Appendix B

Inventory of Existing Plan and Policies

CAMBRIDGE SYSTEMATICS

Alameda County Goods Movement Plan

Task 2a: Inventory of Plans and Studies

revised draft

memorandum

prepared for

Alameda County Transportation Commission

prepared by

Cambridge Systematics, Inc.

February 2014

revised draft memorandum

Alameda County Goods Movement Plan

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prepared for

Alameda County Transportation Commission

prepared by

Cambridge Systematics, Inc.
555 12th Street, Suite 1600
Oakland, CA 94607

date

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1.0 Introduction

This memorandum summarizes plans, studies, policies and programs that are relevant to the Alameda County Goods Movement Plan. The memorandum documents what is known about goods movement trends and issues in the County, and strategies to address the issues. The summary includes plans and studies at the county, regional and state levels, and state and national policies and programs affecting local and regional goods movement planning.

This memorandum includes recent (completed in the last decade) plans, studies, policies and programs that directly affect goods movement planning and operations. The documents include long range modal and multimodal plans, port and airport business plans, trade and transportation studies, economic assessments, environmental and community assessments, issue papers and fact sheets, policies, and programs.

The literature reviewed has been categorized in three sections:

- **Section 2.0** includes reviews of the most recent Alameda County plans and studies that either are goods movement specific or contain a goods movement element. A narrative describes each plan or study, including the document purpose, summaries of goods movement trends, key issues and strategies.
- **Section 3.0** includes reviews of the most recent plans and studies in Alameda County's neighboring regions and other parts of California that either are goods movement specific or contain a goods movement element. The document review includes the document purpose, summaries of goods movement trends, key issues and strategies.
- **Section 4.0** summarizes national and statewide goods movement-related policies and programs that are applicable to Alameda County and guide planning efforts at the county, regional and state levels. The section includes a summary table rather than only narrative format given the broad application to state and regional programs.

A table summarizes the reviewed documents at the end of each section. The table includes the name of the plan, responsible agency, year adopted, the documents intended purpose, and goods movement-related issues and strategies.

2.0 Alameda County Goods Movement-Related Plans and Studies

Goods movement is critical to Alameda County. The County goods movement system consists of:

- Global gateways such as Port of Oakland, Oakland International Airport that help transfer large quantities of goods between modes for domestic and international trade;
- A strong industrial base that supports the County's economy (through jobs, revenue based on sale of goods, etc.), and which requires various raw materials and semi-finished products;
- Fourteen incorporated cities and six unincorporated communities that are home to over 1.5 million people and thousands of businesses, all of which require the delivery of various commercial and non-commercial goods from trade outlets, construction products and waste; and
- Warehousing and distribution space, and the highest transportation sector employment in the Bay Area, which enable inter-regional trade and logistics throughout California.

This section summarizes plans and studies related to the County goods movement system. The summary includes:

- Potential goals and performance measures related to goods movement that are relevant to Alameda County;
- Key trends and issues that are affecting Alameda County's goods movement roles or functions;
- Freight and passenger transportation conflicts, environmental impacts and community impacts in Alameda County; and
- Strategies proposed to address the goods movement trends, issues and opportunities.

A narrative summary of the plans and studies is presented in the following sections. The Alameda County plans and studies are also presented in Table 2.1 following the document descriptions.

2.1 ALAMEDA COUNTYWIDE TRANSPORTATION PLAN

Access Plan Documents Here.

Purpose

The 2012 Alameda Countywide Transportation Plan (CWTP) is the most recent long-range policy document developed by the Alameda County Transportation Commission (ACTC), to guide future transportation investments, programs, policies and advocacy for all of Alameda County through 2040. Goods movement is one topic in this plan, which is discussed both in the main CWTP document and in a white paper summarizing goods movement-related issues and best practices.

Goals and Performance Measures

The main CWTP document set out a vision, nine goals (see Figure 2.1), and 14 performance measures. The adopted goals were not created in the context of goods movement system, and the established performance measures are focused on passenger transportation system users and investors. A goods movement white paper defined descriptive goals for an ideal freight system (Figure 2.2). Although the breadth of the goals in the issues and best practices paper covers the "ideal case" interests of goods movement system users, it does not include some practical goals such as affordability and cost-effectiveness. The white paper does not provide performance measures to evaluate goods movement-related projects.

Figure 2.1 CWTP Transportation System Vision and Goals

Alameda County will be served by a premier transportation system that supports a vibrant and livable Alameda County through a connected and integrated multimodal transportation system promoting sustainability, access, transit operations, public health and economic opportunities.

Our vision recognizes the need to maintain and operate our existing transportation infrastructure and services while developing new investments that are targeted, effective, financially sound and supported by appropriate land uses. Mobility in Alameda County will be guided by transparent decision making and measureable performance indicators and will be supported by these goals:

Our transportation system will be:

- **Multimodal**
- **Accessible, Affordable and Equitable** for people of all ages, incomes, abilities and geographies
- **Integrated** with land use patterns and local decision-making
- **Connected** across the county, within and across the network of streets, highways and transit, bicycle and pedestrian routes
- **Reliable and Efficient**
- **Cost Effective**
- **Well Maintained**
- **Safe**
- **Supportive of a Healthy and Clean Environment**

Source: 2012 CWTP.

Figure 2.2 CWTP "Ideal" Freight System Goals

Alameda County's ideal freight system would include the following features:

- Provide international connectivity and serve international markets
- Serve local distribution and domestic markets
- Provide intra-regional and inter-regional connectivity
- Minimize environmental and community impacts
- Preserve transportation system mobility and safety
- Provide multimodal linkages and options
- Provide tools to inform users

Source: 2012 CWTP, Appendix C Issue Papers

Key Trends, Issues and Impacts

The CWTP identified existing conditions of goods movement by various modes, including the following issues:

- Trucking dominates in freight tonnage in the Bay Area (likely also Alameda County) with Interstates 880 (I-880), I-80 and I-580 carrying bulk of the traffic. They serve the Port of Oakland, the Oakland International Airport and the San Joaquin Valley that houses regional distribution centers serving the County and rest of the Bay Area;
- Freight rail provides transportation for long-haul bulk movements and important transportation links to the Port of Oakland;
- Waterborne freight includes containerized cargo at the Port of Oakland, located in the County. In 2009, the exports were higher than the imports in terms of 20-foot equivalent units. Growth of 15% was seen between 2000 and 2009 in the Port's cargo volume; and
- The Oakland International Airport (OAK) located in the County provides major air transportation service, and is the dominant hub for air freight service in the Bay Area and ranked 12th in North America. OAK had seen growth of about 72% in passenger volumes (and the associated belly-cargo) over two decades. However, between 2007 and 2009, a decrease in volume was seen and ACTC attributed this to a shift in traffic from OAK to San Francisco International Airport (SFO).

This plan also identified the following trends, issues and challenges in goods movement:

- Increased demand for goods movement services. This is related to a decrease in the availability of affordable land and close-in sites for land uses related to goods movement due to transition of the industrial land supply in the central Bay Area to higher-value uses. These trends may result in the relocation of goods movement services to areas outside the County, and potentially lead to increases in land use conflicts, more truck miles, vehicle emissions, and shipping costs;
- Growing congestion on major truck corridors. As a result, motor carriers will find it more difficult to avoid peak period congestion due to spreading of congestion to traditionally off-peak hours;
- Growing freight rail traffic. Large traffic increases will result from freight rail needs will compete with passenger rail needs on Capitol Corridor and Altamont Corridor rail service tracks;
- Low lying infrastructure (e.g. Oakland International Airport) is vulnerable and will be significantly impacted by even low level sea level rise; and
- Major improvements at the Port of Oakland face funding gaps, including redevelopments of marine terminals and new rail terminal.

Key Strategies, Projects and Mitigation Measures

The CWTP identified the following priorities and pathways to invest in goods movement:

- Projects and programs to reduce conflicts between freight, passenger transportation, and local communities (e.g. quiet zones and grade separations);
- Roadway capital projects that improve goods movement totaling $239 million; Additionally $862 million will go to highway projects and $737 million will go to local streets and roads projects, all of which can also positively affect truck mobility and accessibility.[1]
- Goods movement funding program including $80 million; and
- Advance a half-cent sales tax extension, as outlined in the Transportation Expenditure Plan (TEP), which specifically includes funding for goods movement.

2.2 ALAMEDA COUNTY TRANSPORTATION EXPENDITURE PLAN

Access Plan Here.

Purpose

In November 2000, Alameda County voters approved Measure B, a half-cent local transportation sales tax. The 2014 Alameda County Transportation Expenditure Plan (TEP) guides funding for an augmentation and extension of a sales tax that will be on the 2014 ballot to support multi-modal countywide transportation needs, including goods movement. This plan anticipates about $8 billion though year 2045. The TEP was developed in conjunction with the CWTP.

Key Strategies, Projects and Mitigation Measures

Investments benefitting the goods movement system include the following:

- Traffic Relief on Highways. This category includes a Freight and Economic Development program to develop innovative approaches to goods movement, including projects and programs that improve safety, reduce GHG emissions, mitigate impacts on neighborhoods and enhance coordination between freight distribution centers; and

[1] Figure 6-8, Alameda Countywide Transportation Plan

- Local streets maintenance and safety. This category has 30 percent of the total TEP spending plan ($2.3 billion). The funds have a complete streets requirement. The TEP designated a portion of this to major commuter corridors, local bridge and seismic safety investments. Of this, the TEP includes funding to support improvements to freight corridors.

2.3 TRUCK PARKING FACILITY FEASIBILITY AND LOCATION STUDY

Access Study Here.

Purpose

This 2008 study was conducted for the Alameda County Congestion Management Agency and Caltrans with the following objectives: (a) to understand the need and feasibility for locations where truck drivers can stop or park in Alameda County; and (b) to locate some potential sites.

Goals and Performance Measures

Providing truck parking helps enhance productivity for truckers, shippers and receivers. It can result in safe operations on highways. Also, community impacts can be minimized by consolidating scattered informal and often inappropriate truck parking sites into a few well-organized and developed sites.

Key Trends, Issues and Impacts

This study identified issues related to three key purposes for drivers to stop or park, namely, serve customers at the customer's site, stop temporarily for personal needs and/or to await instructions, and stop and take the federally mandated 10 hour rest period. The issues included:

- There are no public locations in the Alameda County where the primary purpose is to accommodate truck parking or stopping;
- Drivers expressed interest in a site along I-880, in particular near I-238;
- Public agencies react to complaints of inappropriate truck parking rather than planning for truck parking as a community requirement; and
- Obstacles to developing truck parking facilities in Alameda County, include high land prices, fuel prices that are higher than in neighboring states, re-zoning of potentially desirable sites away from industrial uses, and local business practices that adversely affect truck delivery and parking.

Key Strategies, Projects and Mitigation Measures

The study identified different ways to address the issues relating to truck stopping or parking in Alameda County, including:

- 33 potential truck parking sites, and top 10 locations that are suited to temporary stopping and many also suitable for overnight parking were recommended;
- Identify and adopt guidelines for accommodating and developing truck parking facilities; and
- A fact sheet highlighting the benefits trucks provide to the County and its communities, and why temporary and long-term truck parking areas are needed.

2.4 PORT OF OAKLAND STRATEGIC BUSINESS PLAN – FISCAL YEARS 2011-2015

Access Plan Here.

Purpose

This plan was developed in 2010 by the Board of Port Commissioners and Port of Oakland staff, and stakeholders to identify the major challenges and opportunities facing the Port of Oakland as a business entity and to respond with a stable and adaptable framework to guide the Port during the five years period from 2011 to 2015.

This strategic plan is key to the long-term financial success of two major global gateways in Alameda County: the Port of Oakland and the Oakland International Airport. The plan does not provide a capital investment program. It provides guidance to projects that are in various implementation stages.

Key Strategies, Projects and Mitigation Measures

To support the Port of Oakland's success, the 5-year strategic plan includes an annual focus area which builds upon the previous year's work. For example, FY 2011 focused on stabilizing port business; FY 2012 focused on marketing efforts and designing solutions to serve port customers; FY 2013 focused on implementing solutions; FY 2014 is focused on evaluating the performance of implemented solutions; and FY 2015 will focus on sustaining growth and optimizing performance. The key strategic priorities include:

- Retain and grow maritime business and strengthen strategic partnerships related to this through:
  - Rapidly capitalizing on the Oakland Army Base development and through collaboration with the City of Oakland and strategic partners;

  - Aggressive customer engagement with every part of the supply chain locally and globally, from the beneficial cargo owners (BCOs) and third-party logistics providers (3PLs), to the shippers and terminal operators; and
  - Some examples of the anticipated outcomes/metrics under this priority include: (a) increase interior point intermodal[2] cargo by 50,000 20-foot equivalent units , (b) improve import-export balance, (c) implement required Standard Conditions of Approval and Mitigation Measures[3] , and (d) launch a regional alliance of maritime trade corridor stakeholders.

- Grow air passenger activity and strengthen strategic partnerships related to the airport by:
  - Securing new carriers, routes and increased frequencies by focusing on customer service, asset management, and regulatory initiatives;
  - Business development and marketing initiatives targeted to consumer, corporate and business partnerships;
  - Capitalizing on BART connector, new air traffic control tower, Terminal 1 improvements, international air cargo facilities, and private investments in corporate aviation facilities; and
  - Some examples of the anticipated outcomes/metrics under this priority include: (a) complete Terminal 2 capacity plan, (b) increase international air service, (c) increase customer service satisfaction by 15%, and (d) secure travel commitments from top 10 East Bay employers for identified target air service development routes.

2.5 PORT OF OAKLAND EXPORT MARKET STUDY

Purpose

This 2013 study was conducted for the Port of Oakland with the following objectives: (a) to determine the current volume of export commodities moving through the Port of Oakland, (b) to find out how the volumes and commodity mix have changed (that is, what has "leaked" to other ports) and (c) to determine

[2] Imported traffic movement from an origin port to an inland point on an ocean bill of lading. Source: http://www.intermodal.org/information/glossary.php (last accessed on Jan 27 2014)

[3] For more information see the City of Oakland's Oakland Army Base Standard Conditions of Approval and Mitigation Measures report, accessed March 2014 at http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak038127.pdf

sources of potential growth for the Port of Oakland's export container business along with suggested strategies for realizing this potential growth.

Key Trends, Issues and Impacts

This study determined several market characteristics of the exports through the Port of Oakland and the traffic "leaked" to other ports. To determine these, the study defined specific cost components of the entire supply chain, including ocean shipping costs, port costs and inland costs and, using these cost factors, modeled the truck and rail reach or the "least cost market area" for the port.

- The Port of Oakland is estimated to capture about 77 percent of the exports from the areas of Northern California, Northern Nevada and Southern Oregon hinterland.
- The Port of Oakland's identified export "least cost market area" is somewhat larger than the Port's identified import "least cost market area." The reason for this is stronger support logistics infrastructure available at other gateways on the U.S. West Coast - especially the San Pedro Bay Ports for import volumes – and their ability to mix with domestically sourced products and distribution.
- States including Utah, Colorado, Nebraska, Kansas, Iowa and Missouri are the primary opportunity area for the Port of Oakland's export market penetration. A total of 200,000 20-foot equivalent units of opportunity cargoes were identified; the top commodities included animal feed, chemicals, agricultural products, meat and foodstuffs.
- There is an opportunity to increase import interior point intermodal (IPI) cargo to Midwest destinations, and the planned transload facilities at the Oakland Army Base property would also increase import cargo. These opportunities would in turn provide Port of Oakland with more equipment and the ability to attract more export cargoes.

Key Strategies, Projects and Mitigation Measures

The study identified various strategies based on stakeholder interviews to take advantage of the identified opportunities and to attract importers and exporters:

- On-dock or near-dock rail services for export agricultural commodities, particularly lower value commodities that move in large volumes like grain;
- Additional transload facilities for handling specialized commodities such as bulk agricultural commodities, lumber, project cargoes by rail;
- Development of a state-of-the-art refrigerated cargo transload facility that would require U.S. Department of Agriculture on-site inspectors, temperature control loading docks and the ability to handle overweight containers;

- Equipment management through an off-dock facility for equipment exchange, a container pool in the Central Valley for agricultural cargoes and use of communications technology for information on availability of containers and chassis;
- Providing a heavy weight freight corridor for regulated types of agricultural commodities between the Central Valley and the Port of Oakland;
- Value-add deconsolidation hub for import cargo with specialized service capabilities such as kitting, pick and pack, postponement, light assembly, packaging and labeling services, or localization; and
- Off-dock truck facilities for pickup of empty containers and chassis.

2.6 OAKLAND ARMY BASE RAIL MASTER PLAN

Access Plan Here.

Purpose

The 2012 Oakland Army Base – Rail Master Plan provided a blueprint for the Oakland Global Trade and Industry Center (OGTIC) project to identify and program critical capital investments in freight rail in order to revitalize Oakland's waterfront, increase international trade, and promote economic growth.

In August 2003, the U.S. Army transferred 322 acres of the former Oakland Army Base (OAB) jointly to the City of Oakland and the Port of Oakland. Since July 2009, California Capital & Investment Group, Oakland Global, LLC (Oakland Global) has worked with the City of Oakland and the Port of Oakland on developing the former army base into an international trade and industry center.

Key Strategies, Projects and Mitigation Measures

This plan identified rail infrastructure requirements based on near-term and long-term rail-related business opportunities for the OGTIC project. The plan covers a twenty-year period. The identified rail access improvements were expected to form a basis for continued discussions with UP and BNSF railroads.

- The plan identified rail access improvements, including:
  - Construction of new arrival/departure track south of Powell Street to 7th Street within UP's existing right-of-way;
  - Reconstruction of double track lead into the Port of Oakland's Joint Intermodal Terminal (JIT) off of the new arrival/departure track that extends north to Powell Street; and

  - 7th Street grade separation rail improvements, however, the plan also notes that the lack of the improvements on 7th Street would not reduce existing port rail services.

- The opportunities included a wide range of rail-served uses, including intermodal rail, commodity unit trains and manifest (industry) trains, each of which require its own unique rail infrastructure. The available land is limited, so the growth of one rail service will constrain the growth of other rail services, especially intermodal rail and commodity unit trains.
- This plan provides preliminary designs and estimated handling capacities for each of the rail service opportunities. An intermodal facility including support tracks can be built to have an annual throughput capacity of 400,000 lifts.
- The plan proposed a bulk unloading facility (West Gateway) containing support tracks and capable of handling up to 28 commodity unit trains per week. A manifest yard can be built to support up to 20,000 revenue railcar loads annually and the proposed industrial development.

2.7 THE ECONOMIC IMPACT OF THE PORT OF OAKLAND 2010

Purpose

The objective of this 2011 study was to quantify the economic impacts of the three revenue lines of business operated by the Port of Oakland, namely, maritime, aviation and commercial real estate. It is based on interviews with 696 firms providing services to the seaport, the Oakland International Airport (OAK), the Port's commercial real estate tenants, and an in-terminal passenger survey of 500 passengers using OAK. The study results describe the importance of the port to Alameda County's economy and rest of the Bay Area economy.

Key Trends, Issues and Impacts

The Port of Oakland is an independent department of the City of Oakland, and serves as trustee for the California State Tidelands. The City Charter delegates to the Board of Port Commissioners the complete and exclusive power and duty to administer the State trust. All Port revenues are tidelands trust funds, which must be used to support the trust purposes. The Port is not supported by City of Oakland or Alameda County tax subsidies.

Table 2.1 illustrates the economic impacts of the Port of Oakland, organizedby business area, including the seaport, the airport, visitor services (i.e. activity related to airport visitors, but not entirely dependent upon air service), and real estate. The economic impacts 'include jobs, personal earnings, tax receipts, and

related industries (i.e. shippers and consignees moving cargo through the seaport or the airport).

Table 2.1 Summary of Economic Impacts of Port of Oakland, 2010

	2010 Seaport Impacts	2010 On-Site Airport Generated Impacts	2010 Visitor Industry Impacts	2010 Commercial Real Estate Impacts	Total
Jobs					
Direct	10,927	7,680	15,173	3,336	37,116
Induced	11,600	5,578	6,532	1,433	25,144
Indirect	6,306	1,408	2,723	868	11,305
Total	28,833	14,667	24,428	5,636	73,565
Personal Income (millions)					
Direct	$538.1	$465.5	$347.5	$159.0	$1,510.1
Induced/Local Consumption Expenditures	$1,357.1	$543.7	$368.5	$124.4	$2,393.7
Indirect	$327.0	$64.2	$79.3	$32.7	$503.3
Total	$2,222.2	$1,073.3	$795.3	$316.1	$4,407.1
Direct Business Revenue (millions)	$2,107.5	$2,544.8	$1,671.2	$499.8	$6,823.2
Local Purchases by Firms (millions)	$522.1	$152.6	$118.4	$58.0	$851.1
State and Local Taxes (millions)					
Direct	$56.5	$48.9	$36.5	$16.7	$158.6
Induced/Local Consumption	$142.5	$57.1	$38.7	$13.1	$251.3
Indirect	$34.3	$6.7	$8.3	$3.4	$52.8
Total State and Local Taxes	$233.3	$112.7	$83.5	$33.2	$462.7
Related User Impacts					
Related User Jobs	443,988	383,010	NA	NA	826,998
Related User Income (millions)	$18,376.9	$23,682.2	NA	NA	$42,059.1
Related Users Revenue (millions)	$48,087.0	$48,420.9	NA	NA	$96,508.0
Related User Taxes (millions)	$1,929.6	$2,486.6	NA	NA	$4,416.2

Source: Port of Oakland, The Economic impact of the Port of Oakland, 2011.

Table 2.1 shows that in 2010 the seaport and the airport generated 10,927 and 7,680 direct jobs and 28,833 and 14,667 total jobs, respectively. Although the seaport contributes almost twice the number of total jobs at the airport, the airport generates higher direct business revenue.

The report found that the Oakland International Airport total economic value in 2010 was $53.5 billion, of which $48.4 billion (90%) was air freight related. The commercial real estate assessment included only non-maritime and non-airport related businesses, and suggested that about 30 percent of the total jobs were goods movement related (industrial, distribution, wholesale sectors). The study also determined that the direct jobs in the Port of Oakland's non-visitor business lines account for about 52 percent (11,368) of the 21,943 jobs in the Bay Area region.

2.8 MARITIME AIR QUALITY IMPROVEMENT PLAN

Access Plan Here.

Purpose

Maritime Air Quality Improvement Plan (MAQIP) was a 2009 master plan developed by the Port of Oakland in collaboration with a task force of stakeholders. The overarching purpose was to reduce air pollution and health risk impacts of the Port's maritime operations. The MAQIP guides the Port's efforts to reduce criteria pollutants, notably diesel particulate matter from both mobile and stationary on/near-shore and off-shore sources at the seaport.

Goals

The MAQIP was built upon the Port's 2008 Maritime Air Quality Policy Statement, adopted by the Board of Port Commissioners. The Maritime Air Quality Policy Statement sets a goal of reducing the excess community cancer health risk related to exposure to diesel particulate matter emissions associated with the Port's maritime operations by 85% from 2005 to 2020, through all practicable and feasible means. The Port's targets for emissions reductions exceed the legally mandated requirements.

The MAQIP also set goals of reducing emissions of other criteria pollutants, including oxides of nitrogen (NO_X) and sulfur oxides (SO_X), as these are primary emissions resulting from maritime operations, and make contributions to the formation of ozone and secondary particulate matter.

Key Mitigation Measures

The Maritime Air Quality Policy Statement also committed the Port to implement early action emissions reduction measures to reduce the duration of the public's exposure to emissions that may cause health risks, through all practicable and feasible means.

The MAQIP identified seven primary emissions control measures: (a) Early action retrofit and/or replacement of port drayage trucks; (b) Compliance with California Air Resource Board's (ARB) shore power regulation; (c) Design and operational efficiencies through improvements in terminal layouts, technology, yard layout, traffic patterns and gate configuration; (d) Participation in pilot and verification projects for NO_X and Diesel Particulate Matter (DPM) reduction strategies; (e) Early action construction emissions reductions; (f) Support of enforcement of regulations by ARB and Bay Area Air Quality Management District (BAAQMD) through coordination with port tenants; (g) Port's accountability, monitoring and reporting to Port's stakeholders and the community.

2.9 OAKLAND INTERNATIONAL AIRPORT MASTER PLAN

Access Plan Here.

Purpose

The Port of Oakland is responsible for managing operations at Oakland International Airport (OAK), and in 2006 the port prepared the airport's master plan in accordance with Federal Aviation Administration (FAA) Advisory Circular No. 150/5070-6A, Air Master Plans. The master plan is a concept-level planning and feasibility study that identifies potential near-term projects (5-year timeframe) and provides long-term (20-year) on-airport general land-use guidance. This plan identifies several challenges and opportunities with air cargo movements.

Key Trends, Issues and Impacts

The plan performed a near-term and long-term aviation demand analysis and identified the following issues and trends.

- There are several factors on which airline passenger forecasts are dependent, including the types of airplanes the airlines choose to fly (i.e., fleet mix and the number of seats per airplane), assumed taxiway and other airfield improvements, amount of delay that the airlines and airline passengers are willing to tolerate, air travel market constraints, air traffic control rules and procedures, required aircraft-to-aircraft separations due to wake vortices, and others.
- Air cargo tonnage is composed of belly-cargo for passenger aircrafts as well as cargo carried on air freighters. Both passenger volume and air cargo tonnage were expected to double between 2004 and 2025. More recently, Caltrans has conducted a statewide study on airports that has produced alternate air passenger cargo and freighter cargo forecasts (discussed later in this document).

The plan also studied other types of issues and impacts, including:

- Some taxiways are congested with aircraft taxiing in opposing directions.
- The plan also estimated the acreage required for remote (off-gate, on-airport) remain overnight aircraft parking apron to fall between 33 acres and 68 acres by 2025.
- The plan considered ground side access to be an issue; the terminal area was congested and expected high growth.
- Aircraft noise analysis found that the number of single aircraft over-flight noise events is likely to go up due to more aircraft operations, however, the

number of operations of the noisiest aircraft, the Boeing 727, was anticipated to decline due to FedEx's slow phase-out of the older aircrafts.

Key Strategies, Projects and Mitigation Measures

The 2006 OAK master plan made several recommendations to meet future demand and address issues and impacts.

- A new runway at South Field would have considerable environmental issues associated with filling wetlands and San Francisco Bay, as well as financial issues. OAK will need between 46 and 50 total aircraft gates, almost double the number of gates in 2004, which was 24. The addition of gates will require the development of a future terminal in the near-term, and based on preliminary planning efforts the plan recommended that the area designated for potential future terminal development be located in the existing terminal area and Oakland Maintenance Center site.
- Modest increase in on-airport area will be needed to accommodate future air cargo growth and two areas adjacent to existing air cargo facilities were identified for this purpose: (a) north of the existing FedEx Metroplex; and (b) the abandoned Oakland Maintenance Center site.
- General aviation-related developments should occur at North Field, either in currently undeveloped sites or through redevelopment of existing general aviation facilities at North Field.
- A taxiway parallel to Taxiway B on South Field would resolve most of the congestion issue on Taxiway B.
- New taxiways to provide additional connections between North Field and South Field would not be required in the near-term timeframe.
- Consider airline passenger and employee parking in the areas around the existing terminal complex including upland area of the Central Basin, south of Ron Cowan Parkway, near Harbor Bay Parkway for future.
- Conduct a study on a particular concern with compliance of some corporate jets with the Port's voluntary noise abatement procedures which requests that they taxi to and depart from South Field instead of North Field.
- Continue working with neighboring communities on sound impacts.

2.10 HEALTH RISK ASSESSMENT OF UP'S OAKLAND YARD

Access the Assessment Here.

Purpose

This 2008 study was conducted in accordance to the 2005 agreement between California Air Resources Board (ARB) and Union Pacific Railroad Company (UP) to reduce diesel particulate matter (PM) emissions from rail yards in California. UP's Railport-Oakland intermodal yard is one among the many rail yards for which a health risk assessment was required. UP's intermodal yard is located adjacent to the Port of Oakland and two miles west of downtown Oakland.

Key Trends, Issues and Impacts

The operational characteristics and potential health impacts of UP's intermodal yard are described below.

- The rail yard operations include receiving inbound trains, switching rail cars, loading and unloading intermodal trains, storing intermodal containers and truck chassis, building and departing outbound trains, and repairing freight cars and intermodal containers/chassis. In 2005, the rail yard handled 350,000 containers.
- Due to the rail yard operations, in 2005, the diesel PM emissions were estimated at about 11.2 tons per year. This ranked 6th among the 18 rail yards assessed in California, the highest diesel PM emissions was estimated at about 25.1 tons per year (at UP Roseville intermodal yard). Aside from this, the rail yard also emitted relatively small amounts of toxic air contaminants, about 0.10 tons or 200 pounds per year. The maximum individual cancer risk associated with the estimated diesel PM emissions at UP's intermodal yard in the residential zoned area was estimated at about 460 chances in a million. The cancer risks decrease with distance; at about 4 miles from the rail yard the estimated cancer risks drop to about 10 chances per million or lower.
- Other non-cancer health impacts of rail yard operations include irritation of the eyes and respiratory tract.

Key Strategies, Projects and Mitigation Measures

Some of the strategies that were identified in this study to reduce diesel PM emissions include:

- Phasing out of non-essential idling and installing idling reduction devices on most locomotives;
- Expeditious repair of locomotives with excessive smoke;
- Use of low-sulfur diesel fuel;
- Meeting ARB Statewide diesel truck and bus regulation;
- Meeting ARB standards on cargo handling equipment emissions;
- Meeting ARB and U.S. Environmental Protection Agency's (EPA) on heavy duty diesel new truck regulations;

- Meeting ARB and U.S. EPA Tier 4 off-road diesel-fueled new engine emission standards;
- Meeting U.S. EPA locomotive emission standards; and
- Following ARB goods movement emission reduction plan (GMERP).

2.11 COMMUNITIES FOR A BETTER ENVIRONMENT EAST OAKLAND DIESEL TRUCK SURVEY REPORT

Access the Report Here.

Purpose

The Communities for a Better Environment (CBE) East Oakland Diesel Truck Survey was a community-based participatory research project completed in 2010. The survey provided detailed observations and data on the localized impacts of diesel trucks in East Oakland, California. CBE observed vehicles at major and minor intersections in East Oakland where major industrial facilities were adjacent to residential areas, identified routes truckers use, and estimated the intensity and incidence of truck pollution. The study is based on work by the West Oakland Environmental Indicators Project, and was developed in coordination with the Bay Area Air Quality Maintenance District, Oakland High School, Youth Uprising, the East Bay Academy of Young Scientists, and University of California Berkeley students.

Key Trends, Issues and Impacts

- 2-axle trucks accounted for 50% of observed trucks. 3- and 5-axle non-Port trucks made up 33% of observed trucks. Port trucks (3-axle bobtail, 5-axle I-beam and 5-axle Port container trucks) accounted for 14% of trucks counted.
- Average daily truck volume was highest at Hegenberger Road at Baldwin, 98th Ave at San Leandro Street, 66th at San Leandro Street, and 75th and San Leandro Street.
- Most trucks were using Hegenberger Road to and from I-880 and to Baldwin Ave; from Baldwin Ave towards I-880 (Figure 9). Baldwin connects 73rd Ave and 85th Ave where there are businesses such as Golden Gate Truck, World PAC and container storage.

Key Strategies, Projects, and Mitigation Measures

CBE recommended five strategies to reduce the impacts of goods movement related emissions in East Oakland.

1. Examine and Revise Truck Routes and Zoning to Protect Community Health, and where possible prohibit trucks to reduce local congestion, safety, and

noise impacts. CBE identified over 45 "sensitive receptors," such as schools and churches. However, heavy-duty diesel trucks have been prohibited on the 580 freeway since the 1960s and access routes to I-880 are important to regional and local business.

2. Post 'No Idling' signs and educate truckers. Although state law restricts idling to five minutes, residents have noted the need to educate truckers in the area.
3. Support community-based truck studies and ongoing monitoring. The study recognizes that truck counts could be affected by the economy, the fluctuations in the shipping industry, and time of day. CBE suggests adding resources for additional studies.
4. Update the MTC Truck model to reflect accurate, neighborhood-level survey data. CBE found underestimates of truck traffic in East Oakland in the MTC truck model.
5. Ensure truck traffic is included in development plan analysis. CBE also suggests greater opportunities for involving local residents to be sure these types of concerns are incorporated.

2.12 BAAQMD CLEAN AIR PLAN

Access Plan Here.

Purpose

The Bay Area 2010 Clean Air Plan (CAP) provides a comprehensive plan to improve Bay Area air quality and protect public health. The CAP updates the Bay Area ozone plan in compliance with the requirements of the Chapter 10 of the California Health & Safety Code.

The CAP defines a control strategy that the Air District and its partners will implement to:

1. reduce emissions and decrease ambient concentrations of harmful pollutants;
2. safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and
3. reduce greenhouse gas (GHG) emissions to protect the climate.

In its dual roles as an update to the Bay Area's state ozone plan and a multi-pollutant plan, the CAP addresses four pollutant categories:

a) Ground-level ozone and its key precursors, ROG and NOx;

b) Particulate matter: primary PM2.5, as well as precursors to secondary PM2.5;

c) Air toxics; and

d) Greenhouse gases.

The plan outlines the Multi-Pollutant Evaluation Method, which is used to assess strategies based on their ability to reduce several pollutants. The method relates a change in pollutant levels to resulting ambient concentrations, population exposure, and health effects.

Key Trends, Issues and Impacts

Important and useful findings from this plan include the following:

- Bay Area air quality has improved significantly in recent decades. Ambient concentrations of - and population exposure to - harmful air pollutants, including ozone, PM, and air toxics, have all been greatly reduced.
- Premature deaths related to air pollution have declined by several thousand per year, from approximately 6,400 per year in the late 1980's to approximately 2,800 per year in 2008.
- The estimated lifetime cancer risk (over a 70-year lifespan) from all toxic air contaminants combined declined by 70 percent between 1990 and 2008, from approximately 1,330 cases per million people to approximately 405 cases per million.
- Exposure to PM2.5 is by far the leading public health risk from air pollution in the Bay Area, accounting for more than 90% of premature mortality related to air pollution.
- Implementing control measures could result in about $770 million in economic benefits per year, on average; this would include reduced medical costs, increased life expectancy, and reduced impacts of climate change.
- Although emissions and ambient concentrations of criteria pollutants and air toxics have been declining in the Bay Area, emissions and concentrations of greenhouse gases have been increasing in the Bay Area and elsewhere.

Key Strategies, Projects, and Mitigation Measures

The CAP control strategy includes five measure categories: Stationary Source, Mobile Source, Transportation Control, Land Use and Local Impact, and Energy and Climate. The strategy included 55 recommended measures, and 18 for future study. Strategies categories include a leadership platform, which provides policies and actions to guide implementation.

The plan specifically addresses goods movement air quality issues and proposes a comprehensive strategy to reduce emissions and population exposure to diesel emissions, based upon these principles:

- Promote greater efficiency and/or mode shift in order to move freight with less energy and fewer environmental impacts;

- Promote the use of the cleanest, most efficient mode of transportation (alternative fuels/ hybrid technologies);
- Ensure that any conventional vehicles and equipment used in goods movement are equipped with the most effective emission control systems available;
- Ensure that all vehicles and equipment used in goods movement are fully compliant with applicable State or federal regulations; and
- Encourage local land use decisions that do not expose sensitive populations to high levels of diesel emissions.

Relevant strategies for goods movement are listed below.

- Heavy Duty Vehicle Modernization: Provide incentives to accelerate the replacement or retrofit of on-road heavy-duty diesel engines in advance of requirements for the CARB in-use heavy-duty truck regulation.
- Efficient Drive Trains: Encourage development and demonstration of hybrid drive trains for medium- and heavy-duty vehicles, in partnership with CARB, CEC and other existing programs.
- Low NOx Retrofits for In-Use Engines: Provide cash incentives to install retrofit devices that reduce NOx emissions from MY 1994-2006 heavy-duty engines. Continue requiring software updates to engine control modules in model year 1993-1998 diesel trucks as a condition of all heavy duty vehicle retrofit grants.
- Implement Freeway Performance Initiative: Improve the performance and efficiency of freeway and arterial systems through operational improvements, including implementing the Freeway Performance Initiative, the Arterial Management Program, and the Bay Area Freeway Service Patrol.
- Goods Movement Improvements and Emission Reduction Strategies: Improve goods movement and reduce emissions from diesel equipment through implementation of the Bay Area's Trade Corridors Improvement Fund (TCIF) projects and various funding programs to replace or retrofit diesel equipment.
- Goods Movement: Reduce diesel PM and GHG emissions from goods movement in the Bay Area through targeted enforcement of CARB diesel Airborne Toxic Control Measures in impacted communities, partnerships with ports and other stakeholders, increased signage indicating truck routes and anti-idling rules, shifts in freight transport mode, shore-side power for ships, and improvements in the efficiency of engine drive trains, distribution systems (roadways, logistic systems) and land use patterns.

Table 2.2 Alameda County Plans and Studies

Plan/Study	Agency	Year	Purpose	Key Findings
Alameda Countywide Transportation Plan (CWTP)	Alameda County Transportation Commission	2012	• To guide future transportation investments, programs, policies and advocacy for all of Alameda County through 2040	• **Goals and Performance Measures**: Provided a transportation project evaluation framework and "ideal" freight system goals • **Multimodal Trends and Issues**: (a) Recurrent congestion on I-880 and I-580 truck corridors will increase; (b) Freight rail conflicts with passenger rail will increase on Capitol Corridor and Altamont Corridor; (c) Between 2007 and 2009, a decrease in volume at Oakland International Airport (OAK) was attributed to a shift in traffic from OAK to San Francisco International Airport (SFO); (d) OAK is vulnerable to sea level rise; (e) Port of Oakland improvements faced funding gaps • **Land Use Trends and Impacts**: More relocation of goods movement services to areas outside the County will take place, and this will have traffic and economic impacts • **Projects**: Included a comprehensive, multimodal projects list • **Strategies/Mitigation Measures**: (a) Determined increasing importance of quiet zones and grade separations to reduce conflicts between freight and non-freight modes and reduction in air pollution; (b) Prioritized projects for the 2014 Alameda County Transportation Expenditure Plan (TEP) • **Program**: Introduced about $80 million Goods Movement program
Alameda County Transportation Expenditure Plan (TEP)	Alameda County Transportation Commission	2012	• To act as support for ballot process to secure and extend $8 billion half-cent sales tax revenue through 2045	• **Strategies**: (a) Proposed $77 million to Freight and Economic Development Grant; (b) Proposed $161 million towards improvements on freight corridors
Port of Oakland Strategic Business Plan Fiscal Years 2011-2015	Port of Oakland	2013	• To guide the Port of Oakland on major business challenges and opportunities, and set priorities through 2015	• **Goals and Performance Measures**: To maintain and improve financial success of port's business lines; Set anticipated outcomes/metrics for priorities under different business lines • **Strategies (FY 2014 only)**: (a) Maritime business line priorities including capitalizing on the Oakland Army Base redevelopment and aggressive customer engagement; (b) Aviation business line priorities including securing new carriers, routes and increased frequencies; capitalizing on BART connector, Terminal 1 improvements and other projects

Plan/Study	Agency	Year	Purpose	Key Findings
Port of Oakland Export Market Study	Port of Oakland	2013	• To determine current volume and trends of export commodities moving through the Port of Oakland • To determine sources of potential growth and strategies for the port's export container business	• **Trends and Issues**: (a) The port captures about 77% of the exports from Northern California, Northern Nevada and Southern Oregon; (b) The market area for exports is larger than that of imports; (c) The top export commodities include animal feed, chemicals, agricultural products, meat and foodstuffs; (d) There are 200,000 20-foot equivalents (TEUs) of opportunity export cargoes; (e) An increase in import cargo equipment can increase the ability to attract more export cargo • **Strategies**: (a) On-dock and near-dock rail services for export agricultural communities; (b) Additional transload facilities for handling specialized commodities, including refrigerated cargo; (c) Use of communications technology for equipment management; (d) Providing a heavy weight freight corridor for regulated types of agricultural commodities between Central Valley and the Port of Oakland; (e) Develop value-add deconsolidation hub for import cargo with specialized service capabilities; (f) Off-dock truck facilities for pickup and delivery of empty containers and chassis
Oakland Army Base Rail Master Plan	California Capital & Investment Group (CCIG) Oakland Global, LLC	2012	• To provide a blueprint for the Oakland Global Trade and Industry Center (OGTIC) project to identify and program critical capital investments in freight rail	• **Strategies**: (a) Provided preliminary designs and estimated handling capacities for a build-out for intermodal rail, commodity unit trains and manifest (industry) trains facilities; (b) Suggested rail access improvements to support the additional train traffic generated by the OGTIC. This will need discussions with both Union Pacific Railroad Company (UP) and Burlington Northern Santa Fe Railway (BNSF).
The Economic Impact of the Port of Oakland 2010	Port of Oakland	2011	• To quantify the economic impacts of Port of Oakland's business lines on the Bay Area	• **Economic Impacts**: The Port of Oakland manages not only the seaport at Oakland but also Oakland International Airport (OAK). In 2010, the seaport and the airport generated 10,927 and 7,680 direct jobs and 28,833 and 14,667 total jobs, respectively. Also, in 2010, the seaport and the airport paid direct state and local taxes of $56.5 million and $48.9 million, respectively.
Maritime Air Quality Improvement Plan (MAQIP)	Port of Oakland	2009	• To guide Port of Oakland's efforts to reduce criteria pollutants, notably diesel particulate matter from mobile and stationary on/near-shore and off-shore sources through 2020	• **Goals**: Based on the port's Maritime Air Quality Policy Statement: To reduce the excess community cancer health risk related to exposure to diesel particulate matter (DPM) and other criteria pollutant emissions associated with the Port's maritime operations to set target levels, through all practicable and feasible means • **Strategies**: (a) Emissions control measures, including shore power infrastructure; support early action retrofit/replacement of port drayage trucks; support enforcement of Air Resources Board (ARB) and Bay Area Air Quality Management District (BAAQMD) regulations; tugboat engine replacement; develop Liquid Natural Gas (LNG) equipment and infrastructure; and others; (b) Comprehensive Truck Management Program (CTMP)

Plan/Study	Agency	Year	Purpose	Key Findings
Truck Parking Facility Feasibility and Location Study	Alameda County Congestion Management Agency	2008	• To understand the need and feasibility for locations of truck stopping or parking in Alameda County and to locate some potential sites	• **Goals**: To enhance productivity for truckers, shippers and receivers; To enhance safe operations on highways; and To minimize community impacts by consolidating scattered informal and inappropriate truck parking sites into few well-organized and developed sites • **Trends and Issues**: (a) No public truck stopping or parking locations in Alameda County; (b) Drivers are interested in a site along I-880, in particular near I-238; (c) Lack of public support; (d) High land prices and re-zoning of potentially desirable sites away from industrial and local business uses affect truck stopping for pickup and delivery and parking • **Strategies**: (a) Identified 33 potential truck parking sites for temporary stopping and overnight parking, and top 10 among them; (b) Recommended the agency to work with the local jurisdiction to identify and adopt guidelines for accommodating and developing truck parking facilities; (c) Recommended the agency to develop a one-page fact sheet highlighting the benefits trucks provide to the County and its communities, and why temporary and long-term truck parking areas are needed
Oakland International Airport Master Plan	Port of Oakland	2006	• To act as concept-level planning and feasibility study that identifies investments on airport general land-use guidance	• **Runway Capacity Issue**: Although, the plan provides aviation forecasts, they were overlooked because more recent forecasts were presented in Caltrans Air Cargo Groundside Needs Study. Nevertheless, airfield simulations indicated that the unconstrained forecasts of 30 million annual passengers cannot be accommodated unless there is an additional air carrier runway at OAK. • **Other Trends and Issues**: (a) Increasing ground side access issue; (b) Increasing terminal area congestion; (c) Taxiway B was congested; (d) Remote (off-gate, on-airport) remain overnight (RON) aircraft parking may be overrun with future demand • **Strategies/Mitigation Measures**: (a) New terminal located in the existing terminal area and Oakland Maintenance Center site; (b) Modest increase in on-Airport area air cargo facilities in North Field; (c) Taxiway parallel to Taxiway B; (d) Continuation of a sound insulation program for neighborhood on the Neptune Drive • **Future Studies**: Recommended ground traffic study

Plan/Study	Agency	Year	Purpose	Key Findings
Health Risk Assessment of UP's Oakland Yard	California Environmental Protection Agency's Air Resources Board	2008	• To quantify the health impacts from exposure to diesel particulate emissions from UP's intermodal rail yard near Port of Oakland	• **Public Health and Environmental Impacts**: (a) In 2005, the diesel particulate matter (PM) emissions were estimated at about 11.2 tons per year, ranked 6th among the 18 rail yards assessed in California and is about half that of the rail yard with the highest emissions in California; (b) Maximum individual cancer risk associated at the yard in the residential zoned area was about 460 chances in million; (c) At about 4 miles from the rail yard the estimated cancer risks drop to about 10 chances per million or lower; (d) Other non-cancer health impacts include irritation of the eyes and respiratory tract • **Mitigation Measures**: (a) Phasing out of non-essential idling and installing idling reduction devices on locomotives; (b) Expeditious repair of locomotives with excessive smoke; (c) Use of low-sulfur diesel fuel; (d) Meeting U.S. EPA and ARB regulations and emission standards; (e) Following other strategies in the ARB goods movement emission reduction plan (GMERP)
CBE East Oakland Truck Survey Report	Communities for a Better Environment	2010	• Provided detailed observations and data on the localized impacts of diesel trucks in East Oakland	• **Truck Types:** Two-axle trucks accounted for 50% of observed trucks. 3- and 5-axle non-Port trucks made up 33% of observed trucks. Port trucks (3-axle bobtail, 5-axle I-beam and 5-axle Port container trucks) accounted for 14% of trucks. • **Public Health and Environmental Impacts:** High levels of truck traffic near I-880 occur near a large number of sensitive receptors, increasing risk of disease, collisions, and high medical costs. • **Strategies:** Suggested strategies include truck restrictions, driver education, traffic and emissions monitoring, updated traffic modeling, and enhanced community participation
BAAQMD Clean Air Plan	Bay Area Air Quality Management District	2010	• Provided a comprehensive plan to improve Bay Area air quality and protect public health. Focuses on four pollutant categories: four pollutant categories: Ground-level ozone and precursors ROG and NOx; PM2.5 and secondary PM2.5; Air toxics; and greenhouse gases	• **Goods Movement:** The plan specifically addresses goods movement air quality issues and proposes a comprehensive strategy to reduce emissions and population exposure to diesel emissions, based upon principal guidance, which includes encouraging low-emission modes, high efficiency vehicle and support technology, and locating high-emission freight sources away from sensitive populations. • **Control Measures:** Relevant strategies include modernizing trucks, encouraging replacement of older vehicles, targeted enforcement of CARB diesel ATCMs in impacted communities, partnerships with ports and other stakeholders, increased signage indicating truck routes and anti-idling rules, shifts in freight transport mode, shore-side power for ships, and improvements in the efficiency of engine drive trains, distribution systems (roadways, logistic systems) and land use patterns.

3.0 Regional and Statewide Goods Movement-Related Plans and Studies

Alameda County has goods movement linkages with regions neighboring to the Bay Area such as the Central Valley, Central Coast, Sacramento, and Southern California; nearby states of Oregon, Nevada and Utah; and freight hubs such as Chicago and Kansas City. With the help of regional and statewide plans and studies, a more holistic approach is taken in this section to understand goods movement in Alameda County.

This section of the memorandum summarizes key findings, as and when included, on the various facets of regional and statewide goods movement as they relate to Alameda County, including:

- Potential goals and performance measures in the Bay Area region and California;
- Key trends that are driving future demand of regional and interregional goods movement, and key issues that are affecting the associated goods movement roles or functions;
- Freight/passenger conflicts, environmental impacts and community impacts as they relate to Alameda County due to the interface between regional and interregional goods movement and passengers movement, economy, environment and community; and
- Strategies/projects/mitigation measures as they relate to Alameda County, wherever included that have already been proposed to address the goods movement trends, issues and negative impacts.

The narratives from the various plans and studies are provided as follows. Table 3.1 presents a summary of the documents.

3.1 PLAN BAY AREA

Access Documents Here.

Purpose

Plan Bay Area is a long-range integrated transportation and land-use/housing strategy through 2040 for the nine-county region of San Francisco Bay Area. On July 18, 2013, the Plan was jointly approved by the Association of Bay Area Governments (ABAG) Executive Board and by the Metropolitan Transportation Commission (MTC). The Plan includes the region's Sustainable Communities Strategy (SCS) and the 2040 Regional Transportation Plan (RTP).

Plan Bay Area marks the region's first long-range plan to meet the requirements of California's landmark 2008 Senate Bill 375, which calls on each of the state's 18 metropolitan areas to develop a Sustainable Communities Strategy to accommodate future population growth and reduce greenhouse gas emissions from cars and light trucks. Working in collaboration with 101 cities and nine counties, the Plan advances initiatives to expand housing and transportation choices, create healthier communities, and build a stronger regional economy.

Plan Bay Area considers goods movement and industry in Bay Area as well as goods moving inter-regionally to be essential to maintain a vibrant Bay Area economy.

Goals and Performance Measures

Plan Bay Area has adopted goals and performance targets as shown in Figure 3.1 below. The goals of Plan Bay Area went beyond traditional transportation concerns such as regional mobility, and instead incorporated broader regional concerns, such as land use, environmental quality and economic vitality. Sustainability was encapsulated in this plan in terms of environment, equity and economy.

Figure 3.1 Plan Bay Area Goals and Performance Targets

TABLE 4: Adopted Plan Bay Area Performance Targets*

Goal/Outcome		Performance Target
Required		
Climate Protection	1	Reduce per-capita CO_2 emissions from cars and light-duty trucks by 15 percent (Statutory requirement is for year 2035, per SB 375)
Adequate Housing	2	House 100 percent of the region's projected growth (from a 2010 baseline year) by income level (very-low, low, moderate, above-moderate) without displacing current low-income residents (Statutory requirement, per SB 375)
Voluntary		
Healthy and Safe Communities	3	Reduce premature deaths from exposure to particulate emissions: • Reduce premature deaths from exposure to fine particulates ($PM_{2.5}$) by 10 percent • Reduce coarse particulate emissions (PM_{10}) by 30 percent • Achieve greater reductions in highly impacted areas
	4	Reduce by 50 percent the number of injuries and fatalities from all collisions (including bike and pedestrian)
	5	Increase the average daily time walking or biking per person for transportation by 70 percent (for an average of 15 minutes per person per day)
Open Space and Agricultural Preservation	6	Direct all non-agricultural development within the urban footprint (existing urban development and urban growth boundaries) (Note: Baseline year is 2010.)
Equitable Access	7	Decrease by 10 percentage points (to 56 percent, from 66 percent) the share of low-income and lower-middle income residents' household income consumed by transportation and housing
Economic Vitality	8	Increase gross regional product (GRP) by 110 percent — an average annual growth rate of approximately 2 percent (in current dollars)
Transportation System Effectiveness	9	• Increase non-auto mode share by 10 percentage points (to 26 percent of trips) • Decrease automobile vehicle miles traveled per capita by 10 percent
	10	Maintain the transportation system in a state of good repair: • Increase local road pavement condition index (PCI) to 75 or better • Decrease distressed lane-miles of state highways to less than 10 percent of total lane-miles • Reduce share of transit assets past their useful life to 0 percent (Note: Baseline year is 2012.)

*Unless noted, the Performance Target increases or reductions are for 2040 compared to a year 2005 baseline.

Source: Plan Bay Area, 2013.

Key Trends, Issues and Impacts

Plan Bay Area recognizes that there are many goods movement issues, challenges and opportunities, including:

- The goods movement industries, including the Port of Oakland make essential contributions to the region's employment and economic output;
- Continued land development pressure in the Bay Area is placing many industrial and manufacturing land uses at risk, and more goods movement activities could shift to locations outside Bay Area in the future; and
- Air quality considerations related to goods movement activities are an important part of the sustainability and industrial lands discussion.

Key Strategies, Projects and Mitigation Measures

- Plan Bay Area includes a list of recent transportation investments for a total of $292 billion, of which $60 billion is available for discretionary investments. Out of the total, 32 percent is allotted to road and bridge maintenance of existing system, 5 percent towards road and bridge expansion, 1 percent towards Cap and Trade reserve and the remaining 62 percent is allotted towards transit investments.
- The plan recommended that MTC and ABAG advance planning and modeling efforts for goods movement with local jurisdictions and Bay Area County Congestion Management Agencies, and neighboring metropolitan planning organizations such as San Joaquin Council of Governments (SJCOG), Sacramento Council of Governments (SACOG), and Association of Monterey Bay Area Governments (AMBAG).
- The plan recommended that MTC and ABAG work with the business community and local jurisdictions and stakeholders to explore economic development best practices for goods movement and industrial businesses, and to assess the role of goods movement businesses and industrial land in the regional economy.
- The plan built upon local plans and strategies that were identified by ABAG and MTC through "Focusing Our Vision" (FOCUS). FOCUS is a Bay Area-wide effort to promote compact and equitable development that protects and enhances quality of life, and preserves open space and agricultural resources. The resulting implementation framework, also present in the plan, was a set of priority development areas (PDAs). One of the PDA goals was also to maintain goods movement corridors and retain land uses that support related distribution and industrial uses.
- The plan noted ongoing initiatives including the BAAQMD air quality initiatives to support cleaner trucks within the Bay Area, especially at the Port of Oakland.
- "The Plan includes infrastructure and land use strategies designed to improve the viability of walking and biking for, and the project performance assessment and performance measurement work conducted as part of Plan Bay Area found $1.1 billion in benefits from health care cost and lost productivity reductions attributable to increased physical activity from Bay Area residents."

3.2 SCAG COMPREHENSIVE REGIONAL GOODS MOVEMENT PLAN AND IMPLEMENTATION STRATEGY

Access Documents Here.

Purpose

This is a long-range comprehensive plan and implementation strategy through 2035 developed by Southern California Association of Governments (SCAG) for the goods movement system in the six-county region of Southern California. The plan is a critical component of SCAG's adopted 2012-2035 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) and helps meet the region's goals.

There are several reasons for reviewing this plan. First, there are interregional flows between San Pedro Bay Ports (mainly imports), manufacturing and industries, and logistics and distribution centers in Southern California and the Bay Area, including Alameda County. Second, Southern California is likely facing similar goods movement issues as the Bay Area, and therefore some of the strategies developed for Southern California may be applicable to Alameda County. And third, both regions are governed by the same state laws and regulations.

Goals and Performance Measures

The plan emphasized the markets and functions that the goods movement system in Southern California serves as: (a) Providing access to international gateways, (b) Supporting regional manufacturing activities; (c) Serving the needs of local businesses and residents; and (d) Supporting a thriving logistics industry. This helped guide the selection of critical multimodal corridors and modal connections, as well as guiding the selection of strategies.

Key Trends, Issues and Impacts

The plan made some key findings on goods movement trends, issues and impacts:

- Much of the region's truck traffic is actually traveling within the region. Previously, it was assumed that truck traffic was mostly driven by the presence of the San Pedro Bay ports. In reality, a large part of the trucking is supporting domestic trade and local consumption in Southern California.
- The international trade through San Pedro Bay Ports is the fastest growing component of the overall trucking demand. Transloading as a logistics practice for international cargo will increase significantly along with the domestic cargo market required to balance domestic containers at transload

facilities and intermodal terminals that handle this cargo. This increase in demand could put strains on existing transload facilities and intermodal terminals.

- The effects of interregional traffic on highways were understood in this plan by identifying approximately 50 priority truck bottlenecks using current conditions on truck counts and roadway speeds data.
- Roadway geometrics and interactions with autos where auto drivers underestimate the maneuverability of trucks were found to result in high rates of truck-involved crashes on segments of SR-60, SR-91 and I-10; and
- The plan projected that there will be a shortage of over 200 million square feet of warehouse space considering all markets even if all of the zoned and land appropriate to warehouse development is developed as warehousing.

Key Strategies, Projects and Mitigation Measures

The plan identified strategies with relation to the goods movement functions that benefit regional economy and address goods movement issues:

- The plan proposed an east-west freight corridor (EWFC - dedicated truck lanes) system strategy. Unlike the already planned freight corridor project on I-710, the truck traffic on a high potential alignment of the EWFC system would be less related to the market for international trade through San Pedro Bay Ports and more related to the market for inter-regional domestic trade, local distribution, warehousing and regional manufacturing. This alignment was derived based on large concentrations of these industries and minimal right-of-way impacts on community. The EWFC system is expected to have significant economic benefits such as providing a good quality level of service to trucks using this system, reduce delays to not only trucks but the general traffic, improve safety, and reduce emissions.
- The plan developed the first regional goods movement environmental action plan that is based on a two-pronged approach with aggressive near-term pursuit of clean fuel technologies (low-emission trucks and locomotives) and a long-term research, development, demonstration and deployment program for zero-emission technology broken into four phases. The plan recommends using the EWFC system for the demonstration. This was developed in close collaboration with the South Coast Air Quality Management District.
- The plan identified bottlenecks with the highest truck-related annual delay in the region and those considered high-priority by stakeholders and Corridor System Management Plans (CSMP). The plan developed a truck bottlenecks relief strategy among projects already in the pipeline as well as new project concepts that could help mitigate the congestion costs to the region. The plan expected that this strategy combined with the separation of auto and truck lanes would benefit priority locations for safety as well.

- Environmental Impact Report/Environmental Impact Statement (EIR/EIS) works to select alternatives for much needed rail intermodal terminal capacity expansion need to be approved.
- A forecast of regional warehouse space demand and supply was developed to determine where warehouse demand would be expanding, the factors that would affect future demand, and whether likely supply (given current supply and zoning) would be sufficient to meet future demand. The forecast distinguished between port-related demand and all other demand. This research has been shared with cities throughout the region and is being evaluated to determine if regional and local land use strategies should be developed to address location, impacts, and availability of future warehouse development.
- 71 grade separation projects were identified to eliminate community impacts including vehicular delay and idling emissions at at-grade crossings. The project list was financially constrained and also prioritized based on total delay, emissions,5 year accidents at these grade crossings and other local criteria developed by each county in the region.

3.3 SAN JOAQUIN VALLEY INTERREGIONAL GOODS MOVEMENT PLAN

Access Documents Here.

Purpose

This is a long-range plan through 2040 developed by San Joaquin Valley Regional Transportation Planning Agencies for the goods movement system in the eight-county region of the San Joaquin Valley (SJV).

There are several reasons for reviewing this plan. First, there are interregional flows between agricultural industry, logistics and distribution centers in the San Joaquin Valley and the Port of Oakland and wholesale and retail trade outlets and businesses in the Bay Area, including Alameda County. Second, the plan may identify goods movement issues and offer strategies that may be relevant or applicable to Alameda County. Third, both regions are governed by the same state laws and regulations.

Goals and Performance Measures

The overall goal for the San Joaquin Valley's goods system can be summed up as "better, faster, cheaper," which translates to continual fine-tuning of logistics chains and transportation practices, and to a willingness to shift production and distribution facilities and activities to achieve the optimum combination.

The plan also set formal goals for goods movement as shown below:

- **Capacity:** The SJV goods movement system should have sufficient throughput capacity to meet the growing freight transportation and supply chain needs of the region;
- **Efficiency:** The SJV goods movement system should provide shippers and receivers with efficient service, taking advantage of transport modes and technologies;
- **Economic Development:** The SJV goods movement system should support the desired direction of regional economic development;
- **Environment:** The SJV goods movement system should minimize adverse impacts on air quality, water quality, congestion, noise, safety, and at-risk populations; and
- **Balance:** At each point in time, the SJV goods movement system should strike the best possible balance between the needs of public and private stakeholders, between the potentially conflicting goals of efficiency and environment, and between regional priorities and regional resources. The system should be multimodal and connected to take advantage of the best that each mode has to offer.

For project performance evaluation, however, this plan considered a limited number of goals, which are: (a) mobility, (b) economic development, and (c) community/environmental mitigation. This plan identified multimodal performance measures with the focus that they can be quantified, and that data is readily available from public sources.

Key Trends, Issues and Impacts

The plan made some key findings on goods movement trends, issues and impacts.

- Roughly 50% of the goods moving in the SJV are moving within the region to support local industries, such as agriculture and manufacturing, and a majority of these movements are made using trucks.
- Many SJV shippers and distribution centers rely on linkages to the Port of Oakland to connect to their international markets. Port of Stockton and Port of West Sacramento move bulk commodities in/out of the SJV.
- Though the vast majority of goods movement is by truck, there is strong interest in improving the transportation modal diversity in the SJV. There is also a high level of interest for energy efficient, clean transportation technologies.
- The plan utilized data and stakeholder outreach process to identify various constraints.

- Infrastructural constraints in the SJV: (a) Capacity issues on segments of I-5 and SR-99; (b) Capacity issues on east-west connections such as SR-58 and SR-152; (c) Maintenance and safety issues on "last mile" connections; (d) Truck parking shortages; (e) Pavement wear and tear issue; (f) Tehachapi pass capacity constraints; (g) Abandonments of short lines; (h) Reliability issue of car supply for short lines; (i) At-grade crossings traffic- and safety-related concerns; (j) Port of Stockton rail capacity issue; (k) Port of Oakland access issue; and (l) Underutilized airport capacity.
- Operational constraints in the SJV: (a) Surface Transportation Assistance Act of 1982 (STAA) routing issues; (b) Seasonality concerns to many agricultural industries accompanied by equipment shortages, exacerbated "last mile" connectivity and truck parking in harvest season; (c) Increase in rail rates due to business volume declines; (d) Rail service quality – track class issues; (e) Issues relating to providing rail access to new customers; (f) air cargo supply and demand; (g) constraints and opportunities at bulk ports; and (h) port drayage issues.
- Institutional constraints in the SJV: (a) General freight and land use issues such as impacts of freight on environment, hazmat and truck parking concerns, pavement deterioration and conflicts with other land uses; (b) Environmental regulation uncertainty among stakeholders at the time Truck and Bus regulation from the California Air Resources Board became effective; and (c) Inconsistent levels of funding behind incentive programs for improving air quality.

Key Strategies, Projects and Mitigation Measures

Based on a project performance evaluation, the plan identified 48 "priority" projects, which were grouped into the following seven types of projects:

- **Regional Highway Capacity:** Conventional capacity increases through widening, interchange improvements, and new construction. Benefits broadly shared. For e.g., I-580 WB Truck Climbing Lane, Widen I-5 from SR-120 to I-205.
- **East-West Connectors:** Conventional capacity increases through widening, interchange improvements, and new construction. Benefits broadly shared. For example, widen SR 120 from I-5 to SR 99, new interchange at SR 99/120, SR 152 Bypass around the City of Los Banos.
- **Local "Last Mile" Connectors:** Conventional capacity increases through widening, interchange improvements, and new construction. Local benefits. For example, Port of Stockton, widen Navy Drive from two to four Lanes, SR 4 Extension to the Port of Stockton - Phase II.
- **Modal Capacity for Expected Flows:** Rail and highway capacity increases to accommodate specific expected increases in existing freight flows. For

example, Central California Traction Company (CCT) Port of Stockton West Complex Trackage Upgrade, new SR 58 Truck Weight Station.

- **Contingent Economic Development Opportunities:** Rail and air cargo capacity increases or upgrades to support new or hoped-for freight flows. Benefits contingent on traffic development and may require collateral facility investments or other actions. For example, CCT rail upgrade for new aggregates business, San Joaquin Valley Railroad Company (SJVR) -Short-Line rail improvements.
- **Inland Ports:** Goods movement and economic development initiatives requiring both capital investment and operating subsidies, with benefits contingent on commercial success. For example, Crows Landing Intermodal Rail Facility, Altamont Pass Rail Corridor/SJV Rail Shuttle (CIRIS), Shafter Inland Port Phase II and III.
- **Strategic Programs:** Regional strategies encompassing multiple projects. For example, Truck Stop Electrification, Truck Route Signage, Additional Truck Rest Areas, Oversize/ Overweight Truck Pilot Program/Research, Reexamine STAA Designated Routes.

3.4 CALIFORNIA STATE RAIL PLAN

Access Documents Here.

Purpose

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) (a federal act) mandated long-range rail plan that establishes California's rail system vision and objectives, sets priorities and develops implementation strategies through 2040, while following the Federal Railroad Administration (FRA) guidelines to inventory freight and passenger rail infrastructure and identify system's needs.

The plan discussed issues and strategies including those in Northern California region, some of which will be applicable to Alameda County.

Goals and Performance Measures

The vision statement for this plan is: *California has a premier, customer-focused rail system that successfully moves people and products while enhancing economic growth and quality of life.*

The plan established the following objectives for California's rail system to act as a world-class, sustainable freight rail system:

- Links seaports, manufacturing and warehousing centers, agricultural regions, and intermodal freight transfer facilities with an integrated statewide freight network that connects to national and international freight networks;

- Provides for the efficient movement of freight while reducing energy consumption and highway congestion by reducing truck traffic;
- Operates in coordination and cooperation with an extensive passenger rail system;
- Supports California's global economic competitiveness; and
- Improves air quality; reduces GHG emissions; promotes local and regional economic development by connecting California customers, shippers, and manufacturers to the national rail network; fosters livable and vibrant communities; and supports social equity.

Caltrans does not systematically maintain measures of freight rail system performance, nor does it have a formal freight performance measurement framework. The plan expressed the need for developing a robust performance measurement framework, especially in the context of MAP-21 freight policies (as discussed later in this document).

Key Trends, Issues and Impacts

The plan identified several freight rail system bottlenecks and capacity issues that may affect goods movement into/from Alameda County.

- Oakland – Martinez (Capitol Corridor) capacity issue
  - High current demand and projected large growth in demand due to future Capital Corridor service plans, as well as, projected transcontinental trade growth.
  - Even mix of freight and passenger trains in current and future years necessitates coordinated scheduling to minimize delays.
  - Coordinated timetables will be needed between various intercity passenger rail services.
- Niles Canyon - Stockton (Altamont Corridor) bottleneck
  - Steep grade at Altamont Pass results in slow freight train speeds for interregional trade traffic.
- Port of Oakland intermodal rail capacity and rail access issues
  - Need for capacity to meet future intermodal rail demand and to increase productivity by constructing new on-dock intermodal facility.
  - As discussed earlier in this document, train traffic added due to the construction of new on-dock intermodal facility will require improvements in rail access to the existing UP Railport – Oakland and BNSF Joint Intermodal Terminal (JIT) intermodal facilities.
- San Joaquin Corridor over the Tehachapi pass bottleneck

  - Steep grade restricts train speeds at the Tehachapi pass and this results in formation of queues and causes substantial train delays for transcontinental trade traffic. An ongoing TCIF project is in progress at this location.

The plan also identified several freight rail operational trends, issues, impacts and opportunities that may affect goods movement in to/from Alameda County:

- International trade trends such as changes in sourcing patterns, growth in manufacturing in Mexico, competitiveness from West Coast ports, expansion of Panama Canal, development of transloading infrastructure affect goods movement through Port of Oakland;
- ""Aside Oakland Gateway Rail Enterprise (Oakland Terminal Railway) that performs rail car switching services at rail intermodal terminals near Port of Oakland, there are no short line-haul rail service options in Alameda County. If such an option is created, services such as transloading of port containers to rail can occur in the vicinity of the ports instead of the Central Valley which would eliminate some truck trips on I-880/I-238/I-580 freeways.;
- Changing customer base such as closure of the GM/Toyota New United Motor Manufacturing Incorporated joint venture in Fremont, and replacement with Tesla motors;
- Shifting modal economies such as congestion on highways, fuel costs, and drayage costs;
- Positive train control implementation required on the UP's Martinez and Altamont Corridor;
- Environmental benefits of freight rail compared to trucking through higher levels of energy efficiency and reduced emissions per ton-mile of goods moved;
- Negative environmental and community impacts due to rail line, rail yard operation and maintenance activities, such as at-grade crossings delay and safety impacts, noise and vibration, diesel emissions including NO_X and fine and coarse particulate matter ($PM_{2.5}$ and PM_{10}) from locomotives that are known to have cancer and other health risks due to prolonged exposure; and
- Environmental vulnerability of rail system to climate changes including changes in temperature, changes in precipitation, and sea level rise.

Key Strategies, Projects and Mitigation Measures

The plan identified projects, strategies and mitigation measures that address trends, issues and impacts described earlier:

- A series of track and signal improvements on Oakland – Martinez (Capitol Corridor) including Richmond rail connector for BNSF trains joining UP

Martinez subdivision will make spot improvements and result in gains in operational capacity, improved reliability and reduced community impacts;

- Although not listed in the rail plan, Altamont Rail Corridor Rehabilitation - track, positive train control, and signaling upgrade project listed in the Alameda Countywide Transportation Plan (CWTP) will meet some of the needs on this corridor;
- The Port of Oakland has already started constructing a new on-dock intermodal rail yard, namely, Outer Harbor Intermodal Terminal (OHIT), construction of a manifest yard[4] and making rail access improvements. These will improve the container lifts capacity and productivity of rail based goods movement in Alameda County;
- Tehachapi trade corridor rail improvement project involving double-tracking 15 miles of the BNSF's transcontinental corridor along with other improvements to add capacity and improve connectivity is already underway;
- Projects concepts such as Crows Landing inland terminal facility, Shafter inland terminal facility, and California interregional intermodal shuttle rail service could introduce short line-haul operations between the Port of Oakland and the San Joaquin Valley;
- Highway-rail grade separation projects and programs in the Bay Area, including 7th Street grade separation improvements eliminate community impacts on delays and safety and eliminate environmental impacts of idling emissions;
- Environmental initiatives such as agreements between California's Air Resources Board (ARB) and the railroad industry to reduce emissions at rail yards and accelerate adoption of low emission or clean locomotive technologies, and U.S. Environmental Protection Agency (EPA) tier standards for locomotive engines help reduce environmental negative impacts; and
- Strategies such as developing a performance measurement framework, interagency coordination, stakeholder communication and collaboration, preserving rail accessible industrial sites, minimizing delays in new facility development, noise abatement measures and quiet zones, and climate change adaptation/protection are ways to address other operational trends, issues, impacts and opportunities.

[4] A manifest train is a train made up of mixed rail cars (boxcars, tank cars, piggyback cars, etc.), and a manifest yard is a network of tracks used to assemble manifest trains, by sorting and redistributing rail cars and cargo. Source: http://www.dot.ca.gov/hq/tpp/offices/ogm/additional_resources/GM_Glossary_073112.pdf (last accessed on January 27, 2014)

3.5 CALIFORNIA AIR CARGO GROUNDSIDE NEEDS STUDY

Access Study Here.

Purpose

This 2013 study was meant to help Caltrans: (a) determine the major trends and issues in the air cargo industry that have potential impacts on California's airports; (b) describe existing infrastructure and forecast demand at California's 12 busiest airports by cargo volume; and (c) identify airside and landside needs and strategies to meet the evolving requirements of air cargo in the State over the next twenty to thirty years. Oakland International Airport is one among the 12 airports that were studied.

Key Trends, Issues and Impacts

The study identified the following key trends, issues and impacts.

- There was a national drop in air cargo volumes after the 9/11 incident due to security restrictions on cargo carried in passenger flights, cargo screening and security inspection requirements, known shipper rules applicable to freighter operators, freight forwarders/integrators, electronic cargo information requirements, reduction in belly cargo capacity due to reduction in number of commercial flights and size of aircrafts. In years immediately following the 9/11 incident, the loss in belly cargo capacity and cargo restrictions in particular has resulted in a substantial shift (as much as 25 percent) in air cargo from passenger carriers to trucking and freighter/integrator traffic (use of freighters). This has affected California's airports as well.
- Aside from the modal shift, aviation industry factors such as gateway fragmentation, continued market liberalization (agreements between nations and foreign flag air carriers), new alliances and consolidation, emergence of new markets and new services (e.g., point-to-point), and changing distribution systems have also resulted in a drop in the market shares of California's airports and freight leakage to airports in other states.
- Despite the changes in the industry, Los Angeles International Airport (LAX) and San Francisco International Airport (SFO) are still major international gateways for passenger aircrafts, and handle the first and second largest shares of belly cargo in the State.
- Los Angeles International Airport (LAX) also handles the largest freighter cargo in the state. Oakland International Airport (OAK), on the other hand, handles the largest freighter cargo in the Bay Area. The freighter cargo in 2012 was contributed by two major integrators, FedEx and UPS, a small facility of DHL, and some freight forwarders located at or near North Field of the airport. OAK also handled a small amount (about 1 percent of total air

cargo) of belly cargo in 2012, with Southwest Airlines as the major contributor.

- The opportunities for OAK include: (a) Growth in international passenger and freighter markets; (b) Availability of infrastructure that can handle the largest size of freighter aircrafts such as planned Code F aircraft – 747-8F; (c) North Field expansion possibilities, unlike constraints at competing airports..
- The challenges at OAK include: (a) Increasing severity of congestion on access roadways; and (b) High costs of development in California.

Key Strategies, Projects and Mitigation Measures

- In order to handle air cargo tonnage of about 778,900 tons at OAK in 2040, facility and infrastructure requirements were identified in the study as follows: (a) Warehousing space of about 375,000 square feet; (b) Office space of about 34,000 square feet, possibly along with about 5,000 square-foot facility to house U.S. Customs and Border Protection (CBP) and Transportation Security Administration (TSA) personnel; (c) Air craft parking ramp requirement of about 850,000 square feet; and (d) Truck queuing area for 16 incoming and 16 outgoing vehicles (single trucks, tractor-trailers and vans) for each of the six peak hours in a day.
- Projects to relieve the following major bottlenecks identified by the 2009 Caltrans Mobility Performance Report (MPR): (a) North of OAK on I-880 in Oakland just north of the I-880/SR-185 junction; (b) South of OAK just north of I-880/SR-61 junction; (c) On I-880 south of the I-880/SR-92 junction.
- Enhance efficiency and safety on arterials including: Hegenberger Road, 98th Avenue, Airport Drive, Air Cargo Way via Ron Cowan Parkway and Earhart Drive
- Metropolitan Transportation Commission's programmed projects including: (a) Build a BART Oakland Airport Connector between the Coliseum BART Station and Oakland International Airport (Regional Transportation Plan Identification 21131); and (b) Improve access to Oakland International Airport's North Field, connecting SR-61 (Doolittle Drive) with Earhart Road and extending infield area at North Field.

3.6 M-580 (MARINE HIGHWAY) / CALIFORNIA GREEN TRADE CORRIDOR PROJECT FACT SHEET: CONTAINER-ON-BARGE SERVICE

Access Factsheet Here.

Purpose

The M-580 / California Green Trade Corridor project is a container on barge marine highway service owned and operated by the Port of Stockton, in cooperation with the Port of Oakland. It was funded through U.S. DOT/Maritime Administration (MARAD) and the American Recovery & Reinvestment Act. In addition, the Ports of Oakland and Stockton, in concert with the San Joaquin Valley Air Pollution Control District and the Bay Area Air Quality Management District, contributed $3.2 million dollars collectively to purchase two barges to support the project.

Key Trends, Issues and Impacts

Several benefits are expected from the M-580 project including: (a) Improves logistics by avoiding costly traffic slowdowns and terminal delays; (b) Reduces costs by moving goods at competitive rates while utilizing substantially less fuel; (c) Enhances air quality by removing more than 600 tons of harmful toxic air emissions; (d) Relieves congestion by removing 350 trucks from the port and highway system with every barge move for shippers and truckers; (e) Increases safety, there are 155 times more fatalities on highways than in marine transportation.

3.7 THE BAY AREA – A REGIONAL ECONOMIC ASSESSMENT STUDY

Access Study Here.

Purpose

This 2012 study provided a comprehensive assessment of the Bay Area economy by understanding: (a) forces and trends that drive the regional economy, and (b) the impediments to stronger growth and job creation.

Key Trends, Issues and Impacts

Among other conclusions, this study found that the Bay Area enjoys unique economic assets that have enabled it to prosper across "boom and bust"

economic cycles. These unique economic assets include the high-technology and innovation sector, and the venture capital sector, which are projected to be key drivers of future employment. The study suggested that placing focus on these key sectors offers the best opportunity to generate future jobs and growth and for the region's general economic success. However, due to growing economic inequality, significant parts of the population would not share the success.

The study also included a set of surveys designed to highlight transportation system needs and issues. These surveys reveal stakeholder concerns, such as pavement and surface maintenance concerns, bridge safety and repair concerns, and complaints of growing regional congestion. In addition, the surveys found that many stakeholders are not aware of regional planning initiatives or the regional transportation planning process.

Key Strategies, Projects and Mitigation Measures

The study recommended several strategies to alleviate these issues. While not specifically focused on transportation, the following strategies were considered to have implications for future transportation trends in the Bay Area.

- **Engage Business Earlier in Individual Agency Plans**. From a transportation perspective, this could mean that a joint powers committee should be set up to be an effective vehicle for engaging business community views. In this scenario, the committee can engage its member agencies both at the inception and the final stages of new plan development, providing input at key junctures. This plan will seek to engage the private community as part of its over-arching goal.
- **Harmonize Local Regulations at the Regional Level.** To the extent possible, regulations within the region should be more streamlined and transparent. While individual jurisdictions have clear regulatory interests, in permitting for example, the lack of consistency across the region reduces transparency and raises costs. This can also apply in a transportation context, such as trucking regulations.

The study also consistently discussed the importance of continuing GHG and emissions reductions through coordinated regional planning actions.

3.8 CALIFORNIA FREIGHT MOBILITY PLAN

Access Documents Here.

Purpose

California Freight Mobility Plan is an update and expansion of the 2007 California's Goods Movement Action Plan (GMAP) (as discussed earlier in this document) that is currently under development.

Key Strategies, Projects and Mitigation Measures

When complete, the CFMP will address goods movement in California across all modes and focus on current conditions, future trends, and major issues. Many changes have occurred since the 2005 and 2007 GMAPs were developed, resulting in new considerations. These include adoption of the Sustainable Communities Strategy (SCS), adoption of GHG emission reduction targets, and new trends in interstate and global goods movement. Additionally, there is interest in increasing the focus on the freight mobility plans of partner agencies, incorporating more about trucking, and increasing focus on regional issues. The anticipated completion dates for the CFMP are June 2014 (draft) and December 2014 (final), depending on the Moving Ahead for Progress in the 21st Century Act (MAP-21) (discussed later in this document) and state legislation.

3.9 CALIFORNIA INTERREGIONAL TRANSPORTATION STRATEGIC PLAN

Access Plan Here.

Purpose

The 2012 Interregional Transportation Strategic Plan (ITSP) is a Caltrans document that provides guidance for the identification and prioritization of interregional State highway projects, specifically improvements to the California's Interregional Road System (IRRS) over a 20-year planning horizon. The IRRS was identified by statute in 1989 (Blueprint Legislation - Assembly Bill (AB) 471, Senate Bill (SB) 300 and AB 973). This plan does not program funds, and is not fiscally constrained. The IRRS include 93 State highway routes or portions of routes, including 34 high-emphasis routes and ten focus routes. This plan will become the foundation for the California Transportation Plan 2040, which is intended to be completed in 2015.

Freight (goods movement) is one of the focus topics in this plan. The plan identified San Francisco Bay Area as a significant gateway in California, with function as follows:

This area is the main northern metropolitan center and valley connection for commerce and trade, intermodal transfer, freight movement, and distribution facilities. Within this gateway are the Port of Oakland, several other smaller seaports, and two major international air passenger and cargo airports (San Francisco, Oakland, and San Jose). Congestion, due to heavily-traveled roadways, (including I-205 and I-580 over the

Altamont Pass) impedes smooth circulation and connections. Freight Rail connects to Bay Area ports, serving areas across the Sierra Nevada range, in the Central Valley, and across the Tehachapi mountain range.

Key Strategies, Projects and Mitigation Measures

The plan recognized that the 2007 GMAP marked the first generation plan that was responsible for creating the planning framework used to guide the investments from the Trade Corridor Improvement Fund, a program to fund multimodal freight projects that was included in the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, approved by the voters as Proposition 1B. All of the TCIF projects with the help of matching funds from federal, regional, local and private sources were required to begin construction by the end of December 2013. (This date was subsequently extended to allow for reprogramming of project savings.)

The ITSP recommended creating the next generation of freight projects that will address new needs and future challenges, including:

- Greenhouse gas and diesel particulate matter emissions reductions;
- Expansion of the Panama Canal;
- Significant expansions in freight handling;
- Capacity by other North American seaports;
- Larger container ships that exceed the current depth of some California ports,
- Adapting to sea-level rise,
- Bottlenecks for freight rail and trucking;
- Aging infrastructure;
- Implementation of new technologies to increase efficiency and reduce impacts;
- New national freight planning policy under MAP-21; and
- Limited funding availability in a very competitive industry.

3.10 UNDERSTANDING PARTICULATE MATTER – PROTECTING PUBLIC HEALTH IN THE SAN FRANCISCO BAY AREA STUDY

Access Study Here.

Purpose

The objectives of this 2012 study by Bay Area Air Quality Management District (BAAQMD) were: (a) to emphasize the public health, climate change and ecosystem impacts of particulate matter (PM)[5] based on recent research; and (b) to identify the sources of PM emissions in the Bay Area, current regulations and programs to reduce PM emissions and concentrations, and future technical work needed to improve the understanding of PM.

Goals and Performance Measures

The goal of air quality planning has focused so far on reducing emissions and ambient concentrations of air pollutants in order to attain State and national ambient air quality standards; however, it is recognized meeting such regional goals may not be sufficient. The goal of air quality planning should move towards reducing population exposure to air pollution, and in particular PM and as a consequence reducing public health and environmental impacts, and economic and social costs.

Key Trends, Issues and Impacts

- Most air pollutants consist of a single molecule or compound; they will have the same physical properties and public health and environmental impacts, regardless of the source. In contrast, PM is a complex pollutant composed of a wide range of disparate particles that vary in their physical properties and toxicity, and how they behave and transform in the atmosphere.
- In fall 2010, BAAQMD adopted the Bay Area 2010 Clean Air Plan (2010 CAP) to update the region's plan to control ground-level ozone. This plan also introduced a new approach to air quality planning based on integrated multi-pollutant planning focused on protecting public health, the global climate, and ecosystems. The four types of air pollutants considered by the 2010 CAP are: ground-level ozone, PM, toxic air contaminants (TACs), and greenhouse gases. BAAQMD performed a "health burden" analysis; the most important finding from this analysis is that PM is the air pollutant that poses the greatest health risk to Bay Area residents.
- PM originates from a variety of man-made processes and sources such as fossil fuel combustion, residential wood-burning, and cooking, as well as natural sources.

[5] Particulate matter (PM) refers to a complex pollutant composed of a diverse assortment of extremely small airborne particles, including a mixture of solid particles and liquid droplets known as aerosols. Source: BAAQMD, *Understanding Particulate Matter – Protecting Public Health in the San Francisco Bay Area*, Final Report, 2012.

- Health studies showed that public health impacts of PM include a wide range of respiratory (such as asthma and bronchitis) and cardiovascular (heart attacks or strokes) problems.
- PM imposes economic and social costs to Bay Area residents and employers through sickness, lost productivity and premature deaths.

Key Strategies, Projects and Mitigation Measures

- In 2003, the State legislature enacted SB 656 (codified as Health & Safety Code Section 39614). This legislation required the California ARB and local air districts including BAAQMD to evaluate potential PM control measures and to develop an implementation schedule for PM-reduction measures.
- Although, the Bay Area has made substantial progress in reducing PM levels (between 1970 and 2008 premature mortality related to air pollution has decreased from an estimated 6,400 per year to an estimated 2,800 per year; the criteria pollutant of PM2.5 concentrations design value decreased from 14 $\mu g/m^3$ for 1999-2001 to 10 $\mu g/m^3$ for 2009-2011, a 28% reduction), there are several reasons to continue to enhance the efforts to reduce PM emissions, concentrations and population exposure: (a) Health studies show that $PM_{2.5}$ exposure can have public health impacts at concentrations below current standards; (b) U.S. Environmental Protection Agency (EPA) may issue more stringent standards on $PM_{2.5}$ in the future; and (c) PM concentrations can vary significantly at the local scale.
- There is need for further research for determining the types of particles which are the most harmful to public health, instead of the current across-the-board approach to reducing PM.

3.11 I-580 INTERREGIONAL MULTIMODAL CORRIDOR STUDY

Access Study Here.

Purpose

This 2011 study was conducted for San Joaquin Council of Governments to evaluate various measures that aim to preserve and improve the productivity and efficient utilization of I-580/I-205 corridor (Altamont Pass) transportation facilities by commuters and commercial trucking. Planned/programmed near- and long-term interregional goods movement strategies to improve I-580/I-205 corridor productivity were also evaluated.

Key Trends, Issues and Impacts

The study examined the existing and future conditions of goods movement for the I-580/I-205 corridor.

- The study identified transportation alternatives as relief routes for goods movement. The I-580/ I-205 corridor is one of four routes between the Bay Area and the San Joaquin Valley that effectively connects I-880 to I-5 (and to Highway 99) over I-238, I-580, and I-205. The other routes are widely separated resulting in minimal competition between them, with each almost exclusively serving a combination of origin and destination territories. The I-580/I-205 corridor dominates truck routings between the East Bay and the middle portion of the Central Valley. For locations in northern parts of San Joaquin Valley and for access to I-80 over Donner Pass, the I-80 Corridor (including I-680) dominates truck routings. For points south of Turlock and access to I-40, I-15, and Southern California, SR-152 is shorter although slower. SR-4 provides a potential alternate truck route to the I-580/I-205 corridor. Between I-80 and Antioch, SR-4 is a multi-lane freeway. However, east of Antioch toward Stockton, SR-4 is still a two-lane rural road unsuitable for regular use by heavy-duty trucks. Also, the slough crossings on either end of Victoria Island have narrow drawbridges with curves that large trucks would have trouble negotiating safely.
- The study estimated that the I-580/I-205 corridor consists of 13% port related trucks and the rest are not related to ports.
- The study developed future truck volume projections for 2020 (near-term) and 2035 (long-term) for segments of I-580/I-205 corridor using a growth factor method applied on truck counts and were compared with the Alameda CTC truck model for reasonableness. The study found that:
  - The regional employment growth rates are closer to the projected transportation volume growth;
  - Truck, rail, and trade volume growth are expected to outpace employment and population growth between 2010 and 2015;
  - Beyond 2015, the employment, population, and truck traffic growth rates are both more modest and fairly consistent. Rail carload traffic growth will remain slow, but is less likely to directly affect truck traffic in the Altamont Pass corridor; and
  - Rail intermodal traffic and containerized trade are expected to grow somewhat faster than the other factors beyond 2015. This trend may tend to accelerate the growth of truck traffic in the Altamont Pass corridor.

Key Strategies, Projects and Mitigation Measures

The study evaluated several planned/programmed short- and long-term goods movement strategies in terms of changes in trucking volumes, level of service

under future year conditions, and on-road mobile source GHG emission reductions on the I-580/I-205 corridor.

- In the short-term, the new marine highway service to/from the Port of Stockton is the only project that can reduce demand for truck freight in the corridor.
- In the long-term, projects involving short-haul rail intermodal service have the greatest potential to divert heavy duty truck trips off of I-580.
- Truck climbing lanes are expected to improve level of service of I-580 from Junction I-580/I-205 to Flynn Road in both directions for the 2020 analysis year. By 2035, however, the operational benefits of removing truck traffic from the mixed flow lanes will not be sufficient to achieve acceptable levels of service in the mixed flow lanes.
- The estimated goods movement truck reductions from both short- and long-term improvement strategies will not be sufficient in of themselves to exact a noticeable operational improvement on the I-580.
- Construction of passenger rail that is separated from freight rail lines would provide benefits to both passenger rail and long-haul freight rail both in terms of system capacity and reducing schedule conflicts between passenger and freight rail. However, given that most freight that moves by rail along the Altamont Pass corridor is long-haul, a significant reduction in short-haul truck freight between the San Francisco Bay Area and San Joaquin Valley on the I-580 is not anticipated.

The study also made some policy recommendations for goods movement.

- Support projects/programs that develop or enhance short-haul intermodal rail service between the Port of Oakland and the Port of Stockton and San Joaquin Valley.
- Support intermodal container manufacturing in Northern San Joaquin County.
- Support, where applicable, upgrades to sections of the State Route system (SR-12/ SR-160/ SR-4/ SR-242/SR-24) and I-880 between the San Joaquin Valley and the Port of Oakland to Surface Transportation Assistance Act of 1982 (STAA) Standards.
- Renew support for sponsoring and programming state and federal discretionary transportation funds to provide truck climbing lanes and exclusive truck right-of-way, where feasible, on I-580.
- Consider supporting dredging operations to facilitate larger container ship services between the San Francisco Bay Area and the Port of Stockton.

3.12 PORT ACTIVITY AND COMPETITIVENESS TRACKER (PACT) PROGRESS REPORT

Access Report Here.

Purpose

The study summarized the key factors that help determine the competitiveness of the San Pedro Bay ports by comparing metrics between other West Coast and U.S. ports. The study contained information about Port of Oakland facilities, terminals, and expansion plans, and also the effects of competition factors on the U.S. West Coast ports.

Key Trends, Issues and Impacts

The study discussed trends, issues and impacts as follows.

- The share of total container volumes of the West Coast ports has shifted from U.S. West Coast ports to Canadian and Mexican West Coast ports, partly due to the success of Prince Rupert in Canada, and partly due to a "four corners" logistic strategy adopted by some large import shippers which involves diversifying route structure as a hedge against potential congestion in urbanized areas and labor strife in the West Coast ports. The share of Port of Oakland in 2009 was about 8.7% of the total for West Coast ports, and has fluctuated slightly over the years.
- Since 2006, the share of total container volumes in North America has shifted from U.S. West Coast ports to U.S. East Coast ports (Atlantic and Gulf Coast ports). This is likely to further increase with the expansion of Panama Canal.
- Dockage rates[6] in Seattle and Tacoma are considerably higher than at other West Coast ports, including Port of Oakland.
- Prince Rupert port has two-day Asia shipment-time advantage over San Pedro Bay ports; the advantage declines moving south of Prince Rupert port.
- The reliability of all-water ocean service works well for East Coast markets, but retailer and importers shipping to interior destinations have not switched to all-water service in great numbers. Nevertheless, eastern railroads are investing heavily in infrastructure to improve networks from East Coast ports to interior destinations such as Chicago and the Ohio Valley.

[6] Dockage rates are charges for the use of a berth that are typically assessed based on the duration of a vessel's stay and length overall. Source: http://www.seinemaritime.net/suports/uploads/files/Glossary%20of%20Port%20and%20Shipping%20Terms.pdf (last accessed on Jan 27 2014)

- San Pedro Bay ports have a high reliability of service, due to the high frequency of both vessel service and rail service at the ports.

Key Strategies, Projects and Mitigation Measures

The expansion proposals at West Coast ports, including Port of Oakland were described in this study. The planned long-term capacity at the Port of Oakland in acres was reported as 7,640,000 TEUs.

The study recommended the following key tracking indicators: (a) Comparison of TEUs Shipped by Port; (b) Comparison of Trade Value by Port; (c) Comparison of Trade Weight by Port; (d) Ocean carrier rates; (e) Comparison of infrastructure development programs; (f) Comparison of environmental programs; and (g) Rail transit time and other service-level indicators to key hubs like Chicago.

3.13 CORRIDOR SYSTEM MANAGEMENT PLANS ON I-80, I-880 AND I-580

Access Plans Here.

Purpose

Caltrans develops Corridor System Management Plans (CSMP) in consultation with local stakeholders to outline the multi-jurisdictional and multi-modal management of a corridor experiencing delay due to congestion. Analyses encompass state highways, local roadways, transit, and other transportation modes. A CSMP results in a listing and phasing plan of recommended operational improvements, intelligent transportation system (ITS) strategies, and system expansion projects to preserve or improve performance measures within the corridor. CSMPs were required for all projects receiving Proposition 1B (2006) Corridor Mobility Improvement Account (CMIA) funding.

CSMPs developed in 2010 for the corridors of I-80 West, I-580 and I-880 were reviewed in the context of identifying bottlenecks and safety issues, and strategies and improvements designed to address them.

Goals and Performance Measures

Typical objectives of a CSMP Corridor plan are as follows: (a) Reduce recurring and non-recurring delay within the corridor; (b) Reduce variation of travel time; (c) Reduce accident and injury rates; (d) Restore lost lane miles (productivity), (e) Reduce distressed lane miles.

Typical performance measures used in a CSMP Corridor plan are as follows: (a) Vehicle Hours of Delay (VHD) for mobility, (b) Travel time for reliability, (c) Traffic Accident and Surveillance Analysis Systems (TASAS) data accident and

injury rates for safety, (d) equivalent lost lane miles for productivity, and (e) pavement condition data for system preservation.

Key Trends, Issues and Impacts

The bottleneck and safety issues from the different CSMPs that affect goods movement in Alameda County are described as follows:

- I-80 W CSMP
  - A portion of the CSMP corridor, between the San Francisco Bay Bridge and I-580 (in Albany), falls inside Alameda County.
  - The weekday commute period bottleneck locations in this portion of the highway were identified as follows: (a) Westbound I-80 at Powell Street on-ramp (AM peak), (b) Westbound I-80 at I-80/I-580/I-880 diverge (PM peak), (c) Westbound I-80 at Gilman Street on-ramp (AM peak), and (d) Eastbound I-80 at I-580 off-ramp (AM and PM peak).
  - In the near-term (2015), the CSMP forecasted that freeway volumes will increase by approximately 13 percent. Due to instability in the system in the future, freeway vehicle hours of delay (VHD) is projected to increase by 50 percent for westbound I-80 in the AM and 100 percent for eastbound I-80 in the PM.
  - In the long-term (2035), total vehicle demand is forecasted to increase by 51.9% during the AM peak hour and 47.4 % during the PM peak hour by 2035. Delays will increase significantly, and speeds will decrease significantly.
  - In Alameda County, based on 2004-2007 TASAS safety data, the entire portion of I-80 experienced an accident rate of over 2 accidents per million vehicle miles, which is much higher than the statewide average of about 1.3 accidents per million vehicle miles, indicating that safety is a major concern on this corridor.
- I-880 CSMP
  - A portion of the CSMP corridor, between 7th Street (in Oakland) near the San Francisco-Oakland Bay Bridge and Dixon Landing Rd (in Milpitas), falls inside Alameda County.
  - In 2008, this corridor acted as a key international trade corridor and had the highest volume of five-axle trucks in the region. More recent studies such as the Regional Goods Movement Study for the San Francisco Bay Area indicate that this is valid even today.
  - The bottleneck locations in this portion of the highway were identified as follows: (a) Northbound I-880 at Tennyson Avenue (in AM and PM peak), (b) Northbound I-880 at Davis Street (in AM peak), (c) Northbound I-880 at 23rd Street (in AM peak), (d) Southbound I-880 at 98th Avenue (in

PM peak), (e) Southbound I-880 at Marina Boulevard (in AM and PM peak), (f) Southbound I-880 at Dixon Landing Rd (in AM and PM peak).

- Based on the reported data from 880 HOV extension project between Marina Boulevard and Hegenberger Rd presented in this CSMP, by 2035, the AM peak hour average speed will become 53 mph, whereas the PM peak hour average speed will become 42 mph.
- In Alameda County, based on 2004-2007 TASAS safety data, I-880 segments N of SR-92/I-880 interchange to S of Hesperian Boulevard and S of I-980/I-880 interchange to S of I-80W/80E split experienced accident rates of about 1.26 and 1.29 accidents per million vehicle miles, which are slightly higher than the statewide average accident rates of about 1.11 and 1.14 accidents per million vehicle miles, respectively. All other locations on I-880 in Alameda County had accident rates lower than statewide average accident rates over this study period.

- I-580 E CSMP
  - This is the entire CSMP corridor between I-580 at the I-580/I-205 interchange near the San Joaquin/Alameda County line to the I-880/I-238 interchange.
  - In 2008, this corridor carried the second-highest volume of truck traffic in the region and the heaviest trucks; it provided connections to and from Port of Oakland from and to the Central Valley and the national interstate truck network . More recent studies such as the Regional Goods Movement Study for the San Francisco Bay Area indicate that this is valid even today.
  - The plan expected that many of the bottlenecks currently active in 2008 will dissipate in 2015 due to the widening of I-238, the addition of HOV lanes in Dublin/Pleasanton, ramp metering, and the construction of the eastbound truck climbing lane east of Greenville Road leading up to the Altamont Pass. However, new bottlenecks will arise in other locations as a result of increased demand.
  - Alameda County Congestion Mitigation Agency (ACCMA) model indicates that the peak period traffic demand on the I-580/I-238 freeway corridor was forecasted to have varying growth along its length, in the range of 32% and 110%, between 2008 and 2035. Higher growth rates were forecasted on I-580 east of Greenville Road in Livermore and I-238 near the interchange with I-880.
  - The daily vehicle hours of delay (VHD) on the freeways was forecasted to increase by up to 89% in the AM Peak and by up to 38% in the PM Peak in 2015. Also, the levels of congestion were becoming unpredictable. By 2035, the plan expected severe congestion if no additional improvements are made.

- Between 2005 and 2008, the overwhelming majority of incidents on the Corridor were non-accident incidents. The section of I-580 between I-680 and I-205 experienced the greatest number of incidents.
- The plan found insufficient through capacity on I-238 between I-880 and I-580 in San Leandro, on I-580 between the Tassajara Road/Santa Rita Road interchange in Dublin/Pleasanton and the Airway Boulevard interchange in Livermore. Also, there was an off-ramp capacity bottleneck for westbound I-580 at the I-680 interchange.
- Upward grade operational problems are present on the approaches to the Altamont Pass between Livermore and Tracy.
- Increasingly, regional distribution centers have located in the San Joaquin Valley and trucks providing goods to the Bay Area use this corridor for access.
- Growing competition between freight rail needs and passenger rail needs seen on the Altamont Pass Corridor (I-580).

Key Strategies, Projects and Mitigation Measures

The strategies and improvements recommended in the different CSMPs that would benefit goods movement in Alameda County are described as follows:

- I-80 W CSMP
  - Near-term recommended - implement the I-80 Integrated Corridor Mobility (ICM) project over the near-term which involves system management strategies and integration with the East Bay SMART Corridors Program.
  - Intermediate-term - expanded or enhanced deployment of ICM capabilities; minor to moderate geometric improvements to both the freeway and arterial network; improved connectors between roadways; signalization of un-signalized interchange intersections.
  - Long-term – revised goods movement strategies such as dynamic truck restrictions in conjunction with queue warning; signage to designate truck routes and time of day restrictions; construct satellite freight consolidation facility, etc.; large-scale ITS improvements using Connected Vehicles (erstwhile IntelliDrive) technologies.
  - The recommended studies that are likely to benefit goods movement include: (a) I-580E to I-80 W ramp metering plan, (b) I-80/I-580/SR-24 maze area design plan.
- I-880 CSMP
  - Near-term recommended (2012) – advanced ramp metering; advanced traveler information.

  - Long-term planned (2013-2020) –TCIF project at 23rd and 29th Street overcrossings in Oakland.
  - Central County Freeway Study LATIP – I-880 ICM/Adaptive ramp metering; I-880 Auxiliary lanes projects between Paseo Grande and Winton Ave, and between Whipple Rd and Industrial Parkway West; I-880 interchange improvements at Industrial Parkway, Davis Street, Marina Boulevard, Whipple Road, West A Street, West Winton Avenue, Washington Boulevard .
  - SR-84 Study LATIP – I-880 interchange improvements at Mission Boulevard; I-880 Integrated Corridor Mobility (ICM)/Traffic Operations System (TOS), south of SR-92; I-880 Auxiliary lanes project between Dixon Landing Road and Alvarado-Niles Road.

- I-580 E CSMP
  - Near-term - ITS improvements such as corridor-wide ramp metering, I-580 Transportation Management Plan (TMP); Signal optimization on surface streets such as East Lewelling Boulevard and Hesperian Boulevard; Augmented Freeway Service Patrol; Accelerated planned auxiliary lane and ramp improvements such as WB auxiliary lane between N. Livermore Avenue and Isabel Avenue, Increase ramp storage capacity for Hacienda Loop on to I-580 EB.
  - Long-term - I-580 major interchange improvements such as Construct Direct Ramp I-580 WB to I-680 SB - w/mixed flow lanes plus 1 HOT lane, Reconstruct Greenville Road interchange; surface street capacity improvements such as Widen SR-84 to 4 lanes divided expressway I-680 to Isabel Avenue to Stanley (takes away some freight from I-680/I-580 Interchange); Double Track Union Pacific (ACE) rail line Tracy to Livermore; Altamont rail Corridor Speed and Safety Improvements (90 mph).

3.14 MTC GOODS MOVEMENT INITIATIVES – 2009 UPDATE

Access Study Here.

Purpose

This 2009 study is a summary of all significant goods movement-related efforts that were undertaken since the 2004 *Regional Goods Movement Study for the San Francisco Bay Area*. Specifically, it included information on two key initiatives: TCIF and the implication of local land use decisions on the goods movement system. The study also included updates about funding programs and other goods movement initiatives pertinent to the region.

Key Strategies, Projects and Mitigation Measures

As explained under the California Goods Movement Action Plan later, the California Transportation Commission (CTC) is responsible for a voter approved $2 billion Trade Corridors Improvement Fund (TCIF). The CTC consulted the goods movement action plan and recommendations by Business, Transportation and Housing Agency (BTH) and California Environmental Protection Agency (Cal/EPA) in determining eligible projects on the State's four "port-to-border" goods movement corridors/regions. The TCIF projects selected in Northern California were primarily concentrated along two high priority goods movement corridors: the Central Corridor (Port of Oakland along I-80 to Sacramento and I-5 across the Sierra Nevada mountain range); and the Altamont Corridor (Port of Oakland, along I-880/238/580 to the Central Valley). Because the needs far outweigh current funding levels, a phased approach was adopted and TCIF identified a Tier 1 list of priority projects that best met the criteria of the program, and a Tier 2 list of potential projects to consider should funding be available in the future. Tier 1 totaled $940 million and includes 15 Northern California projects. Tier 2 projects totaled $470 million and were not recommended for initial TCIF funding. The Tier 1, adopted when the TCIF program was approved, included seven projects in the Bay Area, including two port projects, one grade-separation project, three highway projects, and one rail project. It should be noted that over the years several projects have been dropped or changed, and the California Rail Plan contains more updated information about rail TCIF projects. For the Alameda County Goods Movement Plan, we will ensure that the most up-to-date information about TCIF projects in the Bay Area is included.

The 2009 Update also summarized the key points from the 2008 *Goods Movement and Land Use Study*. To recap, the 2008 *Goods Movement Land Use Study* found that future demand for industrial land and goods movement needs are projected to create adverse transportation, environmental, and economic consequences. MTC acknowledged it would continue to work on strategies to address the negative impacts through the *Focusing our Vision*[7] (FOCUS) program and information sharing, as well as understanding land use best practices.

Finally, the study reviewed several additional goods movement efforts, including the Goods Movement Emission Reduction Program and the Community Air Risk Evaluation Program. Other ongoing efforts such as container fees at Port of Oakland, as well as the West Coast Corridor Coalition were reviewed.

[7] http://www.mtc.ca.gov/planning/smart_growth/.

3.15 WEST COAST CORRIDOR COALITION TRADE AND TRANSPORTATION STUDY

Access Study Here.

Purpose

The West Coast Corridor Coalition (WCCC) was launched in November 2001 by transportation policy leaders in California, Oregon, Washington and Alaska to address the looming challenge of goods movement in the Pacific states.

West Coast Corridor Trade and Transportation Study is a study completed in 2008 which was the first examination of the freight-related needs and deficiencies in the West Coast transportation system as an integrated whole. It identified regional, systemwide issues and developed a foundation to allow the Coalition and its members to address issues and chokepoints that cross jurisdictional, interest (i.e., public/private), and financial boundaries. It was a first step by members to inform decision makers about the importance of the Corridor as an imperiled driver of economic growth and innovative technology.

Key Trends, Issues and Impacts

The study made some key findings on goods movement trends, issues and impacts:

- Trade Flow Trends - Since 1996, the West Coast has gained a larger share of both the nation's container and international air cargo shipments. In 2006, West Coast seaports, led by Los Angeles, Long Beach, Seattle, Tacoma, and Oakland, handled over one-half of all containerized shipments of the U.S., and 8.4 million tons of overseas freight, 42 percent of the U.S. total. The share of West Coast ports with Asia-Pacific out of the total trade between U.S. and Asia-Pacific was also expected to grow over time. This growth will impact both east-west and north-south movements in the West Coast region. On top of this, domestic freight shipments among the West Coast metropolitan areas are expected to grow.
- Population Trends - The West Coast, is growing at a faster rate than rest of the U.S., and this growth has been overwhelmingly concentrated in the region's urban areas, especially, the 3 megaregions, Southern California (Greater Los Angeles-San Diego), Northern California (San Francisco Bay-Sacramento), and "Cascadia" (Portland-Seattle-Vancouver).
- Issues and Impacts - Although the West Coast region's freight transportation system is managing existing demand, there are several physical, operational, and institutional issues in the region will not allow trade and transportation system to absorb anticipated growth in freight demand. These growth patterns will make it difficult for the region to expand system capacity without significant environmental, social and financial costs. On the other

hand, in the absence of system capacity expansions, major chokepoints on the region's highway and rail systems will impact system reliability, constrain port growth and efficiency, and impact international and domestic trade among West Coast megaregions.

- Bay Area's chokepoints were identified in this study as congested urban interchanges and port rail yard congestion.

Key Strategies, Projects and Mitigation Measures

The study identified strategies to address the challenges:

- Working with Federal partners to invest in national significant projects;
- Making targeted, system-level investments across jurisdictional boundaries;
- Promoting innovative approaches to solving congestion;
- Developing freight investment models that incorporate market and sustainability principles; and
- Balancing community interests with system expansion needs.

3.16 GOODS MOVEMENT AND LAND USE STUDY FOR THE SAN FRANCISCO BAY AREA

Access Study Here.

Purpose

This 2008 study was conducted by Metropolitan Transportation Commission (MTC) and was built off of the 2004 *Regional Goods Movement Study for the San Francisco Bay Area* by focusing specifically on land-use issues along the East Bay I-80/880 corridor and the North Peninsula U.S. 101 Corridor. The study goals included: (a) understand current and future land use patterns and trends and the transportation, environment, and economic implications of these trends; and (b) identify implications of local land use decisions.

Key Trends, Issues and Impacts

The study found that within the Bay Area there are two tiers of goods movement industries. The first tier include transportation, manufacturing, wholesale trade, refineries, and other energy industries, where goods movement is of high importance, and which exhibit frequent vehicle trips. These account for over 70 percent of businesses in 2006. The remaining 30 percent represent other industries, such as construction, high-technology, and other transport support industries. Together, these industries are very important for the region's economy and are responsible for 49 percent of employment.

The study made a forecast prior to the 2008-2009 recession that employment in these industries would grow 1.62 percent annually to 2035; and growth is led by transportation, wholesale trade, and high-technology industries. This growth translates into high demands for industrial and other lands, which coupled with decreasing supply, will pose significant land use shortage issues in the future. Although, the recession has affected the short-term growth rates, there are still likely to be land supply related issues similar to those identified by the study in the long run.

To fully understand the effects of this shortage, the study established two scenarios as follows: (a) existing supply remains and (b) trends continue. Under the trends continue scenario, the demand for industrial land in central areas will greatly exceed supply; and this will likely result in an outward dispersion of goods movement activities (i.e., businesses relocating out of the central Bay Area corridors). The potential consequences could include displacement of 87,000 jobs; increases of costs of goods at $119 million per year or $47 per truck trip; shift in 8,400 daily truck trips per day to new and longer routes, additional 347,900 truck vehicle miles traveled (VMT) per day, additional 6,200 vehicle hours traveled (VHT) per day, about a two-percent increase in PM emissions and other air quality impacts.

Types of industries most likely to shift outward include those that require large sites, freeway access, serve markets beyond Bay Area and are sensitive to location costs (such as manufactures, wholesale, and construction). The transportation implication of this outward shift will mainly affect I-580 since it will be the main artery linking them back to the Bay Area.

Key Strategies, Projects and Mitigation Measures

The study recommended that a regional approach to industrial land supply and goods movement is needed, as well as initiatives to support industry's role in a more balanced approach to Smart Growth.

3.17 CALIFORNIA GOODS MOVEMENT ACTION PLAN

Access Plan Here.

Purpose

The 2007 California Goods Movement Action Plan (GMAP) was an initiative of the Schwarzenegger Administration to improve and expand California's goods movement industry and infrastructure.

Goals and Performance Measures

For this plan, the goals set by the Administration were: (a) Generate jobs; (b) Increase mobility; (c) Relieve congestion; (d) Improve air quality; (e) Protect public health; (f) Enhance safety; and (g) Improve overall quality of life.

Business, Transportation and Housing Agency (BTH) and California Environmental Protection Agency (Cal/EPA) built a "framework for action" on a performance measurement platform. The framework was based on 22 guiding principles that are aligned with the goals of the Administration. The principles can be grouped into five thematic considerations: (a) Consider the four port-to-border corridors as one integrated system, (b) Undertake simultaneous and continuous improvement in infrastructure and mitigation, (c) Pursue excellence through technology, efficiency, and workforce development, (d) Develop partnerships to advance goals, and (e) Promote trust, provide for meaningful public participation, and ensure environmental justice consistent with state law.

Evaluation criteria consistent with the defined principles were defined for infrastructure and operational improvements, environmental impact mitigation, community impact mitigation and workforce development, and public safety and security. Performance metrics were established where appropriate to quantify and assess outputs and outcomes relative to expectations.

Key Strategies, Projects and Mitigation Measures

The plan identified approximately 200 preliminary candidate actions (projects/programs) on the State's four "port-to-border" goods movement corridors: Los Angeles-Long Beach/Inland Empire, Bay Area, San Diego/Border, and Central Valley that fall under the four categories: (a) Infrastructure and operations projects, (b) Public health and environmental impact mitigation, (c) Community impact mitigation and workforce development, (d) Homeland security and public safety. The actions were also sorted into the time frames of immediate, short-term (0-3 years), intermediate-term (4-10 years) and long-term (10+ years). The total capital cost for the candidate actions was approximately $15 billion.

The total cost for goods movement-related emission reduction strategies, as compiled by the California Air Resources Board (ARB) in the Emission Reduction Plan for Ports and Goods Movement in California (April 2006), was estimated to be between $6 billion and $10 billion.

As approved by the voters on November 7, 2006, Proposition 1B set forth the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. $2 billion was transferred to the Trade Corridors Improvement Fund (TCIF) and the California Transportation Commission (CTC) was made responsible for the fund allocation. The CTC was required to consult this goods movement action plan in determining eligible projects. This plan also contains several recommendations BTH and Cal/EPA that were made to the CTC on allocation to projects.

Similarly, BTH and Cal/EPA also made recommendations to California Air Resources Board (ARB) on the allocation of Proposition 1B amount of $1 billion to air pollution projects.

3.18 CENTRAL COAST CALIFORNIA COMMERCIAL FLOWS STUDY

Access Study Here.

Purpose

Using a Caltrans Partnership Planning Grant, Association of Monterey Bay Area Governments (AMBAG), Caltrans District 5, Council of San Benito County Governments (SBCOG), Santa Barbara County Association of Governments (SBCAG), San Luis Obispo Council of Governments (SLOCOG), Santa Cruz County Regional Transportation Commission (SCCRTC), Transportation Agency for Monterey County (TAMC) jointly conducted a study to understand commodity flow patterns, identify goods movement issues and needs, and identify strategies/actions to improve the effectiveness of the freight system for a five-county region of Central Coast.

The main reason for reviewing this plan is that there are substantial interregional flows between the Central Coast region and the Bay Area region including Alameda County. Port of Oakland in Alameda County acts as a major import/export facility for this region.

Key Trends, Issues and Impacts

The study made some key findings on goods movement trends, issues and impacts:

- The region's population grew by about 5.1 percent from 2000 to 2010, by 2040 it is expected to grow by 30 percent above 2010 levels. The region's economy grew in terms of contribution to gross domestic product (GDP) from $48 billion in 2001 to $53.8 billion in 2009. Together, these trends indicate that the commodity flows are likely to grow in the Central Coast region.
- The region's key freight-dependent industries Agriculture, Manufacturing, and Truck Transportation/Warehousing, are critical to the region in terms of jobs and contribution to the regional economy. Agricultural production, in particular is concentrated in the Salinas Valley, Santa Maria Valley and eastern Santa Barbara County.
- The Central Coast region is a net exporter of goods (by volume), the outbound flows make up about 55 percent of the total tons and is a major exporter of agricultural products, sand and gravel, and petroleum products.

In the range of 1-2.5 million tons a year of the outbound flows reach each of East Bay Area and San Joaquin Valley regions.

- About 82 percent of the cargo is moved by trucks, and only 4 percent is moved by rail. While U.S. 101 is the primary artery for interregional flows, east-west connections such as SR-152 and SR-46 help access I-5. The interregional rail service is provided by UP and traffic is contributed by a shortline of Santa Maria Valley Railroad.

Key Strategies, Projects and Mitigation Measures

The study identified strategies/actions to improve effectiveness of the freight system, that were developed in collaboration with Freight Action Strategy Taskforce (FAST) and stakeholders:

- Identified a prioritized list of freight projects developed using an extensive stakeholder outreach based framework;
- Identified potential locations and type of truck parking facilities based on regional business needs;
- Recommended potential freight system performance metrics;
- Maintaining focus on improving / maintaining U.S. 101 for freight movements (key connection to Bay Area and Southern California);
- Enhancing connections to the California Central Valley (between U.S. 101 and I-5);
- Identifying intermodal rail opportunities;
- Developing a regionwide truck count and classification program;
- Reformulating the structure and objectives of the FAST;
- Developing strategic partnerships with regional trading partners; and
- Identifying future funding opportunities.

3.19 EMISSION REDUCTION PLAN FOR PORTS AND GOODS MOVEMENT IN CALIFORNIA

Access Plan Here.

Purpose

California Air Resources Board (ARB) approved the Emission Reduction Plan for Ports and Goods Movement in California on April 20, 2006. This plan is an essential component of California's effort to reduce community exposure to air pollution and to meet new federal air quality standards for ozone and fine

particulate matter ($PM_{2.5}$). It also implements the California Goods Movement Action Plan (GMAP) as discussed earlier in this document.

Goals

The goals of this plan are: (a) Reduce total statewide international and domestic goods movement emissions to the greatest extent possible and at least back to 2001 levels by year 2010; (b) Reduce the statewide diesel PM health risk from international and domestic goods movement 85 percent by year 2020; (c) Reduce NO_X emissions from international goods movement in the South Coast 30 percent from projected year 2015 levels, and 50 percent from projected year 2020 levels based on preliminary targets for attaining federal air quality standards; (d) Apply the emission reduction strategies for ports and goods movement statewide to aid all regions in attaining air quality standards; and (e) Make every feasible effort to reduce localized risk in communities adjacent to goods movement facilities as expeditiously as possible.

To achieve these goals, the plan considered actions at all levels of governments and partnership with the private sector to be essential.

Key Mitigation Measures and Benefits

The plan strategies needed to reduce emissions include regulatory actions, incentive programs, lease agreements, careful land use decisions and voluntary actions by goods movement source. Some of the initiatives and regulations were already ongoing or completed when the plan was being prepared, while others were newly being considered for implementation; example of the latter are shown below:

- Ships/Commercial harbor craft – expanded vessel speed reduction programs, cleaner marine fuels, shore based electric power, extensive retrofit of existing engines, and others.
- Cargo handling equipment – ARB rule for gas industrial equipment, zero or near zero emission equipment, and others.
- Trucks – ARB private truck fleets rule, port truck modernization, and others.
- Locomotives – more stringent national requirements, concentrate Tier 3 locomotives, and others.

As part of this plan, ARB staff estimated the statewide and San Francisco Bay Area levels of these pollutants in tons per day by goods movement source under existing and with full implementation of plan strategies conditions. The plan described unique challenges and opportunities for each of the goods movement sources.

As part of this plan, ARB staff also estimated the public health impacts and economic value of the plan strategies for goods movement system in California and in San Francisco Bay Area, including number of cases avoided in 2020 of

premature deaths, cancer risk, respiratory illnesses, heart disease, work loss days, restricted activity days, and school absence days. The emissions of diesel particulate matter and gases that form ozone and particulate matter are key pollutants associated with these health effects.

This plan provided ARB the basis for the allocation of $1 billion Proposition 1B: Goods Movement Emission Reduction Program.

3.20 REGIONAL GOODS MOVEMENT STUDY FOR THE SAN FRANCISCO BAY AREA

Access Study Here.

Purpose

This 2004 study helped metropolitan transportation commission (MTC) develop priorities for allocating transportation funds for goods movement activities, provide local decision-makers with economic impact information to consider when making infrastructure and land use decisions, and prepare a common freight platform for MTC and its partners for federal advocacy and regional planning efforts. The goods movement needs and strategies were incorporated in the MTC's Regional Transportation Plan from 2005 through 2030.

Goals and Performance Measures

The study identified goods movement goals for the Bay Area as follows:

- Ensure the economic viability of the Bay Area's international gateway facilities and will ensure that regional businesses have access to efficient transportation;
- Provide for the efficient delivery of goods and services to the residents of the Bay Area;
- Improve the safety, reliability and environmental quality of the goods movement system and neighboring communities; and
- Support and enhance the regional Smart Growth strategies.

Key Trends, Issues and Impacts

Since the study was completed in 2004, only those key trends, issues and impacts that were related to the future of the goods movement system in the Bay Area are discussed as follows:

- Regional development trends exert market and regulatory pressures on existing goods movement land uses in central bay-side locations. Such impediments to shipping freight could lead some industries to relocate.

- As transportation and warehousing move to the outer Bay Area and there is more "just in time" delivery, concentrations of goods movement on a few regional corridors such as I-880 and I-580 would increase and the freight peak periods on these corridors would spread out. This creates safety, air quality, and other issues.
- Rail at-grade crossings, especially those on facilities parallel to I-880 and I-80, pose significant operational problems for the freeway and arterial system. In addition, more capacity to address conflicts between freight and passenger rail on Capitol Corridor and Altamont Corridor may be needed.
- Access at the Port of Oakland will increasingly become an issue in light of increased traffic, and rail capacity may constrain port growth in the future.
- Constraints such as access to specialized airports during peak periods and with limited cross-bay connections, and availability of air cargo storage and sort facilities may prevent airports in the Bay Area from meeting future air cargo needs.

Key Strategies, Projects and Mitigation Measures

The study discussed the following key strategies, projects and mitigation measures:

- I-880 corridor strategy that included (a) bottleneck capacity improvements; (b) intelligent transportation systems (ITS) solutions; (c) correction of design deficiencies; (d) improvement to connecting and parallel streets; and (d) industrial preservation of land-use strategies;
- Interregional Gateway Strategy that included improvements and projects along I-580, I-80, State Route 152, and U.S. 101;
- Rail investment strategies included the creation of a new program of cost-sharing funding for rail grade-crossing projects, and providing short-term operating subsidies for short-haul intermodal rail services;
- Marine investment strategies included port access improvements and public/private information system technologies;
- Air cargo investment strategies included improved cross-bay connections to the airports;
- Better planning to make smarter decisions included establishing a truck route planning program, developing a plan to prioritize and fund rail grade crossings, travel-demand model improvements, leadership in regional goods movement/land-use planning, and better airport/seaport planning;
- Improve connection between land use and goods movement included consideration of the impacts of local land-use decisions on regional goods movement costs, efficiency, and the environment; and

- Funding programs included suggestions to fund projects, such as the Interregional Transportation Improvement Program and the Global Gateways Program, as well as other federal-level funds.

3.21 AT A CROSSROADS IN OUR REGION'S HEALTH: FREIGHT TRANSPORT AND THE FUTURE OF THE COMMUNITY HEALTH IN THE SAN FRANCISCO BAY AREA

Access Report Here.

Purpose

The Pacific Institute is a non-profit organization based in Oakland, California that conducts research, recommends solutions, and works with decision makers, advocacy groups, and the public to create healthy, sustainable communities. The institute carried out a study in 2011 that identified: (a) how many areas prioritized in the Bay Area for future development (Priority Development Areas or PDAs) overlap with communities with high health risks from toxic air contaminants (CARE communities), and how they are affected by freight transport-related land uses; (b) potential locations for development in the study region that minimize conflicts between freight transport-related land uses and the communities; and (c) policies and measures that can support regional growth while improving health of communities.

The study used health-protective distances from freight transport–related land uses as a proxy for emissions-related impacts, and combined this spatial data with PDA-CARE community areas. The distances included 500 feet for freeways, warehouses, and distribution centers; 1000 feet for rail yards; 1500 feet for sea ports; and 2000 feet for airports. The authors identified sensitive receptor areas including schools, parks, hospitals, and churches and the acreage designated for residential land use.

Key Trends, Issues and Impacts

- One-fourth (26%) of the land in Priority Development Areas that intersect with CARE communities overlaps with a freight transport buffer zone where it is unadvisable to site sensitive land uses. Particularly, Alameda County accounted for 8,866 acres of such area out of the total of 18,775 acres of such area in the study region.
- Many sensitive land uses like schools, parks, hospitals, and churches already exist in Priority Development Areas within freight transport buffer zones. In Alameda County alone, 30 parks, 45 schools, 5 hospitals and 87 churches

within CARE-impacted PDAs are located within a distance from freight transport hazards that is unadvisable for sensitive land uses. Correspondingly, in the study region there are 54 parks, 74 schools, 9 hospitals and 119 churches.

- Nearly one-fifth (17%) of the land in freight transport buffer zones within PDAs in CARE communities is designated for residential land uses. In particular, Alameda County accounted for 1,885 acres of such area out of the total of 3,249 acres of such area in the study region. Maps indicating the various impacts are included in the study report. It should be noted that health impacts of densification and smart growth development in PDAs with known air quality issues are complex. While there are disbenefits in terms of increased exposure, there are also benefits in terms of built environments more conducive to walking and biking, as discussed in Plan Bay Area.

Key Strategies, Projects and Mitigation Measures

The study recommended the following strategies

1. Prioritize siting new housing, schools, parks, clinics, and other sensitive land uses in portions of Priority Development Areas that fall outside of health-protective buffer zones around freight-related land use.
2. Prioritize siting more suitable land uses such as commercial and light industrial land uses within portions of Priority Development Areas in close proximity to freight transport hazards, to create jobs, advance community economic development, and accommodate future growth while protecting health of workers.
3. Provide One Bay Area Grant Funds to developers building affordable housing in high health risk areas to pay for mitigation measures, especially those addressing freight transport-related land use impacts. The mitigation measures can include installing indoor air filtration systems, triple-paned windows, and noise barriers.
4. Encourage local jurisdictions to adopt a health-protective local policy measure such as the City of Oakland's Air Quality Guidelines for Housing (SCA-94), which outlines Standard Conditions of Approval based on inclusion criteria at the time the project developer gets zoning approval.

3.22 CALIFORNIA CLEANER FREIGHT COALITION: MOVING CALIFORNIA FORWARD ZERO AND LOW-EMISSIONS FREIGHT PATHWAYS

Access Report Here.

Purpose

California Cleaner Freight Coalition (CCFC) is a coalition of non-profits and community based organizations seeking to create transformational changes to the freight transportation system in California. CCFC conducted a study in 2013 to evaluate strategies for modernizing how goods are moved through California. The strategies vary by length of haul (local, regional and statewide). By evaluating alternatives to conventional diesel vehicles or "freight pathways", the analysis aimed to inform a statewide plan for cleaning up freight transportation.

Key Trends, Issues and Impacts

The study report provides only general information on freight benefits and impacts as this was not the primary purpose of the study.

Key Strategies, Projects and Mitigation Measures

The study report evaluated "freight pathways" or technology alternatives for local, regional and statewide haul of goods. The key findings are:

- Deploying electric transportation technologies that are currently in development or demonstration for local and short-haul trips would provide the greatest overall reduction in pollutants, and could eliminate tailpipe emissions in communities impacted by freight movement.
- Moving goods by train and ship for regional trips could reduce emissions well beyond today's cleanest diesel trucks.
- Transporting containers double-stacked on railcars powered by the cleanest locomotives can reduce particulate matter, nitrogen oxide, and greenhouse gas emissions by more than 75 percent.
- Compared to the newest trucks, transporting truck trailers on flatbed railcars through the San Joaquin Valley would significantly reduce emissions in a region that suffers from high levels of pollution.

The study notes that shift in freight movement to rail or ship must be done in a way that reduces emissions, exposure and health risk to communities close to rail yards, lines, and shipping lanes.

3.23 REGIONAL PROSPERITY PLAN

Access Report Here.

Purpose

The Bay Area Regional Prosperity Plan is a three-year initiative funded by a $5 million grant from the U.S. Department of Housing and Urban Development (HUD) to the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC). The Plan will create stronger, more sustainable communities by integrating housing and jobs planning, fostering local innovation and building a clean energy economy.

Process

The Prosperity Plan will include two key, interconnected areas of work:

1. Economic Prosperity Strategy – Define a regional approach for expanding economic opportunities for low- and moderate-income workers, and provide more than $1 million in sub-grants for pilot projects.
2. Housing the Workforce Initiative – Provide tools and resources to improve housing affordability near transit, while stabilizing low income neighborhoods as new investments raise property values, and provide more than $1 million in sub-grants for pilot projects.

MTC and ABAG is working with elected officials, local city and county staff, community-based and non-profit partners, business and labor groups, and economic and workforce development organizations that co-sponsored the grant application to implement this program. There are four working groups to guide and implement the Plan, including Economic Prosperity, Housing, Equity, and Joint Projects. A Steering Committee of MTC and ABAG members, community organizations and working group members are providing overall direction to the plan.

Table 3.1 Regional and Statewide Plans and Studies

Plan/Study	Agency	Year	Purpose	Key Findings
Plan Bay Area (2040 RTP/SCS)	Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG)	2013	• Sustainable Communities Strategy (SCS) guiding housing and transportation choices, healthier communities, and stronger regional economy • Regional Transportation Plan (RTP) identifying transportation investments, strategies and policies for the Bay Area.	• **Goals and Performance Measures**: Provided a set of transportation and land-use/housing goals and performance targets for the Bay Area for identifying investments, strategies and policies. • **Trends**: Discussed Bay Area trends, including housing patterns, employment concentration, etc. • **Economic and Land Use Impacts**: (a) Discussed economic impact of goods movement industries; (b) More goods movement activities could shift to locations outside Bay Area in the future due to continued pressure. • **Projects**: Included a comprehensive, multimodal projects list. • **Strategies/Mitigation Measures**: (a) Advance planning and modeling efforts for goods movement in collaboration with local agencies; (b) Explore economic development best practices for goods movement and industrial businesses; (c) Develop priority development areas (PDAs) that maintain goods movement corridors and retain land uses that support related distribution and industrial uses; (d) Support BAAQMD air quality initiatives for cleaner trucks.
Comprehensive Regional Goods Movement Plan and Implementation Strategy	Southern California Association of Governments (SCAG)	2013	• To gain a better understanding of interregional goods movement between Southern California and the Bay Area • To guide future transportation investments and strategies for Southern California through 2035	• **Goals**: Provided a set of goods movement system goals for identifying investments and strategies. • **Trends and Issues**: (a) Much of the region's truck traffic is traveling within the region and supports domestic trade and local consumption; (b) International trade is the fastest growing component of trucking, and likely to strain transloading and intermodal facilities in the future; (c) Interregional traffic mobility and safety on state highways is affected by priority truck bottlenecks, poor roadway geometrics and truck/auto conflicts; (d) There will be a shortage in warehouse space in the future. • **Projects**: Included a comprehensive, multimodal goods movement projects list, including highway improvements, intermodal terminal capacity expansions, and grade separations. • **Strategies/Mitigation Measures**: (a) East-west freight corridor (a dedicated truck lanes system) with zero-emission technology strategy; (b) Truck bottlenecks relief strategy; (c) Implement clean fuel technologies; (d) Warehouse modernizations to improve capacity.
San Joaquin Valley Interregional Goods Movement Plan	San Joaquin Valley Regional Planning Agencies Policy Council	2013	• To gain a better understanding of interregional goods movement between San Joaquin Valley and the Bay Area • To guide future transportation investments and strategies for	• **Goals**: Provided a set of goods movement system goals for identifying investments and strategies; goals and performance measures to evaluate project performance. • **Trends and Issues**: (a) Much of the region's truck traffic is traveling within the region and supports domestic trade and local consumption; (b) Many shipper and distribution centers rely on connectivity to Port of Oakland; (c) High level of interest in modal diversity, energy efficient, clean transportation technologies; (d) Various infrastructure issues, including shortfalls in highway capacity, "last mile" connections, truck parking; pavement wear and tear; rail mainline (Tehachapi Pass) capacity constraint; Port of Oakland access issues, and others; (e) Various operational issues including Surface Transportation Assistance Act (STAA) routing issues; seasonality

Plan/Study	Agency	Year	Purpose	Key Findings
			San Joaquin Valley through 2040	concerns; increase in rail rates; port drayage issues, and others; (f) Some institutional constraints, including freight and land use issues; environmental regulation uncertainty. • **Projects**: Included a comprehensive, multimodal goods movement projects list. • **Strategies/Mitigation Measures**: (a) Inland port(s) and short-haul rail shuttle; (b) Goods movement program, including areas of STAA truck routes study, truck stop electrification, truck route signage, additional truck rest areas, oversize/overweight truck pilot program/research.
California State Rail Plan	Caltrans	2013	• To guide future passenger and freight rail transportation investments and strategies for California through 2040	• **Vision and Goals**: Provided vision and a set of goals for the statewide freight rail system. • **Trends and Issues**: (a) Rail capacity issues and freight/passenger rail conflicts on Capital Corridor (UP's transcontinental route), Altamont Corridor (UP's connection between the Bay Area and San Joaquin Valley) and San Joaquin Corridor (BNSF's transcontinental route); (b) Port of Oakland intermodal rail capacity and rail access issues; (c) International trade trends such as change in sourcing patterns, expansion of Panama Canal, growth in transloading; (d) Class I railroad business trends such as "hook and haul" model, developments of bulk cargo consolidation centers; (e) Absence of short line rail service in Alameda County; (f) Changing customer base; (g) Shifting modal economies; (h) Positive train control implementation on Altamont Corridor; (i) Vulnerability of rail system to climate changes. • **Projects**: Short-, medium-, and long-term rail projects list, including track and signal improvements, intermodal rail terminal, grade separation projects. • **Strategies**: (a) Recommended development of a robust performance measurement framework, especially in the context of MAP-21 policies and requirements; (b) Inland port(s) and short-haul rail shuttle; (c) Support California ARB's environmental initiatives, including agreements with railroad industry and adoption of low emission or clean locomotive technologies.
California Air Cargo Groundside Needs Study	Caltrans	2013	• To determine the current and future volumes for California's top 12 air cargo airports and major trends and issues in the air cargo industry • To identify airside and landside needs and strategies to meet the evolving requirements of air cargo in the State over the next twenty to thirty years	• **Trends and Issues**: (a) Cargo shifted from air to truck mode in post-9/11 years mainly due to heightened security measures; (b) Since 2001, California's airports, including Oakland international airport (OAK), had freight leakage to airports in other states due to reasons such as gateway fragmentation, market liberalization, changing distribution systems and emergence of new markets and services; (c) OAK handles the most freighter cargo in the Bay Area; (d) OAK's main opportunities include continued growth in international passenger and freighter markets; availability of infrastructure to handle the largest aircrafts; expansion possibilities of air cargo facilities; (e) OAK's main challenges include increasing severity of congestion on access roadways; high costs of development in California. • **Projects**: See Metropolitan Transportation Commission Regional Transportation Plan. • **Strategies**: (a) Identified air cargo facility and infrastructure requirements; (b) Caltrans identified bottlenecks need relief projects; (c) Enhance efficiency and safety on access arterials.
M-580 (Marine Highway) / California Green Trade Corridor	Port of Stockton	2013	• To highlight the anticipated benefits of the Marine Highway project for	• **Anticipated Impacts (Benefits)**: (a) Improves logistics by avoiding costly traffic slowdowns and terminal delays; (b) Reduces costs by moving goods at competitive rates while utilizing substantially less fuel; (c) Enhances air quality by removing more than 600 tons of harmful toxic air

Plan/Study	Agency	Year	Purpose	Key Findings
Project: Container-on-Barge Service			container-on-barge service between Port of Oakland and Port of Stockton	emissions; (d) Relieves congestion by removing 350 trucks from the port and highway system with every barge move for shippers and truckers; (e) Increases safety, there are 155 times more fatalities on highways than in marine transportation.
The Bay Area – A Regional Economic Assessment Study	Bay Area Council Economic Institute	2012	• To understand the forces and trends that drive the Bay Area economy, and the impediments to stronger growth and job creation	• **Economic Trends and Issues**: (a) Bay Area underwent "boom and bust" economic cycles; (b) High-technology and innovation sector and venture capital sector drive the future employment; (c) Growing economic inequality; (d) Stakeholders have pavement and surface maintenance concerns, bridge safety and repair concerns and complaints of growing regional congestion; (e) Lack of awareness of regional initiatives. • **Strategies**: (a) Engage businesses in individual agency plans; (b) Harmonize local regulations at the regional level; (c) Continue greenhouse gas and emissions reductions through regional planning actions.
California Freight Mobility Plan	Caltrans	2012	• To update and expand the California Goods Movement Action Plan (GMAP)	• **Goals**: To incorporate sustainable communities strategy, adopted greenhouse gas emission reduction targets, new trends in interstate and global goods movement in updating and expanding goals of the California (GMAP, while increasing focus on partner agencies and industry and regional issues.
California Interregional Transportation Strategic Plan	Caltrans	2012	• To identify and prioritize projects on California's Interregional Road System (IRRS) over a 20-year planning horizon	• **Goals**: Identified goods movement role/functions of the Bay Area in the California Interregional Road System (IRRS). • **Strategies**: Creating the next generation of goods movement projects list similar to the California GMAP that will address new needs and future challenges, including: (a) Greenhouse gas and diesel particulate emissions reductions; (b) Ports capacity and competitiveness; (c) Freight handling capacity; (d) Adapting to sea-level rise; (e) Bottlenecks for freight rail and trucking; (f) New technologies to increase efficiency and reduce air quality impacts; (g) Responding to Moving Ahead for Progress in 21st Century Act (MAP-21) policies and requirements; and (h) Limited funding availability.
Understanding Particulate Matter – Protecting Public Health in the San Francisco Bay Area Study	Bay Area Air Quality Management District (BAAQMD)	2012	• To emphasize the public health, climate change and ecosystem impacts of particulate matter (PM) based on recent research • To identify the sources of PM emissions in the Bay Area, current regulations and programs to reduce PM emissions and concentrations and future technical work needed to	• **Goals**: To attain State and national ambient air quality standards, and also to reduce the population exposure to air pollution. • **Public Health and Environmental Impacts**: (a) BAAQMD's "Health burden" analysis indicated that PM is the air pollutant that poses the greatest health risk to the Bay Area residents; (b) Public health impacts of PM include a wide range of respiratory and cardiovascular problems, and premature deaths too; thus it results in economic and social costs to Bay Area residents. • **Strategies/Mitigation Measures**: (a) SB 656 (codified as Health and Safety Code Section 39614) required ARB and BAAQMD to evaluate potential PM control measures and to develop an implementation schedule; (b) Continue to enhance ongoing efforts to reduce PM; (c) Further research to determine the types of particles which are the most harmful to public health.

Plan/Study	Agency	Year	Purpose	Key Findings
			improve the understanding of PM	
I-580 Interregional Multimodal Corridor Study	San Joaquin Council of Governments (SJCOG)	2011	• To evaluate various measures that aim to preserve and improve the productivity and efficient utilization of I-580/I-205 corridor (Altamont Pass) transportation facilities by commuters and commercial trucking	• **Trends and Issues**: (a) Although there are 3 alternate routes (I-80, State Route 152 and State Route 4) to I-580/I-205 corridor between the Bay Area and San Joaquin Valley, the alternate routes are widely separated and almost uniquely serve a combination of origin and destination territories; (b) A majority of trucks on I-580 are not port-related, only 13% are port-related; (c) Commercial trade volume growth is expected to outpace employment and population growth in short-term (2010-2015), and at a similar level beyond 2015; (d) Rail intermodal traffic and containerized trade volume are expected to grow faster than overall commerce growth beyond 2015. • **Strategies (and their Benefits)**: (a) Support marine highway and short-haul rail intermodal service as these projects have the largest potential to divert truck volumes (although these may not be sufficient to improve operations on I-580); (b) Truck climbing lanes are expected to improve level of service on I-580 up to 2020, however, by 2035, the operational benefits of truck climbing lanes may not be sufficient; (c) Separation of passenger rail and freight rail may not have a large impact on short-haul truck freight, as rail carries mostly long-haul freight; (d) Support intermodal service in San Joaquin Valley; (e) Support upgrades to sections of State Route system alternatives to I-580; (f) Consider supporting dredging operations to facilitate larger container ship services; (g) Support intermodal container manufacturing in Northern San Joaquin County.
Port Activity and Competitiveness Tracker (PACT) Progress Report	Southern California Association of Governments (SCAG)	2011	• Summarized the key factors that help determine the competitiveness of the San Pedro Bay ports by comparing metrics between other West Coast and U.S. ports	• **Trends and Issues**: (a) In the years shortly before 2009, share of total container volumes of the U.S. West Coast ports began slightly shifting to Canadian and Mexican West Coast ports and U.S. East Coast Ports, however, the Port of Oakland remained the same in that period; (b) Dockage rates in Seattle and Tacoma are higher than other West Coast Ports; (c) Prince Rupert port has a shipment-time advantage for trade with Asia over all West Coast ports south of it; (d) Railroads serving U.S. East Coast ports have made significant improvements to their inland connections to Chicago and the Ohio Valley. • **Strategies**: (a) Contained information on expansion proposals (the planned long-term capacity in twenty-foot equivalents or TEUs) at West Coast ports, including Port of Oakland (7,640,000 TEUs); (b) Recommended key port competitiveness tracking indicators.
Corridor System Management Plans on I-80, I-880 and I-580	Caltrans District 4	2010	• To develop a listing and phasing plan of operational improvements, intelligent transportation system (ITS) strategies, and system expansion projects to preserve or improve performance measures within the highway corridor	• **Goals and Performance Measures**: Identified typical objectives and performance measures of a Corridor System Management Plan (CSMP). • **Trends and Issues**: (a) Commute period bottlenecks by corridor were identified; (b) Current and future volumes and delays (or speeds) by corridor were estimated; (c) Portions of the corridors with accident/incident rates higher than statewide average.. • **Strategies/Projects**: Identified near-term and long-term strategies by corridor, including I-80 integrated corridor mobility project, mainline and ramp geometric improvements, ramp storage capacity projects, auxiliary lanes projects, advanced ramp metering, advanced traveler information, signalization of intersections and signal optimization of parallel arterials, truck route

Plan/Study	Agency	Year	Purpose	Key Findings
			portions of I-80, I-880 and I-580	designation or restriction signage, Connected Vehicles technologies, augmented freeway service patrol, Altamont rail corridor speed and safety improvements, etc.
MTC Goods Movement Initiatives – 2009 Update	Metropolitan Transportation Commission (MTC)	2009	• To summarize significant goods movement-related efforts undertaken since the 2004 Regional Goods Movement Study for the San Francisco Bay Area, specifically two initiatives – the TCIF and the implications of land use decisions on goods movement system	• **Strategies/Mitigation Measures**: (a) As of 2009, the TCIF has funded seven Tier 1 transportation projects in Bay Area along Central Corridor and Altamont Corridor, including two port-related, one grade separation, three highway and one rail; (b) MTC will continue to work on strategies to address business displacement; (c) Other ongoing initiatives including BAAQMD's Goods Movement Emission Reduction Program, Community Air Risk Evaluation Program; Container fees at Port of Oakland, and the West Coast Corridor Coalition initiatives.
West Coast Corridor Coalition Trade and Transportation Study	West Coast Corridor Coalition	2008	• To identify regional and systemwide freight-related issues and deficiencies along the West Coast, from Alaska to California • To develop a foundation to address these issues across boundaries	• **Trends and Issues**: (a) In 2006, the West Coast had a larger share of nation's container and air cargo shipments, and the share of trade with Asia-Pacific was expected to grow; (b) The population on the West Coast is overwhelmingly concentrated in 3 megaregions, which are also gateways for trade, and is expected to grow at a faster rate than rest of the U.S.; (c) Physical, operational, and institutional issues in the region will not allow trade and transportation system to absorb anticipated growth in freight demand, and the system capacity cannot be expanded without significant environmental, social and financial costs; (d) Identified regional chokepoints; the Bay Area was expected to have congested urban interchanges and port rail yard congestion. • **Strategies:** (a) Working with Federal partners to invest in national significant projects; (b) Making targeted, system-level investments across jurisdictional boundaries; (c) Promoting innovative approaches to solving congestion; (d) Developing freight investment models that incorporate market and sustainability principles; and (e) Balancing community interests with system expansion needs.
Goods Movement and Land Use Study for the San Francisco Bay Area	Metropolitan Transportation Commission (MTC)	2008	• To further understand current and future goods movement and land use trends and issues, and implications of land use decisions on goods movement system, in the area including the I 80/I 880 corridor and the U.S. 101 corridor	• **Economic, Public Health and Environmental Impacts**: (a) Industries to grow 9 percent annually to 2035, led by transportation, wholesale trade, and high-technology industries; land supply on the other hand is decreasing; (b) Industries requiring large sites and that serve broader markets and are sensitive to location costs (such as manufacturers, wholesale and construction) are likely to shift outside the Bay Area – by 2035 this could result in displacement of 87,000 jobs; increases of costs of goods at $119 million per year; shift in 8,400 daily truck trips per day to new and longer routes, additional 347,900 truck vehicle miles traveled (VMT) per day, additional 6,200 vehicle hours traveled (VHT) per day, about a two-percent increase in PM emissions and other air quality impacts. • **Strategies**: (a) Regional approach to industrial land supply and goods movement; (b) Balanced approach to Smart Growth.

Plan/Study	Agency	Year	Purpose	Key Findings
California Goods Movement Action Plan	Business, Transportation and Housing Agency, and California Environmental Protection Agency (EPA)	2007	• Improve and expand California's goods movement industry and infrastructure	• **Goals and Performance Measures**: Provided a set of goods movement system goals and guiding principles for identifying investments and strategies, and evaluation criteria consistent with the defined principles. • **Projects**: Short-, intermediate-, and long-term projects for: (a) Multimodal infrastructure and operations; (b) Public health and environmental impact mitigation; (c) Community impact mitigation and workforce development; and (d) Homeland security and public safety. • **Strategies/Mitigation Measures**: (a) Created $2 billion Trade Corridors Improvement Fund (TCIF) under Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act (Proposition 1B) (managed by California Transportation Commission); (b) Created $1 billion fund for air pollution projects.
Central Coast California Commercial Flows Study	Association of Monterey Bay Area Governments (AMBAG)	2007	• To better understand freight trends and issues in the Central Coast region and to identify strategies/actions to improve the effectiveness of the freight system	• **Trends and Issues**: (a) Net exporter of goods (by tonnage) of mainly agricultural products, sand and gravel, and petroleum products, of which annually 1-2.5 million tons reach the East Bay Area; (b) U.S. 101 and UP mainline are the primary routes for interregional flows with Bay Area. • **Projects**: Included a "prioritized" multimodal goods movement projects list. • **Strategies**: (a) Identified potential locations and type of truck parking facilities; (b) Recommended freight system performance measures; (c) Recommended programs and policies, including maintain focus on maintaining/improving U.S. 101; Enhance east-west connections; Identify intermodal rail opportunities; Regionwide truck count and classification program; Develop strategic partnerships with regional trading partners; (d) Recommended reformulating the structure and objectives of Freight Action Strategy Taskforce (FAST); (e) Identify future funding opportunities.
Emission Reduction Plan for Ports and Goods Movement in California	California Environmental Protection Agency's Air Resources Board	2006	• To guide efforts to reduce community exposure to air pollution due to goods movement and to meet federal air quality standards for criteria pollutants through 2020	• **Goals**: To reduce the statewide goods movement emissions of criteria pollutants to set target levels for 2010, 2015 and 2020, and to reduce localized risk in communities adjacent to goods movement facilities as expeditiously as possible. • **Trends and Issues**: (a) Emission levels of criteria pollutants by mode under existing condition; (b) Challenges and opportunities for goods movement sources of air pollution. • **Mitigation Measures**: (a) Maritime measures including expanded vessel speed reduction program; cleaner marine fuels; shore power infrastructure; extensive engine retrofitting; (b) Cargo handling equipment measures including zero or near-zero emission equipment; (c) Truck measures including port truck modernization; (d) Locomotive measures including concentrating Tier 3 locomotives. • **Plan Impacts (Benefits)**: (a) Emission levels of criteria pollutants by mode under full implementation of plan strategies; (b) Public health impacts and economic value of full implementation of plan strategies.
Regional Goods Movement Study for the San Francisco	Metropolitan Transportation Commission	2004	• To help MTC develop priorities for allocating transportation funds for	• **Goals**: Provide a set of goods movement system goals for identifying investments and strategies and land use policies. • **Trends and Issues**: (a) Regional development trends exert market and regulatory pressures

Plan/Study	Agency	Year	Purpose	Key Findings
Bay Area	(MTC)		goods movement activities in the Bay Area, provide economic impact information to consider when making infrastructure and land use decisions, and prepare a common freight platform for MTC and its partners for federal advocacy and regional planning efforts.	which will lead to some industries relocating outside the Bay Area; (b) "Just in time" delivery will result in concentrations of goods movement on I-880 and I-580, which could result in safety, air quality, and other issues; (c) More capacity may be needed to address freight and passenger rail conflicts on the Capitol and Altamont Pass Corridors; (d) Rail access will increasingly become an issue at Port of Oakland; (e) Highway access, cross-bay connections and air cargo storage and sort facilities may increasingly become issues at airports. • **Strategies**: (a) I-880 corridor strategy with a variety of projects; (b) Interregional Gateway Strategy including projects on I-580, I-80, State Route 152, and U.S. 101; (c) Rail investment strategies, including a cost-sharing program for rail grade crossing projects; Short-term subsidies for short haul intermodal rail services; (d) Marine investment strategy including port access improvements and public/private information system technologies; (e) Air cargo investment strategies including improved cross-bay connections; (f) Truck route planning program; (g) Policy considerations of impacts of land use decisions on goods movement system.
At a Crossroads in Our Region's Health: Freight Transport and the Future of the Community Health in the San Francisco Bay Area	Pacific Institute	2013	• Identified how many PDAs overlapping with CARE communities are affected by freight transport-related land uses; • Identified potential locations for development in the study region that minimize conflicts between freight transport and communities; • Identified policies and measures that can support regional growth while improving health.	• **Goals and Performance Measures**: Provided a blueprint for achieving the vision for sustainable communities. Provided definition for a health-protective distance and performance measures for estimating effects of freight transport-related land uses. • **Community Impacts**: (a) One-fourth (26%) of the land in Priority Development Areas that intersect with CARE communities overlaps with a freight transport buffer zone where it is unadvisable to site sensitive land uses; (b) Many sensitive land uses like schools, parks, hospitals, and churches already exist in Priority Development Areas within freight transport buffer zones; (c) Nearly one-fifth (17%) of the land in freight transport buffer zones within Priority Development Areas in CARE communities is designated for residential land uses. • **Policies/Mitigation Measures**: (a) Prioritize siting sensitive land uses in portions of Priority Development Areas beyond health-protective distances; (b) Prioritize siting commercial and light industrial land uses within portions of Priority Development Areas in close proximity to freight transport hazards; (c) Provide One Bay Area Grant Funds to developers building affordable housing in high health risk areas to pay for mitigation measures; (d) Encourage local jurisdictions to adopt a health-protective local policy measures.
Moving California Forward: Zero and Low-Emissions Freight Pathways	California Cleaner Freight Coalition	2013	• Assess freight pathways and recommend low emissions strategies.	The study report evaluated "freight pathways" or technology alternatives for local, regional and statewide haul of goods. The key findings are: • Deploying electric transportation technologies that are currently in development or demonstration for local and short-haul trips would provide the greatest overall reduction in pollutants, and could eliminate tailpipe emissions. • Moving goods by train and ship for regional trips could reduce emissions well beyond today's cleanest diesel trucks. • Transporting containers double-stacked on railcars powered by the cleanest locomotives can reduce particulate matter, nitrogen oxide, and greenhouse gas emissions.

Plan/Study	Agency	Year	Purpose	Key Findings
				• Compared to the newest trucks, transporting truck trailers on flatbed railcars through the San Joaquin Valley would significantly reduce emissions.
Regional Prosperity Plan	Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG)	2013 to 2016	• To create stronger, more sustainable communities by integrating housing and jobs planning, fostering local innovation and building a clean energy economy	The Prosperity Plan will include two key, interconnected areas of work: • Economic Prosperity Strategy – Define a regional approach for expanding economic opportunities for low- and moderate-income workers, and provide more than $1 million in sub-grants for pilot projects. • Housing the Workforce Initiative – Provide tools and resources to improve housing affordability near transit, while stabilizing low income neighborhoods as new investments raise property values, and provide more than $1 million in sub-grants for pilot projects.

4.0 Statewide and National Policies and Programs that affect Goods Movement

This section of the memorandum summarizes key statewide and national policies and programs that affect goods movement in Alameda County. Given the broad application of these policies and programs, this section includes a relatively brief summary table (Table 4.1). Many of these policies and programs will be included in the report as they relate to and affect local and regional policies and programs.

Table 4.1 National and State Policies and Programs

Policy or Program	Agency	Year	Purpose	Key Findings
California's Draft National Freight Policy Recommendations	California Freight Advisory Committee (CFAC)	Jan. 2014	• To make recommendations to National Freight Policy in the context of California's Freight Plan and National Freight Plan	CFAC made recommendations in the following areas: • **Create a federal freight funding program**: The reauthorization of MAP-21 must create a dedicated, sustainable, and flexible freight program allocated on performance-based criteria. Priority should include zero-emission, near zero-emission, environmental mitigation freight projects, and utilizing existing infrastructure. • **General funding**: (a) Preserve and build upon Projects of National and Regional Significance program, (b) alter the Harbor Maintenance Trust Fund tax to levy based on ship volume, not cargo value, and (c) create a funding program for shortline railroads for capital improvements. • **National and Primary Freight Network**: Recommend corridor focus, replace Critical Rural Freight Corridors 25% truck volume threshold with Average Annual Daily Truck Traffic. • **Community and Environmental Impact Reduction**: Create railroad grade separation program and truck parking program.
Freight Policy Provisions in MAP-21	U.S. Department of Transportation	2012	• To develop a multimodal National Freight Strategic Plan in consultation with states and other stakeholders, and it encourages states to develop a comprehensive freight plan	• Establishes a National Freight Policy. • Requires establishment of a National Freight Network and designation of a Primary Freight Network. • Calls for development of a National Freight Strategic Plan and updates every 5 years thereafter. • Encourages states to establish freight advisory committees, and develop state freight plans. • Defines Aerotropolis as a planned and coordinated multimodal freight and passenger transportation network that provides efficient, cost-effective, sustainable, and intermodal connectivity to a defined region of economic significance centered around a major airport. • Incorporates *Jason's Law* which establishes a national priority to address projects for the shortage of long-term parking for commercial motor vehicles on the National Highway System to improve the safety of motorized and non-motorized users and for commercial motor vehicle operators. • Requires the U.S. DOT to conduct a Comprehensive Truck Size and Weight Limits Study.
Comprehensive Truck Management Program (CTMP)	Port of Oakland	2009	• To comprehensively address security, air quality, business and operations, and community issues related to trucking operations at the Port of Oakland maritime facilities	Divided into two components • **Core components**: Includes port registry-related agreement, truck retrofits and replacements, seaport roadway improvements, truck parking and routes, marine terminal gate operations, outreach materials, trucker information center, truck purchase and financing, and other components; Trucks serving the port must be compliant with all laws and regulations, notably the ARB Drayage Truck and Statewide Truck and Bus Regulations • **Future components**: Includes truck positioning technology **Cost of CTMP**: Implementation or ''Set-up'' of CTMP was estimated to cost approx. $12.7 million, of which approx. $9.2 million was associated with the Core Components; Operation and maintenance costs were estimated at approx. $1 million to $1.4 million annually

Policy or Program	Agency	Year	Purpose	Key Findings
				Economic Impacts of the CTMP • About 94% of the trucks serving the port needed to be retrofitted or replaced to comply with the 2010 ARB deadline. For the 2010 ARB deadline alone, costs were estimated to be in the range of $70 million-$170 million (depending on whether more trucks are retrofitted or more trucks are replaced)[a]. • State air quality regulatory requirements alone were expected to raise per-dray costs by 4% to 30%, depending on the length of haul. A concession model would add an extra 1% to 2% to the drayage rates, and an employee driver requirement would add an additional 21%
Goods Movement Emissions Reduction Program for Transportation 2035 - *Proposition 1B*	Bay Area Air Quality Management District (BAAMQD)	2006	• To reduce future diesel particulate matter generated by trucks servicing the region, including the Port of Oakland, by replacing or retrofitting port and general goods movement trucks	• Proposition 1B included $1 billion for air quality programs focused on goods movement activities in California; Projects funded under this Program must achieve early or extra emission reductions not otherwise required by law or regulation • The Bay Area Air Quality Management District) submitted a Goods Movements Emissions Reduction Program for the Transportation 2035 Plan to be funded jointly by the BAAQMD, MTC, and the Port of Oakland • MTC has committed $45 million over five years to advance this program as part of the Transportation 2035 Plan; The Port also has developed the Maritime Air Quality Improvement Plan and Comprehensive Truck Management Program (CTMP) to reduce health impacts due to Port's maritime operations
California's Trade Corridors Improvement Fund Program (TCIF) – *Proposition 1B*	California Transportation Commission	2006	• To fund goods movement transportation projects on key trade corridors	• Proposition 1B included $2 billion for trade corridors projects • MTC partnered with the Central Valley and Sacramento regions to identify two high-priority interregional goods movement corridors (Central Corridor and Altamont Corridor) in Northern California and a program of rail and highway projects along these corridors • Five projects were identified in Alameda County, the total costs of which was approx. $690 million, with $451 million to be provided through the TCIF program
Carl Moyer Program	Bay Area Air Quality Management District (BAAQMD)	1998	• To reduce air pollution emissions from local heavy and medium duty engines	• The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) is a voluntary state funded program that offers grants to owners of heavy-duty vehicles and equipment. In the Bay Area, the Carl Moyer Program is administered by the BAAQMD • The program provides about $60 million for projects each year statewide, funded through tire fees and smog impact vehicle registration fees. The program pays up to 85 percent of the cost to repower engines and up to 100 percent to purchase an ARB-verified retrofit device. Maximum grant amounts vary for purchase of new vehicles and equipment. • Grants can be applied to equipment that complies at least three years in advance of state regulations. • Grants are available for projects that: (a) Install verified emission control devices; (b) Replace older heavy-duty engines with newer and cleaner engines; (c) Replace older equipment with newer and cleaner equipment; (d) Purchase new equipment that is cleaner than the law requires; (e) Install electric idling-reduction equipment

Policy or Program	Agency	Year	Purpose	Key Findings
				• Eligible equipment categories include: (a) Agricultural Equipment; (b) Locomotives; (c) Trucks; (d) Off-Road Equipment; (e) Marine; (f) Shore power • Projects in the following six highly impacted communities receive the highest priority: (a) Concord; (b) Richmond/San Pablo; (c) Western Alameda County; (d) San Jose; (e) Redwood City/East Palo Alto; and (f) Eastern San Francisco
Title 23 U.S.C. Section 130 Program (MAP-21)	US Congress	2012	• To fund safety improvements to reduce the number of fatalities, injuries and crashes at public grade crossings	• The Moving Ahead for Progress in the 21st Century Act (MAP-21) continued the $220 million annual set-aside under 23 USC 130 from the Highway Safety Improvement Program (HSIP) apportionment. The funds are apportioned to States by formula. • In FY 2014, $15.3 million is apportioned to California • The eligible projects as per Caltrans' Division of Rail are: (a) Approach improvements; (b) Signage and pavement marking improvements; (c) Active warning equipment installation/upgrades; (d) Visibility improvements; (e) Roadway geometry improvements; (f) Grade crossing elimination • The project must be included on the California Public Utilities Commission's (CPUC) Section 130 priority list and included in the Federal Transportation Improvement Program (FTIP) developed by MTC and the Federal Statewide Transportation Improvement Program (FSTIP) approved by the Federal Highway Administration (FHWA) • For example, Tennyson Road at UP in City of Hayward, Warren Avenue at UP in City of Fremont, Central Avenue at UP in City of Newark were included in FY 2013-2014 California Grade Separation Program Priority List

[a] According to Beacon Economics' 2009 analysis for Port of Oakland which assumed retrofit devices costs about $18,000, while a new truck in California costs in the range of $130,000. New Liquefied Natural Gas ("LNG") drayage trucks are even more expensive, estimated between $170,000 and $220,000.