



**California Sustainable Freight Strategy
Discussion Concepts
September 5, 2014**

Background:

In January 2014, the Air Resources Board (ARB) adopted Resolution 14-2, directing staff to develop the Sustainable Freight Strategy (Strategy) that, among other things, would consist of a set of recommendations for near-term actions (by ARB and others) to move California towards a sustainable freight transport system. The Board also directed staff to complete a sector based technology and fuel assessment on trucks, rail, ships, commercial harbor craft, cargo handling equipment and aircraft. This parallel effort serves as the technical foundation for the development of the Strategy and upcoming State Implementation Plans, and implementation of the Climate Change Scoping Plan.

Throughout the last nine months, over 200 stakeholder organizations engaged with ARB regarding the Sustainable Freight Strategy (Strategy), resulting in over 150 meetings and conference calls. Staff used smaller focus groups, individual meetings, and calls to discuss the needs of and approaches to a sustainable freight system, and individual stakeholder concerns and concepts. Coordination with Caltrans has been an ongoing priority to ensure consistency across planning efforts through participation in the California Freight Advisory Committee and development of the Freight Mobility Plan. Staff also participated in various tours of freight facilities and support operations including airports, ports, rail yards, warehouses, and distribution centers.

During these discussions, we asked and received input on many questions including:

- What is a sustainable freight system?
- What issues and concerns do you feel must be addressed if a sustainable freight system is to be achieved?
- What actions do you think government should take to encourage both the general business community, and supply chain businesses in particular, to help meet sustainability goals?
- How does the California freight system become more efficient so it can expand, be competitive and reduce emissions? Are there any hurdles that exist within the existing goods movement system that, if removed, could provide better efficiency and a more sustainable freight system?

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- Do you have suggestions regarding potential funding and market mechanisms to support the transformation of freight-related infrastructure, vehicles, equipment and operations?
- What actions would you recommend as next steps to achieving a sustainable freight system?
- What is the best way to engage additional stakeholders?

We received many concepts to improve the freight system and sorted them into eight categories, with an initial assessment of their potential for near-term development. With the Board's direction in mind, some of these broad concepts are identified for additional analysis and possible inclusion in the November discussion draft. The remaining concepts represent those that may be included in future analyses.

As requested by stakeholders, we are providing the full list of concepts below to encourage additional discussions about how they might translate into preliminary recommendations for specific near-term actions. These are not staff recommendations. Once additional stakeholder input is received, staff will develop the concepts into recommendations for the discussion draft of the Strategy to be released in November 2014. We will then present the discussion draft to the Board as an informational item in December 2014. The Board will not take action on the Strategy in December as staff will continue to work with stakeholders to conduct additional workshops, refine the Strategy, and complete an economic analysis and an environmental assessment during the Spring of 2015. We anticipate presenting the Strategy to the Board for consideration and action in Summer 2015.

Action requested:

We are seeking stakeholder input that will inform the development of these or other concepts into recommendations for near term actions (by ARB and others) for inclusion in the November discussion draft. Along those lines, ARB staff is also continuing to request references to any data or information to aid our analysis and development of recommendations.

Feedback may be provided at any of the September 2014 Sustainable Freight Strategy Workshops or via email at freight@arb.ca.gov. Additional information regarding the Strategy can be found here: <http://www.arb.ca.gov/gmp/sfti/sfti.htm>.

Additional information regarding the technology and fuels assessments can be found here: <http://www.arb.ca.gov/msprog/tech/tech.htm>.

A. Logistics and Infrastructure Efficiencies: Achieve efficiency gains within the California freight system from 2012 to 2020, 2030 and 2050 that provide time and/or cost savings, and reduce air pollution.	
<i>Stakeholder discussion concepts identified for additional analysis and possible inclusion in discussion draft.</i>	
1	Develop metric(s) to assess and set goals for freight system efficiency improvements.
2	Maximize trailer/container use through strategies such as: <ul style="list-style-type: none"> • Identify suppliers at or near existing delivery points to fill backhauls, • Develop web-based information exchange platforms that allow users to match freight movement needs with available space in trailers or containers to reduce empty backhauls, • Establish a universal chassis fleet at ports, and • Provide incentives to limit container dwell time.
3	Reduce time delays and idling due to long truck queues through more efficient pickup systems, such as automated queuing or appointment systems combined with cell phone waiting lots for truck visits at border crossings, ports, rail yards, and distribution centers.
4	Increase efficiency of last-mile deliveries and urban freight through strategies such as: <ul style="list-style-type: none"> • Shared space on local delivery trucks, • Bicycle courier/delivery services where appropriate, • In-store/locker pick up instead of home delivery, and • Centralized distribution centers.
5	Consider mode-shift (air cargo versus rail versus barge versus truck) as a system efficiency strategy by assessing alternatives.
6	Increase capacity of existing freight system through intelligent transportation systems (e.g. Freight Advanced Traveler Information System (FRATIS) or connected vehicles).
7	Provide “Eco driver” training for truck drivers and equipment operators to ensure fuel efficiency and emission reductions are optimized through use and maintenance.
8	Evaluate viability and benefit of clean truck corridors through demonstration projects (e.g. 710 with dedicated truck lanes and footprint for wayside power or truck traffic associated with Oakland near-dock rail).
<i>Stakeholder discussion concepts to be considered for subsequent analyses.</i>	
9	Increase capacity of the existing freight system through strategies involving managing system logistics (e.g. terminal automation, inbound “destination loading” on ships, expanded hours of operation, limited entry into urban areas via cordon pricing); increasing cargo moved per trip (e.g. double stacking containers on rail); or prioritizing freight access using vehicle-to-infrastructure communication and traffic engineering (e.g. traffic signal priority).
10	Utilize emerging technologies such as 3D printing to bring manufacturing jobs to California, potentially reducing the demands on the supply chain.
11	Additional operational efficiencies for airports, seaports, rail yards, distribution centers, warehouses and border crossings.
12	Electric infrastructure for the freight system where feasible (i.e. catenary systems and "shore power" systems for trucks and air cargo) including on-corridor solar.
13	Fast track zero emission, near-zero emission technology infrastructure projects.

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A.	Logistics and Infrastructure Efficiencies (continued):
14	Consolidate urban freight hubs.
15	Add fueling pipelines at airports to eliminate fueling trucks.
16	Grade separation for rail/vehicle interfaces, wherever feasible.
17	Additional truck/highway ramp metering, access and improvements.
18	Additional road maintenance/resurfacing projects (Fix it First).
19	Rail track improvements and expansion.
20	Provide transportation data in a user friendly format to assist truck drivers in understanding truck routes.

B. Engines/Equipment: Develop, demonstrate, and deploy zero emission technology where feasible; technology capable of zero emission miles; and cleanest combustion everywhere else.	
<i>Stakeholder discussion concepts identified for additional analysis and possible inclusion in discussion draft.</i>	
<i>On-road: local, regional, and interstate trucks.</i>	
1	Reduce emissions of existing and future engines in-use. Possible approaches may include: expanded warranty requirements, expanded recall authority, new on-board diagnostics, truck inspection requirements, and stricter opacity standards for ARB smoke inspection programs.
2	Ensure the cleanest, most efficient vehicles are available for fleets moving freight. This may include well-to-wheel performance standards, lower NOx standards, improved certification requirements, or dedication of cleanest vehicles to California service.
3	Focus efforts through national or California actions on battery and fuel cell trucks in vocational applications where the technology is likely to reach commercialization first (e.g. drayage, local delivery vocations, or other sectors/vocations) and hybridization of long haul applications.
4	Develop regulatory requirements and incentive programs together in order to identify priority technology demonstrations and pilot projects, and accelerate commercialization to meet regulatory requirements.
5	Prioritize zero emission vehicles in sectors where they are nearing commercial viability.
<i>Off-road: locomotives, vessels/harbor craft, aircraft, cargo/ground support equipment, transport refrigeration units.</i>	
6	Ensure the use of the most efficient zero emission cargo handling and ground support equipment.
7	Focus efforts on battery, fuel cell and hybrid off-road equipment in applications where the technology is likely to reach commercialization first. This may include forklifts or other sectors as they are identified.
8	Develop regulatory requirements and incentive programs together in order to identify priority technology demonstrations and pilot projects, and accelerate commercialization to meet regulatory requirements.

B. Engines/Equipment: (continued):	
<i>Stakeholder discussion concepts to be considered for subsequent analyses.</i>	
Off-road: locomotives, vessels/harbor craft, aircraft, cargo/ground support equipment, transport refrigeration units (continued):	
9	Reduce emissions from deterioration of engines deployed in the in-use fleet. Potential options include expanded warranty requirements, on-board diagnostics, and inspection/maintenance requirements.
10	Ensure the use of the cleanest, most efficient freight equipment. Possible approaches include: cleaner national locomotive, ship & aircraft emission standards (including consideration of well to wheel/hull emission standards), improved certification requirements, dedication of cleanest equipment to California service, aerodynamics and lightweighting, development of technologies that result in more efficient ocean going vessels and commercial harbor craft, demonstration of technology (engine controls, aftermarket treatment or capture equipment).

C. Energy/Fuel: Transition to a freight system powered by renewable, low carbon energy.	
<i>Stakeholder discussion concepts identified for additional analysis and possible inclusion in discussion draft.</i>	
1	Accelerate the availability and use of the cleanest low carbon biofuels.
2	Enhance and strengthen the Low Carbon Fuel Standard with long term targets that continue reductions in average carbon intensity.
3	Support actions to further ultra-low sulfur diesel use in Mexico.
<i>Stakeholder discussion concepts to be considered for subsequent analyses.</i>	
4	Standardized charging and demand charge policies for heavy-duty zero emission and near-zero technologies.

D. Other Emission Reduction Approaches: Other approaches to reduce emissions and/or health risk from California's freight system.	
<i>Stakeholder discussion concepts identified for additional analysis and possible inclusion in discussion draft.</i>	
1	Implement freight facility reporting requirements to collect all necessary data to analyze air quality impacts of such facilities.
2	Consider development of facility-based strategies to reduce community exposure to emissions from those freight facilities by setting declining caps on emissions.
3	Continue to partner with additional agencies to implement ARB regulations (e.g. air districts and ports).
<i>Stakeholder discussion concepts to be considered for subsequent analyses.</i>	
4	Community engagement and empowerment - update ARB's Public Participation Guide.

E. Land-use: Develop and use sustainability principles, criteria, and tools for new and expanded freight facilities, and freight transportation infrastructure projects, that put air quality and public health considerations on an equal footing with other considerations in the siting, design, and operation of projects.

Stakeholder discussion concepts identified for additional analysis and possible inclusion in discussion draft.

1	<p>Develop a freight handbook to provide guidance for siting, design, and operational characteristics of freight facilities and freight-related infrastructure projects. Potential elements could include:</p> <ul style="list-style-type: none"> • Use of the lowest emission technologies and accommodation of future advanced technologies (such as electric charging infrastructure), • Use of green equipment for freight infrastructure construction and maintenance, • Project-level health risk analysis that includes localized and regional impacts, • Truck parking in urban areas for safe, secure overnight stays, • Community exposure reduction through buffer zones, vegetation and filters, etc., • Distribution center locations that minimize vehicle miles traveled and community exposure, • Green building requirements for warehouses and distribution centers, • Criteria for truck routing that include minimizing exposure to air pollution, • Principles and criteria for transportation infrastructure projects, and • Identification of high priority local projects for ARB involvement.
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Stakeholder discussion concepts to be considered for subsequent analyses.

2	Enhanced State role in coordinated freight transportation and land-use planning.
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F. Monetary Incentives: Seek private and public investment to fund projects that will increase efficiency and advance the California freight system towards zero emissions.

Stakeholder discussion concepts identified for additional analysis and possible inclusion in discussion draft.

1	Seek ongoing funding program for equipment and infrastructure to assist with transforming the freight system.
2	Support incentives and low cost loans to accelerate the development/purchase/use of advanced technologies including the associated infrastructure.
3	<p>Determine priorities for public funding and how to more effectively use all pots of funds (State, federal and local).</p> <ul style="list-style-type: none"> • Incentive funding that leads to a cleaner, more efficient freight transportation system, • Infrastructure funding for projects that incentivize or require the use of advanced technologies, and • Funding for projects that maximize the benefits of public investment, which may be measured by meeting State environmental, sustainability, and economic goals.

F. Monetary Incentives: (continued):	
<i>Stakeholder discussion concepts to be considered for subsequent analyses.</i>	
4	Identify “metrics of accountability” for publicly funded freight projects that promote a sustainable freight network that will transform California's freight system to a zero emission system while supporting economic growth and improving overall system efficiency.

G. Non-monetary Incentives: Develop and implement programs that provide significant non-monetary incentives to achieve increased efficiencies and accelerated emission reductions from the California freight system.	
<i>Stakeholder discussion concepts identified for additional analysis and possible inclusion in discussion draft.</i>	
1	Public recognition programs for utilizing advanced clean technology within the freight system (e.g. Green Fleets).
2	Preferential freight facility and corridor access for advanced technologies.
<i>Stakeholder discussion concepts to be considered for subsequent analyses.</i>	
3	Incentives for early adopters of advanced technologies.
4	Consider electric rate structure that encourages broader use of electric freight equipment.
5	Reduce or eliminate transportation infrastructure access fees for advanced technology equipment.
6	Advanced technology truck delivery parking in urban areas.

H. Economy and Jobs: Recognize regional economies and current workforce training levels. Improve the competitiveness of California’s logistics system to support regional and State economies. Identify workforce development needs, including education and job training to provide a reliable workforce for logistics operations.	
<i>Stakeholder discussion concepts identified for additional analysis and possible inclusion in discussion draft.</i>	
1	Develop economic goals for the logistics industry in California, including in-state manufacture of advanced freight equipment and complementary strategies to increase competitiveness of California businesses in the national/international freight system.
2	Identify actions needed to prepare for a growing freight system including: educating and expanded the existing workforce, and ensuring the necessary equipment and infrastructure is in place.
3	Expand the truck driver pool.
<i>Stakeholder discussion concepts to be considered for subsequent analyses.</i>	
4	Logistics related workforce development through education and training prioritized on communities impacted by freight transport.