CALIFORNIA DEPARTMENT OF TRANSPORTATION

Baselines: Current and Future Transit Trends

California Statewide Transit Strategic Plan

July 2011

Table of Contents

Executive Summary

Introduction: Transit in California

Transit plays a key role in the movement of people in California. Transit planning has historically been carried out primarily by transit operators and agencies as a part of their regular activities for operating transit. Transit providers have understood early in the planning and development of public transportation, the public's growing concerns for a lack of transportation alternatives, and the importance of transit in California.

In more recent times, transit providers have struggled to balance their budgets as they address increased operating costs, capital reinvestment backlogs, and funding reductions as a result of the economic downturn. Traditional funding sources have been impacted on all levels - federal, state, and local - and transit agencies are trying to adapt to these ongoing impacts by taking various measures such as cutting transit services and operations, while seeking new sources of revenue. Investments to preserve transportation systems, such as the public transit infrastructure, simply have not kept pace with the demands on them. Recently, the Department of Transportation (Caltrans) in partnership with the California Transportation Commission (CTC) who working with the regions, Rural County Task Force, transit agencies, and ports, developed an interim draft "Statewide Transportation System Needs Assessment." The assessment resulted in the development of a comprehensive and coordinated list of transportation projects and programs, and related funding requirements, which will allow local, state and regional transportation agencies to present a consistent message when communicating California's transportation system: preservation, expansion, management, maintenance and operations needs. In addition, the California Unmet Transit Funding Needs FY 2011-FY 2020, which was developed in partnership with Caltrans, the California Transit Association (CTC), and the Sacramento Area Council of Governments (SACOG) is a study that tries to determine the depth of transit funding needs facing transit agencies and the competition for available funding.

Climate change concerns have prompted the need for re-evaluating the role and use of private automobiles and a renewed focus on the strategic role transit plays in lowering Greenhouse Gas emissions and overall improved mobility in California. The following laws supporting this renewed focus on transit can be seen in: the California Environmental Quality Act (CEQA) which provides guidance for integrating greenhouse gas emissions (GHG) reduction goals; Assembly Bill (AB) 32, the Global Warming Solution Act of 2006 that created a comprehensive plan to reduce greenhouse gas (GHG) emissions in California; Senate Bill (SB) 375 that establishes new links between regional transportation plans, land use planning, GHG emissions reduction and housing and requires a Sustainable Communities Strategy (SCS) be developed by Metropolitan Planning Organizations to enhance California's ability to reach its AB 32 goals.; and Senate Bill (SB) 391 that requires Caltrans to update the California Transportation Plan. Public transit is crucial to helping lower vehicle miles traveled (VMT), and without it, efforts to change land use patterns alone cannot bring desired GHG emissions reductions as required. Climate and energy concerns, changing population patterns, and forecasted population growth in the state all support transit's relevance as a strategic mobility service in California.

As land use patterns have decentralized and commutes have grown longer, the ability to live further away from city centers is made possible primarily due to improvements in transportation, and transit service has become increasingly important to those who travel from rural to urban areas. Yet, there are many who commute by private auto, resulting in: increased congestion, limited space for parking, and

higher gas prices. These factors have contributed to a greater need for transit services to include commuter and urban rail, express buses, and employer-provided shuttles. Although using transit services in non-urban areas is a more expensive choice moving fewer passengers in California than modes serving dense city areas, these services are important mobility choices for people living outside urban areas, and provides a transportation alternative for automobile-dependent travelers.

Transit continues to play an important role in providing quality service and availability for a broad segment of the California population, including: providing mobility for those who cannot drive and providing good alternatives to those who do drive, while reducing congestion on highways and offering energy efficient travel at a reasonable cost. At the same time, funding for transit continues to be a challenge as local sales tax revenues decrease and shifts in priorities occur at both State and Federal levels.

This report, Baselines: Current and Future Transit and Demographic Trends, California Statewide Transit Strategic Plan (STSP) is the deliverable for the first phase of three, for the Statewide Transit Strategic Plan (STSP) that is being developed in partnership with the California Department of Transportation (Caltrans), the California Transit Association (CTA), and the California Association for Coordinated Transportation (CalACT). The STSP will assist the Department and stakeholders in recognizing transit as a part of the larger transportation system in California. The STSP project creates a forum for Caltrans and transit providers to share information, to discuss mutual goals and policies, and it supports the statewide objectives of the Interregional Blueprint and the California Transportation Plan. These collaborative efforts will help build consensus for a collective vision for California's future transportation system. The Baseline report for the STSP provides a basic overview of the current transit operations and services in California, funding sources for transit investments and operations, and level of ridership of public transit providers. It also identifies some of the opportunities and challenges in coordinating public transit services on a statewide scale. The Baseline report will be used as a basis in the next phase, interviews with targeted transit providers. The final phase of the STSP project will result in both a final Strategic Issues Document and a Report on Cost-Effective Improvements to Transit. The overall goals of the STSP are to promote multiple objectives, including improved mobility, meet global warming initiatives outlined In Assembly Bill (AB) 32 and Senate Bill (SB) 375, and support Senate Bill (SB) 391, Caltrans' update of the California Transportation Plan.

The following are summaries for eight sections, shown in more detail later in this report, beginning with State and federal requirements that support transit planning in California and concluding with transit-related challenges and opportunities:

Section 1: California & Federal Law on Strategic Transit Planning

The first section of the report analyzes the California and federal mandates supporting transit planning. The amended CEQA guidelines include guidance for integrating greenhouse gas emissions (GHG) reduction goals. Public transit services greatly assist us all in improving mobility and meeting GHG goals as outlined in AB 32, SB 375 and SB 391. Although these bills do not directly address the need for more and better-coordinated public transit, this section concludes that legislation can play an important role in supporting public transit. Based on an examination of FTA's data and other academic, government, and industry sources, public transportation can reduce greenhouse gas emissions by providing a low emissions alternative to driving, facilitating compact land use, reducing the need to travel long distances, and minimizing the carbon footprint of transit operations and construction. Air quality regulations coupled with the mandate to connect transportation and land use planning, support transit.

Section 2: Transit Funding in California

Typically, funding to California transit agencies comes from a variety of sources: local taxes, fees, bonds, and some coming from transit operations. While funding for capital projects are split among federal, state, and local government sources, operating funds come from farebox revenues and state and local governments. There are multiple federal and state funding sources, such as funding from the Federal Transit Administration for transit programs in the form of grants, or grants made available through the Department of Homeland Security. State and local government funding comes mostly in the form of excise and fuel taxes and from additional sources like bonds, tolls, and grants from air quality management districts. Additional transit funding is generated by advertising, investments, leases, contracting services and parking. This section also identifies future funding challenges to California public transit agencies. The California Transportation Commission's (CTC) interim draft Statewide Transportation System Needs Assessment is a comprehensive plan that includes a summary of needs analysis and associated revenue challenges. Also, the California Unmet Transit Funding FY 2011-FY 2020 Needs report compares funding and capital and operating needs, and reveals a 10-year unmet operating and maintenance gap of $22.2 billion and a capital gap of $42.1 billion (not including three intercity rail lines owned by Caltrans and operated by Amtrak—Capitol Corridor, Pacific Surfliner, and the San Joaquin). The report concludes that overall in California, transit service grew at a higher rate than transit usage; as such, the costs of providing transit service has increased faster than ridership. The report also points out that while California transit operators provided 28% more services in 2009 as compared to 2000, operating costs rose by 69%. Based on 2009 data, overall passenger fees comprise the largest portion of revenues at 19.3%, while the highest expense for transit operators was salaries, wages and benefits at 45%. General trends in transit usage and costs show that transit service in California has become less cost effective, i.e. costs have increased while ridership per vehicle revenue hours have decreased.

Section 3: Current and Future Trends in Transit

This section of the report identifies three demographic trends that correlate with high public transit demand: population size and growth rate, age, and location. Based on California Department of Finance data, researchers found that the number of individuals below the driving age is expected to grow by 42.5 % by 2050; while the over 65-population is expected to increase by 162%. The 2010 American Community Survey estimates that 9.9% of Californians are disabled and a portion of this population is transit dependent. Demographic trends coupled with geographic trends, led the authors of this report to conclude that strategic planning, interagency coordination, increased interregional connectivity, and new funding sources are all essential to meeting future transit demand and reducing vehicle miles traveled (VMT).

Section 4: Regional Coordination & Interregional Connectivity

The main tool that public transit agencies have for regional coordination is the Short Range Transportation Plan (SRTP). This report examines one example of regional coordination in Northern California: San Francisco Municipal Transit Authority; and one example in Southern California: Omnibus. Overall, interregional rail coordination is much more successful than bus service by having graduated fares and being able to reach across wider regions. The main barriers towards achieving regional coordination of transit plans and interregional connectivity are planning, coordination and funding of transit agencies. Regional coordination is seen as a path to reducing service duplication and increasing farebox recovery rates. One example of efforts to achieve both coordination and connectivity is the California High Speed Rail project, which is a planned future rail system to serve major California cities, including San Francisco, Los Angeles, Sacramento, San Jose, Fresno, Bakersfield, Palmdale, Anaheim, Irvine, Riverside and San Diego.

Section 5: Transit and Infrastructure

This section examines bus rapid transit, shuttles and vanpools, pedestrians and bicycles, park-and-ride lots, and transit-oriented development.

One strategy becoming increasingly popular in California is Bus Rapid Transit (BRT). Fully developed BRT systems include bus-only lanes, stations with raised platforms, fare prepayment, signal priority, real-time arrival information, and limited stops. Twenty-two California transit agencies operate BRT express service, and 13 agencies are planning BRT. BRT is often seen as a more efficient way of moving passengers across wider areas.

Shuttles and vanpools are also becoming more widely used in California. Shuttles are flexible in costs, route planning, service provision, and operation, and they can be used for employment transportation, neighborhood access, and travel to specific recreational destinations. Shuttles can provide "last mile services," and can be used for trips that are more specialized. They are also used as a congestion reduction mitigation strategy. Vanpools are managed differently by different public transit agencies. For example, in San Luis Obispo County, the Transportation Management Association Ride-On program provides the van, insurance, maintenance, fuel, registration, and carwash for a monthly fee, while San Diego's RideLink offers ride matching and subsidizes van leasing ($400 per month). In San Diego, the driver negotiates the lease (including maintenance and insurance) and passengers split the cost of fuel.

Transit planning agencies are considering how bicycles and pedestrians access their transit networks. However, coordinating improvements can be difficult as cities and counties are responsible for pedestrian improvements. Although transit agencies cannot provide bicycle lanes or street bike racks, they do advocate for them. Oakland is one of the first cities in the country to develop a plan to support pedestrian travel. The report includes examples of how bicycle infrastructure has been integrated into transit stops throughout California.

Park-and-ride lots are operated by both transit agencies and private companies and are used to connect to buses, carpools, vanpools, and rail. Although transit agencies consider park-and-ride lots essential to connecting commuters, they are not considered ideal. A Caltrans survey showed that 90% of park-and-ride users are commuters, with one third of users driving only 10 minutes to reach the lots. Since emissions from cold starts are high, short car trips to reach transit can produce additional pollution.

Transit Oriented Development (TOD) is a moderate to high-density development (either new construction or redevelopment) within an easy walk of a major transit stop, with a mix of residences, employment, and shops. In California, thirteen agencies discuss TOD in their short-range transit plans: BART, Caltrain, LACMTA, SacRT, SamTrans, Omnitrans, Santa Monica Big Blue Bus, Fresno Area Express, LAVTA, OCTA, WestCAT, Santa Clara Valley Transit Authority (VTA), and MUNI. TOD can encounter many challenges, but is seen as an integral part to improving public transit efficiency and regional connectivity.

Section 6: Performance Measures

This section looks at different performance measures for public transit agencies. The most common performance measures are on-time performance and farebox recovery. On-time performance is defined as a transit vehicle operating less than five minutes behind schedule and departing less than one minute ahead of schedule, or never departing early at all. Farebox recovery is revenue generated through fares by its paying customers divided by operating expenses. Farebox recovery ratio targets vary according to type of service, the characteristics of the ridership, and funding. There are also transit agency specific performance measures like boardings per revenue hour and passengers per revenue mile and they vary according to service area and population.

Section 7: Specialized Transit

Specialized transit services are geared to serve the special needs of people with disabilities, elderly or low-income populations. Assembly Bill 120 (1979), the Social Services Transportation Improvement Act, called for a Consolidated Transportation Service Agency (CTSA) in each county, to foster coordination among providers of transportation to groups lacking mobility, lower insurance costs, and make better use of vehicles and funding. The services provided by CTSAs take multiple forms like fixed-route bus and light rail, demand-response, like dial a ride, or supplemental/human services transportation, like senior shuttles or shuttles for community events. The report puts forth two recommendations for improving CTSA's in California: establish a "mobility manager" based on geographic area to oversee coordination of programs and funding, including all providers; and encourage better coordination between land use development and transit agencies so that social service agencies, medical facilities, senior housing, and employment centers can be more easily accessed by transit.

Section 8: Outreach, Marketing & Technology

The last section of the report gives a brief overview of the role that marketing and technology play in increasing public transit ridership. New venues for outreach and marketing, like Facebook, Twitter or user friendly websites like www.google.com/transit are helping to change the perception of transit and provide transit agencies with the opportunity to target riders.

Section 1: California & Federal Law on Strategic Transit Planning

This chapter discusses an overview of statutes, regulations, and policies that affect public transportation in California. (See summary in the Appendix).

Greenhouse Gas Reduction

Assembly Bill 32 and Senate Bill 375

Assembly Bill 32 (AB 32) (2006) requires that the State reduce GHG emissions to 1990 levels by 2020. The law does not specify strategies, instead creating general guidelines, outlining goals, and mandating the California Air Resources Board to create and implement strategies. The Air Resources Board has adopted an AB 32 Scoping Plan and is drafting and promulgating implementation regulations. The AB 32 Adopted Scoping Plan suggests a few specific roles for public transit. For example, the plan recommends adopting strategies to increase public transit use among State employees.

The transportation sector contributes over 40% of the GHG emissions in the State of California; automobiles and light trucks alone contribute almost 30%. The state plans to address these emissions through several strategies. The first is through new vehicle technology. The state has established guidelines for vehicle GHG emissions (AB 1493, Pavley) which will spur adoption of new, more GHG efficient vehicles. Second, California's Low Carbon Fuel Standard seeks to reduce the GHG intensity of transportation fuels 10% by 2020. A portion of the greenhouse gas emissions reductions required by AB32 can be achieved by new vehicle technology and by the increased use of low carbon fuel; however, it will not be enough to fulfill the policy goal. Without improved land use and transportation coordination, and transit-supportive growth, California will unlikely achieve the mandate established with AB 32.

State lawmakers were concerned that GHG reductions from improvements to vehicle technology and reductions in fuel GHG intensity would be eroded by increases in vehicle miles traveled. SB 375 (Steinberg, 2008) seeks additional transportation GHG reductions from regional Metropolitan Planning Organizations, which are charged with preparing regional transportation and housing plans. SB 375 calls for the integration of transportation planning, land use, and housing to lower GHG emissions from cars and light trucks by reducing vehicle miles traveled. SB 375 requires the Air Resources Board to develop regional reduction targets. Regional governments must develop a "Sustainable Communities Strategy" that integrates the Regional Transportation Plan and Regional Housing Needs Allocation to achieve future GHG reduction targets.

The language of SB 375 explicitly recognizes the role of transit in achieving such reductions:

> Each transportation planning agency…shall prepare and adopt a regional transportation plan directed at achieving a coordinated and balanced regional transportation system, including, but not limited to, mass transportation, highway, railroad, maritime, bicycle, pedestrian, goods movement, and aviation facilities and services. [65080 (a)]

SB 375 requires the collection of public transit supply data and "measures of equity and accessibility," including the "percentage of the population served by frequent and reliable public transit." SB 375 also calls for balanced household growth targets in regional transportation plans, and for planning to maximize use of public transportation and existing infrastructure. Compact, mixed-use development,

when combined with other strategies, can bring lower levels of VMT. Many regions will incorporate transit oriented development as a central element of their Sustainable Communities Strategy.

California Environmental Quality Act (CEQA)

The National Environmental Policy Act (NEPA) came into law in 1969. In response, the California State Assembly created the Assembly Select Committee on Environmental Quality to study supplementing NEPA through state law. In 1970, this committee issued The Environmental Bill of Rights, which called for a California counterpart to NEPA. Later that same year, the legislature passed, and Governor Reagan signed, the California Environmental Quality Act (CEQA).[1]

Senate Bill 97 (2007) required the Governor's Office of Planning and Research (OPR) to develop amendments to CEQA Guidelines for the mitigation of greenhouse gas emissions and their effects. OPR was to prepare, develop, and transmit amendments to the Natural Resources Agency by July 1, 2009.[2]

As directed by SB 97, the Natural Resources Agency amended CEQA Guidelines for greenhouse gas emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the amendments and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010.[3]

The new guidelines seek to integrate the GHG reduction goals of AB 32 and SB 375 into the CEQA review process. Additionally, SB 375 includes CEQA streamlining for regions with Sustainable Communities Strategies. CEQA streamlining applies to certain projects, including "Transit Priority Projects" (at least 50% residential uses, a density of at least 20 units per acre, and within a half mile of a regional transit corridor) or residential/mixed use (at least 75% of the total square footage for residential uses).

Air-Quality Mandates for Transit Operators

Air quality mandates call for monitoring transit vehicle fleets and funding new equipment. Adopted in February 2000 Title 13 (California Code of Regulations, sections 1956.1, 2020, 2023, 2023.1 & 2023), requires urban bus operators to choose either diesel or alternative fuel, to reduce exhaust emissions. The Air Resources Board monitors nitrogen oxides and particulate matter emissions from transit fleets, and funds zero-emission bus demonstration projects. Transit agencies choosing diesel must purchase new, cleaner buses, or retrofit older bus engines with filters. ARB sets emission standards for clean diesel buses. Agencies choosing alternative must purchase at least 85% alternative-fuel buses, running on compressed natural gas, propane, ethanol, biodiesel, or methanol. The ARB has opposed on a requirement that transit operators purchase zero emissions buses.[4]

Bond Initiatives

Proposition 1A-- High-Speed Rail

In 2002, California voters approved the Safe, Reliable High-Speed Passenger Train Bond Act for the 21st Century, which generated $10 billion for intercity high-speed rail. The High-Speed Rail Authority, established in 1996, oversees the implementation of high-speed rail funds, including $3 billion from

[1] California Natural Resources Agency website, "Frequently Asked Questions About CEQA," http://ceres.ca.gov/ceqa/more/faq.html#guidelines3

[2] California Natural Resources Agency website, "Proposed Guidelines Amendments & Related Materials," http://ceres.ca.gov/ceqa/guidelines/proposed_guidelines_amendments_and_related_materials.html

[3] California Natural Resources Agency website, "CEQA Guidelines: 2009 SB 97 Rulemaking," http://ceres.ca.gov/ceqa/guidelines/

[4] California Air Resources Board, "Postponement of the Purchase Requirement for Zero-Emission Buses under the Transit Fleet Rule," http://www.arb.ca.gov/msprog/bus/zeb/mailouts/msc1004.pdf

federal programs. The federal government also redirected $624 million to California's High-Speed Rail Authority from other states not planning a high-speed rail system.

California's High-Speed Rail Authority envisions a new transportation system linking Los Angeles to San Francisco through the State's Central Valley. The planned rail system will provide Californians an alternative to automotive and air travel and aims to make the State's transportation system globally competitive.

Proposition 1B (The Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006)

Proposition 1B authorizes programs to improve transportation infrastructure in California, including transit improvements. Three specific programs authorized by Proposition 1B include: (1) the Corridor Mobility Improvement Account, which funds transit improvements to the State Highway System and its major access routes; (2) the Local Street and Road, Congestion Relief, and Traffic Safety Account, which funds improvements to transit facilitates that reduce traffic, improve safety, and increase ridership, and (3) the Public Transportation Modernization, Improvement, and Service Enhancement Account, which provides funding for projects such as transit rehabilitation, safety or modernization improvements of transit facilities, capital service enhancements or expansions, new capital projects, bus rapid transit improvements, or rolling stock procurement, rehabilitation or replacement.

Proposition 1C (The Housing and Emergency Shelter Trust Fund Act of 2006)

California's Proposition 1C funds affordable housing and infrastructure projects in the State's Strategic Growth Plan. Proposition 1C authorizes funds for infill housing and projects that improve transit access. Prop 1C also funds high-density, transit-oriented development projects, as well as transit information systems. The California Department of Housing and Community Development oversee these funds.

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

California's Proposition 116 authorized $2 billion to expand intercity, commuter, and urban rail service. It also funded Amtrak, subway and light rail projects, a proposed monorail in Irvine, the San Francisco Bay Area ferry service, bicycle commuter projects, rural public transit, and the Bay Area Rapid Transit extension to San Francisco International Airport.

Assembly Bill 105

Assembly Bill 105 (2011) reauthorizes the fuel tax swap of 2010, which allowed the state to use gas tax revenues for general obligation bond debt service, and provided restorative funding for local transit. AB 105 maintains annual transit funding at $350 million, the amount proposed by the fuel tax swap, by shifting sales tax on diesel fuel to transit operations. The fuel tax swap was overturned by Proposition 26, which stated that any new taxes or fees put into place after January 1, 2010 required a two-thirds vote of approval, and by Proposition 22, which prohibited the use of gas tax revenues for general obligation bond debt service.[5]

The California Transportation Plan (CTP)

Senate Bill 391

Senate Bill 391 (2009) requires the California Department of Transportation (Caltrans) to update the California Transportation Plan (CTP) by December 31, 2015, and every five years thereafter. SB 391 also

[5] Legislative Counsel of California website, "AB 105 Assembly Bill –Bill Analysis," http://www.leginfo.ca.gov/pub/11-12/bill/asm/ab_0101-0150/ab_105_cfa_20110317_113735_sen_floor.html

requires Caltrans to describe a statewide, integrated, multimodal transportation system to achieve the GHG emission targets of AB 32, using the "Sustainable Communities Strategy" in SB 375.

The CTP is a twenty-year plan for a multimodal, sustainable transportation system, based on demographic, economic, and technological forecasts. The goal of the CTP is to develop a "safe, sustainable, world-class transportation system that provides for the mobility and accessibility of people, goods, services, and information through an integrated, multimodal network that is developed through collaboration and achieves a prosperous economy, a quality environment, and social equity" with emphasis on transit and non-motorized modes. Caltrans, regional transportation planning agencies, and public transit operators are partners in the planning.

Federal Disability Law

Laws and regulations requiring access for the disabled affect public transit profoundly. First, transit operators must provide equal access for all. Second, transit operators are legally obligated to provide services such as demand-response for those who cannot use fixed-route transit.

Americans with Disabilities Act of 1990 (ADA)

The American with Disabilities Act prohibits transit agencies from discriminating against the disabled. Newly purchased or leased vehicles must be accessible. Unless it would result in an undue burden, transit agencies must provide paratransit service to those unable to use regular transit.

Job Access and Reverse Commute (JARC)

The Job Access and Reverse Commute program aims to provide accessibility for low-income, urban individuals to suburban jobs, daycare and schools through reverse commute service.

Public Transportation for Elderly in Low or No Regular Service Areas

The Elderly and Disabled Specialized Transit program (Federal Transit Administration Section 5310) funds public transit in areas with no regular service, and for to the elderly and disabled with few transportation options. This program helps transit agencies buy accessible vans, buses, communication equipment, and computer hardware and software.

Challenges and Opportunities

California's statewide GHG initiatives, AB 32 and SB 375 goals are supported with the integration of transportation and land use planning to reduce greenhouse gas emissions. These initiatives may raise the cost of single-occupant vehicle trips and increase demand for public transit.

To meet AB 32 and SB 375 emissions targets, vehicle miles traveled must be reduced, which requires alternatives to driving. However, according to findings in SB 391, "Current public transportation services and facilities are inadequate to meet current and expected future increases in demand." In response, AB 32 and SB 375 encourage Caltrans and local transit agencies to develop public transportation services.

Air quality regulations require current public transit fleets to meet rigorous air quality standards. In some cases, this requires the purchase of expensive new vehicles, which force transit agencies to shift funds to fleet renewal from other purposes. However, transit agencies regularly budget for fleet turnover, regardless of air quality requirements. Overall, emissions from California public transit agencies have declined.

Conclusion

Through statewide legislation, California aims to reduce vehicle miles traveled through integrated and coordinated transportation and land-use planning. This goal cannot be achieved without funding public transit to meet growing demand.

As Californians age, public transit must accommodate urban and suburban elderly with limited mobility. This changing demographic could form the base for efficient demand-response service.

Public transit plays an important role that is not well described, developed, and funded under AB 32 and SB 375. The Statewide Transit Strategic Plan articulates the role public transit plays in light of population growth, changing demographics, economic trends, and legislative mandates.

Section 2: Transit Funding in California

California's $7.7 billion[6] of transit funding comes from several sources. Three-quarters of transit funding comes from taxes, fees, and bonds, and the remainder from operations. Capital[7] funds are evenly divided between federal, state, and local government sources. Most operating[8] funds come from fares and state and local governments.

The Federal Transit Administration (FTA) administers most federal funds for transit. Other federal agencies, such as the Department of Homeland Security, also provide funding, usually as grants for security.

State and local funding is provided through excise and fuel taxes, as well as general funds. State and local bonds, tolls, and grants from other public agencies, such as air quality management districts, also supply transit funding.

In addition to government sources, transit agencies generate revenue from fares, advertising, investments, leases, contracting services and parking.

Federal Transit Funds

The following section outlines major sources of federal transit funding.

FTA Section (5304)

This fund supports planning for transportation investments. Eligible recipients are State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs). Funds are first apportioned to State DOTs, which then allocate funding to MPOs. Individual projects may not receive federal funds unless they are included in the Transportation Improvement Plans required by this section.

FTA Urbanized Area Funds Section (5307)

These funds are allocated to urbanized areas (U.S. Census-defined, with a population 50,000 or more) by formula according to population and amount of transit service, for capital projects or maintenance, though operating expenses is an eligible expenditure for areas of less than 200,000.

[6] According to the 2009 National Transit Database

[7] For purchase of equipment (non-expendable tangible personal property having a useful life of more than one year and an acquisition cost the lesser of: the capitalization level established by the government unit for financial statement purposes, or $5,000). Capital expenses do not include operating expenses (OE) that are eligible to use capital funds. Definition from FTA National Transit Database http://www.ntdprogram.gov/ntdprogram/Glossary.htm#C

[8] The expenses associated with the operation of the transit agency, and classified by function or activity, and the goods and services purchased. These are consumable items with a useful life of less than one year or an acquisition cost which equals the lesser of: The capitalization level established by the government unit for financial statement purposes, or; $5,000. Definition from FTA National Transit Database http://www.ntdprogram.gov/ntdprogram/Glossary.htm#O

FTA Capital Program Funds (New Start Program) Section (5309)
These funds are allocated by a combination of formulas and competitive or discretionary grants, new (or extension or improvement of) fixed guideways, rolling stock purchase, facilities construction, and maintenance.

American Recovery and Reinvestment Act of 2009 ("Recovery Act" or "ARRA") - ARRA funding is for: vehicle acquisition, equipment, facilities, preventative maintenance, transit safety and security, like the FTA Section 5311 Program, which also includes for paratransit operating assistance under Americans with Disabilities Act regulations[9].

ARRA apportionment: $2.57 billion for highways, local streets, freight and passenger rail, and port infrastructure, including $1.07 billion for transit.

Capital investment for non-urbanized areas (transit) is $34 million

Transportation Investment Generating Economic Recovery (TIGER III) – FTA Sustainability Initiative grant program (Transportation Appropriations Act – a discretionary fund)

Funds are provided through a competitive grant; promotes job creation, $140 million available for rural areas nationwide; Caltrans in partnership with Public and Private transit providers; to upgrade existing Intercity Bus services; and link communities with existing transportation networks.

Additional federal funds administered by the FTA include:

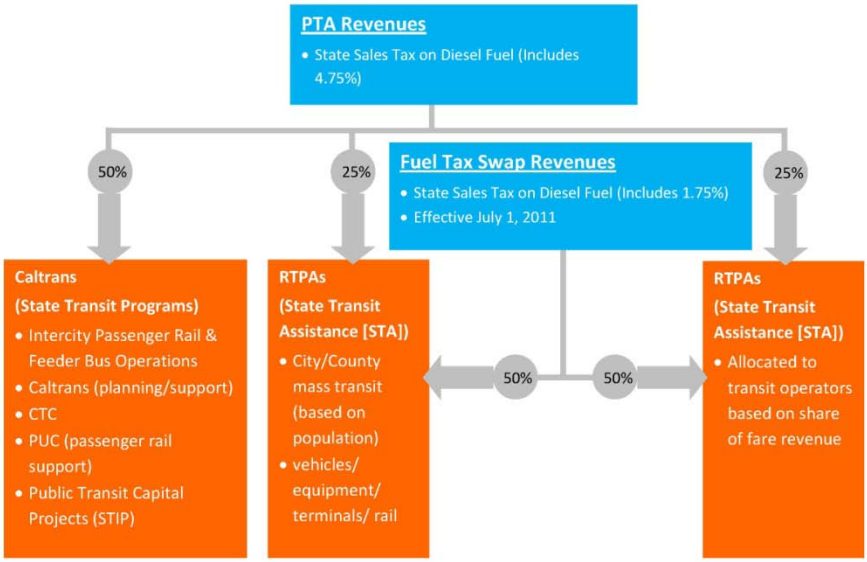
- Metropolitan Planning (5303)
- Clean Fuels (5308)
- Transportation for Elderly Persons and Persons with Disabilities (5310)—discussed in Section 7: Specialized Transit
- Rural and Small Urban Areas (5311)—discussed in Section 7: Specialized Transit
- Job Access and Reverse Commute (5316)—discussed in Section 7: Specialized Transit
- New Freedom (5317)—discussed in Section 7: Specialized Transit

State and Local Funds

State and local funds make up two-thirds of transit funding in California. The largest state sources:

- Transportation Development Act
- Public Transportation Account
- Transportation Investment Fund, and
- Proposition 1B—PTMISEA

[9] A web site with information on this funding opportunity is available at http://www.dot.ca.gov/Recovery/



California committed tax revenue to the growth and coordination of public transportation with the passage of the Mills-Alquist-Deddeh Act (SB 325) in 1971. This is called the Transportation Development Act (TDA), and represents the first legislation of its kind in the United States. The first funding source established within the Act was the Local Transportation Fund (LTF) established in 1972, deriving its revenue from ¼ cent of the general sales tax collected statewide. In 1980, a second source of funding was established with the creation of the State Transit Assistance (STA) fund. This fund is now funded with the sales tax on diesel fuel. With the passage of the TDA, California experienced a growth in public transportation and transit services. Through the years, however, STA funding was frequently vulnerable to redirection to the General Fund, often disrupting transportation services and delaying capital projects.

Local sales taxes may be imposed by special transit districts that directly operate transit service or by county transportation commissions that allocate funding to transit service and other transportation priorities (also known-as self-help counties). Sales tax measures in self-help counties require two-thirds vote to pass and expire after twenty to thirty years.

Local general fund revenue and bonds are other forms of state and local support. Some transit agencies (e.g., Bay Area Rapid Transit District, Los Angeles County Metropolitan Transportation Authority, Caltrain Joint Powers Authority, and the North County Transit District) issue their own bonds.

Transportation Development Act Funds (TDA)

The California Transportation Development Act (TDA) provides two major sources of funding for public transportation: the Local Transportation Fund (LTF) and the State Transit Assistance fund (STA). These are allocated to counties based on population, taxable sales and transit performance. Counties may use LTF for local streets and roads, if they show no unmet transit needs.

To obtain TDA funds, transit agencies must recover at least 20% of operating expenses for urban services and 10% for rural services through fares. Most agencies recover between 20% and 30%, although recovery rates range from five to 40%. Buses are more labor intensive and have lower farebox recovery, so are more costly to operate than rail. California rail agencies recover around 40%. (See Performance Measures chapter for more information on farebox recovery)

Public Transportation Account (PTA)

California's Public Transportation Account (PTA) is funded through the State Sales Tax on diesel fuel. PTA is the primary source of state transit funding for the State Transit Assistance (STA) fund, transit capital projects, and the state's intercity rail program. In recent years, the PTA expanded to fund home-to-school and regional center transportation.

Transportation Investment Fund (TIF)

The Transportation Investment Fund (TIF) is codified in Revenue and Taxation code section 7104. Revenue derived from the sales tax on gasoline in the State's General Fund has historically been the funding source of the TIF. The TIF, in turn, was a contributing funding source for the PTA and TCRF, among others. AB X 86 and AB X 89, the fuel tax swap, eliminated all sales taxes on gasoline as of July 1, 2010, which has in effect suspended the viability of the TIF. Pursuant to Rev and Tax code section 7104.4, "All remaining obligations of the Transportation Investment Fund as of July 1, 2010, that cannot be funded with resources in that fund shall become obligations of the State Highway Account".

Proposition 1B—PTMISEA

The Public Transportation Modernization, Improvement, and Service Enhancement Account (PTMISEA) was created by Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. In Fiscal Year (FY) 2007/2008, Senate Bill 88 identified the Department of Transportation as the administering agency. Of the $19.925 billion available to Transportation, $3.6 billion dollars were allocated to PTMISEA for distribution to transit operators over a ten year period. Funds in this account are appropriated annually by the Legislature to the State Controller's Office (SCO) for allocation in accordance with the population and revenue formula in Public Utilities Code Article 5, section 8879.55.

PTMISEA funds may be used for the rehabilitation, safety or modernization i.e. expansion of transit projects. Eligible projects include new transit facilities, improvements for existing facilities, including Bus Rapid Transit (BRT) systems, and procurement or replacement of rolling stock i.e. buses and rail cars. The $3.6 billion is for capital projects only. Routine facility maintenance and transit operations are not eligible for PTMISEA funding. To date, the Legislature has appropriated $2.8 billion to the Program. The FY 2010/11 Budget includes $1.5 billion for the next three years.

Other State and Local Funding

Agencies receive funding from a variety of other state and local sources including bridge tolls, air quality management districts, and property taxes. In 2008, fifteen transit agencies received funding from tolls, the majority from San Francisco Bay Area bridge tolls. The Orange County Transportation Authority collected $5 million from high occupancy vehicles tolls in 2008. Small grants from local air quality management and air pollution control districts grants fund transit and shuttle services. In 2008, six transit agencies received local property tax funding, including AC Transit, BART, and OCTA.

Earnings from Operations

In 2008, California's transit agencies generated $1.8 billion from operations, or 23% of total funding. Fares, advertising, leasing land and equipment, and parking supplied this revenue.

Fares

California transit agencies charge both a flat fare - a set fare for any trip - and distance-based fares. Some transit operators base fares on the number of "zones" traversed. Others vary fares based on the specific station of boarding and alighting. No agency examined currently applies a peak hour fare surcharge for regular fares.

Most agencies offer monthly passes, at a discount of $7 to $44 for agencies examined. All agencies examined offer discounts to seniors and the disabled. Some offer youth or student discounts. Some transit agencies supply bulk discount passes to large schools or employers, or to city or county

employees. Some transit agencies offer free bus service (often loops through commercial corridors) downtown.

All transit agencies accept cash, but many also accept prepaid fare media smart cards that use an embedded radio frequency identification (RFID) chip to track cash balance or active passes. Both passes and smart cards facilitate faster boarding, eliminate paper transfers, ease transfers between transit agencies, and assist ridership tracking. In most applications, smart card holders can register their cards and easily replace a lost card with the remaining balance. Smart cards enable transit agencies to better track boarding and alighting and to vary fares based on ridership information.

Advertising

Fifty transit agencies sell advertising space, on or within vehicles, bus shelters and properties. The largest transit agencies (LA Metro, Bay Area Rapid Transit, SF Muni, and Orange County Transportation Authority) earn the most from advertising, though small transit agencies may benefit similarly. Petaluma Transit earns 16**%** of its directly generated operating revenue from advertising, The County Connection (in Contra Costa County), earns 12**%**. Comparatively, San Francisco Muni receives 7% of its directly generated operating revenue from advertising.

Leases

Transit agencies generate revenues from leasing facilities, land, and equipment. Examples include:

- Bay Area Rapid Transit receives $5 million from telecommunications companies to run fiber optic cables alongside its right-of-way and to store equipment on its land.
- Los Angeles Metro receives $1.5 million from renting space in its buildings.
- Golden Gate Transit receives $600,000 from leasing its vehicles and real property.

The National Transit Database calls leases "non-transportation" revenue, like investment income, fees, and asset sales.

Contracted Service

Eighteen transit agencies provide charter or contract service. For example, Los Angeles Metro receives $240,000 for providing shuttle service to the Hollywood Bowl.

Parking

Four agencies earn revenue from parking. Parking revenue ranges from SamTrans's $64,000 to Bay Area Rapid Transit's $1.4 million. However, most agencies provide free parking.

State and Local Fund Sources outside California

Transit agencies across the United States receive funds from similar state and local sources including sales and property taxes, bonds, and general fund allocations. Examples of funding sources in other states:

Petroleum Business Taxes

New York State levies a per-gallon fee on petroleum businesses. A portion of this fee goes to transit.[10]

[10] *Financing Options to Meet Highway and Transit Needs,* NCHRP Web-Only Document 102 (Washington, DC, 2006) (http://onlinepubs.trb.orglonlinepubs/nchrp/nchrp_ wI02.pdt)

Vehicle Excise Tax
Washington State permits local governments to charge an excise tax on vehicles. Sound Transit (Seattle) levies a 0.3% motor vehicle excise tax that generated $69 million in 2008.[11]

Payroll taxes
Oregon permits local governments to levy a local payroll tax for transit; Portland Metro received $214 million in 2008. Lane County Transit collected $26 million.

Income taxes
State or local governments in Indiana, New York, Ohio, and Oregon allocate general funds revenue to transit agencies. For example, the State of New York contributed $600 million to New York MTA and a local 0.3% income tax in Cincinnati generated $40 million for the Southwest Ohio Regional Transit Authority.

Funding Challenges

The California Transit Association (CTA), along with the federal, State, regional, and local governments, assessed California's transportation funding needs from 2011 to 2020, resulting in a report on California Unmet Transit Funding Needs. The report compared funding and capital and operating needs, and revealed a 10-year unmet operating and maintenance gap of $22.2 billion and a capital gap of $42.1 billion (not including three intercity rail lines owned by Caltrans and operated by Amtrak—Capitol Corridor, Pacific Surfliner, and the San Joaquin). Many transit providers are facing ongoing budgetary challenges due to the economic downturn, and many are implementing measures to cut services, increase fares, lay off staff, and defer capital projects and capital replacements.

Conclusion

Transit agencies receive funds from local, state, federal sources as wells as revenue generated from operations. Most federal funding comes from the urbanized area formula grants and capital programs. The greatest source of state and local funds is sales tax, followed by general fund revenue. Transit agencies earn revenue from fares and advertising.

Sources of information about funding transit lack uniform reporting standards. The National Transit Database shows how transit agencies spend, but not fund sources. The California State Controller Report does report sources, especially the Local Transportation Fund and the State Transit Assistance Fund.

[11] Sound Transit, *Quarterly Financial Report,* December 31, 2008 6 National Transit Database, 2008 7 National Transit Database, 2008, *Tax Funds*

Section 3: Current and Future Trends in Transit

The data in this chapter is from the California State Controller's Office Transit Operators and Non-Transit Claimants Annual Reports[12] and the Federal Transit Administration's National Transit Database (NTD)[13]. The beginning of this chapter summarizes transit service revenues and expenditure trends, based on the State Controller's Office Fiscal Year (FY) 2008/09 and FY 2004/05 Annual Reports. Characteristics of bus, rail, and demand-response transit (accounts for over 99% of transit services) are then summarized, using NTD data, to paint a picture of California transit service over the past decade.

An analysis follows of transit service performance in five regions over ten years, using transit operator data reported to NTD for 2000 and 2009. Data from these years illustrate recent transit supply and demand in California. Transit service in California is then compared to transit service in the entire United States using 2009 data, the most recent year available.

The final section in this chapter analyzes population growth projections for two subgroups: people under the driving age, and the people 65 or older, in California to inform planning for emerging markets.

California transit operators have added transit services significantly between 2000 and 2009 and have increased ridership. However, growth in ridership has been smaller than growth in transit service, and both have increased less than the costs of providing transit service. Moreover, changes in transit service supply, ridership, and costs vary widely among California's regions.

Transit Trends

Statewide Transit Revenues and Expenses

This section details transit revenues and expenses from 2008/09. California's transit agencies faced two major challenges that served to weaken their financial results. First, State transit funding was redirected to other purposes, and transit agencies lost a considerable portion of this revenue source. In 2008-09, the state budget agreement redirected $618.7 million in Public Transportation Account and Mass Transportation Funds to pay for Home-to-School Transportation[14]. Secondly, due to increases in gasoline prices, agencies faced higher ridership and higher fuel costs for their operations[15]. The combination of decreasing revenues and increasing costs contributed to abnormally bleak financial results in 2008-09 versus the earlier years of the decade.

Transportation Development Act

The Transportation Development Act (TDA) of 1971 created two major funding sources for public transportation and for streets, bicycle, and pedestrian facilities[16]. Local Transportation Fund (LTF) revenues arise from a one-quarter-cent of the 7.25% California sales tax. This funding source increases or decreases according to the health of the economy. It was estimated that the LTF would amount to $1.225 billion for the 2010/11 fiscal year. State Transit Assistance Fund (STA) revenues arise from the state diesel fuel sales tax. The re-enacting of the 'Gas Tax Swap' (AB 105) is to ensure funding stability

[12] http://www.sco.ca.gov/ard_locrep_transit.html *Retrieved March 18, 2011.*
[13] http://www.ntdprogram.gov/ntdprogram/data.htm *Retrieved March 15, 2011.*
[14] http://www.cbp.org/documents/090220_Gov_Signs_Budget.pdf *Retrieved August 31, 2011*
[15] http://www.apta.com/gap/policyresearch/Documents/APTA_Credit_Crisis_Report_062209_FINAL.pdf *Retrieved August 31, 2011*
[16] http://www.sco.ca.gov/Files-ARD-Local/LocRep/0809Transit.pdf (p. iv) *Retrieved March 18, 2011.*

for the STA in the future, with revenues estimated to be $350 million annually. Total TDA revenues for 2009 were over $1.4 billion, up from $1.2 billion in 2005. TDA revenue rose 29% between 2000 and 2009[17]. TDA revenue was just under $1.1 billion in 2000.

In spite of the provisions within the TDA law committing California to provide a steady funding source for public transportation, the STA funding is frequently redirected to the General Fund especially in years of fiscal austerity. Recent years have seen massive reductions in state funded transportation projects and public transportation operations. The recent gas tax swap represented a concerted, coordinated effort among public transportation agencies to correct this trend. Even though the passage of recent legislation attempts to set funding for public transportation back on solid footing, there still remains a substantial fiscal challenge to make up for the backlog of delayed capital projects and the reduction of transportation services necessitated by those years of little or no state funding.

Transit Revenue in California

The Controller's report provides an outline of transit revenue sources and amounts in California. In 2009, total transit operating revenues and capital additions to equity amounted to about $7.8 billion[18], an increase of 4.1% from 2008. Table 1 outlines transit revenues in California for FY 2008/09:

Table 1 - Transit Operating Revenues and Capital Additions to Equity (amounts in thousands)

	2008-09	Percent of the Total Revenues	Increase (Decrease) From 2007-2008	Percentage Increase (Decrease) From Prior Year
Transit Operating Revenues				
Passenger Fares	$1,497,492	19.3%	41,683	2.9%
Local Transportation Fund	1,023,655	13.2	(27,798)	(2.60)
Local Sales Tax	829,546	10.7	38,274	4.80
Sales Tax	523,628	6.8	(88,832)	(14.50)
General Operating Assistance	570,127	7.3	14,022	2.50
Other Revenues	222,188	2.9	(9,897)	(4.30)
Federal Grants	676,356	8.7	166,650	32.70
Other Local Grants	109,508	1.4	4,092	3.90
STAF	148,262	1.9	(118,385)	(44.40)
Property Tax	177,583	2.3	13,363	8.10
Other State Grants	103,840	1.3	16,409	18.80
Total Transit Operating Revenues	5,882,185	75.8%	49,581	0.90%
Capital Additions to Equity				
Federal Capital	534,619	6.9	22,581	4.40

[17] http://www.sco.ca.gov/Files-ARD-Local/LocRep/transit_reports_0405transit.pdf (p. iv) *Retrieved March 18, 2011.*
http://www.sco.ca.gov/Files-ARD-Local/LocRep/0809Transit.pdf (p. iv) *Retrieved March 18, 2011.*
[18] http://www.sco.ca.gov/Files-ARD-Local/LocRep/0809Transit.pdf (p. v) *Retrieved March 18, 2011.*

Local Capital and Non-Governmental Donations	793,943	10.2	214,994	37.10
State Capital	547,949	7.1	21,789	4.10
Total Capital Additions to Equity	1,876,511	24.2	259,364	16.00
Total Transit Operating Revenues and Capital Additions to Equity	$7,758,696	100.00%	$308,945	0.04

Source: California State Controller, Transit Operators and Non-Transit Claimants Annual Reports 2008-2009.

In 2008-09, passenger fares comprised the largest portion of revenues, with a 19.3% share of the total. Passenger fares increased 2.9% from the prior year. The Local Transportation Fund made up the next largest revenue source in FY 2008/09, with a 13.2% share of the total. State Transit Assistance revenues decreased sharply, by $118 million (over 44%) from FY 2007/08 to FY 2008/09.

Operating Expenses

Transit operating expenses in FY 2008/09 amounted to over $7.1 billion, according to the State Controller. Salaries, wages, and benefits accounted for more than 45% of operating expenses (Table 2). The next largest expense of California transit operators was depreciation and amortization, which accounted for about 18% of total operating expenditures. Purchased transportation (transit services contracted with other transit agencies) accounted for about 12% of operating expenses[19].

Operating expenses have increased over 68%, from $4.2 billion in FY 2000/01, to $5.6 billion in FY 2004/05, and then to $7.1 billion in FY 2008/09. In FY 2008/09, 207 (60.4%) of transit agencies reporting to the State Controller reported a net loss[20].

Table 2: Transit Operating Expenses (amounts in thousands)

Transit Operating Expenses	2008-09	Percent of the Total Expenses	Increase (Decrease) from 2007-08	Percentage Increase (Decrease) from Prior Year
Salaries, Wages, and Benefits	$3,229,164	45.4%	$105,553	3.4%
Depreciation and Amortization	1,272,834	17.9	120,704	10.5
Purchased Transportation	834,317	11.8	27,523	3.4
Services	675,027	9.5	114,597	20.4
Other	547,729	7.7	(44,661)	(7.5)
Materials and Supplies	548,353	7.7	(36,268)	(6.2)
Total Transit Operating Expenses	**$7,107,424**	**100.0%**	**$287,448**	**4.2%**

Source: California State Controller. Transit Operators and Non-Transit Claimants Annual Reports 2008-2009.

[19] http://www.sco.ca.gov/Files-ARD-Local/LocRep/0809Transit.pdf (p. xi) *Retrieved March 18, 2011.*
[20] http://www.sco.ca.gov/Files-ARD-Local/LocRep/0809Transit.pdf (p. xi) *Retrieved March 18, 2011.*

Statewide Transit Service

Mode Share

In 2009, according to the National Transit Database, transit operators in California supplied 1.46 billion unlinked passenger trips (UPT) (the number of passengers who board public transportation vehicles[21]) in over 617 million vehicle revenue miles (VRM) (miles vehicles are scheduled to travel, or actually travel, while in revenue service[22]). Bus service accounted for the largest part of transit service—57% of revenue miles and 74% of passenger trips. Rail accounted for 24% of passenger trips and 20% of revenue miles. Demand-response services, (shared use transit service operating in response to calls from passengers or their agents to the transit operator, who schedules a vehicle to pick up the passengers to transport them to their destinations[23]) provided only 1% of trips (though demand-response accounts for about 16% of statewide transit revenue miles, demand-response vehicles serve fewer passengers per mile and per hour)[24].

Supply, Demand, and Costs

California transit operators provided about 28% more service in 2009 than in 2000, while unlinked passenger trips rose more slowly across all modes, by about 12% (1.3 billion in 2000 to 1.46 billion in 2009), as did passenger miles, by 26%. Meanwhile, transit agency operating costs grew by 69%[25]. Bus service remains the largest transit mode by far, with the largest gains in revenue miles and revenue hours (hours that vehicles are scheduled to travel, or actually travel, while in revenue service[26]), although bus service lost mode share to rail. However, operating expenses for buses rose even faster. Rail operating expenses rose 77% from 2000 to 2009, while demand response services increased 108%[27].

Regional Performance

Transit service in California can be examined by dividing the state into five regions: Four metropolitan regions, comprising the cities within the Metropolitan Planning Organizations (MPO's) (urbanized areas within the designated MPO boundaries) that make up the Los Angeles, San Diego, San Francisco Bay Area, and Sacramento areas; and a fifth region, "Other Regions," the less populated MPO's and Regional Transportation Planning Agencies (RTPA) (See appendix for a complete breakdown of regions).

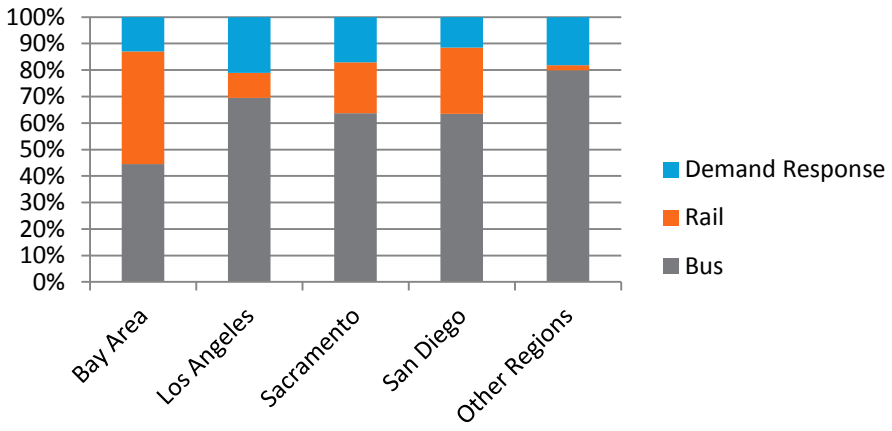
Supply

Of the four metropolitan areas, the San Francisco Bay Area has the highest revenue share from rail, with 44% of its 198 million total revenue miles derived from rail. This is nearly double the rail miles available in the San Diego area, which provided the next highest proportion of rail revenue miles in 2009 (Figure 1). Rail provided a greater share of vehicle revenue miles than vehicle revenue hours (The hours that vehicles are scheduled to or actually travel while in revenue service[28]) (VRH), but bus service produced a majority of revenue hours in all regions (See Figure 2). The highest percentage of vehicle revenue hours (24%) provided by rail was in the San Francisco Bay Area. Transit operators in Los Angeles clocked the second highest number of rail VRH, but that represented only 5% of VRH across all modes. "Other Regions" had the highest proportion of demand-response VRH, at 19%.

---

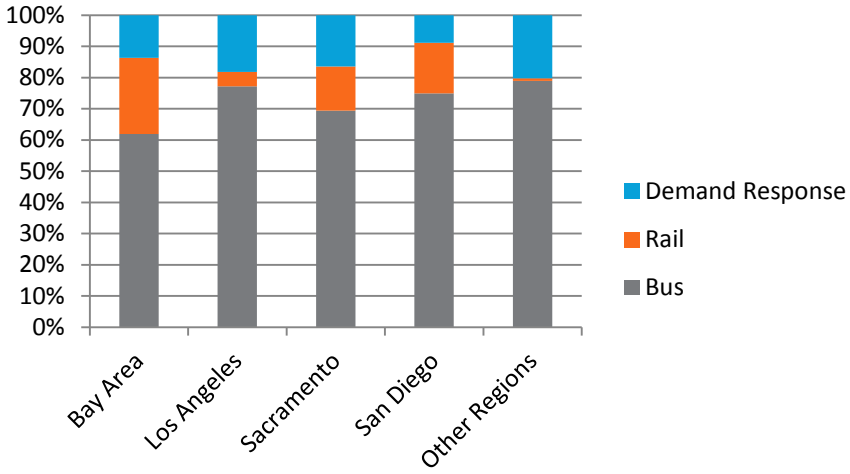
[21] http://www.ntdprogram.gov/ntdprogram/Glossary.htm *Retrieved April 1, 2011.*
[22] http://www.ntdprogram.gov/ntdprogram/Glossary.htm *Retrieved April 1, 2011.*
[23] http://www.ntdprogram.gov/ntdprogram/Glossary.htm *Retrieved April 12, 2011.*
[24] http://www.ntdprogram.gov/ntdprogram/data.htm. *Table: TS2.1. Retrieved March 16, 2011.*
[25] http://www.ntdprogram.gov/ntdprogram/data.htm. *Table: TS2.1. Retrieved March 16, 2011.*
[26] http://www.ntdprogram.gov/ntdprogram/data.htm. *Table TS2.1. Retrieved March 16, 2011.*
[27] http://www.ntdprogram.gov/ntdprogram/data.htm. *Table TS2.1. Retrieved March 16, 2011.*
[28] http://www.ntdprogram.gov/ntdprogram/Glossary.htm *Retrieved April 12, 2011.*

Figure 1- 2009 California Vehicle Revenue Miles by Region and Mode (percent)



Source: National Transit Database

Figure 2- 2009 California Vehicle Revenue Hours by Region and Mode (percent)

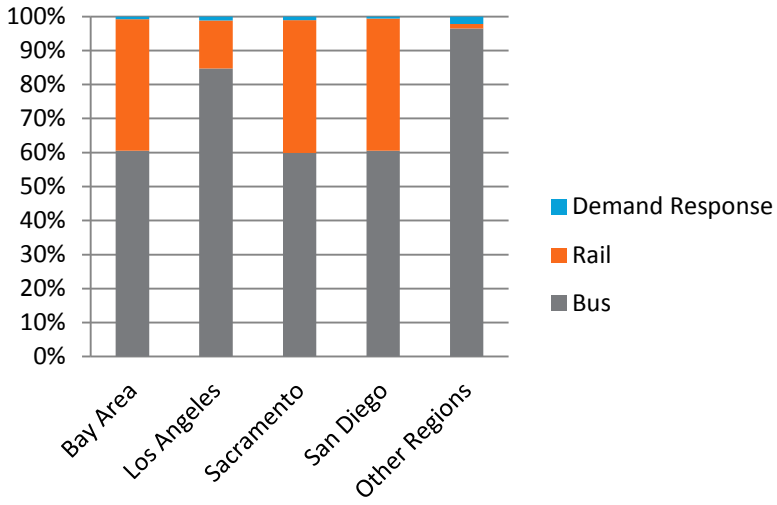


Source: National Transit Database

In regions with rail transit, trains attract a disproportionate number of riders compared to the amount of service supplied. Although rail accounted for only 16% of regional VRH in San Diego, that region had among the highest rail shares for regional passenger trips--approximately 39% (see Figure 3). The same can be seen in Sacramento and the San Francisco Bay Area--despite providing a lower regional share of VRH in both cases (14% in the Sacramento area and 24% in the San Francisco Bay Area), rail in both areas took about a 39% share of ridership. Even in the Los Angeles area, where rail produced only 4.5% of regional VRH, its share of trips was 15% in 2009. Nevertheless, most transit riders still take the bus, with the highest share of bus trips in the Other Regions (where there is no competing rail service, of course), and in Los Angeles, where 85% of unlinked passenger trips were taken by bus. In all areas,

demand-response services produced a negligible share of regional trips (2% in the Other Regions, 1% or less in all other regions), because demand-response services serve small, specialized segments of the population.

Figure 3- 2009 California Unlinked Passenger Trips by Region and Mode (percent)



Source: National Transit Database

Most transit service is in Los Angeles, where transit operators experienced a 20% increase in ridership over the last ten years. Sacramento saw the greatest increase in unlinked passenger trips (35%). The San Francisco Bay Area saw the lowest increase in ridership (1.5%).

Transit Costs and Use

According to the National Transit Database, growth in transit operating expenses was lowest in Bay Area (55%) and highest in Sacramento (110%), where investment in a new light rail system helped to double operating expenses from 2000 to 2009[29]. In all regions, expenditures on rail (77%) increased at a faster rate than expenditures on the bus system (61%). Demand-response's expenses rose by 108% from 2000 through 2009.[30]

Even though transit services and ridership have increased throughout California, transit costs have risen even faster. California saw unlinked transit trips increase by 12% from 2000 to 2009. The Sacramento area has seen the strongest growth in rail and bus service. Bus service in San Diego increased just 2% between 2000 and 2009 and the Bay Area saw the second lowest growth in rail and bus services, at just 18%. Meanwhile, demand-response services in San Diego saw a 4% decrease in vehicle revenue hours. In general, less unlinked passenger trips were taken per vehicle revenue hour in 2009 (35.6) than in 2000 (40.2) across California. Over the same period, transit operating costs increased by 54% in the Bay Area and 102% in the Other Regions, showing that transit service in California has become less cost-effective. In short, costs have increased, while ridership per vehicle revenue hour has decreased.

[29] http://www.ntdprogram.gov/ntdprogram/data.htm. *Table: TS2.1. Retrieved March 16, 2011.*
[30] http://www.ntdprogram.gov/ntdprogram/data.htm. *Table: TS2.1. Retrieved March 16, 2011.*

California Compared to the United States

Transit service in California in 2009 accounted for 14% of nationwide transit trips taken although California makes up 12% of the US population[31]. In addition to generating slightly more than the average national transit trips per capita, California transit operators spend more on operating costs per capita than nationwide operators. Buses provide the majority of transit service in both California and the nation, but rail accounts for a greater share of ridership, services supplied, and operating dollars in the United States as a whole, because of large, well established rail networks of in the Northeast. At the same time, California shows an outsized proportion of service and passengers (over one-third in both cases) provided by light rail.

Transit and Vehicle Miles Traveled

One strategy to maintain mobility while reducing vehicle miles traveled (VMT) is to shift drivers to public transit. Transit VMT across the United States over the last ten years has grown faster than automobile VMT. However, automobile VMT in all areas are much greater than transit revenue miles and passenger miles. In other words, despite growth in transit service and consumption, public transit's part of VMT growth over ten years has been limited.

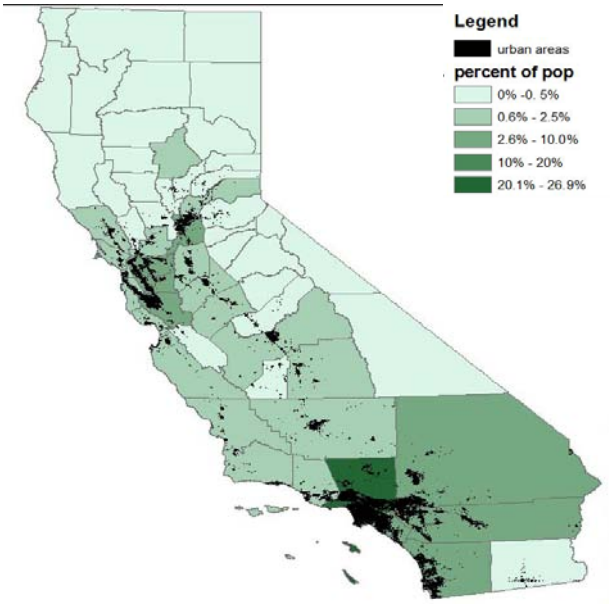
Intentionally blank

[31] http://www.ntdprogram.gov/ntdprogram/data.htm. *Table: TS2.1. Retrieved March 17, 2011.*

Demographic Trends in California

The California Department of Finance State Demographic Research Unit prepares population projections and demographic analyses. Four demographic factors correlate with high public transit demand: (1) population size and growth rate; (2) age (because of those too young to drive or approaching an age when they may quit driving), (3) disability status (as a disability might make it difficult to operate an automobile) and (4) location (because high-population density makes for more and better transit). Department of Finance data address the first two factors by using birth and death statistics from the California Department of Health Services. Experts, including planning experts from across California forecast population for each county, also taking migration into account.

Figure 4 - Population Spatial Distribution 2008



Source: California Department of Finance

Population Growth

California's population is about 35 million. By 2020, about ten million more will make California

Figure 5 - Total projected population growth in California, 2010-2050

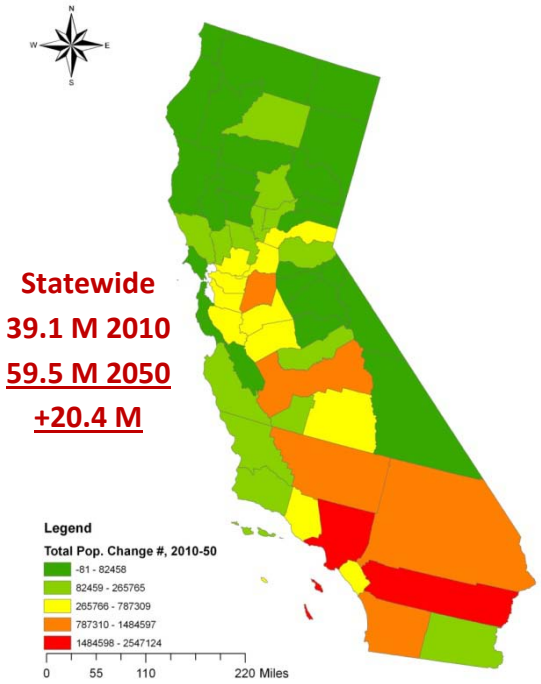
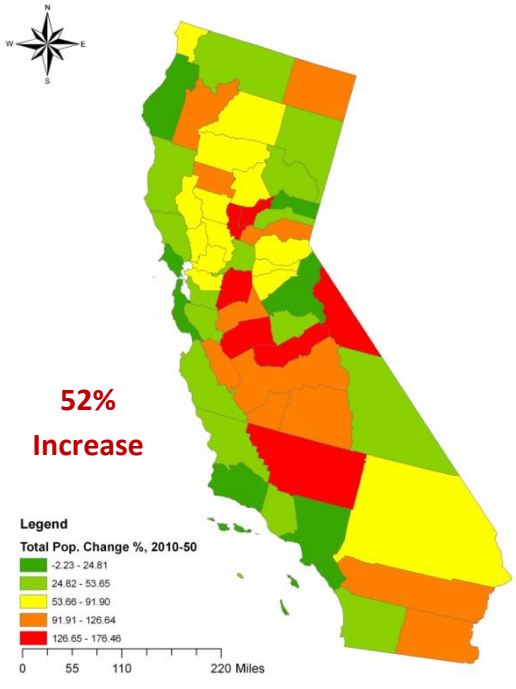


Figure 6 - Total projected population percentage growth in California, 2010-2050



Source: California Department of Finance

their home, and by 2050, the population could reach 50 or even 70 million, with 6 to 10 million of them, immigrants. The population spatial distribution diagram in Figure 4 shows that most Californians live in the Los Angeles, San Diego, San Francisco Bay, and Sacramento areas. While the population will continue to grow in these metropolitan areas, most population growth will occur in Southern California (2.5 million in Los Angeles and Riverside Counties, and about 1.3 million in each of three neighboring counties: Kern, San Bernardino and San Diego) (see Figure 5). Figure 76, on the other hand, shows most Central Valley counties expect a high population growth rate over the next forty years.

Increasing Population of Individuals under the Driving Age, and Persons over 65

The Department of Finance estimates that California's population growth will be driven largely by two demographic groups: individuals under the driving age (16), and people over 65.

Projected Growth in People below the California Driving Age

The California Department of Finance projects that the number of individuals below the driving age (16) is expected to grow 45.2% by 2050. The total number of individuals under 16 is projected to increase from 8.8 million in 2010 to 12.8 million individuals in the year 2050[32]. These individuals must seek alternatives to driving, including transit, for their mobility.

Projected Growth in Persons over 65

Between 2010 and 2050, the over-65 population is expected to increase by 7.2 million (162%). The over-65 population is now concentrated in Southern California (Los Angeles, Riverside, San Bernardino and

Figure 7 Total projected population over the age of 65 in California, 2010-2050

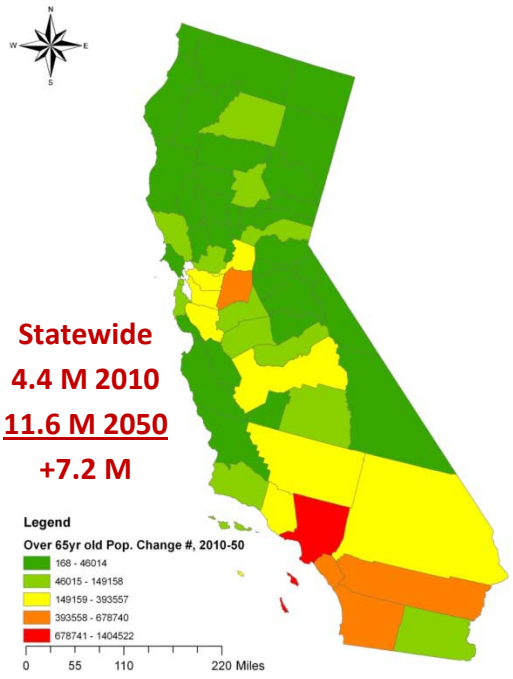
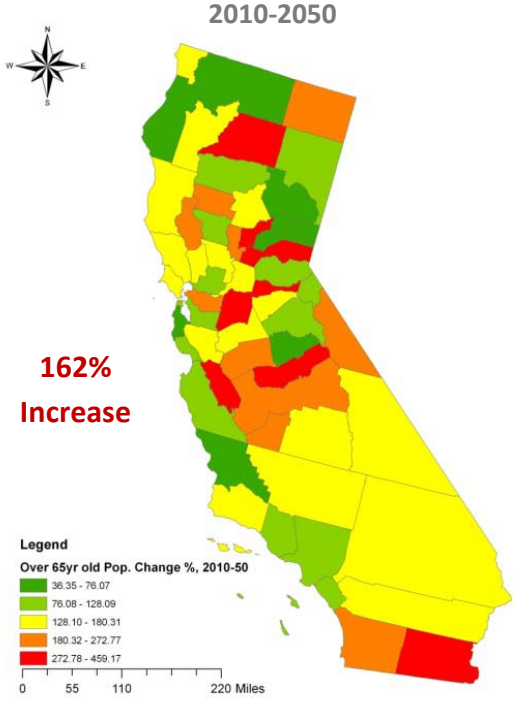


Figure 8 Projectected percentage growth of population over the age of 65 in California, 2010-2050



Source: California Department of Finance

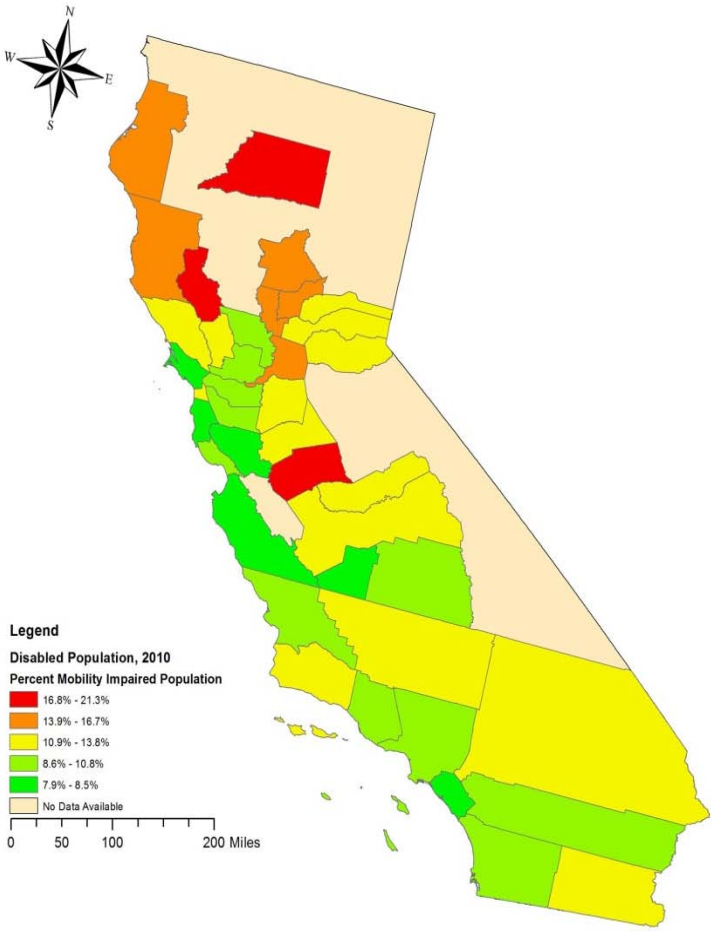
[32] http://www.dof.ca.gov/research/demographic/reports/projections/p-3/. *Table: California.xls. Retrieved on March 10, 2011.*

San Diego Counties) (Figure 7). However, growth in the percent of over-65 population will occur throughout the state (Figure 8)[33].

Disabled Population

A significant number of Californians are unable to operate an automobile because of physical or mental disabilities. This population must depend on fixed route and paratransit service for mobility. The 2010 American Community Survey estimates that approximately 9.9% of Californians had some disability. Figure 9 on the right shows the percent of 2010 population in each county that has a vision, cognitive, or ambulatory difficulty. Data is only available for counties with more than 65,000 populations.

Figure 9 Percentage of 2010 Population with vision, cognitive, or ambulatory dificulties.



Source: 2010 American Community Survey

Geographic Trends

Forecasting population distribution, demographic patterns, and future demands for public transit is difficult, due to internal and external factors such as land use regulations and the state of the global economy. Most Californians (95%) now live in urban areas, but the future population density of these areas cannot be known. A statewide transportation and land use model developed at UC Davis (the Production Exchange Consumption Allocation System model, or PECAS[34]) explores the effects of various land-use policies and other factors, such as the price of gasoline, on population distribution. If current land use trends persist statewide, most new development is expected to come from conversion of agricultural land to urban uses in the Central Valley and inland areas.

Future Implications of Land Use Planning on Transit Use

Overlaying a map of current fixed-route services over urban development predicted for 2050 shows that current public transit services would prove insufficient for new urban development. This may indicate some areas forecasted to grow are not currently connected by, or located near, fixed-route services. However, most agencies would want to provide extensions to services as development grows either

[33] http://www.dof.ca.gov/research/demographic/reports/projections/p-3/. *Table: California.xls. Retrieved on March 10, 2011.*

[34] Design and Implementation of PECAS: A Generalized System for Allocating Economic Production, Exchange and Consumption Quantities," Hunt, John Douglas and Abraham, J.E., in *Integrated Land-Use and Transportation Models: Behavioural Foundations,* Elsevier, 2005, pp 253-274.

outward or within cities. For example, in the central valley, cities such as Stockton, Modesto, Merced, Fresno and Bakersfield, all currently provide services to many regional and urban areas in the valley. Proposed developments payment of mitigation fees might be collected to operate any increased transit services related to new developments. Although, history of collecting mitigation for a new development that could provide for transit services to those areas has been difficult; this could be resolved through land use planning policies and finding a solution for more stable transit funding. Demand for fixed-route services is only part of the equation. The number of people under 16 and over 65, the two age groups that use public transit most, is projected to double between now and 2050, with most of this growth among people over 65, as the baby boom generation ages.

Trends suggest there will be a population with a smaller share of working-age commuters and a higher share of demand-response service users. In the most populous counties, 25% of the population will be over 65. In some small counties, such as Alpine, more than 40% of the population will be over 65, and so in need of more demand-response service.

Conclusion

Transit Trends

The supply of transit service has risen over the past two decades with growth in both passenger trips and passenger miles. The bus remains the primary mode of transportation for transit in California, in terms of vehicle revenue hours. The San Francisco Bay Area is the most rail-accessible region in California. The other three areas in the state have a much smaller share of rail revenue miles. Demand response services have the greatest share of services in the "Other Regions" due to low-density development. Transit revenue in California has grown to over $7.8 billion, with over $1.5 billion collected in fares. Transit agencies served 1.5 billion passengers in 2009[35]. However, transit operating costs have grown even faster than new transit services. As a result, transit service in California has become less cost-effective over the last decade. The reduction in the cost effectiveness of transit service is a national trend.[36] Nationally, subsidies are growing faster than fares, when adjusted for inflation, and new rail systems built in the 1990s and 2000s have increased average capital costs per rider.

Demographic Trends

Demographic change and population growth in California will have a direct effect on demand for public transit. If current trends hold, people under the driving age, and people over 65 will increase demand for cost-effective alternatives to driving, such as transit. Rural areas are currently not well served by either fixed-route or demand response services. These services must be improved to provide mobility for people who cannot drive, and is a serious challenge for transportation planners. Inter-agency coordination and the use of options such as shuttles, demand-response service, and paratransit may help link elderly, disabled, low-income individuals, and those who are unable to meet their own transportation needs.

The Future

Transit use has increased over the past two decades, along with the cost of providing transit services. Transit use will grow as the population of California grows by 52% by 2050. Transit-dependent groups—people too young to drive, and people over 65—will also grow. Strategic planning, interagency coordination, increased interregional connectivity, and new funding sources are essential to meet-future transit demand and to reduce vehicle miles traveled.

[35] http://www.sco.ca.gov/Files-ARD-Local/LocRep/0809Transit.pdf (p. iv) *Retrieved March 21, 2011.*
[36] Brian Taylor – "Assessing the Financial and Operational Sustainability of Public Transit in the U.S." https://www.uclaextension.edu/publicpolicy/r/Arrowhead2010/Taylor,%20Brian.pdf

Section 4: Regional Coordination & Interregional Connectivity

Local transit agencies coordinate their services to serve regional needs and strive for long-distance transit, or interregional connectivity. This chapter discusses current regional coordination efforts, interregional connectivity and how these systems interact and includes a brief look into future proposed interregional transit.

Regional Coordination

Transit agencies work together to create a regional system that builds complete trips, often primarily serving long-distance commuters. Short Range Transportation Plans (SRTP) describe a region, member agencies, and steps toward regional coordination and connectivity.

Route Coordination

Cooperation among regional transit agencies eliminates duplication and promotes connectivity by building upon the strengths of adjacent agencies to create a complete travel network. The following section examines two examples of regional route coordination: one in Northern California and one in Southern California.

Northern California Urban Transit Strategies

San Francisco Municipal Transit Authority

The San Francisco Municipal Transit Authority (Muni) serves the City of San Francisco, with motorbuses, trolleybuses, light rail, streetcars, and cable cars. According to its 2006-2025 Short Range Transit Plan, 80 routes serve the 47 square-mile network.[37] This plan revealed that 522,227[38] people per day commute into San Francisco, while 93,971 commute from the city to outlying areas.[39]

Muni operates almost exclusively within San Francisco. Outside of the city, neighboring transit agencies, including San Mateo County Transit District (Samtrans), San Francisco Ferry, and Bay Area Rapid Transit (BART), provide service. Within the City of San Francisco, there are four regional transit hubs that connect at least three transit operators each: (1) the Ferry Terminal, (2) the Embarcadero, Montgomery, and Civic Center BART/Muni subway stations, (3) the Transbay Terminal (currently being reconstructed to be the Transbay Transit Center), and (4) the Caltrain Station at 4th & King Streets just south of downtown.[40]

Southern California Urban Transit Strategies

Omnitrans

The cities of Chino, Colton, Fontana, Loma Linda, Montclair, Ontario, Redlands, Rialto, San Bernardino, Upland, along with the San Bernardino County, established Omnitrans as the regional transit authority for southwestern San Bernardino County. Since its founding, the cities of Chino Hills, Grand Terrace, Highland, Rancho Cucamonga, and Yucaipa have joined the agency. Omnitrans serves 456 square-miles

[37] "Short Range Transit Plan: San Francisco Municipal Railway FY2006-2005," Pg 25, Chapter 4 Current Service and Service Evaluation.

[38] San Francisco Metropolitan Transportation Commission (MTC), ACS 2006 San Francisco Bay Area Data Highlights Report, Nov. 2007.

[39] U.S. Census Bureau, 2009 American Community Survey: S081 Commuting Characteristics by Sex. Economic Characteristics. Retrieved Oct. 14, 2010.

[40] MTC Transit Connectivity Plan: Final Summary Report, May 2006, Pg, 2-4, Chapter 2 Regional Transit Hubs.

with 29 bus routes. In its SRTP, Omnitrans has come to cooperative agreements to connect retail destinations, health care centers, and transit hubs with adjacent transit agencies including Riverside Transit Authority, Foothill Transit, Orange County Transportation Authority, Los Angeles County Metropolitan Transportation Authority, Pomona Valley Transportation Authority, and Mountain Area Regional Transit Authority.[41]

Rural Transit

Santa Cruz County, serviced by Santa Cruz METRO, serves 450 square miles of Santa Cruz County with 39 routes.[42] Half the population lives on just 5% of the land in Santa Cruz, Watsonville, Capitola, and Scotts Valley. The remaining half of the population is sparsely distributed throughout small rural communities. Santa Cruz METRO connects with Monterey-Salinas Transit in Watsonville. This agency coordinates routes and transfers with Santa Cruz METRO to complement services and minimize duplication. Santa Cruz METRO also coordinates with Santa Clara Valley Transportation Authority (VTA) through Diridon Station in Downtown San Jose, which serves as the connection point between the two agencies.

Rural Mariposa and Sierra County rely solely on demand-response transit; dial-a-ride service for the general public as well as the elderly and disabled.

Fare Coordination

To further integrate connections and build complete transit networks, many transit agencies coordinate transit passes and transfers to allow riders to easily move from one transit operator to another. There does not appear to be a significant difference in fare coordination strategies between urban and rural transit agencies.

In the San Francisco Bay Area, Metropolitan Transportation Commission (MTC) started the TransLink fare payment program in 2002 as a universal pass for Bay Area transit agencies including AC Transit, BART, Golden Gate Bridge, Highway and Transportation District, Muni, and SamTrans. That pass, now called the Clipper Card, will link 27 transit agencies in nine Bay Area counties.

Similarly, Los Angeles County Metropolitan Transportation Authority (Metro) started the EZ Pass program in 2002 to link 13 Los Angeles transit agencies with unlimited access to bus and rail.

Omnitrans, in San Bernardino County, coordinates full basic fare transfers among Foothill Transit, Mountain Area Regional Transit Authority, and Riverside Transit Authority, and limited fare transfer with Metro, Southern California Regional Rail Authority (Metrolink), and Orange County Transportation Authority.[43]

Sacramento's Regional Transit has coordinated monthly passes and transfers with nine other local transit operators: Yolo, Yuba, Sutter, Placer and El Dorado counties. Similar to Omnitrans, there are stipulations on accepted fares of adjacent transit operators based on the transferring route.

Local businesses often cooperate with local transit operators coordinating shuttles that connect transit between employment sites and shopping centers. This collaboration can provide the important beginning and ending legs of trips that make transit a viable option for riders.

---

[41] Omnitrans Comprehensive Operational Assessment & Short Range Transit Plan, July 11, 2007, Pg. 56 Chapter 3 Regional Transit Services.
[42] 2007-2008 Santa Cruz METRO Short Range Transit Plan, Pg. 1-9, Chapter 1, Services Provided.
[43] Omnitrans Comprehensive Operational Assessment & Short Range Transit Plan, July 11, 2007, Pg. 56 Chapter 3 "Regional Transit Services."

Regional Rail

Regions in California have also coordinated to provide regional and commuter rail services.

Bay Area Rapid Transit (BART)

BART was planned in 1946 as a high-speed electric rail system, winning narrow approval in a three-county election in 1962. Construction began in 1964, and daily operations began in 1972. Today, BART links five San Francisco Bay Area counties and interfaces with many transit agencies.

In 2010, an average of 334,984 passengers rode the 104-mile, 43-station heavy-rail system daily, down from a high of 357,775 in 2008.[44] BART shares four stations with MUNI Metro, San Francisco's light rail transit system. BART also shares a station with Caltrain in Millbrae. BART connects to the Oakland Coliseum, Oakland International Airport, and San Francisco International Airport. A planned extension to Livermore will coordinate with Livermore Amador Valley Transit Authority and the Altamont Commuter Express, San Joaquin Valley's passenger rail service.[45]

BART charges zone-based fares, with automated collection via entry and exit gates, with a variety of multi-use and discount tickets. Children under four ride free.[46] MTC's Clipper Card allows a single fare for all transit trips, through electronic "smart card" technology.[47]

BART has been a leader in technology for rider convenience. In October 2005, BART became the first major transit agency to offer downloadable maps and schedules for media players, such as the Apple iPod. BART also offers Wi-Fi (wireless internet)[48], as well as cell phone signal coverage in the Transbay Tube, under San Francisco Bay.[49]

Metrolink

In 1991, a Joint Powers Agreement among Los Angeles County Metropolitan Transportation Authority Orange County Transportation Authority, and Riverside, San Bernardino and Ventura Counties created the Southern California Regional Rail Authority known as Metrolink. The agency acquired 175 miles of track from Southern Pacific and use of Union Station in Downtown Los Angeles from Union Pacific. Metrolink opened in 1992, with three lines to Ventura, Santa Clarita, and San Bernardino. In 1993, the system expanded to Riverside and in 1994, to Orange County.[50] In 1995, the nation's first suburb-to-suburb commuter rail line connected Orange County to the Inland Empire (San Bernardino and Riverside Counties).[51] Riverside was linked to Downtown Los Angeles, via Fullerton, in 2002.[52] Today, Metrolink has seven routes, 55 stations, and 388 miles of track.[53]

In 2010, 5.6 million people rode Metrolink[54], which connects to Metro's Red, Purple, and Gold light rail lines, Amtrak's Surfliner train, and Greyhound buses at Union Station. Metrolink connects employment

[44] "BART Fiscal Year Weekday Average Exits," http://www.bart.gov/about/reports/index.aspx
[45] "BART to Livermore Extension: Final Program Environmental Impact Report Responses to Comments," Section 1: Introduction, Subsection 1.1 Background Program Description, Pg 1-9, June 2010.
[46] BART website, "Tickets > Overview" section, March 2011, http://www.bart.gov/tickets/index.aspx
[47] BART website, "Facts" section, March 2011, http://www.bart.gov/about/history/facts.aspx
[48] Press Release, "WiFi Rail Inc. to provide wifi access on BART system," Feb. 2, 2009.
[49] Press Release, "BART expands wireless access to Transbay Tube," Dec. 21, 2009.
[50] http://www.metrolinktrains.com/about/?id=5
[51] http://www.metrolinktrains.com/about/?id=5
[52] Metrolink website, http://www.metrolinktrains.com/about/?id=5
[53] Metrolink Quarterly Report, March 17, 2011
[54] Metrolink Quarterly Report, March 17, 2011

centers to outlying residential communities, to Bob Hope Airport in Burbank, California State University Los Angeles, and Angel Stadium in Anaheim.

Metrolink charges zone-based fares, with single trip, monthly, and multi-use tickets sold at vending machines or booths. Conductors perform random fare checks. Through the Rail2Rail program, Metrolink and Amtrak share tickets. Metrolink honors EZ Transit passes from 19 Los Angeles transit agencies.[55]

Additional Regional Rail Lines

The Peninsula Corridor Joint Powers Board operates Caltrain along the peninsula from San Francisco to San Jose and Gilroy.

North (San Diego) County Transit District operates the Coaster and Sprinter rail lines. Coaster operates along the same right-of-way as the Amtrak Surfliner, from Oceanside to San Diego. Sprinter connects Oceanside inland to Escondido.

Interregional Connectivity

In dense areas of population, rail and bus provide interregional transit for the public. These systems make transit a viable option for long distant commuters or long distance travelers.

Interregional Rail

Much of the State's interregional connectivity is made possible through rail. Commuter rail systems like Altamont Commuter Express (ACE) and Amtrak provide mobility to millions of passengers annually. Generally, passenger rail lines run on freight tracks which are owned by freight shipping companies, such as Union Pacific Railroad Company. On these tracks right-of-way is given to freight trains and may cause conflicts with passenger service performance.

Altamont Commuter Express

In 1997, seven cities and San Joaquin, Alameda and Santa Clara Counties formed a joint powers authority to connect San Joaquin County commuters to Alameda and Santa Clara Counties via the Altamont Pass.[56] The resulting efforts created the Altamont Commuter Express (ACE). Operations began in 1998, with two morning trains running from Stockton to San Jose and two limited-stop afternoon trains running from San Jose to Stockton. In 2001, a third morning and evening train was added in each direction.

ACE connects with San Joaquin Regional Transit District, Alameda-Contra Costa Transit District, and Santa Clara Valley Transportation Authority. ACE operates on Union Pacific track and conflicts between freight and passenger service are common, bringing slow speeds and delays.[57]

Amtrak

Regional connectivity through intercity passenger rail is a major goal of the California Department of Transportation. This mission is outlined in the Governor's Strategic Growth Plan, the Global Warming Solutions Act (Assembly Bill 32), and California Transportation Plan 2025.[58] Caltrans funds three intercity rail lines, operated by Amtrak and run on Union Pacific and Burlington Northern Santa Fe track: Capitol

[55] EZ Transit pass program http://www.metrolinktrains.com/fares/?id=6
[56] http://www.acerail.com/AboutUs/HistoryofACE.aspx
[57] Altamont Newsletter, Feb. 2011, Pg. 4, http://www.cahighspeedrail.ca.gov/Altamont_Corridor.aspx
[58] California State Rail Plan2007-08 to 2017-18, California Department of Transportation, Part 1 Chapter 1: California's Vision for Passenger Intercity Rail." March 2008.

Corridor, Pacific Surfliner, and the San Joaquin. These systems moved nearly 5.2 million passengers in 2010[59]. California is second only to the Northeast Corridor in Amtrak ridership. [60]

Capitol Corridor

Capitol Corridor's 170 miles connect the Sacramento region to the East and South San Francisco Bay with 32 daily trips. It interfaces with BART in Richmond and Caltrain at Diridon Station in San Jose. The system uses zone-based fares and multi-ride passes. Caltrans began this service in 1991, transferring its administration to the Capitol Corridor Joint Powers Authority (CCJPA) and its day-to-day operations to BART in 1998. Amtrak offers free Wi-Fi[61], quiet cars, and an onboard café, drawing an increase in increasing ridership[62]. January 2011 ridership reached 130,860, an 11% increase over the previous year. From February 2009 to January 2010, 1.62 million passengers rode the system.[63] The trip from Sacramento to San Jose takes 3 hours.

Pacific Surfliner

Pacific Surfliner's 380 miles connects San Luis Obispo and San Diego via Los Angeles. The line is a segment of Coast Starlight, which runs daily from Seattle to San Diego via Portland, Sacramento and Oakland.[64] Pacific Surfliner is Amtrak's busiest line on the West Coast, carrying 2.6 million passengers per year.[65] Pacific Surfliner's history is complex. Until 1992, Burlington Northern Santa Fe's predecessor, the Atchison, Topeka & Santa Fe, owned its track. The right-of-way was sold in 1992 to Metro, Orange County Transportation Authority, North (San Diego) County Transit District, and San Diego Metropolitan Transit Development Board, with BNSF retaining the right in perpetuity to freight service.[66] Today, Amtrak, Metrolink, Coaster and BNSF operate along the route. The trip from San Luis Obispo to Los Angeles takes 5.5 hours, and Los Angeles to San Diego takes 2.5 hours. A new daily weekday express began operation between San Diego and Los Angeles in February 2011, which saves 18 minutes by eliminating some stops in Orange County.[67] Recently, Caltrans announced it has received $25 million from the Federal Railroad Administration to install global positioning system-based train control equipment on its Pacific Surfliner intercity rail line to improve worker safety and help prevent train collisions. The state will match the federal funds dollar-for-dollar with 2009 Proposition 1A rail bond funds.

---

[59] Amtrak Press Release, "Amtrak Sets new Ridership Record," Oct 2010, ATK-10-134.
[60] Caltrans' most current ridership record is 5.58 million passengers boarding Amtrak California trains.
[61] Sacramento Bee, "Capitol Corridor Trains Offer Free Wi-fi," Feb. 19, 2011, Section 1-A, http://www.sacbee.com/2011/02/19/3415088/capitol-corridor-trains-to-add.html
[62] NPR, "For Amtrak Riders, It's All Aboard Despite the Cost" October. 27, 2010, http://www.npr.org/templates/story/story.php?storyId=130861792

[63] CCJPA News, "More Northern California Drivers Ditched Cars in January to Ride Capitol Corridor Instead," Feb. 11, 2011, http://www.amtrakcapitols.com/news/whats-new/more-northern-california-drivers-ditched-cars-in-january-to-ride-capitol-corridor-instead/
[64] This route has been studied for an additional intercity passenger rail line connecting San Luis Obispo to San Francisco. Reference California State Rail Plan2007-08 to 2017-18, California Department of Transportation, Part 1 Chapter 1: California's Vision for Passenger Intercity Rail." March 2008.
[65] Amtrak Press Release, "Amtrak Sets new Ridership Record," Oct 2010, ATK-10-134.
[66] LOSSAN Corridor Strategic Plan, Section 3.0 Pg. 10, Overview of the LOSSAN Corridor, Oct. 2003.
[67] MTS website, http://www.sdmts.com/Marketing/NewAmtrakExpress.asp

The San Joaquin

Running from Bakersfield to Oakland and Sacramento, the San Joaquin is Amtrak's third busiest intercity line in California. It moves 977,834 riders a year.[68] Eight trains a day (March 2011) link Bakersfield and Oakland, connecting to BART in Richmond. Four trains a day link Bakersfield and Sacramento, with connections to the Capitol Corridor and Sacramento Regional Transit light rail at Sacramento Valley Station. Amtrak cannot run from Bakersfield to Los Angeles via the Tehachapi, a freight line too busy for passenger service.[69] From Bakersfield to Oakland takes 6 hours and from Bakersfield to Sacramento takes 5 hours.

Amtrak Expansion

Amtrak projects more interregional rail in the California State Rail Plan, 2007-08 to 2017-18:

- San Francisco to San Luis Obispo
- Sacramento to Reno
- Sacramento to Redding

New service depends on demand, right-of-way, funding, equipment, and construction.

Interregional Bus

The following section examines public interregional bus service. Private interregional bus service has also become significant in the United States and some parts of California.

San Joaquin Regional Transit District

Along with local service, San Joaquin Regional Transit District operates, as of March 2011, bus service to Sacramento (2 routes), the San Francisco Bay Area (12 routes), and BART stations (2 routes), with subscription based fares, from $132.00 to $144.00 a month. A one-way fare is $7.00.

Commuter Bus Routes

Where complete rail networks are not built-out or geography stands in the way, commuter buses make for interregional connectivity, relying on freeway for quick, long-distance service. Where facilities exist, some routes save travel time by using high occupancy vehicle lanes. El Dorado Transit operates from the foothills of Placer County to Downtown Sacramento on 11 morning and afternoon trips. Fares are $5.00 one-way, $180.00 monthly, or a monthly combination pass (with Sacramento Regional Transit) for $210.00.[70] Yuba Sutter Transit offers nine morning and afternoon trips from Yuba City to Downtown Sacramento via Marysville, with three midday trips. Fares are $4.00 one-way, $128.00 monthly, or a monthly combination pass (with Sacramento Regional Transit) for $178.00.[71] Santa Cruz METRO operates the Highway 17 Express-Amtrak bus route from Santa Cruz and Scotts Valley to the Downtown San Jose Diridon Station, along mountainous Highway 17. Fares are $5.00 one-way and $113.00 monthly. Daily and monthly passes allow unlimited travel on San Jose Valley Transportation Authority.[72]

---

[68] Amtrak Press Release, "Amtrak Sets new Ridership Record," Oct 2010, ATK-10-134.
[69] Solomon, Brian (1999). *Southern Pacific Railroad*. Osceola: MBI Publishing Company. p. 20. ISBN 0760306141.
[70] El Dorado Transit, http://www.eldoradotransit.com/farescomm.html
[71] Yuba-Sutter Transit website, http://www.yubasuttertransit.com/download/brochures/Sacramento%20Brochure%2010-1-10.pdf
[72] Santa Cruz METRO transit website, http://www.scmtd.com/en/fares/fares

Yosemite Area Regional Transportation System (YARTS)

To serve tourists and employees of Yosemite National Park, Merced County Association of Governments, as well as Mariposa and Mono Counties, created the Yosemite Area Regional Transportation System. YARTS' success spurred the Council of Fresno County Governments in conjunction with YARTS and Madera County Transportation Commission to conduct a feasibility study for creating a similar regional system. The study examines a system that would connect Fresno to Yosemite and Sequoia National Park/Kings Canyon with stations at transit stops, including Amtrak.[73]

Successes and Barriers to Regional Coordination and Interregional Connectivity

The San Francisco Bay Area Metropolitan Transportation Commission (MTC) is the regional transportation planning and financing agency that oversees the planning, finance, and operations of 20 public transit operators in the nine Bay Area counties. The goals of its 2006 "MTC Transit Connectivity Plan" are to "identify and implement ways to improve the quality of the linkages between transit systems for the transit customer."[74] This objective is supported by Regional Measure 2's call for coordination of transit systems, routes, fares, schedules and facilities. MTC Transit Connectivity Plan pointed to a lack of coordinated regional transit hubs, which MTC has since set out to improve.

MTC has sought better connectivity with the Sacramento and San Joaquin Valleys. It issued the "San Francisco Bay Area Regional Rail Plan" (in coordination with BART, Caltrain, and the California High Speed Rail Authority), in September 2007, pointing to the need for interconnected rail between San Francisco and the Valleys.

It appears that no other organization in the State provides a coordinated focus on inter-operator coordination comparable to that of the MTC. Sacramento Area Council of Governments, the fourth largest metropolitan planning organization in the state, bases some operations on the MTC model but lacks comparable planning, coordination and funding. Southern California Association of Governments (SCAG), with a regional council of 83 members, is the nation's largest metropolitan planning organization. It contains 190 cities and 19 million residents in six counties. Each county has its own transportation agency, the largest being Metro. San Diego Association of Governments covers San Diego County alone.

As mentioned in this report's Executive Summary, the California Transit Association's "Assessment of California's Statewide Unfunded Transit Needs FY 2011-FY-2020" identifies a 10-year operating gap of $22.2 billion and a capital gap of $42.1 billion, putting a premium on cooperation among transit agencies. Unfunded transit needs are impacting both service availability and quality for a large segment of the California population who depend on public transportation, and put a premium on the collaboration taking place between transit providers and decision makers to address these impacts. Transit agencies such as MTC and Metro have taken steps to coordinate fares but much more remains to be done. Many local transit agencies have fare transfer agreements but such agreements are seldom regional. This makes coordinating longer trips more difficult for riders. Take, for example, riders traveling from suburban Folsom to Sacramento International Airport. Folsom Stage Line bus service coordinates fare transfers with Sacramento Regional Transit, which has a fare transfer agreement with

[73] Draft Report Yosemite, Sequoia and Kings Canyon National Park Transit Market Assessment & Feasibility Study, February 2011, http://www.fresnocog.org/siteadmin/AgendaFiles/279/ITEM%20I%20AND%20VI%20G_Fresno%20NPS%20Draft%20Final%20Report%20(1.31.2011)%20FINAL%20version.pdf)

[74] MTC Transit Connectivity Plan http://www.mtc.ca.gov/planning/connectivity/Final_Connectivity_Study/finalsummary.pdf

Yolobus (which serves Sacramento International Airport). Yet, no fare agreement exists between Folsom Stage Line and Yolobus. In another example, BART manages Capitol Corridor Amtrak operations, yet Capitol Corridor riders must purchase a separate ticket to transfer to a BART train.

The Future of Interregional Planning

California High Speed Rail Authority (CHSRA)

Inspired by high-speed rail worldwide, California's electrically powered high-speed trains will help meet growing demands on state transportation infrastructure. Initially planned to run from San Francisco to Los Angeles/Anaheim via the Central Valley (a 2 hour, 40 minute trip at up to 220 miles per hour) and later to Sacramento and San Diego. High-speed rail will link with local transit agencies, providing potential for a more environmentally responsible alternative to traveling by air or automobile.75

ACE Altamont Pass planning

ACE (San Joaquin Valley to the East and South San Francisco Bay Area) is working with CHSRA on its long-range plan, studying the possibility of using high-speed rail to connect Stockton and Modesto to Livermore, Pleasanton, and Santa Clara County.[76]

Conclusion

California transit agencies are achieving regional coordination by reducing service duplication and by coordinating fares.

Without strong incentives for transit agencies to coordinate, progress toward interregional connectivity is slow. As a result, Amtrak is the only public transit option connecting Northern and Southern California. Travel times on public transportation are much longer than private, often due to a lack of rail infrastructure investment and conflict with freight rail. Such is the case on the Altamont Commuter Express between San Joaquin County and the San Francisco Bay Area.

California looks to growing interregional connectivity with investments in traditional and electric high-speed rail. Amtrak continues to grow capacity on its traditional rail system, as funding and demand allow. Dedicated passenger high-speed rail will connect the San Francisco Bay Area with Los Angeles, and later, Sacramento and San Diego, eliminating conflict with freight rail.

[75] California High Speed Rail Authority, Vision Statement.
[76] Altamont Newsletter, Feb. 2011, http://www.cahighspeedrail.ca.gov/Altamont_Corridor.aspx

Section 5: Transit and Infrastructure

When the average commuter thinks of transit, fixed-route bus and rail come to mind, but that is an incomplete picture – a transit system involves many more interconnected services. This chapter gives an overview of the supporting services and infrastructure of public transit by examining in detail the following: bus rapid transit, shuttles and vanpools, pedestrian and bicycles, park-and-ride lots, and transit-oriented development – based on the review of 38 California transit agencies that report to the National Transit Database (See table in Appendix).

Bus Rapid Transit

Bus rapid transit (BRT) is a term applied to a variety of public transportation systems using buses to provide faster, more efficient service than ordinary bus service. BRT often has many characteristics of rail without some of rail's high initial capital costs. Fully developed BRT systems include bus-only lanes to eliminate conflicts with other traffic, stations with raised and level platforms to ease boarding, fare prepayment, signal priority, real-time arrival information and limited stops. The Federal Transit Administration maintains a BRT website and publishes guides to planning and implementing BRT and adapting it to local needs.[77] The California Department of Transportation published the handbook, "Bus Rapid Transit: A Handbook for Partners," on existing and planned BRT systems (see Caltrans Map of BRT in California) and describes the role and policy of Caltrans with respect to BRT. The handbook discusses the Caltrans Director's Policy on BRT (DP-27), highlighting and clarifying Caltrans's role as a partner with transit operators – as well as transit planning and development agencies – in support of this innovative transit mode. While the infrastructure, vehicle, and service features of BRT vary, the handbook notes that the objectives of a fully developed BRT line are a high quality, "rail-like" transit service that:

- Reduces transit travel time
- Increases trip reliability
- Improves transit connections and provides direct service
- Decreases station stop dwell and waiting times
- Enhances system identity
- Increases comfort
- Enhances safety and security[78]

Some of BRT attractions are lower infrastructure costs, greater flexibility, and shorter development time when compared to rail, with faster, higher quality service than traditional bus service, attracting more riders to their system. BRT can combine the best features of rail with the flexibility and cost advantages of roadway transit systems. BRT can develop transit ridership in a corridor in order to support future investment in a rail project.

Twenty-two California transit agencies operate BRT express service. 13 agencies are planning BRT by proposing plans and guidelines, to completing environmental impact reports and public input, to detailed consideration of future BRT systems. Each BRT proposal is unique, and not every transit agency will adopt every element of a complete BRT system. Some transit agencies nickname express buses "BRT lite," and several are considering incremental BRT, adopting relatively inexpensive components, with more to come later.

[77] http://www.nbrti.org
[78] http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/BRT/BRT-Handbook-030706.pdf

Examples of Existing BRT in California

The California Department of Transportation bus rapid transit project experience extends back to 1973, when the Interstate 10 El Monte Busway opened for service in Los Angeles County, with three bus stations and several park-and-ride lots. In 1976, the lanes were opened to carpools, although, the 13-mile route is no longer bus-only, it does speed up bus service along its route. Foothill Transit runs an express bus route called Silver Streak, using the El Monte Busway carrying commuters between the San Gabriel Valley and downtown Los Angeles. The U.S. Department of Transportation's conducted an executive report, "Effects of Changing HOV Lane Occupancy Requirements: El Monte Busway Case Study," that discussed how the Busway changed when the HOV occupancy requirement was lowered from three to two, the report found that greater congestion on the Busway and raised other issues that are relevant to BRT, such as enforcement and management of lanes.[79]

Another BRT system is the Orange Line in Los Angeles, a fourteen-mile route in the San Fernando Valley that uses a former railroad right-of-way for its two dedicated bus lanes. Because it is separated from traffic and has some signal priority at cross streets, the line's speed and reliability is comparable to rail. Indeed, the Los Angeles County Metropolitan Transportation Authority considers the Orange Line part of its "Go Metro" transit system of high-speed lines with frequent all-day services. The Orange Line is considered distinct from its "Rapid" bus lines, which run in mixed traffic. The fact that the Orange Line travels the back fences of suburban houses in an old rail right-of-way makes it somewhat unique.

The Orange Line features low-floor buses, pre-boarding payment, and 60-foot articulated buses that reach up to 55 miles per hour on some stretches. It connects at one end with the Metro Rail system, and is an important feeder line for those traveling from the San Fernando Valley to downtown Los Angeles on transit. The Los Angeles County Metropolitan Transportation Authority also operates the Metro Rapid bus system, which features some basic BRT features, such as traffic signal priority, low-floor buses, and "NextBus" real-time traveler information. According to Metro, ridership has risen 40% and travel time has decreased 29%.[80] The system started in 2000 with the Wilshire and Ventura Boulevard corridors and has expanded to cover 450 miles. Long Beach Transit operates Zap, a limited-stop peak-hour express service, with signal prioritization, but without dedicated lanes. Santa Monica Big Blue Bus and Culver City Bus also operate limited stop bus services on major corridors that are branded as "Rapid."

Planned BRT Systems

The Southern California Association of Governments counts future BRT projects in its Regional Transit Plan. Many add bus-only or bus-priority lanes to existing roads; when complete, the system will crisscross most of the greater Los Angeles region. The San Diego Association of Governments are planning a South Bay BRT line that will include arterial "transit-only" lanes, transit signal priority, special bus-only shoulder lanes on the freeway, and enhanced customer amenities. Construction on freeway express lanes and BRT stations has begun, and the 21-mile route is slated to open in 2013.

The Bay Area's Metropolitan Transportation Commission is planning two BRT lines, along Van Ness Avenue and Geary Boulevard in San Francisco, two of the most heavily traveled corridors with already high transit ridership. A citizens' advisory committee calls for dedicated bus lanes, ticket vending

[79] http://ntl.bts.gov/lib/jpodocs/repts_te/13679.html
[80] http://www.metro.net/projects/rapid/

machines and a proof-of-payment system, real-time bus arrival information, curb extensions, islands, and medians to minimize pedestrian crossing distances.[81]

Model of Geary BRT Corridor

Model of Van Ness BRT Corridor[82]

Alameda/Contra Costa (AC) Transit is planning a 15-mile BRT line from Berkeley to San Leandro along a heavily traveled bus route, with dedicated bus lanes, a proof-of-payment fare system, and raised platforms with at-grade boarding. However, BRT has been controversial in Berkeley, as the city council voted not to dedicate bus-only lanes on Telegraph Avenue. Local riders object to the loss of bus stops, since BRT require stops that are farther apart than those of the express bus now serving the corridor, making BRT less attractive for riders with limited mobility. The project's Final Environmental Impact Report is expected to be released in the summer of 2011. Many other transit agencies are planning BRT, by using buses to increase mobility by limiting traffic conflict. Transit agencies include: SamTrans (San Mateo), Santa Cruz METRO, Orange County Transportation Authority, Sacramento Regional Transit, Omnitrans (San Bernardino County), and the City of Santa Monica.

BRT Challenges

The L.A. Orange Line has had its problems, especially with safety. Soon after the line opened, several cars running red lights collided with transit vehicles. In response, Metro reduced bus speeds through intersections from 25 mph to 10 mph, lowering average speeds and increasing travel time. Other safety modifications include:

- 36-inch bus crossing signs at intersections
- Traffic signal timing to give buses more time to clear intersections
- Changing round green light signals to an "up" arrow signal, to emphasize the prohibition on "turning right on red"
- Lowering the flashing "bus coming" sign to be adjacent to "no right turn on red"
- 24-inch "Look Both Ways" pedestrian warning signs
- "Keep Clear" pavement markings at intersections
- Strobe lights on buses to increase visibility; and
- Photo enforcement cameras to deter red-light runners.[83]

The Orange Line shows that care must be taken when designing at-grade busways that intersect with busy arterial streets. Planners should anticipate that car drivers will enter the busway unintentionally.

[81] http://www.sfmta.com/cms/raccess/MuniAccessGuide8NewProjects.htm#_Geary_Corridor_Bus
[82] http://www.sfmta.com/cms/raccess/MuniAccessGuide8NewProjects.htm#_Geary_Corridor_Bus
[83] http://www.gobrt.org/Orange_Line_Preliminary_Evaluation_by_BTI.pdf

Safety measures can increase travel time, therefore agencies should consider grade separation at busy intersections. Specifications must ensure long-term pavement integrity.[84]

BRT Funding

Funding varies for specific BRT projects. Capital-intensive BRT projects fall under the category of "New Starts" in SAFETEA-LU. This law authorized funding for Fiscal Years (FY) 2005 through 2009 (with extensions continuing it through today) and is a primary source of federal funds for BRT projects. The Act also has a provision for "Small Starts," where the total project cost is under $250 million and the federal share would be below $75 million. To be eligible for such funding, the BRT must be a fixed guide way project defined in SAFETEA-LU as: "a substantial portion of the project operates in a separate right-of-way dedicated for public transit use during peak hour operations."[85] It is noteworthy that the definition of what is meant by "substantial" remains to be determined by the FTA. A project without any exclusive bus lane operations might be eligible for New Starts and Small Starts funding if project expenditures represent a substantial investment in a defined corridor as demonstrated by various features.[86]

Table 3: Committee Funding for No-Build Alternative (Rapid Bus and Build Alternatives)

Funding Source	Amount ($2005 in millions)
Regional Measure 2 (Bridge Tolls)	$65.00
Alameda County Measure B (Sales Tax)	$20.23
CMA TIP	$9.39
Federal Grant	$2.73
Federal STIP	$2.70
SAFETEA-LU	$2.00
Total:	$102.05
Source: AC Transit, 2006	

Local transit agencies have highlighted various funding strategies to support the development and implementation of BRT. One example is from East Bay Bus Rapid Transit Project. In the table (top right), it depicts committed funding from a variety of programs, including toll increases on bridges in the San Francisco Bay Area.[87]

BRT offers an opportunity to create a fast and relatively inexpensive system upgrade to attract riders who might not otherwise take transit. Because BRT is a flexible, relatively easily implemented system, transit agencies and transit operators have been willing to think creatively about how to use it within their service areas, choosing aspects that are most locally appropriate and experimenting with different elements to best fit their community's transit needs. Planners are analyzing implemented BRT lines to develop best practices and assist developing future BRTs throughout the State.[88] Funding varies for each project and local agencies have become creative when it comes to initial BRT studies, acquisition of right of way, and plan implementation. A key advantage of BRT is that the infrastructure and service can be implemented in phases over time, with full BRT service as the long-range goal. Therein lays the challenge: developing a BRT system at low cost that provides sufficient quality of service to achieve BRT objectives. While full BRT may not be feasible in every case, a certain minimum number of features must be present in order to achieve the higher quality of service envisioned with BRT. In practice, each BRT project will vary from others and be designed around the physical characteristics offered by the specific corridor available funding sources.

[84] http://www.gobrt.org/Orange_Line_Preliminary_Evaluation_by_BTI.pdf
[85] http://www.fta.dot.gov/planning/newstarts/planning_environment_2608.html
[86] http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/BRT/BRT-Handbook-030706.pdf
[87] http://www.ci.berkeley.ca.us/uploadedFiles/Planning_and_Development/Level_3_-_Commissions/9-24-08_Item%2010_BRT%20attach%204_Transit%20funding.pdf
[88] http://www.fta.dot.gov/assistance/research/research_7978.html

Shuttles and Vanpools

Shuttles and vanpools can extend the reach of transit, in part by filling in service gaps and complementing larger transportation networks with services to smaller areas. Shuttles are flexible in costs, route planning, service provision, and operation, and they can be used for employment transportation, neighborhood access, and travel to specific recreational destinations. The range of possibilities for shuttle use also brings opportunities for cooperation among agencies, businesses, and employers for transportation provision. Vanpool services can range from ride-matching, to incentives for sharing a ride to work, to operation of regional van or car services.

Shuttles

Shuttles offer flexibility for smaller groups without having to implement a large transportation network or system. Shuttle services may provide direct trips to selected locations, such as airports, colleges, and employment centers. The Santa Barbara Metropolitan Transit District, for example, operates two lines of airport shuttles called SuperRide and Santa Barbara Airbus. Shuttles may also serve smaller communities with a loyal or captive ridership base. Santa Barbara MTD operates UCSB and City College shuttles that serve students in and around college campuses. Shuttles may serve highly specialized events – for example, Westlink's 49ers Express Shuttle that takes fans to football games – or locations, such as Santa Clara Valley Transportation Authority's (VTA) eight shuttle routes to and from Great America Amusement Park. They are usually implemented to serve specific needs of certain groups, centers, or communities.

For instance, VTA's Downtown Area Shuttle Service began as a small downtown circulator for San Jose and now serves many communities with large numbers of residents who commute into the downtown regions. The VTA's 2007 Comprehensive Operations Analysis (COA), a system-wide review of all VTA bus services, investigated market opportunities to expand the program into other areas. Eleven community bus routes were implemented in January 2008 as recommended by the COA. VTA's Community Bus (shuttle) service is planned to meet the needs of individual communities and neighborhoods, improve general circulation within a local area, and provide access to arterial bus routes, light rail or transit centers. Community Bus service is typically deployed in lower-density residential developments or central business districts, with the intent of providing connections amongst housing, schools, shopping malls, employment centers, and recreational areas. It is provided in areas not physically conducive to operating standard bus service or exhibiting higher ridership demand.[89]

Shuttles can also provide "last-mile" service to carry passengers to their destinations from transit hubs and stations. Their specialized nature allows them to extend service at a lower cost and with greater flexibility than larger transportation systems. The Altamont Commuter Express (ACE) relies on its ACE Express Shuttle to bring 1,300 passengers every weekday from the ACE train stations to their destinations. Caltrain provides shuttle service to employment sites in San Mateo and Santa Clara, operating 31 weekday commute shuttles and one weekend shuttle serving 5,000 riders per weekday.

Many shuttles run only during peak commute hours. The Santa Clara VTA shuttle carries passengers from light rail stations to employment from 6 am and 9 am and back again from 3 pm and 6 pm., in coordination with other local transit agencies. VTA's DASH connects all-day to rail (ACE, Caltrain, and VTA light rail), carrying 700 passengers daily to employment and schools in downtown San Jose. Large transit networks either operate their own shuttles or contract out.

[89] Fleet Management Plan, Santa Clara Valley Transportation Authority (Page B-15), Feb 2010.

Congestion reduction is an important contribution of shuttles, aiding traffic mitigation measures via cooperation between transit agencies and cities. The Santa Barbara MTD entered into an agreement with the City of Santa Barbara to operate shuttles in busy corridors. The Downtown-Waterfront Shuttle and the Seaside Shuttle offer subsidized fares at $0.25 per ride. "Wharf Woody" offers free rides to the beach. The following are other examples of agencies that support shuttle services: transit agencies that want to extend service coverage, planning organizations that want to decrease congestion, environmental quality agencies that want to decrease carbon emissions and employers who want to provide a transportation option for employees. For instance, Caltrain operates shuttles in San Mateo and Santa Clara Counties funded by a combination of Caltrain Joint Powers Board local funds, employers, and regional grant funds from the Transportation Fund for Clean Air administered by Santa Clara VTA. The City of San Jose pays $1.2 million a year toward operating the Free Airport Flyer, to the airport, light rail, and ACE and Caltrain.

Google Shuttle photo by Randi Beach, The New York Times

The flexibility of shuttles for a variety of trip purposes makes them relatively easy to implement and operate. Employers benefit from reliable transportation for their employees, cities may see reductions in the number of vehicles on the road, and riders can more easily get to their destinations. A great example of employment generated shuttle services is that provided by Google, shuttling more than 1,200 employees daily to and from its headquarters on 32 free shuttles with comfortable leather seats and wireless internet. Bicycles are allowed on exterior racks, dogs on forward seats, or on their owners' laps on full shuttles. Google shuttles log 132 trips daily to 40 locations in a dozen cities in six San Francisco Bay Area counties, some 4,400 miles. Morning service starts at 5:05 a.m., with the last pick-up at 10:40 a.m. Evening service runs from 3:40 p.m. to 10:05 p.m., with pickups as often as every 15 minutes.[90]

Vanpools

Vanpools are another convenient and efficient alternative commute mode, providing benefits to riders such as reduced commute expenses, convenient transportation without having to drive, and the use of carpool lanes for speedier commutes. Vanpools are encouraged as a way to save energy, cut down on emissions, and lessen congestion, and they are embraced by air quality agencies as well as regional traffic management agencies.

Long-distance commuters share vanpool driving with others going a similar distance on the same schedule. Some Vanpools register with the local metropolitan planning organization to get ride-matching and funding, and carry 7 to 15 passengers. Individual riders usually form vanpools, although sometimes employers will. In San Luis Obispo County, the Transportation Management Association RideOn program provides the van, insurance, maintenance, fuel, registration, and car wash for a monthly fee shared by the passengers. The driver picks up the other passengers on the way to his or her job and thus is allowed to ride free.

[90] http://www.nytimes.com/2007/03/10/technology/10google.html accessed on March 18, 2011

In other areas, agency roles are limited to providing ride-matching services and to help form vanpools. In the San Francisco Bay Area, 511.org lists vanpools with available seats, with tips on how to start (leasing a van, costs, incentives such as free tolls and low-cost parking), vanpool consultants, and ride matching to recruit new riders and keep vans full. San Diego's RideLink offers ride matching and subsidizes van leasing by $400 per month using Congestion Mitigation and Air Quality Improvement funds. In San Diego, the driver negotiates the lease (including maintenance and insurance) and passengers split the cost of fuel.

Vanpools and shuttles could also support specialized populations such as disabled, seniors, lower income, or occupation specific travelers. For example, CalVans Joint Powers Association is a statewide commuter and farmworker vanpool agency piloted in 2010 and officially forming in 2011 between the councils of governments in Kings, Madera, Fresno, Tulare, Monterey, San Benito, Santa Cruz, Sacramento, Yolo, Yuba, and Sutter Counties. The CalVans JPA was made to create, fund, operate and otherwise manage public transportation projects and programs aimed at providing qualified agricultural workers with safe affordable vehicles they could use to drive themselves and others to work. CalVans operates as a Public Transit Agency and is a restructuring of a very successful vanpool program currently operated by Kings Area Rural Transit Agency, (KART). In 2001, KART initiated its vanpool program with several vanpools transporting workers to prison facilities in Corcoran and Avenal. The vanpool expanded in 2002 with the funding for the Agricultural Industries Transportation Services (AITS) project. The number of farm workers vanpools varies between 80 and 140 vans throughout the agricultural season.

Shuttles and vanpools are flexible, low-cost alternatives to regular fixed-route services. They are used in California for a wide variety of purposes: commuter services delivering employees to specific work sites; free downtown or shopping-area circulators paid for by local merchants; feeder routes for rail services; campus-area loops serving students and local colleges; and transportation to special events or special locations. Each example includes services operated by transit agencies as well as other companies or organizations on contract to agencies, employers or merchants. With available funding and demand, shuttles and vanpools provide the opportunity for California residents to utilize flexible route services, while providing sustainable alternatives to driving alone.

Bicycles and Pedestrians

The Short Range Transit Plans reviewed for this report identify how transit agencies recognize the need to provide access to vehicles, transit stations, and transit stops. Several agencies state a goal of "encouraging alternatives to driving" in their Short Range Transit Plans; alternatives can include not only transit, but also non-motorized modes such as walking and bicycling. Moreover, pedestrians and cyclists have been far less formally organized into economic and political interest groups than automobile and transit interests. As a result, the needs of pedestrians and cyclists have often been neglected in planning and designing the built environment, including the development of new transit systems and services.[91]

Pedestrians

Transit passengers are always pedestrians before and after leaving the transit system. Wide streets with heavy or high-speed traffic, lacking signals and crosswalks, and bus stops that do not include seating or weather protection can negatively affect the pedestrian experience for transit users and discourage people from choosing to take public transit. Short-range transit plans aim to improve the pedestrian link to transit, but transit agencies must cooperate with cities and counties responsible for local streets.

[91] http://safety.fhwa.dot.gov/ped_bike/docs/case9.pdf

Transit agencies treat access of disabled and senior pedestrians to transit – especially in suburban and rural areas in their "coordinated plans" under the Americans with Disabilities Act – with synchronized crossing signals (especially at multi-lane intersections) and improved crossings, sidewalks, and bus stops. Some rural areas lack sidewalks, and some bus stops disembark passengers onto shoulders, which can be especially perilous for transit users with impaired mobility.

The San Francisco Bay Area Metropolitan Transportation Commission recommends developing city-based pedestrian plans (such as Oakland's, with 148,000 daily pedestrian trips to and from AC Transit), since cities and counties are responsible for pedestrian improvements. Oakland's pedestrian plan provided much-needed data about how pedestrians access transit, and it helped Oakland develop policies and design guidelines to better accommodate pedestrians. Another kind of effort is a planning document like AC Transit's "Designing with Transit," a "handbook for elected officials, local staff, and other community builders" that includes guidelines for pedestrian design around bus stops.[92]

AC Transit's Designing with Transit outlined several walking policies and best practices to highlight how to improve pedestrian access and the quality of non-motorized modes of transportation. Oakland is one of the first cities in the country to develop a plan to support pedestrian travel. Oakland's plan sets goals to increase walking, to provide guidance on key pedestrian issues and to support the Mayor's goal of having walking trips replace auto trips. The plan identifies existing policies that support pedestrians in Oakland, and provides specific guidelines on how to implement these goals.[93] The goals include:

- Goal 1: Pedestrian Safety – Create a street environment that strives to ensure pedestrian safety;
- Goal 2: Pedestrian Access – Develop an environment throughout the city, prioritizing routes to school and transit, that enables pedestrians to travel safely and freely;
- Goal 3: Streetscaping and Land Use – Provide pedestrian amenities and promote land uses that enhance public spaces and neighborhood commercial districts.

Bicycles

Transit and bicycles are sometimes competing modes, especially where climate and topography better suit cycling. Bicycles also complement buses and trains, providing the critical "last mile" connection. Buses assist cyclists in hilly areas, or in inclement weather, and both bus and rail extend the reach of bicycle trips. Accommodating bikes can increase the numbers of potential riders on a transit system by increasing the passenger "catchment area": A traveler can cover a greater distance on bike than foot in a given period.

Many California transit agencies allow bikes to be taken onboard buses and trains, using bike racks on buses and bike cars on trains. Where space on trains is given over to cyclists, they typically share it with people traveling with strollers and wheelchairs. Agencies often restrict bringing bikes on trains during peak hours in order to accommodate the maximum number of standing room riders. In some cases, rail agencies have the flexibility to add capacity by putting more trains into service; for example, Caltrain has added special bike cars to some of its trains in an effort to increase bike capacity. Additionally, Los Angeles County Metro lifted its peak-hour bike restrictions in 2011 and has removed seats on some train cars to accommodate bikes and other bulky items.[94]

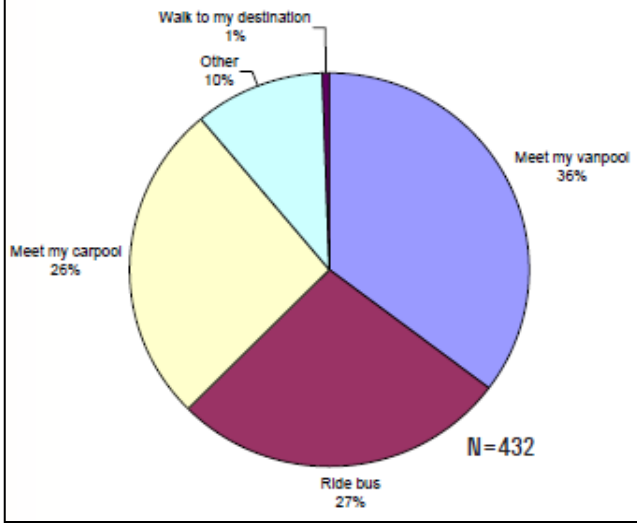
[92] http://www.actransit.org/planning-focus/reports/323-2/ *Retrieved March 21, 2011.*
[93] http://www.actransit.org/planning-focus/reports/323-2/ *Retrieved March 18, 2011.*
[94] http://thesource.metro.net/2011/04/28/metro-board-lifts-peak-hour-bike-restriction-on-metro-rail-board-takes-action-on-other-key-issues/

Buses are generally limited to two or three bikes on folding racks mounted to the vehicle's front. These capacity limits can discourage riders, especially if service is infrequent and an already full rack can mean a long wait for the next bus. The city of Davis' bus agency, Unitrans, contemplated this issue early on when it considered adding bike racks to its buses. The agency realized that, with the very high bicycle use throughout the city, any bike racks it provided were likely to be usually filled, and potential users would not be able to count on finding an open rack space. For that reason, Unitrans, in bicycle-friendly Davis, has not provided bike racks on its buses, as they are likely to be always filled, and therefore likely to disappoint most who would attempt to use them.

Transit agencies cannot provide bicycle lanes or on-street bike racks, but they do advocate for them. Despite the jurisdictional constraint, AC Transit is developing a bicycle parking plan for its bus stops. Rail and bus agencies provide bike parking on their property, as in the "Bike Station," at rail stops in Long Beach, Berkeley, San Francisco, Palo Alto, and Covina. Bike stations can be run by private and nonprofit groups, and can provide secure bike parking, sales and service, showers and lockers, and bike rentals. Bike sharing is also one way around the problem of capacity on transit. Cyclist can park a bike at one end of a transit trip and pick up another at the other end. Bike-share systems have succeeded in extending transit's reach in Paris and Barcelona, and one has recently begun in Washington, D.C. The Long Beach bike station began offering bike sharing to city employees in 2008.

Another issue faced by transit agencies is bicycles and buses sharing road space. Providing separate on-street bike lanes is not always politically feasible. Additionally, bikes and buses will often leapfrog one another – i.e. a cyclist will pass a stopped bus, only to be passed again by the bus as it re-enters the travel lane – creating additional risk of a collision and anxiety for the bicyclists and bus driver. The Chicago Bicycle Program created a training video to train bus drivers and cyclists on safe ways to share the road. The video has received positive attention in part because it speaks to both groups; neither drivers nor bicyclists get the message that they are the ones who must change their behavior unilaterally.

Figure 6-4 Travel Modes from P&R Lots to Destinations (Statewide Results)



Public information about bike access is also important; while most transit agencies accommodate bikes, it is not always clear from their websites and using a bus bike rack requires instruction (some agencies forbid drivers from assisting). Los Angeles County Metropolitan Transportation Authority's "Pocket Riders Guide" shows how to use bike racks, with notes on proper helmet use and safety. San Francisco Bay Area Rapid Transit does not allow bicycles on escalators, so riders must locate and use elevators that are not always clearly marked, or else carry bikes up and down long, crowded staircases.

Providing a high-quality experience for transit riders who access stations on foot or bicycle has the potential of increasing ridership. Cities can provide safer access to transit locations by improving streetscapes that have functioning sidewalks and bike paths. In addition, transit agencies can work with

local jurisdictions to maintain areas around transit locations to ensure pedestrians and cyclists are well accommodated.

Park-and-Ride

Park-and-ride lots are important elements of today's transportation system and offer a convenient and safe location to transfer from a single passenger vehicle to a local or regional transit bus, carpool, or vanpool. Park-and-ride facilities are becoming a higher priority for local and regional agencies in part due to an increase in transit ridership over the past five years. Currently, Caltrans owns, operates, and/or leases 326 park and ride lots and nearly 34,000 parking spaces.

Transit agencies and private companies operate park-and-ride lots to connect commuters to buses, and other modes, such as carpools, vanpools, light rail, and commuter rail, thus facilitating public transportation use and carpooling/vanpooling. According to the California BusPool project, about 27% of Caltrans park-and-ride lot users connected to a bus. The majority of the remaining users joined a carpool or vanpool (See Figure 6-4).[95]

Park-and-ride lots play an important role in bringing in riders. For example, Golden Empire Transit in Bakersfield is building park-and-ride lots to expand access to express bus service. Foothill Transit and Fresno Area Express (FAX) use park-and-ride lots to increase ridership and decrease downtown congestion. AC Transit uses park-and-ride as a collector for suburban bus service, coordinating schedules of buses with park-and-ride that include amenities such as bike lockers, shelters, and increased lighting.

Lot Usage and Travel Characteristics

- Nearly three-quarters (73%) of respondents drove 10 miles or less from their home to a P&R lot. Within this group the average driving distance was 8 miles.
- The vast majority of respondents (83%) indicated that their travel time from home to a P&R lot was less than 20 minutes. Just over one-third (34%) said it took them less than 10 minutes.
- The distribution was fairly even between those who used a carpool (26%), rode a bus (27%) or used a vanpool (36%).
- The average distance from the P&R lot to the final destination was 37 miles. Nearly a third (30%) said the distance traveled was more than 46 miles.
- The average travel time from a P&R lot to the final destination was 48 minutes. Nearly one-third (31%) of respondents indicated that it takes them over one hour.
- 35% of respondents have been using a lot for more than 3 years. Another one-third (31%) can be considered "newbies" who have been using a lot for less than a year.
- Most respondents learned about their P&R lot either from co-workers/family/friends (31%), seeing the lot while driving (29%), or their employer (15%).
- Exactly one-third (33%) said they have used another P&R lot within their region.

Most agencies offer free parking to encourage transit use and carpooling, while others charge parking fees to help fund park-and-ride services and regulate demand at busy lots. Most funding for park-and-ride comes from federal and local sources. Large transit agencies often have partial control over park-and-ride facilities, entering into agreements with other entities. Sacramento Regional Transit (RT) operates a portion of its Blue Line light rail system within the Interstate 80 right-of-way, with stations and parking at Watt/I-80, Watt/I-80 West, and Roseville Road stations, with the consent of the California

[95] http://www.dot.ca.gov/hq/traffops/systemops/buspool/CALTRANS_buspool_final_report_COMPLETE.pdf

Department of Transportation (Caltrans). In 2009, Caltrans agreed to allow RT to begin charging Park-Pay-and-Ride users $1 per day or $15 for a monthly pass.[96]

The Santa Clara Valley Transportation Authority (VTA) operates 31 park-and-ride lots, 23 owned by VTA and eight shared with cities and shopping centers. VTA's website offers an interactive map that highlights the various park-and-ride lots.[97] The Golden Gate Bridge Highway and Transportation District (GGBHTD), serving commuters between San Francisco and Sonoma and Marin Counties, owns two park-and-ride lots and uses twelve park-and-ride lots in other jurisdictions.

Challenges and Opportunities

Park-and-ride potential varies by region. A Caltrans survey found that 90% of park-and-ride users are commuting to and from work, but the utilization of park-and-ride lots vary. Many Caltrans lots fill to capacity and lead to cars spilling into surrounding areas, while other lots sit only half-full. In some regions, long distances, travel time, and convenience favor the automobile, transit is inadequate, and no high-occupancy lanes exist to encourage carpooling. In these instances, a park-and-ride lot may wind up underused. Tri Delta (Eastern Contra Costa Transit) discovered a major problem with a newly constructed park-and-ride facility a few miles away from a BART station.[98] The distance between the two facilities was too short – and the transit connection too infrequent – to entice drivers to use the park-and-ride instead of driving directly to the BART station. Other factors affecting the utilization of park-and-ride facilities include the quality of a given park-and-ride facility and its ease of use, as can the perceived security of the lot.

Ultimately, transit agencies consider park-and-ride essential, but not ideal. A California Bus Pool survey (See Table Above)[99] found that one-third park-and-ride users drive only 10 minutes to reach them, and most drive no more than 20. Because emissions from cold starts are high, short car trips to reach transit are particularly inefficient.[100] Lots with impervious surfaces can also cause polluted water runoff issues and raise air temperature, due to the heat trapping effects of asphalt. Additionally, surface parking lots may preclude using available land to build transit-oriented development. Conversely, a transit agency can use parking lots as a form of land banking – putting land to good use until a future development necessitates its conversion to a more productive purpose. Ultimately, park-and-rides can provide important connections between commuters and public transportation and carpooling, closing service gaps between transit stations and homes.

Transit Oriented Development

Transit Oriented Development (TOD) is moderate to high-density development (either new construction or redevelopment) within an easy walk of a major transit stop, with a mix of residences, employment, and shops. In California, thirteen agencies discuss TOD in their short-range transit plans: BART, Caltrain, LACMTA, SacRT, SamTrans, Omnitrans, Santa Monica Big Blue Bus, Fresno Area Express, LAVTA, OCTA, WestCAT, Santa Clara Valley Transit Authority (VTA), and SF MUNI.

TOD creates opportunities for integrated and cooperative development arrangements that better connect land use and transportation. When successfully implemented, TOD projects can allow regions to grow while minimizing the amount of vehicle miles traveled that are added. At the same time, it

[96] http://www.sacrt.com/PP&R.stm
[97] http://www.vta.org/services/park_ride.html
[98] http://trideltatransit.com/park_ride.aspx
[99] http://www.dot.ca.gov/hq/traffops/systemops/buspool/CALTRANS_buspool_final_report_COMPLETE.pdf
[100] http://www.bikeleague.org/resources/why/environment.php

increases the housing options for those who cannot drive or do not want to own one or more cars. Transit operators can greatly benefit from the development of housing and employment close to their service networks. A survey cosponsored by the Silicon Valley Manufacturing Group and Santa Clara Valley Transit Authority (VTA) revealed that people who live near rail stations use bus and rail transit five times more often than the average person in the county.[101]

Fruitvale Village TOD development, Oakland, CA

Housing, employment, and transportation investors are shifting attention to small, walkable urban neighborhoods. The Center for Transit Oriented Development estimates that a quarter of new households in the United States will seek housing within a half-mile of a fixed-guide way transit station, double what is now available.[102] TOD also provides an opportunity to address accessibility issues of low-income individuals by providing opportunities to include affordable housing and services, which can simplify trip making for transit-dependent individuals.

TOD locations affect whether land use areas are devoted to residential versus commercial use. Caltrans' California Transit Oriented Development Database compared land use at twelve urban and nine suburban stations. At urban rail stations, 31% of the TOD land use area is residential, while commercial footage averages about 50%. For TODs in suburban settings, this relationship is reversed: average land use among nine areas studied is 65% residential and 22% commercial.[103]

Most TOD projects in California are near rail stations because their permanence can ensure long-term transit access for residents and employers. TOD in cities often attracts high-value projects. A mix of residential, commercial, and recreational space and walkable destinations raises the image and value of a redeveloped area. The Fourth Street MUNI light rail station in San Francisco is central to the Mission Bay Redevelopment Area, with 6,000 residential units along the historic waterfront, with retail, parks, and a research center. Fruitvale Village (next to BART) in Oakland is often used as a template for successful TOD. Built next to the Fruitvale BART station, it includes retail, office, and market rate and affordable housing. In San Diego, the Rio Vista light rail station is surrounded by new retail and housing within a quarter mile.

BART Station Area Planning Policy promotes community partnerships for planning, access, and function, and advocates for transit at all government levels. BART planned the Fruitvale Transit Village with the city, to revitalize a low-income, inner-city area with a mix of housing and retail. BART's Development Policy Review Panel expressed a need to examine new development practices to maximize the use of land rather than follow prevailing development practices.

TOD requires local government commitment and must be allowable under existing community planning policies. San Mateo County's Transit Oriented Development Opportunity Study helped SamTrans assess TOD opportunities within a half-mile of rail stations. The study concluded that reducing on-site parking

[101] http://www.vta.org/projects/tod.html
[102] http://www.reconnectingamerica.org/public/tod
[103] http://transitorienteddevelopment.dot.ca.gov/station/NewCompareGraph.jsp

encouraged projects that would not have been economically feasible with typical parking requirements. Cities can proactively support TOD through zoning changes, station planning, and cooperation with developers.

While many TODs focus on rail, buses also can support TOD if there is a high quality transit service. Uptown District in San Diego is an example of a pedestrian-oriented retail and residential center served by several bus connections. In Los Angeles, 16% of TOD residents commute almost exclusively by buses. Suburban TODs are also more likely to be served by buses because those regions often lack the density that usually justifies an investment in rail transit.

Transit oriented development requires close cooperation among transit agencies, the government and developers. Los Angeles County Metropolitan Transportation Authority's Smart Growth Partnership joins public and private leaders to promote TOD near rail and bus stations. The Livermore Amador Valley Transportation Authority's short-range transit plan advocates municipal "priority development areas" near rail and bus lines, to facilitate TOD. Santa Clara Valley Transit Authority (VTA) has joined with local government to promote TOD and prove TOD expertise. Several cities have amended their zoning codes and regulations to include provisions for transit supportive land uses at existing and planned rail stations. VTA provides expertise and resources on how to achieve transit friendly development. The expected results of these planning efforts are better communities that offer people a variety of transportation choices – beyond the oversupply of auto-dependent household.[104]

VTA's joint development projects are models for the type of development that promotes transit and pedestrian use. Located on VTA-owned land, they allow residents and employees easy access to transit. Several projects that have increased transit ridership, generated revenue, and improved neighborhoods include: Tamien Child Care Center, Almaden Lake Village Housing, and Ohlone-Chynoweth Mixed-Use Project. These projects are described in further detail in their respective TOD Program fact sheets, available from VTA's Planning Department.[105]

High-density infill development or redevelopment around transit stations creates opportunities for efficient use of space. Planning for TOD must come early in the planning process, to ensure that land use and transportation planning are well integrated. The need to accommodate multiple transit systems may motivate cities to develop specific station area plans. For example, the development of a TOD at the Waterfront District in the City of Hercules incorporates a ferry station, a Capitol Corridor Amtrak station, and local and express bus service.

Conclusion

This chapter details some of the transit infrastructure that is increasing nontraditional fixed route transit trips, such as park-and-ride and transit-oriented development. Bus Rapid Transit is becoming a popular transit mode throughout California in the state's larger urban areas. BRT in its fully realized form can provide light rail-like service at a far lower cost, while more modest improvements to traditional bus routes can boost ridership. Transit agencies are making BRT safer through signage, signals, and grade separation. Shuttles and vanpools are bridging service gaps left by fixed-route service – whether they are sponsored by transit agencies, employers, health service agencies, non-profits, or private companies. By having an array of providers, specific transit needs are met without the total cost burdening the local transit agency.

[104] http://www.vta.org/projects/tod.html
[105] http://www.vta.org/projects/tod.html

All transit users start as a pedestrian or cyclist, yet the latter are categorically underrepresented in transportation planning. Transit agencies and local jurisdictions are beginning to provide better access to stations and stops, with safer paths, bike lanes, shelters with lighting and benches, and bus racks and trailers, to increase transit ridership. Park-and-ride and TOD, supported by transit agencies, cities and counties, developers, and Caltrans, shorten the distances to transit from home, shopping, and employment, and reduce congestion, increase transit ridership, and lower greenhouse gas emissions. These different transit modes and support systems have one thing in common: in order to improve the overall transit system, all stakeholders involved must coordinate their planning and implementation early and often.

Section 6: Performance Measures

Performance measures are targets by which transit agencies judge the effectiveness of operations, financial management, and customer satisfaction. Internal evaluations and external surveys allow agencies to establish guidelines for setting performance goals.

Common Performance Measures

On-time Performance

On-time performance is frequently defined as arriving less than five minutes behind schedule and departing less than one minute ahead of schedule, or never departing early at all. Most transit agencies aim for 90% to 95% on-time performance.

Farebox Recovery

Farebox recovery is the ratio of fare revenue generated through fares by its paying customers to operating expenses. In general, California transit agencies must maintain a farebox recovery of 20 % in urban areas and 10% in rural areas to receive Transportation Development Act funds (from 0.25% of the State sales tax). Farebox recovery targets vary among transit agencies: Fresno Area Express, 28%; Foothill Transit, 26.33%; Santa Barbara Metropolitan Transit District, 40%. Other transit agencies set a lower target due to their service area's population or physical characteristics. Napa County Transportation and Planning Authority had difficulty achieving a 20% recovery ratio because it services a wide area with varying transportation needs, and so lowered its recovery target to 17% (San Francisco Bay Area Metropolitan Transportation Commission's standard for mixed suburban and intercity rural service).

Farebox recovery ratio targets vary according to type of service, the characteristics of the ridership, and funding. Amador Valley Transit sets a 90% recovery rate on certain lines. Some transit agencies only operate certain services if they can achieve steady farebox recovery with minimal investment. Transit agencies also understand that passengers are willing to pay a higher price for services such as fast commuter routes, so they charge a higher fare. Santa Clarita Transit has set a higher farebox recovery ratio for commuter service (30% to 35%) than for other fixed-route service (20%).

Transit agencies count average boardings per day, week, or month to compare short-term ridership to long-term trends and goals. Santa Clara Valley Transportation Authority uses passenger boardings to identify underperforming services. The primary standard for buses is boardings per revenue hour, the secondary standard, daily boardings per station. Bus routes falling short of standards and that still have not met that minimum after restructuring and operation refinement may be discontinued. For rail services, that may mean that underperforming stations may be closed. Passenger boardings measure service efficiency, and vary among transit agencies due to the different populations and areas served.

Transit Agency Specific Performance Measures

Transit agency performance standards (e.g., boardings per revenue hour and passengers per revenue mile) vary according to service area and population (see Table 4: Common Performance Measures). Transit agencies with a dense population of the transit-dependent naturally attract more passengers than transit agencies with a thinly populated service area with few routes. Thus, transit agencies develop their own standards that are unique to their own operation. For example, analyzing revenue miles between road or service calls (i.e., bus breakdowns) range from 4,000 (San Luis Obispo Transit) to 9,000 (Santa Rosa CityBus). Service and safety standards also vary among transit agencies; revenue miles between preventable accidents range from 70,000 (San Luis Obispo Transit) to 400,000 (Golden Gate

Bridge, Highway and Transportation District). BART's Quarterly Performance Report measures the achievement of specific goals based on benchmark standards in the areas of customer experience, transit travel demand, physical infrastructure, and financial health. Customer surveys also influence standards: BART evaluates services every two years through a passenger survey conducted by an independent research firm.

Review Procedures

Despite varying approaches to route evaluation and indicators, most transit agencies follow similar steps in reviewing service, acquiring information for indicators, measuring against standards, and taking corrective action. Exceptions can be made to underperforming routes if the route fills a specific need, which may be evaluated by the number of route-dependent riders served, the value of the route to the community, and level of subsidy from outside sources.

Conclusion

Performance measures enable evaluation of the operating efficiency of transit agencies. Transit agencies use many performance measures, such as farebox recovery, but other, qualitative performance measures, such as mode choice, are unique, shaped by a transit agency's service area and population. Some standards, such as farebox recovery ratios, are relatively easily carried over from agency to agency. Other standards are more difficult to translate due to distinctive service areas, both in quantifiable terms—for example, population size and density—and in qualitative terms, such as mode choice. It is difficult to set uniform standards for all transit agencies, but adopting common performance measures allow transit agencies to evaluate their transit operations.

Table 4 : Common Performance Measures

<table>
<tr><th>System Performance</th><th>Safety Performance</th><th>Financial Performance</th><th>Customer Focus</th><th>Other Performance Standards</th></tr>
<tr><td>On-time arrival</td><td>Number of injuries in X miles</td><td>Farebox recovery ratio</td><td>Number of complaints in X miles</td><td>Minimum service by density (dwelling units per acre)</td></tr>
<tr><td>Distance between road-call/ mechanical breakdown</td><td rowspan="7">Number of incidents in X miles</td><td>Operating cost per revenue mile/ passenger mile</td><td>Number of passenger trips</td><td>Distance from route</td></tr>
<tr><td>Average weekday/ weekend boarding</td><td>Operating cost per revenue hour</td><td>Cleanliness of buses</td><td rowspan="5">Distance between stops</td></tr>
<tr><td>Percent of system ridership or mode share</td><td rowspan="5">Subsidy per passenger trip</td><td>Seating capacity</td></tr>
<tr><td>Peak/ off-peak load</td><td rowspan="4">Accessibility</td></tr>
<tr><td>Percent of trips missed</td></tr>
<tr><td>Operator absence</td></tr>
<tr><td>Headway</td></tr>
</table>

Section 7: Specialized Transit

Transportation for people with disabilities, elderly, and low-income travelers varies throughout California. Providers include transit agencies, social services from cities and counties, senior centers, faith-based organizations, independent living centers, health care centers, and for-profit paratransit companies. The types and purposes of trips taken by people with disabilities, elderly, and low-income travelers vary and are not easily categorized. Because of this, transportation for these groups is most easily served with a flexible plan. Fixed-route public transit in some areas may not be a viable option to serve the special needs of low mobility population segments. For example, in rural areas where there are limited or no fixed-route services, demand response is a lifeline for the elderly and people with disabilities who would otherwise be without transportation. As a result, State and Federal legislation has been created to provide and support specialized transit services for the most at-need segment of the population.

Consolidated Transportation Services Agencies

Assembly Bill 120 (1979), the Social Services Transportation Improvement Act, called for a consolidated transportation service agency (CTSA) in each county, to foster coordination among providers of transportation to groups lacking mobility, lower insurance costs, and make better use of vehicles and funding.[106] [107] No funds are committed to carry out AB 120; transit agencies coordinate transportation resources and the role of the many CTSAs varies.

Regional transportation planning agencies and metropolitan planning agencies have set up CTSAs in 55 counties, See Table 5: Consolidated transportation Service Agencies.

[106] http://www.asila.org/other_mobility_resources/ctsa.html (Accessed on March 1, 2011)
[107] http://www.calact.org/doc.aspx?17 (Accessed on March 2, 2011)

Table 5: Consolidated Transportation Service Agencies			*Private Agency* / *County Agency*
Access Services, Inc	Madera County Transportation Commission	Full Access & Coordinated Transportation, Inc.	San Benito County Local Transportation Authority
Amador Transit	Mendocino Transit Authority	Fresno County EOC	Shasta Senior Nutrition Program, Inc.
Butte County	Merced County Transit	Fresno County Rural Transit Agency	Siskiyou County Transportation Commission
Coastside Opportunity Center, Inc.	Modoc Transportation Agency/ Sage Stage	Glenn County Transportation Commission	Sunline Transit Agency
Colusa County Transit Authority	Monterey-Salinas Transit	Gold Country Telecare, Inc.	Tehama County Transportation Commission
Community Bridges Lift Line	Napa County Transportation Planning Agency	Humboldt Community Access and Resource Center, Inc. (CTSA)	Transportation Agency for Monterey County
County of Nevada	North of the River Recreation and Park District	Imperial County Department of Public Works	Trinity County Transportation Commission
CTSA Placer (PRIDE Industries)	Orange County Transportation Authority	Indian Elders Council, Inc.	Tuolumne County Board of Supervisors
Del Norte Assoc. for Developmental Services	Paratransit, Inc.	Inyo County Board of Supervisors	Stanislaus Counsel of Governments
Easy Lift Transportation Inc., CTSA	Plumas County Transportation Commission	Inyo Mono Transit	United Cerebral Palsy of San Luis Obispo

Paratransit, Inc., serving the Sacramento area, was the first designated CTSA in California. Paratransit, Inc. works with social service agencies, such as United Cerebral Palsy, Asian Community Center (ACC), and Los Rios Community College District to increase transportation options for seniors, individuals with disabilities, and persons with low incomes.[108] Paratransit, Inc. offers the Vehicle Maintenance Partnership Program to local non-profit organizations. The ACC uses two vehicles, provided by Paratransit, Inc., and over 50 volunteer drivers to provide thousands of trips each year at a fraction of the cost of dial-a-ride services. Paratransit, Inc. also offers the Travel Training program. It is designed to teach individuals with disabilities, elderly, and low-income individuals how to use fixed route public transit rather than door-to-door services.[109] Currently, the following services are provided by transit agencies with the assistances of the CTSAs:

- Fixed-Route: Bus and light rail, commute and reverse commute buses, and connector buses.
- Demand-Response: Dial-a-ride services for the elderly and disabled (and sometimes to the general public); Americans with Disabilities Act (ADA) complementary paratransit service; daily service to senior centers; shared-ride transportation for seniors and the disabled (and sometimes for the general public) to medical appointments; ADA rural service (fixed-route service with deviations).
- Supplemental/Human Services Transportation: Senior Shuttle (with advance reservation to seniors for weekly grocery shopping, as well as monthly lunch outings); trips for cancer patients attending medical appointments; service to community centers, cultural events, classes, medical appointments, and adult day health centers; county veteran service offices for veterans to access medical appointments at Veterans Administration hospitals and clinics.[110]

Coordinated Services Plans

Federal planning requirements established by the passage of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) requires the recipients of certain funding sources administered by the Federal Transit Administration (FTA) to certify that such funded projects are part of a coordinated plan. The requirements were established in an effort to coordinate services. Executive Order 13330 Human Services Transportation Coordination was signed to advance the coordination nationally. The human services transportation coordination provisions of SAFETEA-LU aim to improve transportation services for people with disabilities, older adults, and individuals with lower incomes by ensuring that communities coordinate transportation resources provided through multiple federal programs. Therefore, recipients of these grants must develop a Human Service Transportation Coordination Plans. These coordinated service plans must identify current transportation providers and services, discuss the transportation needs of the relevant target populations, identify strategies to address those needs, and establish implementation priorities among projects and activities.

Coordinated Services Plan Challenges

Coordinating Human Service Transportation Coordination Services Plans is made challenging by a number of barriers, including a lack of a centralized service inventory: many agencies do not know with whom to coordinate. The specific Coordinated Services Plans reviewed for the purpose of this report (MPOs for Los Angeles, Orange County, San Diego, Sacramento, and the San Francisco Bay Area) all identified coordination of transportation services as key to improving efficiency and closing service gaps.

[108] http://www.paratransit.org/php/ctsa.php (Accessed on Feb. 28, 2011)
[109] http://www.paratransit.org/php/ctsa.php (Accessed on Feb. 28, 2011)
[110] Mobility Action Plan (MAP) Phase 1 Implementation Study Final Report: *Executive Summaries Public Transit-Human Services coordinated Transportation Plans, Volume 1 Large and Small Urban Counties*
http://www.dot.ca.gov/hq/MassTrans/DocsPdfs/CoordinatedPlng/smallnlargeurbanexecsummary043010.pdf

Funding requirements that make coordination difficult were identified as a barrier to achieving this goal. Some requirements do not allow mixing of social service clients with other consumers. Agencies frequently operate on tight budgets and insufficient numbers of staff vehicles. Funding limitations can prevent coordination efforts, such as development of plans and programs, which would require extra time and resources. Other barriers identified in coordinated plans include: variations in consumer/client needs trip lengths; language barriers; liability insurance; service quality and timing; same-day trip requirements; training; and jurisdictional constraints, especially in large metro areas where people must cross city and county lines to reach their destinations. In addition, some entities say they are not interested in coordinating with other agencies.

At times, the human service and transit agency goals were found to conflict. From the Coordinated Services Plan of the Southern California Association of Governments:

> For public transit, transportation services are its core business, around which significant infrastructure has been built. For human services agencies, transportation is a support service and often viewed as a distraction from the agencies' primary purpose.

From the San Francisco Bay Area Metropolitan Transportation Commission's Coordinated Services Plan:

> Coordination may require a larger effort than can be anticipated: "Perhaps the most important 'lesson learned' … is that successful implementation of coordination strategies will require the joint cooperation and effort of multiple entities that may or may not have coordinated well in the past.

The Los Angeles Coordinated Services Plan ranked medical trips, same-day transportation, multiple-errand trips, and weekend and evening trips as its top five needs. Medical and same-day trips were the most important needs reported by participating agencies and more than half reported serving same-day trip needs. Non-emergency and inter-community medical trips were the most consistently difficult-to-serve trip type noted across all groups. This is in part due to MediCal reimbursement policy. This is particularly a problem in Los Angeles, where medical trips can be to distant regional facilities.

Federal Transit Agency Funding for Specialized Transit

The major federal funding sources for specialized transit include: the Elderly and Disabled Specialized Transit (FTA Section 5310); Rural and Small Transit Grant (FTA Section 5311); Job Access and Reverse Commute (JARC)(FTA Section 5316); and New Freedom Programs (FTA Section 5317). Successful applicants for these grants within California enter into a project agreement with Caltrans that stipulates the terms and conditions under which the equipment must be procured and operated.

Section 5310

Funds transportation for the elderly and disabled where public transit is unavailable, insufficient, or inappropriate, allowing for procurement of accessible vans and buses, communication equipment, and computer hardware and software.[111]

Section 5311

Funds public transportation and intercity bus projects in rural areas (with a population of under 50,000) for access to employment, education, health care, shopping and recreation. These are funded projects that primarily serve the elderly and disabled but also the general public.[112]

[111] http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/5311/5311-Handbook.pdf

Section 5316 (JARC)
Funds transportation from cities and rural areas to suburban employment.

Section 5317
Funds transportation for the disabled seeking integration into the workforce, beyond requirements of the Americans with Disabilities Act.[113]

Federal Funding Challenges
These funding types are formula-based grants and subject to changes in the federal annual budget. It is therefore difficult to determine how much funding will be available year to year.[114] In addition, funding regulations that prevent combining transportation funds with human service agency funds can erect challenges to coordination. Most of these funds come with restrictions on their use and many can only be used for specific purposes. For example, JARC/New Freedom funds cannot be used to subsidize fares on existing fixed routes or paratransit services. In California, MediCal funds cannot be used to purchase transit passes. Federal regulations allow the practice, which leaves agencies unable to provide transit vouchers to clients that they would otherwise serve. Elderly people who are unable to ride fixed-route buses and do not qualify as disabled under the Americans with Disabilities Act may have difficulty finding transportation for non-medical trips. The elderly often have difficulty in securing reliable transportation and navigating transit systems. The Sacramento Coordinated Services Plan, however, provides an example of successful coordination. It has programs that can fund transportation for the "transportation-disadvantaged," including health, labor and training, development, and equity grants.

The inability to combine funds also makes it difficult for providers to share resources and costs for equipment and operations. As such, many potential coordination efficiencies are lost. For example, vans used for job access may be under-utilized at off-peak times. However, under-funding rules, it may not be possible for them to be used by other kinds of trips or by other trip providers. Sharing resources could provide a large efficiency gain for transit operators. City-operated systems and public transit operators receive continuing, relatively stable funding from dedicated federal, state, and local transit sources. Human services agencies generally rely on private donations, general fund allocations, and special grants. Even considering the large cutbacks suffered by many transit agencies in recent years, public transit has a more reliable year-to-year budget than many human services agencies.

Summary
Public transit has an important role to play in providing transportation for people with disabilities, the elderly, and low-income members of the community. However, these groups cannot always be efficiently and cost-effectively served by public transit. As mentioned earlier in this document, two key recommendations arose from a review of some of the Coordinated Services Plans in California: to establish a "mobility manager" based on geographic area to oversee coordination of programs and funding; and provide better coordination between land use development and transit agencies so that social service agencies, medical facilities, senior housing, and employment centers can be more easily accessed by transit.[115]

[112] http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/5311/5311-Handbook.pdf
[113] http://www.dot.ca.gov/hq/MassTrans/5310.html
[114] http://www.fta.dot.gov/documents/C9070.1F.pdf
[115] http://www.dot.ca.gov/hq/MassTrans/DocsPdfs/CoordinatedPlng/smallnlargeurbanexecsummary043010.pdf

Section 8: Outreach, Marketing & Technology

Transit agencies are keen to maintain customers and attract new ones through outreach, marketing, and technology by distributing information, getting feedback from users, and improving the perception that transit is a comfortable and affordable way to travel.[116]

Contrast in marketing transit: the auto industries "creeps and weirdoes" advertisement versus LA Metro's advertisement.

Outreach

Before conducting outreach, transit agencies develop strategic documents such as short- and long-range transportation plans to help focus marketing efforts. After developing strategies, transit agencies conduct outreach to their targeted customers such as seniors, people with disabilities, students, workers, and non-English speakers for feedback to improve their services. Many agencies have developed outreach strategies that include employee training, customer interaction, transit pass price reduction, and advertising campaigns.

The development of outreach strategies is important to an agency, as it helps focus its efforts to reach a specific targeted group. For example, in their short-range transportation plan, the Sacramento Regional Transit agency developed a "marketing program" that lays out strategies for market research, service promotion, incentives, outreach, and customer relations.[117] Through outreach, agencies can educate potential transit users about routes, fares, and stations, among other features of the system. Transit agency marketing strategies typically focus on target groups; one particular group is senior citizens, who as a group may be driving less than working age commuters. For instance, the Fresno Area Express gives free rides to seniors on Sundays through its Silver Sundays program[118] to promote and teach them about their transit system, thus breaking down one barrier for potential riders – lack of experience. Another transit agency that focuses on educating their clients about their transit system is Sacramento Paratransit's Mobility

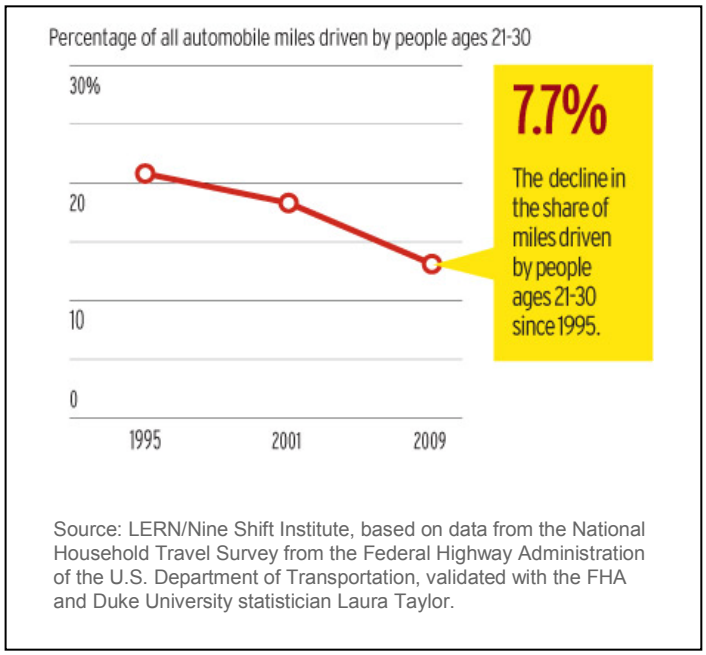
[116] Arpi, E., "Transit Agencies Need to Invest in Marketing: A Lesson from Los Angeles," Dec. 8 2009, http://thecityfix.com/transit-agencies-need-to-invest-in-marketing-a-lesson-from-los-angeles/, retrieved March 17, 2011.
[117] Sacramento Regional Transit, "Short Range Transit Plan 2000 – 2008," Sept. 1999, http://www.sacrt.com/shortrangeplan/srtppdfs/1999SRTP.pdf," retrieved March 17, 2011.
[118] City of Fresno, "FAX Begins New Silver Sundays Program," July 2004, http://www.fresno.gov/News/PressReleases/2004/FAXBeginsNewSilverSundaysProgram.htm," retrieved March 17, 2011.

Training program. This program is funded by a federal block grant and reaches out to people with disabilities for low- or no-cost independent travel.[119] The program's goal is to provide its clients with a better understanding of the transit system through mobility trainers. These trainers assist participants in getting to bus stops, light rail stations, and to destinations by helping clients with wayfinding.

In trying to understand the transit system, native language differences are often found to be a barrier to some transit users. To resolve this conflict, some transit agencies recruit bilingual employees and publish route information and maps in multiple languages. Long Beach Transit publishes service information in English and Spanish, while providing Spanish and Khmer translation at public meetings and on the phone.[120] Los Angeles County Metro launched a Spanish language blog, *El Pasajero*, to keep the county's millions of Spanish-speakers better informed.[121]

Transit agencies have also begun to reach out to youth in the community, to help them form positive impressions about public transit at an early age. The Santa Clara Valley Transportation Authority's Youth Outreach Program makes presentations to kindergarteners through eighth-graders.[122] The goal of the program is to make transit appealing to youths, so that they will be more willing to use transit when they become adults. According to Jack Neff of Ad Age Digital, transit youth outreach has played a part in the 7.7% decline in driving by adults 21-30 since 1995.[123]

Transit agencies serving commuters in densely populated cities have focused on developing relationships with large employers, in part by introducing them to new routes that serve worksites. The Santa Barbara Metropolitan Transit District took a Valley Express Commuter Bus to worksites to give employees a tour and promote their express bus route. Along with outreach efforts, transit agencies also offer transit passes to employers. The Eco Pass partnership between Santa Clara Valley Transportation Authority and Silicon Valley employers promotes transit by working with employers to subsidize unlimited-ride passes for employees.[124] In Sacramento, Caltrans employees can purchase discounted Sacramento Regional Transit monthly passes. Both transit programs are



[119] Paratransit Inc., "Mobility Training Program," http://paratransit.org/php/mobility_training.php, retrieved March 17, 2011.
[120] Long Beach Transit, "http://www.lbtransit.com/stats%5Cindex.html, retrieved April 20, 2011.
[121] http://elpasajero.metro.net/
[122] Santa Clara Valley Transportation Authority, "Youth Outreach Program," http://www.vta.org/services/yop.html, retrieved March 17, 2011.
[123] Neff, J., "Is Digital Revolution Driving Decline in U.S. Car Culture?" May 31, 2010, http://adage.com/article/digital/digital-revolution-driving-decline-u-s-car-culture/144155/, retrieved March 17, 2011.
[124] 2010 VTA Eco Pass, Santa Clara Valley Transit Authority, http://www.flickr.com/photos/bike/4271805817/, retrieved March 17, 2011.

tax-advantaged, as fees for the pass can be deducted out of a person's gross income.

Another way transit agencies reach out to the public is through targeted campaigns. When air quality is a concern for a region, transit agencies have worked with other organizations, such as their region's air quality district, to offer commuters free rides during "Spare the Air Days." The State Transit Assistance program provides funding for these free rides and is a strategy used to try to stay within the federal air quality mandates.[125] A secondary benefit is that transit agencies use this day to promote their transit services.

Technology

The 2010 VTA Eco Pass

Outreach is an important element of educating the public about transit service and reaching a variety of users. The Internet and complementing technology has expanded the tools at the disposal of transit agencies, giving agencies more economical and potentially wider-reaching ways to connect with users through websites, social media platforms and other web-based media. Websites present a great opportunity to communicate with regular and potential riders about service updates, fare and pass information, where to purchase fares, and how to reach a destination via transit. Many transit agencies also sell fare media online. L.A. County Metro employs its website, TapToGo.net, to let riders add value to their transit TAP Cards and register them so that loaded funds can be retrieved in case the TAP Card is lost or stolen. As more and more people of all age groups use the Internet as a source of information, transit agencies must invest in making websites visually attractive, easy to use, and able to satisfy the informational needs of many different kinds of visitors, i.e. web novices versus experts, and those accessing by computer versus web-enabled cell phone.

Websites

A well-designed website informs visitors about every aspect of a transit agency, including but not limited to: fares, transfers, routes, bike racks, wheelchair accommodations, and schedules. The San Francisco Bay Area Clipper's smart card website lets visitors to search for sales locations by city and zip code participating locations. The San Francisco Bay Area's TransLink website, Transit.511.org, allows users to search by location (an intersection or address), with maps of sales locations.

For trip planning, more and more transit agencies are moving toward interactive sites that provide details about the next arriving bus and estimated time of arrival. San Francisco's Bay Area Rapid Transit website allows users to enter time and location in its "QuickPlanner." Seventeen websites have an

[125] Bay Area Rapid Transit, "Spare the Air free transit program completed," July 19, 2006, http://www.bart.gov/news/articles/2006/newsf20060601.aspx, retrieved March 18, 2011.

integrated trip planner or link to an external trip planner (Google Transit, or a regional transportation site, such as 511 for the Bay Area and San Diego), while nine lists destinations served and routes.

Websites also offer agencies the opportunity to help commuters better calculate the cost savings of using transit, as drivers typically underestimate the cost of driving – thinking only of gasoline prices and not of depreciation, wear-and-tear, as well as sunk costs.

Complementing Technology

Transit agencies have begun to use social media to market their services by using Facebook and Twitter. The Bay Area Rapid Transit District has close to 18,000 followers on Twitter to-date and can reach each individual follower instantly by posting information on the agency's Twitter account.[126] These social media sites provide quick, up-to-date information about service changes and delays without a lot of overhead cost.

NextBus provides real-time service information for transit agencies and their customers in dozens of cities across the country. Their technology combines GPS data with their predictive software to give accurate arrival time stops for transit vehicles. Transit agencies are providing users with this information in a variety of ways: via real-time displays at stations, the NextBus website, text message and phone call. It eliminates user uncertainty regarding when the next transit vehicle will arrive at a designated stop and provides transit agencies with efficient on-time performance information.[127] California currently has 16 transit agencies that contract with NextBus, including AC Transit, Metro, Muni, Davis Unitrans, Camarillo Area Transit, and Simi Valley Transit.

Feedback

Most transit agencies conduct surveys to understand travel patterns and customer needs. Survey conductors often directly interview clients on transit vehicles, but agencies are now attempting to capture information on non-riders too. During the creation of the Redding Area Bus Authority (RABA) Short Range Transit Plan, the agency conducted both on-board and telephone surveys of residents. This effort allowed RABA to include both current and potential riders and develop a comprehensive service plan.

Transit agencies work with many stakeholders to improve their transit network. The San Mateo County District (SamTrans) reaches out to citizens through advisory committees, the County Association of Governments Board of Directors, the City Manager's Association, and town hall meetings. The Monterey-Salinas County Transit uses census data, state and regional planning documents, county reports, surveys of public service agencies and riders, and public meetings. The Santa Clara Valley Transportation Authority (VTA) collaborated with communities, schools, and businesses to develop "Project Safe Place," a program that marks and symbolizes VTA transit vehicles as safe locations for children to seek help when in danger.[128]

Challenges

Over the last half-century, State and Federal funding priorities have heavily favored investments in the private automobile at the expense of public transit investments. Unsurprisingly, many Californians find

[126] Twitter, "SF BART on Twitter," http://twitter.com/#!/SFBART, retrieved September 13, 2011.
[127] Nextbus.com, "How We Make Riders' Lives Easier," http://news.nextbus.com/how-nextbus-works-2/how-we-make-riders-lives-easier/, retrieved March 17, 2011.
[128] Santa Clara Valley Transit Authority, "Public Transit Services," http://www.vta.org/brochures_publications/pdf/ch_3.pdf, retrieved April 20, 2011.

themselves in neighborhoods poorly served by and logistically unfavorable to public transit. This makes transit an uncompetitive or unappealing option to driving for many Californians. Better outreach and marketing can play a key role in convincing the typical commuter of the savings and other benefits of using public transit.

Rising fuel costs have helped boost transit in recent times, but the sustainability of those gains is not yet known. In the near term, the recession, and its attendant State and Federal fiscal problems, have led to cutbacks in funding for public transit and therefore forced agencies to cut service and/or raise fares – creating challenges for attracting and keeping riders.

In 2009 alone, California cut $536 million from the State Transit Assistance program (for transit operations). Small transit agencies were hit the hardest, as they are the most reliant on state subsidies. In its Short-Range Transit Plan, the El Dorado Transit Authority notes their citizens perceive El Dorado's commuter buses to be "full – at least in the eyes of the riders – and some park-and-ride lots are at capacity."[129]

Slim resources cripple transit operations and add to the challenge of improving the perception of transit. The American Public Transportation Association predicts that, if gas reaches $5 per gallon, the nation can expect an additional 1.5 billion in passenger trips.[130] However, transit agencies are not protected against rising gas prices either and may have to raise their fares to pay their fuel bills.[131] In California, this may also be detrimental to the perception of transit, if a whole cohort of new transit riders is met with cuts to bus lines, decreased frequency, and crowded buses.

Conclusion

Through outreach, marketing and technology, transit's image is improving. Transit is becoming more user-friendly as agencies are able to reach targeted riders. Technology brings online trip planning, coordinated fares, social media outreach and real-time arrivals/departure information—lessening inconvenience and uncertainty. Interaction and feedback helps with maintaining and attracting riders, despite reduced funding. Although ridership numbers have increased, the lack of funding to improve the operation of the transit system is still a challenge in sustaining increased ridership across California.

[129] El Dorado Transit Authority, "Market Assessment and Marketing Plan of 2006," January 26, 2006, http://www.eldoradotransit.com/assets/pdf/Reports/EDT%202006%20Marketing%20Plan.pdf," retrieved March 22, 2011.

[130] American Public Transportation Association, "Potential Impact of Gasoline Price Increases on the U.S. Public Transportation Ridership, 2011-2012" http://www.apta.com/resources/reportsandpublications/Documents/APTA_Effect_of_Gas_Price_Increase_2011.pdf, retrieved April 20, 2011.

[131] AltTransport, "Rising Fuel Prices Have Spurred Transit Ridership, But Could Hurt Transportation Budgets," http://alttransport.com/2011/03/rising-fuel-have-spurred-transit-ridership-but-could-hurt-public-transportation-budgets/, retrieved April 20, 2011.