

STATE OF CALIFORNIA
Budget Change Proposal - Cover Sheet
 DF-46 (REV 08/15)

Fiscal Year 2016-17	Business Unit 3900	Department Air Resources Board	Priority No. 4
Budget Request Name 3900-304-BCP-BR-2016-A1		Program 3500 – Mobile Source	Subprogram N/A

Budget Request Description
 Sustainable Freight Action Plan and Implementation

Budget Request Summary

The Air Resources Board is requesting \$1.3 million for 8 permanent full-time positions and \$200,000 per year in contract funds from the Motor Vehicle Account for Sustainable Freight.

California needs a significant reduction in freight-related emissions to reduce localized cancer risks near freight hubs, meet federal air quality standards, reduce short-lived climate pollutant emissions, and achieve the State's greenhouse gas reduction goals. To do this, Governor Brown's Executive Order B-32-15 directs the development and implementation of the California Sustainable Freight Action Plan to begin transforming the state's freight transport system to one powered with zero and near-zero emission equipment.

The Air Resources Board requests the resources needed to implement activities required as a result of the Executive Order. This includes staff to: negotiate, develop, and implement Sustainable Freight measures; complete other Sustainable Freight activities and deliverables outlined in the Executive Order; certify new engines/technology in support of Sustainable Freight; and contract funds for economic data gathering and modeling.

Requires Legislation <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Code Section(s) to be Added/Amended/Repealed
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Does this BCP contain information technology (IT) components? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Department CIO	Date
<i>If yes, departmental Chief Information Officer must sign.</i>		

For IT requests, specify the date a Special Project Report (SPR) or Feasibility Study Report (FSR) was approved by the Department of Technology, or previously by the Department of Finance.

<input type="checkbox"/> FSR	<input type="checkbox"/> SPR	Project No.	Date:
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If proposal affects another department, does other department concur with proposal? Yes No
 Attach comments of affected department, signed and dated by the department director or designee.

Prepared By Heather Arias	Date 3/29/16	Reviewed By Alice Stebbins	Date 3-28-16
Department Director Richard W. Corey	Date 3/29/2016	Agency Secretary Matthew Rodriguez	Date 3-19-16

Department of Finance Use Only

Additional Review: Capital Outlay ITCU FSCU OSAE CALSTARS Dept. of Technology

BCP Type: Policy Workload Budget per Government Code 13308.05

PPBA	Original Signed By: Ellen Moratti	Date submitted to the Legislature APR 01
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A. Budget Request Summary

Work has been done to reduce emissions from individual equipment categories, including trucks, locomotives, aircraft, and ships. However, achieving California's long-term environmental and health objectives is best accomplished in the context of a system wide change. To do this, Executive Order B-32-15 directs the development and implementation of the California Sustainable Freight Action Plan. The Action Plan will establish clear targets to improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California's freight system; as well as include specific recommendations, actions, investments, and milestones to achieve these targets. The Executive Order also requires the Air Resources Board (ARB), in collaboration with the state's transportation, energy, natural resources, and business development agencies, to initiate work on corridor-level freight pilot projects within the State's primary trade corridors that integrate advanced technologies, alternative fuels, freight and fuel infrastructure, and local economic development opportunities. Staff must work to coordinate Sustainable Freight efforts across the multiple state agencies. Staff will also expand community-focused work related to Sustainable Freight to include development of a freight facility handbook, which will identify best practices for new freight hubs and infrastructure including the siting, design, and operation of those facilities.

ARB requests 8 positions and \$200,000 per year in contract funds from the Motor Vehicle Account. This includes 1 Air Resources Supervisor I, 1 Staff Air Pollution Specialist, 1 Air Resources Engineer, and 3 Air Pollution Specialists to meet the increased workload to negotiate, develop, and implement emission reduction measures and other strategies identified for action in ARB's 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document; develop and implement corridor-level freight pilot projects; develop and implement a freight facility handbook; as well as provide support for other activities and deliverables required for the Action Plan.

As a result of new freight technologies, an additional 2 Air Resources Engineers are needed to increase staff resources for new engines/technology certification in support of the Sustainable Freight effort. One position will be in the New Vehicle/Engine Program Branch and one position will be in the On-board Diagnostics Branch. Manufacturers will bring new technology solutions to ARB for certification under the Innovative Technology Regulation. These technologies will support the commercialization of freight equipment with zero or near-zero emissions. All requested positions will directly support the increase in workload to review, evaluate, test, and certify equipment in a timely manner.

ARB also requests contract funds for external researcher(s) to model the California freight transport system and analyze the economic impact of achieving California's near-term and future Sustainable Freight goals. The research will model the California freight transport system and provide methodologies by which to measure the impact of pathways to achieve California's 2030 and 2050 goals. Additionally, it will be used to inform the economic impact of the actions, and timing of measures identified in the California Sustainable Freight Action Plan.

B. Background/History

The ships, harbor craft, trucks, locomotives, cargo equipment, aircraft, and other equipment that move freight to, from, and throughout California are significant contributors of fine particulate matter, black carbon/diesel soot, and greenhouse gas emissions, as well as the nitrogen oxides that form ozone. These emissions are a public health concern at both regional and community levels and contribute to global warming. Work has been done to reduce emissions from these individual pieces of equipment. However, the emissions from operations at major freight facilities still pose unacceptable health risks and must be further reduced to protect nearby communities. New health science tells us that infants and children are 1.5 to 3 times more sensitive to harmful effects of exposure to air toxics, like those emitted from freight equipment, than we previously understood. This heightens the need for further risk reductions. State Implementation Plan requirements needed for attainment of federal air quality standards for ozone and particulate matter, targets established in the Short-Lived Climate Pollutant Reduction Strategy for reducing black carbon, and meeting the State's greenhouse gas reduction goals also require aggressive emission reductions and transformation of the freight sector to zero or near-zero emission technologies and in the context of a system wide change.

ARB's 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document outlines ARB's vision for a clean freight system, together with the immediate and near-term measures necessary to support use of zero and near-zero emission technology. On July 17, 2015, Governor Brown issued Executive Order B-32-15, which directs state agencies to develop an integrated action plan by July 2016. The California Sustainable Freight Action Plan will establish clear targets to improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California's freight system. It must also identify state policies, programs, and investments to achieve these targets. It is an initial step in an ambitious, integrated effort to produce and implement a unified sustainable freight transportation vision and action plan for California. To do this, the Action Plan must integrate freight elements from a number of existing plans, and staff must work to achieve consistency across all efforts. To progress towards a sustainable freight system, ARB and the other agencies must begin work in 2016-2017 on corridor-level freight pilot projects within the state's primary trade corridors that integrate advanced technologies, alternative fuels, freight and fuel infrastructure, and local economic development opportunities. Staff must also develop and implement a freight handbook, which will identify best practices for new freight facilities and infrastructure and call attention to air quality/climate needs upfront in project siting, design, and operational decisions.

Currently, all planning, measure development, and interagency coordination work related to Sustainable Freight is done by staff redirected from other freight-related tasks, including implementation and compliance assistance for existing diesel regulations. However, as staff begin to develop Sustainable Freight measures for Board consideration; continue to work with agency partners to develop the California Sustainable Freight Action Plan; develop and implement corridor-level freight pilot projects; develop and implement a freight facility handbook; and complete deliverables for Executive Order B-32-15, the additional increased workload will require resources far beyond the current level, or that can be drawn away from other programs.

The advancement of zero and near-zero equipment use through the Sustainable Freight effort will also result in an increase in the number of manufacturers and applications to ARB for certification of innovative technologies. The proposed Innovative Technology Regulation was identified as a near-term action in the 'Sustainable Freight Pathways to Zero/Near-Zero Emissions' Discussion Document and is intended to provide defined, near-term ARB certification approval flexibility to help accelerate development and deployment of the cleanest feasible technologies for all vehicle and equipment sectors, with broad deployment of zero- and near-zero emission trucks and buses. These include transformational zero and near-zero-emission technologies California needs to meet its long-term air quality and climate goals.

The current certification workload is at a maximum with the processing of over 500 emissions certifications and diagnostic system approvals by existing staff. Processing additional applications with existing resources will create backlog and compromised certification reviews. Delayed and compromised certifications will result in market launch delays and reduce the emission benefits of existing programs and the intended benefits of the Innovative Technology Regulation. As such, additional resources are needed to handle the increased workload to review, evaluate, test, and certify the equipment in a timely manner.

C. State Level Considerations

Sustainable Freight is a top priority for the state. The diesel equipment operating in and around freight hubs, such as seaports, rail yards, and warehouse and distribution centers, is a significant source of diesel particulate matter, a toxic air contaminant that can cause cancer and other health problems, including respiratory illnesses, increased risk of heart disease, and premature death. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly, who may have other serious health problems. The tables below show the premature deaths, hospitalizations, and emergency room visits associated with freight emissions of both primary particulate matter 2.5 and secondary particulate matter 2.5 (particle nitrates formed from photochemical reactions of the precursor nitric oxide). These estimates do not include the health impacts of ozone pollution from freight emissions, or the component of particulate matter 2.5 due to secondary sulfate from freight emissions.

TABLE 1: Statewide Health Effects and Valuation (2013 \$) Associated with Freight Emissions Contributing to Particulate Matter 2.5—Midpoint Projections

	2012	2030	2050
Mortality	2,200	980	1,100
Hospitalizations*	330	150	160
Emergency Room Visits†	950	420	450
Valuation (billions)	\$20	\$9	\$10

*Include respiratory and cardiovascular hospitalizations

† Includes asthma and cardiovascular emergency room visits

TABLE 2: Statewide Health Effects and Valuation (2013 \$) Associated with Freight Emissions Contributing to Particulate Matter 2.5—Uncertainty Ranges**

Particulate Matter 2.5 and Nitric Oxide	2012	2030	2050
Mortality	1,700-2,700	770-1,200	830-1,300
Hospitalizations*	43-770	19-340	20-370
Emergency Room Visits†	600-1,300	260-570	280-620
Valuation (billions)	\$16-\$24	\$7-\$11	\$7-\$12

*Include respiratory and cardiovascular hospitalizations

**Uncertainty ranges only reflect uncertainty in the concentration-response function, and do not reflect uncertainty in emission projections, spatial interpolation, and aggregation.

† Includes asthma and cardiovascular emergency room visits

In March 2015, the Office of Environmental Health Hazard Assessment released an update to its recommended methodology for conducting health risk assessments in California. In the last decade, advances in science have shown that early-life exposures to air toxics contribute to an increased lifetime risk of developing cancer, or other adverse health effects, compared to exposures that occur in adulthood. The new risk assessment methodology addresses this greater sensitivity and incorporates the most recent data on childhood and adult exposure to air toxics. For many facilities, use of the new risk assessment methodology and the current air dispersion model will result in higher pollutant concentrations, higher exposures, and higher estimated potential cancer risks than would have been calculated with the prior (2003) methodology—for the same level of emissions. The potential inhalation cancer risk using the new methodology may be 1.5 to 3 times (or more) higher than was estimated using the 2003 methodology.

The transition to a sustainable freight system powered by zero emission equipment is critical to address these localized health impacts, attain air quality standards, and achieve climate goals. Executive Order B-32-15 furthered the state’s commitment to a sustainable freight system. The Sustainable Freight effort advances Administration priorities in the areas of public health, air quality, climate change mitigation, energy, and transportation by promoting the objectives of the following state plans, policies, and initiatives:

- Executive Order B-16-2012 – Lowering the carbon intensity of the freight sector with improved efficiency and the use of zero and near-zero emissions vehicles and equipment using renewable fuels will help meet the state’s goal of achieving an 80 percent reduction in GHG emissions from the transportation sector from 1990 levels by 2050.
- State Implementation Plan – Freight-related emission reductions are needed to help meet federal air quality standards, which require significant reductions over the next 15 years to meet ozone and particulate matter 2.5 standards in the South Coast and San Joaquin Valley. The

next State Implementation Plan in 2016 will require emission reductions from actions and measures described in the 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document and the California Sustainable Freight Action Plan.

- AB 32 Scoping Plan - The 2013 update to the Climate Change Scoping Plan, which serves as the state's strategic plan for implementing AB 32, highlights Sustainable Freight as key to achieving deep emission reductions in the transportation sector.
- Short-Lived Climate Pollutant Reduction Strategy – The Short-Lived Climate Pollutant Reduction Strategy includes emission reduction concepts for California's freight system that align with strategies identified in the 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document. The California Sustainable Freight Action Plan will identify additional strategies that further reduce black carbon emissions throughout the transportation sector, especially along freight corridors and near ports and rail yards where diesel particulate matter concentrations are high.
- California Freight Mobility Plan, California Transportation Plan, and Integrated Energy Policy Report - The California Freight Mobility Plan and California Transportation Plan 2014, released by the California State Transportation Agency and California Department of Transportation outline the state's transportation vision. The California Energy Commission's Updated Integrated Energy Policy Discussion Document Report discusses the state's energy needs. ARB's 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document articulates the air quality needs and vision for the future. Together, these documents provide a foundation for the California Sustainable Freight Action Plan that will include targets, actions, and pilot projects that will help determine how to achieve a sustainable freight transport system.

The requests in this proposal should not have any fiscal impact to other state departments.

D. Justification

ARB does not have staff available to support the increased workload related to implementation of the California Sustainable Freight Action Plan. This includes the intensive interagency coordination work staff must carry-out during the development of the California Sustainable Freight Action Plan to achieve consistency across the state agencies. This also includes work staff must begin in 2016-2017 to develop and implement measures identified in ARB's 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document, as well as evaluate potential new measures and other approaches to meet multiple air quality and climate goals. In addition, the introduction of new, cleaner, and more efficient technologies through demonstration projects has the potential to bridge the current technology gap to further California's trajectory towards a sustainable freight transport system. Thus, to progress towards a sustainable freight system, ARB, in collaboration with the state's transportation, energy, natural resource, and business development agencies must begin work now on development and implementation of corridor-level freight pilot projects that integrate advanced technologies, alternative fuels, freight and fuel infrastructure, and local economic development opportunities. Staff must also expand community-focused work related to Sustainable Freight to provide assistance on large freight facility design, as well as the development and implementation of a freight facility handbook, which will identify best practices for new freight hubs and infrastructure including the siting, design, and operation of those facilities.

The resource requests are based on the preliminary list of potential agency actions; pilot projects publically released on January 21, 2016 and initially presented to the Legislature on January 25, 2016; and upcoming implementation, review, and updated needs related to the California Sustainable Freight Action Plan. ARB staff expect these efforts to be ongoing for the foreseeable future as this is a multi-decade initiative, which will need to be monitored, re-evaluated, and adjusted as technologies and the freight system evolve.

If the requested resources to meet the increased workload are not approved now, then staff will not be able to complete deliverables of the California Sustainable Freight Action Plan, as directed by Executive Order B-32-15. Waiting until the Sustainable Freight Action Plan is final in budget year 2017-2018 to request resources would compromise ARB's ability to fulfill its responsibilities in a timely

manner. Freight-related emission reductions are also needed to meet federal air quality standards. The next State Implementation Plan in 2016 will draw from the actions and measures described in the ‘Sustainable Freight Pathways to Zero and Near-Zero Emissions’ Discussion Document and the California Sustainable Freight Action Plan. If the requested resources are not approved, the state will not achieve critical emission reductions needed to meet State Implementation Plan requirements, reduce black carbon emissions from diesel equipment needed to meet targets established in the Short-Lived Climate Pollutant Reduction Strategy, or achieve greenhouse gas reduction goals. Additionally, the health risk from diesel particulate matter in the most impacted communities around freight hubs will not be reduced.

Based on past experience, ARB anticipates that five technical positions will be filled by staff including 1 Air Resources Engineer, 1 Staff Air Pollution Specialist, and 3 Air Pollution Specialists. These new positions will create a new dedicated section to meet the increased workload. The sixth position will be a supervisor to manage the newly created section. More details on the resource needs are described below and in Attachment A.

Resource Need/Task	Requested Resources		
	FY 2016/17	FY 2017/18	FY 2018/19 & ongoing
<p>Develop, implement, and update the California Sustainable Freight Action Plan. Negotiate, develop, and implement measures identified in ARB’s ‘Sustainable Freight Pathways to Zero and Near-Zero Emissions’ Discussion Document. Evaluate potential new measures and other approaches. Specific tasks include:</p> <ul style="list-style-type: none"> • Engage high-level public and private stakeholders on freight policies, plans, and strategies. • Coordinate and participate in internal multi-division teams, external stakeholder groups, and multi-agency meetings on the development and implementation of the California Sustainable Freight Action Plan. • Review progress towards targets and effects on the economy/freight system. Update Action Plan as needed. • Prepare and review technical documents, briefing materials, fact sheets, and other documents. • Perform complex evaluations and health risk assessments, analyze technical data, and review literature to provide background and expertise in support of measure development and implementation. • Coordinate and provide technical assistance at meetings, workshops, and telephone conferences with governmental agencies, industry representatives, environmental groups, and other stakeholders. • Provide complex and detailed feedback in response to stakeholder comments. • Draft regulatory documents (rulemaking packages, Board notices, and technical support documents), and make presentations on regulatory efforts in support of the California Sustainable Freight Action Plan. • Assess regulatory measures to provide basis for 	1 PY	1 PY	1 PY

Analysis of Problem

<p>environmental analysis under the California Environmental Quality Act.</p> <ul style="list-style-type: none"> Evaluate feasibility and applicability of technologies in the overall freight system. 			
<p>Primary lead of regulatory efforts in support of Sustainable Freight. Secure and manage contracts for researcher(s) to assess the impact of the California Sustainable Freight Action Plan on the freight transport system and the California economy. Specific tasks include:</p> <ul style="list-style-type: none"> Lead technical staff that negotiate, develop, and implement measures identified in ARB's 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document. Lead the development and technical analysis of new freight-related emission reduction measures and other approaches. Prepare and present comprehensive technical reports. Work with other ARB and sector experts to evaluate technology proposals. Represent ARB in public forums. Secure and manage multiple contracts. Develop Scope of Work, including specific milestones, timelines, reports, deliverables, and end-products. Coordinate with State personnel to review and award contract. Coordinate the activities of the contractor, ARB, and other State agencies for the economic assessment of the California Sustainable Freight Strategy. Coordinate and conduct periodic review meetings between ARB technical staff and the contractor(s). Track and report on contract deliverables. Includes technical review of project reports. 	<p>1 PY and \$200K contract support</p>	<p>1 PY and \$200K contract support</p>	<p>1 PY and \$200K contract support</p>
<p>Develop, implement, and update a freight handbook to identify best practices for new freight hubs and infrastructure including the siting, design, and operation of those facilities. Evaluate and provide assistance on large freight facility development, including multiple environmental analyses for freight hubs each year. Specific tasks include:</p> <ul style="list-style-type: none"> Research related regulatory requirements, technologies, emissions, state and local CEQA guidelines, and Environmental Impact Reports. Conduct extensive outreach with air districts, local land use planners, environmental and public health groups, project proponents, and other stakeholders. Advocate with lead agencies for implementation of the handbook to provide the lowest emission growth possible. Continuous evaluation of new emissions data and technologies to provide updates to the handbook. Review and analyze project level air quality and health risk impacts using tools and guidelines including OEHHA and HARP. 	<p>2 PY</p>	<p>2 PY</p>	<p>2 PY</p>

<ul style="list-style-type: none"> • Draft technical correspondence, formal comment letters, and memos during the environmental review process and local engagement. Includes associated technical support documents. • Engage governmental agencies, industry representatives, environmental and community groups, developers, and other stakeholders at meetings, workshops, and telephone conferences on the development of freight facility and infrastructure projects, particularly during the environmental review process. • Research and review existing literature on local-level freight issues, opportunities, facilities, and projects. • Provide complex and detailed feedback in response to stakeholder comments. • Review and analysis of technical documents including Environmental Impacts Reports, project proposals, and associated documents. • Interpret scientific and technical reports to make recommendations. • Prepare technical materials, correspondence, briefing materials, and fact sheets as needed. 			
<p>Develop and implement corridor-level freight pilot projects. Analyze data to provide basis for the economic assessment of regulatory efforts, including overall cost estimates, savings, cost-effectiveness of emission reductions, and impacts on the economy. Specific tasks include:</p> <ul style="list-style-type: none"> • Work with the state's transportation, energy, natural resource, and business development agencies on the evaluation of corridor-level freight pilot project proposals. • Conduct outreach to private fleets to encourage participation in the design and implementation of pilot projects; facilitate coordination with existing similar programs to inform project design. • Advise project proponents on appropriate local permits and in identifying funding for zero and near-zero emission vehicles and equipment for selected pilot projects. • Provide technical assistance by evaluating appropriateness of project vehicle and equipment technology applications for pilot projects. • Provide testing, monitoring, and quantification of project criteria and greenhouse gas emission impacts. • Provide guidance on technology mitigation measures for project environmental impacts. • Review work plans and project records, monitor performance, make site visits, and other evaluations related to the development and implementation of corridor-level freight pilot projects 	1 PY	1 PY	1 PY
<p>Supervise above duties/staff. Specific tasks include:</p> <ul style="list-style-type: none"> • Review and edit technical reports and/or other written materials. 	1 PY	1 PY	1 PY

Analysis of Problem

<ul style="list-style-type: none"> • Manage staff and resources. • Coordinate and communicate work activities with internal and external stakeholders. • Prioritize assignments. • Accurately assess time and resources. 			
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As a result of new freight technologies, an additional 2 Air Resources Engineers are needed in the New Vehicle/Engine Program and On-Board Diagnostics Branches to increase staff resources for new engines/technology certification in support of the Sustainable Freight effort. The requested resources will ensure timely and robust certification under the additional proposed certification pathways and allow funding and/or sales of technologies that are a critical bridge to meeting future targets. The current certification workload is at a maximum with the processing of over 500 emissions certifications and diagnostic system approvals by existing staff.

If the additional resources requested are not approved, then a backlog in certifications will result. Consequent substandard certifications or reduced number of technologies that are certified and advanced toward high volume commercialization will reduce the emission benefits of existing programs and intended benefits of the Innovative Technology Regulation, and delay the introduction of much-needed advanced technology the freight industry needs to achieve its share of needed emission reductions to meet air quality and climate goals. More details on the resource needs are described below and in Attachment A.

Resource Need/Task	Requested Resources		
	FY 2016/17	FY 2017/18	FY 2018/19 & ongoing
Certification, review, and testing of new engines/technology in support of Sustainable Freight. Specific tasks include: <ul style="list-style-type: none"> • Technical discussions with manufacturers to discuss the Innovative Technology Regulation and necessary steps needed for compliance with emission certification. • Review and analyze manufacturer proposed technology to determine its effectiveness and applicability to the Innovative Technology Regulation and evaluate the technology's emissions impact (new technologies could require longer review times). • Coordinate and facilitate technical and complex negotiations with manufacturers to provide feedback regarding their submitted innovative technology (new technologies could require longer negotiation times). • Review and process applications. • Review test plans. 	1 PY	1 PY	1 PY
<ul style="list-style-type: none"> • Pre-certification negotiations with manufacturers to review new and revised diagnostic strategies, including possible effects of the new technology on the base emissions control strategies and on-board diagnostics designs. • Review of on-board diagnostics applications to ensure diagnostic strategies meet regulatory requirements, determination of on-board diagnostic system deficiencies, negotiation of fines if applicable, and writing of approval letters. • Review of post-certification data required by the 	1 PY	1 PY	1 PY

<p>Innovative Technology Regulation and negotiation with manufacturers regarding non-compliance.</p> <ul style="list-style-type: none"> Assist manufacturers in meeting on-board diagnostics requirements as specified in the Innovative Technology Regulation. 			
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ARB is also requesting \$200,000 per year in ongoing contract funds for external researcher(s) to assess the impact of achieving California’s near-term and future Sustainable Freight goals on the freight transport system and the California economy. The research will model the California freight transport system and provide methodologies by which to measure the impact of pathways to achieve California’s goals. Additionally, it will be used to inform the economic impact of the actions, and timing of measures identified in the California Sustainable Freight Action Plan. The research will also inform the implementation and evaluation of corridor-level freight pilot projects. Contract funds to secure external researcher(s) are necessary since ARB does not have sufficient freight economic expertise available in-house.

E. Outcomes and Accountability

Under this proposal, ARB will create an additional section to meet the increased workload to negotiate, develop, and implement emission reduction measures identified in ARB’s ‘Sustainable Freight Pathways to Zero and Near-Zero Emissions’ Discussion Document; as well as provide support for other activities and deliverables required for the California Sustainable Freight Action Plan, including additional measures, pilot projects, and a freight facility handbook. Transitioning California’s freight transport system to a sustainable freight transport system is a multi-decade effort and will center on zero-emission technology development and increased efficiency, demonstrating solutions through pilot projects, and once proven, crafting system-wide measures requiring its use in the freight sector. Implementation of the freight emission reduction measures and pilot projects will be an on-going effort.

Projected Outcomes

ARB Workload Measure	BY	BY+1	BY+2	BY+3	BY+4
Development and implementation of emission reduction measures. ¹	1	1	2	2 ²	2
Coordinate and participate in meetings, workshops, and telephone conferences on regulatory measures and development of the California Sustainable Freight Action Plan.	100	100	100	100	100
Implementation of freight pilot projects. ³	1	1	1	1	1
Develop and manage research contracts. ⁴	1	2	3	4	5
Develop and Implement Freight Facility Handbook ⁵	1	1	1	1	
Update Freight Facility Handbook ⁶					1

¹ Projected number of emission reduction measures to be developed each year. This reflects the average time of 18 months needed to complete the full stakeholder and regulatory development process, including CEQA and economic assessments. This number does not fully capture the increase in projected workload. This is due to the complex and controversial technical work required to negotiate, develop, and implement emission reduction measures.

² The first half of BY+3 reflects the completion of two measures started in BY+2. The second half of BY+3 reflects the start of two measures, to be completed in BY+4.

³ Projected number of freight pilot projects to be developed each year. This number does not fully capture the increase in projected workload due to frequent and ongoing review of work plans and project records, performance monitoring, site visits, and other evaluations.

⁴ Projected number of research contracts actively developed/managed per year. Contracts are expected to be multiyear and overlap as contracts are developed, executed, and completed.

⁵ Development and implementation of Freight Handbook Includes extensive research and stakeholder input.

⁶ Staff will review new and emerging technologies; and emissions limits and requirements; and update accordingly.

As shown in the projected outcome table below, the requested resources for the New Vehicle/Engine Program and the On-Board Diagnostic Branches will directly support the increase in the number of new manufacturers and applications for the emissions and on-board diagnostics certification of heavy-duty engines using the Innovative Technology Regulation (ITR) pathway. The increased number of certifications will advance new technologies toward high volume commercialization needed to meet federal air quality standards and State greenhouse gas reduction goals.

Projected Outcomes

ARB Workload Measure	BY	BY+1	BY+2	BY+3	BY+4
ITR Tier 1 OBD Applications Processed ¹	2	5	6	4	3
ITR Tier 2 OBD Applications Processed ¹	1	2	3	6	7
ITR Tier 1 Emissions Applications Processed ¹	5	10	15	10	10
ITR Tier 2 Emissions Applications Processed ¹	2	5	7	10	12

¹ The number of applications processed does not fully capture the increase in complexity in reviewing the certification applications resulting from introduction of advanced technologies or new, complex test procedures. The complexity in reviewing a certification application depends on the technology the manufacturer employs on those engines/vehicles. The more complex the technology, the more complex the review.

Acquiring \$200,000 per year in contract funds will allow ARB to secure external researcher(s) to provide data and modeling necessary to assess the impact of achieving California’s near-term and future Sustainable Freight goals on the freight transport system and the California economy. This research will help inform the economic assessment of freight-related actions.

F. Analysis of All Feasible Alternatives

ARB has considered four alternatives:

Alternative 1: Approve Proposal. ARB requests \$1.3 million for 8 permanent full-time positions and \$200,000 per year in contract funds for staff needed to negotiate, develop, and implement Sustainable Freight measures, complete other Sustainable Freight activities and deliverables, augment staff resources for new engine/technology certification in support of the Sustainable Freight effort, and contract external economic and supply chain systems experts. These resources are needed to implement the actions required by Executive Order B-32-15.

Alternative 2: Approve the contract funds only. If no new staff resources are provided for development and implementation of Sustainable Freight measures, the state may not achieve emission reductions as required to meet federal air quality standards and state greenhouse gas goals. If no new staff resources are provided for new engine/technology certification, ARB will get further behind as the number of certification applications under the Innovative Technology Regulation increases. This will delay the introduction of technology the freight industry needs to achieve its share of emission reductions as well as create backlogged and compromised certification reviews. Delayed and compromised certifications will result in market launch delays and reduce the emission benefits of existing programs.

Alternative 3: Redirect Other ARB Resources to Accomplish the Necessary Tasks. In theory, ARB could divert other staff from existing programs to fulfill the increasing workload. However, given the magnitude of the necessary resources, redirection is not possible without halting action on other ARB and Administration priorities, including programs required under federal and state law.

Alternative 4: Do Nothing. Do not provide ARB resources for development and implementation of Sustainable Freight measures or new engine/technology certification. Without additional resources, ARB will not have adequate staff to negotiate, develop and implement some of the emission reduction measures identified for action in ARB’s ‘Sustainable Freight Pathways to Zero and Near-Zero

Emissions' Discussion Document needed to meet federal air quality standards and State climate change goals. Staff will also not be able to effectively influence the details of new freight facilities in the design phase when it is the least expensive to include the infrastructure and operational parameters to support low emission operation (versus retrofitting existing facilities). Staff will also not be able to adequately review and evaluate manufacturer's proposed new technologies to lower nitrogen oxides and greenhouse gas emissions. This will delay the introduction of technology the freight industry needs to achieve its share of emission reductions, as well as create backlogged and compromised certification reviews. Delayed and compromised certifications will result in market launch delays and reduce the emission benefits of the existing programs and intended benefits of the Innovative Technology Regulation. Lastly, without contract funds to secure external researcher(s) to assess the impact of achieving California's near-term and future Sustainable Freight goals, California will not have the ability to promote efficient and effective measures for the freight transport system and the California economy.

G. Implementation Plan

ARB will begin recruiting and hire new staff immediately upon approval. New staff will develop emission reduction strategies identified by the 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document as appropriate under state law as quickly as possible to meet public health and climate change needs and continue work with agency partners to implement the California Sustainable Freight Action Plan, which is due in July 2016. ARB will also begin recruiting, hiring, and training new staff for the review and approval of manufacturer's applications for emissions and on-board diagnostics certification of heavy-duty engines. For economic data gathering and modeling, ARB will develop a solicitation to secure contractor(s) to begin work in 2017.

H. Supplemental Information

Not applicable.

I. Recommendation

ARB recommends approving Alternative 1 requesting \$1.3 million for 8 permanent full-time positions and \$200,000 per year in contract funds, for activities related to implementation of the 'Sustainable Freight Pathways to Zero and Near-Zero Emissions' Discussion Document and California Sustainable Freight Action Plan. If this request is not approved, then ARB will not have adequate staff to develop and implement all of the emission reduction measures or complete deliverables, as directed by Executive Order B-32-15. Staff will also not be able to adequately review and evaluate manufacturer's proposed new technologies to lower nitrogen oxides and greenhouse gas emissions in a timely manner. This will delay the introduction of much-needed advanced technology the freight industry needs to achieve its share of needed emission reductions. Lastly, without contract funds to secure external researcher(s), ARB will not be able to obtain the necessary economic data and modeling to help inform freight actions moving forward.

BCP Fiscal Detail Sheet

BCP Title: Sustainable Freight Action Plan and Implementation

DP Name: 3900-304-BCP-DP-2016-A1

Budget Request Summary

	FY16					
	CY	BY	BY+1	BY+2	BY+3	BY+4
Positions - Permanent	0.0	8.0	8.0	8.0	8.0	8.0
Total Positions	0.0	8.0	8.0	8.0	8.0	8.0
Salaries and Wages						
Earnings - Permanent	0	763	763	763	763	763
Total Salaries and Wages	\$0	\$763	\$763	\$763	\$763	\$763
Total Staff Benefits	0	359	359	359	359	359
Total Personal Services	\$0	\$1,122	\$1,122	\$1,122	\$1,122	\$1,122
Operating Expenses and Equipment						
5301 - General Expense	0	16	16	16	16	16
5302 - Printing	0	8	8	8	8	8
5304 - Communications	0	16	16	16	16	16
5320 - Travel: In-State	0	32	32	32	32	32
5322 - Training	0	8	8	8	8	8
5324 - Facilities Operation	0	24	24	24	24	24
5340 - Consulting and Professional Services - External	0	200	200	200	200	200
5346 - Information Technology	0	32	24	24	24	24
Total Operating Expenses and Equipment	\$0	\$336	\$328	\$328	\$328	\$328
Total Budget Request	\$0	\$1,458	\$1,450	\$1,450	\$1,450	\$1,450
Fund Summary						
Fund Source - State Operations						
0044 - Motor Vehicle Account, State Transportation Fund	0	1,458	1,450	1,450	1,450	1,450
Total State Operations Expenditures	\$0	\$1,458	\$1,450	\$1,450	\$1,450	\$1,450
Total All Funds	\$0	\$1,458	\$1,450	\$1,450	\$1,450	\$1,450
Program Summary						
Program Funding						
3500 - Mobile Source	0	1,458	1,450	1,450	1,450	1,450
Total All Programs	\$0	\$1,458	\$1,450	\$1,450	\$1,450	\$1,450

Personal Services Details

Positions	Salary Information								
	Min	Mid	Max	<u>CY</u>	<u>BY</u>	<u>BY+1</u>	<u>BY+2</u>	<u>BY+3</u>	<u>BY+4</u>
3735 - Air Resources Engr (Eff. 07-01-2016)				0.0	3.0	3.0	3.0	3.0	3.0
3762 - Air Resources Supvr I (Eff. 07-01-2016)				0.0	1.0	1.0	1.0	1.0	1.0
3875 - Staff Air Pollution Spec (Eff. 07-01-2016)				0.0	1.0	1.0	1.0	1.0	1.0
3887 - Air Pollution Spec (Eff. 07-01-2016)				0.0	3.0	3.0	3.0	3.0	3.0
Total Positions				0.0	8.0	8.0	8.0	8.0	8.0
Salaries and Wages	CY	BY	BY+1	BY+2	BY+3	BY+4			
3735 - Air Resources Engr (Eff. 07-01-2016)	0	283	283	283	283	283			
3762 - Air Resources Supvr I (Eff. 07-01-2016)	0	111	111	111	111	111			
3875 - Staff Air Pollution Spec (Eff. 07-01-2016)	0	102	102	102	102	102			
3887 - Air Pollution Spec (Eff. 07-01-2016)	0	267	267	267	267	267			
Total Salaries and Wages	\$0	\$763	\$763	\$763	\$763	\$763			
Staff Benefits									
5150210 - Disability Leave - Nonindustrial	0	4	4	4	4	4			
5150350 - Health Insurance	0	112	112	112	112	112			
5150500 - OASDI	0	58	58	58	58	58			
5150600 - Retirement - General	0	185	185	185	185	185			
Total Staff Benefits	\$0	\$359	\$359	\$359	\$359	\$359			
Total Personal Services	\$0	\$1,122	\$1,122	\$1,122	\$1,122	\$1,122			