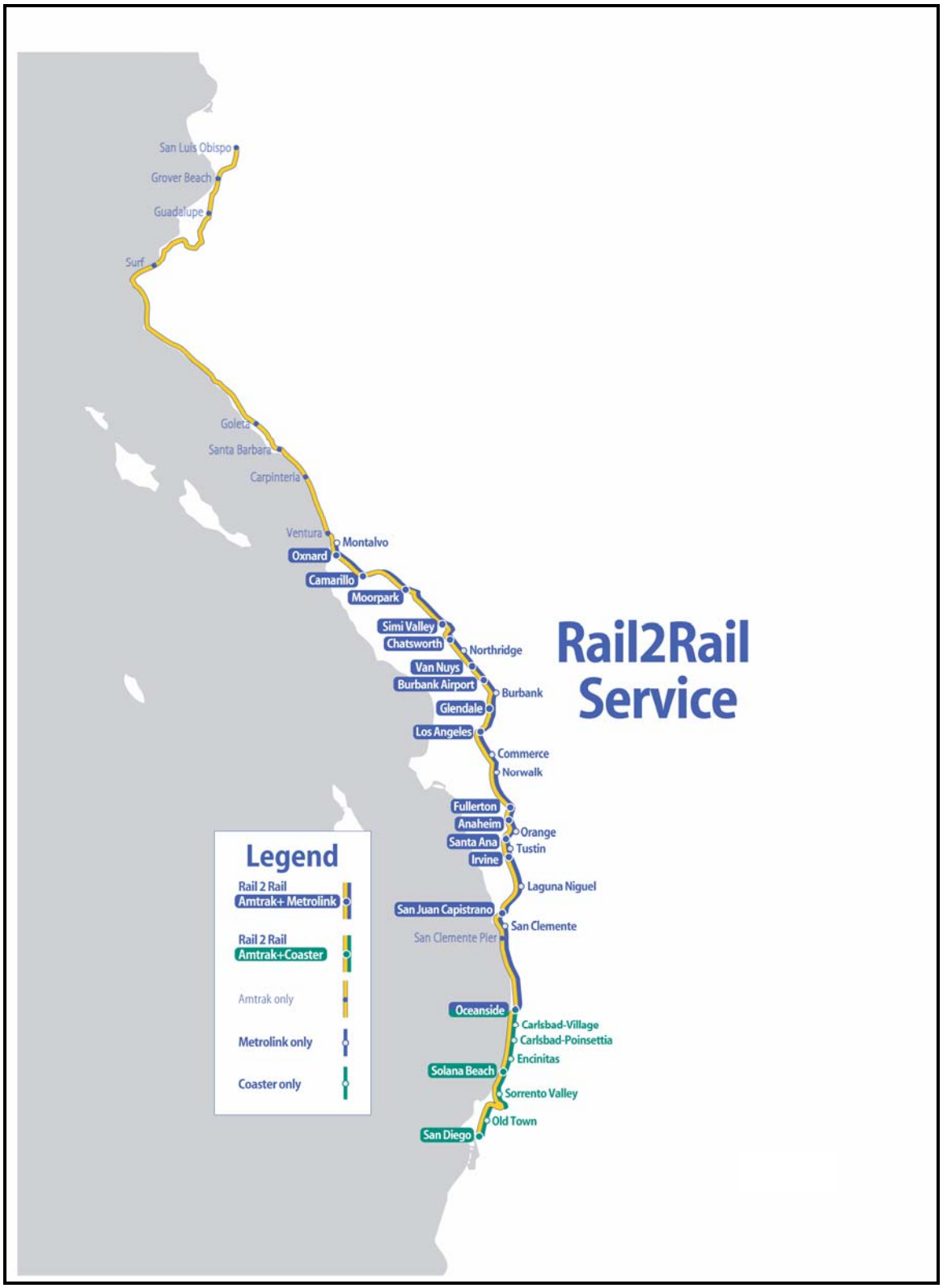
The Rail 2 Rail Program, introduced in September 2002, aims to improve connectivity between intercity and commuter rail services in southern California by coordinating schedules, ticketing, and fares between Amtrak, Metrolink and Coaster. Since the program was introduced, *Pacific Surfliner* ridership has increased 52 percent between 2001-02 and 2005-06. Each month Metrolink monthly ticket holders take over 36,000 trips; Coaster monthly ticket holders take 6,500 trips.

The joint ticketing Rail 2 Rail Program allows Metrolink and Amtrak monthly ticket holders (for the Orange County and Ventura County lines) to have access to

both system's trains within the geographical limits of their tickets. Also, all Amtrak and Metrolink fares are equalized between Burbank Airport and Los Angeles Union Station, making it possible for any Metrolink or Amtrak ticket to be used on any train. In April 2004 the Program expanded to the Coaster service allowing Amtrak ticket holders and Coaster monthly ticket holders access to both Amtrak and Coaster trains between Oceanside and San Diego. Metrolink and Amtrak share 15 stops; Coaster and Amtrak share three stops. Figure 3I is a map of Rail 2 Rail Service.

To further improve the seamless connectivity of the Southern California Rail System, Rail 2 Rail will expand to allow "through ticketing" between Amtrak and Metrolink, once through ticketing machines are in operation. They are scheduled for deployment in 2007-08, will replace the separate Amtrak and Metrolink machines used for their respective systems. For example, a passenger would be able to purchase a ticket from one vending machine for a trip that begins on an Amtrak train and ends on a Metrolink train.

Figure 3I


Rail2Rail Service
San Luis Obispo
Grover Beach
Guadalupe
Surf
Goleta
Santa Barbara
Carpinteria
Ventura
Montalvo
Oxnard
Camarillo
Moorpark
Simi Valley
Chatsworth
Northridge
Van Nuys
Burbank Airport
Burbank
Glendale
Los Angeles
Commerce
Norwalk
Fullerton
Anaheim
Orange
Santa Ana
Tustin
Irvine
Laguna Niguel
San Juan Capistrano
San Clemente
San Clemente Pier
Oceanside
Carlsbad-Village
Carlsbad-Poinsettia
Encinitas
Solana Beach
Sorrento Valley
Old Town
San Diego
Legend
Rail 2 Rail
Amtrak+ Metrolink
Rail 2 Rail
Amtrak+Coaster
Amtrak only
Metrolink only
Coaster only

AIRPORT ACCESS

Section 14036.7 of the Government Code 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.

Virtually all major airports in California can be reached by intercity rail with a transit connection. Figure 3J shows the intercity and commuter rail stations and transit connections that provide access to the major California airports. The Amtrak California web site: www.amtrakcalifornia.com provides detailed information on access from California Amtrak services to California airports.

Three airports in California are served directly by Amtrak train or connecting feeder bus service: The Bob Hope Airport (Burbank), the Arcata-Eureka Airport, and the Palm Springs Airport. The Bob Hope Airport is directly served by *Pacific Surfliner* trains. The rail station, which provides both Amtrak and Metrolink service, is a short walk from the main airport terminal. The station integrates airport shuttles, Amtrak *Pacific Surfliner* trains, *San Joaquin* feeder bus service, Metrolink trains, and local transit service. Currently, five daily round-trip *Pacific Surfliners* and 18 weekday Metrolink round-trip trains serve this station. The Arcata-Eureka and Palm Springs Airports are directly served by a *San Joaquin* bus stop at the airport.

Figure 3J

Rail Access to Major California Airports			
Airport (Code)	**Rail Corridor***	**Station**	**Public Transit Connection between Rail Station and Airport**
Arcata-Eureka [ACV]	*San Joaquin* Bus	McKinleyville	(Bus stops at airport terminal.)
Bob Hope [BUR]	*Pacific Surfliner*/ *San Joaquin* Bus/ Metrolink	Burbank Airport	Airport shuttle (or within walking distance)
Fresno-Yosemite International [FYI]	*San Joaquin*	Fresno	Fresno Area Express
John Wayne [SNA]	*Pacific Surfliner*/ Metrolink	Santa Ana	Orange County Transit Authority
Long Beach [LGB]	*San Joaquin* Bus	Long Beach	Long Beach Transit
Los Angeles International [LAX]	*Pacific Surfliner*/ Metrolink	Los Angeles	Los Angeles Metropolitan Transit Authority bus
	San Joaquin Bus	Van Nuys Flyaway	Flyaway bus shuttle
San Jose Mineta International [SJC]	*Capitol Corridor*/ *San Joaquin* Bus/ Caltrain	San Jose	Valley Transportation Authority
Oakland International [OAK]	*Capitol Corridor*	Oakland Coliseum	AirBART Shuttle or AC Transit
	San Joaquin	Richmond	BART, AirBART Shuttle or AC Transit
Ontario International [ONT]	*San Joaquin* Bus	Ontario	Omnitrans
	Metrolink	Fontana	Omnitrans
Palm Springs [PSP]	*San Joaquin* Bus	Palm Springs	(Bus stops at airport terminal.)
Sacramento International [SMF]	*Capitol Corridor*/ *San Joaquin* trains and buses	Sacramento	Yolobus
San Diego International [SAN]	*Pacific Surfliner*/ Coaster	San Diego	San Diego Transit bus
San Francisco International [SFO]	*San Joaquin*/ *Capitol Corridor*	Richmond	BART
	Caltrain	Millbrae	BART

* - A bus in the "Rail Corridor" column indicates dedicated Amtrak feeder bus connection from an Amtrak station.

CHAPTER IV
MARKETING PROGRAM

This chapter describes the purpose of the State's intercity rail marketing program for the *Pacific Surfliner* and *San Joaquin* routes and marketing goals for the next ten years. The program components include advertising, public relations/outreach, group travel, rail safety, and market research. This program is developed in partnership with Amtrak and Capitol Corridor Joint Powers Authority (CCJPA). Additionally, the *Capitol Corridor's* marketing program, which is formulated by the CCJPA, is described at the end of the chapter.

MARKETING PROGRAM GOALS

The Department's goals for the Marketing Program are as follows:

- Increase ridership by promoting new and expanded train and feeder bus services as consistent with ridership and service levels identified in Chapter III, Fiqure 3A.
- Develop strategic partnerships with entities such as Air Quality Districts, transit agencies, and the private sector to leverage scarce media funds.
- Develop new ways to reach our target audience more cost effectively with an emphasis on the emerging online technology. This includes the use of attention-grabbing web banners, direct response e-mail marketing, and travel-related web sites to inform travelers of the rail option.
- Develop ridership in specific primary target markets that represent the greatest opportunity for increased ridership and revenue. This includes the "mature market" (persons over 50), families, and Hispanic persons. Secondary markets include business travelers, solo travelers, and college students.
- Promote recent improvements to the rail corridors including the opening of new and renovated stations and other capital improvements.
- Promote new intercity rail services.

The purpose for having a marketing program is to create awareness of California train travel in consumers' minds. Market research shows that most California travelers do not consider taking the train when making travel decisions. Creating this awareness is essential for increasing demand and thus, ridership and revenue. This is accomplished through a combination of grassroots local marketing activities and broad-based media campaigns. Increased demand will help fuel the expansion of the new routes identified in the California State Rail Plan.

DEPARTMENT'S MARKETING PROGRAM

The annual intercity rail marketing program budget is $6.2 million. The budget includes $5 million in State funds and Amtrak supplements the budget with an additional $1.2 million for media advertising. Of the $5 million, $3.8 million fund marketing expenditures for the *San Joaquin*s and *Pacific Surfliner* routes. The remaining $1.2 million goes to the *Capitol Corridor* (the Capitol Corridor Joint Powers Authority administers the *Capitol Corridor* marketing funds.).

A major challenge for the marketing program includes a limited budget that has not increased since 1993. Inflation and escalating media costs make it even more difficult to maintain visibility in the media and in developing new approaches to reach audiences most likely to ride the train.

Finding creative ways to leverage the marketing dollars will continue to be critical. Stretching media dollars through partnerships with media vendors allows for "added value" or media bonus opportunities for Amtrak California. The program has realized as much as 75 percent in additional radio and television exposure and will continue to expand media dollars in this way.

To maximize the leveraging power of these limited funds, partnerships have been and will continue be developed with connecting transit agencies to promote free transit transfers on local buses and light rail. Another example is to develop cost effective ways to inform the traveling public about rail travel as simply as working with transit providers to include an Amtrak California web site link onto their web sites.

Finding ways to encourage rail travel during slow travel seasons will be developed by creating tourism packages with the Amtrak Guest Rewards Program and Amtrak's partnerships with car rental agencies and hotels. This also includes working with air quality districts that sponsor projects such as the Santa Barbara Car Free project. This project promotes travel on the *Pacific Surfliner* trains with discount offers for hotels near the rail station to eliminate the need for renting a car.

Selling Amtrak tickets to increase ridership is like a retail business. Traditional advertising methods like with any retail business are changing with the emergence of online information sources. More and more people will seek information from the internet over the next ten years and this is an area we will continue to receive more emphasis.

ADVERTISING

The Department and Amtrak combine resources to create a single advertising program for Amtrak California rail services. The Department renewed a three year contract with Glass-McClure Advertising of Sacramento that expires in FY 2009-10. Contract services include strategic planning, media planning,

production and creative services, and media buys including the emerging online market.

The Department formulates in conjunction with Amtrak a detailed plan for media expenditures. The plan includes seasonal fare promotion campaigns that are coordinated with Amtrak's national campaigns and continues a successful strategy of targeting constituent groups with high likelihood of riding the train. These groups have been identified through ongoing research conducted from within the traveling public. Rider profiles help to guide the selection of media, the times during which it runs, and the appropriate message to motivate the target audience to consider trying the train. Current research reveals the following rider characteristics:

Pacific Surfliner passengers:

- 44 percent have an annual income greater than $75,000.
- 50 percent have a four-year or higher college degree.
- The majority are middle-aged or younger (ages 18 to 49).
- 74 percent travel primarily for pleasure.

San Joaquin passengers:

- 47 percent have a household annual income of $50,000.
- The majority are middle-aged and younger (ages 18 to 49).
- 74 percent travel primarily for pleasure.

Primary targets that address the rider profile include the mature market, families, and Hispanic persons. Important secondary targets include business travelers, solo travelers, and college students. While the majority of riders are middle-aged or younger, the large number of leisure travelers makes the mature audience (those who have the time and discretionary income) a viable market segment. Price promotions appeal to a broad range of potential travelers whether students traveling to visit friends, single business travelers, or families. All these groups will be targeted with campaigns and media addressing their particular travel needs. For example, television advertising features single persons and families, thus appealing to a broad range of potential travelers. Limited term price promotions can offer an inducement for couples to travel (Free Companion Fare offers), or for individuals and families to travel (across the board fare reductions). On-line website special offers (reduced fares for short periods) reach an ever-growing broad market segment that shop on the web for travel offers and to book trips. The limited term nature of the rail travel promotions encourages potential riders to make prompt travel arrangements.

The Department's advertising focuses on the virtues of train travel. This approach uses the "Travel Made Simple" concept for Amtrak California that combines an

emotional element reflecting train travel as a unique experience with price and destination messages. This overall advertising concept will be modified when tailoring specific messages for each of the different target groups listed above.

PUBLIC RELATIONS/OUTREACH

The public relations/outreach program is the grassroots part of the marketing program and is designed to work in conjunction with and support advertising efforts. This allows for 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. Amtrak California partners have included Holiday Inn, Sea World, Yosemite, Ringling Brothers Circus, Disneyland Resort, the Oakland Raiders, the Oakland A's, California State Railroad Museum, Six Flags Discovery Kingdom, and other organizations.

Media Relations – This part of marketing includes press tours, the production of press kits for special events, media familiarization trips, and the production of travel and rail-related articles for publication. These activities are coordinated with Amtrak, and the Department's Public Affairs Office and district offices where appropriate.

Printed Materials - Making Tracks, the Amtrak California quarterly newsletter, is produced and distributed on-board trains, in station racks, posted on the internet and by mail statewide. Collateral pieces, such as flyers and coupons, are designed to highlight various aspects of the service and are produced on demand. Examples of these are posters promoting *San Joaquins* and *Pacific Surfliner* trains, a brochure advertising special packages to Yosemite, rack cards for special events and destination guides for the *San Joaquins* and *Pacific Surfliner* routes.

Special Events - State-sponsored rail facilities and services have grown, and 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 may reach a different audience than paid advertising. The Department partners with Amtrak, chambers of commerce and other local agencies to organize these events.

GROUP TRAVEL

Kids 'n' Trains - The Kids 'n' Trains Program teaches young people to learn about train travel on the *Pacific Surfliner* and *San Joaquin* routes. The program promotes field trips at a discounted fare for youth aged three to eighteen. Everyone in the group pays the same low fare for their round trip adventure by train.

Originally, the goal of the program was to increase ridership at off-peak periods. Today the program offers an educational opportunity for the kids and their chaperones to discover, explore, and learn about popular destinations in California, such as museums, zoos, and even the State Capitol. The Kids 'n' Trains Program's popularity has increased steadily over the years. Last year's ridership increased 18.7 percent on the *Pacific Surfliner* and increased 5.7 percent on the *San Joaquins* from the previous year.

Future plans include continued promotion of the program to educate children when they are young about the benefits of rail travel. These children also help us advertise and promote rail travel by sharing their experiences with friends and family. For customer convenience, online registration is being added to the Amtrak California web site effective fall 2007.

Senior Travel Program – The *Pacific Surfliner* and *San Joaquins* "All Aboard Seniors!" Program was launched in January 2004. The program was patterned after the successful Kids 'n' Trains Program and will continue to expand in the future. The program is designed to appeal to seniors who have discretionary income and can travel in off peak periods when ridership is low. Participation has grown through word of mouth and offers group discounts to a growing segment of California's population that is predisposed to train travel according to ongoing research. For customer convenience, online registration is being added to the Amtrak California web site fall 2007.

College Student Discount Travel Program – The Department and Amtrak will continue to sponsor a student discount program on the *Pacific Surfliner* and *San Joaquins* routes. The program provides a 20-percent discount to students who show a student identification card from participating colleges. There are 11 participating colleges and universities with easy access to Amtrak stations.

The program introduces Amtrak travel to students who might otherwise travel by car to and from campus. The Department collaborates with university officials to make promotional materials available on campus to students and parents throughout the school year. Amtrak advertising appears in the college online newspapers to maintain awareness. Research suggests that college students have a high potential to become regular train travelers in their post college years. The Department will continue to evaluate the effectiveness of this Program and expand it as other cost-effective partnerships with colleges and universities are identified.

RAIL SAFETY

The goal of the Department's rail safety program is to educate the public about safe behavior at railroad crossings and the dangers of trespassing on railroad rights-of-way. The Department coordinates its rail safety activities with the California affiliate of Operation Lifesaver, a national nonprofit railroad safety organization.

California Operation Lifesaver is a coalition of railroads, Federal/State and local agencies, private businesses, and individuals concerned about promoting rail safety. The Department plans to expand the program by producing and distributing packages of rail safety materials written in foreign languages, including a video for the farm worker community in the San Joaquin Valley; procuring "no trespassing" signs for use by the railroads' law enforcement; and partnering with communities along all three State routes to host Rail Safety Week events.

MARKET RESEARCH

The Department contracts with Amtrak for 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. Profiles are also created of typical riders covering income, ethnicity, travel frequency and trip purpose, among other things.

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. The Department has examined alternative family fare structures, participated in Amtrak's Pacific Coast Market Study, conducted research into the usage of the California Rail Pass, studied the *Pacific Surfliners'* Pacific Business Class, surveyed Metrolink and Coaster users of the "Rail 2 Rail" program, and performed the *Pacific Surfliner* parking analysis.

The annual research plan includes a contingency fund designed to conduct spot research on subjects that arise during the course of a given year. In 2008, the Department and Amtrak will make improvements to the readability of timetable collateral material from a customer's perspective using focus groups.

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 to estimate the ridership and revenue impacts of major service changes, such as new services, route extensions or truncations, frequency changes, and fare changes, as well as to help project future ridership and revenue on existing services.

The first stage of the model predicts total 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. The model is consistently checked for accuracy through comparison of incremental ridership and revenue forecasts of near term service changes with the actual ridership and revenue increments resulting from the initiative.

Travel service characteristics are the key independent variable in the model, including travel time, travel cost, frequency (for rail) and time of day. The Department's geographic information system (GIS) based intercity highway network provided the basis for highway travel times, distances and costs. The intercity rail travel characteristics are based on published timetables, ridership and revenue data provided by both the Department and Amtrak.

Highway and rail surveys provide the basis for quantifying the existing travel market. Over 700,000 auto and rail surveys were distributed between 1992 and 2006 across California, with over 130,000 surveys returned. The goal of both sets of surveys was to understand the travel patterns and develop demographic profiles for intercity travelers within California. This information is used in guiding the strategic planning process by which annual marketing plans are developed.

CAPITOL CORRIDOR MARKETING PROGRAM

The CCJPA's FY 2007/08-FY 2008/09 Business Plan Update states that:

> The CCJPA uses a combination of grassroots local marketing efforts and broad-based joint media campaigns to build awareness of the *Capitol Corridor* service. Marketing dollars and impact are maximized through joint promotions and advertising as well as reciprocal marketing programs with the State, Amtrak, CCJPA member agencies, and other selected partners. A primary objective is to promote the service to key markets and attract riders to trains with available capacity.

The CCJPA will pursue the following initiatives in 2007-08, 2008-09 and beyond 2008-09:

FY 2007-08 MARKETING PROGRAM

The CCJPA's FY 2007-08 Marketing Program will focus on meeting the increased ridership projections using marketing strategies based on our existing core service. Programs will be developed to target the markets most likely to benefit from the *Capitol Corridor's* FY 2006-07 service expansions. The CCJPA will continue its independent campaigns, but will coordinate with Amtrak and Caltrans on the most beneficial promotions and shared marketing collateral. Advertising media will consist primarily of radio traffic sponsorships, online web banner campaigns, and

promotionally driven media buys, all of which will be tested for advertising effectiveness. Specific marketing programs will target the markets most likely to benefit from recent service expansions. Marketing initiatives will also aim to enhance the distinctiveness and visibility of the *Capitol Corridor* brand. Key elements will include:

- Introduction of a new *Capitol Corridor* logo on all advertising and collateral to update the image of the service and enhance brand recognition.
- Advertising messages and creative that reflect the CCJPA's emphasis on the *Capitol Corridor* as a distinct service brand.
- Joint media promotions with well-known organizations to maximize media dollars and expand market reach.
- Reciprocal marketing with tourism industry members such as hotels, airports, and convention/visitor bureaus.
- Targeted marketing to school groups, senior citizens, special interest groups, and new residential communities.
- Outreach and public relations efforts in the Silicon Valley/San Jose area to build awareness of recent service expansion.
- Promotional partnerships will be leveraged to build loyalty among current passengers and awareness to new market groups.

FY 2008-09 MARKETING PROGRAM

The CCJPA will place continued emphasis on the *Capitol Corridor* brand to increase regional brand awareness and maximize use of the marketing budget. Creative execution will emphasize local character and personalize the service. CCJPA will build upon successful campaigns and promotions of previous years, but will also seek out innovative approaches to grow ridership to meet business goals. CCJPA will continue customer retention activities, with efforts that build loyalty and enhance communication.

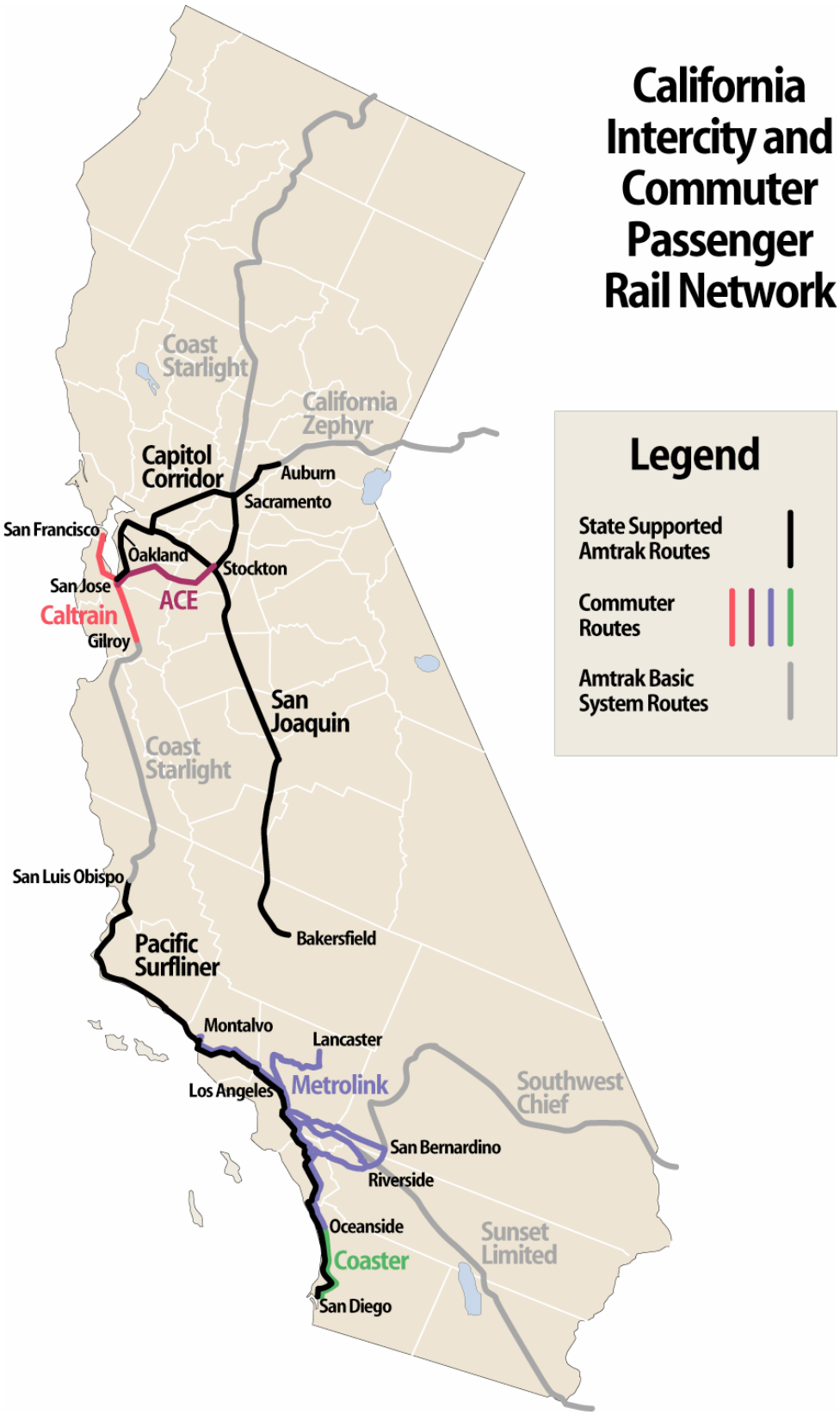
- Primary advertising media will be radio and online, with close attention paid to return-on-investment and shifts in the advertising market.
- Media-inclusive promotional partnerships will serve to extend the advertising budget.
- Marketing partnerships with companies and organizations along the service route to drive ridership and awareness of *Capitol Corridor*.
- Improve customer communications, including increased public relations efforts and website enhancements.

BEYOND FY 2008-09

CCJPA aims to grow awareness of the *Capitol Corridor* within the Sacramento/Sierra Foothills, San Francisco Bay Area and San Jose markets, through use of traditional advertising, community involvement, promotional efforts and creative marketing partnerships. With the current marketing budget, the CCJPA's ability to achieve desired visibility through media campaigns in these Northern California markets is constrained. Additional marketing funds will be needed to sustain current levels of advertising impressions and to support further development of specific market segments.

Marketing activities will be closely aligned with goals for ridership projections, with efforts focusing on attracting riders to trains with available capacity, and on customer retention. Given projected ridership increases, CCJPA will likely pursue a customer relations management (CRM) approach to maintain and enhance customer communications and marketing campaigns. As additional train equipment arrives and creates new opportunities for ridership growth, the marketing activities will shift to emphasize further customer acquisition.

Figure 5A


California Intercity and Commuter Passenger Rail Network
Legend
State Supported Amtrak Routes
Commuter Routes
Amtrak Basic System Routes
Coast Starlight
California Zephyr
Capitol Corridor
Auburn
Sacramento
San Francisco
Oakland
Stockton
San Jose
ACE
Caltrain
Gilroy
San Joaquin
Coast Starlight
San Luis Obispo
Bakersfield
Pacific Surfliner
Montalvo
Lancaster
Los Angeles
Metrolink
Southwest Chief
San Bernardino
Riverside
Oceanside
Sunset Limited
Coaster
San Diego

CHAPTER V
THE CALIFORNIA RAIL NETWORK

This chapter describes the California rail network and the State's responsibility regarding this network. Figure 5A is a map of the intercity and commuter rail passenger systems in California, Figure 5B summarizes all of the intercity, commuter, and urban rail services in California, and Figure 5C is a summary of intercity and commuter rail ridership in California from 1974-2006.

RAIL SERVICES IN CALIFORNIA

The State rail system combines intercity, commuter, and freight rail. Intercity rail includes state-supported corridor routes and Amtrak long-distance routes. All three systems share the same infrastructure that is generally owned by private railroads, and in some cases, public entities. Because these systems share the same infrastructure, joint planning and policy development increases the efficiency and effectiveness of the system, and help make infrastructure development and maintenance more cost effective. For this reason, this Plan focuses on these rail components of the larger transportation system in California.

Amtrak funds and operates "basic system" long-distance (usually interstate) rail routes. Four long-distance routes operate in California (*Coast Starlight*, *California Zephyr*, *Southwest Chief*, and *Sunset Limited*). The State funds three State-supported intercity rail routes. The Department administers the *Pacific Surfliners* and *San Joaquins* and the CCJPA administers the *Capitol Corridor*. Amtrak operates these routes under contract with either the State or the CCJPA. Regional agencies fund and administer the four commuter rail systems in California (Caltrain, ACE, Metrolink, and Coaster).

The freight rail system in California is primarily operated by two privately owned Class I railroads: the Union Pacific Railroad (UP) and the BNSF Railway (BNSF). Also, one Class II regional railroad and 27 Class III shortline railroads operate freight rail service in California.

Amtrak's long-distance routes are discussed in more detail later in this Chapter. The three State-supported intercity rail routes are discussed in Chapters VI, VII, and VIII and commuter rail services are discussed in Chapter IX. Freight rail is discussed in detail in Part II of this Plan (Chapters XII – XVII).

Figure 5B

RAIL PASSENGER SERVICES IN CALIFORNIA				
Service	Type	Operator	Service Name	Service Area
Intercity Rail	Railroad	Amtrak (100% State Supported)	*Pacific Surfliner**	San Luis Obispo-Santa Barbara-Los Angeles-San Diego
			San Joaquin	Bay Area/Sacramento-Fresno-Bakersfield
			Capitol Corridor	Auburn-Sacramento-Oakland-San Jose
		Amtrak System (100 % Amtrak Supported)	*Coast Starlight*	Los Angeles-Oakland-Sacramento-Seattle
			California Zephyr	Emeryville-Sacramento-Denver-Omaha-Chicago
			Southwest Chief	Los Angeles-Kansas City-Chicago
			Sunset Limited	Los Angeles-Houston-New Orleans
			*Pacific Surfliner**	San Luis Obispo-Santa Barbara-Los Angeles-San Diego
Commuter Rail	Railroad	Peninsula Corridor Joint Powers Board	Peninsula Commute Service (Caltrain)	San Francisco-San Jose-Gilroy
		San Joaquin Regional Rail Commission	Altamont Commuter Express (ACE)	Stockton-Livermore-Fremont-San Jose
		Southern California Regional Rail Authority	Metrolink: Ventura County Line Antelope Valley Line San Bernardino Line Riverside Line Orange County Line Inland Empire-Orange County Line 91 Line	 Los Angeles-Oxnard-Montalvo Los Angeles-Palmdale-Lancaster Los Angeles-Claremont-San Bernardino Los Angeles-Pomona-Riverside Los Angeles-Santa Ana-Oceanside San Bernardino-Santa Ana-Oceanside Los Angeles-Fullerton-Riverside
		North County Transit District	Coaster	Oceanside-Solana Beach-San Diego
Urban Rail Transit	Heavy Rail Transit	San Francisco Bay Area Rapid Transit District	BART	Richmond-Oakland-San Francisco-Daly City Fremont-Oakland-San Francisco-Daly City Richmond-Oakland-Fremont Pittsburg/Bay Point-San Francisco-Daly City Dublin/Pleasanton-Coliseum/Oakland Airport-San Francisco-San Francisco Airport-Millbrae
		Los Angeles County Metropolitan Transportation Authority	Metro Rail: Red Line Red Line	 Los Angeles-Hollywood/Vine-North Hollywood Los Angeles-Wilshire/Western
	Light Rail Transit	Sacramento Regional Transit District	RT Light Rail: Gold Line Blue Line	 Sacramento-Sunrise-Folsom Watt/I-80-Sacramento-Meadowview
		San Francisco Municipal Railway	Muni Metro: F - Market-Wharves J - Church K - Ingleside L - Taraval M - Oceanview N – Judah	 Fisherman's Wharf-Castro Ferry Building-Noe Valley-Balboa Park Ferry Building-Ingleside District-Balboa Park Ferry Building-San Francisco Zoo Ferry Building-Oceanview District-Balboa Park Caltrain Station-Ocean Beach
		Santa Clara Valley Transportation Authority	VTA Light Rail	Alum Rock-Tasman-San Jose-Santa Teresa Mountain View-Tasman-San Jose-Winchester Oholne/Chynoweth-Almaden
		Los Angeles County Metropolitan Transportation Authority	Metro Rail: Blue Line Gold Line Green Line	 Los Angeles-Compton-Long Beach Los Angeles-Highland Park-Pasadena Redondo Beach-Aviation/LAX-Lynwood-Norwalk
		San Diego Trolley, Inc.	San Diego Trolley: Blue Line Orange Line Green Line	 Old Town-San Diego-San Ysidro San Diego-El Cajon-Gillespie Field Old Town-Qualcomm Stadium-SDSU-Santee
	Cable Car	San Francisco Municipal Railway	Muni Cable Car	California Street Powell-Mason/Hyde
* - State supports 70% of all service; Amtrak supports 30%.				

Figure 5C

ANNUAL INTERCITY AND COMMUTER RAIL RIDERSHIP IN CALIFORNIA

DOES NOT INCLUDE RIDERSHIP ON AMTRAK LONG DISTANCE TRAINS NOT SUPPORTED BY THE STATE OF CALIFORNIA

	INTERCITY ROUTES				COMMUTER SERVICES					
Calendar Year	*Pacific Surfliner* ①	*San Joaquin*	*Capitol Corridor*	Total	Caltrain	Metrolink	Coaster	ACE	Total	Grand Total
1974	392,170	75,360		467,530	② --					
1975	353,590	64,110		417,700	② --					
1976	465,250	73,070		538,320	② --					
1977	688,260	86,584		774,844	② --					
1978	817,566	78,345		895,911	4,341,011				4,341,011	5,236,922
1979	1,169,978	96,399		1,266,377	5,699,406				5,699,406	6,965,783
1980	1,253,387	155,587		1,408,974	6,112,890				6,112,890	7,521,864
1981	③ 1,188,681	183,235		1,371,916	5,895,129				5,895,129	7,267,045
1982	③ 1,216,327	180,030		1,396,357	5,195,819				5,195,819	6,592,176
1983	③ 1,259,188	214,928		1,474,116	5,009,130				5,009,130	6,483,246
1984	1,215,026	257,633		1,472,659	5,232,827				5,232,827	6,705,486
1985	1,335,007	286,105		1,621,112	5,384,013				5,384,013	7,005,125
1986	1,432,700	282,414		1,715,114	5,416,303				5,416,303	7,131,417
1987	1,530,728	324,627		1,855,355	5,540,630				5,540,630	7,395,985
1988	1,744,576	355,768		2,100,344	5,600,582				5,600,582	7,700,926
1989	1,690,248	361,258		2,051,506	5,790,712				5,790,712	7,842,218
1990	1,690,759	538,061		2,228,820	6,970,696				6,970,696	9,199,516
1991	1,562,282	507,242	10,220	2,079,744	7,111,365				7,111,365	9,191,109
1992	1,665,158	510,279	271,959	2,447,396	6,833,290	165,466			6,998,756	9,446,152
1993	1,638,159	530,257	300,409	2,468,825	6,889,941	1,889,980			8,779,921	11,248,746
1994	1,578,946	561,674	371,919	2,512,539	7,021,182	4,132,625			11,153,807	13,666,346
1995	1,441,925	518,737	357,123	2,317,785	7,143,091	4,645,561	514,453		12,303,105	14,620,890
1996	1,574,896	578,059	480,555	2,633,510	7,765,115	5,688,814	850,999		14,304,928	16,938,438
1997	1,650,411	715,103	488,150	2,853,664	8,367,683	6,314,368	945,739		15,627,790	18,481,454
1998	1,559,997	665,067	464,903	2,689,967	8,643,158	6,745,282	1,132,445	67,222	16,588,107	19,278,074
1999	1,547,049	675,713	552,063	2,774,825	8,990,864	7,229,677	1,251,238	424,988	17,896,767	20,671,592
2000	1,594,189	683,889	878,960	3,157,038	10,267,000	8,062,573	1,183,058	714,259	20,226,890	23,383,928
2001	1,737,532	713,087	1,063,994	3,514,613	10,497,640	8,522,555	1,258,263	922,976	21,201,434	24,716,047
2002	1,796,442	741,497	1,104,274	3,642,213	④ 8,978,675	8,979,107	1,300,047	803,522	20,061,351	23,703,564
2003	2,228,042	783,096	1,140,561	4,151,699	④ 8,107,324	9,099,985	1,366,479	607,017	19,180,805	23,332,504
2004	2,431,085	747,574	1,192,152	4,370,811	④ 8,768,157	9,786,531	1,474,360	640,753	20,669,801	25,040,612
2005	2,520,444	755,851	1,260,249	4,536,544	9,867,498	10,245,609	1,485,125	667,029	22,265,261	26,801,805
2006	2,667,969	799,742	1,306,102	4,773,813	10,510,344	10,797,506	1,544,976	676,050	23,528,876	28,302,689

① Designated the San Diegan Route prior to May 21, 2000.

② Data not available.

③ Pacific Surfliner ridership shown above includes the following Spirit of California ridership: 1981 (17,533), 1982 (80,360) and 1983 (64,751).

④ To facilitate the implementation of "Baby Bullet" service, Caltrain suspended weekend service between July 3, 2002 and June 4, 2004, resulting in a drop in ridership. Weekend service was reestablished on June 5, 2004.

Urban rail transit systems in California do not share the same infrastructure with intercity, commuter and freight rail. These systems are locally controlled and funded, and for this reason planning for these systems is not covered in this Plan. These systems include five different light rail systems; (Sacramento, San Francisco, San Jose, Los Angeles, and San Diego), two urban heavy rail systems; BART, the Los Angeles County Metropolitan Transit Association (LACMTA) Metro Rail Red Line; and the San Francisco Municipal Railway Cable Car. For a further discussion of these systems see Figure 5B.

To further the implementation of a safe, integrated, multi-modal, transportation system, it is essential that the intercity and commuter rail systems be well integrated with the urban transit rail and bus systems. The State encourages local and regional planning agencies to share their ideas and concerns regarding intercity rail service in their respective service areas, and multi-modal integration and connectivity is discussed throughout this Plan.

THE STATE'S ROLE IN RAIL PASSENGER SERVICE

INTERCITY RAIL SERVICES

Intercity passenger rail service is a component of the State's overall transportation system and operates between several regions of the State. Service is provided between metropolitan areas and to rural areas in the State. In California, Amtrak operates all State-supported intercity rail service under the provisions of the Federal Rail Passenger Service Act (49 U.S.C. 24101). All three intercity rail routes were funded, planned and administered by the State until July 1998 when the CCJPA assumed administration of the *Capitol Corridor*. The State continues to fund the operation of the *Capitol Corridor*, and fund and administer the *Pacific Surfliner* and *San Joaquin* Routes. For more information on Amtrak's relationship with the Department and the CCJPA, see Chapter XI. For more information on the intercity rail operations budget see Chapter III.

The State also pays for the majority of capital improvements to intercity rail services. For detailed information on the intercity rail capital program see Chapter II. For information on intercity rail funding sources see Chapter XII.

Figure 5D is a map of the three State-supported routes.

COMMUTER RAIL SERVICES

Commuter rail operates primarily within a single region of the Sate, serving regional and local transportation needs. Because commuter rail services primarily serve local and regional transportation needs, they are planned and administered by local and regional transportation agencies. Various sources of funding are available at the local, State, and Federal levels. Some capital funding is provided by the State through the State Transportation Improvement Program, and other

sources, but operating funding is provided by the local and regional agencies. For more information on commuter rail services see Chapter IX.

DEFINITION OF COMMUTER VERSUS INTERCITY RAIL

The Federal Rail Passenger Service Act (RPSA) and subsequent 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 this exclusion.

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

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

Figure 5D

State-Supported Intercity Rail and Feeder Bus Routes
Legend
Corridor Train
Feeder Bus
Amtrak Station
Bus Stop Only
9/07 RFT
McKinleyville
Arcata
Eureka
Fortuna
Scotia
Garberville
Legett
Laytonville
Willits
Ukiah
Cloverdale
Healdsburg
Santa Rosa
Rohnert Park
Petaluma
Napa
Fairfield
Vacaville
Davis
Vallejo
Richmond-BART
Berkeley
San Francisco
Oakland
Emeryville
Martinez
Suisun
Sacramento
Roseville
Auburn
Rocklin
Grass Valley
Colfax
Soda Springs
Truckee
Reno, NV
Sparks, NV
Placerville
Tahoe Wye
Stateline, NV
Antioch
Hayward
Fremont
Dublin-BART
Livermore-ACE
Mission S.J.
Great America
San Jose
Tracy
Lodi
Stockton-ACE
Stockton
Santa Cruz
Watsonville
Monterey
Salinas
Hollister
San Juan Bautista
Modesto
Turlock-Denair
Los Banos
Merced
Mariposa
Midpines
El Portal
Yosemite
King City
Madera
Fresno
Paso Robles
Atascadero
Kettleman City
Lemoore
Hanford
Cal Poly
San Luis Obispo
Grover Beach
Guadalupe
Santa Maria
Surf
Lompoc
Buellton
Solvang
Corcoran
Goshen Jct.
Visalia
Wasco
Bakersfield
Santa Barbara
Carpinteria
Ventura
Oxnard
Camarillo
Santa Paula
Fillmore
Moorpark
Simi Valley
Chatsworth
Van Nuys
Burbank
Glendale
Los Angeles
Newhall
La Crescenta
Pasadena
Tehachapi
Mojave
Rosamond
Lancaster
Palmdale
Littlerock
Boron
Adelanto Jct.
Victorville
Barstow
Baker
to Las Vegas
San Pedro
Long Beach
Claremont
Fullerton
Anaheim
Santa Ana
Irvine
Ontario
San Bernardino
Riverside
Moreno Valley
Perris
Beaumont
Hemet
Sun City
San Juan Capistrano
San Clemente
Oceanside
Solana Beach
San Diego
Palm Springs
1000 Palms
Indio
to Calexico

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 RPSA definition of "intercity" is critical because Amtrak has the right under the RPSA to access freight railroad tracks at incremental cost for the operation of intercity rail passenger services.

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 SYSTEM SERVICES

Currently, Amtrak operates long-distance trains on five routes in California that link California with other states. These trains are fully funded by Amtrak and also provide varying levels of intrastate service within California. The *Pacific Surfliner* Route is unique because it is partially Amtrak funded and partially State-supported.

The following describes the long distance routes serving California and their significance to the State's transportation needs. Ridership figures are for FFY 2005-06 and include the total route ridership, not just the portion in California. Figure 5E is a map displaying the Amtrak long distance 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 service in the Northeast Corridor operating between Boston, New York, and Washington, D.C. Eleven round trips operate on Monday through Thursday, and twelve operate on Friday through Sunday between Los Angeles and San Diego. Five daily round-trips are extended north between Los Angeles and Santa Barbara, with two continuing on to San Luis Obispo. Amtrak pays for 30 percent of the entire service while the State pays for the remaining 70 percent of the service. Ridership in FFY 2005-06 was 2,657,773, an increase of 5.4 percent from the previous year. Chapter VI discusses this route in detail.

Figure 5E

Amtrak Basic System Routes in California
Legend
Existing Amtrak Basic System Routes
State Supported Amtrak Routes with Endpoint Cities Named
to Seattle
Klamath Falls, OR
Dunsmuir
Redding
Coast Starlight
Chico
California Zephyr
Reno
to Chicago
Colfax
Truckee
Auburn
Capitol Corridor
Davis
Roseville
Sacramento
Emeryville
Oakland
Martinez
San Jose
San Joaquin
Salinas
Coast Starlight
Paso Robles
San Luis Obispo
Bakersfield
Pacific Surfliner
Santa Barbara
Pomona
Ontario
Barstow
Southwest Chief
Simi Valley
Oxnard
Victor-ville
Van Nuys
Los Angeles
San Bernardino
Fullerton
Santa Ana
River-side
Needles
to Chicago
Palm Springs
Oceanside
Sunset Limited
San Diego
Yuma, AZ
to Orlando
Note: Pacific Surfliner Route from San Luis Obispo to San Diego is 30% funded as an Amtrak Basic System Route
(map does not show all station names)

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

The *Coast Starlight's* daily round-trip 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. A substantial portion of the Route's ridership is generated by intrastate California travel. The Route provides the only rail service north from Sacramento to Redding and Oregon, and the only through rail service from the Bay Area to Los Angeles. Direct connections with the *Pacific Surfliner* at Los Angeles effectively extend the route south to San Diego. Connections with the *San Joaquins* at Sacramento and Martinez provide Central Valley access for travelers to and from the north. Portland and Seattle are key stops to the north. Ridership in FFY 2005-06 on the service's one daily round-trip totaled 331,939, a decrease of 10.8 percent from the previous year.

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

The *California Zephyr* provides daily round-trip regional service in the Emeryville-Sacramento-Reno corridor; extra coaches are often operated on this portion of the route to handle heavy loads to and from Reno. Connecting buses link Emeryville with San Francisco. A stop in Truckee serves Lake Tahoe and nearby Sierra ski areas. Salt Lake City, Denver, Lincoln and Omaha are also stops on the route to Chicago. Ridership in FFY 2005-06 was 335,443, n decrease of 3.6 percent from the prior year.

Southwest Chief (Los Angeles-Albuquerque-Kansas City-Chicago)

The daily round-trip *Southwest Chief* provides the only rail service in California from Los Angeles east to Victorville, Barstow and Needles. The Route continues to the Grand Canyon at Flagstaff and to Albuquerque, Kansas City, and Chicago. Ridership was 300,416 in FFY 2005-06, an increase of 1.7 percent from the prior year.

Sunset Limited (Los Angeles-San Antonio-New Orleans-Orlando)

The *Sunset Limited* operates three days a week in each direction and is the only rail service to Palm Springs. It continues east, connecting California to Tucson, El Paso, San Antonio, Houston, and New Orleans. It is Amtrak's only transcontinental passenger train. The *Texas Eagle*, which links Chicago with San Antonio, carries through-cars to and from the *Sunset Limited*. Ridership in FFY 2005-06 was 51,860, a decrease of 36.2 percent from the previous year. It should be noted that this train formerly continued to Mobile, Jacksonville and Orlando but has had a truncated route since Hurricane Katrina.

AMTRAK RIDERSHIP BY STATION

Figure 5F shows ridership at each Amtrak train and bus station in California for FFYs 2002-03 through 2005-06. This table includes ridership on State-supported trains and buses as well as Amtrak's long distance routes. Stations with ticket agent or checked baggage services are also identified.

Figure 5F

AMTRAK TRAIN AND BUS RIDERSHIP BY STATION
FEDERAL FISCAL YEARS 2002-03 TO 2005-06

05-06 Rank	Station	County	Ridership 2005-06	Ridership 2004-05	Ridership 2003-04	Ridership 2002-03	Route Serving Station* PS	SJ	CC	CS	CZ	TE	SC	SL	Services
1	L. A. Union Station	Los Angeles	1,616,670	1,576,145	1,489,170	1,440,484	TB	B		T		T	T	T	A, Bg
2	Sacramento	Sacramento	1,080,667	1,072,278	1,016,058	1,007,172		TB	T	T	T				A, Bg
3	San Diego	San Diego	884,509	854,361	796,288	753,406	TB	B							A, Bg
4	Bakersfield	Kern	709,800	681,034	666,635	697,573	B	T							A, Bg
5	Emeryville	Alameda	670,420	691,523	651,715	678,675		T	T	T	T				A, Bg
6	Irvine	Orange	594,324	565,147	474,125	350,955	T								A
7	Fullerton	Orange	418,264	405,654	378,717	332,288	T						T		A, Bg
8	Solana Beach	San Diego	414,233	400,981	378,530	346,069	TB	B							A, Bg
9	Davis	Yolo	371,408	344,696	318,299	315,072		B	T	T	T				A, Bg
10	Martinez	Contra Costa	336,642	341,555	328,026	333,146		T	T	T	T				A, Bg
11	Anaheim	Orange	325,419	317,022	291,261	248,636	T								A, Bg
12	Oakland	Alameda	324,513	331,340	321,045	329,092		T	TB	T	B				A, Bg
13	Santa Barbara	Santa Barbara	317,625	270,080	294,358	284,976	TB	B	B	T					A, Bg
14	Oceanside	San Diego	309,008	304,999	310,590	329,517	TB	B							A, Bg
15	Stockton Amtrak	San Joaquin	285,124	277,769	265,870	279,619		TB							A, Bg
16	Fresno	Fresno	274,024	260,657	242,931	261,541		T							A, Bg
17	San Juan Capistrano	Orange	259,825	258,243	262,412	268,290	TB	B							A
18	San Francisco	San Francisco	250,372	208,716	196,634	196,892		B	B	B	B				A, Bg
19	Richmond	Contra Costa	238,893	223,029	203,687	170,477		T	T						
20	San Jose	Santa Clara	218,405	209,683	205,753	221,103		B	TB	T					A, Bg
21	Santa Ana	Orange	172,795	175,530	174,824	180,514	TB	B							A, Bg
22	Hanford	Kings	170,482	158,359	151,125	159,515		T							A, Bg
23	San Luis Obispo	San Luis Obispo	126,556	109,538	89,985	90,391	TB	B	B	T					A, Bg
24	Suisun-Fairfield	Solano	115,818	117,240	108,825	101,716			T						
25	Merced	Merced	92,434	88,930	86,774	94,646		T							A, Bg
26	Oxnard	Ventura	86,243	81,423	92,044	95,295	TB	B		T					A, Bg
27	Berkeley	Alameda	82,409	73,993	63,840	63,603			T						
28	Van Nuys	Los Angeles	81,093	72,252	79,425	78,404	TB	B							A, Bg
29	Great America	Santa Clara	78,850	75,106	72,570	82,095			TB						
30	Modesto	Stanislaus	76,778	71,986	73,296	73,658		T							A, Bg
31	Goleta	Santa Barbara	73,538	66,531	45,666	30,299	T								
32	Roseville	Placer	63,977	70,373	66,189	66,377			TB		T				
33	Chatsworth	Los Angeles	50,628	44,432	46,365	41,749	TB								
34	Auburn	Placer	46,223	43,239	45,773	46,213		B	TB						
35	Burbank Airport	Los Angeles	44,554	36,130	36,989	38,988	T	B							
36	Ventura	Ventura	44,146	37,898	38,002	34,581	TB	B							
37	Glendale	Los Angeles	42,734	42,734	47,902	51,290	TB	B		T					
38	Simi Valley	Ventura	40,605	36,512	41,455	48,029	TB	B		T					
39	Stockton ACE	San Joaquin	36,369	26,971	27,891	29,878		TB							A, Bg
40	Rocklin	Placer	31,946	32,645	34,982	39,582		B	TB						
41	Fremont	Alameda	28,487	29,521	28,001	26,496		B	TB						
42	Salinas	Monterey	27,586	25,425	27,920	28,352		B	B	T					A, Bg
43	Camarillo	Ventura	25,914	21,338	18,730	13,911	T								
44	Hayward	Alameda	24,058	23,764	23,776	23,670			TB						
45	Corcoran	Kings	23,086	23,469	22,817	23,831		T							
46	Antioch-Pittsburg	Contra Costa	22,747	21,204	20,732	20,463		T							
47	Chico	Butte	22,550	18,155	17,177	16,808		B	B	T					
48	Grover Beach	San Luis Obispo	21,821	18,882	16,836	16,927	TB	B	B						
49	Carpinteria	Santa Barbara	18,797	15,880	17,211	14,086	TB	B							
50	Old Town San Diego	San Diego	17,898	18,295	1,505		T								
51	San Bernardino	San Bernardino	17,484	16,069	19,112	20,354		B					T		
52	Redding	Shasta	15,473	14,082	18,168	18,049		B	B	T					

* Route and Symbol Key:

PS	*Pacific Surfliner* (San Luis Obispo-Los Angeles-San Diego)	CZ	*California Zephyr* (Emeryville-Chicago)
SJ	*San Joaquin* (Bay Area/Sacramento-Fresno-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 Angeles-Oakland-Sacramento-Seattle)	SL	*Sunset Limited* (Los Angeles-Orlando)
T	Train at this location	TB	Train and bus at this locati
A	Ticket Agent at this location	B	Connecting bus at this location
		Bg	Checked baggage at this location

NOTE: Official Amtrak ridership data for four Federal Fiscal Years (October 2002 through September 2006). Includes all rail and bus passengers originating or terminating at each station on all routes shown above.

Figure 5F (Continued)

AMTRAK TRAIN AND BUS RIDERSHIP BY STATION
FEDERAL FISCAL YEARS 2002/03 TO 2005/06

05-06 Rank	Station	County	2005-06 Ridership	2004-05 Ridership	2003-04 Ridership	2002-03 Ridership	Routes Serving Station *								Services
							PS	SJ	CC	CS	CZ	TE	SC	SL	
53	Turlock-Denair	Stanislaus	15,300	15,083	13,576	13,888		T							
54	Wasco	Kern	14,225	13,936	14,557	14,370		T							
55	Riverside	Riverside	14,192	13,319	11,692	11,534		B							
56	Paso Robles	San Luis Obispo	13,534	13,551	13,997	13,802	B	B	B	T					
57	Madera	Madera	13,239	12,706	12,406	13,202		T							
58	Santa Rosa	Sonoma	11,767	9,126	9,653	10,199		B	B						
59	Moorpark	Ventura	11,368	9,177	8,146	8,453	TB								
60	Truckee	Nevada	11,356	11,992	11,212	11,355		B	B		T				
61	Yosemite Natl. Park	Mariposa	10,828	11,023	13,368	16,792		B							
62	Long Beach (2 stops)	Los Angeles	10,090	9,193	7,684	7,076	B	B							
63	Guadalupe	Santa Barbara	9,616	6,981	6,362	6,537	TB								
64	South Lake Tahoe	El Dorado	9,475	8,313	9,788	9,131		B	B						
65	Santa Maria	Santa Barbara	8,897	8,701	8,408	7,810	B	B	B						
66	Ontario	San Bernardino	8,662	6,802	6,613	6,381		B				T		T	
67	Victorville	San Bernardino	8,628	7,296	6,505	5,206							T		
68	San Clemente	Orange	8,179	6,763	6,135	5,015	T								
69	Surf/Lompoc	Santa Barbara	7,253	5,067	3,961	7,034	T								
70	SLO-Cal Poly	San Luis Obispo	7,108	6,833	4,377	3,492		B				T		T	
71	Napa	Napa	6,593	4,852	5,253	5,376		B	B						
72	Needles	San Bernardino	6,132	13,045	19,669	19,153							T		
73	Hemet (2 stops)	Riverside	6,034	1,806	1,644	1,811		B							
74	Pasadena	Los Angeles	5,627	5,224	4,762	5,939		B							
75	San Pedro (2 stops)	Los Angeles	5,576	5,299	6,663	4,909		B							
76	Arcata	Humboldt	5,438	3,905	4,202	3,894		B	B						
77	Santa Clarita-Newhall	Los Angeles	4,759	4,520	3,953	3,886	B	B							
78	Vallejo (2 stops)	Solano	4,737	5,616	6,066	7,967		B	B						
79	Claremont	Los Angeles	4,702	4,256	4,051	4,211		B							
80	Barstow	San Bernardino	4,295	4,037	4,288	4,174		B					T		
81	Colfax	Placer	4,254	4,334	4,102	4,309		B	B		T				
82	Dunsmuir	Siskiyou	4,218	4,517	4,667	4,187				T					
83	Marysville	Yuba	3,800	3,253	2,924	2,977		B	B						
84	Eureka	Humboldt	3,799	3,123	3,216	3,280	B	B							
85	Stateline	El Dorado	3,791	3,702	3,848	249		B	B						
86	Lancaster	Los Angeles	3,781	3,491	3,178	2,925		B							
87	Visalia	Tulare	3,147	1,705	1,100	1,204		B							
88	Solvang	Santa Barbara	3,124	2,922	3,071	4,421	B		B						
89	Oroville	Butte	3,040	2,717	2,662	2,645		B	B						
90	Petaluma	Sonoma	2,569	2,126	2,066	2,052		B	B						
91	Ukiah	Mendocino	2,391	2,065	2,141	1,683		B	B						
92	Placerville	El Dorado	2,362	2,481	2,363	2,090		B	B						
93	Palmdale	Los Angeles	1,982	1,666	1,429	1,240		B							
94	McKinleyville	Humboldt	1,849	2,300	1,863	1,990		B	B						
95	Palm Springs	Riverside	1,775	2,216	1,649	1,948		B				T		T	
96	Rohnert Park	Sonoma	1,742	1,742	1,834	1,947		B	B						
97	Lompoc	Santa Barbara	1,498	1,582	1,982	3,017	B								
98	Tehachapi	Kern	1,494	1,545	1,815	1,768		B							
99	Dublin-Pleasanton	Alameda	1,461	1,606	1,397	1,254		B							
100	Palm Springs Airport	Riverside	1,454	1,454	1,349	1,293		B							
101	Mojave	Kern	1,101	1,135	865	867		B							
102	Monterey	Monterey	1,071	1,377	1,697	5,491		B	B						

* Route and Symbol Key:

PS	*Pacific Surfliner* (San Luis Obispo-Los Angeles-San Diego)	CZ	*California Zephyr* (Emeryville-Chicago)
SJ	*San Joaquin* (Bay Area/Sacramento-Fresno-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 Angeles-Oakland-Sacramento-Seattle)	SL	*Sunset Limited* (Los Angeles-Orlando)
T	Train at this location	TB	Train and bus at this location
B	Connecting bus at this location		
A	Ticket Agent at this location	Bg	Checked baggage at this location

Figure 5F (Continued)

AMTRAK TRAIN AND BUS RIDERSHIP BY STATION
FEDERAL FISCAL YEARS 2001/02 TO 2005/06

05-06 Rank	Station	County	Ridership 2005-06	Ridership 2004-05	Ridership 2003-04	Ridership 2002-03	Routes Serving Station * PS	SJ	CC	CS	CZ	TE	SC	SL	Services
103	Palo Alto	Santa Clara	2,100					B							
104	Indio	Riverside	1,523	1,052	1,254	911		B							
105	Garberville	Humbolt	1,305	1,003	822	670		B	B						
106	Willits	Mendocino	1,217	823	848	782		B							
107	Red Bluff	Tehama	1,188	1,093	1,010	925		B	B						
108	Santa Paula	Ventura	1,113	1,019	891	873		B							
109	Fortuna	Humbolt	1,004	905	965	803		B	B						
110	Livermore	Alameda	959	1,016	791	760		B							
111	Atascadero	San Luis Obispo	788	988	1,086	919	B	B							
112	Pomona	Los Angeles	764	771	786	679						T		T	
113	Tracy	San Joaquin	716	807	735	820		B							
114	Perris	Riverside	626	677	490	351		B							
115	Corning	Tehama	565	708	533	591		B	B						
116	Fillmore	Ventura	558	385	446	387		B							
117	Palm Desert	Riverside	535	378	404	449		B							
118	Carmel	Monterey	485	561	863	865		B	B						
119	Moreno Valley	Riverside	463	522	557	332		B							
120	La Crescenta	Los Angeles	463	464	414	498		B							
121	Healdsburg	Sonoma	425	406	357	333		B	B						
122	Beaumont	Riverside	395	303	256	244		B							
123	Buellton	Santa Barbara	388	321	350	344	B								
124	Mariposa	Mariposa	372	331	363	326		B							
125	Laytonville	Mendocino	336	273	171	205		B	B						
126	Gilroy	Santa Clara	310	330	307	368		B	B						
127	King City	Monterey	310	205	156	72		B	B						
128	Cloverdale	Sonoma	279	160	237	199		B	B						
129	Rosamond	Kern	254	264	268	261		B							
130	Los Banos	Merced	253					B	B						
131	Rio Dell-Scotia	Humbolt	215	140	214	162		B	B						
132	Midpines	Mariposa	177	176	141	142		B							
133	Soda Springs	Nevada	172	226	180	235		B	B						
134	Sunnyvale	Santa Clara	136					B							
135	Lemoore	Kings	132	90	34	64		B							
136	Yreka	Siskiyou	127					B	B						
137	Hollister	San Benito	124					B							
138	Mountain View	Santa Clara	118					B							
139	El Portal	Mariposa	102	91	62	92		B							
140	Santa Cruz	Santa Cruz	93	56	28,651	51,363		B	B						
141	Mt. Shasta	Siskiyou	90					B	B						
142	Leggett	Mendocino	80	52	68	65		B	B						
143	Weed	Siskiyou	51					B	B						
144	Goshen Jct.	Tulare	49	8	13	19		B							
145	Littlerock	Los Angeles	48	103	37	58		B							
146	San Juan Bautista	San Benito	31					B							
147	Kettleman City	Kings	13	32	12	30		B							

* Route and Symbol Key:

PS	*Pacific Surfliner* (San Luis Obispo-Los Angeles-San Diego)	CZ	*California Zephyr* (Emeryville-Chicago)
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CS	*Coast Starlight* (Los Angeles-Oakland-Sacramento-Seattle)	SL	*Sunset Limited* (Los Angeles-Orlando)

T	Train at this location	TB	Train and bus at this location	B	Connecting bus at this location
A	Ticket Agent at this location			Bg	Checked baggage at this location

OTHER PASSENGER RAIL SERVICES

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

The Sierra Railroad (formally the California Western Railroad) between Fort Bragg and Willits in Mendocino County has been the principal privately-owned railroad in California offering regularly scheduled rail passenger service. Sierra Railroad acquired the line and opened it in May 2004 for passenger excursion service. Excursion related passenger traffic on the 40-mile route is the primary business. The Sierra Railroad has begun an ongoing acquisition and rehabilitation program for stations, track and rolling stock. The contact phone number for the *Skunk Train* is 1-800-866-1690.

Other railroads offer rail passenger tourist service generally only during summer and holiday periods. For additional information on rail passenger tourist service, call California Tourism at 1-800-862-2543 or access their website at www.visitcalifornia.com.

Figure 6A

Pacific Surfliner Corridor Intercity Rail and Feeder Bus Routes
Legend
Corridor Train
Feeder Bus
Amtrak Station
Bus Stop Only
San Francisco
Oakland
San Jose
Salinas
King City
Paso Robles
Atascadero
Cal Poly
San Luis Obispo
Grover Beach
Guadalupe
Santa Maria
Surf
Lompoc
Buellton
Solvang
Goleta
Santa Barbara
Carpinteria
Ventura
Oxnard
Camarillo
Moorpark
Simi Valley
Chatsworth
Van Nuys
Burbank Airport
Glendale
Los Angeles
San Pedro
Long Beach
Fullerton
Anaheim
Santa Ana
Irvine
San Juan Capistrano
San Clemente
Oceanside
Solana Beach
San Diego
Bakersfield
Newhall
9/07 RFT

CHAPTER VI
PACIFIC SURFLINER ROUTE

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

PRINCIPAL 2007-08 to 2017-18 ROUTE OBJECTIVES

- **Improve On-Time Performance (OTP)** to 90 percent by 2017-18.
- **Streamline operations and improve passenger amenities:**
  - Study Premium Class Service.
  - Implement passenger on-board wireless internet service.
  - Implement automated ticket validation and internet ticket purchase.
  - In the long-term implement comprehensive wireless network for improved on-board and equipment operations, safety and equipment repair.
- **Improve multimodal connectivity:**
  - Cross-ticketing and coordinated schedules with Metrolink and Coaster.
  - Improved coordination with urban transit.
  - Improved Amtrak Thruway service.
- **Reduce Travel Times:**
  - San Diego to Los Angeles in under 2 hours-30 minutes.
  - Los Angeles to San Luis Obispo in under 5 hours.
  - Implement express service between Los Angeles and San Diego.
- **Increase annual ridership** 51 percent from 2,698,000 to 4,061,000.
- **Increase annual revenues** 94 percent from $34.5 million to $67.0 million for the State-supported portion of the Route**.**
- **Increase revenue/cost (farebox) ratio** from 67.1 percent to 68.2 percent.
- **Increase Service Frequency:**
  - From 11 to 13 daily round-trips between San Diego – Los Angeles.
  - From 5 to 6 daily round-trips between Los Angeles – Santa Barbara.
  - From 2 to 3 daily round-trips between Santa Barbara – San Luis Obispo.
- **Expand Service:**
  - San Francisco – San Luis Obispo – first daily round-trip in 2010-11, second daily round-trip in 2013-14.

This Chapter presents the ten-year operational and service improvement and train service expansion plans for the Route. The Chapter also provides information on

route administration, route history, route description, and historical performance. Figure 6A is the *Pacific Surfliner* route map, including the connecting buses.

TEN-YEAR OPERATIONAL AND SERVICE IMPROVEMENT PLANS

This Section focuses on the specific ten-year operational and service improvement plans the Department has for the Route for the three key components of Operations: on-time performance and reliability, streamlined operations and passenger amenities, and multimodal connectivity. Key performance goals for travel time, ridership, revenue, and farebox ratio are also presented. The combined operations program, as is pertains primarily to the *Pacific Surfliner* and *San Joaquin* Routes, is also discussed in Chapter III in further detail. (Chapter III also contains some information on the *Capitol Corridor* operations program.)

ON-TIME PERFORMANCE AND RELIABILITY

The Department's goal is to improve service reliability and increase on-time performance (OTP) to 90 percent by the end of the Plan period. Increased OTP provides improved service reliability. This goal is based on the full implementation of the unconstrained capital program described in Chapter II. However, even when capital projects that can improve OTP are completed, other factors, such as growth of freight rail traffic, local communities desire to add new stations and use intercity rail to increase transit options to meet stricter air quality standards will affect OTP.

Between 2001-02 and 2003-04, OTP was about 87 percent, party due to the completion of key capital projects. However, two factors caused the OTP to fall to 72.9 percent in 2004-05. First, serious winter storms damaged track, interrupting and delaying service. Second, there has been a significant increase in freight traffic and in the length of freight trains. Since that time, OTP has remained at about a 76 percent average and has been severely affected by the increase in freight traffic, particularly from Los Angeles to San Luis Obispo, where it is almost entirely single track and many sidings are not long enough to accommodate the new longer freight trains.

In the near term, the completion of on-going track projects will somewhat improve OTP. Work is progressing on the large Los Angeles-Fullerton third main track and grade separations project. To date, four miles of triple track have been completed. Segments are being completed sequentially and each new segment improves reliability and OTP for both commuter and *Pacific Surfliner* services. Other projects currently programmed to improve OTP include the Oceanside double-track project. Further into the ten-year period, projects on the north end to add sidings, increase the length of existing sidings, and upgrade the signaling system will improve OTP. On the south end, double track projects and replacement of single-track wooden bridges with double track will improve OTP.

Additionally, the Department will work with the UP, BNSF, Metrolink, and Amtrak to identify and implement measures to enhance schedule reliability.

STREAMLINED OPERATIONS AND PASSENGER AMENITIES

The Department is working to streamline operations and improve passenger amenities. Due to emerging technology related to wireless networking, possibilities exist that previously would have been costly or not available. Improvements that are dependant upon a comprehensive wireless system are discussed below as longer-term improvements. However, other planned improvements are feasible in the near term that either are not related to new technology or can be implemented with technology that is currently available and does not involve development of a comprehensive wireless system. These improvements are discussed below as near-term improvements.

Near-Term Improvements

Passenger On-Board Wireless Internet Service – Wireless internet service is becoming commonplace. The *Capitol Corridor* offered internet service in selected cars on a pilot basis, but did not continue the service because usage dropped off significantly when a fee was charged for the service. Also as a result of the pilot, the CCJPA learned that the most effective system would have both passenger and train operating applications. The CCJPA is now working to implement this system. The Department would like to add passenger on-board wireless internet capabilities to the equipment assigned to the *Pacific Surfliners*. However, this may not be possible unless the wireless system is linked to a more comprehensive system-wide network involving operational applications. (See below for more information.)

Automated Ticket Validation – Automated ticket validation is a wireless application that can be implemented in advance of a full wireless network. It would improve customer service, operations, and safety. Rail passengers have been able to make reservations and purchase tickets over the internet for some time, but the tickets purchased are traditional paper tickets and must be mailed to the purchaser or picked up at an Amtrak ticket office prior to departure. Airlines went one step farther and introduced “paperless” ticketing several years ago. A similar system for train travel would be much more convenient for passengers, particularly those boarding at small un-staffed stations along the route, because it would eliminate the need to obtain actual paper tickets prior to traveling or purchasing them on board.

The system would also have many operational advantages. It would produce a real-time record of all passengers on-board. This is a safety and security feature similar to that currently required of the passenger airline industry. This system would allow actual trip origin-destination information, instead on the current estimates (particularly for 10-ride and monthly tickets), to better inform

management of actual usage, thus allowing better insight and management of the service delivered to the customer.

The CCJPA in early 2008 is undertaking an automated ticket validation pilot project that is funded by the Department. Depending upon the results, the Department may expand implementation to this Route.

Longer-Term Improvements

Comprehensive Wireless Network – A comprehensive wireless network could have many significant applications for improvement of safety, operations, cost-control, and customer service. Systems such as this are in use today in Europe. The network would include hardware installations on the State-owned rolling stock and would likely include equipment installations along the right-of-way and other fixed facilities. The benefits of a comprehensive wireless network are discussed in more detail in Chapter III. The CCJPA is developing a Request for Proposal (RFP) to be ready by 2008 to establish and maintain a wireless network. Based on the results of the RFP process, the Department will proceed with implementing a network on the *Pacific Surfliners*.

MULTIMODAL CONNECTIVITY

The Department strives to make the *Pacific Surfliner* service as "seamless" as possible with enhanced connectivity to other transportation systems.

The next element in multimodal connectivity between the *Pacific Surfliners* and Metrolink and Coaster is cross-ticketing and improved schedule coordination. "Next-generation" ticket vending machines are planned to be in the initial stages of operation by 2007-08. These machines will allow the purchase of a ticket for a combined Amtrak/Metrolink rail trip. The program is also planned to be expanded to the Coaster. Once the machines are in operation, schedules will be further coordinated and joint trip destinations will be marketed.

In 2005, the Department initiated a program on the *Pacific Surfliners* where conductors offer free transfers to participating transit services. Within the ten-year period, the Department plans to expand this program to all key transit agencies on the Route. Expansion of marketing and passenger information programs will provide additional information on multimodal connectivity with local transit.

Connecting Amtrak Buses

The *Pacific Surfliner* Amtrak buses provide an important extension to this route. The Department contracts with Amtrak to provide connecting feeder bus services, who in turn, contracts with private bus operators. The bus routes function as a direct part of the Amtrak system with coordinated connections, guaranteed seating, integrated fares and ticketing procedures. They are also included in Amtrak's central information and reservation systems. On the north end of the route, buses from Los Angeles to Santa Barbara and then to San Luis Obispo have served as precursors to rail service, and play an important role in testing and developing rail

ridership. Currently buses from Santa Barbara and San Luis Obispo to San Francisco are providing an important extension for the service and testing this market. The Department plans to expand and improve Amtrak Thruway bus service on the Route, including additional connections north to the San Francisco Bay Area.

Following is a listing of the *Pacific Surfliner* bus routes and their origins/ destinations. Route 1 is a *San Joaquin* bus route but is included since it 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*.

***Pacific Surfliner* Route Bus Routes**

Route 4–South Coast
Los Angeles-Santa Barbara

Route 17–Central Coast
Santa Barbara-San Luis Obispo-San Francisco/Oakland

Route 36–Central Coast
San Luis Obispo-Paso Robles-King City-Salinas-San Jose-San Francisco/Oakland

***San Joaquin* Route Bus Routes**

Route 1–Los Angeles Basin (*San Joaquin* Route bus)
Los Angeles - Bakersfield

TRAVEL TIMES

Current San Diego to Los Angeles travel times average 2 hours-44 minutes; Los Angeles to Santa Barbara averages 2 hours-42 minutes; and Santa Barbara to San Luis Obispo averages 2 hours-40 minutes. The Department's ten year goal is to reduce travel times to under two hours-30 minutes between San Diego and Los Angeles, and under five hours between Los Angeles and San Luis Obispo.

Between San Diego and Los Angeles, reductions will be accomplished through the completion of capital projects that will reduce actual run times as well as improve OTP. These projects include double-tracking in North San Diego County, triple-tracking between Los Angeles and Fullerton, and replacement and double tracking of wooden bridges. On the north end between Santa Barbara and San Luis Obispo, updating signaling to Centralized Traffic Control (CTC), increasing siding lengths, new siding construction, and upgrading track will also reduce running times and allow for a reduction in schedule recovery time. (See Chapter II, for additional information about the capital projects.)

San Diego-Los Angeles Express Service

The Department is evaluating options for implementing express service between San Diego and Los Angeles. Express service would include timed transfers with Metrolink and Coaster commuter services at a limited number of express stops. In order for this service to be successful, it would have to receive priority dispatching.

RIDERSHIP, REVENUE, AND FAREBOX RATIO

The Department's goals for ridership, revenue and farebox ratio will be achieved through the capital, operational, and service improvements and service expansions discussed in this Chapter as well as Chapters II, III, and IV. They are as follows:

- Increase annual ridership 51 percent from 2,698,000 to 4,061,000.
- Increase annual revenues 94 percent from $34,500,000 to $67,000,000 for the State-supported portion of the Route.
- Increase revenue/cost (farebox) ratio from 61.7 percent to 68.2 percent.

TEN-YEAR TRAIN SERVICE EXPANSION PLANS

INCREASED SERVICE FREQUENCIES

The Department anticipates that within the next ten years there will be sufficient demand to support 13 round-trips on the *Pacific Surfliners* between San Diego and Los Angeles.

The Department proposes that expansion of the *Pacific Surfliner* frequencies occur on the following timetable:

2011-12 Los Angeles-San Diego, twelfth round-trip.

2013-14 Los Angeles-Goleta, sixth round-trip.

2013-14 Goleta-San Luis Obispo, third round-trip.

2014-15 Los Angeles-San Diego, thirteenth round-trip.

It is important to note that the above start-up dates for service are based only on projected service needs. Demonstrated ridership demand, approval from Amtrak and the host railroads, availability of equipment, funding and construction of necessary capital projects, and provision of additional operating funds will affect when each of the service expansions actually can be implemented.

SAN FRANCISCO TO SAN LUIS OBISPO (AND LOS ANGELES) EXTENSION

The extension of the *Pacific Surfliners* from San Luis Obispo to San Francisco via the Coast Route would close a key gap in the State-supported intercity rail system by providing direct train service from San Francisco to Los Angeles.

The Department plans one round-trip train between San Francisco and San Luis Obispo, starting in 2010-11, with a second train in 2013-14. The first train would be operated from San Luis Obispo to Los Angeles as an extension of the *Pacific Surfliner* train added in November 2004, and would provide through train service between San Francisco and Los Angeles. The second train would operate as an extension of the planned third Los Angeles-San Luis Obispo round-trip. Direct train connections to San Diego at Los Angeles would be available on most trips. Regional transportation planning agencies have provided ongoing support for this extension. The Department expects that both regional and local agencies will continue to provide an important role in the planning and operation of this extension. For more detailed information on this route expansion see Chapter X.

ROUTE ADMINISTRATION

The State and Amtrak share responsibilities for operating the *Pacific Surfliners*. Amtrak considers 30 percent of the service, "basic system" service that is part of national long-distance service, and operating costs on this portion of the Route are federally funded. The remaining 70 percent of the Route is State-supported. Amtrak operates all trains, and the Department is responsible for the oversight of the *Pacific Surfliner* service through its operating contract. The Department coordinates functions such as marketing, scheduling, and on board services with Amtrak. New *Pacific Surfliner* equipment is used on the Route. Amtrak owns all of the locomotives and 40 cars, and the State owns ten cars. Amtrak maintains all of the equipment. For a further description of the financial relationship between Amtrak and the State, see Chapter XI.

LOSSAN

The Department works closely with the Los Angeles–San Diego–San Luis Obispo Rail Corridor Agency (LOSSAN), formed in 1989, that acts as a planning and an advisory group for intercity rail in Southern California. The members of its Board are: San Diego Metropolitan Transit System, San Diego Association of Governments, North County Transit District, Orange County Transportation Authority, Los Angeles County Metropolitan Transportation Authority, Ventura County Transportation Commission, Santa Barbara County Association of Governments, San Luis Obispo Council of Governments, and Caltrans, Division of Rail. The members of the LOSSAN Technical Advisory Committee (TAC) are: the organizations mentioned above, and BNSF Railway, California Public Utilities Commission, Amtrak, Southern California Regional Rail Authority, and Union Pacific Railroad (UP).

ROUTE HISTORY

Amtrak was created in 1971 to revitalize passenger rail service. The *San Diegans* operated on tracks owned by Atchison Topeka and Santa Fe Railway (ATSF)

between Los Angeles and San Diego. These trains functioned primarily as connections to long-haul trains, as opposed to a local transportation network for passengers traveling within the corridor. Amtrak maintained the three round trips operated by Santa Fe (but reduced one to tri-weekly for the first year), and service remained at this level until State involvement began in 1976.

The segment north of Los Angeles to Santa Barbara and San Luis Obispo, on Southern Pacific Transportation Company (SP) tracks, was served by Amtrak by the *Coast Starlight*, a daily round-trip between Los Angeles and Seattle, (it operated only three times per week north of Oakland until June 1973).

State support of the route began in 1976. This corridor has been unique among State-supported routes in California because some individual trains were entirely supported by Amtrak, since they were part of their basic system. 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 support level increased to 70 percent in November 2004.

In 1988, the *San Diegan* Route was extended to Santa Barbara with a further extension to San Luis Obispo in 1995. In 2000, the route was renamed the *Pacific Surfliner* in recognition of its expanded service area. A second round-trip between Los Angeles and San Luis Obispo was added on November 17, 2004.

Service on the *Pacific Surfliners* between Los Angeles and San Diego increased from the original three round-trips to the current level 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.
11/17/04	Los Angeles-San Luis Obispo: second round-trip added (fifth round-trip, Los Angeles-Santa Barbara).

ROUTE DESCRIPTION

The *Pacific Surfliner* Route now has 11 daily round-trips between San Diego and Los Angeles, with five round-trips extending north to Santa Barbara, and two of these trips extending further north to San Luis Obispo. A twelfth Friday through Sunday round-trip operates between San Diego and Los Angeles; this train addresses peak weekend demand for intercity service. The three round-trips that terminate in Santa Barbara have dedicated Amtrak Thruway bus connections to and from San Luis Obispo.

Scheduled running time between Los Angeles and San Diego averages 2 hours-44 minutes. Overall average speed, including station dwell time averages 47 mph. This segment includes more than 70 miles between Santa Ana and Sorrento 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 averages 2 hours-42 minutes, with an overall average speed of 39 mph. Scheduled running time for the two *Pacific Surfliner* round-trips between Santa Barbara and San Luis Obispo averages 2 hours-40 minutes, with an overall average speed of 44 mph.

The Route extends 351 rail miles between San Luis Obispo and San Diego (222 miles north of Los Angeles and 129 miles south of Los Angeles) with 26 intermediate stops (15 stops north of Los Angeles and 10 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 of line between San Luis Obispo and Moorpark. The BNSF owns 22 miles between Redondo Junction in Los Angeles and Fullerton. See Figure 6B, which describes

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

Figure 6B

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.

HISTORICAL PERFORMANCE

Figure 6C shows ridership and financial performance data on an annual basis from the start of State-supported service in 1976-77 through 2005-06. Ridership and farebox return climbed steadily, with the years 1987-88 through 1992-93 experiencing particularly strong ridership growth and financial strength. The farebox ratio was near or over 100 percent for these six consecutive years, and ridership peaked at 1.8 million in 1992-93, and did not again reach this level until 2002-03.

However, 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 had a negative effect on ridership. In 1995, Amtrak also increased the amount and type of costs charged to the State, with a negative effect on farebox return. Farebox return reached a low of 33.9 percent in 1997-98.

But overall ridership on the corridor has increased significantly in recent years, offsetting the initial impacts of the new commuter services. Ridership reached two million in 2002-03, and farebox return has been over 50 percent since 2000-01. The introduction of the "Rail 2 Rail" Program on Amtrak and Metrolink service in September 2002 and in April 2004 on the Coaster has caused a large increase in ridership. The program allows joint ticket honoring between Amtrak and commuter rail services. Ridership reached a peak of 2.7 million in 2005-06, a 52 percent increase over 2001-02 ridership (the year before the introduction of Rail 2 Rail).

Figure 6C

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	134.7	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	120.4	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	101.9	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	99.3	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	106.2	1,113,342	$ 20,430,153	$ 38,215,732	$ 17,785,579	$ 21,911,398	$ 335,197	16.6¢	53.5%
2001-02	(S14)	1,742,768	108.3	1,167,655	$ 20,922,453	$ 39,374,190	$ 18,451,737	$ 21,976,183	$ 502,080	16.6¢	53.1%
2002-03		2,030,491	114.1	1,360,429	$ 22,247,564	$ 42,331,531	$ 20,083,967	$ 23,901,407	$ 472,848	16.7¢	52.6%
2003-04		2,307,010	126.9	1,545,697	$ 24,559,183	$ 45,300,782	$ 20,741,599	$ 21,719,288	$ 94,883	16.0¢	54.2%
2004-05	(S15)	2,454,396	129.8	1,644,445	$ 26,660,048	$ 48,105,899	$ 21,445,851	$ 21,445,851		15.7¢	55.4%
2005-06		2,655,490	133.3	1,858,843	$ 31,604,715	$ 55,570,797	$ 23,966,082	$ 23,966,082		15.6¢	56.9%
TOTAL		**47,786,792**		**25,979,431**	**$ 362,613,259**	**$ 616,372,903**	**$ 253,759,644**	**$ 249,368,723**			

** 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 trainson the Pacific Surfliner Route; Amtrak supports 36 percent as basic system trains. Effective November 1997, State support increased to 67%. Effective December 2004, State support increased to 70%. 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.
(S14) Fifth LA-SB round trip on weekends only added on 5/25/02.
(S15) Second LA-SLO round trip added on 11/17/04.

(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 the 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. The State share increased to 67 percent in November 1997 and to 70 percent in December 2004 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) Between State Fiscal Years 1993-94 and 2003-04, Amtrak cost is based on billings submitted and reflects cost bases and Amtrak shares as stated in notes (F2) and (F3) above. However, Amtrak does not include the unbilled Amtrak share of fixed cost elements. Prior to FY 1993-94, data to calculate Amtrak cost is not available; beginning in FY 2004-05, no Amtrak share is billed.

(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.

Figure 7A

San Joaquin Corridor Intercity Rail and Feeder Bus Routes
Legend
Corridor Train
Feeder Bus
Amtrak Station
Bus Stop Only
McKinleyville
Eureka
Arcata
Fortuna
Scotia
Garberville
Legett
Laytonville
Willits
Ukiah
Cloverdale
Healdsburg
Santa Rosa
Rohnert Park
Petaluma
Napa
Fair-field
Vaca-ville
Vallejo
Suisun
Davis
Richmond-BART
San Francisco
Martinez
Oakland
Emeryville
Sacramento
Roseville
Auburn
Rocklin
Grass Valley
Colfax
Antioch
Dublin-BART
Livermore-ACE
Mission S.J.
Great America
San Jose
Tracy
Lodi
Stockton-ACE
Stockton
Santa Cruz
Watsonville
Monterey
Salinas
Hollister
San Juan Bautista
Modesto
Turlock-Denair
Los Banos
Merced
Mariposa
Midpines
El Portal
Yosemite
Madera
Fresno
Paso Robles
Atascadero
Kettleman City
Lemoore
Hanford
Goshen Jct.
Visalia
San Luis Obispo
Grover Beach
Corcoran
Santa Maria
Wasco
Bakersfield
Santa Barbara
Carpinteria
Ventura
Oxnard
Santa Paula
Fillmore
Tehachapi
Mojave
Rosamond
Lancaster
Palmdale
Simi Valley
Chatsworth
Newhall
Van Nuys
Burbank
La Crescenta
Glendale
Pasadena
Los Angeles
Littlerock
Boron
Adelanto Jct.
Barstow
Victorville
San Pedro
Long Beach
Claremont
Fullerton
Anaheim
Santa Ana
Irvine
Ontario
San Bernardino
Riverside
Moreno Valley
Perris
Beaumont
Hemet
Sun City
San Juan Capistrano
San Clemente
Oceanside
Solana Beach
San Diego
Palm Springs
1000 Palms
Indio
to Calexico
Baker
to Las Vegas
Medford
Ashland
Yreka
Weed
Mt. Shasta
Dunsmuir
Redding
Red Bluff
Corning
Chico
Oroville
Marysville
Placerville
Truckee
Soda Springs
Reno, NV
Sparks, NV
Tahoe Wye
Stateline, NV
9/07 RFT

CHAPTER VII
SAN JOAQUIN ROUTE

BAY AREA/SACRAMENTO-FRESNO-BAKERSFIELD LOS ANGELES

PRINCIPAL 2007-08 to 2017-18 ROUTE OBJECTIVES

- **Improve On-Time Performance to 90 % by 2017-18.**
- **Streamline operations and improve passenger amenities:**
  - Study Premium Class Service.
  - Implement passenger on-board wireless internet service.
  - Implement automated ticket validation and internet ticket purchase.
  - Implement Electronic Train Management System.
  - In the long-term implement comprehensive wireless network for improved on-board and equipment operations, safety and equipment repair.
- **Improve mulimodal connectivity:**
  - Improved coordination with Altamont Commuter Express (ACE), *Capitol Corridor*, and local transit systems.
  - Improved Amtrak Thruway bus service.
- **Reduce Travel Times:**
  - Oakland to Bakersfield in under six hours.
  - Sacramento to Bakersfield in under five hours.
- **Increase annual ridership** 80 % from 797,000 to 1,432,000.
- **Increase annual revenues** 124 % from $ 26.5 million to $ 59.4 million.
- **Increase revenue/cost (farebox) ratio** from 46.3% to 52.3%.
- **Increase Service Frequency:**
  - Two new roundtrips from Stockton to Oakland.
  - Seventh Bakersfield – Stockton round trip, with a third daily round-trip from Stockton to Sacramento.
  - Eighth Bakersfield – Stockton round trip, with a fifth daily round-trip from Stockton to Oakland.
- **Other Service Expansions:**
  - Pursue options to originate some trains in Fresno.
  - Study options to extend rail service from Bakersfield to Los Angeles.

This Chapter presents the ten-year operational and service improvement and train service expansion plans for the Route. The Chapter also provides information on route administration, route history, route description, and historical performance. Figure 7A is the *San Joaquin* route map, including the connecting buses.

TEN-YEAR OPERATIONAL AND SERVICE IMPROVEMENT PLANS

This Section focuses on the specific ten-year operational and service improvement plans the Department has for the *San Joaquin* Route for the three key components of Operations: on-time performance and reliability, streamlined operations and passenger amenities, and multimodal connectivity. Key performance goals for travel time, ridership, revenue, and farebox ratio are also presented. The combined operations program, as is pertains primarily to the *San Joaquin* and *Pacific Surfliner* Routes, is also discussed in Chapter III in further detail. (Chapter III also contains some information on the *Capitol Corridor* operations program.)

ON-TIME PERFORMANCE AND RELIABILITY

The Department's goal is to improve service reliability and increase on-time performance (OTP) to 90 percent by the end of the Plan period. This goal is based on significant implementation of the unconstrained capital program described in Chapter II.

The OTP over the years on the *San Joaquins* has fluctuated considerably, with a gradual overall decline as passenger service levels and freight movement has increased. It is difficult to maintain high on-time levels because 75 percent of this 365-mile corridor from Bakersfield to Oakland and Sacramento is single-track. (See Figure 7C discussed in more detail later in the chapter, that shows the track characteristics on the Route.) OTP on a single-track railroad is particularly sensitive to increases in traffic and right of way disruptions (e.g., crossing accidents, broken rails and crossing gates, and normal maintenance of way activities) because there is no other track to handle the traffic or accommodate the service disruption.

Over the last two decades, the Department has financed a number of track projects intended to increase OTP and reliability, as well as increase capacity for additional train frequencies. These projects have increased the amount of double-track route miles on the BNSF from less than four percent to about 16 percent. These Department financed track projects on private railroads included railroad on-time performance agreements, meaning that the railroad agrees that once a capital project is completed, it will maintain a specified level of OTP. Also, 25 miles of centralized traffic control (CTC) were installed west of Stockton to Oakley, and the final 17 miles of CTC from Oakley to Port Chicago are being upgraded in 2007. Several additional double-track segments are currently being studied, and beneficial ones will be undertaken as funding becomes available. Ultimately, the

entire BNSF main line in the San Joaquin Valley may need to be double-tracked, but that is a long term goal extending well beyond the next ten years. (See Chapter II, for additional information about capital projects.)

In FFY 2000-01, OTP was 67 percent, and in FFY 2001-02 OTP rose to 78 percent as the result of extensive track projects discussed above. However, OTP between FFY 2002-03 and 2004-05 averaged 59 percent. Reduced OTP has been to a large extent the result of increased freight traffic causing congestion. Also necessary track maintenance in the form of winter track blitzes has negatively impacted OTP in the last few years. However OTP for FFY 2006-07 year-to-date (October 2007- June 2007) is up to 68 percent, partly as the result of the completion of the Shirley-Hanford double-track project in April 2006 and the Calwa-Bowles double-track project in January 2007 for a total of approximately 15 miles of new double track.

STREAMLINED OPERATIONS AND PASSENGER AMENITIES

The Department is working to streamline operations and improve passenger amenities. Due to emerging technology related to wireless networking, possibilities exist that previously would have been very costly or not available. Improvements that are dependant upon a comprehensive wireless system are discussed below as longer-term improvements. However, other planned improvements are feasible in the near term that either are not related to new technology or can be implemented with technology that is currently available and does not involve development of a comprehensive wireless system. These improvements are discussed below as near-term improvements.

Near-Term Improvements

Premium Class Service - Many corridor routes in the Amtrak system, including the *Pacific Surfliners* in Southern California, offer a premium class (extra fare) coach service, with special amenities for the passengers. This type of service is very popular and is a source of extra revenue. The *San Joaquins* offered such a service briefly in the late 1980's, but it was not as successful as anticipated. The Department is currently conducting a study of reintroducing "Business Class" (as such service is currently identified) to the *San Joaquins*. Current demand projections are being developed, and ways to accommodate the service using the present equipment are being explored. If it proves feasible, premium service could be offered in the near future.

New Fresno Terminal - One significant market that is not well served by the present schedule structure is between the southern half of the San Joaquin Valley and Southern California. Fresno is the largest urban area in the Valley and the most significant intermediate market area on the route. Yet, the earliest departure from Fresno to Southern California is not until almost ten in the morning, because the equipment for that departure has to originate in Sacramento, over three hours to the north. Similarly, because the equipment has to continue on to Sacramento,

the last arrival in Fresno from the south originates (by bus) in Los Angeles in the mid afternoon, with a *Pacific Surfliner* connection that leaves San Diego at noon.

Currently trains have to terminate and originate in Oakland because that is the only layover facility on the Route. If there were a layover servicing facility in Fresno, one or more trains could originate in Fresno earlier in the morning, with Los Angeles arrivals well before noon. In the other direction, it would be possible to offer end-of-the-workday and/or early evening departures from Los Angeles if the equipment could terminate in Fresno instead of continuing on to the north late at night. The Department is investigating possible locations for such a facility and includes this project in its ten-year capital program.

In addition to allowing improved scheduling opportunities for Fresno and the southern San Joaquin Valley, the Fresno layover facility would provide operational cost savings. The first northbound train in the morning is very lightly patronized out of Bakersfield, because of its early departure time (presently before 5:00 a.m.). Originating that train in Fresno would eliminate about one hundred miles of operating costs, while preserving service to the primary markets on that schedule. Similarly, terminating the last southbound train in Fresno would save costs and improve its efficiency.

Passenger On-Board Wireless Internet Service - Wireless internet service is becoming commonplace. The *Capitol Corridor* offered internet service in selected cars on a pilot basis, but the CCJPA did not continue the service because usage dropped off significantly when a fee was charged for the service. Also as a result of the pilot, the CCJPA learned that the most effective system would have both passenger and train operating applications. The CCJPA is now working to implement this system. The Department would like to add passenger on-board wireless internet capabilities to the equipment assigned to the *San Joaquins*. However, this may not be possible unless the wireless system is linked to a more comprehensive system-wide network involving operational applications (see below for more information).

Automated Ticket Validation - Automated Ticket Validation is a wireless application that can be implemented in advance of a full wireless network. It would improve customer service, operations, and safety. Rail passengers have been able to make reservations and purchase tickets over the internet for some time, but the tickets purchased are traditional paper tickets and must be mailed to the purchaser or picked up at an Amtrak ticket office prior to departure. Airlines went one step farther and introduced “paperless” ticketing several years ago. A similar system for train travel would be much more convenient for passengers, particularly those boarding at small un-staffed stations along the route, because it would eliminate the need to obtain actual paper tickets prior to traveling or purchasing them on board.

The system would also have many operational advantages. It would produce a real-time record of all passengers on-board. This is a safety and security feature similar to that currently required of the passenger airline industry. This system would allow actual trip origin-destination information, instead on the current estimates (particularly for 10-ride and monthly tickets), to better inform management of actual usage, thus allowing better insight and management of the service delivered to the customer.

The CCJPA in early 2008 is undertaking an automated ticket validation pilot project that is funded by the Department. Depending upon the results, the Department may expand implementation to this Route.

Longer-Term Improvements

Electronic Train Management System - The Department is investigating the use of an electronic train management system. On the *San Joaquins,* the patented Electronic Train Management System (ETMS) system is being evaluated, as this is the system BNSF has chosen to utilize. ETMS is a wireless network of communication between locomotives, wayside signaling systems and dispatchers that functions as a safety overlay on top of existing train control and signal systems. The purpose is to improve safety and to prevent train collisions and accidents. A computerized system is installed inside each locomotive that receives information from the railroad's existing Global Positioning System (GPS) network, and once the train is underway, ETMS tracks the train's location. ETMS can: override and automatically control train speed, relay information such as speed limits and track switch positions to a computer screen inside the locomotive cab, sending warnings to the crew, and automatically starting the braking process (if the crew does not respond promptly). ETMS is a significant safety milestone for the rail industry.

The Department first plans to implement ETMS on the *San Joaquin* Route because a majority of the railroad track is owned by BNSF Railway who plans to install ETMS in the next few years. As a pilot project in 2004, BNSF installed ETMS on 50 of its locomotives along a 135-mile stretch of track in Illinois. In January 2007, the Federal Railroad Administration (FRA) gave approval to begin using ETMS on other parts of the BNSF Railway network. Purchase and installation of ETMS components on BNSF-owned segments of California's *San Joaquin* Route would greatly increase the flexibility of rail traffic control as well as improve train movements and schedule reliability. For example, trains would also be capable of safely passing in opposite directions at or near full speed. The BNSF's current tentative timeline is to begin work in FY 2009-10 and complete work in FY 2010- 11. Funding for the project still needs to be finalized.

Comprehensive Wireless Network - A comprehensive wireless network could have many significant applications for improvement of safety, operations, cost-control, and customer service. Systems such as this are in use today in Europe.

The network would include hardware installations on the State-owned rolling stock and would likely include equipment installations along the right-of-way and other fixed facilities. This network could use similar technology to an ETMS system, however would be completely separate, as ETMS must be a totally closed-system in order to maintain the high level of accuracy, and lack of failure necessary for a signal safety system. The benefits of a comprehensive wireless network are discussed in more detail in Chapter III. The CCJPA is developing a Request for Proposal (RFP) to be ready by 2008 to establish and maintain a wireless network. Based on the results of the RFP process, the Department will proceed with implementing a network on the *San Joaquins*.

MULTIMODAL CONNECTIVY

The Department strives to make the *San Joaquin* Route as "seamless" as possible with enhanced connectivity to other transportation systems.

The Department is working to improve schedule coordination with the *Capitol Corridor* and Altamont Commuter Express (ACE) for direct rail connections and connecting to Amtrak Thruway buses. In 2003-04, the Department initiated a program on the *San Joaquins* where conductors offer free transfers to participating local transit services. Within the ten-year period, the Department plans to expand this program to all major transit providers on the Route. Expansion of marketing and passenger information programs will provide additional information on multimodal connectivity with local transit.

Connecting Amtrak Buses

The extensive network of Amtrak dedicated feeder buses connecting with the *San Joaquins* is essential to the route, as at least 70 percent of all *San Joaquin* riders (in 2005-06) used one or more buses for a portion of their trip. Ridership analysis shows that feeder bus 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.

Following is a listing of the *San Joaquin* bus routes and their major destinations, 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*. Cities designated with asterisks (*) are not served by all schedules on the route.

***San Joaquin* Bus Routes**

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

Route 3–Sacramento Valley
Stockton-*Sacramento*-Redding-Medford*

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

Route 7–North Bay/Redwood Empire
Martinez-Santa Rosa-Eureka*-McKinleyville*

Route 9–High Desert-Las Vegas
Bakersfield-Las Vegas

Route 10–Valley-South Coast
Bakersfield-Oxnard-Santa Barbara

Route 12–Antelope Valley
Bakersfield-Victorville

Route 15–Yosemite
Merced-Yosemite National Park

Route 18–Valley-Central Coast
18A–*Hanford*-San Luis Obispo-Santa Maria
18B–*Hanford*-Visalia

Route 19–Inland Empire-Coachella Valley
Bakersfield-San Bernardino-Riverside-Palm Springs*-Calexico*

Route 34–Bay Area - Stockton
Stockton-Oakland-San Francisco

***Capitol Corridor* Bus Routes**

Route 20–Sierra Foothills/High Sierra
Sacramento-Reno/Sparks

Route 23–Lake Tahoe
Sacramento-Stateline

Amtrak Bus Route

Route 99–Trans Bay
Emeryville-San Francisco

TRAVEL TIMES

Current Bakersfield to Oakland travel time averages 6 hours-9 minutes, and Bakersfield to Sacramento averages 5 hours-16 minutes. The Department's ten-year goal is to reduce travel times to under six hours between Oakland and Bakersfield and under five hours between Sacramento and Bakersfield.

Running time reductions on both route segments will be accomplished through the completion of capital projects included in the unconstrained capital program described in Chapter II. Also, operational improvements such as improved dispatching can reduce travel time.

RIDERSHIP, REVENUE, AND FAREBOX RATIO

The Department's goals for ridership, revenue and farebox ratio will be achieved through the capital, operational and service improvements and service expansions discussed in this Chapter as well as in Chapters II, III, and IV. They are as follows:

- Increase annual ridership 80 % from 797,000 to 1,432,000.
- Increase annual revenues 124 % from $26.5 million to $59.4 million.
- Increase revenue/cost (farebox) ratio from 46.3% to 52.3%.

TEN-YEAR TRAIN SERVICE EXPANSION PLANS

INCREASED SERVICE FREQUENCIES

The Department anticipates that within the next ten years there will be sufficient demand to support eight train round-trips in the San Joaquin Valley, with two additional round-trips operating between Oakland and Stockton. The Department proposes that expansion of the *San Joaquin* Route frequencies occur on the following timetable.

2011-12 Third daily Sacramento-Bakersfield round trip,
Two new daily roundtrips from Stockton to Oakland.

2014-15 Fifth daily Oakland-Bakersfield round trip.

It is important to note that the above start-up dates for service are based only on projected service needs. Demonstrated ridership demand, approval from Amtrak and the host railroads, availability of equipment, funding and construction of necessary capital projects, and provision of additional operating funds will affect when each of the service expansions actually can be implemented.

OAKLAND-STOCKTON

Prior to adding the fourth *San Joaquin* round trip in 1989, the Department reached agreement with the then-Santa Fe Railway to fund a series of track improvements that would allow up to six round trips over the entire Santa Fe route between

Port Chicago and Bakersfield. However, it was decided that the fifth and sixth round trips would operate between Sacramento and Bakersfield, so the authority to operate the last two trips between Port Chicago and Stockton (originating in Oakland) has not been exercised.

The Department is now exploring options for utilizing those two available round trip slots west of Stockton. As the result of population growth in eastern Contra Costa and northern San Joaquin Counties, and increasing ridership on the existing *San Joaquins* on this segment, interest in an earlier schedule from Stockton into the Bay Area (not originating in Bakersfield or Fresno) has grown. Also, two major gaps in the existing Bay Area schedules could be filled by establishing Oakland-Stockton train connections for one of the Sacramento round trips, replacing the existing bus connection. In order to begin planning for the Oakland-Stockton trains, the Department's ten-year plans include the start of two Oakland-Stockton trains in 2011-2012.

In April 2006, the Department initiated the San Joaquin Corridor Strategic Business Plan that includes the detailed study of potential schedules and market analysis for the Oakland-Stockton segment of the Route. These trains could run as a stand-alone segment or as part of a longer trip to Bakersfield or even Fresno. Dependant upon the results of the study, the Department will refine its plans for adding additional trains on this segment.

BAKERSFIELD TO LOS ANGELES

Currently, the *San Joaquins* operate from Sacramento and Oakland to Bakersfield with extensive dedicated feeder bus connections to Los Angeles and other Southern California points. About 30 percent of *San Joaquin* train riders used the Bakersfield to Los Angeles bus in 2005-06. In view of this extensive use of connecting bus services between Bakersfield and Los Angeles, the Department has for many years been interested in developing a direct *San Joaquin* rail extension between these points.

The Union Pacific Railroad (UP) route between Bakersfield and Los Angeles passes through Mojave and Palmdale. The Bakersfield to Mojave section is one of the busiest single-track freight lines in the western United States; it is also used by BNSF Railway (formerly Burlington Northern Santa Fe) freight trains operating on trackage rights. Beyond Mojave, UP's route to Los Angeles goes through Palmdale then southeast to Colton. The former Southern Pacific line south from Palmdale to Los Angeles via Santa Clarita is now owned by the Los Angeles County Metropolitan Transportation Authority and is used for Merolink commuter service between Lancaster and Los Angeles.

In 2002, the Department requested that the UP do a State-funded rail capacity study between Bakersfield and Los Angeles to examine intercity passenger rail service on the line. The railroad declined to do the study, stating that because

there is no excess capacity on this line, the addition of regularly scheduled passenger service would have a detrimental impact the UP's ability to provide competitive freight rail service.

However, the Department remains interested in extending *San Joaquin* rail service to Los Angeles. The *San Joaquin* Corridor Strategic Business Plan RFP mentioned above includes the study of: (1) extending one round-trip on an overnight schedule over the UP/Metrolink route to Los Angeles; and/or (2) extending one round-trip on a mid-day schedule over the UP/Metrolink route to Los Angeles; and (3) extension of the rail line south to the foot of the Grapevine with new track, which, coupled with the extension of certain *Pacific Surfliner* trains from Los Angeles north to Santa Clarita on existing Metrolink track, would reduce the bus portion of a trip to just about an hour ride. The Department decided to examine this last option as a potential alternative to use of the UP's line between Bakersfield and Lancaster. Dependent upon the results of the study, the Department may proceed with plans to address the gap in rail service between Bakersfield and Los Angeles.

ROUTE ADMINISTRATION

The State and Amtrak share responsibilities for operating the *San Joaquins*. The State funds the Route's operation, Amtrak operates the trains, and the Department is responsible for the oversight of the *San Joaquin* service through its operating contract with Amtrak. The Department coordinates functions such as marketing, scheduling, and on board services with Amtrak. The State owns all *San Joaquin* equipment, while Amtrak maintains it. For a further description of the financial relationship between Amtrak and the State, see Chapter XI.

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 counties served by feeder buses. Agency associate members represent Amtrak, CPUC, UP, BNSF, Metropolitan Transportation Commission, 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 (BTH) to coordinate intercity passenger rail service for the *San Joaquin* Corridor.

ROUTE HISTORY

Two daily trains served the San Joaquin Valley immediately prior to May 1971 when Amtrak was formed. Each train used a different route through the Valley, and was operated by a different railroad, with different destinations. SP operated

the *San Joaquin Daylight* between Oakland and Los Angeles and a connecting train, the *Sacramento Daylight*, from Sacramento that provided a connection with the *San Joaquin Daylight* at Tracy. The ATSF operated the *San Francisco Chief* between the Bay Area and Chicago via Stockton, Fresno and Bakersfield.

Amtrak's initial route structure in May 1971 used the SP's Coast Line for service between Northern and Southern California, leaving the San Joaquin Valley without rail passenger service. Public pressure for restoration of rail service began almost immediately after the formation of Amtrak. As a result, Amtrak's appropriation for FFY 1974 included funding for service in the San Joaquin Valley. Amtrak selected a joint SP-ATSF route using a connection between the two railroads at Port Chicago (near Martinez). In March 1974, the new *San Joaquins* entered service between Oakland and Bakersfield, entirely funded by Amtrak.

In 1979, a major reduction in Amtrak's nationwide route structure was proposed, including the termination of the *San Joaquins*. However, the State reached an agreement with Amtrak to continue the train with State support under the provisions of Section 403(b) of the Amtrak Act. Thus, State support of the route started in October 1979, and a second Oakland-Bakersfield round trip was added in February 1980.

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

2/3/80	Second round-trip added between Oakland and Bakersfield..
12/17/89	Third round-trip added between Oakland and Bakersfield.
10/25/92	Fourth round-trip added between Oakland and Bakersfield.
2/21/99	Fifth round trip added, running between Bakersfield and Sacramento (instead of Oakland); this is the first train service between Sacramento and the San Joaquin Valley since 1971.
3/18/02	Sixth round trip added, also between Sacramento and Bakersfield, making two Sacramento round-trips.

ROUTE DESCRIPTION

There are currently six daily round trip trains on the *San Joaquin* Route, four between Oakland and Bakersfield and two between Sacramento and Bakersfield, with all trains running between Stockton and Bakersfield on the same tracks. In order to provide the six-frequency service between all points on the route, connecting buses are provided between Stockton and Sacramento for trains serving Oakland,; for trains serving Sacramento, connecting buses are provided between Stockton, Oakland and San Francisco.

Scheduled train-running time between Bakersfield and Oakland averages 6 hours-9 minutes. Overall average speed, including station dwell time, is 51.3 mph. Scheduled train running time between Sacramento and Bakersfield averages 5 hours-16 minutes, and overall average speed is 53.7 mph. The maximum track speed on the *San Joaquin* Route is 79 miles per hour.

The *San Joaquin* Route comprises 365 route miles, 316 miles between Oakland and Bakersfield with 13 intermediate stops, and 49 miles between Sacramento and Stockton with one additional intermediate stop. Amtrak operates the *San Joaquins* under provisions of its contracts with the BNSF and UP. Predominant right-of-way ownership is by the BNSF (Port Chicago-Bakersfield). The UP owns 39 miles at the north end of the route between Oakland and Port Chicago and 49 miles in the segment between Stockton and Sacramento. See Figure 7B, which describes the current ownership, segment mileage, and track and signal characteristics of the *San Joaquin* Route.

Figure 7B

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 - BNSF 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.

HISTORICAL PERFORMANCE

Figure 7C shows ridership and financial performance data on an annual (State FY) basis from the start of State-supported service in 1979-80 through 2005-06. Ridership and revenues have increased at a fairly steady rate over that period, as have expense, 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 XI for more information on this subject.) 2005-06 was an excellent year for the Route, with farebox at its highest since 1995-96, and ridership at an all-time peak, and four percent above the previous annual high in 2004-05.

Figure 7C

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%
2001-02	*(S6)*	733,152	96.9	$ 20,114,693	$ 46,503,548	$ 26,388,855	$ 26,281,035	$ 396,392	20.0¢	43.3%
2002-03		769,708	89.9	$ 20,318,564	$ 50,552,529	$ 30,233,965	$ 29,729,650	$ 504,315	21.7¢	40.2%
2003-04		752,227	87.2	$ 22,100,796	$ 50,061,460	$ 27,960,664	$ 27,960,664	$ 89,345	20.5¢	44.1%
2004-05		743,245	85.1	$ 22,590,880	$ 49,883,689	$ 27,292,809	$ 27,292,808		19.6¢	45.3%
2005-06		801,242	91.1	$ 25,869,979	$ 55,226,742	$ 29,356,763	$ 29,356,763		19.0¢	46.8%
TOTAL		**13,609,730**		**$ 330,714,419**	**$ 679,295,198**	**$ 348,580,779**	**$ 330,693,305**			

(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 between Oakland and Bakersfield.

(S3) Third round trip added 12/17/89 between Oakland and Bakersfield.

(S4) Fourth round trip added 10/25/92 between Oakland and Bakersfield.

(S5) Fifth round-trip added 2/21/99 between Sacramento and Bakersfield.

(S6) Sixth round-trip added 3/18/02 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. However, Amtrak 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.

Figure 8A

McKinleyville
Eureka
Arcata
Fortuna
Scotia
Garberville
Legett
Laytonville
Willits
Ukiah
Cloverdale
Healdsburg
Santa Rosa
Rohnert Park
Petaluma
Napa
Richmond-BART
Vallejo
Berkeley
San Francisco
Emeryville
Oakland
Martinez
Suisun
Davis
Sacramento
Rose-ville
Rocklin
Auburn
Colfax
Grass Valley
Hayward
Fremont
Great America
San Jose
Santa Cruz
Gilroy
Salinas
King City
Paso Robles
CalPoly
San Luis Obispo
Grover Beach
Santa Maria
Solvang
Santa Barbara
Medford
Ashland
Yreka
Weed
Mt. Shasta
Dunsmuir
Redding
Red Bluff
Corning
Chico
Oroville
Marysville
Soda Springs
Truckee
Reno, NV
Sparks, NV
Placerville
Tahoe Wye
Stateline, NV
Capitol Corridor Intercity Rail and Feeder Bus Routes
Legend
Corridor Train
Feeder Bus
Amtrak Station
Bus Stop Only
9/07 RFT

CHAPTER VIII
THE *CAPITOL CORRIDOR*

AUBURN-SACRAMENTO-OAKLAND-SAN JOSE

PRINCIPAL 2007-08 to 2017-18 ROUTE OBJECTIVES

- **Maintain On-Time Performance** at 90% throughout the ten-year period.
- **Enhance customer satisfaction.**
  - Release RFP in 2008 to implement comprehensive wireless network for customer internet access and operation applications. Implement system as feasible.
  - Implement Automated Ticket Validation System.
  - Implement on-board safety and security cameras.
  - Implement Customer Relationship Management ticketing database system, as feasible.
- **Improve multimodal connectivity,** establish transfer agreements and coordinated schedules with all local transit systems.
- **Reduce Travel Times** by up to 12%.
- **Increase annual ridership** 90 percent from 1,450,000 to 2,759,000.
- **Increase annual revenues** 154 percent from $18.1 million to $46 million.
- **Increase revenue/cost (farebox) ratio** from 40.0 percent to 46.1 percent.
- **Increase Service Frequency:**
  - From 16 to 18 daily round-trips between Oakland and Sacramento.
  - From 7 to 16 daily round-trips between San Jose and Oakland.
  - From 1 to 10 daily round-trips between Sacramento and Roseville.
  - From 1 to 4 daily round-trips between Roseville and Auburn.
- **Expand Service:**
  - Sacramento-Reno – first daily round-trip in 2014-15, second daily round-trip in 2016-17.
  - Support Auburn-Oakland Regional Rail Service commuter system planning.
  - Coordinate with Caltrain on the Dumbarton Rail Corridor commuter rail expansion.

This Chapter presents the ten-year operational and service improvement and train service expansion plans for the Route. The Chapter also provides information on route administration, route history, route description, and historical performance. The CCJPA's Marketing Program is discussed in Chapter IV, Marketing Program. Figure 8A is the *Capitol Corridor* Route map, including the connecting buses.

ROUTE ADMINISTRATION

The administrative structure of the *Capitol Corridor* Route differs from the *Pacific Surfliner* and *San Joaquin* Routes. The Capitol Corridor Joint Powers Authority (CCJPA) has responsibility for management of the Route, while the State continues to fund the service operation and many capital projects. Amtrak operates the trains, the CCJPA is responsible for the oversight of the *Capitol Corridor* service through its operating contract with Amtrak, and the State funds the service. The CCJPA coordinates functions such as marketing, scheduling, and on board services with Amtrak, and also coordinates some functions with the Department, such as marketing. The State owns all equipment in the Northern California fleet (used by both the *Capitol Corridor* and the *San Joaquins*), while Amtrak maintains it and the CCJPA oversees Amtrak's maintenance work. For a description of the financial relationship between Amtrak and the State, see Chapter XI.

Local agencies have always had an active role in planning and promoting the *Capitol Corridor*. Initially the Assembly Concurrent Resolution (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 Corridor*. The Department and the CCJPA executed an ITA on July 1, 1998, transferring the responsibilities of management for the *Capitol Corridor* to the CCJPA. The Bay Area Rapid Transit (BART) General Manager and designated BART staff provide administrative support to the CCJPA.

Pursuant to the ITA, Business Transportation and Housing Agency (BTH) has responsibility for allocating operating funds to the CCJPA. BTH also reviews and approves the CCJPA's business plan that includes future service levels and funding needs. Chapter 263 specified the composition of the CCJPA. The CCJPA Board must have the following 16 members: six representatives from the BART Board of Directors (two residents each from Alameda County, Contra Costa County, and the City and County of San Francisco); and two members each from the Board of Directors of the Sacramento Regional Transit District, the Board of Directors of Santa Clara Valley Transportation Authority (VTA), the Yolo County Transportation District, the Solano Transportation Authority, and the Placer County Transportation Planning Agency.

TEN-YEAR OPERATIONAL AND SERVICE IMPROVEMENT PLANS

ON-TIME PERFORMANCE

The CCJPA's goal is to maintain on-time-performance (OTP) at a minimum of 90 percent throughout the Plan period. This goal is based on the full implementation of the unconstrained capital program described in Chapter II. Increased OTP provides improved service reliability and is the most effective tool for gaining and securing ridership. OTP has consistently been the under-performing measure since the inception of service. In December 2003, Amtrak, CCJPA and Union Pacific Railroad (UP) revised the incentive payments to be calculated separately from UP's incentive payments for other Amtrak trains; this is intended to give the UP more incentive to increase OTP on this route. OTP over 92 percent receives increased incentive payments. This measure has had some success but more successful have been the ongoing discussions with UP and steps taken early in 2007 by UP to revise their freight rail operating plan to free up capacity for freight long-hauls and passenger trains, thus improving service reliability and OTP.

Most capital funds received in the past and programmed or planned are aimed at projects to improve reliability and capacity. The increase in capacity provides the UP dispatchers more options to maintain reliable, on-time service for all trains operating on the route, as well as allowing additional frequencies when approved by the UP as part of the project agreement.

ENHANCE CUSTOMER SATISFACTION

The CCJPA's June 2005 Vision Plan contains a number of goals for improving customer satisfaction. Use of technology and innovation is a major theme from the Vision Plan. Some programs have already been initiated including expanded ticket vending machines, online and voice recognition trip planning and train status updates, and public information displays. Future projects include wireless internet access with the potential for real-time on-board digital information on operations, automated ticket validation on board the trains, and a revised ticketing and data management process that will emphasize a better customer relationship, termed customer relationship management (CRM).

COMPREHENSIVE WIRELESS NETWORK

Beginning in fall of 2003, the *Capitol Corridor* offered internet service in selected cars on a pilot basis. Usage dropped off significantly when a fee was charged for the service, and the CCJPA learned through research that more technologies that could perform at a higher level were becoming available. As well, the CCJPA did not understand the precise business models that could allow the service to work for both passengers and the rail operator. The CCJPA is now poised to procure such a system after additional research with experts in the wireless industry,

additional technology trials, and development of partnerships around the world in this new industry. The CCJPA is developing a Request for Proposal (RFP) to be ready by 2008 to establish and maintain a wireless network.

A comprehensive wireless and wired network could have many significant applications for improvement of safety, operations, cost-control, and customer service. Systems such as this are in use today in Europe on several railway lines, and more are in the planning and development stages. The network would include hardware installations on the State-owned rolling stock and would likely include equipment installations along the right-of-way (ROW) and other fixed facilities. Such a system can allow for data to be sent between all points in the railway service, from stations, maintenance facilities, a future safety/security center, and, of course, the moving trains. The benefits of a comprehensive wireless network are discussed in more detail in Chapter III.

Automated Ticket Validation

Automated Ticket Validation (ATV) is a wireless application that can be implemented in advance of a full wireless network. It would improve customer service, operations, and safety. Rail passengers have been able to make reservations and purchase tickets over the internet for some time now, but the tickets purchased are traditional paper tickets and must be mailed to the purchaser or picked up at an Amtrak ticket office prior to departure. Airlines went one step farther and introduced “paperless” ticketing several years ago. A similar system for train travel would be much more convenient for many passengers, particularly those boarding at small un-staffed stations along the route, because it would eliminate the need to obtain actual paper tickets prior to traveling.

On-board the system would also have many operational advantages. It would produce a real-time record of all passengers on-board. This is a significant safety and security feature and will be similar to that currently required of the passenger airline industry. This system would also allow actual trip origin-destination information, instead on the current estimates (particularly for 10-ride and monthly tickets), to better inform management of actual usage, thus allowing better insight and management of the service delivered to the customer.

In early 2008 the CCJPA is undertaking an automated ticket validation pilot project. Dependant upon the results of this project, the CCJPA will implement this project.

Safety and Security Applications

A wireless/wired network with sufficient bandwidth to transmit digitized live video is a significant advancement for safety and security for the passenger rail industry. CCJPA is specifying in its RFP for a wireless network, a network that can provide sufficient bandwidth to allow video cameras along the railway line, at stations, and other facilities that can be viewed in real-time, and activated using

video analysis to allow greater ability to respond to potential or real incidents. Use of cameras is a key component of CCJPA's Security Plan (June 2007) that, combined with several other measures, such as the ATV program, will provide the ability for an unprecedented level of security.

Customer Relationship Management (CRM)

Customer Relationship Management (CRM) also uses new technology to improve the information exchange between the rail operator and the customer that is initiated with ticket sales. CRM is centered on a greatly improved ticket sales database system. CRM ties together the sales, customer service, marketing, and supply chain/operations activities to deliver service to the customer. Many businesses are using CRM to gain better sales and customer data and streamline customer service processes. In many other industries, and most notably, the airline industry, customers are accustomed to a detailed level of customer service that is typically delivered via CRM.

The train customer could use this system to get train-related information tailored to their needs, such as electronic alerts on specific trains, general rail service updates, special promotions/offers, and other communication as requested by the customer. In turn, Amtrak California would gain valuable demographic customer data that would provide a better understanding of the customers and provide a tool to deliver service that is more closely aligned with the customer's needs and desires. Data from a CRM system would allow management to use predictive analytics to determine customer travel and usage patterns. As well, in the marketing arm of customer relations, the data would allow for improved promotions and techniques to build customer trust and loyalty, which is nearly impossible with today's system.

The relationship between the wireless network, automated ticket validation, and CRM is inter-connected. They are linked through the use of technology and databases to gain a unified, cost-effective platform for improving passenger rail operations in general. The CCJPA will continue to research the feasibility of implementing these systems.

MULTIMODAL CONNECTIVITY

Multimodal connectivity is one of the CCJPA's Core Service Objectives in their 2005 Vision Plan. The Route has stations that connect to BART, Caltrain, ACE, VTA, and Sacramento Regional Transit Light Rail. The CCJPA has expanded their Transit Transfer Program where free transfers to local transit are offered to passengers, to additional transit providers and now has nearly all conceivable local transit services in the program. The CCJPA will seek to expand successful partnerships that coordinate with local transit providers to offer connecting bus service to the *Capitol Corridor*.

Connecting Amtrak Buses

The CCJPA contracts with Amtrak for the provision of dedicated feeder bus services, and Amtrak then contracts with bus operators or local transit 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. The CCJPA has established partnerships with local transit providers to operate the Highway 17 Express, the Highway 49 Express, and with the Route 50 between San Jose and Monterey which are timed to coordinate with on-time train service.

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

***Capitol Corridor* Bus Routes**

Route 20a/20b–High Sierra/Sierra Foothills
Sacramento-Auburn/Reno/Sparks

Route 20c–Lake Tahoe
Sacramento-South Lake Tahoe/Stateline

Route 21–Central Coast
Oakland-San Jose/San Luis Obispo/Santa Barbara

Highway 17 Express - Santa Cruz (through ticketing with local transit operator)
San Jose-Santa Cruz

Highway 49 Express (through ticketing with local transit operator)
Auburn-Grass Valley

Route 50 Express (through ticketing with local transit operator)
San Jose-Monterey

***San Joaquin* Route Bus Routes**

Route 3–Sacramento Valley
Sacramento-Redding

Route 7–North Bay/Redwood Empire
Martinez-Eureka/McKinleyville

Amtrak Bus Route

Route 99–Trans Bay
Emeryville-San Francisco

TRAVEL TIMES

Current Oakland to Sacramento travel times average 1 hour-48 minutes (for trains starting or ending in Oakland), Oakland to San Jose averages 1 hour-3 minutes, and Sacramento to Auburn averages 1 hour-2 minutes. The CCJPA's goal is to

reduce average travel time by 12 percent, which would either be competitive or faster than highway travel times. This goal assumes that the unconstrained capital program described in Chapter II is fully implemented.

Prior track improvement projects (Yolo Causeway Second Main Track and the Oakland to San Jose Track Improvements) have resulted in a reduction in travel times and new planned capital projects will provide for additional running time reductions.

RIDERSHIP, REVENUE, AND FAREBOX RATIO

The CCJPA's goals for ridership, revenue, and farebox will be achieved through the capital, operational and service improvements, and service expansions discussed in this Chapter as well as in Chapters II, III, and IV.

- Increase annual ridership 92 percent from 1,439,000 to 2,759,000.
- Increase annual revenues 154 percent from $18,100,000 to $46,000,000.
- Increase revenue/cost (farebox) ratio from 40.0 percent to 46.1 percent.

TEN-YEAR PLANNED TRAIN SERVICE EXPANSION PLANS

INCREASED SERVICE FREQUENCIES

The Department, in conjunction with the CCJPA, anticipates there will be eventual demand for eighteen round-trips on the *Capitol Corridor* between Sacramento and Oakland.

It is important to note that the start-up dates for service are based on projected service needs. Demonstrated ridership demand, approval from Amtrak and the relevant railroad(s), availability of capital funding and equipment, completion of necessary capital projects, and availability of additional operating funding will affect when each of the service improvements can be implemented.

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

2011-12	San Jose-Oakland, eighth, ninth, tenth, and eleventh round-trips. Sacramento-Roseville, second, third, and fourth round-trips. Roseville-Auburn, second round-trip.
2013-14	Oakland-Sacramento, seventeenth and eighteenth round-trips.
2014-15	San Jose-Oakland, twelfth and thirteenth round-trips Sacramento-Roseville, fifth and sixth round-trips. Roseville-Auburn, third and fourth round-trips.
2016-17	Sacramento-Roseville, seventh and eighth round-trips.
2017-18	San Jose-Oakland, fourteenth, fifteenth, and sixteenth round-trips. Sacramento-Roseville, ninth and tenth round-trips.

SACRAMENTO-RENO EXTENSION

The extension of intercity rail service from Sacramento to Reno would bring State-supported rail service to the Truckee/Tahoe and Reno/Sparks tourist areas as well as provide relief to the highly congested I-80 Bay Area to Reno corridor. The Department's and the CCJPA's plan includes the extension of one *Capitol Corridor* round-trip from Auburn to Reno/Sparks in 2014-15, and a second round-trip in 2016-17. This rail service would be supplemented by continued operation of existing bus service that runs over the same route as the train, but at other times of the day. This service would require concurrence by the Union Pacific Railroad, funds to implement required track infrastructure improvements, adequate operating funds, and an appropriate level of financial participation from Nevada. For more detailed information on this route expansion, see Chapter X.

DUMBARTON RAIL CORRIDOR

The CCJPA is participating in the development of the Dumbarton Rail Corridor as an extension of Caltrain to extend commuter rail service across the Bay between the Peninsula and the East Bay. A phased approach to full development is now planned due to funding constraints. The new service is planned to start in 2012 with three round-trips probably between Union City and San Francisco, and three round-trips between Union City and San Jose. Eventually with full implementation, Dumbarton Rail, could connect to the *Capitol Corridor* at Union City where the BART station would be reconstructed as a multimodal terminal (Union City may served by the *Capitol Corridor* prior to Dumbarton Rail Service). The CCJPA's ten-year capital improvement program includes funding for station and track work to allow the *Capitol Corridor* trains to service the new Union City terminal. For more detailed information on this route expansion, see Chapter IX.

AUBURN-OAKLAND REGIONAL RAIL SERVICE

Six agencies, including the CCJPA, have partnered and developed a service concept plan for a new regional commuter rail service in the urban corridor extending from Auburn (Bowman) to Oakland. The Auburn-Oakland Regional Rail Service Concept Plan (Plan) augments existing *Capitol Corridor* intercity service by providing additional peak period capacity for within the greater Sacramento urban area and between Sacramento and the Bay Area. The two services would utilize the same equipment, staff, and fare structure, and thus would appear fully unified to the riding public. Initially, the Plan included three-phases; a first phase, originally planned for 2010 would add four new Sacramento-Oakland round-trips. The second phase, originally planned for 2015, would include four new Sacramento-Auburn round-trips and one additional Oakland to Sacramento round-trip. The third phase, originally planned for 2020, would add new stations, primarily in the Sacramento metropolitan area. However, it is

expected that these dates will slip due to lack of an identified funding source for rolling stock and track improvements necessary to implement the service. In addition, further discussions with the UP are required to establish the parameters to implement service. For more detailed information on this route expansion, see Chapter IX.

ROUTE HISTORY

Intercity rail service started on the *Capitol Corridor* in 1991, making this route the newest of the three State-supported routes. ACR 132 (Hannigan), Statutes of 1988, directed the Metropolitan Transportation Commission (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 1990 and provided the basis for the initiation of service on the Route.

Service has increased from the original three round-trips to the current sixteen (weekday) round-trips from Oakland to Sacramento as follows:

12/12/91	San Jose-Oakland-Sacramento: three round-trips with one continuing to Roseville.
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. Oakland-San Jose: fourth round-trip added. Colfax round-trip cut back to Auburn.
4/29/01	Oakland-Sacramento: eighth and ninth round-trips added. Oakland-San Jose: fifth and sixth round-trips, added on weekends only.
10/27/02	Oakland-Sacramento: tenth round-trip, added on weekdays only.
1/6/03	Oakland-Sacramento: eleventh round-trip, added on weekdays only.
4/28/03	Oakland-Sacramento: twelfth round-trip, added on weekdays only.

8/26/06 Sacramento-Oakland: thirteenth through sixteenth weekday round-trips added (twelfth round-trip added on weekends).
Oakland-San Jose: fifth through seventh daily round trips added.

ROUTE DESCRIPTION

As a result of the capital investment in additional track capacity between Oakland and San Jose, the *Capitol Corridor* now has seven weekday round-trips between Oakland and San Jose, sixteen weekday round-trips between Oakland and Sacramento (twelve on weekends), and one daily Sacramento to Auburn round-trip. Scheduled running time between Oakland and Sacramento averages 1 hour-48 minutes (for trains starting or ending in Oakland) with the overall speed averaging 50 mph. Scheduled running time between Oakland and San Jose averages 1 hour-3 minutes with the overall speed averaging 43 mph. Scheduled running time between Sacramento and Auburn averages one hour and two minutes with the overall speed averaging 34 mph

Figure 8B

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	2	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	2	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	CTC
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.

The *Capitol Corridor* extends 169 rail miles from Auburn to San Jose (35 miles east of Sacramento and 134 miles west of Sacramento.) Except for three miles of right of way (ROW) owned by the Peninsula Corridor Joint Powers Board, UP owns this entire route. Amtrak operates the *Capitol Corridor* under provisions of its contract with UP. Figure 8B describes the current ownership, segment mileage, and track and signal characteristics of the *Capitol Corridor*.

HISTORICAL PERFORMANCE

Figure 8C shows ridership and financial performance data on an annual basis from the start of State-supported Amtrak rail passenger service in 1991-92 through 2005-06. Ridership and revenues have increased over that period, as have expenses, loss, and State cost. The farebox ratio on this Route has not fluctuated as much as on the *San Joaquins* and *Pacific Surfliners* for a number of reasons. First, when the *Capitol Corridor* service started, Amtrak had already begun increasing costs that are included in the farebox ratio. By 1996-97, Amtrak was charging a cost basis similar to the current basis. Also, the *Capitol Corridor* service is still relatively new and has added frequencies at a relatively fast rate. Thus, the growth in revenue tends to be offset by new expenses for increased frequencies. The *Capitol Corridor* service has a lower farebox ratio than the other two routes, primarily as a result of its shorter trip length. The *Capitol Corridor* farebox ratio (40.6 percent in 2005-06) has ranged between a high of 43.4 percent in 1995-96 and a low of 29 percent in 1996-97.

OTP on the *Capitol Corridor* was fairly low during the initial years of the service. With the completion in early 1999 of major track and signal work over much of the route, OTP improved considerably. In 2005-06, OTP averaged 72.3 percent. New trackage and signal improvement projects between Oakland and San Jose and the Yolo Causeway Second Main Track project have improved the *Capitol Corridor*'s reliability and OTP by facilitating both passenger and freight train movements and by providing more opportunities for trains to pass each other. In addition, CCJPA funding of a dedicated track maintenance crew has resulted in a significant decrease in slow orders which has further improved OTP over what it otherwise would have been.

Figure 8C

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	$ 17,120,868	$ 194,932	28.2¢	34.1%
2000-01	*(S7)*	1,030,837	106.0	$ 11,091,742	$ 27,670,759	$ 16,579,017	$ 18,558,681	$ 92,014	21.0¢	40.1%
2001-02		1,090,713	96.9	$ 12,321,755	$ 32,683,794	$ 20,362,039	$ 21,263,811	$ 99,311	25.3¢	37.7%
2002-03	*(S8)*	1,129,683	92.0	$ 12,550,182	$ 35,390,303	$ 22,840,121	$ 22,413,396	$ 170,254	28.1¢	35.5%
2003-04		1,148,047	86.3	$ 13,012,806	$ 36,231,990	$ 23,219,184	$ 23,168,004	$ 9,584	28.0¢	35.9%
2004-05		1,239,082	93.1	$ 14,788,299	$ 39,160,356	$ 24,372,057	$ 24,372,057		27.3¢	37.8%
2005-06		1,269,964	95.5	$ 15,740,506	$ 38,759,149	$ 23,018,643	$ 23,018,643		24.9¢	40.6%
TOTAL		**10,618,105**		**$ 124,246,221**	**$ 342,245,177**	**$ 217,998,956**	**$ 212,457,764**			

(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.

(S8) Effective 10/27/02, tenth round trip added; effective 1/6/03, eleventh round trip added; effective 4/28/03, twelfth round trip added. These additional trains operate weekdays only between Sacramento and Oakland.

(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.

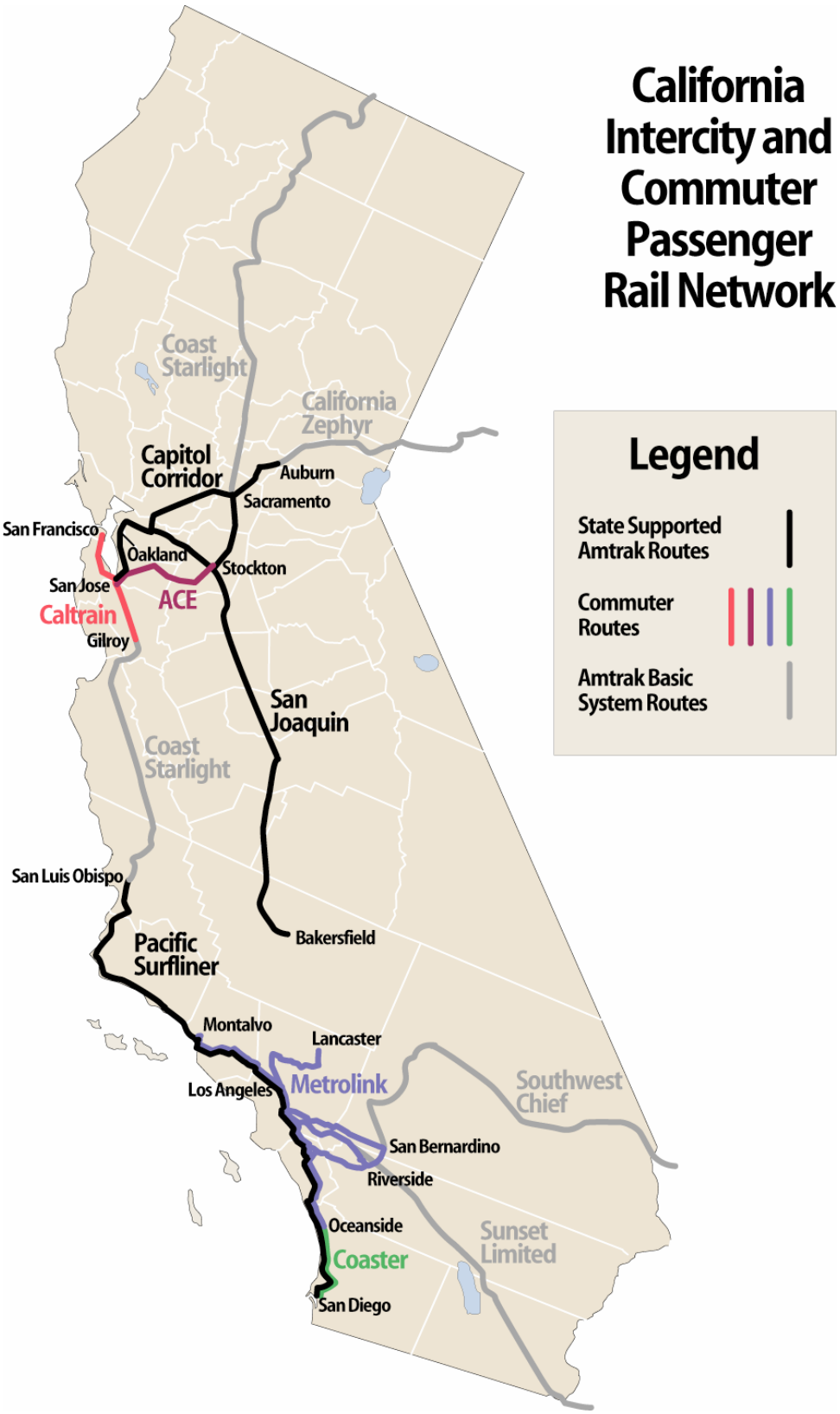
(F3) Though September 1995, State cost was 65 percent of train operating loss. Between October 1995 and September 1996, State cost was 100 percent of train operating loss. Between October 1996 and September 1997, State cost was 55 percent of the train operating loss. Effective October 1997, State is 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) Between State Fiscal Years 1993-94 and 2003-04, Amtrak cost is based on billings submitted and reflects cost bases and Amtrak shares as stated in notes (F2) and (F3) above. However, Amtrak does not include the unbilled Amtrak share of fixed cost elements. Prior to FY 1993-94, data to calculate Amtrak cost is not available; beginning in FY 2004-05, no Amtrak share is billed.

(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.

Figure 9A


California Intercity and Commuter Passenger Rail Network
Legend
State Supported Amtrak Routes
Commuter Routes
Amtrak Basic System Routes
Coast Starlight
California Zephyr
Capitol Corridor
Auburn
Sacramento
San Francisco
Oakland
Stockton
San Jose
ACE
Caltrain
Gilroy
San Joaquin
Coast Starlight
San Luis Obispo
Bakersfield
Pacific Surfliner
Montalvo
Lancaster
Los Angeles
Metrolink
Southwest Chief
San Bernardino
Riverside
Oceanside
Coaster
Sunset Limited
San Diego

CHAPTER IX
COMMUTER RAIL SERVICES

This chapter discusses the four existing commuter rail systems in California, including their extension plans: Coaster, Metrolink, Caltrain and ACE. Figure 9A is a map of existing and potential commuter rail services. Figure 9B is a map of Southern California commuter rail services and Figure 9F is a map of Northern California commuter rail services (shown later in this chapter). Also discussed are three proposed new commuter rail routes: Ventura and Santa Barbara Commuter Rail Service, Sonoma-Marin-Area Rail Transit and Auburn-Oakland Regional Rail.

COASTER COMMUTER RAIL SERVICE
(SAN DIEGO-OCEANSIDE)

PRINCIPAL 2007-08 to 2017-18 ROUTE SERVICE OBJECTIVES

- Increase ridership and improve mobility in the region.
- Implement and improve timed transfers at various stations and transit centers.
- Initiate and continue implementation of the Customer Amenities Program.
- Implement incremental service increases, if feasible, including: supplementary mid-day service, reverse peak service, evening service, special events service and weekend service.

CAPITAL IMPROVEMENT OBJECTIVES

FUNDED:

- Construct Oceanside passing track.
- Replace single-track Santa Margarita River bridge with new two-track concrete bridge and connect with double track siding.
- Extend platform at Sorrento Valley Station.
- Build 500-space parking structure at Solana Beach Station for mixed-use development.

UNFUNDED OR UNDERFUNDED:

- Replace single-track San Dieguito River bridge with new two-track concrete bridge.

UNFUNDED OR UNDERFUNDED (continued):

- Replace single-track San Luis Rey River bridge with new two-track concrete bridge and connect to with double track siding.
- Replace single-track San Mateo Creek bridge's north approach with new concrete bridge approach.
- Replace other single-track timber bridges with new double-track concrete bridges, including seven bridges in Sorrento Valley and one bridge in Cardiff.
- Sorrento to Miramar second track and curve straightening..
- Continue stabilization of Del Mar Bluffs.
- Extend platforms at Poinsettia Station.

BACKGROUND

The North San Diego County Transit Development Board (Board) was created by State law in 1975 to plan, construct, and operate itself or through a contractor, a public transit system in its area of jurisdiction. In 1976, the Board formed the North County Transit District (NCTD) for the purpose of providing integrated public transit services within the North San Diego County region.

In 1987, voters approved the Proposition A "TransNet" Ordinance, which provided funding for future transit projects and improvements to the existing system. At the same time, planning began on the Coaster commuter rail service between Oceanside and San Diego. In order to expand rail passenger services, in 1992 the Board purchased a significant segment of the LOSSAN Rail Corridor from the ATSF.

In 1994, the Board created a non-profit corporation called the San Diego Northern Railway (SDNR) to maintain, enhance, and operate the SDNR facilities and Coaster Express Rail Service. Beginning in 2000, the Board contracted directly for Coaster services and ceased using the SDNR non-profit corporation. In 2002, SB 1703 consolidated the planning, programming, and construction functions under the San Diego Association of Governments. Coaster rail service began on February 27, 1995 between Oceanside and San Diego.

The Board owns the portion of the LOSSAN Rail Corridor from the Orange/ San Diego County Line (at Mile Post 207.4) south to the city limits of Del Mar/San Diego (at Mile Post 245.6). The Metropolitan Transit Development Board (MTDB) owns the portion of the LOSSAN Rail Corridor from that point south to the Santa Fe Depot in San Diego (at Mile Post 267.6). Per agreement, the NCTD also provides maintenance of the LOSSAN Rail Corridor in MTDB's area of ownership.

Figure 9B

Southern California Commuter Rail Routes
Lancaster
Palmdale
Vincent Grade/Acton
VENTURA
LOS ANGELES
SAN BERNARDINO
Via Princessa
Santa Clarita
Newhall
Simi Valley
Moorpark
Montalvo
Oxnard
Camarillo
Chatsworth
Northridge
Van Nuys
Burbank-Bob Hope Airport
Burbank
Cal State LA
El Monte
Covina
Pomona North
Fontana
San Bernardino
Glendale
Los Angeles
Pomona
E. Ontario
Industry
Metrolink
Commerce
Montebello
Riverside
Norwalk/ Santa Fe Springs
Fullerton
N. Main Corona
Anaheim
Orange
RIVERSIDE
Santa Ana
Tustin
Irvine
ORANGE
Laguna Miguel/ Mission Viejo
San Juan Capistrano
San Clemente
SAN DIEGO
Oceanside
Carlsbad Village
Encinitas
Coaster
Solana Beach
Sorrento Valley
Old Town
San Diego
9/07 RFT

ORGANIZATIONAL STRUCTURE

The Board of Directors of NCTD is comprised of one member of each of the city councils of the cities of Carlsbad, Del Mar, Encinitas, Escondido, Oceanside, Solana Beach, San Marcos, and Vista, and one member from the San Diego County Board of Supervisors.

ROUTE AND SERVICE DESCRIPTION

The Coaster serves eight stations between San Diego and Oceanside and operates 22 trains per day Monday through Thursday, with 26 trains on Friday (April-September) and frequent service during peak periods. Four round-trips are operated on Saturday. During the 2007 San Diego Padres Baseball season, the Coaster began providing Saturday and Sunday Padres Home Game service. This added service has been very popular and NCTD will consider continuation next season. The running time from San Diego to Oceanside is approximately 58 minutes, and all Coaster trains are wheelchair accessible.

The Coaster has eight stations: Oceanside Transit Center, Carlsbad Village, Carlsbad Poinsettia, Encinitas, Solana Beach, Sorrento Valley, Old Town Transit Center and San Diego Santa Fe Depot. All stations have parking facilities except downtown San Diego's Santa Fe Depot. Parking improvements are currently being developed for the Solana Beach Station. NCTD is also pursuing a temporary parking lot expansion on NCTD-owned right-of-way at the Carlsbad Village Station.

FARE STRUCTURE

The Coaster fare structure is based on distance traveled, with four fare zones. Passengers purchase their tickets from ticket vending machines at station platforms before boarding the train, and they must present a valid ticket or monthly pass to the conductor or ticket inspector upon request. Ticket types available include one-way tickets, round-trip tickets, regular monthly pass, Senior/Disabled monthly pass, and youth monthly pass. Discounts of approximately 50 percent for seniors and the disabled, and 25 percent for youth, are offered on the monthly passes, compared to the regular monthly pass.

The Rail 2 Rail program allows Coaster and Amtrak to accept certain tickets issued by each other's rail services. Coaster monthly pass holders traveling between Oceanside and San Diego can increase their train service options at no additional cost. Amtrak ticket holders also enjoy the same privilege on Coaster trains within the limits of their ticket at no additional charge to the passenger. However, NCTD must reimburse Amtrak $1.50 per net Coaster rider carried on Amtrak, under this program. NCTD budgeted operating funds of $125,000 for this service in its FY08 Budget.

CONNECTING SERVICES

Coaster passengers can connect with Amtrak trains at Oceanside, Solana Beach, Old Town Station (Sundays only), and Downtown Santa Fe Depot in San Diego. At Oceanside Transit Center, connections are available to Metrolink commuter service to Los Angeles and to NCTD's new SPRINTER light rail service to Escondido via Vista and San Marcos. Connections are made to San Diego Transit, San Diego Trolley, and Metropolitan Transit System (MTS), at these stations: Sorrento Valley Station, Old Town Transit Center, and San Diego's Santa Fe Depot. The link to San Diego State University is at the Old Town Transit Center using the San Diego Trolley's new Green Line Mission Valley East Extension. In addition, there is a free connection from the San Diego terminal to the San Diego International Airport through MTS. The NCTD Breeze buses provide several North San Diego County region connections. Also, the Encinitas Coaster Connection and the Sorrento Valley Connection provide peak hour shuttle service to the Coaster.

PERFORMANCE

Ridership

Figure 9C shows the annual Coaster ridership data from the beginning of service in 1995 through 2007, by Fiscal Year. As traffic on I-5 and I-805 continues to increase, and fuel prices rise, more commuters have turned to the Coaster, whose ridership has increased to 1.56 million in FY 2007.

On-Time Performance

The Coaster's on-time performance has improved in FY07 after several years of declining performance as the LOSSAN corridor becomes increasingly more congested (also contained on Figure 9C). As of the end of FY07, on-time performance had improved to 94.0%. NCTD and its new Contractor, TransitAmerica, have worked very closely with all corridor users and the Metrolink Operations Center to achieve the improvement. The double-track and bridge projects discussed below would contribute to continued excellent performance.

Figure 9C

Coaster Ridership Fiscal Years 1995-2006		
Year	**Ridership**	**OTP**
1995	179,378	
1996	736,776	
1997	909,976	
1998	1,031,268	
1999	1,240,225	92.5%
2000	1,187,749	93.8%
2001	1,206,839	94.6%
2002	1,281,144	93.8%
2003	1,348,453	93.4%
2004	1,429,020	91.2%
2005	1,432,468	85.3%
2006	1,554,450	87.6%
2007	1,560,729	94.0%

REGIONAL SERVICE INITIATIVES

The San Diego Association of Governments (SANDAG) Draft 2007 Regional Transportation Plan proposes significant improvements to service frequencies by 2020 including service every 20 minutes at peak times and every 60 minutes off-peak. Enabling these improvements to occur will require double-tracking along the entire rail corridor. In the near term, the only way to significantly increase service capacity is by operating longer consists. Intermediate term objectives proposed are designed to increase service as double tracking is incrementally added over the next twenty years. The adopted 2007-2011 SANDAG Regional Short-Range Transit Plan proposed as a strategy to provide additional weekend service including Sundays.

CAPITAL IMPROVEMENT PROGRAM

NCTD's capital needs to support current and future service levels on the Coaster, as well as Amtrak, BNSF, and Metrolink, are at a critical crossroads. NCTD is working to improve its infrastructure, including rail equipment purchases and major system overhauls, bridge and track improvements, facility and maintenance improvements, radio communication upgrades, technology enhancements, and emergency response and system safety upgrades. However, there is currently no funding available for many of the most critical right-of-way infrastructure needs. These crucial projects are needed to maintain and increase safety and ridership, and improve reliability of the service. If funding is not found to start implementing these infrastructure replacement projects in the next few years, NCTD will have no choice but to start reducing corridor speeds, and ultimately, service levels.

Funded Projects

Oceanside Passing Track – This Department project entails two components. The first is construction of a 1.2 mile long passing track extension that will cross Loma Alta Creek on a new concrete bridge. The second is to replace the existing timber trestle bridge over Loma Alta Creek with a concrete bridge.

Santa Margarita Bridge Replacement and Second Main Track – This project will consist of three components: (1) replacement of the existing single-track Santa Margarita River Railroad Bridge with a new two-track bridge, (2) construction of a 0.8 mile new second main track, and (3) an upgrade and realignment of the existing 1.7 mile Fallbrook Junction Passing Track. In addition, the westerly 0.2-mile of the existing Stuart Mesa Passing Track will be realigned to accommodate new turnouts, signal modifications, retained embankments, and drainage facilities.

CP Carl to CP Farr Double-Track – This project would add two miles of second track and a new concrete bridge to the current alignment between downtown Carlsbad and Cannon Road in Carlsbad, connecting to the double-track at Cannon. The resulting double track segment would be a total of five miles in length. The bridge would be virtually identical to the new concrete bridge at MP 230.6 completed by NCTD in 2006. Amtrak has provided much of the funding for this project.

Solana Beach Station Parking – A 500-space parking structure will be constructed as part of a mixed-use development located at the Station.

Sorrento Valley Station Platform Extension –This project will extend the two platforms at Sorrento Valley Station to up to 1,000 feet in length, in order to accommodate longer trainsets. The current platforms can only accommodate five-car trains, and ridership growth is such that six-car trains will soon be needed.

Unfunded and Under-funded Projects

San Dieguito River Bridge Replacement and Second Main Track – This project would replace a single-track bridge with a double-track concrete bridge, and add 1.1 miles of second main track to connect the existing passing tracks at Solana Beach and Del Mar. The resultant double-track will be 2.8 miles in length. The bridge has been the target of past marine borer attacks, and is under attack again at this time.

San Luis Rey River Bridge and Second Track Project – This project would replace the 700-foot long, 1920's-era, troubled, single-track steel bridge at the San Luis Rey River with a new double track concrete bridge, and connect with double-track segments to the north and south to create a continuous stretch of double track from CP Westbrook (MP 223.6) through Oceanside Transit Center and south to CP Escondido Junction (MP 227.2), a total length of 3.6 miles.

San Mateo Creek Bridge North Approach – The current 558-foot long timber trestle north approach to this bridge has been burned repeatedly during the last three decades and is in very poor condition. NCTD has expended approximately $500,000 on interim repairs in the past two years but this bridge portion must be replaced. NCTD has undertaken preliminary design and environmental work using its existing funding sources but no construction funding has been identified to date. Speed restrictions are already in place and more severe speed restrictions will become necessary if this bridge is not replaced soon. This bridge is used by Amtrak, BNSF, and Metrolink trains, but not by Coaster trains.

Replacement of other Single-Track Timber Bridges – There are seven aging timber trestles in Sorrento Valley, in an alignment distance of only 3.8 miles. These single-track bridges date back to as early as 1911. Replacement and double-tracking of this segment of the alignment will require constructing the new bridges in groups to minimize environmental impact. In addition, the timber

trestle in Cardiff at MP 240.4 is under marine borer attack and needs to be replaced. NCTD has undertaken preliminary design and environmental work for these bridges using its existing funding sources but no construction funding has been identified to date.

Sorrento to Miramar Double Track (Phase 1 and Phase 2) – These projects would add a second track between Sorrento Valley and the top of Miramar Hill, a total of 3.1 miles. The resulting double track segment would connect with existing double track segments both north of and south of this area, resulting in a total double track length of 9.1 miles. In addition, the project includes curve straightening to improve speeds.

This current stretch of single track is the slowest, steepest, and highest curve territory of any segment on the LOSSAN corridor, with speeds currently restricted to 25 miles per hour. It has also been the site of two serious freight train derailments which shut down the entire line and caused severe disruption to all corridor services. Design is complete to 60% and funding is available for final design, but no construction money is currently available.

Del Mar Bluffs Stabilization-Phase 3-Additional Bluff Stabilization – Eroded track bed support will be replaced, the bluff face will be protected, and the bluff toe will be reinforced in high-risk storm erosion areas, as identified in the geotechnical study.

Poinsettia Station Platform Extension – This project would extend both station platforms to accommodate train consists of six or more cars.

METROLINK COMMUTER RAIL SERVICE
(LOS ANGELES, ORANGE, RIVERSIDE, SAN BERNARDINO, AND VENTURA COUNTIES)

PRINCIPAL 2007-08 to 2017-18 ROUTE OBJECTIVES

- Improve customer service and accessibility.
- Improve integration with other transit services.
- Purchase 107 new rail cars.
- Design and construct Sealed Corridor safety improvements on SCRRA-owned lines.
- Complete system-wide rail line rehabilitation/renovation projects.
- Construct Eastern Area maintenance facility.
- Perform various projects to improve system performance.
- Purchase and rebuild 15 used locomotives.
- Complete Lincoln Avenue double-track.

PRINCIPAL 2007-08 to 2017-18 OBJECTIVES (continued)

- Construct additional platform and track at LAUS (mail dock).
- Construct new rolling stock storage facility at Keller Street in Los Angeles.
- Implement Perris Valley extension, Redlands extension, Santa Paula Branch Line, and Fullerton-Laguna Niguel/Mission Viejo service enhancements.

BACKGROUND

In June 1990, the California Legislature enacted SB 1402 which required the transportation commission of the counties of Los Angeles, Orange, Riverside, and San Bernardino to develop a plan for regional transit services within the multi-county region.

In August 1991, the Southern California Regional Rail Authority (SCRRA), a joint powers agency, was created to plan, design, construct, and administer the operation of a regional passenger rail system serving the counties of Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The SCRRA named the regional commuter rail system "Metrolink." Today, Metrolink serves approximately 43,000 daily trips in 238 communities throughout Southern California.

The first three lines, San Bernardino, Santa Clarita (now Antelope Valley), and Ventura County, began service to Los Angeles on October 26, 1992. The Riverside Line was added in June 1993, and the Orange Line was added in April 1994. The sixth line, Inland Empire-Orange County, was added in October 1995. In May of 2002, the 91 Line between Los Angeles and Riverside was opened for commuters traveling via Fullerton. The Orange County to Los Angeles Line extends as far south as Oceanside in San Diego County. The SCRRA contracts with Connex Railroad LLC to operate the commuter rail service, Bombardier for rail equipment maintenance, Los Angeles County Sheriff's Department for security, Herzog Contracting Corporation for track and structure maintenance, and Mass Electric Construction Company for signal and communications maintenance.

ORGANIZATIONAL STRUCTURE

The SCRRA is a joint powers agency consisting of five member agencies and three ex-officio member agencies; the board consists of 11 members. Member agencies include Los Angeles County Metropolitan Commission, Orange County Transportation Authority, Riverside County Transportation Commission, San Bernardino Associated Governments, and Ventura County Transportation Commission. Ex-officio member agencies include Southern California

Association of Governments, San Diego Association of Governments, and the State of California.

ROUTE AND SERVICE DESCRIPTION

Metrolink presently operates 145 daily trains weekdays, serving 54 stations on the following seven lines:

Ventura County Line – Montalvo, Oxnard, Camarillo, Moorpark, Simi Valley, Chatsworth, Northridge, Van Nuys, Bob Hope Burbank Airport, Downtown Burbank, Glendale, Los Angeles.

Antelope Valley Line – Lancaster, Palmdale, Vincent Grade/Acton, Via Princessa, Santa Clarita, Newhall, Sylmar/San Fernando, Sun Valley, Downtown Burbank, Glendale, Los Angeles.

San Bernardino Line – San Bernardino, Rialto, Fontana, Rancho Cucamonga, Upland, Montclair, Claremont, Pomona (North), Covina, Baldwin Park, El Monte, Cal State L.A., Los Angeles.

Riverside Line – Riverside, Pedley, East Ontario, Downtown Pomona, Industry, Montebello/Commerce, Los Angeles.

Orange County Line – Oceanside, San Clemente, San Juan Capistrano, Laguna Niguel/Mission Viejo, Irvine, Tustin, Santa Ana, Orange, Anaheim, Fullerton, Norwalk/Santa Fe Springs, Commerce, Los Angeles.

Inland Empire-Orange County Line – San Bernardino, Riverside Downtown, Riverside La Sierra, West Corona, Anaheim Canyon, Orange, Santa Ana, Tustin, Irvine, Laguna Niguel/Mission Viejo, San Juan Capistrano, San Clemente, Oceanside.

91 Line – Riverside Downtown, Riverside La Sierra, West Corona, Fullerton, Norwalk/Santa Fe Springs, Los Angeles.

The 55th station opened for service on the Orange County and 91 Lines in September 2007.

Saturday and Sunday service is also operated on the San Bernardino, Orange County and Inland Empire to Orange County Lines, and Saturday service is run on the Antelope Valley Line. In September 2007, Sunday service will also be provided on the Antelope Valley Line. Most weekday trains operate during peak commuting hours before 8:30 a.m. and after 3:30 p.m. Trains run on modified schedules on three holidays but are not run on four major holidays. Metrolink has 512 route miles in its regional rail system. All Metrolink stations have ticket vending machines. Stations on the Metrolink routes are owned by the cities or regional transportation commissions, and 22,464 parking spaces are provided, most of which are free.

As of September 2007, Metrolink expects to continue weekday service at 145 trains each weekday, and expand weekend service to 78 weekend trains on four of the seven routes. Average weekday ridership is projected to average 43,000 daily one-way trips for the FY 2007-08.

In FY 2007-08, total rolling stock available will be 39 locomotives (including one leased from Sound Transit) and 155 commuter rail cars including 39 cab cars (four leased from Sound Transit and two from Altamont Commuter Express) and 116 passenger cars (eight leased from Sound Transit and two from Altamont Commuter Express). In addition to operating commuter rail service, SCRRA dispatches and maintains in excess of 60 percent of the territory over which it operates. On a daily basis, SCRRA currently dispatches 145 Metrolink trains, up to 36 Amtrak intercity trains between Moorpark and San Diego, up to 28 NCTD-operated Coaster trains, and between 70 and 80 freight trains. SCRRA is also responsible for the maintenance of over 337 track-miles of ROW owned by SCRRA member agencies.

FARE STRUCTURE

Metrolink has a barrier free system (no gates or inspection points before boarding trains) with ticket vending machines at all stations. Tickets must be purchased in advance from automated ticket vending machines located at all station platforms. The machines accept cash, credit card, or debit cards and tickets can also be purchased at Union Station, through employee transportation coordinators or through the mail. Through June 30, 2005, the system had a multi-zone fare structure and ticket prices were based on the number of zones traveled. Beginning July 2005, SCRRA began a ten-year transition to distance-based fares. All tickets are designed to include free transfers to connecting public transportation. The system has a proof-of-payment system where riders must show proof of their ticket when asked to do so during random spot checks by fare enforcement personnel. Ticket types available include one-way tickets, round-trip tickets, ten-ride tickets, and monthly passes. Discounts of 50 percent are offered to seniors and the disabled. Youth may travel at half the fare for all types of tickets on weekends only.

Metrolink participates in the Rail 2 Rail program, which began in 2002, and allows Metrolink and Amtrak to accept certain tickets, issued from each others rail services. Metrolink monthly pass holders for the Orange County and Ventura County Lines can use any Amtrak train for any part of their travel within the limits of their pass at no additional cost. Amtrak ticket holders also enjoy the same privilege on Metrolink trains within the limits of their ticket at no additional charge.

CONNECTING SERVICES

Each county has a transit plan to ensure integration of Metrolink service with other transit systems and transportation modes. The Metrolink fare is designed to provide a free transfer either from feeder bus or to local transit at the destination station. Metrolink passengers can connect with Amtrak trains at Anaheim, Burbank-Bob Hope Airport, Camarillo, Chatsworth, Fullerton, Glendale, Irvine, Moorpark, Oceanside, Oxnard, San Juan Capistrano, Santa Ana, Simi Valley, and Van Nuys. Metrolink passengers can connect to the Metro Red Line subway and the Metro Gold Line at LAUS, to the Metro Green Line at Norwalk, and to the Metro Blue Line at the 7th Street/Metro Station at no additional charge. Shuttle service is provided at the Downtown Burbank and Bob Hope Burbank Airport stations to the Burbank-Bob Hope Airport. LAUS also provides rail connection to Amtrak long distance trains such as the *Sunset Limited, Southwest Chief, Coast Starlight*, and the *San Joaquin* Route Amtrak trains via a thruway bus. Union Station also provides connections with various local and city bus and shuttle services, including service to Los Angeles International Airport.

Planned light rail additions that will provide direct connections with Metrolink trains include the Metro East Side Line, the Metro Exposition Line, and the Metro Gold Line Foothill Extension.

PERFORMANCE

Figure 9D shows Metrolink's ridership data on an annual basis from its start in 1992 through 2006. Ridership has grown steadily to 10.8 million in 2006 as routes were added and service expanded.

Figure 9D

Metrolink Ridership
Calendar Years 1992-2006

Year	Ridership	Year	Ridership
1992	165,164	2000	8,062,573
1993	1,889,980	2001	8,522,555
1994	4,132,625	2002	8,979,107
1995	4,645,561	2003	9,099,985
1996	5,688,814	2004	9,786,531
1997	6,314,368	2005	10,245,609
1998	6,745,282	2006	10,797,506
1999	7,229,677		

CAPITAL IMPROVEMENT PROGRAM

Principal Metrolink capital improvements, with estimated costs, which are planned for the next ten years, include:

Rolling Stock Procurement - $217.4 million

This project would procure up to 107 additional rail cars, with options for up to 30 more. The specifications for the cab cars will include crash energy management to minimize the damage from a collision in passenger-occupied spaces.

Sealed Corridor Program - $9.9 million

The Sealed Corridor Program will provide a comprehensive strategy to enhance the safety of trains, passengers, motorists, pedestrians, and neighboring land uses within and along Metrolink's railroad corridors, using appropriate safety measures to systematically reduce the opportunity for accidents at grade crossings or elsewhere within the corridor. The first phase of this project will study and implement safety improvements along the Antelope Valley and Ventura County Lines including improvements such as quad gates, median islands, longer gate arms, grade crossing closure, and gates to limit access to the rail ROW.

Systemwide Rail Line Rehabilitation/Renovation Projects - $60.7 million

These projects include track, signal and bridgework, tunnels, stations, drainage, engine and rolling stock overhaul and rehabilitation, and passenger information throughout the system.

Eastern Maintenance Facility - $34.9 million

This project consists of the completion of design and engineering, as well as the construction of a facility in Colton to provide storage and maintenance on SCRRA equipment.

Purchase and Rebuild Used Locomotives - $47.6 million

This project provides for the purchase of 15 remanufactured passenger locomotives for expansion of the Metrolink system.

Lincoln Avenue Double-track - $26.5 million

This is a multi-year project to install a second main line on the last segment of single main track between Fullerton and Laguna Niguel, a 1.8-mile segment between Santa Ana and Orange.

Keller Street (Los Angeles) Rolling Stock Storage Facility - $5 million

This project includes design and construction of the Keller Street Storage Facility in Los Angeles needed for Metrolink rolling stock.

Eliminate Mail Dock at LAUS - $3 million

This project will restore an unused track for passenger services by demolishing a mail dock, reconfiguring the skylight, and constructing a new passenger platform and connecting ramps.

PROPOSED SERVICE ENHANCEMENTS

Perris Valley Extension

The Riverside County Transportation Commission (RCTC) plans to request Federal Transit Administration (FTA) New Starts funds to extend the Metrolink 91 Line to South Perris in Riverside County. The Metrolink 91 Line currently operates between downtown Los Angeles and downtown Riverside via Fullerton and Corona. The extension would add approximately 21.3 miles to the route of

the 91 Line and serve the University of California at Riverside, Moreno Valley, and the Perris area. The entire length of the line was purchased by RCTC in 1993. Rail service in this corridor is expected to begin in 2008 and would operate three trains from Perris to Riverside with continuing service to Los Angeles during the morning period. Two mid-day, off-peak trains would operate daily, one in each direction. In the afternoon peak period, three trains would operate from Los Angeles to Perris. Travel time would be 40 minutes. Headways would be 50-60 minutes during the peak periods. Rolling stock would be additional bi-level commuter coaches acquired for the Metrolink fleet.

Daily ridership is estimated at 4,151 by 2010 and up to 7,472 by 2025. Capital costs are estimated at $186 million and the annual operating and maintenance cost is estimated to be $6.1 million in 2010 and $8.4 million in 2025.

Redlands Extension

San Bernardino Associated Governments (SANBAG) purchased the Redlands Subdivision from the Santa Fe Railway (now BNSF) in 1993. The Redlands rail service is currently being planned by SANBAG and service is anticipated to begin by 2015. The proposed Redlands service assumes Metrolink service to Rialto/ E Street and Fixed Rail Transit to Redlands.

Fixed rail vehicles would operate along the railroad ROW from University Street in Redlands to a new station at E Street in downtown San Bernardino. The vehicle type would be compliant passenger vehicle, a Diesel Multiple Unit (DMU), capable of operating with freight rail services and Metrolink type trains. Most of the existing track would be constructed to be double-tracked to allow for 15-minute headways all day long. There may be sections that could be single-track in order to reduce initial capital costs but still maintain service quality.

Daily ridership is projected at 11,000. The estimated capital cost is $144 million. The annual operating and maintenance cost is estimated to be about $71 million.

Santa Paula Branch Line

Ventura County Transportation Commission (VCTC) acquired the Santa Paula Branch Line from the Southern Pacific Railroad in 1995. The 32-mile long rail line includes approximately 29 miles of existing track from Montalvo to Piru and 3 miles of abandoned (removed) track between Piru and Rancho Camulos. At the western end of the line, there is a Metrolink layover facility and station at Montalvo in Ventura County, within the Oxnard-Thousand Oaks metro area. At the eastern end of the line, in the City of Santa Clarita is the Saugus Metrolink rail station, which serves the Santa Clarita Line.

The City of Santa Clarita and the Newhall Land & Farming Company have expressed interest in reinstituting branch line service to connect to the Saugus station and Metrolink service.

Currently, excursion services are operated between Fillmore and Santa Paula. The UP provides limited freight rail service on this corridor. VCTC recently initiated a study to investigate rail options on the Santa Paula Branch Line. There are also plans for a recreational trail in the ROW.

Fullerton-Laguna Niguel/Mission Viejo Service Enhancement

The Orange County Transportation Authority (OCTA) decided at its October 14, 2005 meeting to pursue increased Metrolink service frequencies between Fullerton and Laguna Niguel/Mission Viejo. The expanded service would result in the operation of daily trains every 30 minutes between 5 a.m. and midnight. Currently Metrolink provides mostly weekday peak-period service.

Service Improvements

As of September 2007, Metrolink expects to continue weekday service at 145 trains each weekday, and expand weekend service to 78 weekend trains on four of the seven routes.

The proposed weekday service levels in the SCRRA Strategic Assessment for the next 10 years are provided in Figure 9E.

Figure 9E

Metrolink
Weekday Service Levels for the Strategic Assessment

Lines	Current	2010	2015
Ventura County	20	18	28
Antelope Valley	24	24	32
San Bernardino	34	34	48
Riverside	12	12	22
91 Line: LA-Riverside	9	0	4
91 Line: LA-Perris		10	16
LAUS-Oceanside	10	10	10
LAUS-Laguna Niguel/San Juan Capistrano/Irvine	9	16	16
Fullerton-Laguna Niguel		20	20
IEOC	16	20	24
Burbank Turn	11	12	12
Total	145	176	232

Figure 9F

Northern California Commuter Rail Routes
SOLANO
SAN JOAQUIN
MARIN
CONTRA COSTA
Stockton ACE
Lathrop-Manteca
Tracy
San Francisco
Caltrain
Vasco
Livermore
Pleasanton
ALAMEDA
ACE
Millbrae
Fremont-Centerville
Redwood City
SAN MATEO
Palo Alto
Great America
Santa Clara
Mountain View
Sunnyvale
San Jose
Tamien
Capitol
SANTA CLARA
Blossom Hill
Morgan Hill
San Martin
Gilroy

CALTRAIN COMMUTER RAIL SERVICE
(SAN FRANCISCO-SAN JOSE-GILROY)

PRINCIPAL 2007-08 to 2017-18 OBJECTIVES

- Evaluate the service to meet growing demand.
- Evaluate an increase in parking at stations impacted by initiation of Baby Bullet service.
- Increase employer bus shuttles as demand grows.
- Implement Translink regional ticketing system.
- Participate in planning efforts for extensions to downtown San Francisco, across the Dumbarton Bridge, and to Salinas.
- Complete and commission Centralized Equipment Maintenance and Operations Facility.
- Improve operational capacity at targeted stations and other route locations, including outside boarding platforms and additional crossovers.
- Complete customer service improvements, including improved station access and amenities at selected stations.
- Improve ROW by designing grade separations in San Mateo County, and rehabilitate bridges, culverts, tracks, and tunnels.
- Prepare design plans, specifications, and estimates to electrify the route between San Francisco and Gilroy.
- Implement Dumbarton rail service extension.
- Procure eight bi-level passenger cars.
- Define long-term planning and capital improvement efforts related to Caltrain 2025.

BACKGROUND

The Caltrain commuter rail service (previously known as the Peninsula Commute Service) operates on one of the oldest railroad lines in California. The SP operated passenger rail service on the peninsula between San Francisco and San Jose from the 1860s until 1980 when SP decided to phase the service out. The Department and the counties of San Francisco, San Mateo, and Santa Clara reached a service agreement to preserve the passenger rail service.

Between 1980 and July 1991, the Department's District 4 administered a purchase-of-service agreement with SP to continue operating and partially funding the service in cooperation with local agencies. The Department's

responsibilities included planning, marketing, engineering and design, fare and schedule setting, performance monitoring, and customer service.

In 1987, the commuter rail service was renamed "Caltrain" and the City and County of San Francisco, San Mateo County Transit District (SamTrans), and the Santa Clara County Transit Agency (now called VTA) formed the Peninsula Corridor Joint Powers Board (JPB) and transferred administrative responsibility of the Peninsula Commute Service from the State to the local level.

In July 1992, the JPB took over the management of Caltrain from the State and contracted with Amtrak to operate the Caltrain commuter rail service. At the same time, SamTrans officially assumed the operation and administration of the JPB.

Service in 1980 consisted of 22 weekday round-trip trains from San Francisco to San Jose. Under JPB management, service has increased to 96 weekday trips. An extension to Gilroy with two weekday round-trips was added in 1992, with service later expanded to four round-trips. Baby Bullet express service was added in 2004.

ORGANIZATIONAL STRUCTURE

The JPB currently includes representatives from San Francisco, San Mateo, and Santa Clara counties. The JPB consists of nine members and each county has three members on the board. The San Francisco members represent the mayor's office, the San Francisco County Board of Supervisors and the San Francisco Municipal Transportation Agency. The San Mateo members represent SamTrans Board of Directors and the Santa Clara members represent the VTA, and the cities of San Jose and Santa Clara. Staff from the San Mateo County Transit District provides administrative support to the JPB.

The JPB contracts with Amtrak to operate service on the corridor between San Francisco and Gilroy. As part of this agreement, Amtrak is responsible for day-to-day operation and maintenance of the trains. The Caltrain commuter service is awarded on a competitive basis. SamTrans continues to operate and administer the service for the JPB.

ROUTE AND SERVICE DESCRIPTION

Caltrain operates seven days a week on 77 miles of track owned by the JPB from San Francisco and San Jose and by UP from San Jose to Gilroy, and serves 19 cities with 32 stations between San Francisco, San Jose, and Gilroy in San Francisco, San Mateo, and Santa Clara counties. The system has a mixture of local, limited, and express trains and serves work centers in San Francisco, the Peninsula, and Silicon Valley including developing residential areas in southern Santa Clara County. Caltrain operates 96 trains on weekdays between San Francisco and San Jose. Of the 96 trains, 22 are Express trains (known as the Baby Bullet) that serve 12 stations. Forty-eight provide limited service to more stations than the express service, and 26 operate as local service. Scheduled

weekday trains run on 30-minute headways at major stations and one-hour headways at minor stations. Also, on weekdays, six trains are extended to and from Gilroy.

The system provides extensive weekend service, which consists of 32 trains on Saturday, and 28 on Sundays. The weekend trains provide local service between San Francisco and San Jose Diridon stations on one-hour headways. Buses provide a connection between Diridon and Tamien stations (see Figure 9G).

FARE STRUCTURE

Caltrain uses a six-zone fare structure based on distance traveled. Tickets, including one-way tickets, one-day passes, ten-ride tickets, and monthly passes, must be purchased in advance at staffed stations, from automated ticket vending machines located at station platforms, by mail, at selected employment sites throughout the Bay Area, or over the Internet. Seniors, the disabled, and youth may travel at half the fare for all types of tickets. Riders must show proof of their ticket when asked to do so during random spot checks by fare enforcement personnel.

Caltrain monthly pass holders receive a local fare credit on SamTrans buses and on VTA buses and light rail vehicles. For SamTrans patrons, the pass must be two zones or greater to receive the credit. For VTA passengers, the monthly pass must be two zones or greater for adult and senior/disabled riders, three zones or greater for youth riders. A two-zone Caltrain monthly pass also is valid for a free transfer to the Dumbarton Express bus. Caltrain customers connecting with San Francisco Muni may purchase a discounted Muni Pass along with their Caltrain monthly pass to make the connection.

Caltrain is currently participating in a program called TransLink, a universal fare smart card (a form of electronic cash card) with a microchip that stores fare information. Riders can use the smart card to pay for fares on any public transit service in the Bay Area. When fully operational, it is expected that all Bay Area operators will use TransLink, and is expected to be implemented on Caltrain beginning in December 2007.

CONNECTING SERVICES

Caltrain has a direct connection with other major operators on its route. Many of Caltrain's stations are multimodal and facilitate transfers between other transit operators, including Muni, BART, SamTrans, VTA light rail and buses, AC Transit, the Dumbarton Express bus, and ACE that provides commuter service from Stockton to San Jose. ACE shares a terminal with Caltrain at San Jose Diridon station.

Caltrain connects directly with the intercity *Capitol Corridor* and Amtrak's long-distance *Coast Starlight*, at the San Jose Diridon Station. Amtrak *San Joaquin* and *Capitol Corridor* route feeder bus stops are located at the Caltrain station in San Francisco.

Local transit services link many Caltrain stations to local city destinations and employment centers where they can serve patrons more directly than the fixed route rail service. For example, the San Jose Diridon station serves eight VTA bus lines and Highway 17 Express bus service to Santa Cruz.

In addition Caltrain operates 32 shuttle routes connecting stations to major employment sites throughout the San Francisco peninsula. In 2007, the Caltrain shuttle service carried approximately 5,000 riders per weekday. Caltrain stations also are served by locally operated paratransit services.

PERFORMANCE

Figure 9G shows the annual ridership data from 1978 through 2005. Ridership was 10.5 million in 2001 but declined in 2002 and 2003 due to employment reductions in the Silicon Valley as well as the temporary suspension of weekend service to accommodate construction of additional track capacity for the Baby Bullet services. Caltrain ridership was 8.1 million in 2003. But in 2007, after the addition of the Baby Bullet service, the return of weekend service, and the increase in express service, ridership was 10.9 million.

Figure 9G

Caltrain Ridership
Calendar Years 1978-2006

Year	Ridership	Year	Ridership
1978	4,341,011	1993	6,889,941
1979	5,699,406	1994	7,021,182
1980	6,122,890	1995	7,143,091
1981	5,895,129	1996	7,765,115
1982	5,195,819	1997	8,367,683
1983	5,009,130	1998	8,643,158
1984	5,232,527	1999	8,990,864
1985	5,384,013	2000	10,267,000
1986	5,416,303	2001	10,497,640
1987	5,540,630	2002	8,978,675
1988	5,600,582	2003	8,107,324
1989	5,790,712	2004	8,768,157
1990	6,970,696	2005	9,867,498
1991	7,111,365	2006	10,510,344
1992	6,833,290		

PLANNED IMPROVEMENTS

Baby Bullet has revolutionized service on the peninsula by taking advantage of under-utilized resources. Caltrain went from 78 weekday trains to 96 within a 13-month period. The increased level of service has stressed the signaling, terminal and rolling stock capacity. Staff sees little room for further improvement until the system is electrified. Refer to the Capital Improvement Program section below.

Baby Bullet Service – The JPB will continue to evaluate the Baby Bullet service. There will be an onboard survey and a special count to better understand the success of the new service.

Station Access – Baby-Bullet service substantially changed the travel patterns of existing and new Caltrain riders. Many customers travel further from their homes to access an express station, especially the intermediary stations of Mountain View, Palo Alto, Hillsdale, and Millbrae. Common to all of these stations, except Millbrae, is the stress placed on parking access. Efforts are underway to evaluate parking needs at these stations.

Shuttle Service – During the downturn in the economy, several companies pulled out of the employer shuttle program. Prior to the "dotcom bust," there were 48 Caltrain shuttles; currently there are 32 shuttle routes. Just recently, there has been moderate interest by former and new companies to participate in the shuttle program. Over the next few years, attention will be given to increase shuttles as demand grows.

Fare Policy and Process – In 2003, the JPB approved massive changes in the Caltrain fare structure and fully implemented proof-of-payment. Proof-of-payment allows train conductors to focus on customer service instead of ticketing activities since all ticket sales are performed before boarding. The next major improvement in the fare process is the introduction of TransLink, a universal fare instrument that will eventually be recognized by all Bay Area operators. TransLink is expected to be available throughout the Caltrain system in 2008.

Regional Extensions – Service via extensions to downtown San Francisco, across the Dumbarton Bridge, to Salinas/Monterey, or via High Speed Rail in California are not currently included in the operations plan, although planning and design for these projects continues and is funded by third parties.

CAPITAL IMPROVEMENT PROGRAM

In order for Caltrain to provide the service levels that will capture future demand, including latent demand, the infrastructure that supports the service must not constrain expansion of capacity and throughput, which it does today. Our experience over the last two years has shown that providing competitive travel times during the peak period is an effective way to attract passengers. However, without adding service and investing in only a few major improvements,

the projected demand for Caltrain service will exceed vehicle capacity in five years. The capital improvement plan, incorporated into Caltrain's Project 2025, will address the infrastructure requirements necessary to accommodate demand, by allowing flexibility and future expansion in service.

The goal of the capital program is to maintain the infrastructure and to provide the capacity that will allow operating flexibility and future increases in capacity and train frequency. Capital improvements support capacity expansion in several ways: by improving throughput to support future service levels, reliability to maintain on-time performance, safety, or by adding passenger amenities.

The major capital improvement program categories are:

- State of Good Repair
- Systems
- Facilities
- Expansion

The **State of Good Repair** program consists of replacement and rehabilitation activities for equipment and infrastructure that have reached the end of their 'useful' life or requires rehabilitation. It includes the replacement of vehicles at the end of their lifecycle, but not the addition of new rolling stock that is acquired to increase fleet size. One of the primary goals of the capital improvement program is to keep the railroad in a constant state of good repair, and appropriately balance the investments in replacement and rehabilitation activities with enhancement-type improvements. The State of Good Repair program will be a continuous and integral part of all future capital activities as it is the primary means through which large capital projects can be enabled. The priorities for replacement and rehabilitation may shift every 5 to 10 years depending on the condition or lifecycle of the equipment and infrastructure and the timetable for ensuing capital investments.

Systems include rolling stock, signal, and communications improvements, as well as electrification. The vehicle technology and size of the fleet have a major impact on throughput, since they determine how many passengers can be carried at any given moment. The vehicle selection for electrification is critical because the design or need for major capital improvements depends on this decision. It is also critical in terms of being able to add cars to the fleet in response to near-term market demand. The signal system also heavily influences throughput because it controls the 'flow' of train traffic through the system. Communications improvements will be required to manage data and voice communications for all vital and non-vital systems from signals and power provision to ticket vending machines and passenger information systems at stations.

Facilities include terminals, stations, maintenance and storage facilities and grade separations. Terminals and stations are unique because they are where trains and passengers interface, and thus, have many opportunities to negatively impact travel time. A long-term goal is to provide some form of level-boarding at stations to facilitate rapid boarding of trains. Terminals can be designed to optimize end-of-line operations and minimize the number of trainsets required to operate peak-hour service. Grade separations generally do not improve throughput and reliability, but provide the most benefit in terms of improving community safety and reducing impacts on local vehicular traffic and pedestrian access within stations.

Expansion includes any increase in track capacity and physical extensions beyond the existing Caltrain route. Line and junction capacity improvements directly influence throughput and reliability since they impact the number of trains, and therefore the number of people, that can travel end-to-end during a given time period. Delivery of future increased service levels is dependent on the ability to increase or improve line capacity and junction movements. Extension projects broaden the geographic area and population that have access to Caltrain service. Three proposed extensions that are addressed in this document are Downtown San Francisco to the Transbay Terminal, Dumbarton Rail Corridor to the East Bay, and Monterey/Salinas.

PROPOSED SERVICE EXTENSIONS

Downtown San Francisco

In 2001, the City and County of San Francisco in collaboration with other Bay Area transportation agencies agreed to build a new multimodal transportation terminal in San Francisco. The new center, to be located at the existing Transbay Terminal at First and Mission Streets in downtown San Francisco, will be one of the largest multimodal transportation centers on the west coast. When completed, the terminal will allow a subsurface extension of Caltrain commuter service from its current location at Fourth and King Streets to Downtown San Francisco. The new center will also serve AC Transit, Golden Gate Transit, SamTrans, Greyhound, Amtrak feeder buses, Muni buses and light rail, and BART.

Dumbarton Rail Corridor

The former SP discontinued rail freight service in the 1980s on the 20.5-mile Dumbarton Rail Corridor between Redwood Junction and Newark Junction. A 1991 San Mateo County Transportation Authority (SMCTA) long range study to determine the feasibility of operating commuter rail service in the corridor recommended a rail service option. As a result, the SamTrans purchased the ROW in early 1994. Funds were programmed for the Dumbarton Rail Corridor in the MTC's Regional Transportation Plan, and a project study report on the rail corridor was completed in February 2004.

The Dumbarton Commuter Rail service will initiate new cross-bay commuter rail service between the Peninsula and the East Bay. The project will involve rehabilitating and reconstructing rail facilities on the existing railroad alignment and ROW. A phased approach to full development is now planned due to funding constraints. The new service is planned to start in 2012, providing three round-trips between Newark and San Francisco and three round-trips between Newark and San Jose. Other service variations include trains originating in Livermore and Union City, with higher service levels projected for the future.

The new rail corridor will link Caltrain, ACE, the *Capitol Corridor*, and BART. It will also connect with East Bay bus systems at the multimodal transit center in Union City. The Union City BART station is planned to be reconstructed as a multimodal terminal.

Daily ridership is estimated at 4,800 in 2012 and 6,900 by 2025. Capital costs are estimated at $600 million, including new rolling stock, with annual operating and maintenance costs of $8 million.

ACE COMMUTER RAIL SERVICE
(STOCKTON-SAN JOSE)

PRINCIPAL 2007-08 to 2017-18 ROUTE OBJECTIVES

- Continue service improvements.
- Improve on-time performance.
- Increase ridership on existing routes.
- Pursue the Purchase of an Agency owned rail corridor for the ACE Service.
- Improve service coordination with other service providers such as BART, Caltrain, *Capitol Corridor*, and shuttle service providers.
- Acquire ROW, perform engineering work, and begin construction of rail maintenance and layover facility in San Joaquin County.
- Purchase passenger rail cars and locomotive for fifth and sixth trains.
- Upgrade signal system between Stockton and Fremont.
- Upgrade passenger cars and locomotives.
- Evaluate potential extensions and new services in the Central Valley.

BACKGROUND

In 1989, the San Joaquin Council of Governments, the Stockton Chamber of Commerce and the Building Industry Association of the Delta began the development of a 20-year transportation plan for a future sales tax vote in San Joaquin County. Measure K, the half-cent sales tax for transportation, was

strongly supported by voters in 1990, and the number one project identified for funding was Altamont passenger rail service. In 1995, the seven cities and San Joaquin County formed a joint powers agreement that created the San Joaquin Regional Rail Commission (SJRRC) to implement the rail plan and to explore agreements with the counties of Santa Clara and Alameda. This created a five-member board of directors appointed by the San Joaquin Council of Governments. San Joaquin County has contributed over $40 million in Measure K funding for Altamont Commuter Express (ACE) rail service.

In May 1997, SJRRC, the Alameda County Congestion Management Agency (ACCMA), and Santa Clara Valley Transportation Authority (SCVTA) executed an agreement to create the Altamont Commuter Express Joint Powers Authority (JPA). The ACE JPA was dissolved on June 30th 2003 and a cooperative services agreement was executed between SJRRC, ACCMA and SCVTA. The Cooperative services agreement identified the SJRRC as the owner/operator of the ACE service, overseeing the day-to-day management, planning, and support services necessary to operate the trains. The SJRRC issued a contract for operations and maintenance of equipment to Herzog Transit Services, Inc., and service began on October 19, 1998. Initially there were two westbound morning trains and two eastbound evening trains. In March 2001 a third train was inaugurated which gave ACE passengers later departure options and eased overcrowding and on August 28th 2006 a fourth midday train was initiated in coordination with Caltrans Division of Rail and Caltrans District 10.

Funding for the operation and management of the ACE service is provided by passenger fares, Transportation Development Act (TDA) funds, State Transit Assistance (STA), ACCMA funding through Alameda County's one-half cent sales tax Measure B and SCVTA funding. Each agency's annual share is based on the percentage of total ACE daily boardings and alightings that occurred in fiscal year 2002/03 in each county. Cost sharing for capital projects, excluding stations, is determined on a case-by-case basis and approved by each of the agencies. Station improvements are the responsibility of the agency for the county in which the station is located.

ORGANIZATIONAL STRUCTURE

The SJRRC is a Joint Powers Authority consisting of the County of San Joaquin and the cities of Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy. The commission is governed by a Board of Directors which consists of six elected officials appointed by the San Joaquin Council of Governments from nominations by local agencies, and is supplemented by two elected officials appointed by the ACCMA to address rail service issues affecting Alameda County. Ex-officio members represent Caltrans District 10, San Joaquin Regional Transit District, and the San Joaquin Council of Governments.

In July 2003, the SJRRC became the designated owner, operator and policy-making body of the ACE service in accordance with the Cooperative Service Agreement between the SJRRC, the ACCMA, and VTA, which superseded and rescinded the prior 1997 agreement. As the designated owner of the ACE service, the SJRRC took title to all of the assets and assumed the liabilities that were previously under ownership of the ACE Joint Powers Authority, which was dissolved.

The purpose of the Cooperative Services Agreement is to improve and expand the ACE service and protect the interests of the three counties along the corridor. As part of this agreement, the SJRRC is required to provide a baseline three-train service to Santa Clara and Alameda Counties in return for a "capped" contribution.

ROUTE AND SERVICE DESCRIPTION

ACE operates Monday through Friday over 86 miles of track, providing three round-trips between Stockton and San Jose during morning and evening peak periods and one midday train operated in coordination with the Intercity Amtrak California *San Joaquin* service between Stockton and San Jose (see Figure 9H). The running time between Stockton and San Jose is approximately 2 hours-10 minutes.

ACE serves these stations: Stockton, Lathrop/Manteca, Tracy, Vasco, Livermore, Pleasanton, Fremont, Great America, Santa Clara, and San Jose. Free parking is available at all stations, except at the Santa Clara and San Jose stations where there is a daily fee of $1.50.

FARE STRUCTURE

The ACE has five fare zones based on distance traveled. The system has a proof-of-payment system where riders must show proof of ticket purchase when asked to do so. Ticket types are one-way, round-trip, weekly, 20-ride, and monthly passes.

The ACE is working with the CCJPA and the Department on a pilot program to integrate service ideas and amenities common to both systems to control costs and benefit passengers on both corridors. These efforts include a common global positioning system (GPS), joint automated ticketing, public address (PA) announcements, and electronic fare media at shared stations.

CONNECTING SERVICES

Bus and rail transit connections and dedicated shuttles are an integral part of the ACE system, providing a seamless commuting link between stations and riders' workplaces. All stations with the exception of the Tracy station have some form of connecting transit. In addition, three stations have direct connections to rail services. The Stockton station has connections to the *San Joaquin* Route trains. The Santa Clara-Great America station connects with Caltrain and the

Capitol Corridor. At San Jose, connections are made with Caltrain, the *Capitol Corridor*, and the Amtrak long distance *Coast Starlight*.

PERFORMANCE

In 2005 calendar year, ACE ridership was over 667,000. ACE is improving marketing outreach to increase ridership. Passenger fares in 2006 approximated $3.9 million. ACE's OTP in 2006 averaged 75 percent. Figure 9H shows ACE's annual ridership from 1999 through 2006.

Figure 9H

ACE Ridership
Calendar Years 1998-2006

Year	Ridership	Year	Ridership
1998	67,222	2003	607,017
1999	424,988	2004	640,753
2000	714,259	2005	667,029
2001	922,976	2006	676,050
2002	803,522		

PLANNED IMPROVEMENTS

ACE service will continue with three round-trip trains in the morning and evening commute windows and one midday train. ACE will continue to focus on improving OTP and train speeds, expanding options for communicating train status to passengers, providing more opportunities for passengers to participate in the ACE planning process, and implementing new schedules as necessary to improve coordination and performance. ACE will invest in infrastructure projects that will allow for higher track speeds or improved reliability.

CAPITAL IMPROVEMENT PROGRAM

The ACE 2007/08 capital improvement program totals $29.9 million. Principal projects include:

Rail Maintenance and Layover Facility in San Joaquin County - $6.0 million

This is a multi-year project with funds for ROW acquisition, and engineering.

Signal Upgrade Project (Stockton to Fremont) - $3.0 million

This is a multi-year project, which began in FY 2004-05, to upgrade the signal system between Stockton and Fremont and improve service reliability. The total estimated project cost is $11.5 million, and funds identified are for work to be completed in FY 2007/08.

Cabral Station Neighborhood Revitalization Project

This is a multi-year project, with Phase I construction initiation and completion in FY 2007/08. Phase I construction is to re-route the existing bus service off the residential street (Channel street) to Aurora Street providing improved transit circulation at the station.

Track Upgrade - $0.7 million

This project includes upgrade of the diamond at Lyoth and replacement of the switch at Hunter Street.

Capital Spares/Upgrades for Passenger Cars and Locomotives - $0.9 million

This project includes new seat cushions for the original eight passenger cars, two new air conditioning units and the overhaul of 18 more units, locomotive and passenger car wheels, and two locomotive traction motors.

PROPOSED SERVICE EXTENSIONS

The SJRRC is completing a study on potential extensions and new services in the Central Valley. The final report is expected to go before the SJRRC Board in Fall 2007 for approval. The study is reviewing extensions to the ACE service, which include Merced to Sacramento commuter service, commuter service to the East Bay from Stockton to Oakland, the Westside line from Los Banos to Tracy, and coordination with BART in the Livermore/Amador area.

PROPOSED COMMUTER RAIL SERVICES

Three potential new commuter rail services are being proposed. They are discussed below.

VENTURA AND SANTA BARBARA COMMUTER RAIL SERVICE

There is interest in expanding commuter rail service in Ventura and Santa Barbara Counties. Currently, Metrolink operates the Ventura County line between Los Angeles and Montalvo and the *Pacific Surfliner* operates five daily round-trips from Los Angeles to Goleta, with two trips continuing to San Luis Obispo. Thus, commuter and intercity rail service now serves Ventura County and intercity rail service serves Santa Barbara County.

“101 in Motion” and the LOSSAN North Strategic Plan are two recent studies of commuter transportation patterns in Ventura and Santa Barbara Counties. In addition, Southern California Association of Governments (SCAG) has initiated a study that will look at alternatives including additional Amtrak intercity rail service and commuter rail service utilizing existing equipment types or DMU technology. For each alternative, the study will develop an operational analysis including: service scenarios, equipment needs, as well as estimates for ridership, revenues, operating and maintenance costs, and operating deficit.

SONOMA MARIN-AREA RAIL TRANSIT

The purpose of the Sonoma Marin Area Rail Transit District (SMART) is to provide passenger rail passenger service to Sonoma and Marin County residents along the Northwestern Pacific (NWP) rail corridor. The NWP generally parallels Highway 101 and is located in Sonoma and Marin counties, north of San Francisco. AB 2224 (2002) authorized the creation of the SMART Rail

District. The legislation designated SMART as the owner of the NWP corridor from Healdsburg to Corte Madera, and as the operator for passenger rail service.

Passenger rail service on the line was provided as late as 1958, with service to San Rafael. Public acquisition of the line began in the 1970's and was completed in the mid-1990's. Numerous transportation planning studies, dating back to the 1980's have recommended the utilization of the NWP for passenger rail service. Prior to the formation of the SMART Rail District, the project was planned by the joint county SMART Commission, which was replaced by the SMART District Board of Directors in 2003.

The SMART Commission sponsored the Sonoma Marin Transportation and Land Use Study, in 1995, which recommended specific station locations and rail line termini. In 2001, the Commission oversaw the Commuter Rail Implementation Plan, which recommended 30-minute service along the line. Work to refine that Plan and produce environmental clearance for the project was initiated in 2001. Consultant contracts to develop rail systems planning work (2001), environmental analysis (2003), community outreach (2002), and station planning (2003) are on-going. The Draft Environmental Impact Report is expected in fall, 2005.

Current implementation plans include service start up in 2009-10 along a 70-mile corridor with service from Cloverdale to the existing Larkspur ferry terminal. Fourteen stations are planned: nine in Sonoma County and five in Marin County. Service assumptions include 30-minute peak period headways and twelve trains per day. Initial ridership is estimated at about 5,000 per day. DMU rail vehicles are currently being evaluated for use along the corridor.

The SMART estimates capital costs (in 2004 dollars) to upgrade tracks, build stations and a maintenance facility, and purchase vehicles at $340 million for the full 70-mile corridor. Projected operating costs are $10-12 million per year. Approximately $120 million in local, State and Federal funding has been set aside for the project. The remaining funding for the project, including on-going operating funds, would come from a district wide one-quarter-cent sales tax measure. It is anticipated that measure will be placed on the ballot in November 2006.

AUBURN-OAKLAND REGIONAL RAIL SERVICE

Six agencies have partnered to develop a service concept plan for a new regional commuter rail service in the urban corridor extending from Auburn (Bowman) to Oakland. The agencies are: the CCJPA, Contra Costa Transportation Authority, Solano Transportation Authority, Yolo County Transportation District, Sacramento Regional Transit District, and Placer County Transportation Planning Agency. The UP, the Sacramento Area Council of Governments, and the Department also participated in the study that was originated in 2002. The new service would augment existing *Capitol Corridor* intercity service by providing

additional peak period capacity for within the greater Sacramento urban area and between Auburn and the Bay Area. The two services would utilize the same equipment, staff, and fare structure, and thus would appear fully unified to the riding public.

The Auburn-Oakland Regional Rail Service Concept Plan (Plan) was released in June 2005. The Plan was endorsed by the group's steering committee in September 2005. This Plan contains a near-term and a long-term implementation action plan. However, at this time the UP will not participate in any further capacity modeling for potential new passenger rail services due to major freight congestion problems the railroad is experiencing within this and other corridors.

The Plan includes three-phases, with a first phase in 2010, planned to add four new Sacramento-Oakland round-trips. The second phase planned for 2015, would include four new Sacramento-Auburn round-trips and one additional Oakland to Sacramento round-trip. When mixed with *Capitol Corridor* trains, 30-minute intervals (headways) would be provided during peak periods in both directions. The third phase, planned for 2020 would add new stations, primarily in the Sacramento metropolitan area. Daily ridership of 6,900 is projected by implementation of the third phase. However, it is now expected that these dates will slip due to lack of an identified funding source for equipment and capital improvements.

Auburn-Oakland Regional Rail would initially serve all existing stations along the *Capitol Corridor*: Auburn, Rocklin, Roseville, Sacramento, Davis, Suisun/Fairfield, Martinez, Richmond, Berkeley, Emeryville, and Oakland. Additional station stops would be phased in at Bowman (5 miles north of Auburn), Antelope, Swanston, West Sacramento, Dixon, Fairfield/Vacaville, Benicia, and Hercules for a total of 19 stations.

The Plan projects the total cost of operating and maintaining the Regional Rail service to be approximately $15.5 million annually, including fees paid to the UP and Amtrak, vehicle and station maintenance, and administrative expenses. The capital requirements, including new rolling stock, track work and signals, stations and parking, and maintenance facility and other system wide improvements, are estimated to cost $380 million. The Plan anticipates that the funding for Regional Rail will come from a mix of sources including Federal New Starts funds, CMAQ or RSTP, State discretionary funds, the *Capitol Corridor*, and other local funds. The project is authorized in SAFETEA-LU, under the New Starts Program for Alternatives Analysis/Preliminary Engineering.

Figure 10A

Potential New Intercity Routes in California
Legend
Potential New Intercity Routes
Existing State-Supported Routes
Redding
Redding Route
Chico
Marysville
Reno Extension
Reno/ Sparks
Auburn
Sacramento
San Francisco
Oakland
Stockton
San Jose
Monterey Route
Gilroy
Monterey Bay
Salinas
Fresno
Coast Route
San Luis Obispo
Bakersfield
Los Angeles Extension Options
Wheeler Ridge
Bus
Santa Barbara
Santa Clarita
Barstow
Las Vegas
Las Vegas Route
Los Angeles
Fullerton
San Bernardino
River-side
Palm Springs
Indio
Oceanside
San Diego
Coachella Valley Route

CHAPTER X
POTENTIAL NEW SERVICES

This Chapter contains a discussion on six potential intercity passenger rail routes, three of them proposed by the Department for service in the ten-year period. Figure 10A displays the six potential intercity passenger rail routes. Also, four high-speed rail and magnetic levitation projects in California are discussed. Chapter IX discusses proposed extensions of existing commuter rail services as well as proposed new commuter rail services.

PROPOSED INTERCITY RAIL ROUTES

This section includes a description of the three new routes that the Department proposes for service in this ten-year plan. The routes are discussed in order of potential implementation by year: San Francisco to San Luis Obispo (and Los Angeles); Sacramento to Reno; and Sacramento to Redding. Included for each route is a summary of current service to the area, recent studies of the route, and the Department's current service proposal. The implementation of all new service is subject to demonstrated ridership demand, approval from Amtrak and the relevant railroad(s), availability of operating and capital funding and equipment, and completion of necessary capital projects.

SAN FRANCISCO TO SAN LUIS OBISPO (AND LOS ANGELES) VIA COAST ROUTE (*COAST DAYLIGHT)*

The extension of the *Pacific Surfliner*s from San Luis Obispo to San Francisco would close a key gap in the State-supported intercity rail system by providing direct train service from San Francisco to Los Angeles. Regional transportation planning agencies have led the planning for this extension and will continue to provide an important role in the planning and operation of this extension. Twenty agencies along the corridor have passed "Resolutions of Support" for the extension.

Background

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, Paso Robles, San Luis Obispo, and Santa Barbara on its route from Seattle. Also two round trip Amtrak Thruway buses operate from San Luis Obispo to San Francisco. Also, two buses run from Santa Barbara to San Francisco. Ridership on this entire bus route was extremely good with 84,000 in 2005-06.

There has been interest for many years in providing additional Coast Route service to better link California's two largest metropolitan areas. In 1992, H.R. 39 was passed requesting a Coast Corridor intercity rail corridor upgrade study be conducted by the regional transportation planning agencies along the Corridor in cooperation with the Department. As a result, concerned local agencies formed the Coast Rail Coordinating Council (CRCC) that is staffed by the San Luis Obispo Council of Governments. The Coast Rail Improvement Study issued in the fall of 1994 resulted from H.R. 39. Then in 1996, the Coast Route Infrastructure Assessment Report was completed. One of the main goals of the CRCC is to "close the gap" in State-supported train services by connecting downtown Los Angeles and downtown San Francisco with daily train service.

In 2000, the CCRC issued a *Coast Daylight* Implementation Plan that envisions daily service operating on Caltrain tracks from San Francisco to San Jose, and then on UP tracks to Moorpark, and then on Metrolink tracks to Los Angeles. Stations are planned in San Francisco, Millbrae, Palo Alto, Mountain View, Santa Clara, San Jose, Gilroy, Pajaro, Salinas, Soledad, King City, Paso Robles, San Luis Obispo, and south to Los Angeles stopping at existing *Pacific Surfliner* stations. The study includes operating costs, and in fall 2004, the CRCC released the Capacity Analysis for this service. The analysis identified several capital improvements that would be helpful in order to increase train frequencies on the Coast Route. The CRCC is now working with Amtrak, UP, and the Department to identify how to move forward on Capital Projects. A total of over $26 million will likely soon be programmed for capital improvements; The Department has recommended $25 million from Proposition 1B funds for new track or sidings for the *Coast Daylight*; and both the San Luis Obispo Council of Governments and Transportation Agency for Monterey County have each committed $500,000. Additionally, $18.3 million is included in the 2006 State Transportation Improvement Program (STIP) augmentation, approved by the California Transportation Commission (CTC), for sidings in Santa Barbara and Ventura counties in the portion of the Route south of San Luis Obispo

Operating Plan

The Department's ten-year operating plan includes one round-trip train between San Francisco and San Luis Obispo, starting in 2010-11, with a second train in 2013-14. The first train would be operated from San Luis Obispo to Los Angeles as an extension of the new *Pacific Surfliner* train added in November 2004, and would provide through train service between San Francisco and Los Angeles. The second train would operate as an extension of the planned third Los Angeles-San Luis Obispo round-trip. Direct train connections to San Diego at Los Angeles would be available on most trips. The Department is working to obtain equipment to be used for the service.

The Department believes this extension is a good candidate for rail service because:

- It would be the only State-supported route to provide direct train service between the two major population centers of the State, thus closing a key gap in the system.
- There is strong ridership on the one daily *Coast Starlight* round-trip and on the four daily Amtrak Thruway buses.

An existing local organization, the CRCC, is actively planning the service, and implementation plans have been completed.

SACRAMENTO TO RENO

The extension of intercity rail service from Sacramento to Reno would bring State-supported rail service to the Truckee/Tahoe and Reno/Sparks tourist areas as well as provide relief to the highly congested I-80 –Bay Area to Reno corridor.

Background

Amtrak's *California Zephyr* and connecting buses to the *Capitol Corridor* 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 on its route to Chicago. Also, Amtrak buses connect to two *San Joaquins* and three *Capitol Corridor* trains and serve Reno/Sparks, Truckee, Soda Springs, Colfax, Auburn, Rocklin, Roseville, and Sacramento. Ridership on this bus route was 51,000 in 2005-06.

In 2002, the CCJPA and the Placer County Transportation Planning Agency initiated a study to extend the *Capitol Corridor* to Reno. The study was intended to provide current ridership, revenue, and train operating cost estimates for the train extension, and the capital costs for necessary station and track improvements. However, the study was suspended in March 2005 as a result of the UP's decision to not conduct additional network modeling or consider operation of new passenger train service to Reno at this time. The UP has experienced a significant increase in freight traffic and has made a business decision to focus its efforts at this time on addressing additional freight demand.

Operating Plan

The Department's ten-year operating plan includes the extension of one *Capitol Corridor* round-trip from Sacramento to Reno/Sparks in 2014-15, and a second round-trip in 2016-17. This rail service would be supplemented by continued operation of existing bus service that runs over the same route as the train, but at other times of the day. This service would require an appropriate level of financial participation from the State of Nevada (and potentially Nevada business interests).

The Department believes this corridor is a good candidate for rail corridor service because:

- Amtrak currently operates the *California Zephyr* on the route so that stations at the major destination points already exist.
- I-80 is extremely congested at tourist peak periods and there is a very strong gaming, skiing, and general recreation market in the Reno/Truckee area.
- Current bus ridership on this route is strong.

SACRAMENTO TO REDDING

Operation of intercity rail service from Sacramento to Redding would extend State-supported intercity rail service to a fast growing northern California area not presently served by the State-supported intercity passenger rail network.

Background

Connecting buses to the *San Joaquin* and *Capitol Corridor* trains currently serve the northern Sacramento Valley. Buses connect to four of the *San Joaquins* in Stockton, and one in Sacramento, and travel north through Sacramento, Marysville, Chico, and Redding. Five *Capitol Corridor* trains in Sacramento also have a bus connection to Redding. Ridership on this bus route is the second highest of all California dedicated bus routes after Los Angeles-Bakersfield, with 104,000 riders in 2005-06. Additionally, the single daily round-trip of the *Coast Starlight* connects Redding and Chico with Sacramento, the Bay Area, and Los Angeles on its route from Seattle.

The most recent study on the Sacramento-Redding corridor is the Northern Sacramento Valley Intercity Passenger Rail Study, Interim Findings Report, produced in 1995 for the Butte County Association of Governments. The Department had planned a further study on this Route in 2005, which was deferred due to the UP's decision not to consider operation of new passenger trains at this time.

Operating Plan

The Department's ten-year operating plan includes one daily round-trip between Sacramento and Redding in 2015-16. This rail service would be supplemented by bus service that would run over the same route as the train, but at other times of the day.

The Department believes this extension is a good candidate for rail service because:

- Amtrak currently operates the *Coast Starlight* on this Route, with existing stations at Sacramento, Chico, and Redding.
- The demographics of the Route are positive: the northern Sacramento Valley has a fast growing population; Redding represents the urban hub for the northern part of the State; and the California State University at Chico is a focus of activity and population.
- Current ridership on this bus route is the second highest of all California dedicated bus routes after Los Angeles-Bakersfield.

POTENTIAL INTERCITY RAIL ROUTES

This section includes a discussion of three routes where funding is not proposed in the time period of this plan: Los Angeles to Indio (Coachella Valley), San Francisco to Monterey, and Los Angeles to Las Vegas.

LOS ANGELES TO INDIO (COACHELLA VALLEY)

State-supported intercity passenger rail service from Los Angeles to Indio would extend rail service to a fast growing population center in the southeast of the State.

Background

Currently Amtrak's *Sunset Limited* provides three-times per week service from Los Angeles to Pomona, Ontario, and Palm Springs on its route to New Orleans. *San Joaquin* trains provide once a day connecting buses to the Coachella Valley. Ridership on this route was 32,000 in 2005-06.

There has been strong local interest in rail service to the Coachella Valley since 1991 when 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 intercity trains on the route. In 1995, the Department published the Calexico-Coachella Valley-Los Angeles Rail Corridor Study for the California Transportation Commission.

The most recent study titled the Coachella Valley Passenger Rail Feasibility Study was prepared for the Coachella Valley Association of Governments in 1999. The study included operating and capital cost estimates for the route and proposes two daily intercity round-trip trains. The study proposed operating from Los Angeles to the Coachella Valley using the BNSF route between Los Angeles and Colton, and the UP route eastward to Indio. Stations were proposed at Los Angeles, Fullerton, Riverside, Palm Springs, Palm Desert, and Indio. The study estimated $9.3 million in capital costs, not including rolling stock.

The study proposed local funding for the new station at Palm Desert. The City of Indio received a State-matching grant of $1.5 million to construct its new station.

A serious impediment to intercity rail service between Los Angeles and Indio is the UP's recent decision not to consider operation of new passenger train corridors at this time. This single track route has very heavy freight traffic that makes the operation of passenger service difficult.

Operating Plan

The Department proposes one daily round-trip between Los Angeles and Indio. No funding for this service is included in the ten-year operating plan, as the start date of this Route is uncertain at this time.

The Department believes this extension is a good candidate for intercity rail service because:

- There is existing Amtrak intercity rail service on a good part of the route, and all but one station already exists.
- There is local support and financial commitment.
- There is existing moderate bus ridership on the route, with a growing population.

SAN FRANCISCO TO MONTEREY

State-supported intercity rail service from San Francisco to Monterey would connect the San Francisco Bay Area to an important tourist and population center of the State that currently has very inadequate intercity transportation.

Background

Currently, the only Amtrak service existing between Monterey and San Francisco is via the *Coast Starlight*, which provides one daily round-trip from Oakland to Salinas, with bus connections to San Francisco from Oakland and to Monterey from Salinas. In June 2005, Caltrans discontinued *Capitol Corridor* feeder bus service from San Jose to Monterey due to low ridership.

The Transportation Agency for Monterey County (TAMC) has conducted a number of studies on train service options between San Francisco and Monterey. The San Francisco-Monterey Intercity Rail Service Implementation Plan was completed in 1998. In 2003, TAMC completed the Monterey Intercity Rail Project Study, which included conceptual engineering; initial cost estimates, and environmental screening for the project.

In the near-term, TAMC is planning a new service to link Monterey to San Francisco through a combination of local service and Caltrain commuter rail service. Starting in 2014, local light rail or bus rapid transit service is planned to connect Monterey and Marina, and later extend to Castroville and possibly Salinas. TAMC is concurrently working with Caltrain to extend commuter rail

service in 2011 to Salinas from its current terminus in Gilroy. The extension of Caltrain commuter rail service to Monterey County would serve new stations in Pajaro and Castroville, and end in Salinas. TAMC is working to ensure that the local service on the Monterey Branch Line would connect with the Caltrain service via cross-platform transfers in Castroville. Bus connections to work and visitor destinations, as well as transit-oriented developments, are planned at key locations along the way in Monterey County to maximize the usage of both services. (See Chapter IX for more detail on this proposed Caltrain extension.)

In the longer term, TAMC is planning intercity rail service between Monterey and San Francisco. The intercity service would have stops in Monterey, Marina, Castroville, Pajaro, San Jose, San Francisco Airport (at Millbrae), and downtown San Francisco, with a possible stop in Palo Alto. TAMC envisions two round-trips on weekdays and three on weekends for the Monterey to San Francisco service.

The proposed intercity route would use the current Caltrain owned right-of-way between San Francisco and San Jose. The route between San Jose and Castroville is owned by Union Pacific and used for passenger service by Caltrain to Gilroy and by the *Coast Starlight* to Castroville (and beyond to Los Angeles). TAMC purchased the Monterey Branch Line between Castroville and the Seaside City limits from Union Pacific in 2003; the portion from Seaside to Monterey is already owned by Seaside and Monterey. Currently there is no rail passenger service on this branch line and it requires substantial capital rehabilitation. Approximately $5.0 million remains in Proposition 116 funds that can be used for the Monterey Branch line rehabilitation construction activities. TAMC has previously secured $11.2 million in State and Federal funds, and estimates total project capital costs including capital equipment costs between $143 and $327 million depending on the type of service and equipment chosen. TAMC plans to utilize State Transportation Improvement Program (STIP) funding and future transportation sales tax funds to match Federal new starts funding to pay for the remainder of the capital costs.

Operating Plan

The Department proposes, contingent on the start of local service in 2014, two intercity rail weekday round-trips and three weekend round-trips between San Francisco and Monterey. No funding for this service is included in the ten-year operating plan, as the start date of this route is uncertain at this time.

The Department believes there are several advantages to this intercity rail service, including:

- Monterey is an important tourist destination that currently has very inadequate access via intercity mass transportation.
- TAMC has strong local support for rail service. It is working to secure a local transportation sales tax to help support rail projects and Chapter 103, Statutes of 1999 (SB 886, McPherson) allows TAMC to be a party in an operations contract between the Department and Amtrak.
- $14 million in Proposition 116 capital funds were earmarked for intercity rail service on this corridor.

LOS ANGELES TO LAS VEGAS

In 1997, Amtrak discontinued the tri-weekly Desert Wind that ran from Los Angeles to Chicago via Las Vegas. Currently, *San Joaquin* trains provide connecting buses from Bakersfield to Las Vegas via Lancaster. Ridership on this route was 16,077 in 2005-06.

In 1998, Amtrak announced plans to start service from Los Angeles to Las Vegas with one daily round-trip. However, due to continuing funding shortfalls and increased capital requirements to initiate service, the new service was not implemented.

The Regional Transportation Commission (RTC) of Southern Nevada is completing a feasibility study on multi-frequency rail service between Las Vegas and Los Angeles. This study is being funded jointly by the RTC, FRA and the State of Nevada. The Department is working with the Commission on the study that includes ridership, cost and revenue projections; track, station, maintenance facility and property acquisition needs; equipment recommendations; and schedules for planning purposes. The study concludes that the service is feasible and improvements can be phased. A final white paper recommending a phasing strategy is underway.

The Department presently includes no operating or capital costs for this service in its ten-year plan because costs and implementation schedules are dependant on the results of the Nevada study as well as agreement between California and Nevada on cost sharing.

HIGH-SPEED RAIL

BACKGROUND

High-speed rail has been studied in California for over 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 1990 as required by Chapter 197, Statutes of 1988 (AB 971 - Costa). Under Chapter 1104, Statutes of 1990 (SB 1307 - Garamendi), the Department in 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 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 and 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 steel-wheel-on-steel-rail high-speed technology or magnetic levitation (maglev).

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

The California High-Speed Rail Act, enacted by Chapter 796, Statutes of 1996 (SB 1420 - Kopp and Costa), established 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."

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. Then Chapter 696, Statues of 2002 (SB 796 - Costa) repealed the sunset date for the CHSRA, making it a permanent authority. 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.

In 2000, the CHSRA completed its Business Plan, Building a High-Speed Train System for California. The Business Plan 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 Business Plan determined that the next project step is to initiate a formal environmental clearance process with the development of a State-level program EIR.

To implement the environmental process, the CHSRA prepared a Draft Program California Environmental Quality Act (CEQA) Environmental Impact Report (EIR) and a National Environmental Policy Act (NEPA) Tier 1 Environmental Impact Statement (EIS). The CHSRA is the State lead agency for CEQA and the FRA is the Federal lead agency for NEPA. The draft program-level EIR/EIS was released on January 27, 2004. After extensive review, the Final EIR/EIS was posted on the Federal Register on September 23, 2005. On November 2, 2005, the Authority certified the Final EIR/EIS.

Based on the analysis, the CHSRA and the Federal Railroad Administration (FRA) have identified the high-speed train system as the preferred system alternative to meet California's future intercity travel demand. Service to urban centers would be on shared tracks with other passenger rail services at moderate speeds. Stations would be in close proximity to most major airports, and there would be station connections with major transit hubs in metropolitan areas. The EIR/EIS identifies preferred alignments, as follows:

- **Northern Mountain Crossing** – a broad corridor containing a number of feasible route options have been identified for further study. The corridor is bounded by Pacheco Pass (SR-152) to the south, Altamont Pass (I-580) to the north, BNSF corridor to the east, and Caltrain to the west.
- **Southern Mountain Crossing** – through the Techachapi Mountain Range between Los Angeles and Bakersfield via a crossing through Palmdale and the Antelope Valley.
- **Bay Area** – service on the Peninsula and in the East Bay.
- **Central Valley** – Highway 99 corridor (mostly BNSF alignment).
- **San Diego** – via I-215/ I-15 corridor to downtown.
- **Orange County** – Los Angeles to Orange County via *Pacific Surfliner* Route.

The 2006-07 enacted state budget provided $14.3 million "to begin project implementation". The funding supported the preparation of a project financial plan, project management activities, identification of critical rights-of-way acquisitions and the initiation of detailed project design and related environmental studies. However, bond funding for the project must still be authorized by voters.

(AB 713 enacted in 2006, delayed the $10 billion high-speed rail bond measure from November 2006 to the November 2008 ballot).

Steps taken during 2006-07 to begin the implementation of the high-speed train project included the hiring of a project management team and five regional teams for the preparation of the preliminary engineering and the project-level environmental work. Also a financial planning team was hired as was a graphics/visual simulation consultant.

During 2006-07, the CHSRA and FRA have released two Notices of Preparation (NOP) and Notices of Intent (NOI) for the preparation of project-level EIR/EIS documents for the Los Angeles to Palmdale and Los Angeles to Anaheim segments of the proposed high-speed train system.

In June 2007 the Authority and the Federal Railroad Administration (FRA) completed a Draft Program EIR/EIS to address the choice of a corridor/general alignment and station locations in the San Francisco Bay Area to the Central Valley segment of the high-speed train system. The Draft Bay Area to Central Valley HST Program EIR/EIS document is now available to the public and uploaded to the HSRA website. The public comment period on this Draft EIR/EIS is through September 28, 2007.

The next steps for the Authority are to:

- Complete a project financial plan,
- Continue preliminary engineering and design and project-level environmental studies,
- Identify and preserve right of way.

DESERTXPRESS

DesertXpress is a proposed completely new high-speed, steel wheel on rail double track interstate passenger rail line running 190 miles between Victorville, California and Las Vegas, Nevada. It would run primarily at-grade; but be completely grade separated from all streets and highways, and would largely follow the I-15 freeway alignment. The estimated capital cost is $3.5 billion in private funding for design, construction, rolling stock, systems, testing and commissioning, with construction taking up to four years following completion of the environmental review process. Revenues from fares and advertising are expected to cover the on-going operating costs, including maintenance.

The proposed service will make the trip nonstop at speeds of up to 125 miles per hour, for a one hour and 40 minute trip between Victorville and Las Vegas. Equipment would be proven European design steel wheel on rail trains, with each car self-propelled to provide the high power-to-weight ratio needed to follow the I-15 alignment and climb its relatively steep grades through two desert mountain passes. Trains would operate as frequently as 20 to 30 minutes during peak

periods, and one to two hour intervals at other times. Ridership is projected at 5.1 million passenger round-trips in the first year, based on an average $50 one-way fare. This ridership level represents 28 percent of the projected 18.2 million trips between Southern California and Las Vegas. Much of the route would use property along the I-15 alignment that is owned by the federal Government and administered by the Bureau of Land Management (BLM). Between Victorville and Barstow, a passenger-exclusive alignment within existing railroad rights of way is also being evaluated.

The station at Victorville would be located along the west side of I-15 near the Stoddard Wells Road interchanges. The 50-acre train maintenance and storage facility would be located near the Victorville station, and would include train storage tracks, the repair shop, a fueling station, the train washing facility, and parts storage as well as the operations control center and administrative offices.

The Environmental Impact Statement (EIS) is evaluating three alternative Las Vegas stations: at the south end of the Strip; in the middle of the Strip; and downtown Las Vegas; all with access to shuttles serving the resorts and the central business district, taxis and rental cars. Also, there is potential for a direct connection to the Las Vegas Monorail.

In July 2006, DesertXpress petitioned the Federal Surface Transportation Board [Finance Docket No. 34914] to issue a Declaratory Order finding that their project, the proposed construction of an interstate high speed passenger rail system, is not subject to state and local environmental review and land use and other permitting requirements because of the Federal preemption in 49 U.S.C. 10501(b). The Board issued the requested Declaratory Order in June 2007.

The Federal Railroad Administration, as the lead agency, is currently preparing, in a coordinated, fast-track manner, a draft federal EIS with the Cooperating Agencies: the Surface Transportation Board, the Bureau of Land Management and the Federal Highway Administration. DesertXpress Enterprises is privately funding the EIS work under the federal third party contracting approach. Scoping meetings were held in July 2006, to receive public input. Interagency working groups have been formed to receive input and to coordinate on design, right-of-way and environmental elements of the project.

In California, DesertXpress has reviewed their proposed project with the Governor's Office of Planning and Research, the Business, Transportation and Housing Authority, the California Transportation Commission, the California Department of Transportation, the San Bernardino Associated Governments, California Department of Fish and Game, the California High Speed Rail Authority, cities along the corridor, and other agencies as appropriate.

Figure 10B

High Speed Rail and Maglev Routes Under Study in California
Legend
California High Speed Rail Routes Under Study
Northern Mountain Crossing
Maglev Routes Under Study
Existing Intercity Routes
Northern Mountain Crossing
A broad corridor containing a number of route options under further study. It is generally bounded by SR-152 on the south, I-580 on the north, BNSF on the east and Caltrain on the west.
Sacramento
San Francisco
Oakland
San Jose
Stockton
Gilroy
Modesto
Merced
High-Speed Rail Authority Routes
Fresno
Bakersfield
Las Vegas-Anaheim Maglev
Las Vegas
Desert Xpress
Palmdale
Barstow
West L.A.
Los Angeles
Victorville
Southern California Maglev
Ontario Airport
Anaheim
Riverside
Irvine
Oceanside
San Diego

MAGNETIC LEVITATION

Maglev technology uses magnetic forces to lift, propel, and guide a vehicle over a guideway. Electric power and control systems eliminate contact between the vehicle and the guideway. In 1989, a 19.5-mile testing track was put in service in Emsland, Germany. The system is still in operation and carrying visitors. In 2002, a 19-mile Transrapid Maglev line was put in operations in Shanghai, China. The line connects Pudong International Airport with Shanghai subway station in the financial district. The Shanghai line has been operating at a maximum speed of 310 mph.

Congress has provided planning grants to the Southern California and Nevada projects in FFYs 2001-2004. Nevada received additional funding in FFY 2005. In 2005, Congress authorized $90 million for Maglev deployment as part of the reauthorization of SAFETEA-LU, with $45 million of these funds authorized for the pre-construction on the Las Vegas-Anaheim Maglev project, however no funds have been appropriated to date.

The two California projects that are discussed in more detail below still have significant hurdles to overcome. Their sponsors will need to complete engineering work and environmental documentation to further the initial concept design plans. A principal funding source remains to be identified. Coordination must continue with the Department, railroad operators, and local agencies along the corridor.

SOUTHERN CALIFORNIA MAGLEV PROJECT

The initial 92-mile corridor study area of the Southern California Association of Governments (SCAG) High-Speed Regional Transport (HSRT) extends from Los Angeles International Airport (LAX) via LAUS, east to Ontario International Airport and on to March Inland Port in Riverside County. SCAG is the project sponsor.

By 2030, the population of Southern California is expected to grow from 17 million to 23 million people. Demand at the region's airports could increase to approximately 170 million annual passengers. Air cargo volume is expected to triple to nine million annual tons. The prospect of these increases in population, employment and air travel demands led SCAG to adopt a high-speed intra-regional Maglev system connecting regional airports as part of a decentralized Aviation System Plan and to transport daily commuters. This Plan was adopted as part of its Regional Transportation Plan in 1998.

In 2000, the Southern California Maglev Deployment Project sponsors submitted a project description to the Federal Railroad Administration (FRA) for funding. The grant application to the FRA described an intra-regional Maglev system, of which the first line to be considered, was on the LAX to March Inland Port Corridor. Highlights of the project description are:

- The proposed system design was based upon Maglev technology developed by the German consortium Transrapid. Recently, the choice of Maglev has been placed under review. An Alternatives Analysis is currently underway by a consultant to compare steel wheel with Maglev technology on two routes in the Initial Operating Segment (IOS) for ridership, cost, speed, etc. This analysis is due for completion by December 31, 2007.
- The proposed project serves a very dense corridor defined by the Federal Government as a Corridor of National Significance. By 2020, about 2.5 million long distance trips would be made in the corridor.
- In December 2002, the corridor was shortened by the SCAG Regional Council to an IOS that spanned 54-miles from West Los Angeles to the Ontario Airport. The IOS would serve approximately 130,000 riders per day. Travel-time savings from one end of the line to the other was estimated to be 33 minutes.
- The IOS was estimated to cost about $8 billion (2006 dollars) to construct. Approximately 24 percent of this cost was for the system elements: vehicles, communications, propulsion, and operation control. The cost of the guideway was about 43 percent of the total cost. Stations, yards and shops, rights-of-way (ROW), and other civil works comprise the remainder of the project costs.

With the FY 2001 Federal funding, SCAG performed additional studies on this project, including evaluation of the impacts of the project on use of highway and railroad ROW, on Los Angeles Union Station (LAUS), and on the Metrolink commuter rail system. SCAG also completed further work in the areas of technology transfer agreements, cost and revenue projections, financial plan, public/private partnering agreements, environmental studies, and public participation.

In FFY 2001, SCAG received $877,000 in FRA funding. In FFY 2002, SCAG received $1.0 million in FRA funding for continued corridor planning activities. In FFY 2003, an additional $500,000 in FRA funding was provided to support further planning studies. In FFY 2004, SCAG received an additional $1.0 million in FRA funding.

In addition to the project described above, SCAG has undertaken three additional Maglev/high-speed rail feasibility studies along other heavily congested corridors. They are: 1) Los Angeles to Palmdale in Antelope Valley, along the SR-14 and I-5 or I-405 freeway corridors; 2) LAX to south Orange County, along the I-405 Freeway; and 3) the Orangeline from downtown Los Angeles to central Orange County following the former Pacific Electric Railway corridor. This corridor is not under the jurisdiction of SCAG but the Orangeline Development Authority (OLDA) Joint Powers Authority (JPA).

From these studies, SCAG has concluded that the Maglev/high-speed rail projects have the potential to be self-funded through a public-private partnership, where the public sector will donate land and the private sector will construct and operate the system. Additionally, innovative funding strategies, such as Federal Transportation Infrastructure Finance and Innovation Act (TIFIA) loans and private investment bonds can be used to finance this project.

LAS VEGAS-ANAHEIM MAGLEV PROJECT

The California-Nevada Super Speed Train Commission (CNSSTC) was formed in 1988 to promote the development of a 269-mile maglev system connecting Las Vegas with Anaheim. The CNSSTC and its private sector partner, American Magline Group, for its FRA application in 2000, proposed a 40-mile segment from Las Vegas to Primm, on the California border. A short segment of the project was chosen because of the difficulty in raising funds for the entire 269-mile project.

The route travels between two fast-growing and heavily populated regions of the U.S. The project would have a total of five segments: Las Vegas to Primm, Primm to Barstow, Barstow to Victorville, Victorville to Ontario, and Ontario to Anaheim. There would be stops at each of the endpoints of the segments, for a total of at least six stops. A key advantage of the system is the alignment provided by the Interstate Highway 15 ROW. If available, this alignment would minimize the need for property acquisition and provides the least complicated construction scenario possible.

To date the project has received a total of $9.0 million in Federal funding from FY 1999 through FY 2005: $1.4 million in FY 1999; $2.0 million in FY 2000; $900,000 million in FY 2001; $1.2 million in FY 2002; $1.5 million in FY 2003; $1.0 million in FY 2004; and $1.0 million in FY 2005. Also, $45 million is authorized in SAFETEA-LU for the next five years; however, no funds have been appropriated to date.

The CNSSTC has done a number of studies to date. They prepared and submitted to USDOT a Project Description Report on the Las Vegas to Primm segment in 2000. Next the CNSSTC produced the Las Vegas-Primm/Barstow Supplemental Project Description in August 2002. That report presents projected physical infrastructure, ridership, costs, benefits, and related information for the extended segment from Las Vegas to Barstow via Primm. The report estimated capital costs for the segment in 2000 dollars to be $5.65 billion.

In May 2004, the FRA agreed to prepare a Programmatic Environmental Impact Statement (PEIS) for the project, in cooperation with the Nevada Department of Transportation. The PEIS will cover the entire corridor between Las Vegas and Anaheim, and will include a site-specific construction level Program Environmental Impact Report (PEIR) for the Las Vegas to Primm, Nevada segment. As part of the PEIS, five public meetings were held in June 2004 in key

cities along the route. The CNSSTC has also prepared a preliminary report that summarizes the results of the public meetings, a purpose and needs statement, and a work plan. The PEIS/REIR is expected to be completed within three years.

The Department will be the lead agency to review environmental documents under CEQA. However, the current PEIS does not trigger CEQA review as it is not considered a "project" under CEQA definition. Only site-specific environmental work on corridor segments in California will trigger CEQA.

CHAPTER XI
AMTRAK

This chapter provides information on: Amtrak's relationship with the Department and with the CCJPA, key Amtrak planning initiatives, and recent Amtrak reform proposals and budget.

AMTRAK'S RELATIONSHIP WITH THE DEPARTMENT AND THE CAPITOL CORRIDOR JOINT POWERS AUTHORITY

The Department provides operating funding for three intercity rail passenger services, the *Pacific Surfliners*, *San Joaquins*, and the *Capitol Corridor*. Amtrak operates all three services under the provisions of Section 24101(c)(2) of the Federal Rail Passenger Service Act. That Section 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. The Department directly administers the *Pacific Surfliners* and *San Joaquins*. (Amtrak funds 30 percent of the *Pacific Surfliner* service as part of its basic system, and the State pays for the remaining 70 percent of this service.) The Capitol Corridor Joint Powers Authority (CCJPA) administers the *Capitol Corridor* service under a 1998 interagency transfer agreement with the State.

In the past, Amtrak provided significant fiscal support to state-supported routes. Then, over time, the share of service costs (called cost basis) that Amtrak required states to pay increased significantly. Between FFY 1992 and FFY 1999, the cost basis increased each year. Starting in FFY 1999, the State paid 100 percent of all variable costs and Amtrak covered all fixed costs. Since then, the cost basis has remained fairly constant. Starting in FFY 2000, the CCJPA entered into fixed price-operating contracts with Amtrak for the *Capitol Corridor* service.

In the fall of 2002, Amtrak modified the cost allocation principle slightly to recovery of "direct costs" which include all train related costs and a portion of shared costs, but excludes system overhead, interest and depreciation. Costs on this basis actually decreased slightly on the *Pacific Surfliners* for the same level of service, primarily because the State is no longer charged equipment capital costs for the use of Amtrak owned equipment. State contract costs have been constant for the five years from 2002-03 through 2006-07. State operating costs have never been constant for such a long period of time in the history of State-supported service. However, State costs in 2007-2008 will increase by $6.6 million.

The Department pays the entire 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, in operating service for the State or the CCJPA, performs many functions. Amtrak employees function as train crews and staff stations with ticket offices. The equipment (whether owned by Amtrak or the Department) is maintained by Amtrak staff at Amtrak operated facilities in Oakland and Los Angeles. Amtrak staff at these locations, and to a lesser degree in Washington D.C. and Philadelphia, also performs administrative and other functions related to California State-supported service.

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. However, the Department approves or disapproves fare changes, as provided in its contract with Amtrak. In addition, 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.

AMTRAK PLANNING

Below two Amtrak planning documents are discussed. The Amtrak Strategic Reform Initiative and FY 06 Grant Request focuses on reform actions and potential revitalization of the U.S. passenger rail service. The Strategic Business Plan focuses on capital investment and operating plans.

AMTRAK STRATEGIC REFORM INITIATIVE AND FY 06 GRANT REQUEST

In April 2005, Amtrak released its Amtrak Strategic Reform Initiatives and FY 06 Grant Request. This document included comprehensive reform initiatives the railroad is undertaking as corporate actions and others it intends to pursue in legislative actions to "revitalize U.S. passenger rail service." The document also included the FY 06 grant request of $1.82 billion for capital investment programs and operations.

Amtrak stated that the initiatives have four fundamental long-term objectives:

- Development of passenger rail corridors utilizing a Federal/state matching approach common to all other modes (generally 80/20). States, not Amtrak, would lead the development of the corridors, a number of which have already been federally designated. Ultimately, Amtrak would be one of the competitive bidders for functions or for entire services.
- Return of the Northeast Corridor infrastructure to a state-of-good-repair and operational reliability, with phased-in financial responsibility for capital

and operating costs assumed on a proportionate basis by all users, including Amtrak, freight and commuter railroads.

- Establishment of phased-in financial performance thresholds for Amtrak's existing 15 long-distance trains and any future similar proposed service. Amtrak initiated a series of actions to improve the financial performance of these trains. Services falling below the thresholds could be continued through support by state or other authorities, reconfigured or eliminated.
- Creation of markets for competition, private commercial participation and industrial reforms in various rail functions. This includes competition among operators, including Amtrak, for new corridor routes.

For California there are a number of important initiatives included in the document. First, the recommendation for a Federal 80 percent/state 20 percent capital match program for state rail capital investment is key to allowing California to leverage State funds with Federal funds to continue to make improvements to the intercity rail system. Second, the reform initiatives call for other operators to be able to compete for elements of service (e.g., food service and mechanical services), and ultimately with Amtrak for operation of routes. Qualified competitors could potentially receive the rights to private railroad track at incremental costs, assuming legislative changes contained in the proposal, and access to Amtrak rolling stock. As part of the proposal, Amtrak would phase out any operating support for State-supported Routes by FY 2011. This may result in additional costs to California.

AMTRAK'S 2004 STRATEGIC BUSINESS PLAN

In June 2004, Amtrak released its Amtrak Strategic Plan FY 2005-2009, which is a strategic capital investment and operating plan that updates the plan released in 2003. Amtrak is now updating the Strategic Plan and expects to release it in March, 2008.

Amtrak's Strategic Plan FY 2005-2009 aims to restore Amtrak's physical plant and train equipment to a state-of-good-repair and improve the railroad's operational reliability. The Plan identifies four strategies: (1) maintain the focus on stabilizing the railroad; (2) continue to ramp-up the capital program; (3) continue the emphasis on operating efficiencies through improved fleet utilization, better service design, and increased productivity; and (4) encourage investment in improved service, including corridor development. The Plan is based on investments in existing infrastructure and equipment, and proposes no new significant passenger services – focusing instead on improving the reliability and cost-efficiency of the passenger railroad's existing services.

The Plan outlines the progress made in FFY 2003-04, including establishing a transparent financial reporting system, implementing zero-based budgeting, imposing strict headcount control measures, focusing on day-to-day passenger

operations, and on maintenance of plant and equipment. The Plan continues these measures for the next five years. Challenges that Amtrak faced in FFY 2003-04 which are likely to continue include: 1) continuing deterioration in host railroads' capacity and infrastructure, and 2) failures and delays attributed to deferred investment in and reconstruction of Amtrak's plant and equipment.

To support the existing system, the five-year Strategic Plan calls for Federal funding averaging about $1.6 billion per year. The plan holds the line on Federal support for operating purposes each year at $570 million. The majority of Federal support is for capital improvements to the existing system and to bring facilities and equipment up to a state-of-good-repair. The Plan reiterates current Federal policy that Amtrak not initiate new train services unless the state or states served pays the full operating loss. Amtrak continues to seek full state funding for "direct" operating losses on existing state-supported trains.

California Capital Funding

Although the Plan is primarily directed to preserve and improve Amtrak-owned assets in the Northeast Corridor, it also proposes funding for several projects in California. It includes $90.1 million for projects which impact California, of which $41.5 million is for projects wholly in California and $48.6 million is for multi-state projects that partially impact California. Key projects in California include: Phase II of the new maintenance facility in Oakland that was completed in September 2004 and fully operational in December 2004; overhauls of *Pacific Surfliner* equipment; and basic repairs of Amtrak-owned equipment maintenance facilities in Los Angeles. The actual level of funding for the projects is dependent on Congressional appropriations during the period of the Plan. Figure 11A lists the California related projects included in the Amtrak Strategic Plan.

Figure 11A

Amtrak Five-Year Strategic Plan - Capital Projects – FFY 2005-09		
California Projects	**Summary of Project Scope**	**Amtrak Funding (000)**
Los Angeles Yard – New Equipment	Replace electric carts and shop equipment	$ 50
Surfliner Equipment – Overhauls	Replace most parts due for renewal, along with some upgrades and structural repairs	10,600
Los Angeles Yard Improvements	Install roof for commissary and material control building, wheel truing machine, sand tower and industrial waste line	2,400
Service & Inspection Facilities Running Repair	Replace specialty tools, equipment, etc. for LA and OAK S&I Facilities	7,500
Los Angeles Yard Track	Construct tracks to connect to 9th Street	250
Los Angeles Union Station Improvements	Install tactile warning tiles on Tracks 10,11,12	350
Oakland Maintenance Facility Phase II	Construction of Commissary and Welfare facilities	14,000
Oakland Maintenance Facility Yard	Demolish existing infrastructure in UP Yard	300
Emeryville Station Lease/Purchase	Provide funds for lease/purchase of the station	400
Extension of *Pacific Surfliner* Double-track – CP Flores to CP O'Neal	Construct 1.8 miles of second mainline track, including Centralized Traffic Control (CTC)	1,250
San Diego – New Layover and Light Maintenance Facility	Participate in the construction of a multi-story building, of which the first floor is to be used by Amtrak and Caltrans to store equipment and materials needed for rolling stock maintenance	350
Oakland – Station and Platform Improvements	Construct station track, platform, and control point improvements	680
Rocklin Station	Construct improvements to meet ADA Requirements	250
Capitol Corridor	Install Closed Circuit Television in 8 stations along *Capitol Corridor*	300
San Joaquin Route	Install Closed Circuit Television in 8 stations along *San Joaquin* Route	300
Salinas Station	Reconstruct Salinas Platform	2,525
	California Projects Total	**$ 41,505**
Multi-State Projects		
Rail Replacement and Rehabilitation – Pacific and Southwest Divisions	Replace and rehabilitate rail, wood ties, and turnouts	$ 6,400
Superliner II Equipment – Overhauls	Replace most parts due for renewal, along with some upgrades and structural repairs	21,200
Superliner I Equipment – Overhauls	Modify or remanufacture existing equipment	13,600
F59PHI Diesel Locomotive Overhauls	Replace most parts due for renewal, along with some upgrades and structural repairs	5,200
Western Division Pollution Prevention	Construct pollution prevention upgrades and improvements	2,220
	Multi-State Projects Total	**$ 48,620**
	GRAND TOTAL	**$ 90,125**

California Corridors Highlighted in State Corridor Initiatives

The Amtrak 2004 Strategic Plan also includes an Appendix called the State Corridor Initiatives. It focuses on state proposals supported by Amtrak for specific passenger rail corridor development, and strategies to protect and upgrade key facilities owned by freight railroads. Amtrak supports use of a 80 percent federal 20 percent state grant program for corridors that qualify under the Initiative.

Amtrak surveyed all states and identified those corridors that complied with Amtrak's criteria. The criteria includes a long-term master plan, market revenue and operating expense forecasts, infrastructure and equipment investment plans, host railroad acceptance, agreement to fund a 20 percent capital match, and agreement to cover any added operating deficit. Amtrak worked with states to clearly identify the corridors, the congestion and capacity challenges and capital investment needs. Three of the eight corridors that qualified for the State Corridor Initiatives were in California. They were the three State-supported corridors (*Pacific Surfliner*, *San Joaquin*, and *Capitol Corridor*).

However, it should be recognized that major funding for the Corridor Initiatives would come from a federal grant program, which to date has not been established. See the discussion of the FFY 2008 Budget below for further information on a proposed grant program in S 294.

AMTRAK REFORM AND BUDGET

For a number of years Amtrak's future and budget levels have been hotly debated in Washington D.C. According to the Congressional Budget Office September 2003 study The Past and Future of U.S. Passenger Rail Service "more than three decades after the Congress and the President created the National Railroad Passenger Corporation, Federal policies toward intercity passenger rail service remain unsettled. Policymakers have not been able to agree about whether the company should be a private, for-profit enterprise (like airlines and intercity bus companies) or a public service (like urban mass transit) that would use government subsidies to achieve social objectives." This discussion continues today with no resolution.

FFY 2006 BUDGET AND LEGISLATIVE REFORM PROPOSAL

In 2004, Congress was primarily engaged in reauthorizing surface transportation programs and discussions on the future of Amtrak and intercity rail took a back seat. Amtrak's FY 2005-2009 Strategic Plan called for an annual Federal appropriations level of $1.6 billion, which would allow Amtrak to make progress on its goal toward achieving a state-of-good-repair. Amtrak initially requested $1.8 billion from Congress for FFY 2005, but revised it downward to $1.5 billion based on the ability to advance a number of capital projects. In November 2004, Congress appropriated $1.2 billion for FFY 2005 funding, which included a $20 million portion of a five-year repayment for the FFY 2002 loan of

$100 million. Amtrak was able to operate throughout FFY 2005 within this appropriation level by drawing down on its working capital reserves.

FFY 2006 BUDGET AND LEGISLATIVE REFORM PROPOSALS

The Administration opened the FFY 2006 Amtrak budget deliberations in April with a proposal that was identical to the "Passenger Rail Investment Reform Act of 2003" and proposed zero funding for Amtrak unless reforms were instituted. This proposal was introduced as H.R. 1713 in April 2005. Amtrak's FY 2006 proposal was contained in their Amtrak Strategic Reform Initiatives and FY 06 Grant Request discussed above. The requested funding level was $1.82 billion. A bi-partisan bill introduced by Senators Lautenberg and Lott (S. 1516) was introduced in July 2005 that averaged about $1.9 billion in funding over the six years of the bill's reauthorization. S.1516 passed the Senate 93-6, although companion House legislation was not introduced, nor was a funding mechanism identified.

In June, the full House approved an Amtrak appropriations level of $1.2 billion, and in July the Senate Appropriations Committee approved a $1.45 billion appropriations level. In late November, the President signed "The Transportation and Related Agencies Appropriations Bill" for FFY 06. It included $1.315 billion in funding for Amtrak, including $780 million for capital projects with $280 million maximum for debt service, $495 million for operations, and $40 million for efficiency incentive grants.

FFY 2007 BUDGET AND LEGISLATIVE REFORM PROPOSALS

For FY07, the Administration proposed $900 million for Amtrak, compared with Amtrak's requested base appropriation of $1.598 billion ($730 million Capital; $498 million Operating; $295 million Debt Service; $75 million Working Capital). Amtrak also requested was $275 million in "Strategic Investment Options" ($100 million debt restructuring; $50 million Network Reliability; $100 million State capital matching; $25 million station ADA Compliance). For FY 07, the House approved $1.114 billion; the Senate $1.4 billion. Amtrak's final FY07 appropriation was $1.294 billion, with nothing appropriated for any of the Strategic Investment Options. Included in the FY 07 appropriation was the expectation that Amtrak would undertake several actions to reduce operating costs, such as altering the delivery of food, beverage, and sleeping car service; explore options for selectively outsourcing certain functions; eliminating heavily discounting tickets for riders other than those in the armed forces; and modifying its procurement processes, among other actions.

FFY 2008 BUDGET AND LEGISLATIVE REFORM PROPOSALS

For FY 08, the fundamentally challenging dynamics of properly funding rail remain. Amtrak has requested a base appropriation of $1.53 billion ($498 million Operations; $760 million capital; $285 million debt service), along with an additional $150 million in Strategic Investment Needs ($100 million state capital matching; $50 million Station ADA compliance). The administration has proposed $800 million for Amtrak, along with $100 million for state capital matching. As of this writing, the House has approved $1.4 billion for Amtrak along with $50 million for state capital matching. The full Senate has not yet acted, but the Senate Appropriations Subcommittee on Transportation approved $1.37 billion for Amtrak, along with an additional $100 million for state capital matching.

Earlier this year, Senators Lautenberg and Lott introduced the Passenger Rail Investment and Improvement Act of 2007 (S.294), which is essentially the same legislation that was introduced previously as S.1516. Among other items, S.294 provides a six-year funding framework for Amtrak's operating and capital needs. Over the life of the legislation, Amtrak's operating grants are reduced by 40%, but its capital allocations increase dramatically. Additionally, S.294 provides $1.4 billion in state capital grants at an 80/20 level over a six-year period, along with other provisions including changes to the composition of Amtrak's Board of Directors. At this point, companion legislation has not been introduced in the House, nor has a funding mechanism been identified.

CHAPTER XII
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

The Public Transportation Account (PTA) is the exclusive source of intercity rail operating funds 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." (Public Utilities Code Section 99310.5)

PUBLIC TRANSPORTATION ACCOUNT FUNDING SOURCES

There are five main statutory sources of funds for the PTA: state sales tax on diesel fuel, retail sales tax on gasoline from the Transportation Investment Fund (TIF), gasoline spillover (when available), sales tax on nine cents of the gas (excise) tax, and State Highway Account (SHA) transfer of non-Article XIX revenues. In 2005-06, total PTA revenue from these sources was $571 million.

- Sales Tax on Diesel Fuel – The 4.75 percent portion of the 7.25 percent state sales tax on diesel fuel, which in 2005-06 was $287 million.
- Sales Tax on Gasoline – The five percent portion of the 7.25 percent state sales tax on gasoline. In 2005-06, the first year of the TIF transfer to the PTA, the amount was $136 million.
- Sales Tax on Gasoline (Spillover) – Based on the statutory formula, gasoline spillover is available when revenues from the gasoline sales tax at the 4.75 rate exceed revenues from all taxable sales at the 0.25 percent rate, shifting revenues to the PTA when gas prices increase faster than overall retail sales. This source was initiated when the sales tax on gasoline was established in 1972. Although in past years spillover transfers occurred rarely there have been spillover transfers for the last five fiscal years. The Legislature and the Governor have often directed these revenues, in whole or in part, for purposes other than those usually funded from the PTA to meet other state funding priorities. For example, in 2005-06, the spillover was $381 million, but the full amount was retained by the General Fund.
- Sales Tax on a Portion of the Excise Tax on Gasoline (Proposition 111) A portion equal to 4.75 percent on nine cents of the state's 18 cent per gallon excise tax on gasoline goes to PTA. In 2005-06 this source was $67 million.

- SHA Non-Article XIX Revenues – The TCRP Program (Chapter 91, Statutes of 2000) authorized the annual transfer, starting in 2001-02, of all Article XIX unrestricted SHA revenues from the SHA to the PTA. These revenues are derived from the sale of documents, charges for miscellaneous services to the public, rental of state property, etc. In 2005-06 this source was $81 million.
- Traffic Congestion Relief Program (TCRP)/Proposition 42 Funding – The TCRP, established by Chapter 91, Statutes of 2000 (AB 2928, Torlakson), was intended to provide funding for 141 transportation projects and to the PTA from 2001-02 through 2005-06. These projects were to relieve congestion, connect transportation systems, and provide for better goods movement. The major new source of funding was the shifting of gasoline sales tax revenues from the General Fund to the newly created TIF. The first call on TIF distributions was to fund annual Traffic Congestion Relief Fund (TCRF) transfers, and then 20 percent of the remaining balance would be transferred to the PTA. The state experienced a fiscal crisis soon after the TCRP was enacted. Chapter 112, Statutes of 2001 (AB 438) delayed the transfer of sales tax revenues to the TIF, beginning in 2003-04 and continuing through 2007-08; however, these amounts were fully repaid by 2006-2007.

  In March 2002, Proposition 42 added Article XIX B to the California Constitution that eliminated the original sunset date for the TIF and delayed TCRP funding from 2003-04 through 2007-08. Proposition 42 made permanent, beginning in 2008-09, the transfer of gasoline sales tax revenue to the TIF on a formula basis: 20 percent of the transfers will go to the PTA, with one-half of this amount for STIP projects and one-half to State Transit Assistance (STA) for transit; 40 percent to the TIF for STIP projects; and 40 percent for subventions to cities and counties for local streets and roads. Fiscal year 2007-08 is the last year of statutory transfers of Proposition 42 funding to the TCRF. Beginning in 2008-09, no further funds will go to TCRP projects, thus increasing formula funds to the PTA, STIP, and local streets and roads. In 2003-04 and 2004-05, the transfers were suspended; however, these were repaid in 2006-07 (per Proposition 1A) by the transfer of $1.415 billion to the Transportation Deferred Investment Fund (TDIF) and the commitment to pay $83 million per year for nine years to the TCRP.

REPAYMENT OF THE PTA

The statutes (AB 1751, Chapter 224, Statutes of 2003) and (AB 687, Chapter 91, Statutes of 2004) specified that the TIF suspensions in 2003-04 and 2004-05 were loans that were required to be repaid from the General Fund via Transportation Deferred Investment Fund (TDIF) by 2008-09. In July 2006, the General Fund

repaid these previously suspended TIF transfers with $214 million going to the PTA.

Additionally, a total of $275 million ($180 million in 2001-02 and $95 million in 2002-03) was loaned from the PTA to the Traffic Congestion Relief Fund (TCRF) and is scheduled to be repaid by June 30, 2008. In 2004, the Governor negotiated Tribal-State Gaming compacts with five tribes that would secure revenues for bonds to repay General Fund debt, including $275 million to PTA. Due to pending litigation on these bonds, it is uncertain when these bonds will be sold. In June 2007, the PTA did receive a loan repayment of $10 million from Tribal Gaming Revenues as a partial TCRF loan repayment.

USE OF PTA FUNDS

The Public Utilities Code (Sections 99312 et seq.) governs the uses of PTA funds. Fifty percent of these revenues go to the State Transit Assistance (STA) Program, which assists local entities in funding transit services. The remaining monies are available to fund a number of state programs including: intercity rail operations; high-speed rail, mass transportation, planning staff support; and mass transit capital projects.

In the past, PTA funding had not been used for capital projects, but for the first time, the 2001-02 Budget included $91 million in PTA funds specified for intercity rail capital projects. Proposition 42 now requires that PTA funds be included in the State Transportation Improvement Program (STIP). Thus, the STIP includes PTA funds, subject to availability.

STATE HIGHWAY ACCOUNT

The bulk of SHA funding 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 and diesel fuel taxes, state vehicle weight fees and reimbursements from the Federal Trust Fund for Federal-aid projects. 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 guide ways (which includes intercity, commuter and urban rail, and electric trolley bus services) and their fixed facilities. The SHA can not be used for mass transit vehicle acquisition or maintenance, or mass transit operating costs.

The 1989 Blueprint Legislation allowed intercity rail projects to compete for SHA funds in the STIP. Chapter 622, Statutes of 1997 (SB 45 - Kopp), reserved for intercity rail and grade separation projects a minimum of nine percent of the Interregional portion of the STIP as part of the Interregional Transportation Improvement Program (ITIP). SB 45 also allowed intercity rail projects to be

programmed in the Regional Transportation Improvement Program (RTIP). As a result, in the 1996 STIP, 1998 STIP, the 1998 STIP Augmentation, the 2000 STIP, the 2002 STIP and the 2006 STIP and STIP Augmentation (due to severe funding constraints the 2004 STIP did not program any new funding for intercity rail projects) a total of $567 million was programmed. Of this amount $402 million has been allocated.

TRAFFIC CONGESTION RELIEF FUND

Chapter 91, Statutes of 2000 (AB 2928 - Torlakson), established the Traffic Congestion Relief Program (TCRP) to be funded from the Traffic Congestion Relief Fund (TCRF). The TCRP specified a list of projects to be funded, including over $200 million for specific intercity rail capital projects. To date about $150 million in projects have been allocated. Thus the constrained program includes $50 million in unallocated TCRP funds.

PROPOSITION 1B – HIGHWAY SAFETY, TRAFFIC REDUCTION, AIR QUALITY AND PORT SECURITY BOND ACT OF 2006

Proposition 1B, or the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act, was approved by the voters in November 2006 and authorized the issuance of $19.925 billion in the state general obligation bonds for specified transportation purposes, including transit and passenger rail improvements, highway-railroad grade separation and crossing improvement projects.

Several sections of Proposition 1B directly impact the Intercity Rail Program. They include:

- The Public Transportation Modernization, Improvement and Service Enhancement Account - This is the only portion of the bonds which are specifically reserved for intercity rail projects. It makes $400 million available for intercity rail improvements of which $125 is reserved for intercity rail equipment. The Budget Act of 2007-08 appropriates $187 million of these funds to the Department.
- Highway-Railroad Crossing Safety Account – Proposition 1B includes $250 million for high priority grade separation and railroad crossing safety improvements, to be funded pursuant to the process established in Streets and Highways Code (S&HC) Section 2450. To the extent these projects are on intercity rail routes they will benefit the intercity rail system. However, a dollar for dollar match of non-state funds is required for each project, and the limitation on maximum project cost in (S&HC) Section 2454(g) is not applicable to projects funded with these funds.

The Budget Act of 2007-08 appropriates $122.5 million of these funds to the Department.

- Trade Corridor Improvement Program – Proposition 1B includes $2 billion for infrastructure improvements along federally designated "Trade Corridors of National Significance." These projects have not been programmed but to the extent they are on intercity rail routes they would benefit the intercity rail program.
- In addition, Proposition 1B makes available about $2 billion in additional STIP funding. Under current law, intercity rail and grade separation projects are required to receive 2.25 percent of the entire STIP (or nine percent of the ITIP). Intercity rail and grade separations received an additional $74 million in the STIP Augmentation approved by the California Transportation Commission in June 2007.

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, voters approved the first $1 billion rail bond measure, The Passenger Rail and Clean Air Bond Act of 1990, but did not approve the subsequent two bond measures in 1992 and 1994. To date, almost all bond proceeds have been used to fund new rail projects and improvements to existing systems, including $225 million for intercity rail capital projects.

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.

TRIBAL COMPACT BONDS

Chapter 91, Statutes of 2004 (AB 687, Nunez) ratified amendments to the Tribal-State Gaming compacts negotiated by the Governor with five tribes having gaming income. The bill authorized the issuance of bonds, secured by up to $1.5 billion in Indian gaming revenue, to be dedicated for transportation improvement purposes. Based on the statute, the PTA would receive $275 million, the SHA would receive $477 million, the TCRP would receive $453 million, and $192 million would go to local streets and roads. However, the 2005-06 Budget authorized $1 billion in tribal bond income to be used to pay most

of a 2005-06 $1.2 billion General Fund loan commitment to the TCRF. The remaining $200 million, plus interest, would be repaid from revenues resulting from future tribal gaming compacts if more compacts were negotiated. If tribal gaming revenues were not sufficient to cover any part of the $1.2 billion owed, the remainder would be repaid from the General Fund by July 1, 2021; however, pending litigation makes the timing of the bond sales and resulting revenue uncertain.

GENERAL FUND

The General Fund can be used for rail projects if there is a specific appropriation in the budget. Since 1975-76, only the 1999-00 and 2000-01 Budgets provided General Fund money for intercity rail capital projects. The 1999-00 Budget included $17.5 million for new intercity rail rolling stock, and the 2000-01 Budget also provided $30 million for this purpose.

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 commuter rail service, and to improve tracks, signals and stations 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 continue to 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 Federal Transit Administration (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.

In January 2007, federal legislation was introduced which would affect intercity rail. This was the Passenger Rail Investment and Improvement Act of 2007 (S294). This is a six year authorization which would fully fund Amtrak by authorizing $3.2 billion a year for that period. The bill would provide an operating subsidy for Amtrak as well as providing funds for capital grants to Amtrak, operating security, state capital grants and repayment of Amtrak debt. Funding totals for the six years are $11.3 billion. An additional amendment to the bill, submitted by the authors, would be a bonding amendment for an additional $7.8 billion.

AMTRAK FUNDS

On the operating side, Amtrak supports 30 percent of the *Pacific Surfliner* Route, as this portion is considered to be part of their Basic System, and not as a state-supported service.

On the capital side, 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. In recent years, Amtrak has increased its investment in California, including the purchase of 40 new passenger cars and 14 locomotives for the *Pacific Surfliner* Route at a cost of about $135 million. See Chapter XI for a list of the proposed California projects included in Amtrak's Strategic Plan for FFY 2005-09.

RAILROAD FUNDS

Railroads own the rights-of-way (ROW) on tracks used for intercity passenger routes. In some instances, the cost of track and signal improvement projects on these tracks is shared by the railroads and the state. For example, both the BNSF and UP recently completed several major track rehabilitation projects on the *San Joaquin* and *Capitol Corridor* routes.

PART II

FREIGHT RAIL ELEMENT

CHAPTER XIII
INTRODUCTION

The purpose of the freight element is to illustrate key features of the freight rail system, current issues facing freight rail including funding, and policy goals for the maintenance, preservation and improvement of the system. California faces a huge task in the movement of people and goods within the State. A well maintained and improved freight rail system can be a potent method for the alleviation some of the major issues facing the State, including traffic congestion, air quality, and prudent use of fuel resources.

The Department's efforts for the maintenance, preservation and implementation of the state's freight rail system revolve around recommendations and funding strategies in the Administration's Strategic Growth Plan (SGP), the utilization of funds from other sources, and the coordination and cooperation with the freight rail industry and local agencies.

This draft 2007-08 to 2017-18 California State Rail Plan provides a description of the freight rail network, issues concerning the freight rail industry, and policy recommendations and goals for the maintenance, preservation and improvement of the freight rail system. It is based in part on preliminary information from California's railroads. The final version will incorporate their full technical and analysis inputs.

CHAPTER XIV
POLICY STATEMENT/RECOMMENDATIONS

POLICY STATEMENT NO. 1: CALIFORNIA STRATEGIC INTEREST

In order to maintain the position and contributions the freight rail system makes to California and the nation, it is in the strategic interest of the State to maintain, preserve and improve California's freight rail system.

IMPORTANCE OF THE FREIGHT RAIL SYSTEM TO CALIFORNIA

The State of California occupies a position of economic and strategic importance in the nation. To maintain this position and provide a springboard for expanded economic growth at both regional and national levels, the preservation and maintenance of the freight rail system in the State is of crucial importance.

California faces myriad problems in the movement of goods and people as enters the 21st century. With an expanding State and national economy, and a growing population, issues of congestion, air quality, land use and natural resource use directly impact California. The population of the State was 34.1 million in 2000, but projections by the State Department of Finance foresee a population of over 44.1 million by 2020, and 59.5 million by 2050.

To meet the challenges of a growing population and expanding economy billions of dollars in investments will have to be made in California's rail networks, highways and port systems to add capacity and reduce congestion. Most of this investment will be made in the four major goods movement corridors: Los Angeles-Long Beach/Inland Empire; San Diego/Border; Bay Area, and Central Valley. Maintaining and expanding capacity along these transportation arteries provide not only a basis for economic growth in the State, but they also serve as an increasingly important network to all sections of the U.S.

California is in a strategically important geographical position. As well as containing approximately 12 percent of the nation's population, and having the eighth largest economy in the world, it serves as the entryway for huge amounts of goods from outside the country, which connect not only to California but also to the rest of the United States. Major freight corridors extend both east-west and north-south for the movement of both imports and exports.

Of increasing importance are the port complexes associated with international trade. In the Los Angeles area alone, international trade created 45,500 jobs in 2005, bringing the annual average employment to over 450,000.

Investments in goods movement infrastructure can yield numerous benefits. As well as increased employment, traffic congestion and exhaust emissions can be

reduced; the Alameda Corridor Transportation Authority reported that since opening in 2002 and 2005 both Nitrous Oxide (NOx) and diesel particulate matter (DPM) were noticeably reduced, and that in 2005 total emissions were lowered by more than 1,400 tons. These emissions reductions are critical to improving the air quality and health outcomes for communities adjacent to the Alameda Corridor.

THE STRATEGIC GROWTH PLAN

To address the funding needs required to reach its goals the Strategic Growth Plan (SGP) calls for an infrastructure improvement program to strengthen the state's transportation system, education, housing and waterways. The transportation element of the program calls for $107 billion to improve mobility and accessibility for people and goods. In November 2006 the voters approved Proposition 1B which provides the framework for this funding. The all-embracing vision for the SGP provides a springboard for the "3-E's" discussed in the SGP. They are:

- Prosperous Economy
- Quality Environment
- Social Equity.

In conjunction with the SGP, the California Department of Transportation has produced the California Transportation Plan 2025 (CTP), a document which discusses trends and challenges in movement, and serves as a blueprint for carrying out the goals of the SGP and meeting the State's future transportation needs.

The vision of the SGP is carried over to the Department's plan. To implement the "3-E' vision, the CTP lists a number of goals. These goals include:

- Improvement of Mobility and Accessibility
- Preservation of the Transportation System
- Support of the Economy, Enhancement of Public Safety and Security
- Reflection of Community Values
- Enhancement of the Environment

As an outgrowth of the Plan, a number of policies have been developed which directly impact freight railroads in the State. They include:

- Increase system capacity
- Preserve and maintain the system
- Enhance goods movement
- Support research to advance mobility and accessibility
- Manage and operate an efficient intermodal system
- Provide additional and flexible funding
- Expand collaboration in planning and decision-making

- Provide for system security
- Manage growth
- Conserve natural resources
- Commit to a clean and energy efficient system

Steps to carry out this goal have recently been inaugurated by the current State administration. Initiatives, which have come from the Administration's Strategic Growth Plan, have a direct bearing on freight rail in the State.

Funding provided by elements of Proposition 1B will benefit the freight rail system in the State. As well as being a component of the national rail network, railroads in California serve as an integral part of the California transportation system. Although moving large amounts of goods both within and through California, they do not benefit from publicly funded infrastructure such as highways and airports as do competitive modes of transportation.

A key transportation element of the SGP is the Goods Movement Action Plan (GMAP). The realization that the State faces a great number of mobility and environmental challenges with the continued growth of both population and the economy brought about the initiation of studies focusing on these issues. The GMAP provides a path for the development of projects, which will expedite goods movement in the State and provide a pivot for congestion relief and environmental enhancement. It focuses on priority regions and corridors in California and the impacts of goods movement along them. Development of the GMAP began in 2004 and a final report was signed by Governor Schwarzenegger in January 2007. It reflects the Administration policy for goods movement. Its purpose is to present a framework for action and is an initiative to:

- Generate jobs.
- Increase mobility and relieve traffic congestion
- Improve air quality and protect public health
- Enhance public and port safety.
- Improve California's quality of life.

The development of the GMAP was a two-phase process. The Phase I element released in September 2005 described the state's involvement in goods movement. It also compiled an inventory of existing and proposed goods movement infrastructure projects. Phase II focused on a set of preliminary candidate actions for operational improvements, infrastructure additions, impacts mitigation, workforce development and security and public safety improvement efforts.

All these efforts illustrate, by their overviews, analyses, funding recommendations and implementation plans the vital role played by the freight rail system in the overall transportation network of the state. They emphasize the continuing

importance of the system, and the need for its maintenance, preservation and improvement.

POLICY STATEMENT NO. 2: SYSTEM PLANNING

A long range, sustainable, system planning program to identify freight rail system needs and projects which increase mobility and enhance the environment should be undertaken.

The Department recognizes the importance of developing a comprehensive understanding of the statewide freight rail system, its challenges and opportunities, and the need to migrate this understanding into the Department's existing systems planning process. Currently, freight rail issues that may affect the entire transportation system are considered (if they are considered at all) in a fragmented manner. What is known is that the Class 1 railroads are facing increased levels of traffic along their corridors and are approaching maximum capacity. Recent inputs from both the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) railroads noted that there are several choke points on the systems that should be addressed to provide for the increased volumes of traffic:

- Cajon Pass between San Bernardino and Cajon Summit, shared by both Class 1 roads and serving the Los Angeles Basin to the Midwest and East;
- Tehachapi Pass between Bakersfield and Mojave, a shared, single-track route that connects Northern California and the Northwest to other regions of the United States; and
- Colton Crossing in San Bernardino County, an intersection between the BNSF and UP and a major transit point for both railroads to and from the port areas of Los Angeles and Long Beach as well as regional traffic. Additional congestion is provided by commuter rail services that use Colton Crossing. Remedies to this chokepoint problem are exacerbated by the proximity of a major freeway.

In addition to these problems, the increase in intermodal traffic at the major California ports is making heavy demands on existing railroad capacity. The growing importance of intermodal freight in California railroad operations is based on consumer demand as well as the fact that California is the primary gateway for containerized products coming in from the rapidly expanding Pacific Rim economies. Additional problems are faced by the short line railroads in the State. The crucial need for infrastructure upgrades are noted by many of the short line roads, particularly to handle heavier cars that are used by the Class 1 railroads. Short line railroads often serve widely spaced customers in rural areas of the state, and are often stretched for funding the upgrades needed to maintain service let alone consider expansion.

These considerations have impacts beyond the freight rail system itself. Capacity constraints lead to surface congestion at numerous grade crossings, contribute to

increased emissions, and interfere with the logical planning and delivery of transportation infrastructure. Implementing a long-range, comprehensive planning program will be a critical element in developing the most effective solutions.

POLICY STATEMENT NO. 3: RAIL PRESERVATION

To maintain the State's economic health, at a minimum the State's rail network, and the system's freight market share, must be preserved to the maximum extent feasible.

In order for the State to continue in its preeminent economic position, the preservation and maintenance of the current freight rail system is extremely important. As well, corridors not in use but that one-day may return to activity should also be preserved. The following information illustrates current and projected trends that will impact this system.

A recent report by the American Association of State Highway Transportation Officials "Freight Rail-Bottom Line Report" focused on the freight rail system in the United States and analyzed a number of factors, which affect it. The report noted that freight rail carries 16 percent of the nation's freight by tonnage, 28 percent of ton-miles, and six percent of freight values. If all freight rail were shifted to truck tomorrow, it would add 92 billion truck vehicle miles to the highway system and cost federal, state and local transportation agencies an additional $64 billion for highway improvements over the next 20 years.

Economic growth and the concomitant movement of goods will place a huge strain on the transportation framework of the country. Maintenance of the freight rail system at its current level, or even with minor improvements will see more freight carried by truck. Projections anticipate a national economic growth of three percent a year, with domestic tonnage growing by 57 percent by 2020 and import-export growth 100 percent during the same period Even a one percent increase in truck vehicle miles would add approximately $1.6 billion to highway costs between 2000 and 2020.

The impacts of the freight movement scenarios would be felt especially in California, and potential problems with constricted flows should be understood. As already noted California ports have become increasingly important in the national economic fabric. For example a 10-day lockout and 23-day backlog of West Coast ports in 2002 disrupted trade valued at $6.28 billion just in the Ports of Long Beach and Los Angeles. While this disruption was not caused by an overtaxed freight rail system the potential for negative economic impacts with a. overburdened rail system should not be underestimated. Failure to invest in goods movement infrastructure could also lead to significant losses in future tax revenues. The Los Angeles County Economic Development Corporation has estimated that the state could lose over $17 billion in state income and sales taxes through 2035. "Growth of California Ports: Opportunities and Challenges"

Interim Report to the California State Legislature" submitted by the California Marine and Intermodal Transportation System Advisory Council, (CALMITSAC) in 2006.

POLICY STATEMENT NO. 4: ENVIRONMENT

California must expand and improve its freight rail system and operations and simultaneously work to reduce associated health risks and community impacts. Local, state, and federal agencies must work together as partners with private citizens and business concerns to provide a clean environment and a healthy business climate. These goals are fundamental to Governor Schwarzenegger's *Strategic Growth Plan*.

These are twin policy objectives that must be achieved in providing a freight rail system for California's citizens. This topic is discussed in detail in the Chapter V, Environment.

POLICY STATEMENT NO. 5: FUNDING

In order to maintain and strengthen the position and contributions the freight rail system makes to California, the regions and the nation, the State must be an active partner with the private sector and other government entities in the funding of major freight rail improvements.

Recent Congressional testimony (Statement for Surface Transportation Board Hearing on Rail Capacity and Infrastructure Requirements by David Ganovski) stressed that freight rail transportation is not keeping pace with the demands of the economy and that the freight system overall is in the early stages of a capacity crisis. Even with moderate growth of three percent a year the U.S. will see a doubling of freight movement by 2035. He also stressed (buttressed by the AASHTO Report) the importance of public-private partnerships to meet freight transportation challenges.

California currently works with both the Class 1 railroads and short line companies. It has also been in partnership with various governmental entities for specific projects which benefit freight rail. Perhaps the most notable project has been the Alameda Corridor project in Southern California where the State partnered with the Federal government, private sector railroads and local government agencies.

Although current and past initiatives have played a key role in developing and maintaining the system, other partnerships of this type must continue if projects, which benefit the State by relieving congestion and providing for the reduction of air pollution, are to continue.

POLICY STATEMENT NO. 6: PARTNERSHIPS

To foster the maintenance, preservation, and improvement of the State freight rail system, its planning and development must be undertaken as an ongoing partnership between the State and other levels of government, and the freight railroads with other private sector interests. This partnership should seek to maximize mutual benefit, including public mobility, safety, and environmental objectives, and private sector business opportunities and return on investment.

The close cooperation between California's railroads and the public sector, fostered by the development of the Strategic Growth Plan, Proposition 1B and its Trade Corridor Improvement Fund, and the development of the BTH/CalEPA Goods Movement Action Plan, in developing the State rail system is a significant departure from past practices. This requires a strong, significant partnership be built and maintained on these issues among the parties. How the projects funded under the TCIF will be administratively handled is also a concern. The question is then essentially, how does such a partnership be developed?

Fortunately, there are programs in several other states that California's program can be modeled after. The Pennsylvania Department of Transportation (PennDOT) Rail Freight Assistance Program (RFAP) provides financial assistance for investment in rail freight infrastructure. The intent of the Program is to (1) preserve essential rail freight service where economically feasible, and (2) preserve or stimulate economic development through the generation of new or expanded rail freight service.

The PennDOT Bureau of Rail Freight is charged with the administration of monies allocated through the RFAP. Financial assistance is available on a matching grant basis to railroad companies, transportation organizations, municipalities, municipal authorities and users of rail freight infrastructure. The process and organization of this program might be something that could be used as a template in California.

CHAPTER XV
SYSTEM OVERVIEW

NETWORK DESCRIPTION

California is an important ingredient in the national freight rail system. In 2005, California railroads operated over 7335 miles of track, carried 7,124,010 carloads of freight with a weight totaling over 173 million tons. They employed more than 10,000 workers, who had an average compensation of over $93,000. As well as providing access points for international imports and exports California is a large freight rail market itself. Freight traffic consisted of a mosaic of goods, and included a range of mixed freight, agricultural and food products chemicals metal, building materials and timber.

General information about this network, and the commodities that are moved, are shown in the information sheets following.

The two Class 1 railroads in California (those having revenues of at least $319.3 million) are the BNSF Railway (BNSF) and the Union Pacific (UP). These two roads have extensive rail networks connecting California with the rest of the nation, particularly corridors to the Southwest, Midwest and Northwest. Including trackage rights, these two railroads operate over a total of 5,488 miles in the State. They are complemented by service on a number of other railroads. These include one regional railroad, which serves Oregon as well as a small segment in northern California (52 miles), 15 short line railroads that operate over a total of 1,285 miles of track, and 11 switching and terminal railroads operating over a total of 510 miles of track.

ECONOMIC SIGNIFICANCE TO THE STATE

Railroads provide service to California, but also play an extremely important role in both the United States. and the global economy. As well as serving the rest of the nation with the important corridors of the Class 1 railroads, they serve the import and export markets for a large number of Pacific Rim countries, particularly the booming economies of East and Southeast Asia. Approximately 45 percent of intermodal traffic entering or leaving the U.S. passes through California ports, especially the port complexes of Los Angeles/Long Beach and Oakland in Northern California. Indeed, when considering the container volume throughput of major international container ports, when combined the container volume of Los Angeles/Long Beach would rank fifth among international container ports and standing alone they rank 10 and 11.

Figure 15A

Railroad Service in California 2005

Railroad Service and Employment

Facilities	Number of Freight Railroads	29
	Miles Operated (Excluding Trackage Rights)	5,791
Traffic	Total Carloads of Freight Carried	7,124,010
	Total Tons of Freight Carried	173,011,035
Employment and Earnings	Rail Employees Living in State	15,189
	Freight Employees Only	10,282
	Total Wages of Rail Employees	$1,015,621,000
	Freight Employees Only	$694,183,000
	Average Per Freight Rail Employee:	
	Wages	$67,500
	Fringe Benefits	$25,800
	Total Compensation	$93,300
Railroad Retirement	Railroad Retirement Beneficiaries	30,190
	Railroad Retirement Benefits Paid	$437,948,000

Freight Railroad Traffic in California

Tons Originated 2005

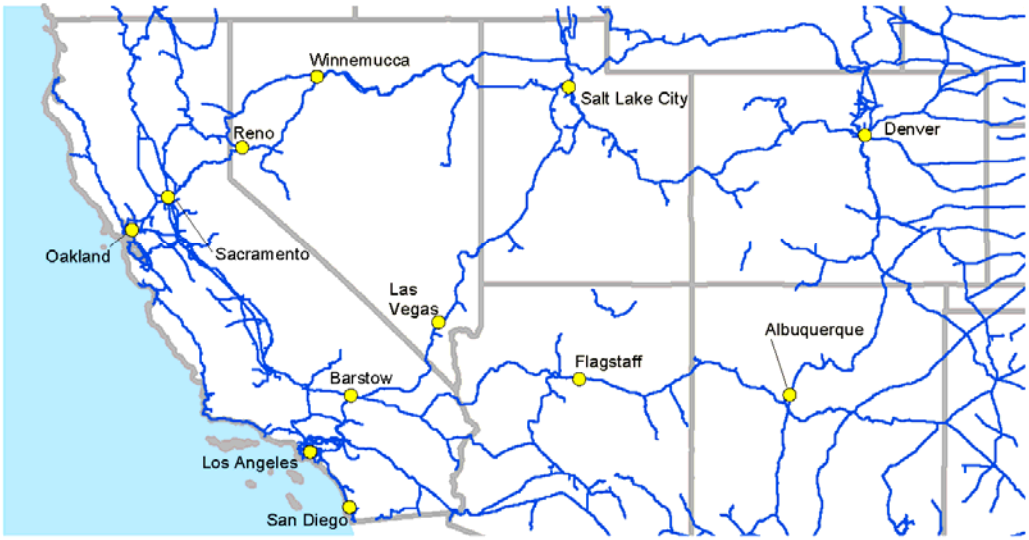
	Tons	%
Mixed Freight*	34,753,200	51%
Food Products	6,594,248	10
Glass & Stone Products	4,033,412	6
Chemicals	3,469,774	5
Primary Metal Products	3,027,550	4
All Other	15,894,592	23
Total	67,772,776	100%

Tons Terminated 2005

	Tons	%
Mixed Freight*	26,809,400	25%
Farm Products	11,828,537	11
Food Products	11,467,464	11
Chemicals	11,075,114	10
Lumber & Wood Prod.	8,848,240	8
All Other	38,466,090	35
Total	108,494,845	100%

*Predominantly intermodal; some intermodal is also included in commodity-specific categories.

Railroad Map of California



Rail network based upon 2006 National Transportation Atlas Database published by the U.S. DOT, Bureau of Transportation Statistics.

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Figure 15B

Freight Railroads Operating in California 2005

	Miles of Railroad Operated in California
Class I Railroads	
BNSF Railway Company	2,130
Union Pacific Railroad Co.	3,358
	5,488
Regional Railroads	
Central Oregon & Pacific Railroad	52
	52
Local Railroads	
Almanor Railroad	13
Arizona & California Railroad Co.	133
Carrizo Gorge Railway Inc.	80
McCloud Railway Co.	100
Modoc Northern Railroad Company	93
Northwestern Pacific Railway Co., LLC	316
San Diego & Imperial Valley Railroad	41
San Joaquin Valley Railroad Co.	310
Santa Maria Valley Railroad	14
Sierra Northern Railway	99
Stockton Terminal & Eastern Railroad	25
Trona Railway Co.	31
Ventura County Railroad Company	13
West Isle Line, Inc.	5
Yreka Western Railroad	12
	1,285
Switching & Terminal Railroads	
California Northern Railroad	247
Central California Traction Co.	54
Lake County Railroad	41
Los Angeles Junction Railway	65
Modesto & Empire Traction Co.	32
Napa Valley Railroad Co.	21
Oakland Terminal Railway	6
Pacific Harbor Line, Inc.	21
Quincy Railroad	3
Richmond Pacific Railroad Corp.	10
Santa Cruz, Big Trees & Pacific Railway	10
	510

California Totals	Number of Freight Railroads	Miles Operated: Excluding Trackage Rights	Miles Operated: Including Trackage Rights
Class I	2	3,993	5,488
Regional	1	52	52
Local	15	1,271	1,285
Switching & Terminal	11	475	510
Total	29	5,791	7,335

Rail network based upon 2006 National Transportation Atlas Database published by the U.S. DOT, Bureau of Transportation Statistics.

Class I Railroad - As defined by the Surface Transportation Board, a railroad with 2005 operating revenues of at least $319.3 million.
Regional Railroad - A non-Class I line-haul railroad operating 350 or more miles of road and/or with revenues of at least $40 million.
Local Railroad - A railroad which is neither a Class I nor a Regional Railroad and is engaged primarily in line-haul service.
Switching & Terminal Railroad - A non-Class I railroad engaged primarily in switching and/or terminal services for other railroads.
Note: Railroads operating are as of December 31, 2005. Some mileage figures may be estimated.

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CHAPTER XVI
MAJOR FREIGHT ISSUES

SIGNIFICANT TRENDS

INTERNATIONAL TRADE GROWTH

Trade has made California a global powerhouse. With a gross state product of nearly $1.5 trillion, and more than one in 12 Californians employed in export supported jobs, California is an example of free trade at work. Nearly 20 percent of all foreign trade passes through California, totaling $436 billion in goods for the year ended 2006. Foreign trade through the Ports of Los Angeles and Long Beach is expected to triple by the year 2030. California trade and exports support more than one million jobs in the state, and a half-million are tied directly to foreign investment.

Strategically located astride the Asian Pacific-American trade route and linked to Latin America through regional free trade agreements, over the past decade California businesses and workers have led the nation in trade-related growth. Whether it be California high-tech products, films or agriculture, the state competes and wins when free trade provides new markets. Expanding global trade means economic growth for California and America.

Freight rail, in partnership with the trucking industry, provides intermodal transportation connecting California seaports with inland producers and consumers. It serves the State's seaports and facilitates international trade. Freight rail also carries 16 percent of the nation's cross-border NAFTA trade. Intermodal freight-rail service is crucial to the global competitiveness of California industries. It provides the long-distance, line-haul component of truck-rail intermodal moves. Rail is critical to the competitiveness of many industries and the economies of many states, especially in California.

Total U. S. domestic and international freight tonnage will increase by 67 percent by 2020, and California will be seriously impacted by this increase. At current investment levels, the railroad industry would have difficulty absorbing its share of this growth. In the worst case, freight rail would carry the same volume of freight in 2020 as it carries today. This would shift almost 900 million tons of freight and 31 billion truck vehicle-miles-of-travel to the highways, costing shippers
$326 billion, costing highway users $492 billion, and adding $21 billion to highway costs through 2020. In the best case, freight rail would carry a larger percentage of freight tons in 2020 than it carries today (e.g., 17 percent in 2020 compared to 16 percent). This would shift 600 million tons of freight and 25 billion truck vehicle-miles-of travel off the highway system, saving shippers

$239 billion, saving highway users $397 billion, and reducing highway costs by $17 billion.

With the world's eighth largest economy and the distinction of being the place where one out of eight persons in the United States calls home, California's 37.1 million people require a labyrinth of roads, railways, seaports, airports, and distribution centers to deliver the food, the clothing, and the essentials of daily life. By 2020, the net addition of another seven million people, the equivalent of adding the current population of the state of Virginia, creates additional challenges to meet the State's own goods movement needs.

The economic benefits to California and the rest of the nation from Pacific Rim trade are substantial. In the Los Angeles area alone, international trade created 45,500 jobs in 2005, bringing the annual average employment to 450,100. Economic benefits in terms of lower prices and higher productivity; equity benefits for logistics workers who meet growing demand for higher skills and move up the occupational ladder; and, environmental benefits from improved efficiency, reduced waste, and bottlenecks in supply chains based on investments in transportation and trade infrastructure.

If combined the Ports of Los Angeles and Long Beach would be the world's fifth largest seaport. Combined with the Port of Oakland, which is the fourth busiest seaport in the Nation, these three seaports handle more than 40% of all International, primarily Pacific Rim, containerized cargo shipped to the U. S. These seaports rely heavily on freight rail to move a significant portion of the 16.6 million TEUs, which came to these ports in 2006. The Ports of Los Angeles and Long Beach are projecting annual volume growth of 7% per year, while Oakland is expecting 4% per year volume growth.

However, there are significant challenges requiring action. California's anticipated population increase, and its geographic position as a gateway to the Pacific Rim, is inevitable drivers of goods movement growth. The expansion of trade in California is not a matter of choice.

To meet these challenges, billions of dollars of investment in California's ports, rail networks, and highways will be needed to add capacity and reduce congestion. Most of this investment will center on the State's four "port-to-border" goods movement corridors: Los Angeles-Long Beach/Inland Empire, Bay Area, San Diego/Border, and Central Valley. These corridors have built up over decades encompassing large complexes that facilitate ship to rail, ship to truck, and truck to rail exchanges to move millions of containers per year to their ultimate destinations.

The table on the next page illustrates some of the significant proposed freight rail projects that could help overcome the challenges facing California's goods

movement system, accommodate international trade and also benefit the rest of the Nation.

THE CHANGING NATURE OF RAIL FREIGHT MOVEMENTS/ COMMODITIES

Rail provides three basic types of freight service: bulk unit train, mixed carload, and intermodal (container, trailer, and automobile). These services differ in their markets, operations, and contributions to California and the nation's freight transportation system.

Bulk Unit Trains

Bulk unit trains move very high volumes of a single commodity such as coal, grain, minerals, and waste. In California, all of these commodities with the exception of coal are move. (Intermodal containers and specialized automobile carrier cars are frequently made up into unit trains; these are addressed in the discussion of intermodal service.) Commodity flows tend to be one-way; cars (usually hopper cars) move loaded from shipper to receiver and are returned empty from the receiver to the shipper. Commodity flows tend to be "door-to-door," moving from shipper to receiver entirely by rail. Bulk unit train commodities are highly sensitive to transportation cost because they are heavy but, like coal and grain, relatively low in value. Unit trains provide the efficiencies needed to move these commodities cost-effectively. This is accomplished through:

- Long trains (up to one and one-half miles) of rail cars moving along mainline corridors, which allows economies of scale in operation (less handling cost, more efficient utilization of locomotives, greater fuel efficiency, etc.);
- Uniform composition (usually a single commodity and railcar type), which simplifies the collection and distribution of railcars along feeder lines; and
- Customers who tend to produce or consume large quantities of these materials, reducing the number of origins and destinations that need to be served.
- Unit train flows tend to occur along well-defined, high-density corridors, rather than clustering at major urban rail hubs.

Figure 16A

Examples of Key Required Freight Rail Projects in California

Project Title	Project Cost (In thousands)	Corridor	County
Port of Los Angeles/Burlington Northern Santa Fe, "Southern California International Gateway" Near Dock Facility	$200,000	I-710	Los Angeles
Ports of Los Angeles and Long Beach/ Union Pacific, Near Dock Intermodal Container Transfer Facility Completion	$300,000	I-710	Los Angeles
Burlington Northern Santa Fe/Union Pacific, Colton Crossing Grade Separation	$180,000	I-10	San Bernardino
Union Pacific, Colton Flyover	$100,000	I-10	San Bernardino
Port of Oakland, Outer Harbor Intermodal Terminal	$325,000	I-80	Alameda
Union Pacific, Oakland to Richmond, Capacity Improvement Project	$78,000	I-80	Alameda Contra Costa
Burlington Northern Santa Fe, Tehachapi Pass Double-Track, Tunnel Modification	$82,000	SR 58 (I-5)	Kern
Union Pacific, "Central Corridor" Double Track, Tunnels Modification	$90,000	I-80	Nevada
Totals	**$3,266,000**		

Mixed Carload

Mixed carload trains move a diverse range of commodities, including chemicals, food products, forest products, metals, auto parts, waste, and scrap. Again, all of these products are either imported or exported to California, and in large quantities. Rail carload equipment includes liquid-bulk tank cars, open flatcars, hopper cars, and traditional boxcars. (Intermodal containers and specialized automobile carrier cars can also be handled as carload traffic; these are addressed in the discussion of intermodal service.) Like bulk unit trains, carload traffic tends to be one-way – loaded to the receiver, empty back to the shipper.

Most carload traffic is door-to-door, although smaller customers without direct rail access or those who need less-than-carload quantities can be served by combined carload-truck services.

"Transload" facilities accommodate the transfer of non-flowing materials (e.g., lumber, sheetrock, etc.) from carload to truck using conventional methods (e.g., forklifts, cranes, etc.). Similarly, "transflow" facilities accommodate the transfer of liquid or "flowing" materials (e.g., oils, plastic pellets, bakery flour, etc.) from carload to truck using very specialized pumping equipment. Transload and transflow commodities are moved from the shipper's factory to a rail yard or siding near the receiver, then moved the final miles by truck for "just-in-time" use by the receiver. Carload generally serves heavy products that are sensitive to transportation costs. However, it can be more difficult to achieve economies of scale with carload traffic than with unit-train traffic because carload service involves a much higher degree of handling and management.

Carload trains typically are not uniform in composition. They include a variety of railcar types, each of which must be collected from and distributed to specific customers. On a unit train, one hopper car full of grain or minerals is the same as any other. But on a carload train, each car is an individual shipment. Moreover, many cars are privately owned or in "sequestered" or dedicated service and therefore not interchangeable and available for use by other customers. The variety of car types and commodities increases administrative and physical-handling costs compared to unit train service.

Carload train lengths vary greatly by intercity corridor and market, reflecting the different mixes and volumes of commodities moving between markets. The railroads collect many different types of cars from many different customers, classify and marshal them into long consists for the intercity move, and then break them into shorter consists for the final delivery. The railroads depend on a complex hub and spoke network to move consists and individual cars through the system. The shorter the intercity corridor and the more complex the mix of car and commodity types, the more difficult it is to achieve economies of scale in carload operations.

Carload customers are more diverse than unit train customers. Carload users range from large customers generating hundreds of carload shipments a week to small customers receiving a handful of carload deliveries a month. The mix of large and small customers and the wide geographic distribution of origins and destinations make it difficult to handle all shipments profitably. For example, CSX estimates that it is three times more expensive on a per-car basis to serve a low-density customer than to serve a high-density customer. Carload traffic flows are far more dispersed than unit train flows.

The carload network is centered on the nation's key urban railroad hubs (e.g., Chicago, St. Louis, Kansas City, Memphis, Houston, and Dallas) with major corridors running north-south and east-west. Traffic densities on the major corridors are similar, but the mix of commodities varies (e.g., chemicals from Houston to Chicago; lumber from Portland to Chicago; and in California food

products from the San Joaquin Valley to Chicago). In 2000, carload trains carried 783 million tons over 236 billion ton-miles. This is the equivalent of 20.1 billion truck miles. However, within the commodity groups served by carload, rail captures just seven percent of the tonnage, compared to 93 percent for truck and water. Rail continues to seek ways to grow its share of mixed carload business, but to compete more effectively with trucking, it will need to increase its door-to-door reliability, lower its operating costs, and increase its overall handling speed.

Intermodal (Container, Trailer, and Automobile)

Intermodal trains move truck trailers and containerized goods containing finished consumer goods, refrigerated foods, parts and tools for manufacturing, raw materials, post-consumer scrap – almost anything that can be packed into a container or truck trailer. Rail shipments of automobiles are also treated as intermodal traffic since they share many of the characteristics of intermodal merchandize (e.g., high-value, time-sensitive, etc.) and are handled in a similar manner. However, the railroads usually market and account for automobile traffic as a separate service. Unlike unit train and carload traffic, intermodal traffic is typically two-way. Through California the BNSF moves more intermodal volume than any other Class I Railroad in North America, the UP also handles a similarly significant volume of intermodal traffic through the State.

Imported international containers may move inland from a seaport, be unloaded, and then reloaded with export cargo (if available) or with purely domestic cargo (taking advantage of discounts offered by the railroads and container owners) for the "backhaul." Similarly, auto trains may arrive at a port with export vehicles and depart with import vehicles.

Intermodal containers come in a variety of shapes and sizes. They range from 20-feet to 53-feet long and from 8-feet, 6-inches high to 9-feet, 9-inches high. International container volumes are measured in 20-foot equivalent units, or TEUs. A 20-foot container is counted as one TEU, and a 40-foot container is counted as two TEUs. The 40-foot container is the most common type used in waterborne transportation. Domestic containers typically are 48- or 53-feet long, and are modifications of standard over-the-road truck trailers. The contents of three
40-foot containers will fit into two 53-foot containers, thus eliminating costs associated with transporting an extra 40-foot container. That is, the cost to ship a 53-foot container is the same as shipping a 40-foot container. So transloading three 40-foot containers into two 53-foot containers provide a major economic benefit to shippers. This is also beneficial in terms of fewer truck trips generated on the highways, which reduces roadway damage, and creates fuel savings, safety, congestion and environmental benefits.

Standard truck trailers also appear in intermodal service in sizes ranging from 28- to 53-feet long. In the year 2000, 51 percent of intermodal traffic was in

international containers, 23 percent in domestic containers, and 26 percent in truck trailers. Truck trailers and containers are handled on railcars in a variety of ways:

- Container-on-Flatcar (COFC) Containers are placed directly on standard flatcars. A 90-foot flatcar will accommodate up to four TEUs.
- Trailer-on-Flatcar (TOFC) Over-the-road trailers or containers mounted on truck chassis are placed directly on flatcars. Standard flatcars accommodate one or two units; specialized spine cars take up to five.
- Double-Stack Containers are placed two-high, one on top of the other, in a special low-profile "well car." Well cars may accommodate as few as two containers, or as many as 10 containers depending on their length (e.g., 45-foot, 48-foot, or 53-foot containers can be stacked on top of two 40-foot or two 20-foot containers). By stacking the containers, railroads can double (or more than double) the number of containers carried on a train, improving productivity and effective capacity, and reducing unit costs.

Automobiles are generally carried in specialized railcars that accommodate either two or three levels of vehicles. The vehicles are driven onto and off of the railcars. Both the "bi-level" and "tri-level" auto carriers have high vertical profiles and require overhead clearances similar to double-stack container traffic. In one typical movement, autos are loaded at the production plant, taken to an unloading ramp where they are driven off and parked, and then are reloaded onto auto-rack trailers for final highway delivery by truck to dealerships. Another typical movement is movement between marine terminals and inland consolidation/distribution facilities or "mixing centers."

Intermodal service accommodates higher-value, lower-weight commodities than unit train or carload services. The service offers faster speeds, higher train frequency, better schedule reliability, and more visibility en route – albeit at a higher price – and is competitive with door-to-door trucking over longer distances (generally starting at 400 to 500 miles, depending on the equipment and corridor). The most efficient and cost-effective intermodal service is the unit train, which is the preferred method for serving high-volume corridors. Intermodal railcars can also be handled in combination with carload traffic, as part of mixed merchandise trains. Although this can be costly, especially on routes that provide overhead clearance for single-stack intermodal cars only, it allows intermodal service to reach lower-volume customers.

More than any other rail service, intermodal depends on partnerships with trucking companies, seaports, and others in the transportation logistics chain. Each container or trailer or set of automobiles is an individual shipment, and there are a vast number of origins and destinations to be served. In response, both railroads and truckers have recognized that the best approach to this market is to let each mode do what it does best. Railroads handle the long-haul movement of

large quantities of containers and trailers between major hubs such as seaports and major population centers, while truckers handle the short-haul movement to/from the customer's "front door."

For example, merchandise manufactured and packed in a container in China may be imported to the United States through the Port of Long Beach, trucked to the nearby intermodal container transfer facility, loaded onto a double-stack unit train, moved by rail to Chicago, transferred across town by truck from a western railroad to an eastern railroad, moved by rail to north Jersey, transferred to truck, taken to a nearby distribution center where the contents are transferred to smaller trucks, and finally delivered by van to a customer in Brooklyn. This type of international move, where rail is used to complete a journey begun via water, is loosely called a "landbridge" move.

Much of intermodal traffic is in higher-value consumer products and in import-export traffic. This creates two distinct patterns: high demand for suitable railcar equipment leading up to and during seasonal shopping periods; and the concentration of intermodal rail traffic along a relatively few, high-density corridors connecting the nation's leading container ports and its primary consumer markets. The most significant flows are from the west coast container ports of Long Beach, Los Angeles, Oakland, Portland, Tacoma, and Seattle through Chicago to New York and northern New Jersey.

In the year 2000, intermodal trains carried 199 million tons over 421 billion ton-miles. This is the equivalent of 16.2 billion truck miles. While not nearly as high as the figures for unit train and carload, these are significant numbers. Within the commodity groups served by intermodal, rail handles over 16 percent of the tonnage, which is twice the figure for carload, indicating a deeper penetration by rail into this market. Intermodal has been one of the fastest-growing segments of the rail industry.

LOGISTICS PRACTICES

In the past two decades, passenger and freight movement over the nation's transportation system have increased dramatically. Vehicle-miles-of-travel by passenger cars and trucks grew by 72 percent while road-lane-miles grew by only one percent. Over the same period, ton-miles of freight moving over the nation's railroads increased by 55 percent while system mileage actually declined. The factors that have driven this growth in freight movement in the past two decades are growth in population, domestic production, international trade, and transportation-intensive production and distribution logistics.

Between 1970 and 2000, the U.S. gross domestic product (GDP) increased from $3.5 trillion to almost $9 trillion – an increase of 250 percent. Over the three decades, growth in GDP averaged 3.2 percent per year. During this same period, international trade in goods and services increased from $350 billion (equivalent

to 10 percent of GDP) to over $2.4 trillion (equivalent to 27 percent of GDP) – a sevenfold increase.

The three components of total logistics expenditures are administrative cost (management, insurance, warehousing, etc.), transportation cost (purchase of transportation services), and inventory carrying cost. Between 1978 and 1998, the government's economic regulation of the airline, trucking, railroad, and ocean shipping industries was reduced sharply. As competition increased, transportation firms were consolidated, merged, and restructured; operating networks were expanded; and freight rates were cut. Investments were made in larger trucks, double-stack trains, and mega-containerships; satellite communication and GPS vehicle-location systems were installed in trucks, trains, and ships; and new and better coordinated intermodal services were introduced.

Shippers took advantage of the lower freight rates and improved services to adopt new, **just-in-time** logistics strategies. Just-in-time operations allow businesses to substitute lower-cost transportation for high-cost inventory, achieving huge reductions in inventory carrying costs, and benefiting shippers, consumers, and the economy. Just-in-time logistics involves a shift from **push** to **pull** logistics systems — **from manufacture-to-supply** or inventory-based logistics to **manufacture-to-order** or replenishment-based logistics.

In a **push system**, suppliers push materials to a manufacturer, who pushes the completed product to a distributor, who supplies the retailer, who fills the customer's order. Each maintains an expensive inventory of parts and products as a buffer against fluctuations in supply and demand.

A **pull system** relies less on expensive inventory and more on accurate information and timely transportation to match supply and demand. Input materials are received just prior to production, and as little finished product as possible is maintained in inventory. Point-of-sale data are used to pull products through a system that may involve two or three tiers of suppliers; a manufacturer that has spun off design and marketing functions to other firms; and a third-party logistics provider who coordinates the movement of parts and products to distributors or directly to customers.

Where the **push model** places a premium on fixed assets such as warehousing, the **just-in-time pull model** places a premium on the reliability and timeliness of the transportation system and substitutes time spent in the transportation network (highway, railway, ship, etc.) for time spent in the warehouse. But warehousing and distribution centers still play a major role in pull logistics. Businesses such as Wal-Mart, Home Depot, Target, and K-Mart import huge amounts of cargo through international seaports, move them to major regional distribution centers, and then to satellite distribution centers and local outlets as needed. California has many such centers located strategically through the State. These centers are

primarily in the Inland Empire and Greater Los Angeles areas, and also in the Central Valley and San Francisco Bay Area regions.

The big change has been in the efficiency of these warehousing operations, in terms of reduced inventory time, improved management and operations, and improved connections within the freight transportation network. The past decade has seen substantial growth in the development of very large warehousing centers on the urban periphery, far enough out that land is less expensive, yet near enough and well-served enough by highway and rail to effectively serve major population centers. For example, major warehousing clusters have emerged in central New Jersey (to serve the New York/North Jersey market) and in the Harrisburg/Lancaster area (which is well-positioned to serve New York, Philadelphia, Wilmington, Baltimore, and Washington).

Similar warehousing clusters have developed in the Greater Stockton/Tracy area and are serving such facilities as the New United Motor Manufacturing, Inc (NUMMI). NUMMI is the pioneering joint venture of General Motors Corporation and Toyota Motor Corporation. Established in Fremont, California, in 1984, NUMMI helped change the automobile industry by introducing the Toyota Production System and a teamwork-based working environment to the United States. NUUMI has made a recent business decision to have all of their manufacturing suppliers move to the Stockton/Tracy are so that they may be better served. This includes partners from the U. S. Midwest and also from Japan. Talks are currently underway to create rail served facilities in the Stockton/Tracy areas for NUUMI and its partners. Warehousing clusters have occurred and will continue to occur throughout various strategic locations in the State and will need freight rail services

E-commerce benefits pull systems because it allows customer orders to be communicated directly to distributors, manufacturers, and suppliers. Fulfillment of e-commerce and mail orders depends on door-to-door transportation of parcel and express packages directly to the customer, increasing demand for small shipments that would otherwise get picked up at a store by the customer. Business use of express delivery services such as Federal Express and UPS, which place a premium on reliability, speed and visibility, has also contributed to the explosive growth of package and parcel traffic. Federal Express and UPS maintain vast warehouse and distribution centers supporting their operations. They rely heavily on air and truck, although UPS also uses intermodal rail.

Pull systems are tremendously efficient. They can produce what the customer wants and deliver it when the customer wants. By reducing the time between manufacture and sale, businesses can be more certain about how much they should produce and the cost of carrying extra inventory of expensive parts and products. However, pull logistics systems place tremendous demands on the transportation system. Shippers operating manufacture-to-order and time-definite-delivery

systems must have reliable, timely, and visible door-to-door freight transportation. Shippers increasingly send frequent, smaller shipments rather than fewer larger ones, multiplying the opportunity for something to go wrong. An accident, congestion, labor disputes, storms – even unanticipated spikes in supply and demand – can unravel these tightly strung systems. Overall logistics systems capabilities are growing simultaneously more robust and more fragile.

The armed forces also are adopting pull logistics techniques and integrating their logistics systems with commercial freight systems to reduce deployment time and cost. Under peacetime conditions, the military is just another very large shipper. But with its new doctrine of rapid response, future wartime military deployments will likely occur as short, sharp surges. Large-scale deployments will stress the freight transportation system and could disrupt the tightly strung logistics networks of civil commerce and defense industry production.

Shippers and the economy have benefited from these changes, but they are far more reliant on timely, reliable freight service than they were 20 or 30 years ago. The consequences of service failure today matter far more than they did in the past. Service failures today mean: depletion of critical materials and stocks; degraded product quality – from rapid (days) to immediate (hours); idled workers, equipment, and customers; loss of market share and profits; and an increasing risk that failures in one part of the chain will ripple through more than one firm and more than one business sector.

Therefore, it is not surprising that the freight transportation modes offering the highest levels of service are also growing the fastest. Air cargo has grown by 17.9 percent annually; truck by 6.9 percent annually; and rail intermodal by 4.6 percent. Rail carload and bulk grew just 1.4 percent annually, while domestic waterborne trade declined by 0.5 percent annually.

However, the productivity returns from deregulation, the capacity investments made in the 1970s and 1980s, and the introduction of just-in-time logistics are diminishing. There are relatively few opportunities for further economic deregulation. Congestion is increasing; the impact is most noticeable in metropolitan areas where peak-period travel times have risen significantly and travel-time predictability has dropped. After two decades of improvement, total logistics costs appear to have stalled at 10 percent of GDP, and there are some indications that costs – especially wages, insurance, and fuel costs – are beginning to rise again. These trends are expected to continue into the coming decades, suggesting that it is time to think about new strategies to meet the nation's freight transportation needs in the 21st century.

OPERATIONAL CONFLICTS: PASSENGER/FREIGHT; FREIGHT/FREIGHT

SHARED USE OF RIGHTS-OF-WAY

In many areas of the State, passenger services share rail rights-of-way (ROW) with freight railroads. For both passenger and freight railroads sharing a ROW, 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.

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 ROW includes:

- State-sponsored Amtrak intercity service routes: *Pacific Surfliner*, *San Joaquin*, 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. For example, in 2004, Metrolink trains operated on time 95 percent of the time on Metrolink controlled trackage. On the tracks owned by UP and BNSF, Metrolink trains operated on time 70 to 85 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 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

There are operational conflicts between the Class I railroads themselves. These conflicts, when combined with those arising from shared use of the right of way, create additional capacity constraints for both the passenger and the freight rail

systems. For example, five Class I rail segments have joint freight train operations.

Three segments are owned and dispatched by the UP:

- The UP Sacramento and Canyon Subdivisions between Stockton and the Nevada State Line via Sacramento and the Feather River Canyon.
- The UP Martinez and Roseville Subdivisions between Oakland and the Nevada State Line via Donner Summit.
- The UP Mojave Subdivision between Bakersfield and Mojave.

Two segments are owned and dispatched by the BNSF:

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

As priority will typically be given to the actual owner of the right of way, tenant rail operators (passenger or freight) will be delayed, leading to system bottlenecks. Geography can also lead to delays, such as those experienced by train sets navigating the Tehachapi Pass in Southern California.

FRESNO RAIL CONSOLIDATION

Currently, both UP and BNSF operate freight service through the City of Fresno. There is considerable public support to consolidate both rail lines onto the UP rail corridor to the west of downtown Fresno. Many important issues need to be resolved including how to service existing freight customers, operational questions and optimal track structure required to accommodate the increased traffic on the UP. A study by the Fresno Council of Governments determined that consolidation of the two lines is technically and operationally feasible but at a very high cost.

MAJOR ISSUES FOR CALIFORNIA RAIL SHIPPERS

The Department participated in a study entitled the Western Transportation Trade Network (WTTN) in the 1990s, which surveyed 53 shippers in 13 western states for their perspectives on Class I railroad performance. 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), 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 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.

Although the report is some years old its basic findings are still relevant. An updated study is warranted to ensure that the most current information is available for use by the public and its decision-makers.

Freight transportation is the foundation of economic development and regional, national, and global trade. As the freight rail system is improved, the commuter and passenger rail systems also are improved and help relieve congestion on the highway system.

SHORT LINE RAILROAD ISSUES

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 27 short line and regional railroads in California today. Most of them are privately owned and employ between ten and 50 employees. 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. The latter figure would suggest that short lines with operating costs higher than revenue have other income sources such as income from rental property or lease income from placement of utilities in their rights of way.

INTERFACE WITH CLASS I RAILROADS

The short-lines are formed from competitive bids for track spun off by larger railroads, and the relatively high purchase prices that result can bring with them significant capital costs. In addition, the lines contend for traffic in mature markets against other rail as well as trucking alternatives. The central issues for the short-lines are two forms of dependence: on Class I connections for their market viability, and on carload traffic for their baseload volume. As Class I systems demarket the carload freight – or simply as its market share continues to decline – short-line roads are threatened with marginalization. Although creative

marketing, efficient operation and financial support can help, the crucial requirement will be the profitable handling of carload traffic for the Class I roads.

Short line interface with the Class I Railroads in California, the Union Pacific Railroad (UPRR) and Burlington Northern Santa Fe Railway (BNSF), is at times problematic. Interface in this case meaning pick up and delivery of mostly mixed carload commodities. In conversations with the California Short Line Railroad Association (CSLRRA) they state that the Class Is for the most part provide relatively good service and that to say there's a larger problem in California is not quite accurate. The Class Is are generally not geared towards providing the same service level to all customers, so generally speaking the smallest customers don't get quite the same level of service as larger customers who provide regular, predictable, larger volumes.

TRACK INFRASTRUCTURE CAPABILITY

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 and in some cases to 315,000 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 I railroads.

Without the necessary infrastructure, many of the commodities moving by rail today have to be hauled by trucks to and from transload facilities located at major railroads. This shift from short line rail to trucks will further congest the State's highway system, create more traffic delays, and increase air pollution and highway maintenance costs. The loss of revenue to short line railroads could force some to go out of business leaving some California rail shippers without rail services. The additional truck transportation costs will have to be passed on to consumers, making goods more costly to purchase.

CAPITAL AVAILABILITY

Securing adequate funding for infrastructure upgrades and other capital investments is the most pressing issue for independently owned and operated short lines. Some short line railroads were spin-offs from the Class I railroads and were already suffering from years of deferred maintenance when created. Maintenance-of-way procedures on these railroads typically are highly labor intensive and expensive. Because short line railroads operate on low profit margins they are unable to take on major infrastructure improvement projects. The major freight railroads are pursuing such strategies as legislation to allow them to claim tax credits for infrastructure and equipment investments. They believe that the current system, which limits or prohibits this, places them in an unfair competitive advantage compared to others in the goods movement sector.

The California Short Line Railroad survey is being compiled at present and the results will be available for the October 2007 Final Rail Plan. (See Appendix)

RAIL SYSTEM PRESERVATION

Construction of the nation's rail network started in 1828. The system expanded rapidly in the late 1800s and early 1900s. System mileage peaked in the 1920s, at approximately 380,000 miles of track. Since that time, the rail network has been modernized, rationalized, and downsized to a core network whose route system is descended directly from its 19th century design. The Class I railroad system today has 172,000 miles of track, less than half the number of miles it had in the 1920s. The reduced size of the California and nation's freight-rail network is the result of two factors: competition with the trucking industry and deregulation. As private businesses face stiff rate competition from trucks and shareholder pressure to generate profits, the nation's major railroads have disinvested in lines and services with insufficient traffic density to adequately cover operating and maintenance costs.

California's two Class I railroads have some 5,488 miles of track. Total active track miles (including short line railroads) are 7,335 miles. To improve productivity and profitability and maximize available capacity the railroads have invested in double-stack cars, larger hopper and tank cars, and higher boxcars and auto-rack cars, which in turn require investment in high-clearance tunnels, higher-weight-capacity track, and stronger bridges. The high cost of these improvements has limited railroads to upgrading only the highest volume and most profitable lines. Other lines have been downgraded or abandoned.

Many states believe that freight-rail service is vital to their economies and have made freight-rail service, especially the preservation and retention of lower-density branch lines, a significant part of their economic development and transportation programs. Rail service also can act as a catalyst for redeveloping urban corridors and underutilized rail-served brownfields as "integrated logistics centers" – concentrations of rail-served warehousing, distribution, and manufacturing – with efficient rail and truck service.

Therefore, it is critical to keep an inventory of inactive, underutilized, and abandoned rail segments and rail corridors for possible increased and or future usages. While rail rights of way can be rail banked and saved for the future theoretically, in practice this almost never occurs. Rather, often rail is removed and the rights of way are then used for recreational purposes such as bike, horse or pedestrian trails, or are sought for purchase by real estate developers. Typically the rail will be removed and salvaged by the previous or new owners, for profit. One consequence of rail removal is that the right of way renewal for rail is subject to the public hearing and environmental review processes. Often public raises objections to restoring any type of rail service, the rail corridor is never again

restored, and is lost forever. If rail is not removed the public hearing and environmental review processes are not required.

TRUCK DIVERSION TO RAIL, SHORT-HAUL RAIL SHUTTLES

Interstate-5 is one of our nation's most heavily used routes for both automobile and truck traffic. Absent improvements, the Highway Performance Monitoring System (HPMS) projections of the year 2020 highway traffic for I-5 indicate level of service E and F for virtually the entire distance between San Diego and the San Francisco Bay Area, as well as for metropolitan Portland and Seattle/Tacoma.

The deteriorating condition of I-5 makes it even more imperative to consider strategies to improve the ability of the rail system to absorb freight traffic. The share of potential intermodal (containerized freight) rail traffic actually captured by intermodal rail is 17 percent. While this is better than many corridors, the fact that the average length of a truck haul in the corridor is 936 miles – a distance at which rail intermodal is highly competitive with truck – suggests there is room to improve on this share.

Failing to achieve the base case forecast would reduce rail tonnage by up to 43 percent and increase truck tonnage by up to 19 percent between the selected origin-destination pairs. Truck traffic in the corridor would increase up to 6.3 billion ton-miles, or 451 million truck miles traveled, in the year 2020. An approximately conversion of rail to truck is 2.2 truck trips are required to move one intermodal container (FEU), and 3.3 truck trips are required to move one car load of bulk freight.

ELEMENTS NEEDED TO SUPPORT SHORT HAUL INTERMODAL RAIL SERVICE

Foreign trade is a cornerstone of California's prosperity. Transportation of international containers is California's lifeline to foreign markets, but that lifeline is threatened. If importers and exporters must rely on increasingly congested freeways to move their goods, both their ability to compete and the state's ability to grow will be jeopardized. If that occurs these shippers will locate elsewhere. Short haul intermodal rail service can provide a solution that benefits the goods movement industry, and provides public benefits such as congestion mitigation, safety, fuel savings, reduced emissions and roadway preservation.

The Class I railroads are reluctant to use scarce capacity for low-revenue, short-haul intermodal moves if those moves displace higher-yielding long-haul business. In order to make the economics work for short-haul intermodal rail service the following elements must be present.

- To be attractive to the railroads, the service must either offer a comparable profit margin, arrange to augment capacity, or achieve some balance

between profit and capacity. An ongoing subsidy may be necessary to manage, market and operate the service.

- There must be inland intermodal freight and transload facilities that can be easily accessed and served by rail and trucks, close to where shippers have existing operations.
- Operation of night trains for shippers is crucial; it would allow for extended cutoff times and make it easier to load trains.

EXAMPLES OF SUCCESSFUL SHORT HAUL INTERMODAL RAIL SERVICE

Quincy, Washington Rail Transload Facility

This project created a transload facility where trucks and containers can be loaded on and off railcars. A 400-acre staging area for trains and trucks to transload their cargos was constructed, including double-stack train staging tracks, paving, fencing, lighting, and security. Construction was completed in April 2005 and was funded with $2 million in new and used vehicle sales tax monies and $3 million in federal funds.

Virginia Inland Port (VIP)

The VIP offers all services one would expect at a well-run port terminal; domestic and international train service six days a week provided by Class I railroad Norfolk Southern (NS), handling and warehousing, U.S. Customs, flexible operating hours and a chassis pool. The VIP provides an interface between truck and rail for the transport of ocean-going containers to and from The Port of Virginia. Containers arriving from Hampton Roads seaport terminals are railed to the VIP and then dispatched by truck to inland destinations. The current facility has some 40 acres of pavement, 17,820 feet of rail track and is located 220 miles inland from the Port of Virginia, which is comprised of the Ports of Newport News, Norfolk International and Portsmouth Marine Terminals.

Short haul rail shuttle service between the San Francisco Bay Area and San Joaquin Valley would greatly reduce truck trips over the Altamont Pass. Truck trips would also be reduced in the I5 and Highway 99 corridor between Stockton and Bakersfield. The two Class I railroads have been approached at different times with short haul proposals but as of yet have not offered to participate in any service. Similar short haul rail shuttle service has also been discussed with regard to the Inland Empire of Southern California but as of yet there is no service.

The primary issue is length of haul. The distance at which the economics become favorable for the large railroads is approximately 500 miles. Without a subsidy, short haul freight is not economically feasible for Class I railroads. With increasing congestion occurring in California the economics of short haul rail in the State may be on the horizon.

PUBLIC/PRIVATE SECTOR COORDINATION

Coordination between Caltrans, various Metropolitan Planning Organizations (MPO), Regional Transportation Planning Agencies (RTPA), Transportation Commissions, Tribal organizations, environmental organizations, private shippers, logistics firms, trucking firms, warehousing and distribution centers, the railroads, intercity rail organizations, and all stakeholders is critical to achieving a truly integrated and optimal freight rail system in California.

In Southern California, SCAG, SANDAG, SANBAG, RCTC, Gateway Cities COG, other various cities, counties, the Ports of Los Angles, Long Beach, San Diego, Hueneme, the BNSF and UP Railroads, various short line railroads, shippers, community groups and others all influence freight rail in that region.

In the California Central Valley, KernCOG, Fresno COG, StanCOG, SJCOG, Central Valley cities, counties, RTPAs, the BNSF, UP, and short line railroads, the agriculture industry, the Port of Oakland, SACOG and other similar stakeholders influence this region.

In the San Francisco Bay Area and Northern California, MTC, SACOG, the Port of Oakland, shippers, trucking firms, railroads, environmental organizations and similar stakeholders influence this region.

As one can readily see with regard to California, coordination between freight rail and goods movement stakeholders both public and private is extremely complex and dynamic. As a result of this coordination awareness of freight rail and goods movement issues has reached an apex.

Many projects and studies (appendix item) have come from this coordination but freight rail generally only gets funding if it is part of a passenger rail project, currently through the Caltrans Division of Rail. With the passing of the Proposition 1B Transportation Bond package, freight rail projects could be funded separately, but might also include a lesser passenger benefit.

CHAPTER XVII
ENVIRONMENTAL CONSIDERATIONS

OVERVIEW

California's goods movement system performance depends upon a robust freight rail network. In addition to imports, railroads haul freight generated in California that is either exported or consumed within the state. Railroads provide benefits in the form of access to jobs and a variety of products. But these benefits can be offset by serious health impacts related to goods movement. In communities adjacent to railroad and other freight facilities, cancer risk from nearby diesel sources is often significant and can, in some cases, exceed the regional background levels..

The transportation component of the *Strategic Growth Plan* is key to the Governor's vision to implement critical infrastructure improvements. California approved Proposition 1B to help fund, in part, improvements to both trade infrastructure and air quality. This includes $1 billion to reduce emissions from freight transportation activities statewide, for allocation by the California Air Resources Board (CARB) subject to conditions and criteria enacted in SB 88.

SB 88 created the Goods Movement Emission Reduction Program (GMERP) with the intent of the Legislature to reduce health risks associated with goods movement along California's trade corridors as early as possible. CARB is directed to prioritize funding for projects that reduce emissions in California's most heavily impacted communities in close proximity to freight transportation facilities where localized health risks are highest.

Projects eligible for GMERP funding include the replacement, repower, or retrofit of diesel locomotive engines, with priority given to switcher locomotive engines. The Legislature also passed AB 201 to amend SB 88 and ensure that emission reductions funded by the GMERP are not required under any existing agreements.

California's *Goods Movement Action Plan* (GMAP) is based on the Governor's vision of achieving "a Prosperous Economy, a Quality Environment, and Social Equity" while addressing the state's many infrastructure and environmental needs. CARB's *Emission Reduction Plan for Ports and Goods Movement in California* is key to specifically identifying and implementing the air quality goals outlined in the GMAP.

No one agency can independently achieve California's goods movement goals. By working together as partners, decision-makers at all levels of government and in the private sector can create a world-class freight transportation system that enhances our economy, supports our communities, safeguards our environment,

and positions California to remain competitive as a trading partner in the global economy.

AIR QUALITY

Efforts to clean up California's air are working. This is due to decades of hard work and investments by citizens, government, and private business to identify and develop new data, regulations, and technologies to reduce engine exhaust emissions. In spite of important gains, however, Californians continue to suffer from significant exposure to toxic air pollutants. Air pollution from international and domestic goods movement activities is still a major public health concern at community and regional levels.

The United States Environmental Protection Agency (EPA) and California Air Resources Board (CARB) have adopted regulations that impose increasingly stringent fuel and emissions standards over the next 10 years. Both agencies have conducted extensive research and monitoring of emissions in the most heavily impacted communities and concluded that toxic air pollutants can and should be reduced even further. The Federal Highway Administration (FHWA) and California's Department of Transportation (Caltrans) have funded millions of dollars of academic research through the University of California and California State University systems to improve goods movement operations and reduce its impacts.

Community based organizations (CBOs) have become more active and knowledgeable over the years. Through a process of public participation, CBOs and individual citizens have access to scientific data that document the harmful effects of diesel emissions and describe the cost to society. In spite of improvements, communities adjacent to freight facilities such as ports, rail yards, and warehouse distributions centers, still suffer health impacts disproportionate to the benefits they receive from increased trade and improved transportation facilities. These organizations were actively involved in the development of the *Goods Movement Action Plan* (GMAP) and the *Emission Reduction Plan for Ports and Goods Movement*. Their input is reflected in both documents.

In the *Goods Movement Action Plan*, the Schwarzenegger Administration has made California's commitment clear that infrastructure improvements and environmental mitigation will be made simultaneously and continuously. CARB has worked to develop innovative ways to accelerate the results of EPA standards. Union Pacific Railroad (UP) and Burlington Northern Santa Fe Railroad (BNSF) have responded by entering into voluntary agreements with CARB to reduce idling and emissions at 17 major rail yards throughout California.

The GMAP establishes four specific goals for reducing goods movement air pollution impacts and mitigating localized health risks in affected communities to- by 2010, reduce emissions back to 2001 levels; by 2020, reduce diesel-related

health risks 85 percent; cut emissions to attain federal air quality standards; and rapidly reduce localized health risks near goods movement facilities.

Through its *Emission Reduction Plan for Ports and Goods Movement*, CARB identified and is initiating specific actions necessary to achieve these goals of reducing emissions and protecting public health. The Plan is California's framework for coordinating community health risk assessments and plans, EPA air quality standards attainment and Statewide Implementation Plans, CARB's *Diesel Risk Reduction Plan* (2000), and the *Goods Movement Action Plan*.

EMISSION INVENTORY/CHARACTERISTICS

The emission inventory is the foundation of the Air Resources Board's Emission Reduction Plan. The inventory identifies the types and quantities of various pollutants being emitted as well as where and when exposures are occurring. The inventory is a "snapshot in time"; though determined scientifically, it necessarily includes emission estimates based on what is known at the time of measurement and analysis. The Plan identifies 2001 emission levels for the inventory baseline and forecasts expected changes for 2020.

There is a continual process at all levels of government, academia, and private industry to improve understanding of emissions, their effect on human health, and technologies to reduce their impact. Forecasts of future conditions in the emission inventory include the benefits that will result from existing state and federal rules and assumed growth rates for trade and population. As industry responds to existing rules, emissions from locomotive engines and heavy-duty trucks will decrease from current levels. However, these emissions – primarily diesel particulate matter (dPM), oxides of nitrogen (NOx) and oxides of sulfur (SOx) – cannot be reduced at a rate fast enough to achieve public health goals.

Mobile sources of diesel emissions related to goods movement include harbor craft, cargo handling equipment (used at ports and rail yards), ocean-going vessels, heavy-duty trucks, and locomotive engines. ARB expects the most significant emission changes will be for trucks and locomotives. In the Draft Plan, ARB considered international trade movements in and through California. The final Plan includes all rail trips associated with domestic and international trade movements which increased identified locomotive emissions by a factor of two to three.

ARB first began to develop a baseline inventory of locomotive emissions in 1987. The results were published in the *Locomotive Emission Study* (Booz-Allen & Hamilton, 1991) and revised in the *Report on Locomotive Emission Inventory: Locomotive Emissions by County* (Booz-Allen & Hamilton, 1992). The 1991 report included an estimate of the emission inventory from locomotive operations in the six non-attainment air basins with the highest levels of rail activity in California at that time. The 1992 revision provided additional information and

estimates, including individual inventories by county for the six air basins identified in the 1991 report, inventories for all other counties in the state with rail activities, and information on seasonal and daily variation in rail activity.

The baseline inventory established and revised in these 1991 and 1992 reports was based on actual data by train type and air basin provided by the Class I railroads. Data were provided for specific segments of the rail system, including direction of travel; number of trains; averages for miles, tons, horsepower, and number of locomotives; and time (in minutes) for brake and individual notches from one through eight. For its *2003 Almanac on Air Quality and Emissions*, ARB updated the locomotive emission inventory using revised growth assumptions. Most recently, ARB made certain revisions to the inventory as part of its update to the "Off-Road 2007" emissions model. ARB is currently working with UC Davis and the railroads to further refine the locomotive emission inventory, to be completed in September 2008.

AIR QUALITY AND EMISSION REGULATION

In California, the EPA, ARB, and local air districts primarily regulate air quality. Air pollution control districts and air quality management districts are responsible for controlling air pollution for all sources other than mobile sources (although South Coast AQMD does have limited authority under state law over certain fleets of 15 or more vehicles). CARB has responsibility for control of emissions from mobile sources. However, federal law preempts state and local control of emissions from certain mobile sources, including new locomotives or locomotive engines.

The Federal Clean Air Act protects railroads and the interstate commerce they represent from state interference and only allows states limited police powers to address nuisances, traffic disruption, or public safety. State air quality controls are restricted to measures that do not affect the locomotive engines themselves. EPA has sole authority to adopt and enforce locomotive emission standards for both new and remanufactured locomotives.

In 1997, EPA adopted the first emission regulation for diesel locomotives, which became effective from 2000 [63 FR 18997-19804, 16 April 1998]. This 1997 rule established Tier 0 through 2 emission standards for NOx, HC, CO, PM, and smoke from new and remanufactured locomotives and locomotive engines. EPA classifies locomotives built before 1973 as "pre-controlled". Locomotives built from 1973 to 2001 are in Tier O, Tier 1 describes those built in 2002 to 2004, and Tier 2 are 2005 and newer locomotives. Tiers 0 through 2 standards are met without the use of exhaust gas after treatment.

In March 2007, EPA proposed Tier 3 standards in a three-part program to cut emissions of PM by 90 percent and of NOx by 80 percent from all line-haul, passenger, and switch locomotives manufactured after 1972 except for existing

fleets owned by very small railroads. First, under the new program, emission standards would be tightened for existing locomotives when they are remanufactured (by 2013 for Tier 2 engines but by 2010 for Tiers 0 and 1.) Second, Tier 3 engine-out standards for newly built locomotive engines would phase in beginning in 2009. Third, EPA is proposing Tier 4 emission standards based on catalytic after treatment and the use of diesel fuel with sulfur content capped at 15 parts per million. Tier 4 standards for locomotives would phase in beginning in 2015 with 95 percent control of PM and 90 percent control of NOx by 2017.

The Air Resources Board works to reduce emissions from locomotives and rail yard equipment statewide through a combination of regulations, voluntary agreements, and funding programs to ensure the use of cleaner fuel, reduce idling, accelerate EPA timelines for reduced emissions, and to encourage the use of new technology. Beginning January 1, 2007, CARB regulations require intrastate locomotives that operate 90 percent of the time in the state to use California ultra low sulfur diesel fuel (15 parts per million). Other regulations require emission controls for mobile cargo handling equipment that operate at intermodal rail yards.

EMISSION REDUCTION STRATEGIES

To accelerate the effects of EPA rules, CARB, UP, and BNSF signed the *South Coast Locomotive NOx Fleet Average Agreement* (1998) to require locomotive fleets in the South Coast Air Quality Management District to meet, on average, EPA Tier 2 standards by 2010. Locomotives generally stay in service for 40 or 50 years and are complete rebuilt periodically. EPA does not require railroads to replace existing fleets; only that newly purchased or rebuilt locomotives meet the standards. Tier 2 engines were not commercially available until 2005, so under the accelerated measures southern California is projected to realize Tier 2 benefits 20 years earlier than the rest of the U.S.

In 2005, CARB, UP, and BNSF signed a voluntary statewide agreement to reduce idling, use cleaner fuel, and to work with communities to assess and reduce rail yard-related health risks. The *Particulate Emissions Reduction Program at California Rail Yards* (Agreement) is expected to result in a 20 percent reduction of diesel PM emissions from locomotives in and around rail yards and does not change or preempt any federal, state, or local authorities to regulate railroads.

Measures in the 2005 Agreement include:

- Phase-out of non-essential idling on locomotives without idle reduction devices (60-minute limit).
- Install idling devices on California-based locomotives by June 30, 2008 (15 minute limit).

- Identify and repair locomotives with excessive smoke, agree to smoke inspections by CARB, and ensure a 99 percent pass rate.
- With community and air district involvement, prepare health risk assessments (HRA) for 16 major rail yards, based on the UP Roseville Rail Yard HRA (2004) and Office of Environmental Health Hazard Assessment guidelines and,
- Identify and implement future feasible mitigation measures based on the results of the rail yard health risk assessments

Railroads and manufacturers have been working to develop and test new technologies to reduce harmful emissions from locomotive engines. Among these are the use of oxidation catalysts (Oxicat) in line-haul engines and diesel particulate filters (DPF) attached to switching locomotives. With each of these devices, the diesel exhaust is heated and PM is converted to water and carbon dioxide.

Railroads are also reducing emissions by replacing conventional diesel switching locomotives with new locomotives powered by hybrid diesel-battery engines (the "Green Goat") or generator-sets (Genset) which use three low-horsepower Tier 3 diesel engines to power on-board generators.

ENVIRONMENTAL JUSTICE

Freight transportation systems play an essential role in advancing the economy, safety, and quality of life in California. Investments in transportation systems provide clear public benefits but may also generate unintended negative impacts, such as air pollution, visual blight, and excessive noise and vibration. Strained to capacity, the system also contributes significantly to congestion on the state's streets and highways, which increases idling and delay times for both passenger vehicles and trucks. This in turn reduces mobility, air quality, and safety. New and expanded freight facilities may also disrupt or displace established communities.

California's goals for environmental justice are to promote the fair treatment and meaningful involvement of all people in the transportation decision-making process. The State works to ensure that low-income and minority communities receive an equitable distribution of transportation system benefits without suffering disproportionate adverse impacts. This requires the full and fair participation of all potentially affected communities and incorporating early public involvement of a wide range of socio-economic groups. Ensuring environmental justice is considered results in improved transportation planning and project development.

As part of their commitments to prepare health risk assessments (HRA) under the 2005 Statewide Rail Yard Agreement with CARB, UP and BNSF completed emission inventories and exposure modeling pursuant to CARB guidelines, which

were developed with input from interested stakeholders and State health experts. CARB and the railroads then held public meetings to present the draft HRAs, explain what was learned, discuss emission reduction strategies and answer questions. After a public comment period, a second set of meetings – one for each rail yard and surrounding communities – was held to allow another opportunity for questions, comments, and suggestions. CARB will finalize the HRAs and work with the railroads to implement the mitigation measures identified.

Each transportation project is unique. Although the freight rail system must be considered as a whole in the planning process, the site, circumstances, users, and stakeholder value systems of one project are different than others, in spite of similarities. Like the planning and design process, which should meet unique project characteristics, land use planning and decisions can either impede or promote context sensitive design and environmental justice issues.

Local decisions about sighting of freight facilities (sources of air pollution) and schools or housing (receptors) have their nexus in city and county zoning ordinances, which can have regional and statewide consequences. Local government has responsibility for land use decisions and has a role in preventing avoidable air pollution exposures that pose a health risk. For example, recent studies show public exposure to air pollution can be substantially elevated near some sources of pollution, but health risks are greatly reduced proportionate to increased distance of separation. The State should support policies which encourage compatible land uses adjacent to goods movement activity centers and which also preserve land for such facilities.

HIGHWAY-RAIL CROSSINGS

California's trade corridors consist of federal interstate freeways, state highways, local streets and roads, and railroad rights of way which connect freight generator sites such as land, air, and seaports, warehouse and distribution centers, agricultural and manufacturing centers, and retail outlets. The 7,719 at-grade highway-rail crossings in California impact the entire transportation system, not just the freight transportation system.

At-grade vehicle conflicts reduce system reliability, increase liability exposure for railroads and the public, and are some of most noticeable of railroad-related impacts within communities. These conflicts interrupt vehicle, pedestrian, and bicycle traffic and can critically increase emergency response times. Railroads must limit the number of cars in trains operated through at-grade crossings and are required to sound locomotive horns as an advance warning (which although required, also creates noise impacts to surrounding communities).

The Public Utilities Commission (PUC) has jurisdiction over the safety of highway-rail crossings in California. The PUC, among other duties, conducts design safety reviews of crossing projects and makes recommendations for

mitigation measures. Grade crossings can be improved with safety upgrades, traffic signal control measures, and road widening but several safety concerns potentially remain such as, vehicles queuing across tracks or driving around gates, false or inconsistent gate and warning system activation, and poor grade crossing and pedestrian conditions.

The optimal safety improvement for an at-grade crossing is to build structures that completely separate railroad tracks from the roadway. This will eliminate collisions, reduce noise from train horns and automatic warning devices, and can improve emergency response times. Because gate blocking is eliminated, idling and vehicle hours of delay are significantly reduced, which improves rail and highway operations and can provide air quality benefits through emission reductions. Nevertheless, these structures are expensive to build and maintain.

There are several funding sources commonly used for grade-separation projects. Caltrans distributes $15 million per year from the Section 190 Grade Separation Fund for grade crossing separation or alteration projects, according to a priority list generated by the PUC. Proposition 1B created the Highway-Rail Crossing Safety Account, with $250,000,000 available for completion of high-priority grade separation and crossing safety improvements (a one to one match is required). Federal programs include Projects of National and Regional Significance, the Transportation & Community & System Preservation Program (TCSP) and, at times, Congressional earmarks. Other Federal programs that have the potential for future grade-separation project funding include the Surface Transportation Program, the Congestion Mitigation & Air Quality Improvement and the Section 130 Railway-Highway Crossing Program.

CHAPTER XVIII
FUNDING

SYSTEM CAPITAL NEEDS

Railroads are extremely capital intensive. In general, they spend about five times more to maintain their systems and equipment than the average U.S. manufacturer spends on plants and equipment. In 2000 for example, Class 1 railroads spent 17.8 percent of revenues on capital improvements compared to 3.7 percent for all manufacturing industries in the nation. With such an expenditure required for capital improvements, investors have been prudent in putting monies into railroads. Consequently, the amount of funds for maintenance and expansion has not been as great as for many other industries. Nevertheless, railroads continue to fund the expansion of their systems.

BNSF Railway for example, will expend $2.75 billion in capital expenditures in 2007. A total of $750 million will be for track and facility expansion while $1.6 billion will go towards refreshing track, signal systems and structures. One recent project particularly relevant to California is the expansion of the 2,200-mile Chicago-Los Angeles corridor; as of 2006 all but 51 miles has been double tracked. This capacity expansion will enable the railroad to increase traffic form 60 trains a day in 2000 to 100 trains a day in 2006 along this corridor.

The Union Pacific Railroad will spend approximately $3.2 billion in 2007 on capital improvements network wide. This includes double tracking of their 760 mile Sunset Route from L.A. to El Paso, Texas. In California a total of $55 million will be spent on commercial facilities such as terminals and yards, and $222 million on track, and signal systems for this route.

Stable and long term funding is critical to the preservation, maintenance and expansion of California's freight rail system.. The AASHTO Freight Rail Bottom Line Report provides scenarios for funding needs at several levels. These include:

- No Growth – where, with minimal investment the railroads could carry approximately the same amount of traffic in 2020 that they carry today, thereby shifting large amounts of freight tonnage onto trucks.
- Constrained Investment – under this scenario, railroads could afford improvements paid for by revenues and borrowing – the railroads could handle additional traffic but not keep pace with increasing freight traffic.
- Base Case - where, with a higher level of investment, the freight system could keep its current share of traffic and accommodate a greater share of forecasted increases. Funding would come from a combination of railroad investment and public sector participation.

- Aggressive Investment – where, with even a higher level of investment railroads could capture an even larger share of freight traffic than under the Base Case scenario. Funding at this level would be instrumental in relieving highway and truck traffic congestion.

To give some idea of funding needs for the freight rail system, an outline is given using the Base Case scenario. While needs cannot be exactly determined, a general estimate shows the following costs.

- Rail Safety Needs - $13.8 billion – This estimate includes needs for additional warning systems, highway-rail grade crossing needs, grade separations and track relocation.
- Class 1 Infrastructure Repair and Maintenance - $4-$5 billion annually, or $80 to $100 billion over 20 years
- Class 1 Infrastructure Improvements, above and beyond Repair and Maintenance - $3.5 billion annually or $70 billion over 20 years.
- Short Line Improvements - $11.8 billion – This includes funding for improvements such as upgrading track to handle heavier railcars, safety and speed improvements and need for deferred maintenance.

The total estimated cost for the base case scenario is estimated at $175 to $195 billion over 20 years. According to a more recent AASHTO report, "Transportation--Invest in Our Future" February 2007, the "cost to maintain freight rail's current market share," in 2007 is estimated at $12 billion-$2.75 billion annually in public support and $9.25 billion annually in railroad private capital investment. These figures are believed to be very conservative.

PUBLIC INVESTMENT IN PRIVATE INFRASTRUCTURE

Partnerships in rail are appropriate, realistic, and increasingly valuable for both the public and private sector. Rail will not stop road congestion, but it can blunt it. Rail is not always a remedy for freight capacity, but in fitting conditions it is competitive and effective. Public money is not the entire answer for railroad growth, but it is part of the answer in an era when needs and opportunities are ripe.

Relatively small public investments in the nation's freight railroads can be leveraged intorelatively large benefits for the nation's highway infrastructure, highway users, and freightshippers. When public funds moderate the capital intensity of railroading, new services become possible at a lower cost.

RAIL INVESTMENT DRIVERS

- Tremendous Growth in Demand; Scarce Resources
- Greatest Return on Investment for Passengers and Freight
- Reducing Growth in Truck Demand and Impacts (e.g., congestions, roadway deterioration, safety, emissions, energy consumption)
- Support Economy – greater export opportunities; regional and State

There are different ways of approaching the maintenance and improvement of the freight rail system. One is by means of "market driven evolution" where the emphasis on system funding is primarily carried out by the railroads themselves. Under this scenario the system would be maintained and moderately improved but would do little to relieve highway congestion.

An alternative method of funding freight rail is through public policy driven expansion. Public-private partnerships, which are an outgrowth of this method, can provide funds for projects which would not otherwise be undertaken by the railroads themselves, and which can serve public needs such as relief of congestion, upgrading environmental quality, and economic expansion.

Generally, in the past public-private partnerships associated with freight rail focused on basic local programs such as grade crossing improvements and branch line preservation. With a greater degree of public sector participation, and expanded funding sources and amounts, larger scale projects such as corridor and terminal improvements of regional and national significance can be undertaken.

If improvements are not made in the freight-rail system, the State's freight transportation system will weaken and shippers, highway users, and communities will pay the social, economic, and environmental costs. The rail industry requires continuing investment in order to handle the projected growth in freight traffic. Public investment can help to stimulate such growth by providing better returns for the railroads and interest in rail from capital markets.

FUNDING ALTERNATIVES

Many states have also developed programs that have benefited and promoted freight rail. According to the AASHTO report 30 states have freight and passenger rail staff dedicated to rail programs, while 20 of them have staff dedicated specifically to freight rail. Twenty-two states have used state money to fund rail projects, and 10 have freight rail budgets exceeding one million dollars annually.

Often the projects resulting from these programs are carried out as public-private projects or public projects that are collaborative efforts between different levels of government.

As well, many of the passenger rail projects improved the infrastructure and increased capacity on two major freight railroads in the state. In addition, state funding for grade crossing improvements is provided by the Section 130 grade crossing program and short line preservation program.

STATE GENERAL FUND PROGRAMS

Recognizing the need for increased public investment in freight rail infrastructure, other states have implemented programs paid through general state revenues. For example, Washington State created "The Essential Rail Assistance Account" a dedicated rail account in the state treasury to be used acquisition or rehabilitation of rail lines, equipment, mitigation of port or mainline congestion and corridor preservation. An additional statute spells out the benefits, roles, and responsibilities of public-private partnerships as a means of developing innovatively financed transportation infrastructure projects. An interesting innovation is the purchase and maintenance of specialized freight cars to ensure adequate equipment for agricultural uses. Recent monies used for freight rail projects have totaled $31.5 million between 1990 and 2005, with most of these funds allocated between 2003 and 2005.

Florida provides the Strategic Intermodal System (SIS) program, which offers a steady stream of funding. Currently the SIS provides about $9 million annually; when matched with private funds the total rises to about $16 million. It is estimated that about $81 million in combined public and private funds will be available between 2006 and 2010 to upgrade Florida's rail network, but that will fund only about 10% of the identified needs.

Virginia uses the Rail Preservation and Development Program to assist short line railroads operating in Virginia. It has grown steadily from $500,000 in 1991 to nearly $3 million in 2004. This program focuses on rail line preservation. An additional program is the Rail Industrial Access Program that identifies opportunities for constructing or refurbishing track to allow new rail service into industrial locations. Funds are not exclusive to rail but must compete with road and airport projects. It is estimated that nearly 20,000 new jobs have been generated with this program as well as four billion dollars in planned capital improvements.

The Rail Freight Program (RFP) is an Illinois Department of Transportation-sponsored program that provides capital assistance to communities, railroads and shippers to preserve and improve rail freight service in the state. The RFP's primary goal is to facilitate investments in rail service and infrastructure by serving as a link between interested parties and channeling government funds to projects that achieve statewide economic development. Capital funding is provided in the form of low interest loans and/or grants. In 2006 the RFP provided seven million dollars in state and federal funding for the construction of new infrastructure and rehabilitation of existing track. California should

investigate "best practices" from other states as part of a comprehensive approach to developing its own model-funding template.

Currently, Article 19 of the California Constitution identifies authorized uses of the states motor fuel tax revenues. However, it restricts the State's ability to use State Highway Account funds for purposes other than highway, roadway, and some passenger mass transit guideway purposes. Therefore, if the highest public investment need is a rail freight project, it is not fundable from the State Highway Account. A legislative solution to this restriction might be to create a separate Goods Movement Investment Fund, fiscally separate from the State Transportation Fund.

A Goods Movement Investment Fund would be created in the State Treasury. The statutory language would specify the purpose of the fund as two-fold. First, it would be to receive non-Article 19 restricted State revenues (such as those from the General Fund), and federal funds authorized for goods movement project purposes. Second, it would be for the purpose of allocation of such funds to key goods movement transportation projects, such as investments in public and private freight rail system improvements. Expenditure of available funds would be based on an annual discretionary program, prepared and recommended by the Department, and approved by the California Transportation Commission.

BOND FUNDING

Trade Corridors Improvement Fund (TCIF)

Public participation and interest in rail projects has been relatively well advanced in California, particularly in the passenger sector. In November 2006, the voters of California broadened its traditional support for bond-funded passenger rail programs to include freight rail infrastructure by passing Proposition 1B. One of the key elements of the legislation is the $2 billion dedicated to the Trade Corridors Improvement Fund (TCIF). The TCIF specifically acknowledges the importance of freight rail to the overall goods movement system, and allows the freight rail industry to partner with the public sector in funding freight rail infrastructure. Other rail-related funds identified in the legislation included $250 million for highway-rail grade separation projects.

The California Transportation Commission (CTC) will develop the guidelines and select the projects to be funded from the TCIF. As of September 2007, the Administration has requested the CTC to adopt guidelines and approve a program of infrastructure projects by December 31, 2007. In addition, the California State Legislature is considering criteria for implementing Proposition 1B, contained in Senate Bill 9. As of September 2007, this bill has not yet been passed by the Legislature, although it has been amended several times. As currently written, this bill could limit the use of TCIF funds for freight rail projects, so a dialogue with the bill's sponsor is ongoing.

Bond-Funded Freight Rail Projects Outside California.

The Sheffield Flyover/Kansas City, Missouri elevates a three-mile section of the east-west BNSF mainline and Kansas City Terminal Railroad (KCT) through downtown Kansas City. The flyover eliminates conflicts with the UP and Kansas City Southern (KCS) and benefited up to 250 train movements per day. The project cost $75 million and was funded by the BNSF, KCT, and the State of Missouri, which formed a Joint Transportation Corporation to issue Industrial Development Bonds. The 20-year bonds are to be repaid through railroad revenues.

The Argentine Connection, also in Kansas City will elevate the east-west BNSF mainline at Santa Fe junction between the KCT mainline in Missouri and the BNSF Argentine Yard in Kansas. The project would eliminate a number of rail crossings and at-grade rail-highway crossings. The project, with an estimated cost of $60 million, will have a similar public-private partnership as the Sheffield Crossing project using Industrial Development Bonds.

FEDERAL PROGRAMS

One of the most significant programs coming out of the Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU) was the Projects of National and Regional Significance (PNRS) program. This program is designed to fund major freight-oriented transportation projects of national and regional importance. It is in some ways modeled after the development of the very successful Alameda Corridor, which opened in 2002. The Alameda Corridor is a 20-mile triple-tracked fully grade-separated rail corridor linking the Ports of Los Angeles and Long Beach to major intermodal rail yards located near downtown Los Angeles.

The project consolidated three rail lines and eliminated more than 200 at-grade crossings. It reduces great amounts of vehicle congestion, reduces both vehicle and locomotive emissions, provides modern access to the international Ports of Long Beach and Los Angeles, reduces the volume of trucking activity, and stimulates economic development.

The project cost $2.4 billion and was funded through a multi-level public-private partnership. Funding was provided by $1.16 billion in revenue bonds; $400 million in federal loans which were supported by surcharges on loaded containers; $394 million from port authorities; $347 million from the Los Angeles Metropolitan Transportation Authority; $130 million from state and federal grants; and $400 million from federal highway funds for street and highway overpasses. The federal loan aspect of the project was also the basis of the Transportation Infrastructure Finance and Innovation Act, which has used to support several rail projects in the nation.

Under the PNRS, three projects are notable in this discussion. A continuation of the Alameda Corridor project, the **Alameda Corridor East** (ACE) provides for 131 grade separations and other grade crossing improvements over the three main UP and BNSF rail lines radiating east of Los Angeles through the counties of Los Angeles, Orange, San Bernardino and Riverside. The project will facilitate the movement of international traffic from the Ports of Los Angeles and Long Beach as well as domestic traffic to and from Southern California. The approximate cost of the project for the grade separation portion alone is currently estimated at $4.6 billion. $125 million in PNRS funds were earmarked for the grade separations. If you count all federal bill earmarks, a total of $210.5 million was earmarked in that legislation for ACE grade separation projects.

The Heartland Corridor Project focuses on the upgrade of the Norfolk Southern line between Norfolk, Virginia and Columbus, Ohio through West Virginia to provide double-stack clearance capability with tunnel improvements and other projects. The benefit would be the increase in intermodal freight rail traffic and the reduction of highway congestion on a multi-state highway corridor. The federal contribution will be slightly less than $100 million in total.

The State of Illinois and City of Chicago have joined with passenger and freight railroads serving the Chicago region to establish the **Chicago Region Environmental and Transportation Efficiency Program (CREATE).** The major goals are to improve efficiency of the railroads, improve safety, provide air quality benefits and reduce highway and rail traffic congestion. In total, the program is a $1.5 billion public-private partnership effort. Although not fully funded, $100 million in PRNS funding is earmarked for the project. To date the five Class I railroads involved have committed $100 million, while Chicago has committed $30 million and the State of Illinois $100 million pending legislative approval.

Other Rail Investment Programs

Rail funding through the federal government has also been provided under both SAFETEA-LU and its predecessor, the Transportation Equity Act for the 21st Century (TEA-21). Under Section 9003 of SAFETEA-LU, Rehabilitation and Improvement Funding, priority will be given to projects that enhance service and capacity for shippers in the national rail system. Quite often these funds are complemented by funds from other levels of government.

Among other programs, which have funding and could benefit freight rail, are:

- Section 130 Rail-Highway Grade Crossing Program. Under this program, the entire cost of construction of projects for the elimination of hazards of rail-highway crossings can be funded.
- Congestion Management and Air Quality Improvement Program (CMAQ). This program provides funding for projects to improve air quality in non-

attainment areas as long as measurable emission reductions can be shown. The program has been used for many rail projects nationwide, including two small projects in Southern California.

- Freight Intermodal Distribution Pilot Grant Program. This program has provided the Ports of Los Angeles and Long Beach with capital funding to address infrastructure and freight distribution needs at inland ports and intermodal facilities.
- Transportation Infrastructure Finance and Innovation (TIFTA). This program provides three types of credit financing for nationally or regionally significant projects. Eligible projects include public or private rail facilities that demonstrate public benefit.
- Rail Line Relocation Grants. This program provides states with funding to mitigate the adverse effects of rail traffic on safety, vehicle traffic flow, quality of life or economic development by relocating rail lines away from downtown areas. Fifty percent of the funds are dedicated to projects of $20 million or less; states or non-Federal entities must pay at least ten percent of project costs.
- Rehabilitation and Improvement Financing. This program provides direct loans and loan guarantees to various public and private entities including railroads for the purpose of constructing a rail connection between a plant or facility and a second rail carrier.
- Study of Rail Rehabilitation and Regulation. This is a program to evaluate the status of the national rail system since the passage of the Staggers Act in 1980.

While the above programs have provided funding that has benefited freight rail programs in the U.S., approaches have been promulgated by other sectors of the transportation industry. One current action is concerned with investment tax credits for railroads.

Tax Credits

In comparison with other modes of transportation, including trucks, airlines, and barges, freight railroads have received scant financial assistance from the federal government. The Congressional Budget Office in a January 2006 "Freight Rail Transportation: Long Term Issues" report pointed out that large trucks pay only 50 to 80 percent of costs attributed them while barge operators pay taxes that cover only about 20 percent of the amount the Corps of Engineers spends on navigation projects.

As already noted, railroads normally finance infrastructure improvements and equipment purchases through their own resources and private investment. From 1980 through 2006 for example, Class 1 railroads themselves invested more than $370 billion to maintain and improve their infrastructure and equipment. In 2006 the rail industry spent approximately $8.5 billion on capital investments,

including expansion in an effort to keep up with growth. In order to encourage the railroads to spend more money, they believe investment tax credits that support capital spending make sense.

Two recently introduced bills, S. 1125 and H.R. 2116 call for a 25 percent tax credit for investments in new track, intermodal facilities, yards, locomotives and other infrastructure projects to expand rail capacity. All businesses, including railroads, ports, shippers, and trucking companies would be eligible for the credit. Among the points rail proponents of the bills make are fuel efficiency over the trucking industry, less highway congestion, reduced pollution with increased freight rail transport, and safety issues – fatality rates associated with intercity trucking are four times greater than those for freight rail.

Shifting millions of truck moves per year to rail is good public policy. It reduces highway congestion and air pollution, and increases safety. Federal tax credits such as the 25% investment tax credit for Class Is, and the 50% investment tax credit for short line railroads (HR 1584, due to expire at the end of 2007) would help railroads expand capacity faster than they would otherwise.

PUBLIC/PRIVATE PARTNERSHIP (P3) AND LOCAL INITIATIVES

There are also other regional and multi-state freight rail projects in addition to those listed above. These projects are often supplemented with federal funding, for the improvement of specific corridors that are either planned or underway. These include:

Mid-Atlantic Rail Operations Study – New Jersey, Pennsylvania, Delaware, Maryland and Virginia. This is a five state project, with the states working in concert with Amtrak, the I-95 Coalition, Norfolk Southern Railroad, and CSX. The project would include infrastructure reconstruction, capacity enhancements, height and weight clearances, and terminals. The projected cost is $6.2 billion over 20 years.

A specific regional project, which combines state, regional and local initiatives is the Washington State "FAST" corridor – This "**Freight Action Strategy**" program encompasses 15 priority freight projects between Everett and Tacoma. It includes rail-highway grade separations, rail yard improvements, port access, and regional highway improvements. The total cost is unknown. The project includes participants from the state, regional governments, three ports, 12 cities, and two counties, the BNSF and UP railroads and the Washington Trucking Association.

The Delaware Department of Transportation (DelDOT), Norfolk Southern Corporation, and the Port of Wilmington completed a $13.9 million rehabilitation of the venerable **Shellpot Railroad Bridge**. Under the terms of the unique construction agreement, DelDOT agreed to fund the cost of restoring the bridge

for train service, and Norfolk Southern agreed to compensate the state over a 20-year period based on its use of the bridge.

The Shellpot Bridge will be the first toll bridge for railroad cars in the country. Through a toll system, Norfolk Southern will repay DelDOT over the next 20 years. An electronic scanner will count the number of rail cars that cross the bridge by reading a magnetic placard that is mounted on every railcar. This type of "bar scanning technology" (similar to a grocery store checkout line) is currently used by rail companies to keep tabs on cars along many thousands of miles of track across North America. Shellpot will become the first facility to take advantage of this to charge, and collect a toll. Norfolk Southern will pay DelDOT an annual minimum, regardless of traffic. The sliding scale adopted has the toll ranging from $35 per car for the first 5,000 that cross the bridge annually, to only $5 per car after 50,000 crossings.

These examples could provide insights into additional funding strategies for consideration in California.

USER FEES

The California Legislature—concerned about the impacts of goods movement activities on adjacent communities, and the lack of resources directed to addressing these impacts—advanced several bills during the 2007 legislative session.

On of them, Senate Bill 974, would require the Ports of Los Angeles, Long Beach, and Oakland to collect a user fee on the owner of container cargo moving through the Port of Los Angeles, the Port of Long Beach, or the Port of Oakland at a rate of $30 per twenty-foot equivalent unit (TEU) or $60 per forty-foot equivalent unit (FEU). The bill would require the fees be used to fund projects for all modes that improve the flow and efficiency of container cargo to and from those ports. It is estimated that $500 million would be generated annually for these projects, including freight rail. This revenue stream could be a potential source of freight rail project funding, and might include the short line railroad industry, which serves these ports. SB 974 is currently on the “inactive” file. Whether or not it is ultimately adopted and signed by the Governor, this bill and its companion legislation highlight the intent of the legislature to attempt to find solutions to funding environmental mitigation for goods movement projects that does not depend solely on existing transportation or emissions reduction funding sources.

CHAPTER XIX
FREIGHT RAIL RESEARCH AND STUDIES

INVESTMENT MODELS

Public investments in the transportation system today are often used as a stimulus for economic growth, congestion mitigation, and other quality of life improvements. For freight rail specifically, many of the public motivations are centered on capacity: whether an investment can relieve the highway system, slow the growth in highway demand, or prevent traditional rail traffic from changing modes. The latter has become especially important recently and points up the capacity question in rail as well as highway: as Class I carriers have begun to allocate capacity by shedding some traffic for better paying freight, it is the traditional, heavy loading, hard-on-pavement carload business that is most at risk of being shifted from rail to highway.

The United States Department of Transportation (USDOT) has published a Guide to Quantifying the Economic Impacts of Investments in Large-Scale Freight Transportation Projects. The purpose of this guide is to provide a thorough economic analysis framework to assess the benefits and costs of potential freight investments. Application of this guide, and the analytical steps recommended, is intended to ensure that freight projects are appropriately considered in national, regional, and state decisions about the future of transportation system investments. In addition, the high costs of these projects emphasize the need for public/private partnerships to amass the funds necessary for their successful completion.

Although this guide recognizes the importance of other social and environmental effects, the focus is on economic effects and the secondary passenger benefits that often accrue due to freight projects. Given this emphasis, the guide covers topics such as:

- **National scale of benefits** – economic benefits from freight projects impact industry shippers and receivers across the country (and internationally), not just the location of a freight project;
- **Public versus private benefits** – when considering the potential for public/private partnerships, it is imperative to maintain a careful accounting of public and private benefits, which are particularly relevant to freight transportation; and
- **Logistics and supply chain effects** – measuring the economic impact of freight investments requires the analysis of benefits to shippers and receivers of freight in terms of both “first order” direct transportation effects, and “second order” logistics, distribution, supply chain, and broader economy-wide implications.

The core of the economic analysis framework for evaluating large-scale freight projects is a Five-Step Analysis process:

5. Identify the nature and ***transportation purpose*** of the project in terms of its intended impact on improving freight and nonfreight travel conditions. This is needed to ensure that those transportation effects and their consequences are properly evaluated.
6. Identify the nature of ***expected economic impacts*** in terms of the elements of the economy that feel they have a stake in seeing the project occur. This is needed to ensure that those economic effects and their consequences are also properly evaluated.
7. Apply ***transportation impact evaluation tools*** to assess the magnitude and nature of transportation system performance effects actually projected to impact shippers and carriers.
8. Apply ***economic impact evaluation tools*** to assess the magnitude and nature of economic effects actually projected to occur for elements of the economy that are either directly or indirectly affected by freight system costs and performance.
9. Apply ***decision support methods*** to identify the substantial positive and negative impacts of the project for the economy (at the local/state or national level).

The remainder of the guide provides extensive detail on all five of these steps, models and data to support economic and transportation analysis, and case studies that highlight the application of the five steps. Two examples of such investment models are given below:

Washington Department of Transportation (WSDOT) Freight Rail Investment Model

Cambridge Systematics Consulting has recently completed a State Rail Capacity and Systems Needs Study for WSDOT. As part of this study a rationale for public investment in private freight rail was examined. The objectives of the task were to define the rationale for public participation in rail improvements and develop a methodology for estimating the benefits, costs, risks, and appropriate level of investment and public participation.

A sample framework suggested includes the following:

- **Transportation and Economic Inputs -** Investments in transportation infrastructure are expected to generate system improvements and spur economic development. Estimates of these impacts become the inputs into the benefits calculations. This may include evaluation of existing public investments in competing non-rail freight modes.

- **Transportation Impacts -** Determines the transportation-related benefits from the proposed improvements. These include reduced highway maintenance costs and reduced shipper costs.
- **External Impacts -** Includes non-transportation benefits attributable to transportation improvements. These include safety, security, health, and environmental impacts.
- **Economic Impacts -** Converts the various impact measures into direct and indirect economic benefits. These include job creation, income taxes, and reductions in passenger delays.
- **Decision Support -** Combines the above benefits and generates output used to evaluate and help determine the best allocation of public investments.

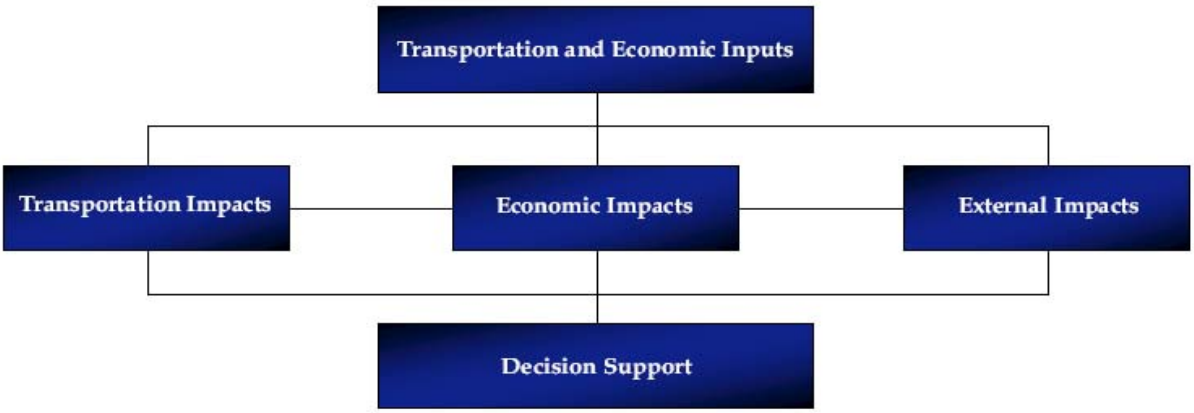
A nine-step procedure for evaluating public participation in rail projects has also been developed by Global Insight Consulting for the National Cooperative Highway Research Program (NCHRP) 8-42 study, and will be adapted for application in Washington State.

Florida Department of Transportation Freight Rail Investment Calculator

The question that always arises when contemplating public sector investments in the privately owned freight railroads are "what does the public gain?" One framework for establishing the public value of investment in the rail system is depicted below. This figure provides a convenient framework for describing how freight rail investments can be converted into public benefits, and how a portfolio of projects can be selected for public investments.

Figure 19A

Framework for Evaluating Transportation Investments



- **Transportation and Economic Inputs –** Investments in transportation infrastructure are expected to generate system improvements and/or spur economic development. Estimates of these impacts become the inputs into the benefits calculations.
- **Transportation Impacts –** Determines the transportation-related benefits from the proposed improvements. This includes reduced highway maintenance costs and reduced shipper costs.
- **External Impacts –** Includes non-transportation benefits attributable to transportation improvements. These include safety, security, and environmental impacts.
- **Economic Impacts –** Converts the various impact measures into direct and indirect economic benefits. This includes job creation, income taxes, and reductions in passenger delays.
- **Decision Support** – Combines the above benefits and generates output used to evaluate and help determine the best allocation of public investments.

This framework is consistent with Florida's Strategic Intermodal System (SIS) goals:

1. **Safety and Security –** A component of external impacts;
2. **System Preservation –** Not explicitly modeled, but can be considered an external impact and a future transportation impact;
3. **Intermodal Mobility –** A component of transportation impacts;
4. **Economic Enhancement –** The same as economic impacts; and
5. **Quality of Life –** A component of transportation impacts (congestion mitigation), external impacts (environmental and safety), and economic impacts (jobs and economic growth).

Cambridge Systematics adapted the evaluation framework into a Microsoft Excel-based Capital Budget Model Decision Support System for the FDOT. Specifically the software quantifies the public benefits accruing from:

Transportation Impacts:

- Avoided Highway Maintenance Costs
- Shipper Logistics Costs
- Highway Delay at Rail-Highway Grade Crossings

Economic Impacts:

- New or Retained Jobs
- Tax Increases from Industrial Development

External Impacts:

- Highway Safety Improvements
- Environmental Quality Improvements

The software calculates the benefit/cost ratio for each project, considering the factors listed above and the time-value of money. A Capital Budget Model is then run to select the combination of projects that maximizes the public benefits resulting from every dollar invested in the rail system.

The Freight Rail Investment Calculator is one part of the overall decision process of how public funds should best be invested to spur economic growth and enhance freight and passenger mobility in Florida. This calculator could be adapted to evaluate freight rail projects in California, something the CTC, which will program the TCIF bonds for freight rail projects, is currently investigating.

PERFORMANCE OUTCOMES, CRITERIA AND MONITORING

Typical performance measures tracked by AAR include: number of cars on line, train speed and terminal dwell time. These all affect railroad velocity and a railroad's ability to be profitable. In California where freight rail volumes are increasing, and the rail network and capacity are becoming constrained, this is especially true.

Despite the use of a common methodology, one railroad's performance metrics cannot meaningfully be compared to another railroad's, due to differences including, but not limited to, those associated with network terrain and design characteristics, traffic mix, traffic volume, length of haul, extent of passenger operations, and operational practices – as well as external factors such as weather and port operations which can impact carriers differently.

Some of the more general measures and definitions are shown below:

Cars On Line

Cars On Line is the average of the daily on-line inventory of freight cars. Articulated cars are counted as a single unit. Cars on private tracks (e.g., at a customer's facility) are counted on the last railroad on which they were located. Maintenance of way cars are excluded. Cars on Line figures are reported by car type for the following car types:

Figure 19B

Car Type	AAR Mechanical Designation
Box	A, B or R
Covered Hopper	C
Gondola	E or G
Intermodal	P, Q or S
Multilevel	V
Open Hopper	H, J or K
Tank	T
Other	L or F

Figure 19C

Car Ownership	
Owner Type	**Description**
System Car	Owned by the railroad on which it is located
Foreign RR	Owned by a railroad other than the one on which it is located
Private	Owned by a non-railroad (i.e., has a car initial that ends in "X") and not leased to a railroad

Train Speed

Train Speed measures the line-haul movement between terminals. The average speed is calculated by dividing train-miles by total hours operated, excluding yard and local trains, passenger trains, maintenance of way trains, and terminal time. System-wide average train speeds are given for the following train types:

- Intermodal
- Manifest
- Multilevel
- Coal Unit
- Grain Unit
- All trains

Terminal Dwell (Hours)

Terminal Dwell is the average time a car resides at the specified terminal location expressed in hours. The measurement begins with a customer release, received interchange, or train arrival event and ends with a customer placement (actual or constructive), delivered or offered in interchange, or train departure event. Cars that move through a terminal on a run-through train are excluded, as are stored, bad ordered, and maintenance of way cars.

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California Air Resources Board (CARB)
California Department of Finance
California Goods Movement Action Plan (GMAP), March 2007
California Marine and Intermodal Transportation System Advisory Council
California Short Line Railroad Association (CSLRA), 2007 Survey
California State Rail Plan, December 2005
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Illinois Department of Transportation
Journal of Commerce
Kern Council of Governments (KernCOG)
Los Angeles County Economic Development Corporation (LAEDC)
Metropolitan Transportation Commission (MTC)
National Cooperative Highway Research Program (NCHRP)
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Pennsylvania Department of Transportation (PennDOT)
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Washington Department of Transportation (WSDOT)
Washington State Freight Rail System Needs and Capacity Study, January 2007
Western Association of State Highway and Transportation Officials (WASHTO)

APPENDIX

Acronyms

4R Act	Federal Railroad Revitalization and Regulatory Reform Act of 1976
AAR	Association of American Railroads
AB	Assembly Bill
AC	Alternating Current
AC Transit	Alameda-Contra Costa Transit District
ACCMA	Alameda County Congestion Management Agency
ACE	Altamont Commuter Express
ACR	Assembly Concurrent Resolution
ADA	Americans with Disabilities Act
ARB	California Air Resources Board
ASLRRA	American Short Line and Regional Railroad Association
ASSHTO	American Association of State Highway and Transportation Officials
ATSF	Atchison Topeka and Santa Fe Railway Company
BART	Bay Area Rapid Transit District
BN	Burlington Northern Railroad Company
BNSF	Burlington Northern Santa Fe Railway Company
BTH	Business, Transportation and Housing Agency
CCJPA	Capitol Corridor Joint Powers Authority
CEQA	California Environmental Quality Act
CHSRA	California High Speed Rail Authority
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CNSSTC	California-Nevada Super Speed Train Commission
COFC	Container on Flat Car
CORP	Central Oregon and Pacific Railroad Company
CP	Control Point
CPUC	California Public Utilities Commission
CRCC	Coast Rail Coordinating Council
CSLRRA	California Short Line Railroad Association
CTC	Centralized Traffic Control
DC	Direct Current
DMU	Diesel Multiple Unit Railcar
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EUKA	Eureka Southern Railroad Company
FFY	Federal Fiscal Year
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GF	General Fund

Acronyms
Continued

GGBD	Golden Gate Bridge, Highway and Transportation District
GMAP	Goods Movement Action Plan
GPS	Global Positioning System
ICC	Interstate Commerce Commission
ICRP	California Intercity Rail Capital Program
IMC	Intermodal Marketing Company
IOS	Initial Operating Segment
ISTEA	Intermodal Surface Transportation Efficiency Act
IT	Information Technology
ITA	Interagency Transfer Agreement
ITIP	Interregional Transportation Improvement Program
ITSP	Interregional Transportation Strategic Plan
JPA	Joint Powers Authority
JPB	Peninsula Corridor Joint Powers Board
LACMTA	Los Angeles County Metropolitan Transportation Authority
LAUS	Los Angeles Union Station
LAX	Los Angeles International Airport
LNG	Liquefied Natural Gas
LRFA	Local Rail Freight Assistance
LRSA	Local Rail Service Assistance Act of 1978
Maglev	Magnetic Levitation
MTC	Metropolitan Transportation Commission
MTDB	Metropolitan Transit Development Board
NCRA	North Coast Rail Authority
NCTD	North County Transit District
NEPA	National Environmental Policy Act
NWP	Northwestern Pacific Railroad
NWPRA	Northwestern Pacific Railroad Authority
OCTA	Orange County Transportation Authority
OTP	On-Time Performance
PA	Public Address System
PEIR	Programmatic Environmental Impact Report
PEIS	Programmatic Environmental Impact Statement
PTA	Public Transportation Account
PTC	Positive Train Control System
RCTC	Riverside County Transportation Commission
RFP	Request for Proposal
ROW	Right-of-Way or Rights-of-Way
RPSA	Federal Rail Passenger Service Act
RTIP	Regional Transportation Improvement Program

Acronyms
Continued

SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: a Legacy for Users
SamTrans	San Mateo County Transit District
SANBAG	San Bernardino Associated Governments
SB	Senate Bill
SCAG	Southern California Association of Governments
SCRRA	Southern California Regional Rail Authority
SDNR	San Diego Northern Railway
SHA	State Highway Account
SJRRC	San Joaquin Regional Rail Commission
SLO Transit	San Luis Obispo Regional Transit
SMART	Sonoma Marin Area Rail Transit District
SMCTA	San Mateo County Transportation Authority
SP	Southern Pacific Transportation Company
STA	State Transportation Assistance Program
STB	Surface Transportation Board
STIP	State Transportation Improvement Program
TAMC	Transportation Agency for Monterey County
TCI	Transit Capital Improvement Program
TCRF	Traffic Congestion Relief Fund
TCRP	Traffic Congestion Relief Program
TDA	Transportation Development Act
TDIF	Transportation Deferred Investment Fund
TEA-21	Transportation Equity Act for the 21st Century
TIF	Transportation Investment Fund
TIFIA	Federal Transportation Infrastructure Finance and Innovation Act
TIP	Transportation Improvement Plan
TOFC	Trailer on Flat Car
UP	Union Pacific Railroad Company
USDOT	United States Department of Transportation
VCTC	Ventura County Transportation Commission
VRU	Voice Response Unit
VTA	Valley Transit Agency
WP	Western Pacific Railroad Company
WTTN	Western Transportation Trade Network