



November 30, 2015

Freight Transport Branch
Air Resources Board
1001 I Street, 1st Floor
Sacramento, California, 95814

RE: California Sustainable Freight Action Plan: Pilot Project Ideas

To Whom It May Concern:

The undersigned coalition of Bay Area agencies is pleased to submit the attached pilot project ideas for your consideration as the development of the California Sustainable Freight Action Plan takes shape. The pilot projects are the result of an extensive 2-year regional goods movement planning effort that will conclude in early 2016. The attached ideas include a broad cross-section of infrastructure improvements, technology applications, operational strategies, and community benefit programs that individually and collectively further the state's goals of freight efficiency, economic competitiveness and transitioning to zero-emission technologies. The ideas range from conceptual to highly refined and implementation-ready, reflecting the broad themes and objectives of the regional goods movement planning effort.

Goods movement is a critical part of the Bay Area's economy. Goods movement accounts for over \$600 billion in economic activity in the Bay Area and goods movement dependent industries provide approximately one-third of Bay Area jobs, including many of the region's middle wage, low barrier to entry employment opportunities. The Bay Area is vital to the state's freight transportation system. Bay Area ports of entry such as the Port of Oakland and the Oakland International Airport provide connections to world markets for producers and consumers not just in the Bay Area, but in the entire Northern California mega-region.

For the past two years, a broad spectrum of public agencies, private sector stakeholders, and community partners have collaborated on the development of a Bay Area Goods Movement Plan. The effort, which has been led by the Alameda County Transportation Commission and the Metropolitan Transportation Commission, has identified key goods movement opportunities for the Bay Area that build upon the region's unique economy, geography, and infrastructure assets. The pilot project ideas submitted here are from the Draft Plans and are essential to the realization of these goods movement opportunities. All of the agencies that have collaborated in this submission have participated in the Goods Movement Plan development and are committed to implementation.

We look forward to discussing the attached pilot projects with ARB staff. Please contact Matt Maloney at the Metropolitan Transportation Commission with any questions.

Regards,



Steve Heminger, Executive Director
Metropolitan Transportation Commission

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California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Metropolitan Transportation Commission

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Project Title: 7th Street Grade Separations (East and West)

Project Location: 7th Street at Maritime St, Port of Oakland

Project Summary:

The Project includes both East and West grade separations. The West component will create a new elevated intersection at 7th Street & Maritime Street to provide new rail access between the former Oakland Army Base and the Oakland International Gateway; facilitating the shift of cargo from truck to rail, reducing truck congestion and emissions.

The East component will replace the substandard 7th St. underpass at the north end of Railport Oakland Intermodal Yard, allowing for new rail crossings to improve connections to the future OHIT Intermodal Yard.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Project components:

- **Freight and fuel infrastructure:** The project will improve two of the most critical pieces of transportation infrastructure at the Port of Oakland, including removing the main truck bottleneck and a substandard underpass at one of only three Port entrances, which causes extensive truck queues and idling when a train traverse the tracks at this site.

Executive Order B-32-15 goals:

- **Economic competitiveness:** The project will enable better circulation between marine terminals and modern transload warehousing facilities under construction on the former Oakland Army Base, increasing jobs and value-added services offered to shippers at the Port of Oakland. The project also enables greater rail service to the Port, further increasing attractiveness to shippers.
- **Freight efficiency:** The project would eliminate at-grade crossings which result in long queues of trucks waiting for 100 car trains and idling vehicles.
- **Transition to zero emission vehicles:** the project will facilitate increased movement of cargo to and from the Port of Oakland by rail. Transporting containers between marine terminals and rail terminals located within Port property is an ideal ZEV application.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: 7th Street Grade Separations (East and West)

Project Costs:

Total costs for the east and west grade separation projects are \$653,798,000.

Project Timeline:

The Projects both have well-defined plans, budgets, and schedules and are ready to begin immediately. Project EIR approval was granted in August 2012. The West side requires no federal environmental clearance, while the East side will receive NEPA Environmental Assessment approval in Dec 2019. Detailed design for the West side was started in January 2015 and will be completed in 2017. The East side will begin detailed design in January 2016, with expected completion in 2020. Construction of the West side will begin September 2017 with expected completion in June 2020. East side construction will begin in 2021 and expected completion is in 2024. The project is projected to have a 75 year lifetime.

Means for measuring progress toward meeting goals over time:

The project is a centerpiece of the overall Oakland Army Base redevelopment, the success of which can be measured in terms of jobs created (including middle wage and local hire jobs), tax revenues generated, and value and volumes of goods served. The project will also have transportation and air quality related benefits such as reduced truck delays and reduced emissions from trucks that sit idling as they wait for trains to pass; these benefits could be measured and monitored over time.

Description of the potential roles of the interagency partners:

The Port of Oakland has led project development and would likely implement the project. MTC and Alameda CTC can provide funding support, and some funds for this project are potentially available through Measure BB, Alameda County's local transportation sales tax measure. An internationally significant project such as the 7th Street Grade Separation will require external funding support from state and federal governments.

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Joint Bay Area Project Submissions

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Project Title: Port of Oakland ITS including FRATIS/Truck Appointment System

Project Location: Port of Oakland

Project Summary: This project would include deployment of a truck arrival distribution system to spread to reduce peak condition truck queues. To facilitate this strategy, the USDOT's Freight Advanced Traveler Information System (FRATIS) would be deployed at the Port of Oakland. This deployment would involve three primary elements. 1) a communications system allowing trucking companies to communicate with port terminals; 2) this communication system would be enhanced to allow for "automated hand-shakes" to agree on specific appointment times; 3) sensors would continually measure queues at the port terminals to inform a local traffic system operations system.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Project components:

- **Advanced technology:** The project will use information technology solutions to manage demand for arrivals to the Port.

Executive Order B-31-15 Goals:

- **Improved freight efficiency:** Drayage truck arrivals to the Port are currently uncoordinated, often resulting in long queues, idling trucks, and lost worker productivity. Smoothing arrivals will enable trucks to be served with shorter waits without adding any gate capacity.
- **Economic competitiveness:** Long turn times for drayage trucks at the Port of Oakland often make the difference between truck drivers making one vs. two round trips from Central Valley distribution centers. Shortening turn trips to enable a second round trip per day by truck drivers will dramatically reduce shipping costs and improve the Port of Oakland's competitiveness.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Port of Oakland ITS including FRATIS/Truck Appointment System

Project Costs:

The cost of full deployment including Phase I and Phase II of this project is budgeted at \$7,553,000.

Project Timeline:

Phase I is ready to begin. Phase 1 will cover the development of the design-level ITS Concept of Operations, System Architecture, agency agreements, design and construction of the communications backbone, sensing devices, communication back office support, and Center-to center communications. This will provide a fully-functional traffic management system that will be fully integrated with the City of Oakland and Caltrans systems to maximize project benefits for both Port and regional traffic.

Phase 2 of the project will focus on additional capability enhancement including preparation work for terminal gate operational improvements, FRATIS implementation and providing system redundancy. Prioritization of projects that enable Freight efficiency would be contingent on targeted funds provided for this purpose. Full completion of the project is estimated by 2022.

Means for measuring progress toward meeting goals over time:

Potential performance metrics could include average truck turning times, truck queue lengths, and reduction in criteria emissions from idling trucks.

Description of the potential roles of the interagency partners:

The Port of Oakland would be the primary implementation agency. Alameda CTC and MTC can support Port ITS implementation through planning and funding. MTC and Caltrans can provide real-time data from existing monitoring and traveler information systems. Caltrans could also be a partner to the extent that Port ITS projects are linked to existing corridor ITS strategies such as the I-80 and planned I-880 Integrated Corridor Mobility projects. FHWA can provide technical support by sharing best practices from USDOT FRATIS test applications in Los Angeles, Dallas, and South Florida.

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Project Title: Port of Oakland Last-Mile Access Routes ITS

Project Location: Freeway off-ramp and city-street intersections between I-880 and Port of Oakland entry points.

Project Summary: Currently the I-880 ramps at 5th Street and Market Street intersections experience heavy congestion related to significant volumes of trucks exiting I-880 destined for the Port of Oakland. This project would use intelligent transportation systems (ITS) to reduce queueing and truck idling at these intersections, and associated air quality impacts on the neighborhoods (which are already heavily burdened by Port proximity). Specific improvements could include adaptive signal timing to adjust cycle lengths and signal phasing to optimize signal operations, dynamic incident management, as well as integration with adjacent ITS projects on Port property and freeway corridors.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Project components:

- **Advanced technology:** Potential ITS improvements include fiber optic or wireless interconnect with neighboring signals to enable corridor operations, traffic signal controller and cabinet upgrades, traffic cameras (video detection and Pan-tilt-Zoom cameras), adaptive signal timing, arterial Changeable Message Signs (CMS), and dynamic incident management signs

Executive Order B-32-15 goals:

- **Economic competitiveness:** The project will improve turn times at the Port of Oakland, improving attractiveness to shippers and the ability to more efficiently move goods.
- **Freight efficiency:** The project will reduce truck idling in West Oakland and truck queue backups onto I-880, improving air quality and traffic flow.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Port of Oakland Last-Mile Access Routes ITS

Project Costs:

Estimated project costs range from \$1,000,000 - \$2,500,000.

Project Timeline:

The City of Oakland has begun the design and planning of citywide ITS improvements. Specific design work for the intersections and routes in this project could commence immediately. The project would likely qualify for a Categorical Exemption for environmental review.

Means for measuring progress toward meeting goals over time:

While specific progress mechanisms have yet to be identified this will be central to streamlining citywide ITS implementation.

Description of the potential roles of the interagency partners:

The City of Oakland would be the implementation agency. Caltrans and the Port of Oakland would be necessary partners in system planning and design. Alameda CTC and MTC can facilitate planning, agency coordination, and potentially funding. The project should qualify for state or federal funding through any dedicated freight funding program created at those levels of government as it is a last-mile access route for a National Primary Freight Network facility.

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Project Title: Focused ZEV Incentives to Reduce Community Impacts on I-80, I-880, I-580, I-680, and US 101 Corridors

Project Location: I-80, I-880, I-580, I-680, and US101 Corridors

Project Summary: This program would consist of financial incentives to encourage purchase of near-zero and zero emission trucks, cargo handling equipment, and low-emission Tier 4 locomotives, with the incentives coordinated with research and development and pilot demonstration programs. The program would focus on targeting corridors that traverse communities with existing air quality issues. An approach such as installing GPS units in trucks to verify that a certain fraction of miles are driven in air quality concern corridors could be used to implement an equity-based program targeting. Incentives are likely to consist of subsidizing the purchase cost of

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Program components:

- **Advanced technology:** The program could fund deployment of hybrid, range extended, battery electric, or other technology, as feasible.
- **Alternative fuels:** The program could fund deployment of alternative fuel trucks, as feasible.

Executive Order B-32-15 goals:

- **Transitioning to zero-emission vehicles:** Financial incentives will be necessary to overcome the significant incremental cost difference between diesel alternative fuel, and advanced technologies. This program goes beyond mere technology deployment to target it to where the public health need is greatest.
- **Economic competitiveness:** Large scale deployment of alternative fuel and advanced technologies will create jobs associated with the new technologies and new supportive infrastructure.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Focused ZEV Incentives to Reduce Community Impacts on I-80, I-880, I-580, I-680, and US 101 Corridors

Project Costs:

Estimate project costs are estimated to be approximately \$80,000,000 (for 1000 trucks at approximately \$50,000 trucks and \$30,000,000 for zero emission equipment and Tier 4 locomotives). Program is scaleable, with

Project Timeline:

This project is ready to begin immediately in 2016, or as soon as funds are available.

Means for measuring progress toward meeting goals over time:

Specific progress mechanisms have yet to be identified.

Description of the potential roles of the interagency partners:

Alameda CTC, MTC, and BAAQMD can assist in planning a zero emission truck incentive program. Deployment of zero-emission truck technology to a sizeable part of the Port of Oakland drayage truck fleet, as is envisioned in this program, will require significant external funding (e.g. Cap and Trade Funds). Private sector partners play a critical role in identifying cost-effective applications and applying for purchase assistance programs.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

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Project Title: Grow Bay Area Near-Zero and Zero Emission Vehicle Research and Development

Project Location: Regionwide

Project Summary: This program seeks to bring together the Bay Area's robust research and development (R&D) community, technology sector firms, and freight system users to support advancement of clean freight technologies. This new program would fund R&D activities related to emerging goods movement vehicle technologies, batteries, fuels, and fueling infrastructure. The program would also include a working group of freight technology developers and users to ensure that developers understand the range of applications and situations under which users will need the technologies to perform.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Program components:

- **Advanced technologies:** The program could fund R&D of hybrid, battery, and electric truck technologies, among others.
- **Alternative fuels:** The program could fund R&D towards scale-up and new feedstocks for fuels such as biofuels that substantially reduce greenhouse gas and criteria air pollutant emissions.
- **Local economic development:** The program seeks to make the region a producer (not just adopter) of advanced freight technologies.

Executive Order B-32-15 goals:

- **Economic competitiveness:** Partnerships that engage major research universities, national labs, and globally leading technology firms with the freight industry could make the Bay Area and California a world leader in commercialization of advanced freight and zero-emission technologies.
- **Transitioning to zero-emission technologies:** R&D and ensuring that technology developers have a continuous line of communication with eventual end users are essential to deployment of near-zero and zero emission technologies.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Grow Bay Area Near-Zero and Zero Emission Vehicle Research and Development

Project Costs:

Estimate project costs are estimated to be approximately \$10,000,000.

Project Timeline:

This project is ready to begin immediately in 2016, or as soon as funds are available.

Means for measuring progress toward meeting goals over time:

Specific progress mechanisms have yet to be identified.

Description of the potential roles of the interagency partners:

Alameda CTC, MTC, and BAAQMD could potentially convene and support a working group and contribute some funding towards demonstration programs. Organizations such as the East Bay Economic Development Agency and the Silicon Valley Leadership Group could play an essential role in attracting private-sector, university, and national labs. Participation from technology end users such as truck owner/operators will be essential to pilot test technologies and ensure performance under a range of applications.

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Project Title: Zero-Emission Logistics: Ship to Warehouse – Warehouse to Ship

Project Location: Port Of Oakland Drayage Truck Corridors

Project Summary:

MTC is conducting a Freight Emission Reduction Study will evaluate feasible applications of zero and near-zero emission (ZE/NZE) technology for moving freight in the Bay Area, including port drayage. Initial applications are likely to focus on movement of cargo within the port complex and nearby shippers and third party logistics providers (3PLs) along the I-880 corridor. This program will provide funding to conduct an initial demonstration for feasible applications with the intent to identify incentives for market development.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Program components:

- **Advanced technology:** Pilot projects could include range extended electric, hybrid electric, or battery electric trucks and equipment.
- **Alternative fuels:** Pilot projects could include fuel cell vehicles.
- **Freight and fuel infrastructure:** Pilot projects could include truck platooning using Integrated Corridor Management (ICM) technology or truck ecoDriving.

Executive Order B-32-15 goals:

- **Transitioning to zero-emission vehicles:** Matching the range of zero-emission vehicle technologies to the most suitable applications and users is a key step in transitioning towards zero-emission freight.
- **Economic competitiveness:** The pilot will seek to ensure that truck technologies are deployed in a manner that meets the needs of end users (e.g. range, power, reliability) to preserve Port competitiveness.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Zero-Emission Logistics: Ship to Warehouse – Warehouse to Ship

Project Costs:

\$10,000,000. Program cost is scaleable, with more funding meaning a broader range of technologies piloted or more trucks and equipment are outfitted and data gathered on particular technologies.

Project Timeline:

The demonstrations can start immediately, and as soon as funds are made available. The development of conversions incentives are also ready to get underway, assuming funding assumptions can be solidified.

Means for measuring progress toward meeting goals over time:

Program benchmarks will be refined as the project progresses.

Description of the potential roles of the interagency partners:

Alameda CTC, MTC, and BAAQMD can assist in planning and funding pilots; supplementing with state funds would make the pilot more successful. Private sector partners, universities, and national labs play a critical role in identifying and developing cost-effective applications. Private sector partners play a role in and applying for purchase assistance programs.

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Joint Bay Area Project Submissions

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Project Title: Public/Private Clean Truck Collaborative

Project Location: Area-wide

Project Summary:

This project consists of a joint-working group of agency staff, freight carrier, and shipper industry representatives to help expand the use of cleaner trucks in the Bay Area. Complementing state and regional funding programs for zero-emission and near-zero-emission (ZE/NZE) technology, this working group would overcome barriers to commercialization and widespread utilization of clean trucks within the goods movement industry. Activities of the working group could include: identifying grant and procurement opportunities for both public and private entities; ensuring consistency for local or state policy initiatives such as fleet emission standards and emission trading programs; and developing other incentives to encourage adoption of clean truck technologies and alternative fuels.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Project components:

- **Advanced technologies:** The working group would seek to overcome barriers to adoption of advanced technologies such as near-zero and zero-emission vehicles.
- **Alternative fuels:** The working group would seek to overcome barriers to adoption of alternative fuels such as biodiesel or natural gas.
- **Local economic development:** The working group would ensure that deployment of new vehicle technologies and fuels meet the needs of truck owner/operators.

Executive Order Goals:

- **Transitioning to zero-emission vehicles:** The working group could help identify initial demonstration opportunities and would seek to overcome barriers to zero-emission vehicles. The working group could facilitate a feedback loop between equipment manufacturers and technology users.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Public/Private Clean Truck Collaborative

Project Costs:

Estimated project cost ranges from \$250,000-\$500,000.

Project Timeline:

This project is ready to begin immediately, and would serve as a natural evolution for many participants of the Bay Area Goods Movement Collaborative, which will hold its 5th and final meeting over the last 18 months, in January 2016 to discuss moving the Goods Movement Plan forward.

Means for measuring progress toward meeting goals over time:

Specific progress mechanisms have yet to be identified.

Description of the potential roles of the interagency partners:

MTC, Alameda CTC, and the Bay Area Air Quality Management District can work together to support the collaborative work, host meetings and coordinate schedules of stakeholders. Local and regional agency stakeholders, labor and private interest representatives will be encouraged to participate at whatever levels they are able. State and federal support would include prioritizing funding for programs which support the collaborative's efforts. Local funds could also help support this program.

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Project Title: Port of Oakland Night and Weekend Gates

Project Location: Port of Oakland

Project Summary: The Port of Oakland is the fifth busiest seaport in the nation, generating significant volumes of drayage trucks. The Port is open from 8 am to 5 pm, meaning that trucks often are on the road at the same time as peak commuter traffic on the primary freight networks. The program would entail overnight and weekend operations to reduce the overlap between commuter and Port truck traffic. The program is modeled after 24/7 operation policies implemented at the Ports of Los Angeles and Long Beach that as of August 2014, had diverted more than 30 million truck trips out of peak daytime hours to nights and weekends since the start of the program. The Port of Oakland is already experimenting with Saturday gates, and this program would build on that experience to explore additional time slots. The program would entail financial incentives to offset the cost of adding additional longshore shifts.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Program components:

- **Freight and fuel infrastructure:** The program maximizes existing terminal capacity and freeway capacity by distributing traffic over more hours of the day and reduces passenger traffic conflicts.
- **Local economic development:** The program will reduce travel times for drayage truckers, enabling them to make more trips between the Port and Distribution Centers in the same 8-hour shift.

Executive Order B-35-15 goals:

- **Economic competitiveness:** Reduced drayage trucking travel times and costs will improve the competitiveness of the Port of Oakland. The program would also reduce truck involved freeway collisions which represent significant economic costs.
- **Freight efficiency:** The program will reduce truck idling and emissions on key truck freeway access routes, including many that go through communities with existing air quality issues.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Port of Oakland Night and Weekend Gates

Project Costs:

Estimated project costs range from \$1,000,000 - \$5,000,000.

Project Timeline:

The project is ready to begin in 2016, assuming necessary funds are made available.

Means for measuring progress toward meeting goals over time:

Potential metrics to evaluate program success include level of utilization (e.g. trucks arriving at Port during night or weekend gates), freeway travel times, and truck-involved collision trends.

Description of the potential roles of the interagency partners:

MTC, BAAQMD, and Alameda CTC can provide funding support and technical analysis of the freeway congestion and emissions benefits from reducing daytime truck traffic. The Port of Oakland can continue to work with marine terminal operators and customers to implement extended gate hours.

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Project Title: Off-Peak Delivery Demonstration Program

Project Location: Downtown areas and big box retail centers region-wide

Project Summary: This program is modeled after the off-peak delivery program tested in New York City that shifted 20% of deliveries to off peak times at night and saw substantial reductions to city daytime congestion. Simulations of a similar program in Alameda County indicate benefits up to a 10.5% reduction in truck delay, with associated emission reductions. The program incentivizes businesses to receive deliveries overnight through financial incentives and strategies to make the process easier (e.g. delivery to a holding area so receiving business does not need to have an employee present overnight). Benefits to the trucking industry include improved travel speeds and easier parking, enabling them to make more deliveries and receive fewer parking tickets. Benefits to receiving businesses include an ability to focus on customer service during the day, rather than handling goods deliveries. The program would also reduce truck traffic and truck double parking during the day, improving safety and traffic flow.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Program components:

- **Local economic development:** The program will reduce costs for shippers and enable businesses to focus on customer service and operations.

Executive Order B-32-15 goals:

- **Economic competitiveness:** The program will reduce shipping costs, which could translate to lower operating expenses for receiving businesses to the extent that savings are passed on. The program enables businesses to better focus on customer service and business development.
- **Freight efficiency:** The program will reduce time that delivery vehicles spend stuck in traffic and searching for parking, reducing idling, reducing labor hours per delivery, and improving reliability of shipments.
- **Transitioning to zero-emission vehicles:** The program will reduce truck conflicts with other road users, thereby promoting passenger mode shift to active transportation modes.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Off-Peak Delivery Demonstration Program

Project Costs:

The cost of this demonstration effort is estimated at \$750,000 - \$1,500,000. The New York City demonstration had a budget of \$1.8 million for 8 delivery companies and 25 participating businesses.

Project Timeline:

Given that pilots have been completed in other regions, a Bay Area pilot could be ready to begin in 2016, assuming necessary funds are made available.

Means for measuring progress toward meeting goals over time:

The New York City pilot measured progress by monitoring average driving time per delivery and using surveys of truck drivers and receiving businesses to assess their satisfaction with the program.

Description of the potential roles of the interagency partners:

MTC, Alameda CTC, and BAAQMD can work together to prepare program guidelines to ease program implementation. Local jurisdictions can assist with ensuring that local regulations (e.g. noise ordinances) are supportive of overnight delivery. The East Bay Economic Development Agency and East Bay Transportation and Logistics Partnership can work to recruit building owners and managers to participate in off peak delivery programs.

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Project Title: Freight Corridors Community and Impact Reduction Initiative

Project Location: Communities adjacent to the Port of Oakland along the I-880, I-238, I-580, and I-80 Corridors

Project Summary:

This new program would help to fund impact reduction in neighborhoods immediately adjacent to existing freight facilities where adding buffers or relocating freight uses are not feasible. Rather than being tied to a particular source of pollution or treated as mitigation for a specific development project, these improvements would be independently designed and funded to reduce the overall impacts on sensitive land uses and local communities for both current and future impacts, including a focus on the Air District's *Care Communities*. The program also seeks to make use of impact reduction measures that could be implemented in the near-term, as opposed to innovative technologies which may take years to implement on a widespread basis. Examples include air filtration systems for schools and senior centers, or noise reduction improvements such as double-paned windows.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Program components:

- **Local economic development:** retrofitting buildings will create jobs and increase property values. In some communities (e.g. near rail lines) noise and other impacts hinder development activity and realization of transit oriented development plans.

Executive Order B-32-15 goals:

- **Economic competitiveness:** the competitiveness of the Port of Oakland requires ongoing support from neighboring communities. While the Port has aggressively reduced emissions through its Maritime Air Quality Improvement Program, neighboring West Oakland remains an air quality hot spot. This program recognizes that the physical location of most goods movement activities is unlikely to change, and so adjacent communities are likely to continue to experience some level of environmental burden.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project Title: Freight Corridors Community and Impact Reduction Initiative

Project Costs:

An estimated budget of \$5,000,000 would seed the first 2 years of this initiative with an ongoing funding base of between \$1,000,000-\$3,000,000 thereafter.

Project Timeline:

This effort is slated to begin as soon as funding is made available and will continue in perpetuity.

Means for measuring progress toward meeting goals over time:

Project benchmarks include separate coordination efforts of specific neighborhood and stakeholder groups.

Description of the potential roles of the interagency partners:

Alameda CTC and MTC can facilitate planning and project identification. Bay Area Air Quality Management District can facilitate planning and offer technical assistance on best practice measures for building retrofits. Local jurisdictions will play an essential role helping to identify specific retrofit projects.

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Project Title: Workforce Training for Goods Movement Supportive Jobs

Project Location: Alameda Countywide

Project Summary: The program seeks to offer job training to provide workers with skills necessary to pursue jobs in the transportation and logistics sectors, with a particular focus on jobs in modern transload warehousing facilities planned for the Oakland Army Base Redevelopment. These facilities could bring significant value-added activities as goods are transferred from international to domestic containers with associated high-skill, middle-wage jobs. These jobs would be in addition to those agreed as part of existing planned projects, such as those that are part of the Maritime and Aviation Project Labor Agreement.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Program components:

- **Local economic development:** An array of value-added activities can be performed in conjunction with transloading (the transfer of goods from a 40' international to 53' domestic container) including storage, blending, packaging, consolidated invoicing, combined product shipments, bar-coding and labeling. These activities require skilled workers. Engaging workers from Oakland and other communities in these jobs will address high local unemployment and provide associated economic stimulus.

Executive Order B-32-15 goals:

- **Economic competitiveness:** Shippers are demanding transloading facilities and consider this a key factor when choosing between ports. Investing in the workers needed to operate modern logistics warehousing on Port property will make the Port of Oakland uniquely competitive, as few other Ports offer transloading services within their property.
- **Freight efficiency:** Transloading enables more goods to be moved with fewer containers (i.e. truck trips), reducing congestion. Presently most transloading of goods moving through the Port of Oakland happens in the Central Valley, meaning more truck trips through the Bay Area.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project Title: Develop and Support for Workforce Training for Goods Movement Supportive Jobs

Project Costs:

\$100,000 is necessary to develop the initial program and identify key partners and stakeholders to host and administer the training programs. At this point an ongoing source of funds would need to be identified and secured.

Project Timeline:

This effort is slated to begin as soon as funding is made available.

Means for measuring progress toward meeting goals over time:

The specific benchmarks that will ensure success of this program will be identified by participating stakeholders.

Description of the potential roles of the interagency partners:

MTC and Alameda CTC can play a convening role, bringing together the numerous partners needed to implement this program. Workforce Investment Boards and Community Colleges are likely partners to provide training. The Port of Oakland and City of Oakland, as the primary agencies leading the redevelopment of the Oakland Army Base redevelopment, will be critical in identifying potential transload warehouse tenants and types of jobs likely to be present.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Metropolitan Transportation Commission

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Project Title: Development of Full-Service Truck Parking Facilities

Project Location: Bay Area Primary freight corridors like I-880, I-580, and US-101

Project Summary: Project consists of development of full-service overnight truck parking facilities to serve truck drivers that have reached the end of the maximum shift allowed under hour of service regulations. Incidence of truck drivers parking in residential neighborhoods is high along the I-880 corridor, and leads to noise, emissions, and safety issues. Truck parking would include truck stop electrification and could include ancillary services such as showers, food, fueling, and inspections. A *Truck Parking Facility Feasibility and Location Study* completed for Alameda County identifies numerous potential locations in key industrial locations such as Hayward, Union City and Fremont.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Project components:

- **Advanced technologies:** facilities could feature charging infrastructure and electrification for overnight auxiliary power.
- **Freight and fuel infrastructure:** facilities could serve as refueling stations for biofuels, hydrogen fuel, or other alternative fuels.
- **Local economic development:** facilities will include wraparound services such as food, refueling, inspections, and showers, creating jobs and local tax revenues and improving quality of life for truckers.

Executive Order B-32-15 goals:

- **Economic competitiveness:** full service truck parking will improve quality of life for truckers, helping to address driver shortages that currently challenge the industry.
- **Freight efficiency:** co-locating truck parking and services will reduce incidence of trucks driving to multiple locations for needed support activities, reducing VMT and operating costs.
- **Transitioning to zero-emission technologies:** truck parking facilities are ideal locations for charging and refueling infrastructure.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project title: Development of Full-service Truck Parking Facilities

Project Costs:

Estimated project costs range from \$10,000,000 - \$50,000,000.

Project Timeline:

This project is ready to begin immediately in 2016, or as soon as funds are available.

Means for measuring progress toward meeting goals over time:

Specific progress mechanisms have yet to be identified.

Description of the potential roles of the interagency partners:

Alameda CTC and MTC can work with cities to identify locations and provide funding from available programs. Bay Area Air Quality Management District can assist in coordination with State level partners to support the availability of Cap and Trade Funds. Private sector partners play a critical role in identifying cost-effective sites and incentives. Truck stop companies bid projects and operate facilities. Local jurisdictions can assist in identifying sites and ensuring zoning, noise regulations, etc. to support implementation of truck parking facilities.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Port of Oakland
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Project Title: Port of Oakland Marine Terminal On-Dock Rail

Project Location: Port of Oakland, Oakland, CA

Project Summary:

Installation of on-dock rail infrastructure and rail infrastructure to connect one of the Port of Oakland's marine terminals to the near-dock rail yard (approximately 30,000 feet of rail track) to allow trains to be loaded and unloaded inside of a marine terminal. The information provided in this pilot project analysis should be considered as indicative of the costs and potential feasibility of the project, yet not specific to any individual terminal as additional diligence, analysis and feasibility will be required.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

A major goal of the Port of Oakland and its regional transportation partners is the increased movement of goods to the Port by rail. On-dock rail capability would increase supply chain efficiency by eliminating the number of truck trips in and around the Port. Specifically, the majority of truck trips to/from the individual on-dock served marine terminal to the local, near-dock rail yards could be eliminated. Facilitating this supply chain improvement also results in a reduction of local roadway congestion and an improvement to local ambient air quality.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project Title: Port of Oakland Marine Terminal On-Dock Rail

Project Costs:

These costs are provided solely as preliminary estimates, and will require significant further refinement:

Based on data from other U.S. West Coast ports, the estimated cost to install on-dock rail infrastructure, as well as rail infrastructure to connect one of the Port's marine terminals to the near-dock rail yard, is \$100,000,000. This estimate is not based on a preliminary engineering design and is intended only to represent an order of magnitude cost. Further, it should be noted that this cost is not inclusive of CEQA/NEPA required mitigation(s), CPUC permitting requirements, gate modification requirements at the marine terminal, and assumes marine terminal pavement is restored only to current use.

Project Timeline:

This project would require at a minimum a 2-3 implementation period, not including additional engineering, design, and permitting requirements.

Means for measuring progress toward meeting goals over time:

A single vessel call can generate approximately five unit trains of intermodal cargo. Every train that is loaded on-dock can eliminate up to 750 truck trips, which is a potential total of 3750 truck trips to and/from the near dock rail yard for each vessel call.

Description of the potential roles of the interagency partners:

Primary responsibilities for coordination of many of these items will be undertaken by the Port of Oakland, its Marine Terminal Operators, and the Class I railroads that operate at the Port of Oakland. Additional coordination is required by U.S. Customs and Border Protection (for container screening), and coordination with the Metropolitan Transportation Commission, the Alameda County Transportation Commission, CalTrans and USDOT could be envisioned for infrastructure upgrades. Coordination with the Bay Area Air Quality Management District and the CA Air Resources Board could be contemplated for the truck emissions reductions benefits that would accrue from the project.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Port of Oakland
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Project Title: Zero Emission Container Handling Equipment Replacement

Project Location: Port of Oakland, Oakland, CA

Project Summary:

In an effort to further reduce sources of port-related emissions, the Port of Oakland has initiated a preliminary evaluation of the replacement of existing diesel container handling equipment with zero emission technologies. To the extent the feasibility, market readiness and access, and affordability of these types of equipment can be verified, such new and developing technologies can further improve local and regional air quality over and above existing efforts underway through the Port of Oakland's Maritime Air Quality Improvement Plan.

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Project involves the following actions:

- 1) Implement electrification of all Rubber Tire Gantry Cranes (RTGs) at all five marine terminals operating at the Port of Oakland (approximately 26 RTGs).
- 2) Replace diesel-powered heavy-duty yard tractors with zero emission lithium-ion battery powered yard tractors (approximately 237 yard tractors).
- 3) Replacement of diesel forklifts of various sizes utilized at terminals to move cone-bins, gear, parts, and to store chassis with lithium-ion battery powered equipment (approximately 49 forklifts).
- 4) Upgrades to existing electrical substations and the addition of new electrical substations to meet growing electrical power demand.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project Title: Zero Emission Container Handling Equipment Replacement

Project Costs:

These costs are provided solely as preliminary estimates, and will require significant further refinement based on market readiness, feasibility and funding availability:

- Battery Powered Forklifts: \$3.5 million
- RTG Crane Electrification: \$50 million
- Battery Powered Yard Tractors: \$55 million
- Electrical Substations Upgrades/Additions: \$25 million

Total initial projects costs are approximately \$133.5 million

Project Timeline:

The implementation timeline would be anticipated at 3-5 years if technically feasible, economically viable, and if third-party funding were found to accelerate the retirement of existing diesel equipment. Construction and permitting issues will need to be considered more thoroughly, as additional electrical substations will be needed to supply sufficient power to the port area grid.

Means for measuring progress toward meeting goals over time:

Utilization of zero and near-zero emissions equipment would be measurable via the rate of adoption and retirement of existing diesel-powered equipment. The Port regularly conducts a seaport emissions inventory for the purposes of the implementation and tracking of the existing Maritime Air Quality Improvement Plan.

Description of the potential roles of the interagency partners:

This project would need to rely extensively on state and/or local agency incentive funding. Marine Terminal Operators would have primary responsibility for purchasing, maintain and operating zero emission equipment for their vessel, yard, and gate operations. The Port of Oakland may need to work with local utility providers to construct new substations to supply additional electrical power for the increased demand.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Port of Oakland

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Project Title: Port of Oakland Supply Chain Efficiency Initiatives

Project Location: Port of Oakland, Oakland, CA (and various)

Project Summary:

The following initiatives are intended to improve the supply chain efficiency and cargo flow through the Port of Oakland:

- 1) Implementation of extended marine terminal gate hours – reduces truck wait and transaction times
- 2) Implementation of a grey (common) chassis pool – reduces the need to move equipment around and increases equipment supply
- 3) Implementation of a technology to track performance metrics of trucks moving through the Port area – tracking truck wait times inside and outside marine terminals
- 4) Expansion of Marine Terminal Appointment Systems – fully integrated system would improve user experience and smooth peak congestion for trucks
- 5) Construction of marine terminal gate modifications – improves truck flow and reduces bottlenecks at marine terminal entrances and exits
- 6) Implementation of off-dock depot – allows for exchange of equipment outside Port area

Detailed Description of project alignment with goals and components of the Sustainable Freight Action Plan:

Taken both individually as component pieces and together as a whole, these initiatives have been identified as key drivers to make the Port a more efficient place to do business and to reduce negative impacts of congested roadways and hours wasted. These initiatives have been identified by all of the Port stakeholders as priorities to reduce vehicle miles traveled, reduce the overall number of truck trips within the region, reduce the amount of wait time for truckers entering marine terminals and locating available equipment. In addition, the technology to track performance metrics will improve the overall information about Port operations and allow stakeholders to be better informed.

California Sustainable Freight Action Plan: Pilot Project Ideas

Joint Bay Area Project Submissions

Project Title: Port of Oakland Supply Chain Efficiency Initiatives

Project Costs:

These costs are provided solely as preliminary estimates, and will require further refinement:

- Extended Marine terminal Hours - an additional Saturday gate would cost approximately \$400K per each Saturday Port-wide or \$20-30 million annually.
- Grey Chassis Pool – Implemented by the Chassis operators – no cost metrics available at this time
- Performance Metric Technology – Pilot program is underway and port-wide rollout is estimated to cost \$350K along with a \$50K cost for annual maintenance
- Appointment System - \$2 million cost of software and configuration to existing systems
- Marine Terminal Gate Modifications: \$900K
- Implementation of Off-dock depot: \$1 million (recurring costs of operation subject to additional refinement)

Project Timeline:

Full implementation of the suite of initiatives, if funding is available and allocated, could be achieved by 4th quarter 2016

Means for measuring progress toward meeting goals over time:

Various means/methods would be available. Truck turn time reductions would be measured via ITS improvements; truck Vehicle Miles Traveled reductions due to availability of equipment (chassis, empty containers, etc.) outside of Port area could be modeled and/or quantified; utilization of extended gate hours measurable on a container throughput basis and will result in increased efficiencies during standard operating hours.

Description of the potential roles of the interagency partners:

Primary responsibilities for coordination of many of these items will be undertaken by the Port of Oakland and/or its marine terminal operators/tenants. Additional coordination is required by U.S. Customs and Border Protection (for extended gate operations), and coordination with the Metropolitan Transportation Commission, the Alameda County Transportation Commission, CalTrans and USDOT could be envisioned for ITS projects and enhancements. Coordination with the Bay Area Air Quality Management District and the CA Air Resources Board could be contemplated for projects that reduce overall VMT and emissions (such as the off-dock equipment depot).