I-710 Clean Truck Program

Program Description

Draft

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I-710 Clean Truck Program

1. Introduction

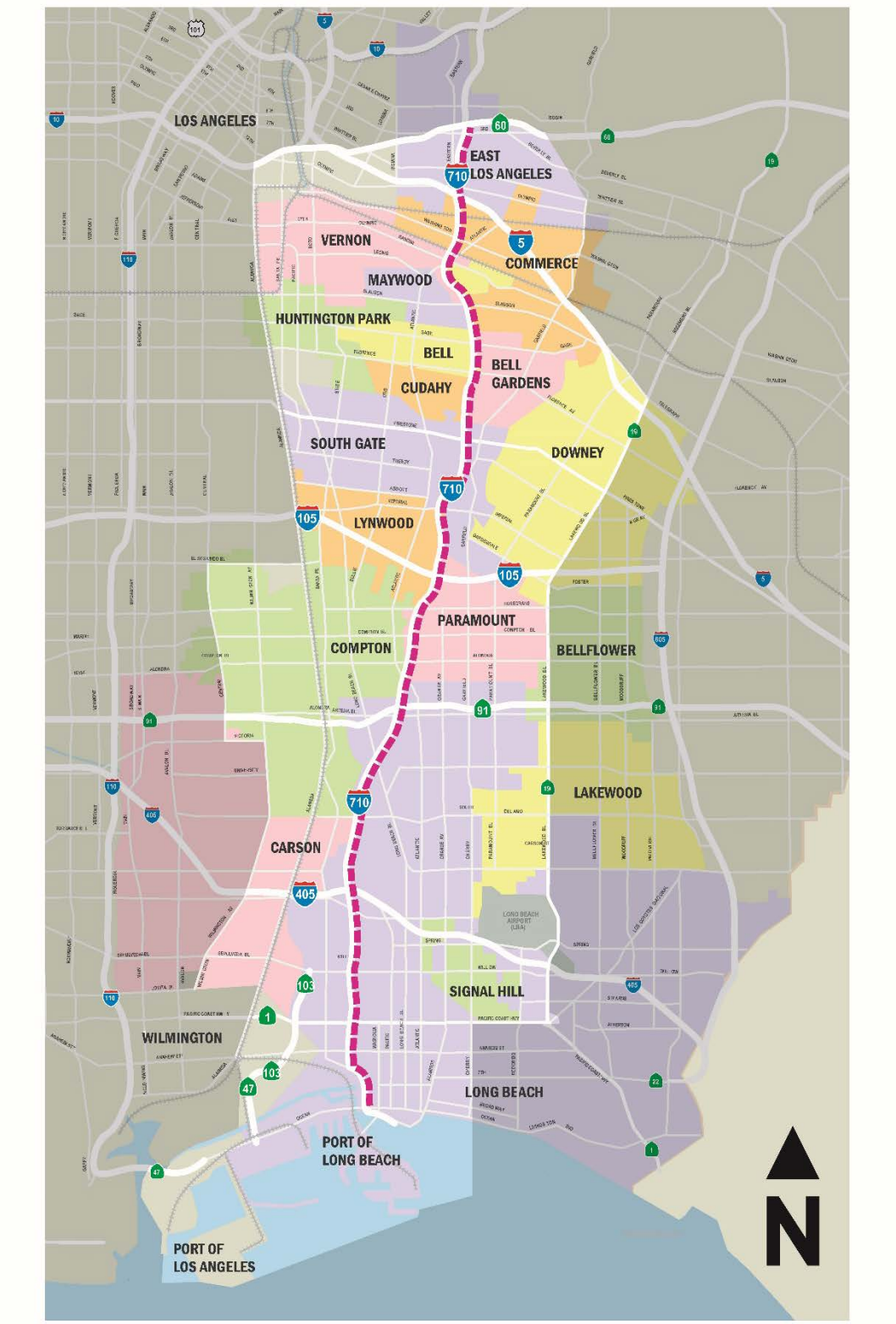
The I-710 Clean Truck Program (or "Program") is an element of the I-710 Project that will put 4,000 zero- and near-zero emissions trucks on I-710, so that 4,000 fewer diesel trucks would travel through I-710 communities. The I-710 Clean Truck Program is designed to improve both existing and future air quality for people that live, work, and play near the I-710 freeway.

As part of the overall I-710 Project, the I-710 Clean Truck Program will be implemented in parallel with the proposed operational and capacity improvements to the I-710 freeway as well as in conjunction with other I-710 programs, including the I-710 Early Action Soundwall Program, the I-710 Community Health Benefit Program, and the I-710 Congestion Relief Program. For a complete description of the entire I-710 Project, please refer to Chapter 2 of the I-710 Corridor Project Environmental Impact Report/Environmental Impact Statement (EIR/EIS.) While there are several programs and initiatives throughout the state and the Southern California region that seek to implement near zero- and zero-emissions trucks, the I-710 Clean Truck Program focuses exclusively on the I-710 Corridor. See Figure 1, I-710 Corridor Study Area, for a map of the I-710 Corridor.

Chief among these other state and regional programs are: California's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), the Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program), and the San Pedro Bay Ports Clean Air Action Plan (CAAP). As the I-710 Clean Truck Program is further developed and moves into implementation, Metro will continue to coordinate with the California Air Resources Board, the South Coast Air Quality Management District, and the Ports of Los Angeles / Long Beach as part of an integrated approach to achieving cleaner air associated with heavy duty truck movement. A key forum for these cooperative discussions will be the I-710 Air Quality Steering Committee (I-710 Steering Committee), which is described under Program Organization Roles and Responsibilities.

The I-710 Clean Truck Program is structured to bring NZE/ZE trucks specifically to the I-710 Corridor communities and thus it supplements and complements the HVIP, Carl Moyer, and CAAP programs. The basis of the I-710 Clean Truck Program is the deployment of 4,000 NZE/ZE trucks within the I-710 Corridor, which would otherwise not occur through these other programs as the I-710 Project is developed and implemented. Moreover, these additional I-710 Program trucks would be required to travel within the I-710 Corridor as opposed to elsewhere within the region.

Figure 1. I-710 Corridor Study Area



As part of its strategy to advance goods movement technologies throughout Los Angeles County - including near zero- and zero-emissions trucks – Metro established the Countywide Clean Truck Initiative (CCTI) in late 2019. Please see Appendix A for information on Metro's Countywide Clean Truck Initiative. Several of the goals of the CCTI are shared by the I-710 Clean Truck Program. The I-710 Clean Truck Program is an early initiative within the CCTI. Further, the CCTI provides a useful institutional basis, as well as organizational support, for the I-710 Clean Truck Program.

2. Program Organization

2.1. I-710 Clean Truck Program Memorandum of Understanding

In October 2019, a Memorandum of Understanding (MOU) was executed among the Los Angeles County Metropolitan Transportation Authority (Metro), the California Department of Transportation - District 7 (Caltrans – District 7), the Gateway Cities Council of Governments (Gateway Cities COG), and the Southern California Association of Governments (SCAG) to establish the framework for the development of the I-710 Clean Truck Program. The MOU also provided for the formation of the I-710 Steering Committee, which is charged with guiding the development of the I-710 Clean Truck Program. Please refer to Appendix B for a copy of the *Memorandum of Understanding Creating the I-710 Corridor Air Quality Steering Committee*.

The MOU also outlined the primary responsibilities of the I-710 Steering Committee, which are to:

a. Further develop implementation details, including eligibility requirements, institutional arrangements, management, and administration for the Clean Truck Emissions Program.*
b. Explore and identify funding opportunities, financial impact, and other implementation factors along with the development of a phasing plan for the achievement of the funding target developed by Caltrans and Metro for the Clean Truck Emissions Program, and the more comprehensive goals, based on existing and new potential funding, including local, state, federal and private resources. This includes collaborating with the Port of Long Beach, the Port of Los Angeles, and the South Coast Air Quality Management District in identifying funding and project/program opportunities to implement.
c. Develop a strategy that outlines the progressive transition to ZEVs in the I-710 Corridor starting with the latest feasible and sustainable technologies.
d. Identify and evaluate other potential strategies to address the air quality concerns in the I-710 Corridor.
e. Obtain or assist with obtaining funding to implement the Clean Truck Emissions Program and more comprehensive programs.
f. Issue quarterly reports on the development and progress toward the established and agreed upon goals. The progress reports will be presented to the governing bodies of the participating agencies and those of other agencies as necessary.

* Please note that the "Clean Truck Emissions Program" referenced in the MOU has been titled the I-710 Clean Truck Program.

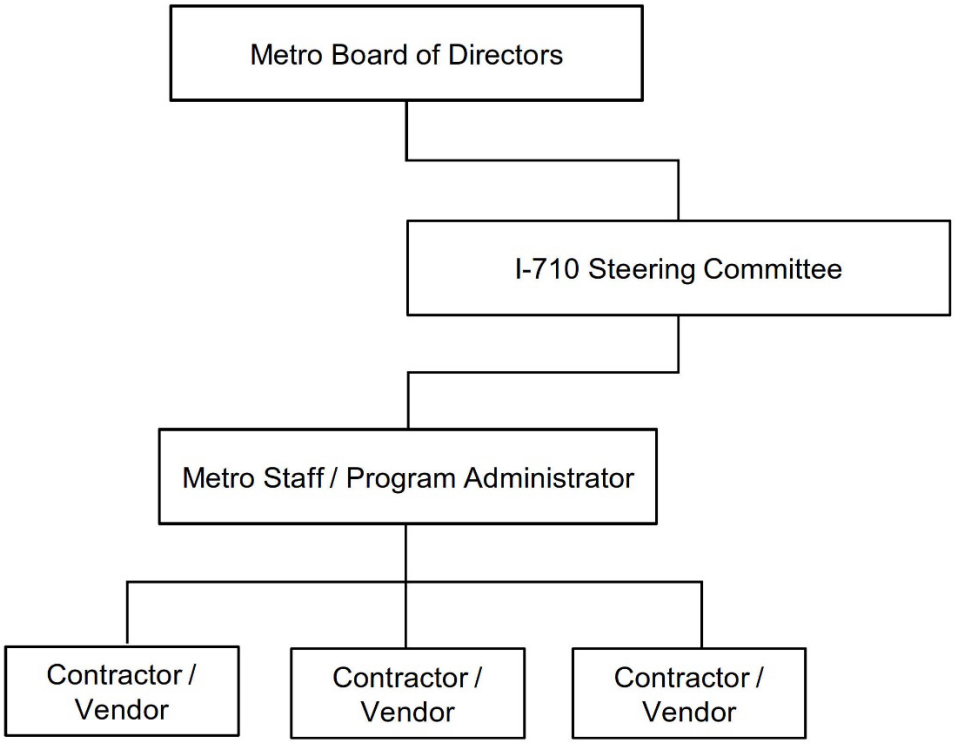
2.2. Implementing Agency

Metro will serve as the Implementing Agency and Program Administrator for the I-710 Clean Truck Program, with the assistance of the I-710 Steering Committee.

2.3. Organization Chart

Figure 2 illustrates the organizational framework for the I-710 Clean Truck Program.

Figure 2. I-710 Clean Truck Program Organization Chart



Metro Board of Directors: As the implementing agency, the Metro Board of Directors will have full responsibility and authority for I-710 Clean Truck Program development and implementation. The Metro Board of Directors will also have final approval of all major policy decisions related to the Program. Consistent with the I-710 Corridor EIR/EIS and conformity finding, the Board will provide overall policy direction on Program goals, objectives, and implementation through Board action. The Metro Board will also provide a public forum to review and consider features of the I-710 Clean Truck Program, including public board meetings and reports on various aspects and progress made on implementing the Program.

I-710 Steering Committee: The membership of the I-710 Steering Committee will be a steering committee drawn largely from the larger CCTI Working Group and supplemented by additional stakeholders – specifically those representatives from selected agencies and localities who have a focused interest in the I-710 Corridor and who are prepared to devote

the time and effort to successfully launch and oversee the Program. At a minimum, the I-710 Steering Committee will include the signatory parties of the I-710 Clean Truck Program MOU – Metro, Caltrans-District 7, Gateway Cities COG, and SCAG – along with representatives from FHWA, SCAQMD, CARB, EPA, the Port of Long Beach, and the Port of Los Angeles. In addition to the responsibilities outlined in the I-710 Clean Truck Program MOU, the I-710 Steering Committee will ensure consistency with Board-approved Program goals and objectives as well as ensure that Program milestones and Program NZE/ZE travel requirements are met. The I-710 Steering Committee will also review, advise, and make recommendations on all key facets of Program development, implementation, and funding, as well as Program tracking, monitoring, and reporting.

Metro Staff / Program Administrator: Metro will serve as the day to day Administrator for the Program. The function of Program Administrator will be performed by Metro staff or by a contractor hired by Metro or by a combination of the two. The Program Administrator will be responsible for developing proposals and options to present to the I-710 Steering Committee on Program development, implementation, funding opportunities, rankings and selections, and Program awards. The Program Administrator will also be responsible for day to day activities associated with managing contracts with recipients of Program funds, managing agreements with partner agencies for grants and funding, developing fiscal plans and budgets, ensuring compliance with Program requirements, tracking NZE/ZE truck vehicle miles traveled (VMT), and preparing status reports and presentations to the I-710 Steering Committee and Metro Board of Directors.

Contractors / Vendors: At its discretion, Metro may elect to contract with consultants, agencies, organizations, or vendors to implement specific tasks associated with Program Administration. These activities could include, but not limited to, tasks such as procuring software and Automated Vehicle Locator (AVL) equipment to monitor NZE/ZE truck travel within the I-710 Corridor; development and maintenance of a NZE/ZE truck VMT data base; Program website development and maintenance; and preparation of grant proposals; along with specialty services related to zero emissions technologies, financial and auditing services, and marketing services for Program outreach and recruitment.

Further detail on roles and responsibilities associated with Program development, implementation, and management is outlined in Appendix C, I-710 Clean Truck Program Roles and Responsibilities.

3. Program Goals and Milestones

3.1. Near Zero Emissions / Zero Emissions (NZE/ZE) Trucks

The primary goal of the I-710 Clean Truck Program is to improve both existing and future air quality within the Corridor, especially for those who are located near the I-710 freeway. Of

particular concern is diesel particulate matter from the projected operation of heavy duty trucks on I-710 that contributes to cancer risk and other public health concerns within the I-710 Corridor.

The I-710 Clean Truck Program seeks to accomplish this goal by deploying 4,000 NZE/ZE trucks in the I-710 Corridor by 2035. A significant portion of the truck trips that are currently served by diesel trucks on I-710 would be taken over by these NZE/ZE trucks. Through implementation of the Program, the number of diesel truck trips on I-710 would be reduced relative to the future No Build condition. Therefore, a related objective of the Program is to reduce the number of I-710 diesel truck trips, both now and in the future, by the time the I-710 Corridor Project is constructed by 2035.

Original forecasts for the I-710 Clean Truck Program estimated that for 4,000 trucks to be deployed, approximately $100 million in incentive funding would be needed for truck owner-operators to enable them to transition from diesel trucks to near zero- and zero emissions trucks. In March 2017, the Metro Board of Directors raised the funding target level for the Program from $100 million to $200 million. [Note: the cost for the full Program will ultimately depend upon the future costs of developing near zero and zero emissions vehicle technologies relative to the costs of owning and operating conventional diesel trucks among other factors.] In April 2020, the Metro Board programmed $50 million in locally controlled funds to provide funding for the Initial Deployment Phase of the I-710 Clean Truck Program and to leverage the remaining funds required for full Program implementation.

The following milestones, as shown in Figure 3, have been established for the I-710 Clean Truck Program based on funds identified to date, targets established by the Metro Board of Directors, and the anticipated pace of freeway construction for the overall I-710 Project.

Figure 3. I-710 Clean Truck Program Major Milestones

Deployment Phase	Timeframe	NZE/ZE Trucks
Initial Phase *	2022 - 2025	600 NZE/ZE Trucks
Phase 2	2026 – 2030	1,700 NZE/ZE Trucks
Phase 3	2031 - 2035	1,700 NZE/ZE Trucks
Full Program (Total)	2022 - 2035	4,000 NZE/ZE Trucks

* To date, Metro has secured $50 million to implement the Initial Phase of the I-710 Clean Truck Program

It is Metro's intention, along with support from Caltrans District 7, the Gateway Cities COG, SCAG, and SCAQMD, to begin the I-710 Clean Truck Program as soon as feasible upon approval of the I-710 Corridor Project EIR/EIS. It is important to the communities that line the I-710 freeway to

begin to turn over diesel trucks to NZE/ZE trucks as soon as possible to maximize the air quality benefits to be achieved through the Program. As stated above, Metro has already secured $50 million and intends to utilize these funds for the Initial Deployment Phase and to help secure more funding for the overall Program for subsequent phases.

The Initial Deployment Phase, including the approach used to determine the level of NZE/ZE trucks and diesel truck trip reductions in the I-710 Corridor, is described in Section 10, Initial Deployment Phase - Technical Demonstration.

Responsibility for ensuring Program compliance with achieving reasonable progress towards planned milestones for NZE/ZE Truck Deployment shall reside with the I-710 Steering Committee, with technical support provided by Metro. See Appendix C, I-710 Clean Truck Program Roles and Responsibilities. Throughout the duration of the Program, the I-710 Steering Committee shall monitor and review plans for construction staging on an annual basis to ensure that appropriate levels of NZE/ZE trucks are proposed and delivered through the Program to match the pace of freeway construction and to ensure reasonable progress towards each planned milestone. The I-710 Steering Committee shall also review the number of diesel truck trips to be reduced for each planned, future construction stage relative to the No Build condition using methods and metrics similar to those outlined in Section 10, Initial Deployment Phase – Technical Demonstration. Another important aspect of this compliance process is to ensure that recipients of Program funds meet their NZE/ZE travel requirements, as measured by vehicle miles traveled in the I-710 Corridor. See Section 8, Tracking, Monitoring, and Reporting for further details on this aspect of the Program.

3.2. Zero Emission Truck Fueling/Charging Infrastructure

In addition to the deployment of 4,000 NZE/ZE trucks needed to reduce diesel truck trips in the I-710 Corridor, another goal of the I-710 Clean Truck Program is to assist in the future market transition from diesel and near zero emissions trucks over to zero emissions trucks to facilitate reductions in greenhouse gases as a means to help combat climate change. For this reason, the I-710 Clean Truck Program includes a program feature that allows for the funding of up to 20 electric charging stations and 10 hydrogen refueling stations for zero emissions heavy duty trucks. The main purpose of the power infrastructure feature of the Program is to encourage the future development and deployment of zero emissions trucks through the provision of seed funding of selected charging/hydrogen refueling projects within the I-710 Corridor. [Note: near zero emissions trucks do not utilize electrical charging or hydrogen refueling stations.]

The charging and refueling stations will be targeted to locations served by heavy duty vehicles such as intermodal terminals (ports/rail yards) and warehouse/distribution centers within the travel shed of the I-710 Corridor. This infrastructure effort will be accomplished in partnership with the Ports, Freight railroads and other stakeholders.

As Program Administrator, Metro staff will be responsible for working with the I-710 Steering Committee to develop the Program criteria for partnering with agencies, local jurisdictions, non-

profit, and private organizations to help facilitate the development of the electric charging stations/hydrogen fueling stations within the I-710 Corridor. The Program criteria shall consider factors such as proposed site location, feasibility, capacity, implementation timeline, operational efficacy, as well as the capability and financial reliability of the Partner Agency(s)/Organization(s). The I-710 Steering Committee will assist Metro by helping to identify partner agencies and organizations that will be responsible for constructing the stations. The I-710 Steering Committee will also review, advise, and make recommendations on conditions and terms of Partner agreements for recipients of Program seed funding for the siting and development of the proposed electric charging stations/hydrogen refueling stations within the I-710 Corridor.

The Partner agreements for the Zero Emission Truck Fueling/Charging Infrastructure projects will be implemented between 2022 and 2035. The initial round of funding for this aspect of the I-710 Clean Truck Program will be established within three years after the Final EIR/EIS is conclusively determined to be valid under CEQA and NEPA or by final judgment or final adjudication.

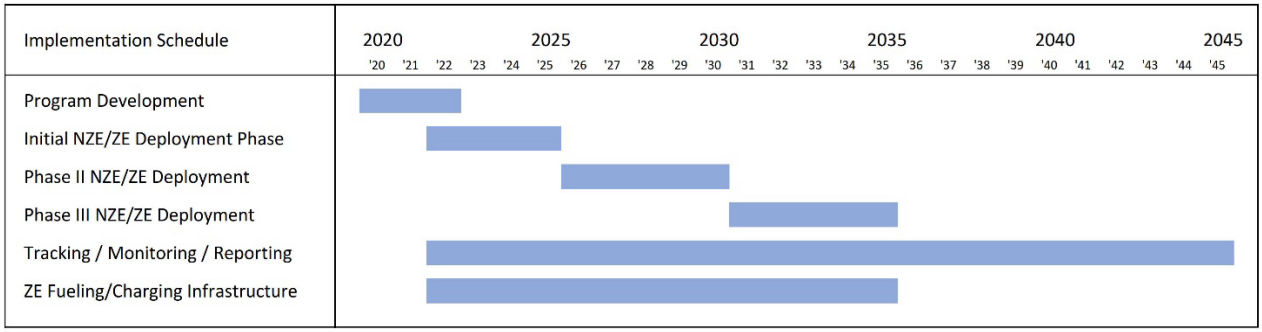
4. Schedule for Implementation

As explained above, it is Metro's intention to begin the I-710 Clean Truck Program as soon as feasible upon approval of the I-710 Corridor Project EIR/EIS.

The I-710 Clean Truck Program will be implemented in parallel with the other elements of the overall I-710 Project once the Final EIR/EIS is conclusively determined to be valid under CEQA and NEPA or by final judgment or final adjudication. The first annual funding contribution for the program will be provided either prior to or within twelve months of the programmed allocation of construction funding for I-710. The I-710 Clean Truck Program will be scaled consistent with the staged construction of the I-710 Project. Full deployment of the I-710 near zero- and zero-emissions trucks is projected to occur by 2035.

The following schedule, provided in Figure 4, has been developed for program implementation consistent with the planned milestones described in Section 3, Program Goals and Milestones.

Figure 4. I-710 Clean Truck Program Implementation Schedule



As shown in Figure 4, full Program deployment of all 4,000 NZE/ZE trucks would occur prior to 2035. However, the duration of the Program would extend for a minimum of ten years beyond 2035 to ensure that all recipients of project funds meet their I-710 travel requirements as well as other Program requirements for the full life of the NZE/ZE trucks to be funded through the I-710 Clean Truck Program.

5. Program Eligibility Requirements

5.1. Eligible Participants

Individual owner-operators, as well as privately-owned fleets with heavy duty trucks that travel frequently on I-710, would be eligible to receive incentive funding (or lease subsidies) for the acquisition of near zero- and zero-emissions trucks through the Program.

5.2. Emissions Standards

In order to qualify for Program funding, NZE/ZE trucks must meet minimum requirements for emissions standards and amount of travel within the I-710 Corridor. Heavy-duty (Class 8) trucks must meet minimum requirements for near zero- and zero-emissions standards by being certified by the California Air Resources Board (CARB) at or below the optional 90% lower oxides of nitrogen (NOx) standard of 0.02 grams per brake horsepower-hour of oxides of nitrogen (g/bhp-hour NOx) and/or by meeting current CARB and/or South Coast Air Quality Management District (SCAQMD) zero emissions technology definitions. No diesel-powered truck would be eligible.

The I-710 Clean Truck Program will not prescribe any specific ZE or NZE technology for eligibility as long as the minimum requirements for emissions standards are met. In this regard, the I-710 Clean Truck Program is technology neutral. As it is the objective of the Program to encourage participation in order to maximize NZE/ZE travel within the I-710 Corridor and eliminate diesel truck emissions, several different near zero-emissions and zero-emissions technologies, ranging from liquified natural gas (LNG) and compressed natural gas (CNG) powered vehicles to battery electric (BEV) and hydrogen fuel cell vehicles, currently qualify for Program funding.

As the I-710 Clean Truck Program matures and new vehicle technologies are developed, Metro will work with the I-710 Steering Committee to monitor emerging or new NZE/ZE technologies to assess their potential eligibility to meet the emissions standards established for the Program. It is envisioned that zero emissions vehicle technologies will become commercially available in the future. The I-710 Steering Committee will also develop strategies to incentivize the progressive transition to ZE vehicles in the I-710 Corridor starting with the latest feasible and sustainable technologies.

5.3. I-710 Travel Requirements

In order to receive Program funds, owners/operators must agree to requirements for travel in the I-710 Corridor. This agreement will be specified in a contractual agreement with each funding

recipient. Funding recipients will be required to consistently meet average weekday vehicle miles traveled (VMT) thresholds within the twenty-mile I-710 Corridor. VMT is a measure that takes into account both the number of NZE/ZE heavy duty truck trips (i.e., volumes) as well as the distances that those NZE/ZE heavy duty trucks travel within the I-710 Corridor during these trips. VMT is a measure that also accommodates a wide variety of travel patterns within the I-710 Corridor, as some NZE/ZE trucks will make many, short trips and yet others will make fewer, but longer distance trips to achieve their VMT goals.

To ensure compliance with Program criteria, the truck owners would need to report travel on I-710. It is currently envisioned that the VMT data would be collected via an automated vehicle locator, a GIS monitoring device, based on geofencing within the I-710 Corridor, which would be certified annually. In addition, the vehicle locator VMT data will be gathered and reported to allow for six-month check ins, so that the I-710 Steering Committee can monitor VMT compliance for recipient trucks. It is anticipated this information would be made available online (with adequate privacy protections in place) to individual truck owner-operators and to Metro staff. NZE/ZE trucks which receive Program incentive funds for purchase will be monitored for a minimum of ten years to ensure that the NZE/ZE truck is utilized within the I-710 Corridor. For additional discussion on Program monitoring activities and compliance, please refer to Section 8, Tracking, Monitoring, and Reporting.

As stated above, there will be a minimum VMT travel commitment for each NZE/ZE truck that receives Program funds. The minimum commitment will be structured to reach the VMT estimates in the EIR/EIS analysis, which are based on VMT Program averages per truck. The objective of the Program is to produce 42.5 VMT per NZE/ZE truck per weekday for the Program, *in aggregate, on average*, for each deployment phase up to 4,000 NZE/ZE trucks, which will be reported annually. Metro staff, under the guidance of the I-710 Steering Committee, will monitor and report Program compliance via an annual report. The Metro Board has the authority to fund additional NZE/ZE trucks (or offer other incentives) to ensure that the Program continues to meet its NZE/ZE VMT goals.

The methodologies utilized in the I-710 Corridor EIR/EIS to establish these VMT thresholds for the full I-710 Clean Truck Program are provided in Appendix D. Appendix D also includes information on the projected number of diesel truck trip reductions for the full Program of 4,000 NZE/ZE trucks when implemented in conjunction with the I-710 freeway improvements included in the overall I-710 Project (Alternative 5C).

As the Program matures, the I-710 Steering Committee may include provisions in the Program to allow for variations or tiering in individual truck VMT requirements for future applicants to optimize NZE/ZE travel in the I-710 Corridor in aggregate. In other words, some trucks may receive more Program dollars for higher VMT travel requirements and others less, just as long as the Program I-710 NZE/ZE VMT totals are consistent with the EIR/EIS estimates and meet or exceed targets established for each NZE/ZE truck deployment phase.

Further, in order to ensure that the progression of Program NZE/ZE deployment matches the actual pace of I-710 freeway construction as the I-710 Project is implemented, NZE/ZE truck deployment levels and corresponding VMT targets will be established for each major construction stage as these construction stages are identified, prioritized, and programmed for implementation. *At a minimum, the construction of any segment along I-710 shall not result in an increase of diesel truck trips relative to the No Build condition.* An example of this process is provided in Section 10, Initial Deployment Phase - Technical Demonstration.

5.4. Other Program Requirements

At this stage, it is envisioned that all Program trucks would be new NZE/ZE trucks or new NZE/ZE engines. Metro staff and the I-710 Steering Committee will establish minimum maintenance requirements for NZE/ZE trucks that receive project funds, including those needed to maintain the truck's warranty. Further, it is advised that these minimum maintenance requirements be tailored to the specific manufacturer recommendations for NZE/ZE trucks. For example, the Program recipient would be required to adhere to the guidelines and schedules for maintenance established by the manufacturers including, but not limited to, regularly scheduled maintenance items as listed in each truck owner's / maintenance manual (e.g., oil changes, brake inspections / changes, filter replacements, lubrications, fluid checks and top offs) and the proper use and upkeep of the emissions control system(s) on each truck. All Program NZE/ZE trucks shall comply with all CARB truck operational requirements for near zero-emissions (low NOx) and zero-emissions vehicles.

There is no age requirement for I-710 diesel trucks that will be displaced by the I-710 Clean Truck Program NZE/ZE trucks. However, information on the age and type of diesel truck may be collected during the application process to evaluate the strength of the application and/or used in the ranking of awards. As the I-710 Clean Truck Program matures, additional requirements may be added in keeping with future CARB rule-making and the future commercial availability of ZE trucks.

6. Program Development

6.1. Program Recruitment

As the I-710 Clean Truck Program is a voluntary, competitive award program, an important part of Program Development will be in identifying potential Program applicants for recruitment into the Program, especially for the first few years of the Program. Metro staff will work with SCAQMD, the Ports, members of the trucking industry, members of the I-710 Steering Committee, and other key stakeholders to develop lists of potential candidates for the Program. Special attention will be given to targeting those truck fleets and owner-operators that serve originations and destinations in the I-710 travel shed and that perform a drayage function within the I-710 Corridor. Under the guidance of the I-710 Steering Committee, Metro will also develop a promotional, educational, and recruitment plan for the I-710 Clean Truck Program. This will include the implementation of a website dedicated to the I-710 Clean Truck Program as well as a social media

presence. The Program website will provide information on Program application guidelines and requirements; schedules and deadlines for each recruitment cycle; description of ranking criteria and scoring for Program awards; Program incentives and penalties; and sample contracts and sample completed application forms. The website will also provide a forum for responding to questions and answers from Program applicants. In addition, a series of public workshops will be held prior to each recruitment cycle to promote the I-710 Clean Truck Program, provide educational materials, and to obtain feedback from potential applicants.

6.2. Program Manual

As part of Program Development, Metro and the I-710 Steering Committee will develop an I-710 Clean Truck Manual, which addresses the following elements and features:

- Program Application Materials / Guidelines / Appendices
- Program Eligibility Requirements, which must include specific Program eligibility criteria that have been developed to date (i.e., heavy-heavy duty trucks [Class 8] that adhere to accepted SCAQMD/CARB standards for near zero-emissions and zero-emissions trucks.)
- Description of NZE/ZE Truck VMT requirements and procedures consistent with Program milestones established for each deployment phase
- Description of funding incentives
- Description of Program penalties
- Program NZE/ZE truck maintenance requirements and certifications
- Description of Program auditing requirements
- Program educational, recruiting, promotional materials for posting on the I-710 Clean Truck Program website
- Sample contract for recipients of Program funds

The I-710 Clean Truck Manual will be reviewed and approved by the Metro Board of Directors. The Manual will be a living document, which may be updated for each deployment phase, per the recommendation of the I-710 Steering Committee.

For more information on roles and responsibilities for Program Development, please refer to Appendix C, I-710 Clean Truck Program Roles and Responsibilities.

7. Program Implementation

For *each* deployment phase of the I-710 Truck Program, there will be a recruitment cycle and a call for Program applications.

The I-710 Steering Committee will play a significant role in this process. The I-710 Steering Committee shall review, advise, and make recommendations on the following aspects of Program implementation, including:

- Review and confirm NZE/ZE truck levels for each Deployment Phase up to the full Program total of 4,000 NZE/ZE trucks
- Review and confirm minimum NZE/ZE truck requirements for Program funding recipients to optimize NZE/ZE travel in the I-710 Corridor for each Deployment Phase
- Timelines for Program application/award process for Each Deployment Phase
- Verify and provide input on emerging or new NZE/ZE vehicle technologies that meet NZE/ZE standards per the Program Eligibility Criteria
- Funding incentives per ZE truck for each Deployment Phase
- Funding Incentives per NZE Truck for each Deployment Phase
- Program ranking criteria and weighting for each Deployment Phase, which take into account factors such as: age and type of trucks to be displaced, history of travel in the I-710 Corridor, projected NZE/ZE travel in the I-710 Corridor, equity/disadvantaged community status, and amount of requested incentive funds.
- Need for additional Program incentives or penalties, if warranted.

Once the Program applications have been received for each deployment phase, the I-710 Steering Committee shall:

- Review, advise, and make recommendations for Program rankings of Program applicants for each Deployment Phase.
- Make recommendations of Program awards for each Deployment Phase.

The I-710 Steering Committee shall also review, advise, and make recommendations on proposals for the development of electrical charging stations/hydrogen refueling stations on an on-going basis. This task shall include reviewing conditions and terms of Partner agreements.

The Metro Board of Directors shall have authority and responsibility for the following activities during Program implementation:

- Upon completion of first I-710 Project construction stage (the Early Action Program), validate and approve additional I-710 Project construction stages.
- Approval of scope and funding plan for each I-710 Project construction stage subsequent to the first one (the Early Action Program). The scope and funding plan for each construction stage helps determine the size, scope and schedule needed for each I-710 Clean Truck Program Deployment Phase.
- Approval of funding and NZE/ZE truck deployment levels for each I-710 Clean Truck Program Deployment Phase.

- Approval of Program subsidy awards for each I-710 Clean Truck Deployment Phase.
- Approval of final proposals and award of seed funding for the development and implementation of selected electric charging stations/hydrogen fueling stations within the I-710 Corridor. Approval of Partner agreements.
- Award of contracts for Program management support.
- Review of staff reports on Program status (annual review). Includes communication to the public and major stakeholders (including EPA) as to the development and implementation of the Program on an annual basis.

8. Tracking, Monitoring, and Reporting

8.1. Compliance with I-710 VMT Travel Requirements

To be eligible for funding from the I-710 Clean Truck Program, there will be minimum requirements for travel on the I-710 freeway. Upon Program award, truck funding recipients will be required to enter into a contractual agreement, which will include a provision that addresses the requirement that the NZE/ZE trucks operate on I-710 for the full ten-year period as well as meet I-710 Corridor VMT travel requirements.

As with other truck funding programs, compliance will be assessed annually, typically through a global positioning system (GPS-based) automatic vehicle locator or similar system that would log mileage within the I-710 Corridor limits. For a period of ten years after the funding is provided for purchase, a recipient truck that does not meet the annual minimum VMT requirement within the I-710 Corridor, will be required to reimburse one-fifth of the Program funding, or potentially up to their full Program funding amount. If the recipient truck fails to meet the annual VMT requirement for two years, all Program funding for that truck would have to be reimbursed. If the truck is sold during the ten-year period after funding is provided, the purchaser will be required to comply with the Program requirements. If the Program funding incentives are provided via a subsidized lease and if the NZE/ZE truck fails to meet its I-710 VMT travel requirement, then the operator of the NZE/ZE truck would be required to relinquish the truck for use by another Program applicant.

So that the I-710 Steering Committee can monitor VMT compliance for recipient trucks, the vehicle locator VMT data will be gathered and reported by Metro staff to allow for six-month check ins. Ideally, this information would be made available online (with adequate privacy protections in place) to individual truck owner-operators and to Metro staff to provide early warning indicators so that corrective action can be taken by recipients to get back on track before penalties are invoked. See Appendix C, I-710 Clean Truck Program Roles and Responsibilities.

In cases where full compliance is not achieved, then the reimbursed funds would be folded back into the Program for reallocation to a new (or the next) NZE/ZE truck applicant for travel on I-710. The I-710 Steering Committee may elect to change the specifics of the contract terms and Program requirements to optimize compliance and/or to maximize participation in the Program.

The I-710 Steering Committee will also monitor compliance for the Program as a whole and will have responsibility for implementing additional restrictions, penalties, incentives, or measures that may be included in the contractual agreement for future applicants to ensure that the Program continues to meet its NZE/ZE VMT and NZE/ZE truck goals. *At a minimum, the construction of any segment along I-710 shall not result in an increase of diesel truck trips relative to the No Build condition.*

Further, the budgets established for each deployment phase of the I-710 Clean Truck Program shall include a budgetary line item for an Incentive Reserve, which will provide contingency funding for added Program incentives that may be needed to fund additional NZE/ZE trucks or to encourage increases in NZE/ZE vehicle miles traveled as a corrective action to bring the Program back into compliance in order to meet its NZE/ZE VMT goals. Expenditures from the Incentive Reserve shall be managed by Metro, based on recommendations provided by the I-710 Steering Committee. The Incentive Reserve shall be set at 10% of the NZE/ZE Truck Incentive Funding levels established for each deployment phase. For an example of this budget allocation step, please refer to Section 10.5, Cost Breakdown - Initial Deployment Phase.

8.2. Other Compliance Activities and Reporting

Metro staff, under the guidance of the I-710 Steering Committee, will perform the following activities throughout the duration of the I-710 Clean Truck Program:

- Monitor individual NZE/ZE Truck VMT. Conduct 6-month check ins with incentive funding recipients. Recommend actions and follow through with implementing measures for funding recipients who need to get back on track.
- As warranted, develop proposals and options for corrective actions to demonstrate reasonable progress towards Program milestones for each deployment phase, including identification of need for additional Program incentives and/or penalties.
- Manage contracts with Program funding recipients. Oversee disbursement of incentive funds or vouchers. Ensure certification and compliance with contract terms, including NZE/ZE vehicle certifications, maintenance and warranty requirements.
- Monitor and enforce Partner agreements for the development of electric charging stations/hydrogen fueling stations.
- Provide annual staff reports to the Metro Board regarding Program status, including tracking of Program NZE/ZE Truck VMT.

Metro staff shall also:

- Provide regular reports on Program Revenues and Expenditures to the Metro Board (annual) and to the I-710 Steering Committee (quarterly).
- Arrange for Program audits and reporting to the I-710 Steering Committee and Metro Board.

- Update RTP/FTIP, as warranted, to reflect most current status of I-710 Clean Truck Program funding schedule.

9. Funding for the I-710 Clean Truck Program

The I-710 Clean Truck Program is part of the overall I-710 Project, which is included in the Financially-Constrained Plan element of the Adopted 2020 RTP under Project ID No. LA0B952. The estimated cost of the I-710 Clean Truck Program is accounted for in the overall $5.941 billion cost of the I-710 Project.

Estimates produced for the I-710 Corridor EIR/EIS show that approximately $100 million is needed to fund the Clean Truck Program. Metro and the I-710 Steering Committee will utilize a full suite of tools such as incentives, engine replacement, and joint funding opportunities to deliver 4,000 NZE/ZE trucks in the corridor. At this stage, the ultimate cost of the Program to fund 4,000 NZE/ZE trucks is not fully known as future incentive costs to turn over diesel trucks to NZE/ZE trucks will continue to shift based on the relative commercial availability of NZE/ZE trucks and based on market penetration of these technologies. To alleviate any doubt about the intent of Metro to implement the Program, the Metro Board raised the target level of the full Program to $200 million in March 2017 and directed staff to work with the I-710 Steering Committee and stakeholders to identify and secure the funds. It is important to note that the $200 million target may not be needed due to commercial bulk pricing, engine costs, new technology and other factors.

In April 2020, the Metro Board allocated $50 million in locally controlled funds to provide funding for the Initial Deployment Phase and to leverage the remaining $150 million. This initial infusion of $50 million represents a significant investment in the Program and underscores the agency's commitment to ensuring the Program's success.

With the assistance of the I-710 Steering Committee, Metro will continue to consider and pursue additional funding sources for the I-710 Clean Truck Program. These entities will work together to seek and utilize funding to implement the Program and will collaborate with other programs in the region to create a more informed and comprehensive approach to NZE/ZE deployment in the region. It is hoped that the initial investment of $50 million will make the I-710 Program more competitive for these funding sources as it offers local matching funds to attract additional regional, state, and federal funding to the I-710 Corridor, including TCEP funds, Prop 1B, CMAQ, and potentially state Cap and Trade funding.

10. Initial Deployment Phase - Technical Demonstration

As stated above, Metro has already allocated $50 million for the Initial Deployment Phase of the I-710 Clean Truck Program and to help leverage additional funds for the full Program of 4,000 NZE/ZE Trucks.

At a minimum, the Initial Deployment Phase must meet two critical objectives: (1) it must be feasible given the $50 million in funds that have been identified to date, and (2) the proposed level of NZE/ZE trucks in the Initial Deployment Phase must be sufficient to offset any potential increase in diesel truck trips for any of the initial construction stages on the I-710 freeway relative to the No Build condition. This section presents the relevant technical information used to define the Initial Deployment Phase. The following discussion also provides a technical demonstration of the major steps and technical considerations that should be taken into account in order to establish NZE/ZE truck levels and NZE/ZE VMT targets for each construction stage as the I-710 Project is implemented, using an early example drawn from the I-710 Project.

Please note that the methods utilized to provide the technical demonstration for the Initial Deployment Phase are the same as those used in the EIR/EIS analysis for the full I-710 Clean Truck Program assuming construction of the entire I-710 freeway project. Please refer to Appendix D for information on these methodologies and technical results for the full Program.

10.1. Candidate Construction Stages – I-710 Early Action Program

While the initial construction stage for I-710 has yet to be selected, Metro is currently working with the I-710 Technical Advisory Committee, its partner agencies, and the local jurisdictions within the I-710 Corridor to prioritize and select which construction segments should be first for design and eventual construction. This consultation process has yet to be completed, which will be necessary before the Metro Board makes its final determination. To date, the candidate list of construction segments has been narrowed to four potential segments on I-710, which are portrayed in Figure 5.

Figure 5. I-710 Early Action Program: Four Candidate Segments

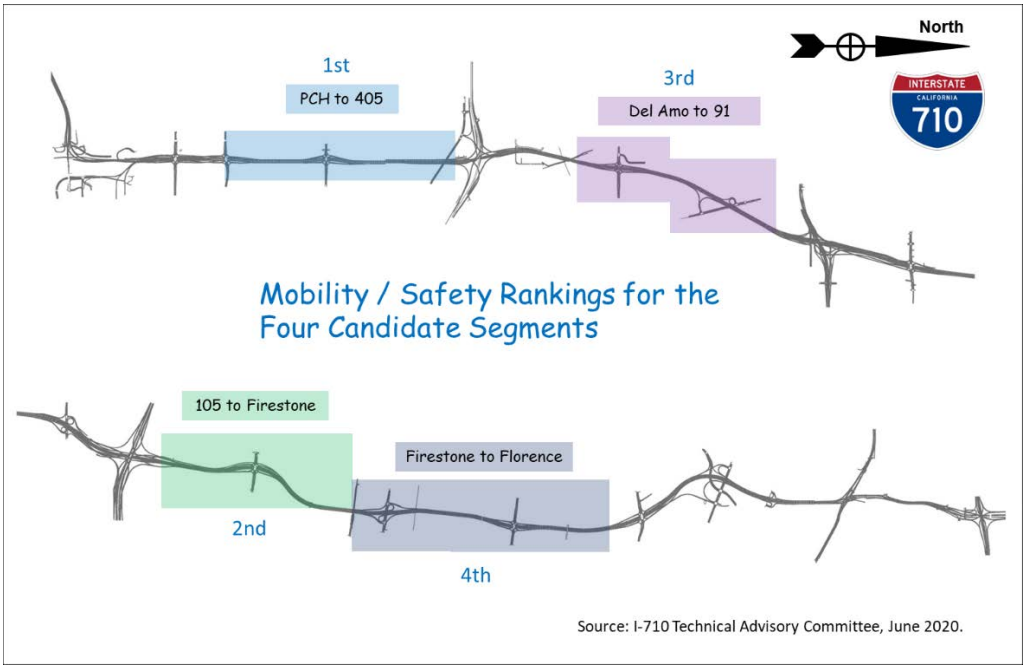


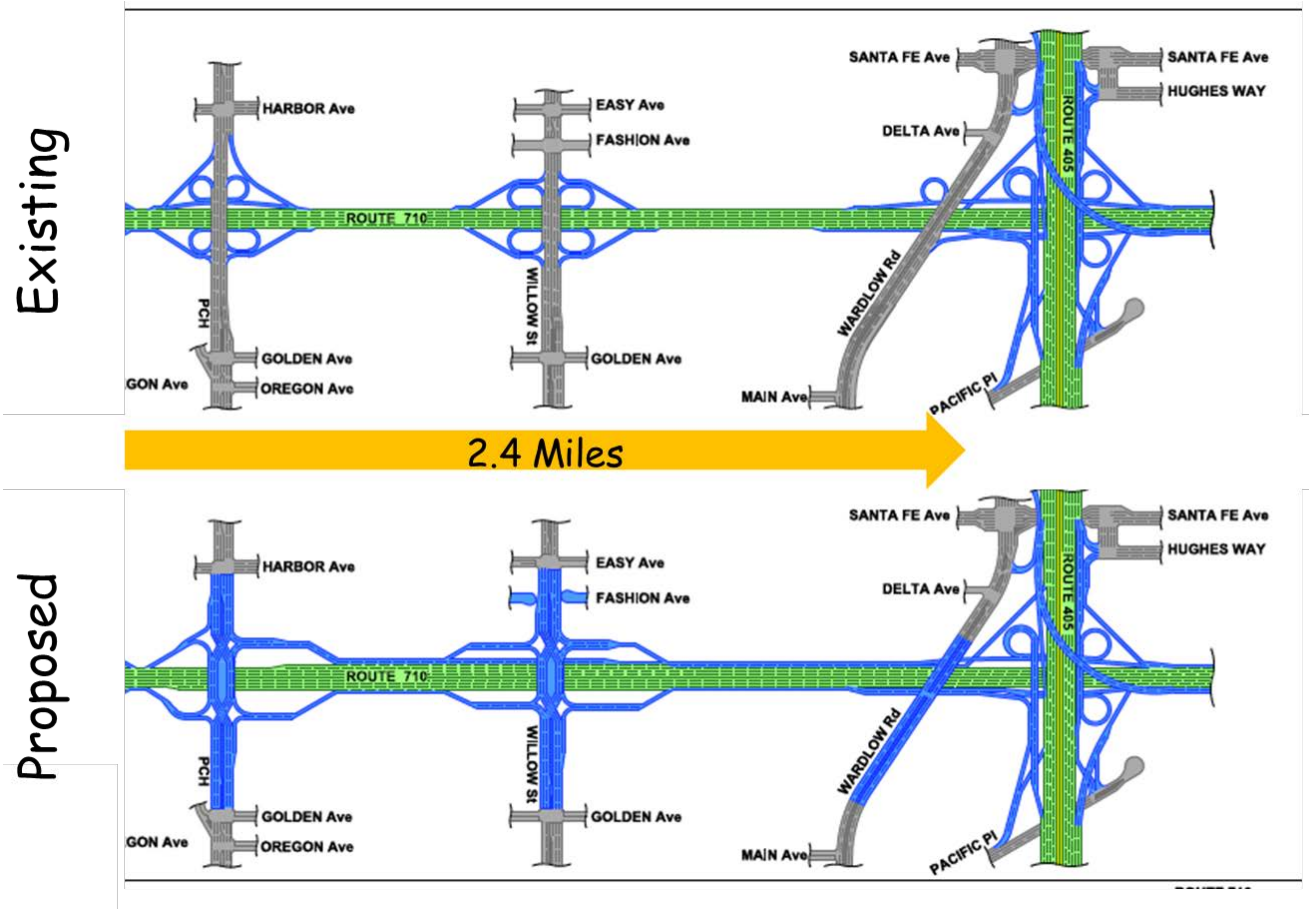
Figure 5 also presents the technical rankings of the candidate segments based on their relative ability to improve mobility and safety within the I-710 Corridor.

10.2. I-710, Pacific Coast Highway to I-405 Connectors

Of the four candidate segments on I-710, the proposed improvements in the segment between Pacific Coast Highway (PCH) and I-405 are the most extensive in terms of both physical and operational capacity relative to the other three. Schematics that portray the proposed geometric improvements for the four candidate segments are provided in Appendix E, Schematics for Potential Construction Segments.

This means that the I-710 (PCH to I-405) Segment would result in the greatest future increase in vehicle volumes relative to the no build condition, as both cars and trucks change their travel patterns to take advantage of improved travel conditions on I-710 relative to other route choices. As a consequence, Metro's technical team used this construction stage as a test case to define the Initial Deployment Phase for the I-710 Clean Truck Program. See the schematic provided in Figure 6 for a depiction of the proposed freeway improvements relative to the no build condition on I-710, between PCH and the I-405 freeway connectors.

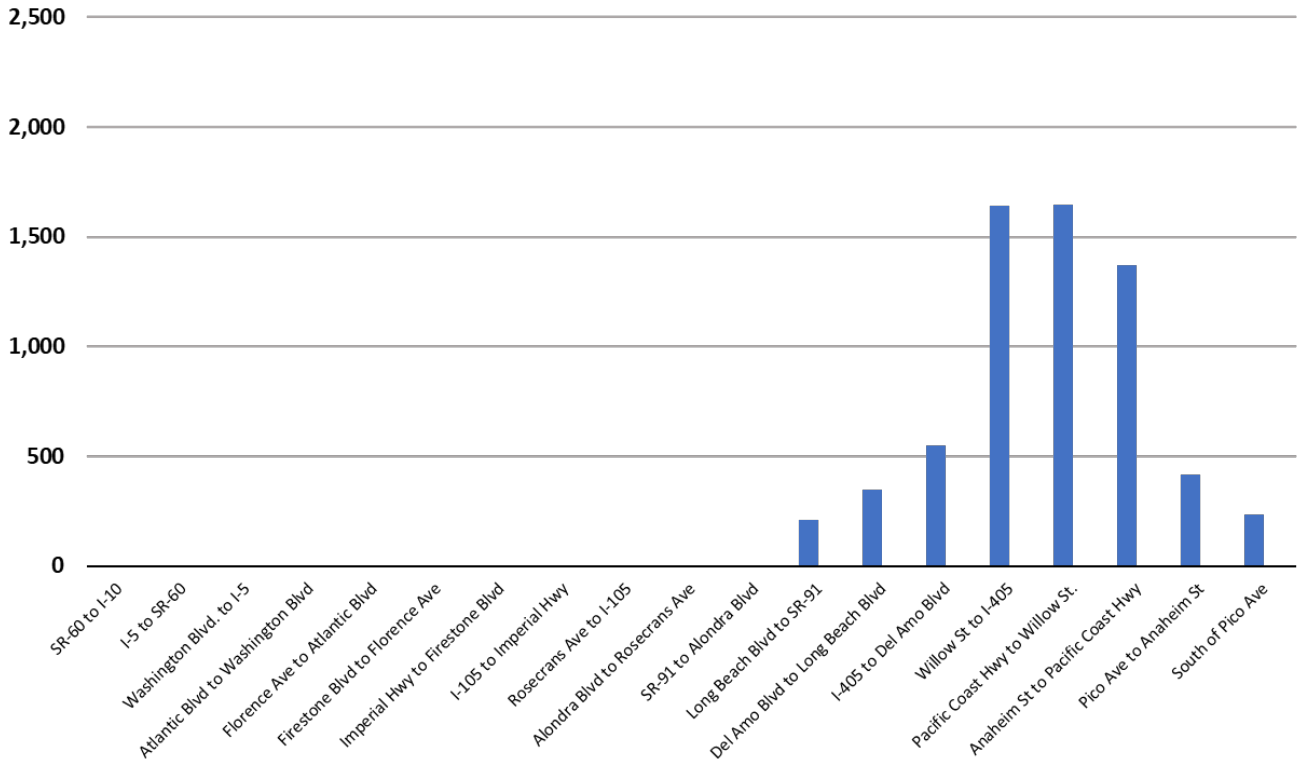
Figure 6. I-710: PCH to I-405 - Early Action Construction Segment



The technical team utilized the I-710 travel demand forecasting model to estimate the increases in truck traffic for the I-710, PCH to I-405 construction segment relative to the no build condition for the year 2035. This produced a "worst case" traffic increase scenario. The methodologies used to produce these results are the same as what was used to produce the traffic forecasts for the traffic operational analysis and as inputs for the air quality analysis used in the I-710 EIR/EIS.

The traffic results for the I-710: PCH to I-405 Construction Segment are portrayed in Figure 7.

Figure 7. Projected Increase in Daily Truck Trips in the I-710 Corridor
I-710: PCH to I-405 Early Action Construction Segment



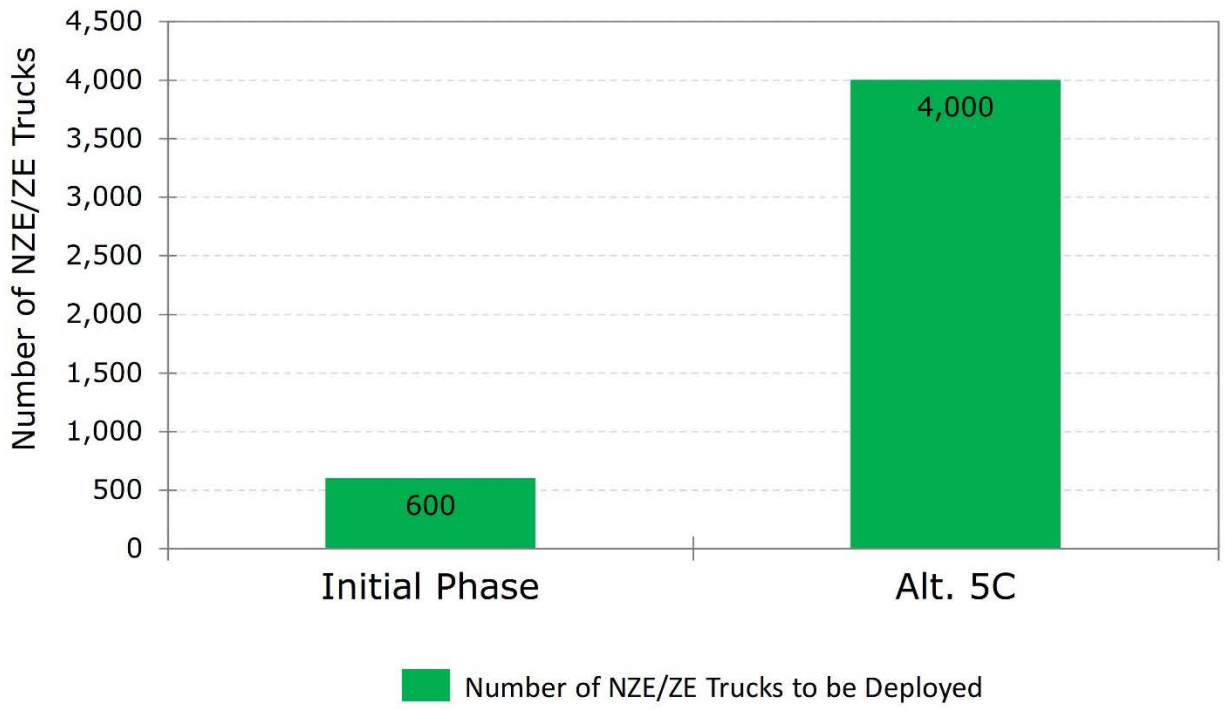
Source: I-710 Travel Demand Forecast Model

It is important to note that based on the model results, freeway improvements to just a single, discrete section of I-710 only influence traffic changes in the direct vicinity of the proposed construction segment. In this case, the effect tapers off completely by the time that these traffic flows reach the SR-91 freeway.

10.3. Establishing the Level of NZE/ZE Trucks for the Initial Deployment Phase

Based on the initial allocation of $50 million, the technical team produced a preliminary estimate of 600 NZE/ZE trucks for the Initial Deployment Phase. The Initial Deployment Phase would represent the first step of the I-710 Clean Truck Program, as depicted in Figure 8.

Figure 8. NZE/ZE Trucks for the Initial Deployment Phase

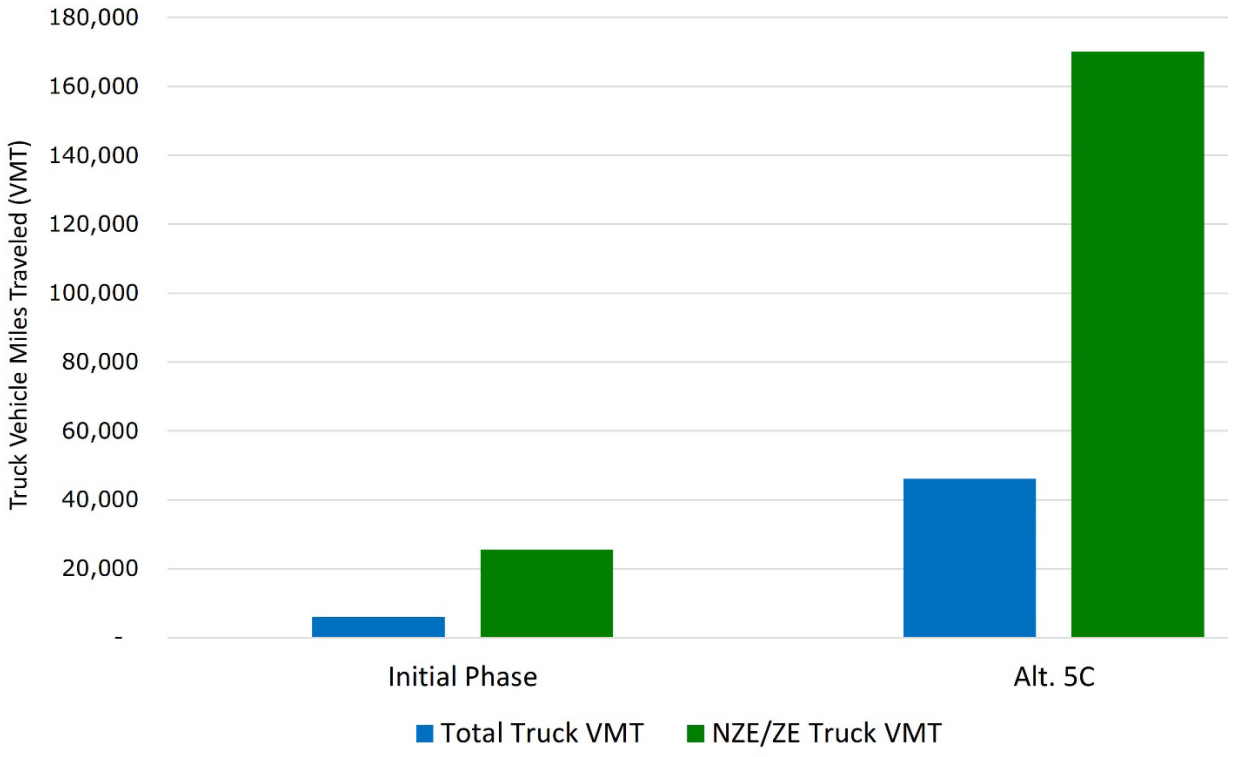


These 600 NZE/ZE trucks in the Initial Phase would be deployed along the entire twenty-mile I-710 Corridor.

Using the same NZE/ZE Truck to average daily NZE/ZE Trip conversion factors and average NZE/ZE truck trip lengths described in Appendix D, NZE/ZE Methodologies, an estimate of the NZE/ZE travel (vehicle miles traveled) was produced for the Initial Phase. For 600 NZE/ZE trucks, this results in 25,500 VMT per average weekday which would become NZE/ZE on I-710 as a consequence of the Initial Deployment Phase.

The green bars in Figure 9 show the total amount of daily truck VMT which would be NZE/ZE for the Initial Deployment Phase of 600 NZE/ZE trucks and compares that to the amount of daily truck NZE/ZE VMT for the full Program of 4,000 NZE/ZE trucks under Alternative 5C. The corresponding blue bars in the figure below, shows how much total daily truck VMT increases in the I-710 Corridor as a result of the I-710: PCH to I-405 construction stage and as a result of implementing the planned freeway improvements for the entire I-710 Project (Alternative 5C) respectively.

Figure 9. Change in Daily Truck VMT Relative to the No Build Alternative, I-710 (Ocean to SR-60)

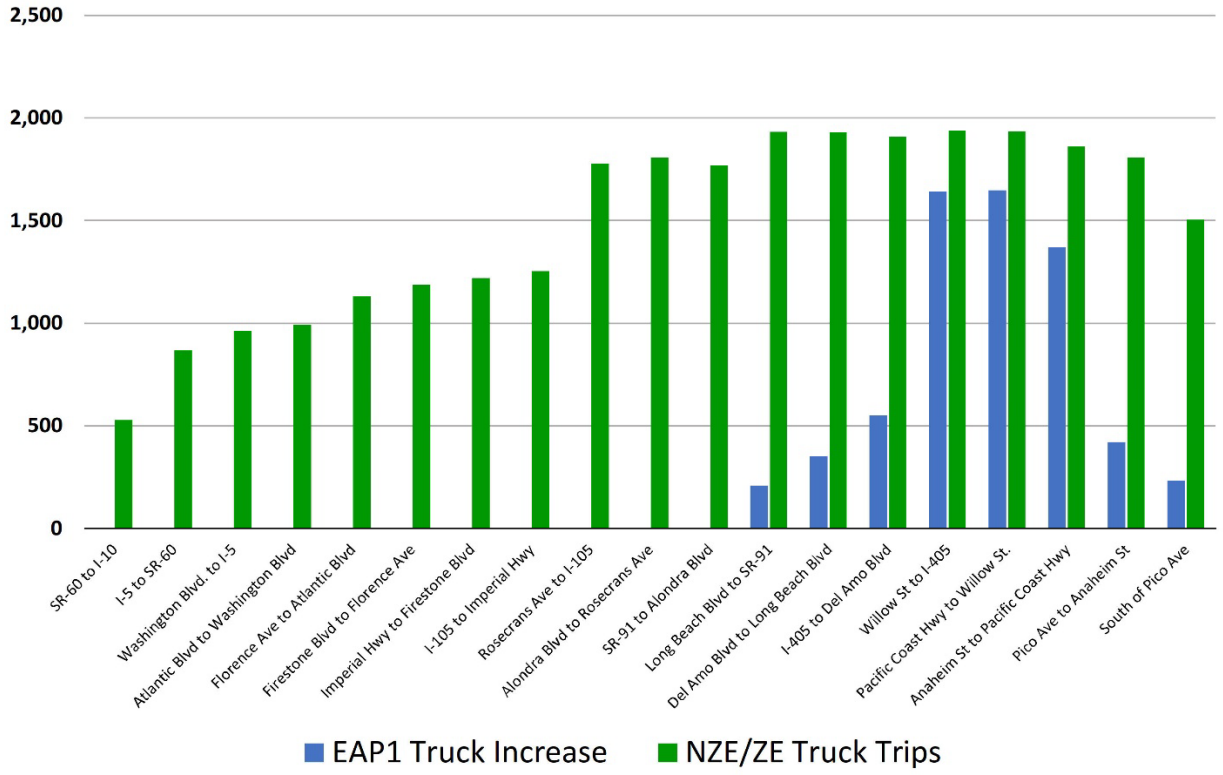


In this case, VMT is being used as a metric to make sure that the amount of daily NZE/ZE Truck VMT from the I-710 Clean Truck Program exceeds the projected increase in daily Truck VMT attributable to the proposed freeway improvements. Figure 9 shows that this is true for both the Initial Phase and for the I-710 Clean Truck Program as a whole.

In this technical demonstration, it is also important to ensure that the projected number of daily NZE/ZE truck trips for the Initial Deployment Phase exceeds the daily increase in projected truck trips associated with the implementation of the I-710: PCH to I-405 construction segment for all key segments within the I-710 Corridor.

Using the amount of NZE/ZE truck VMT from Figure 9 that was calculated for the Initial Deployment Phase relative to total daily I-710 Corridor truck VMT from the I-710 forecast model, it is possible to estimate the fraction of daily truck trips that will be NZE/ZE under the Initial Deployment Phase within the I-710 Corridor. The result from this calculation step is portrayed in the green bars in Figure 10.

Figure 10. Daily NZE/ZE Truck Trips from the Initial Deployment Phase Compared Side by Side with the Projected Increase in Daily Truck Trips from the I-710: PCH to I-405 Construction Stage within the I-710 Corridor



The green bars in Figure 10 show the projected daily NZE/ZE truck trips in the I-710 Corridor relative to the no build condition attributable to the 600 NZE/ZE trucks included in the Initial Deployment Phase. It is important to note that the Initial Deployment Phase of the I-710 Clean Truck Program would occur throughout the twenty-mile I-710 Corridor as opposed to being limited to any single section. The blue bars in Figure 10 portray the projected increase in daily truck trips that would occur as a consequence of implementing the I-710, PCH to I-405 Construction Segment (labeled EAP1 in Figure 10). This test demonstrates that the number of daily NZE/ZE truck trips exceed the projected increase daily truck trips for the tested construction stage. Moreover, this pattern holds true for all segments within the I-710 Corridor, even the section on I-710 between PCH and I-405.

Both the Daily NZE/ZE VMT measure and the Daily NZE/ZE Truck Trip measure provides the technical data necessary to demonstrate that 600 NZE/ZE trucks are appropriate level of NZE/ZE trucks for the Initial Deployment Phase. Also, since the I-710: PCH to I-405 construction stage is the largest of the candidate segments in terms of traffic, the number of NZE/ZE trucks included in the Initial Deployment Phase is also sufficient to pair with any of the potential construction segments currently under consideration.

10.4. Estimating the Diesel Truck Trip Reductions for the Initial Deployment Phase

An important objective of the deployment of near zero- and zero-emissions trucks in the I-710 Corridor is to reduce the number of diesel truck trips that would take place in the I-710 Corridor. Therefore, a final step in the data calculations for the Initial Deployment Phase is to estimate the diesel truck trip reductions for the 600 NZE/ZE trucks, once the average number of daily NZE/ZE truck trips have been determined as described in the above discussion.

Table 1 on the following page, portrays this data for each segment within the I-710 Corridor. The average daily truck trips for the No Build Alternative and for the I-710: PCH to I-405 construction stage (EAP1), shown in Columns [4] and [8] respectively, were produced by the I-710 travel demand forecast model using the methods that were applied in I-710 EIR/EIS analyses. It is important to note that the average daily truck trips in Columns [4] and [8] encompass light- and medium-heavy duty trucks in addition to heavy-heavy duty trucks. The I-710 model is able to provide these breakdowns by truck weight class. Column [7] in Table 1 shows the estimated NZE/ZE truck trips that would occur due to the deployment of 600 NZE/ZE trucks in the Initial Deployment Phase of the I-710 Clean Truck Program. Per the I-710 Clean Truck Program criteria, only heavy-heavy duty trucks (Class 8) trucks are eligible for Program incentive funding. Using factors on fuel type distribution by vehicle classification for Los Angeles County drawn from CARB's Emissions Factors (EMFAC2014) model, it is possible to estimate the number of gasoline versus diesel trucks for each segment in the I-710 Corridor for both the No Build and the Initial Deployment Phase/Construction Stage (EAP) scenarios assuming deployment by the Year 2024. This data is portrayed in Columns [1], [2], [5], and [6]. The number of diesel truck trip reductions in the I-710 Corridor that are shown in Column [9] is produced by directly comparing Column [5] with Column [1].

The orange bars in the bar chart shown in Figure 11, highlights these average daily diesel trip reductions in the I-710 Corridor attributable to the Initial Deployment Phase. This data also reflects the assumed implementation of the Initial Construction Stage, I-710: PCH to I-405, which was used as the worst case traffic option for this technical demonstration.

Table 1. Change in Daily Truck Volumes by Fuel Type – Initial Phase

Segment	I-710 Corridor Truck Volumes - Heavy Duty Trucks[1] (Annual Average Daily Traffic)											
	No Build				Initial Deployment Phase				Change in AADT Volumes (Increase / Decrease)			
		Non-Diesel[2]				Non-Diesel[2]						
	Diesel[2]	Gasoline[3]	NZE/ZE	Total[4]	Diesel[2]	Gasoline[3]	NZE/ZE[5]	Total[4]	Diesel[2]	Gasoline[3]	NZE/ZE[5]	Total[4]
SR-60 to I-10	17,430	2,213	0	19,643	16,922	2,195	526	19,643	-508	-18	526	0
I-5 to SR-60	26,865	2,850	0	29,716	26,028	2,823	865	29,716	-837	-28	865	0
Washington Blvd. to I-5	29,627	3,039	0	32,667	28,694	3,010	962	32,667	-933	-29	962	0
Atlantic Blvd to Washington Blvd	30,581	3,056	0	33,637	29,617	3,028	992	33,637	-964	-28	992	0
Florence Ave to Atlantic Blvd	33,280	2,845	0	36,125	32,183	2,813	1,129	36,125	-1,097	-32	1,129	0
Firestone Blvd to Florence Ave	34,699	2,794	0	37,493	33,545	2,763	1,185	37,493	-1,153	-32	1,185	0
Imperial Hwy to Firestone Blvd	35,375	2,656	0	38,031	34,187	2,626	1,218	38,031	-1,188	-30	1,218	0
I-105 to Imperial Hwy	36,288	2,657	0	38,944	35,065	2,627	1,252	38,944	-1,222	-30	1,252	0
Rosecrans Ave to I-105	50,012	2,789	0	52,801	48,267	2,758	1,776	52,801	-1,745	-31	1,776	0
Alondra Blvd to Rosecrans Ave	50,970	2,882	0	53,852	49,195	2,851	1,806	53,852	-1,774	-31	1,806	0
SR-91 to Alondra Blvd	49,590	2,699	0	52,289	47,855	2,669	1,765	52,289	-1,735	-30	1,765	0
Long Beach Blvd to SR-91	53,115	2,220	0	55,334	51,424	2,187	1,932	55,542	-1,691	-33	1,932	208
Del Amo Blvd to Long Beach Blvd	52,749	2,100	0	54,849	51,184	2,086	1,928	55,198	-1,565	-14	1,928	349
I-405 to Del Amo Blvd	51,870	1,830	0	53,701	50,510	1,834	1,906	54,250	-1,360	4	1,906	550
Willow St to I-405	50,448	1,045	0	51,493	50,095	1,103	1,936	53,133	-353	58	1,936	1,640
Pacific Coast Hwy to Willow St.	50,325	1,022	0	51,347	49,980	1,080	1,933	52,992	-345	58	1,933	1,645
Anaheim St to Pacific Coast Hwy	48,514	938	0	49,452	47,997	963	1,860	50,820	-517	25	1,860	1,368
Pico Ave to Anaheim St	46,818	421	0	47,239	45,399	453	1,806	47,657	-1,420	32	1,806	418
South of Pico Ave	38,903	275	0	39,178	37,611	296	1,503	39,410	-1,292	21	1,503	232
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]

Notes:

[1] Post processed vehicle trips were generated for calendar year 2035. Total truck trips include heavy duty truck vehicle classes (including port trucks).

[2] The share of diesel/non-diesel trips by fuel type is estimated using the EMFAC2014 vehicle fleet distribution determined from the EMFAC2014 output for VMT in Los Angeles County in 2024.

[3] Gasoline truck trips also include natural gas truck trips that do not meet the standard of a NZE/ZE vehicle.

[4] Total truck trips are the sum of diesel, gasoline, natural gas, and NZE/ZE trips.

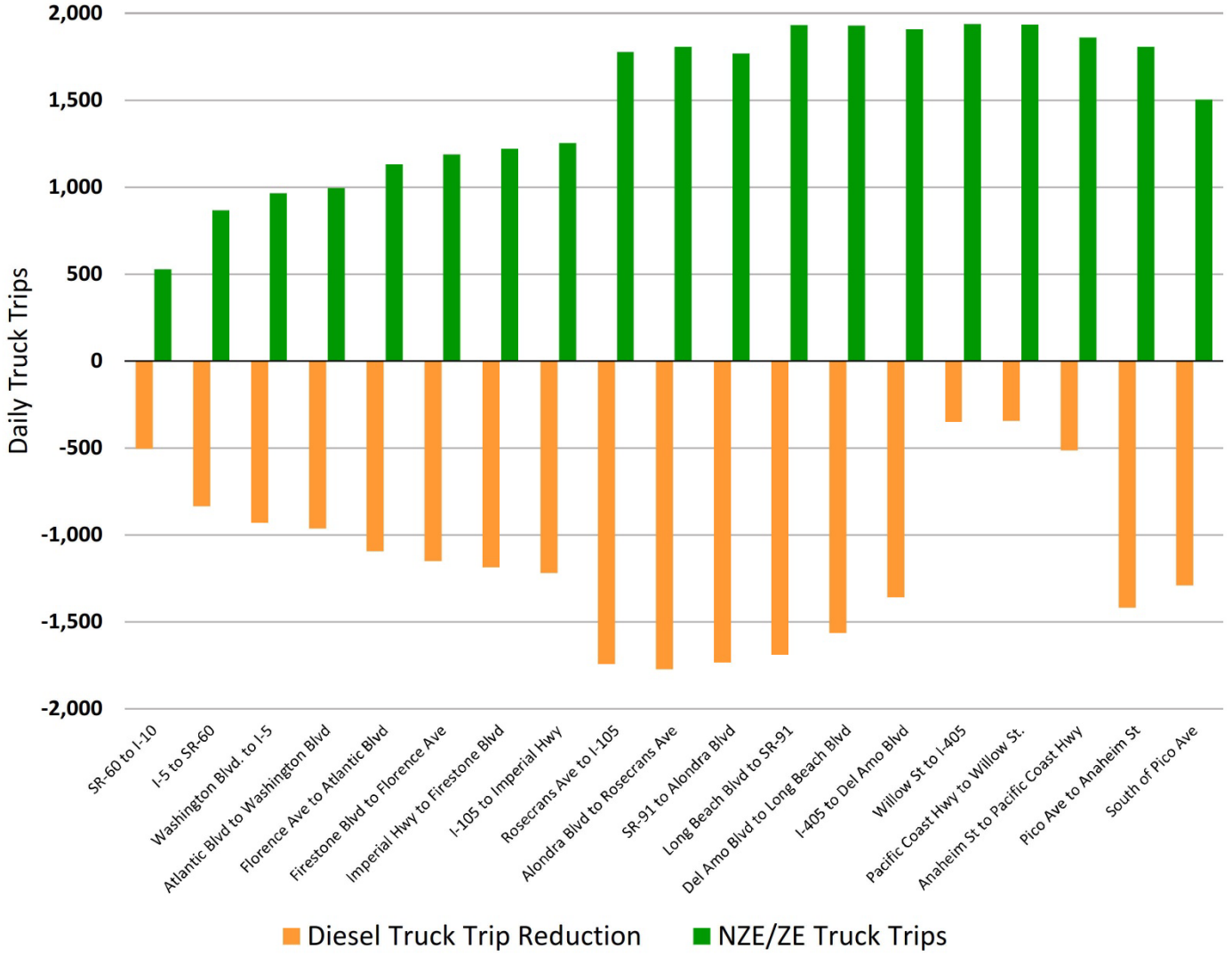
[5] NZE/ZE trips under EAP include the I-710 NZE/ZE Truck Deployment Program.

Abbreviations:

NZE/ZE - near zero emission/zero emission

AADT - annual average daily traffic

Figure 11. Reduction in Daily Diesel Truck Trips for the Initial Deployment Phase (Year 2024) with I-710: PCH to I-405 Initial Construction Stage, I-710 Corridor



10.5. Cost Breakdown – Initial Deployment Phase

The estimated Program costs for the Initial Deployment Phase range from 41 million to 50 million dollars as shown in Figure 12. This budget estimate includes funding for NZE/ZE Truck Incentives for the 600 NZE/ZE trucks that have been identified for the Initial Deployment Phase.

Figure 12. Estimated Costs – Initial Deployment Phase

	Low Scenario[1] Assume CARB HVIP Program Incentives	High Scenario[2] CARB HVIP Program Incentives x 25%
NZE/ZE Truck Incentives[3]	$ 33,300,000	$ 41,625,000
Incentive Reserve (@ 10%)[4]	$ 3,330,000	$ 4,162,500
Administrative & Support Costs[5]	$ 2,000,000	$2,000,000
ZE Power Infrastructure (Seed Funding)[6]	$ 2,000,000	$ 2,000,000
Total Estimated Cost	$ 40,630,000	$ 49,787,500

Notes:
1. Low Scenario assumes same as CARB HVIP Program Incentive Amounts per Class 8 ZE (BEV) and Low NOx (11.9 L Engine) Vehicle.
2. High Scenario assumes 25% higher cost over CARB HVIP unit incentive costs for Class 8 ZE (BEV) and Low NOx (11.9 L Engine) Vehicle.
3. Assumes 600 (Class 8) NZE/ZE Trucks, with 90% NZE and 10% ZE split.
4. Recommended Incentive Reserve is 10% of Estimated NZE/ZE Program Truck Incentive Cost.
5. Includes contractors, vendors, and monitoring/tracking systems.
6. Seed funding for Zero Emissions Power Infrastructure (electric charging stations, hydrogen refueling stations).

To address future uncertainty associated with the cost to own and operate ZE and NZE trucks relative to conventional diesel trucks in the I-710 Corridor, both a Low and a High Funding Scenario was developed to fully capture the potential range in costs for this budgetary line item. The Low Scenario utilizes current Funding Tables from CARB's HVIP Program to identify the unit costs for incentivizing zero emissions heavy duty vehicles ($150,000 per Class 8 battery electric truck) and for near zero emissions heavy duty vehicles ($45,000 per Low NOx Certified 11.9 Liter/0.02 g/bhp-hr Engine.) Given the present lack of commercial availability of zero emissions trucks, it is likely that demand for incentive funds from I-710 Clean Truck Program applicants will lean much more heavily towards near zero emissions vehicles. Therefore, for the purpose of this budget estimate, a split of 90% near zero-emissions trucks and 10% zero-emissions trucks was assumed for the 600 NZE/ZE trucks identified for the Initial Deployment Phase. [Note: the actual ratio of near zero-emissions trucks to zero emissions trucks may vary based on the number of applications received and based on the ranking and Program awards recommended by the I-710 Steering Committee during the first three years of the Program.]

For the upper end of the Program cost range, a High Funding Scenario was also developed. The High Funding Scenario adds a contingency factor of 25% to the NZE/ZE Truck Incentive

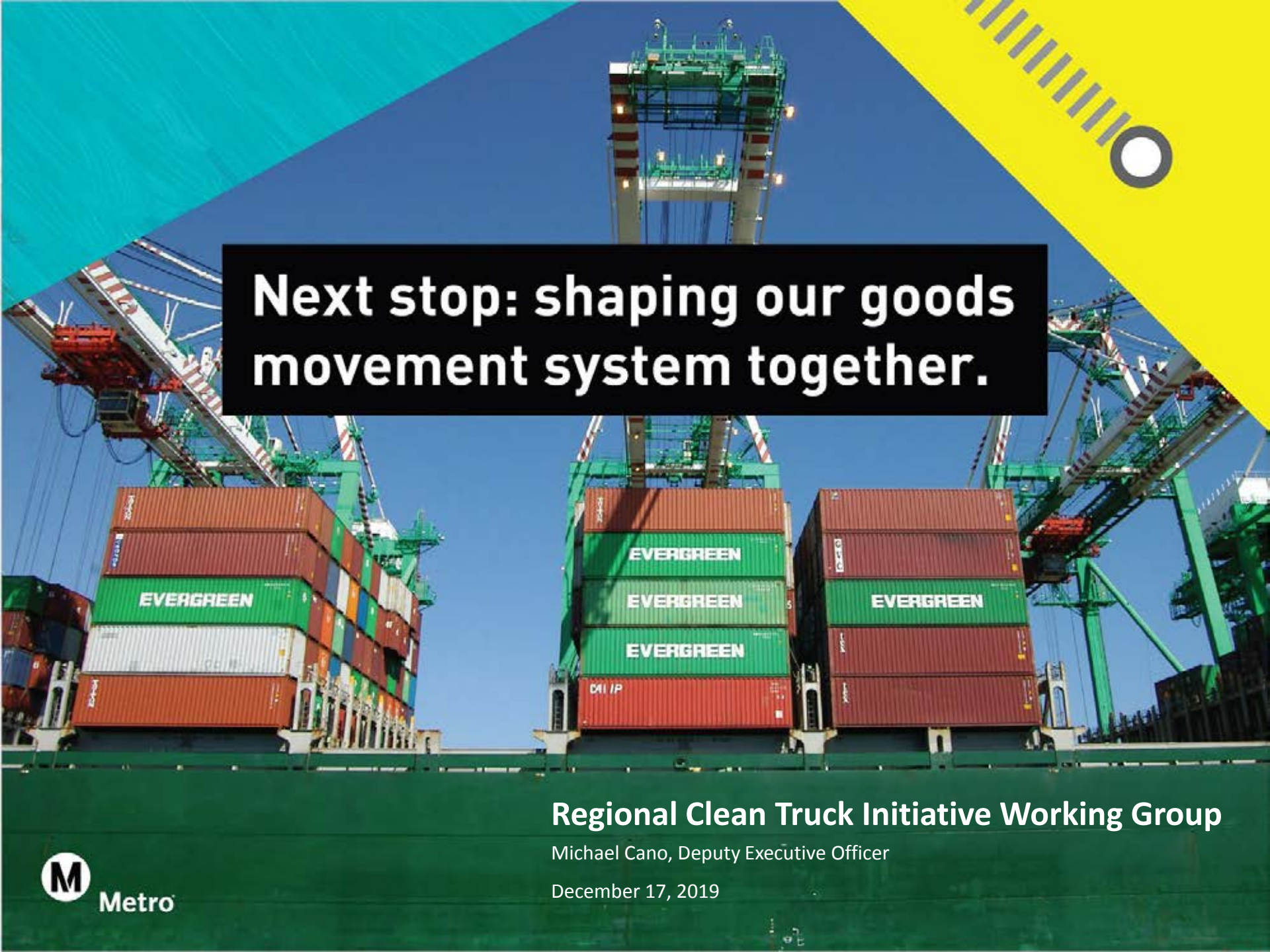
Funding in order to encourage full Program participation, should future NZE/ZE vehicle incentive requirements prove to be higher than anticipated upon Program implementation.

In addition, an Incentive Reserve has been established for the Initial Deployment Phase. Once the I-710 Clean Truck Program is up and running, it will be important to monitor Program NZE/ZE truck travel in the I-710 Corridor to ensure that Program certification requirements and VMT travel targets are met. For example, if some Program participants should fall behind their VMT goals in the I-710 Corridor, then it may be necessary to take corrective action, which could include enacting additional penalties, measures, or incentives for the Program as a whole. The purpose of the Incentive Reserve is to provide the resources needed to fund additional NZE/ZE trucks or to encourage increases in NZE/ZE vehicle miles traveled should those supplemental incentives prove to be necessary in order to bring the Program back into compliance with regard to its VMT goals. Expenditures from the Incentive Reserve shall be managed by Metro, based on recommendations provided by the I-710 Steering Committee. For the Initial Deployment Phase, the Incentive Reserve is set at 10% of the NZE/ZE Truck Incentive Funding levels for both the Low and the High Funding Scenarios.

Lastly, the budget for the Initial Deployment Phase accounts for Administrative & Support costs that will be necessary to manage the Program. The budget also accounts for seed funding to initiate Partnership Agreements to help facilitate the development of the electric charging stations/hydrogen fueling stations within the I-710 Corridor to further encourage the transition to zero emissions vehicles, which is another objective of the I-710 Clean Truck Program.

APPENDIX A

Metro’s Countywide Clean Truck Initiative



Regional Clean Truck Initiative Working Group

Michael Cano, Deputy Executive Officer

December 17, 2019

Metro

Vision Statement

Metro's Mission: *To provide a world-class transportation system that enhances quality of life for all who live, work, and play within LA County.*

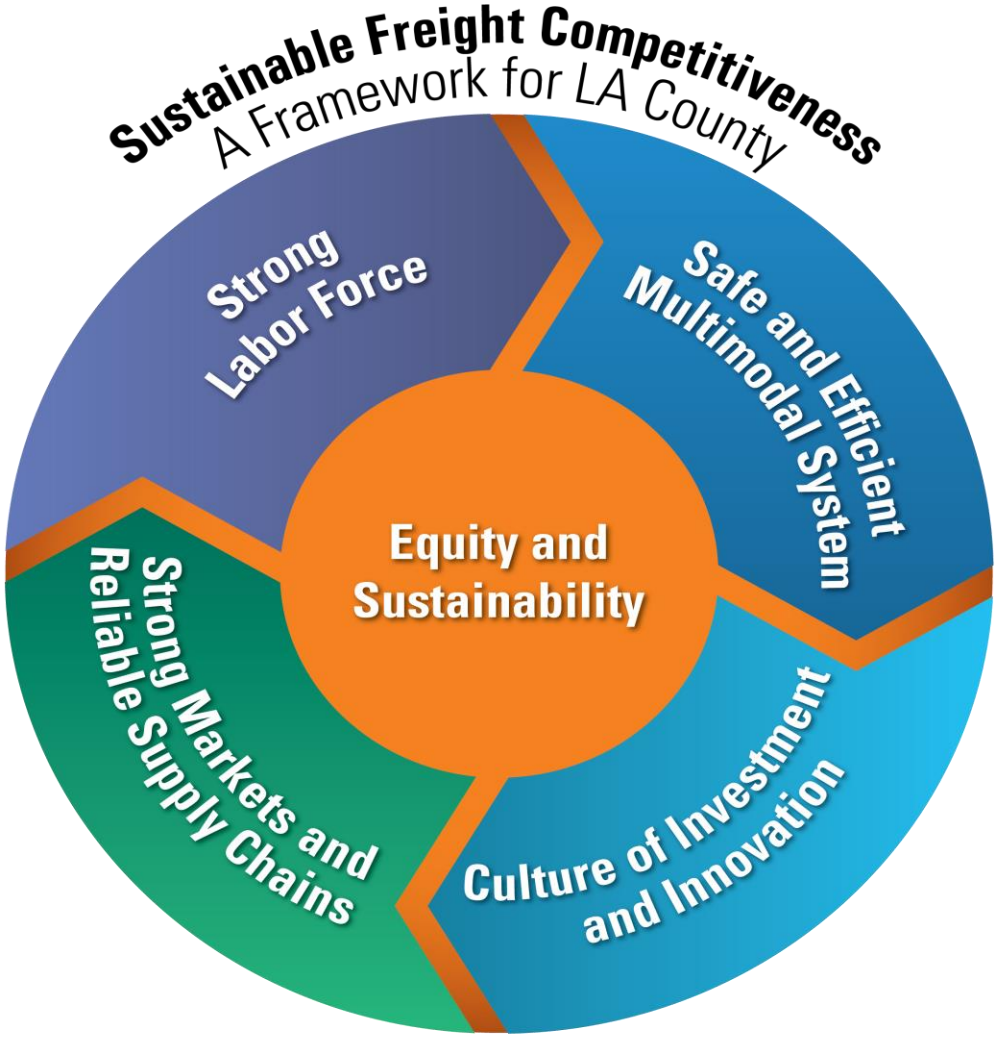
Goods Movement Strategic Plan Vision: Metro will become…

> …a ***national leader*** and ***regional partner*** in implementing a modern, responsive, resilient, and effective freight transportation system through policies, programs, and projects that support a competitive global economy.

> …a steward of ***equitable and sustainable investments*** and ***technological innovation*** that will increase regional economic competitiveness, advance environmental goals, and provide access to opportunity for County residents.

Metro

Sustainable Freight Competitiveness



Metro

Metro's Coordinated Planning Efforts

Metro

Public Health Impacts of Air Quality

The South Coast Air Basin – home to Los Angeles County – has the worst air quality in the nation

Primary source of air pollution comes from tailpipe emissions associated with the transportation sector – particularly from heavy-duty trucks

The residents along the I-710 suffer from poor air quality and public health impacts associated with truck movement along the corridor

Major equity impacts for some of the more vulnerable communities in Los Angeles County

Metro

Public Health Impacts of Air Quality

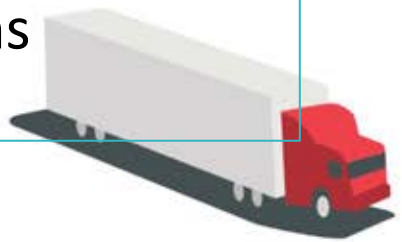
Traffic-related air pollutants known to impact public health include:

Pollutants:

- Ozone
- Diesel particulate matter
- PM_{10}
- $PM_{2.5}$
- Ultrafine particulates
- Carbon monoxide
- Nitrogen dioxide
- Sulfur dioxide
- Lead
- Benzene
- Formaldehyde
- Acrolein
- Acetaldehyde

Health Impacts:

- Asthma
- Respiratory diseases
- Cardiovascular diseases
- Cancer
- Premature death
- Mortality
- Preterm and low-weight births



Metro

Metro Board Directives

Metro Board Motions (March 2018) – I-710 South EIR/EIS

5.1: Hahn, Solis, Garcia & Dupont-Walker

- Change the ZE/NZE truck technology program to the **phased-in** "ZE Truck Technology Development Program".
- Increase program funding from $100 million to $200 million, and include in the Program **incentives and grants investment in the acceleration of ZE technology both for long-hauling trucks and for freeway infrastructure**, including but not limited to, "under the pavement" vehicle charging capacity as options to consider.
- **Convene a working group** to develop a policy recommendation for a full, ZE only, dedicated lane…on the entire 19-mile long stretch of the 710 freeway as part of the re-evaluation of the remaining elements of Alternative 5C after the Early Action Projects have been completed.

Metro

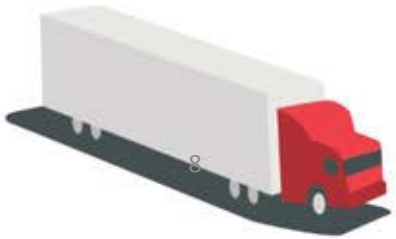
Metro Board Directives

5.2: Solis, Garcia, Ridley-Thomas, Butts, Najarian, & Hahn

Direct the CEO to establish **a working group** with the freight industry, air quality regulators, transportation and metropolitan planning agencies, the Gateway COG and other relevant stakeholders to **explore the lead authorities, financial impact and other implementation factors** related to:

- **Develop a strategic plan** that is consistent with the South Coast Air Quality Management Plans, **which expedites the transition from diesel freight trucks to NZE vehicles as soon as possible and outlines a transition to ZE vehicles as the cleanest, most reliable technology becomes available**
- Host an **industry forum** aimed at stimulating and accelerating the deployment of cleaner freight truck alternatives. Forum shall include topics such as: funding/financing, P3, new technologies, on/off dock rail support facilities, best practices R&D, demonstration projects, creative purchase/lease incentive programs, etc.

Metro



8

Governor's Executive Order N-19-19

Governor Newsome Issued the Executive Order (EO) in September 2019

Main Points:

- Leverage available state funding "to help reverse the trend of increased fuel consumption and reduce greenhouse gas emissions associated with the transportation sector".

- CalSTA Secretary David Kim will engage stakeholders on how best to implement the EO

- Implemented partially through California Freight Mobility Plan 2020 (in draft form now)

EXECUTIVE DEPARTMENT
STATE OF CALIFORNIA

EXECUTIVE ORDER N-19-19

WHEREAS California is proof that a bold climate agenda is good for the economy, for workers, for health and for our future, as evidenced by our state having achieved record economic growth while reaching some of the strongest climate goals in the world; and

WHEREAS in the face of inaction on climate change from the federal government, California is a global leader in climate change mitigation efforts through bold climate goals and actions, as well as leadership in the US Climate Alliance and Under2 Coalition, using the state's power as the fifth largest economy in the world to drive positive action; and

WHEREAS California has ambitious and essential climate goals to transition to a healthier, more sustainable and more inclusive economy, including: reducing greenhouse gas emissions 40 percent below 1990 levels by 2030; providing 100 percent of the state's electricity from clean energy sources by 2045; reducing methane emissions and hydrofluorocarbon gases by 40 percent; and adding five million zero-emission vehicles to California's roads by 2030; and

WHEREAS California has made substantial, measurable progress on many of the goals enumerated above, but in recent years, direct tailpipe emission from cars, ships, diesel trains, airplanes, and other transportation sources have remained a stubborn driver of greenhouse gas emissions, totaling 40.1 percent of all greenhouse gas emissions statewide; and

WHEREAS the California Air Resources Board has a fifty-year history of leading the globe in addressing harmful pollution through innovative air pollution control standards, including the nation's first NOx emissions standards for motor vehicles; and

WHEREAS California's renewable energy targets have spurred innovation and private investment in new technologies with California leading the nation in clean technology patents and bringing in more than 50 percent of all clean energy investment in the nation; and

WHEREAS the state has made significant progress in lowering greenhouse gas emissions and mitigating climate risk in California's own state government operations and public schools; and

WHEREAS achieving California's climate goals will require concerted commitment and partnership by government, the private sector, and California residents.

Goals for Today's Working Group

Framework for the Clean Truck Initiative

Goals for this group:

- Develop a comprehensive, timely, fundable, implementable and broadly supported Clean Truck Initiative for the Metro Board to support, invest in, and seek supporting policies and vital funding through partnership with regional, state and federal stakeholders and agencies

- Provide a clear accounting of the landscape of cleaner truck technology – including equity community concerns, barriers to implementation, status of technology, infrastructure needs, truck driver needs, and funding needs – to inform the Metro Board on clean truck issues through the Metro Goods Movement Strategic Plan

- Become a recurrent advisory group to the Metro Board for all issues related to the implementation of clean truck technology within LA County

Concept for Working Group Meetings

Today:

- Convene stakeholders to explain purpose of the regional Clean Truck Initiative
- Through presentation and a constructive dialogue, identify the key challenges, barriers, opportunities, and community needs that surround the development of the Initiative
- Identify additional areas of inquiry for this working group and additional stakeholders for outreach by Metro
- Listen, share, discuss. No decisions made today on the specifics of a funding plan or preferred technology

Concept for Working Group Meetings

Next Meetings (Early 2020):

- Report back on comprehensive assessment of issues raised at the first meeting
- Develop the equity framework associated with implementing the Clean Truck Initiative
- Identify and discuss existing efforts to implement clean truck technology (e.g., Port Clean Truck Program, Gateway COG 710 Prototype, LACI) – and how the Initiative can complement and support these efforts
- Identify and discuss policy needs and available funding opportunities
- Construct the Clean Truck Initiative in a collaborative manner with the purpose of it being presented to the Metro Board for consideration

Truck Information

Truck Tailpipe Emissions Factors

Pollutants of Concern (Heavy-Duty Truck Tailpipe Emissions)	**Diesel Trucks (in 2035)**	**ZE / NZE Trucks**	**ZE Trucks**
NO_X	0.2 g/bhp-hr	0.02 g/bhp-hr	0.00 g/bhp-hr
PM_{10} / $PM_{2.5}$	0.01 g/bhp-hr	0.01 g/bhp-hr	0.00 g/bhp-hr
Major toxics	DPM and diesel gaseous toxics	NG toxics (gaseous and particulate)	0

DPM: Diesel Particulate Matter
NG: Natural Gas

Compare NZE & ZE Truck Performance

	Conventional Diesel Truck 	Near Zero Emission Truck 	Zero Emission Truck 
			
Diesel Particulate Matter* (DPM) (lb/10,000 miles)	0.38	0	0
Nitrogen Oxides* (NO_X) (lb/10,000 miles)	54.4	5.4	0
Greenhouse Gases* (GHG) (MT CO_2e/10,000 miles)	11.3	11.3	0
Approx. number of Trucks per $100 million of Funding**	N/A	4,000 Trucks	1,520 Trucks

* Running Exhaust emission factors are based on EMFAC2017 for heavy-heavy duty trucks in Los Angeles County for calendar year 2035.

** Unit costs represent incremental, average costs of zero emissions trucks (battery electric, fuel cell vehicles) from I-710 Zero Emissions Truck Commercialization Study, assuming pre-2035 deployment (Calstart, 2013).

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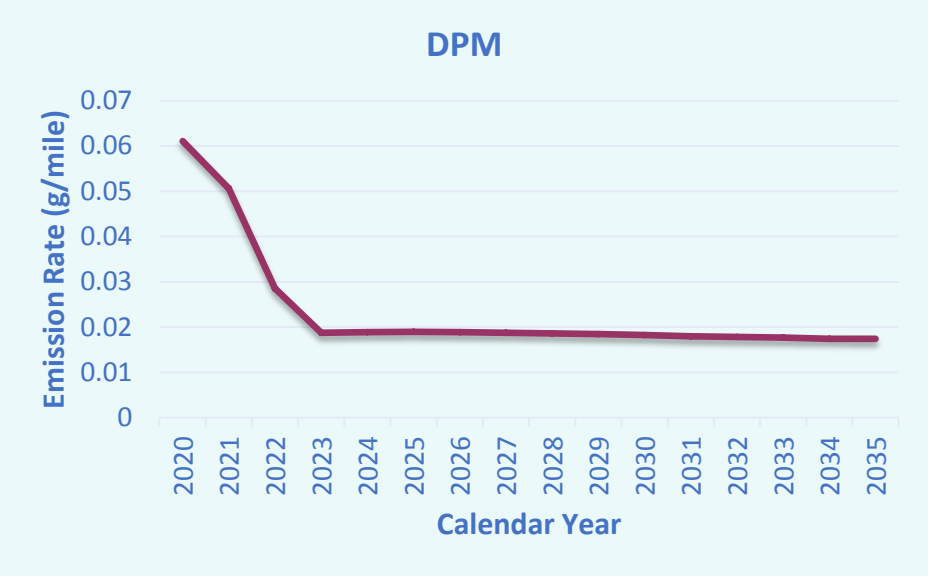
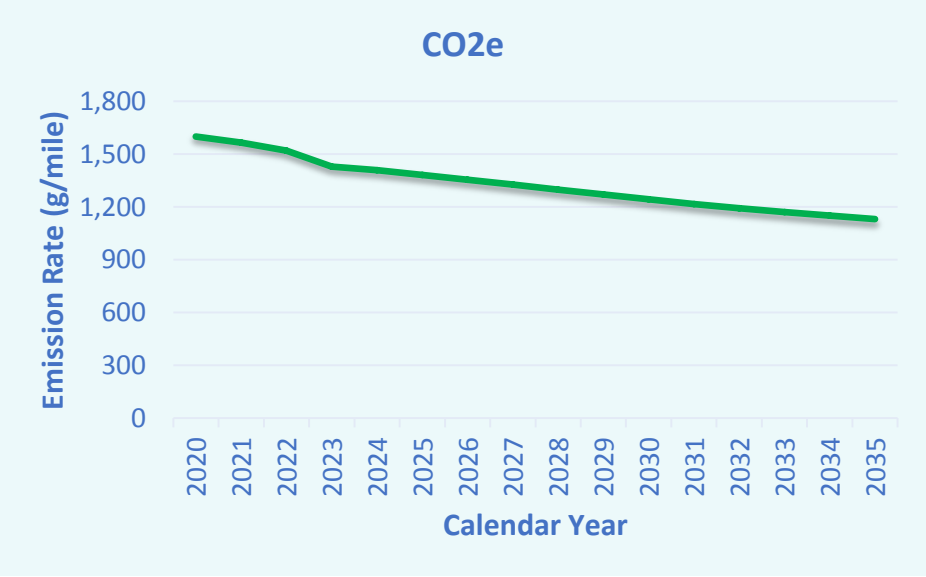
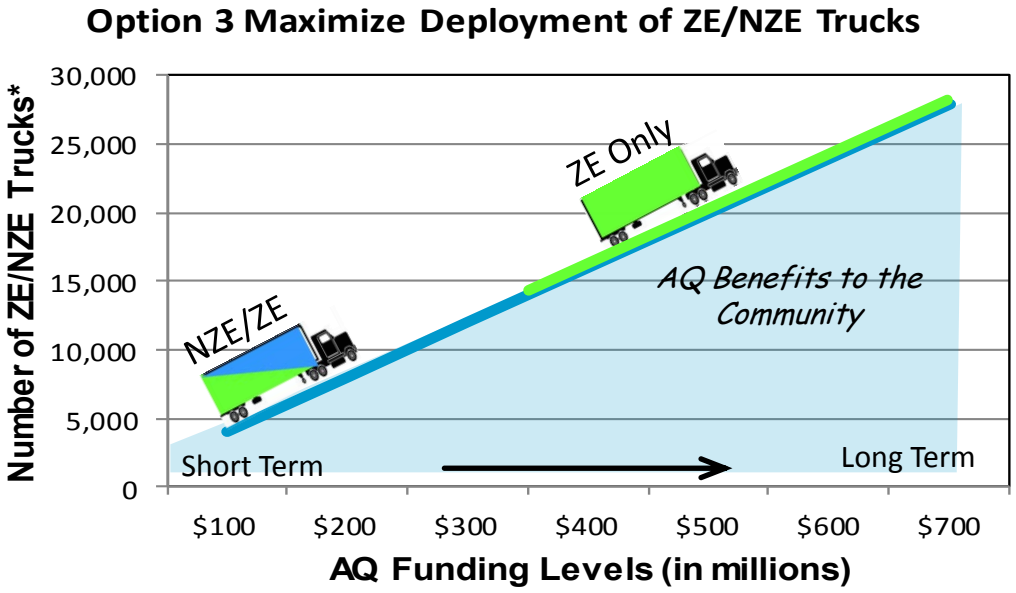
Emission Rate Trends for Conventional Diesel Trucks





Metro

I-710 ZE/NZE Deployment Strategy



Maximize Number of "Clean Emissions" Trucks and Air Quality Benefits

- Begin with mix of ZE and NZE trucks in the near term
- Transition to ZE trucks as ZE trucks become commercially available and affordable.
- Partner with SCAQMD, EPA, CARB to pursue grant funding outside of the project programmed funds to support health-benefit investments.

Metro

Los Angeles County
Goods Movement Strategic Plan

Clean Truck Initiative Working Group

December 17, 2019

Prepared by Arellano Associates

Metro

Clean Truck Initiative Working Group

Location **Gateway Cities Council of Governments**

Date **Tuesday, December 17, 2019** **12:00 PM -- 3:00 PM**

ATTENDEES:

PUBLIC SECTOR

Alison Linder, SCAG
Allison Yoh, Port of Long Beach
Dan Kopulsky, Caltrans
David MacGregor, County of Los Angeles
Deanna Matsumoto, CSULB CiTTI/METRANS
Denise Gailey, Air Quality Management District (AQMD)
Erick Martell, Port of Los Angeles
Gary Gero, LA County
Genevieve Giuliano, USC/METRANS
Hilary Norton, CTC/Fixing Angelinos Stuck in Traffic (FAST)
James Shankel, Caltrans
Jocelyn Rivera, LA County, Fourth District
Karen Heit, Gateway Cities Council of Governments
Keith Lehto, County of LA Public Works
Kerry Cartwright, Port of Los Angeles
Kevin Barker, California Energy Commission
Luke Klipp, City of Long Beach
Matthew Arms, Port of Long Beach
Matt Miyasato, Air Quality Management District (AQMD)
Max Reyes, City of Los Angeles
Michael Ervin, Supervisor Hahn's Office
Nancy Pfeffer, Gateway Cities Council of Governments
Paul Hubler, San Gabriel Valley Council of Governments
Steve Lantz, South Bay Council of Governments
Sue Dexter, USC/METRANS
Sydney Vergis, California Air Resources Board (CARB)
Waqas Rehman, LA County, First District
Wayne Nastri, Air Quality Management District (AQMD)

PRIVATE SECTOR

Aaron Gillmore, BYD Motors
Damon Hannaman, Southern California Edison
Enzo Bauk, US Hybrid
John Gerra, BYD Motors
Justin Loyear, Cummins Westport
Kevin Maggay, SoCal Gas
Matt Schrap, California Fleet Solutions/Velocity Vehicle Group
Mike Ippoliti, HDR
Varalakshmi Jayaram, Ramboll
Vincent Pellecchia, BYD Motors

NON-GOVERNMENTAL ORGANIZATIONS

Alex Mitchell, Los Angeles Cleantech Incubator (LACI)
Angelo Logan, Occidental College
Bill Van Amburg, Calstart
Greg Roche, Clean Energy Fuels
Jennifer Ganata, Communities for a Better Environment
Joe Lyou, Coalition for Clean Air
Karla Sanchez, Harbor Trucking Association
Marc Carrel, BREATHE LA
Mariela Manzo, NRDC
Marnie Primmer, Future Ports
Niki Okuk, Calstart
Raj Dhillion, BREATHE LA
Todd Campbell, Clean Energy Fuels
Weston LaBar, Harbor Trucking Association

METRO STAFF

Akiko Yamagami, Metro
Anna Lee, Metro
Ernesto Chaves, Metro
Michael Cano, Metro
Paul Backstrom, Metro

CONSULTANTS

Jim Brogan, Cambridge Systematics
Art Sohikian, AVS Consulting
Susan De Santis, Arellano Associates

Sohrab Mikanik, Arellano Associates
Danielle Rodriguez, Arellano Associates

Introduction

The Los Angeles Metro has initiated a Goods Movement Strategic Plan (Plan) for Los Angeles County to address the issues facing goods movement throughout the region. The Plan will focus on improving the region's multimodal freight system, a critical element of LA County's overall surface transportation system.

Through collaboration and dialogue with the many goods movement stakeholders in Los Angeles County, Metro has identified the urgent need, as an early action program of the Goods Movement Strategic Plan, to develop a regional strategy and implementation plan to accelerate the introduction of cleaner truck technology on our many highways and local roads. This initiative will build upon ongoing efforts undertaken in Los Angeles County, such as the Clean Truck Program implemented by the Ports of Long Beach and Los Angeles as part of the Clean Air Action Plan and the Mobile Source Air Pollution Reduction Review Committee investments for cleaner truck technology implementation.

The purpose of the Clean Truck Initiative Working Group is to develop the regional cleaner truck initiative for the Goods Movement Strategic Plan and the Gateway Cities' proposal. The outcomes of the discussion with the key stakeholders will be presented at the next Freight Working Group meeting in March 2020.

Clean Truck Initiative Working Group

The Clean Truck Initiative Working Group Meeting was held at Gateway Cities Council of Governments on December 17, 2019. The meeting was attended by 58 participants from a wide range of public, private and non-governmental sector organizations.

This meeting was organized into two parts: opening remarks and an overview of Metro's Regional Clean Truck Initiative, followed by a group discussion. The introductions and opening remarks were presented by Michael Cano, Deputy Executive Officer, Goods Movement and State Policy and Programming, Metro. He then provided a brief overview of Metro's Regional Clean Truck Initiative. After the introduction and overview, Hilary Norton, Commissioner, California Transportation Commission was invited to the podium to provide opening remarks.

Bill Van Amburg, Executive Vice President, Calstart opened up the group discussion portion of the meeting by providing a overview of the various topics and issues that would be the focus of the discussion. Mr. Cano, supported by Marnie Primmer, Executive Director, FuturePorts facilitated the discussion. Participants provided their thoughts on the first two topics, State of

Technology and Infrastructure Deployment. After a short break, the room re-assembled to explore the remaining topics: Trucking Industry Perspective, Funding Sources and Regulatory Environment.

Prior to the meeting, the Working Group received an overview of the agenda, as well as two Metro Board Motions that were passed on March 1, 2018 related to the I-710 South EIR/EIS Project. After the group discussion, participants engaged in a lightning round and the meeting was concluded.

Agenda Items

A. Welcome & Introductions (Michael Cano, Deputy Executive Officer, Metro)

Michael Cano opened the meeting and reviewed the agenda that included an overview of what was to be presented. He then thanked Nancy Pfeffer, Executive Director, Gateway Cities Council of Governments for hosting the meeting. Participants then went around the room for self-introductions

B. Opening Remarks (Michael Cano, Metro)

Mr. Cano's opening remarks began with highlighting the importance of the Goods Movement Strategic Plan for LA County. He acknowledged that goods movement is complex and involves many needs in the region and affects many people and communities. Creating a Plan takes a lot of work, collaboration and partnership. The Plan will be presented to the Metro Board for review and consideration in 2020.

Mr. Cano reiterated that Metro's vision is to provide a world-class transportation system that enhances quality of life for individuals in LA County. Goods movement takes a backseat in interest in the transportation industry, however, Mr. Cano noted the issues associated with goods movement, such as air quality. The Strategic Plan Vision that is being developed envisions Metro as a national leader and regional partner within a framework of equitable and sustainable investments.

The Clean Truck Initiative is a part of a broader element in the Plan focused on clean freight. Metro has been reaching out to rail partners, including Metrolink and Lossan in the discussion of ways to make clean locomotives and improve the air quality in the region. The Plan will be an outcome of discussions with stakeholders on a sustainable

freight competitiveness framework for LA County, which includes listening to all stakeholders. The ultimate goal is to create a higher quality of life for those who live in LA, to breathe better air quality and to be able to travel efficiently in the region. Mr. Cano emphasized that this idea is driving the Goods Movement Plan.

He mentioned the Vision 2028 was adopted by the Metro Board. He hopes to broaden the definition of what mobility means and what it entails. Metro's Long Range Transportation Plan (LRTP) is currently being developed in parallel with Vision 2028. These Plans are all guided by the Equity Platform.

C. Overview: Metro's Clean Truck Initiative (Michael Cano, Metro)

Mr. Cano went on to describe some of the issues that are associated with the 710 EIR, including air quality and public health. The purpose of this meeting is to partner with agencies, such as AQMD and SCAG, to implement projects and programs to improve the air quality in the impacted communities. Primary source of poor air pollution comes from tailpipe emissions. Does not want to lose sight of the major issues surrounding the 710 project, especially the imbalance of equity that affects the communities surrounding the area. The work that Metro is doing in the Freight Working Group and other conversations that take place with stakeholders are, ultimately, to improve the quality of life for those communities that are negatively impacted. Mr. Cano noted that currently, the Board is made up of all five LA County Supervisors, Mayor Garcetti and his appointees, and representatives from all four sectors of LA County (Gateway Cities, South Bay, San Gabriel Valley and North Counties).

Mr. Cano highlighted the two motions that were passed in March 2018. The first motion was passed to phase in zero-emissions technology. The goal for this is to make the 710 a near zero-emission corridor. The second motion that was passed the same day was to create a Working Group for these efforts. The Clean Truck Initiative Working Group, among other stakeholder meetings, will satisfy this Board motion. He hopes that the meetings will identify the barriers, challenges and tools that are necessary to develop effective policies. Ultimately, this practice will become an institutionalized element to work with stakeholders to solve clean truck issues for the years to come. Mr. Cano's goal is to have that incorporated in the Plan that will be presented to the Board. The purpose of the Clean Truck Initiative Working Group is to lay the groundwork for what is

needed to move forward and to discuss other clean truck efforts that are taking place at other agencies such as the ports, and AQMD.

After the overview, Mr. Cano introduced Hilary Norton, California Transportation Commissioner who provided opening remarks.

D. Opening Remarks from CTC Commissioners and Board Officers (Hilary Norton, Commissioner, CTC)

Ms. Norton took the podium and thanked Mr. Cano, Metro and Gateway Cities for planning the Clean Truck Initiative Working Group. She highlighted California Freight Mobility Plan, which the CTC will finalize in 2020. Ms. Norton mentioned that when the region succeeds economically, the state succeeds as well. She thanked everyone in the room for their collaboration and is excited to move forward with an efficient Plan.

Mr. Cano took a moment to recognize representatives from LA County Board of Supervisors' Offices, including Supervisor Solis and Supervisor Hahn. Mr. Cano then called upon Bill Van Amburg, Executive Vice President, Calstart to transition into the group discussion portion of the meeting.

E. Group Discussion

Mr. Van Amburg was asked to shed light on the context of certain issues that would be brought up during the group discussions. He made a note that the discussion topics were separated into five sections: State of Technology, Infrastructure Deployment, Trucking Industry Perspective, Funding Sources and Regulatory Environment.

State of Technology is the core category of discussion. Mr. Van Amburg reported that a few years ago, Calstart, on behalf of Metro and Gateway Cities, created a commercialization plan for zero emission transportation for the 710 corridor. He highlighted the progress and steps that have been made to reach that goal. He noted that Calstart has also been making strides assessing needs of users and working with the State of California to develop an investment strategy. There has been rapid progress and interest in urban delivery, transit, bus and heavy regional.

He highlighted the shifts in the industry, mentioning that today you can't implement a program at scale. It is crucial to think and as, "What is the strategy for using multiple technologies" and "How do we support these multiple technologies appropriately? He

also encouraged participants to think about rapid evolution of technology because there is no one-size-fits-all approach. There is significant, ongoing pressure to reduce carbon emissions. There needs to be 60% or more reduction of NOx and other pollutants from transportation. There has been progress in finding solutions and multiple pathways are being discovered, such as ultra-low carbon fuel, including electricity or natural gas use fuel. There is a tremendous pressure on diesel, which is causing the current administration to move forward with a plan to use a version to lower NOx in trucking in real-world conditions. Renewable fuels are increasingly available because of the low-carbon fuel standard in California. Energy storage is steadily decreasing in size and cost, while increasing in capability. Trucks are moving from the pilot stage and carrying cargo, and new capabilities are emerging. We are aligning with what we're seeing around the world. We need to grow that supply chain if we want to lower the cost. It is important for the region to focus on this effort, drive the market, and help others adopt these technologies.

Mr. Cano returned to the podium to thank Mr. Van Amburg and introduce Marnie Primmer, Executive Director, FuturePorts as a moderator for the group discussion. He then opened the floor to participants to begin the discussion.

Julia Lester, 710 Air Quality Consultant, Ramboll, then provided a brief presentation related to trucks and their impact on air quality.

*Please see **Appendix F, slides 14-18** for the Truck Information section of the presentation, **Appendix G** for the Calstart Presentation and **Appendix H** for the Group Discussion Transcription.*

F. Break

Participants discussed the first two topic areas, State of Technology and Infrastructure Deployment. Mr. Cano dismissed the room for a short break. At the conclusion of the break, participants gathered to discuss the remaining three topics: Trucking Industry Perspective, Funding Sources, and Regulatory Environment.

G. Adjournment

At the conclusion of the group discussion, Mr. Cano thanked the Metro and the Consultant team for their efforts, and the Working Group participants for their attendance. He dismissed the participants at 3:00 PM.

Appendix A: Agenda

Los Angeles Metro

Los Angeles County Goods Movement Strategic Plan

Clean Truck Initiative Working Group Agenda

December 17, 2019 12:00 PM – 3:00 PM 16401 Paramount Blvd., Paramount, CA 90723

12:00 – 12:20 PM Gathering/Networking/Lunch

12:20 – 12:30 PM Welcome and Introductions – Michael Cano

12:30 – 12:45 PM Overview: Metro's Regional Clean Truck Initiative

12:45 – 12:55 PM Opening Remarks from CTC Commissioners and Board Officers

12:55 – 2:45 PM Group Discussion Introduction – Michael Cano

Purpose of the discussion is to help us better understand participant Perspectives on the key issues most significantly impacting Implementation of a clean truck initiative regionally and specifically for the I-710 Corridor. The outcome of this discussion will help inform our thinking on the potential for a countywide Clean Truck Initiative as an early action program in the Goods Movement Strategic Plan covering strategies and policies to pursue, and how best to prioritize goals to implement this initiative in a focused and expedited manner.

For each topic area listed below, we would like to cover the Key Questions in our discussion:

- ***Topic Areas for Discussion***
  - 1:00 PM State of Technology
  - 1:25 PM Infrastructure Deployment
  - 1:45 -1:55 PM Break
  - 1:55 PM Trucking Industry Perspective
  - 2:15 PM Funding Sources
  - 2:25 PM Regulatory Environment
- ***Key Questions on the Clean Truck Program***
  - What are the challenges facing LA County in developing a Clean Truck Initiative?
  - What strategies (policies, projects, programs) could address these?
  - Are there immediate steps that can be taken ("early wins") to address these issues?
  - What should Metro do to pursue these? What should Metro not do?
  - How can Metro develop a fundable, implementable program?

2:45 – 3:00 PM Lightning Round, Next Steps, and Wrap Up

Appendix B: Clean Truck Working Group Roster

Los Angeles County
Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Te
metro.net

Metro

Clean Truck Initiative Working Group Roster

CATEGORY	NAME	POSITION	ORGANIZATION
Public Sector			
Council of Governments	Nancy Pfeffer	Executive Director	Gateway Cities COG
Council of Governments	Karen Heit	Transportation Analyst	Gateway Cities COG
Council of Governments	Paul Hubler	Director of Government and Community Relations	San Gabriel Valley COG
Council of Governments	Steve Lantz	Transportation Director	South Bay COG
Educational/ Research Institute	Deanna Matsumoto	Career and Technical Education Specialist	CSULB CiTTI/METRANS
Educational/ Research Institute	Genevieve Giuliano	Director	USC/METRANS
Educational/ Research Institute	Sue Dexter	Lead Instructor and Capstone Advisor	USC/METRANS
Local Government	David MacGregor	Assistant Deputy Director, Road Maintenance	LA County Department of Public Works (LADPW)
Local Government	Gary Gero	Chief Sustainability Officer	Los Angeles County
Local Government	Keith Lehto	Assistant Deputy Director	LA County Department of Public Works (LADPW)
Local Government	Luke Klipp	Board Deputy	City of Long Beach
Local Government	Max Reyes	Senior Management Analyst	City of Los Angeles
Local Government	Waqas Rehman	Director of Planning and Development	Office of Los Angeles County Supervisor Hilda Solis
Local Government	Michael Ervin	Assistant Deputy of Transportation	Office of Los Angeles County Supervisor Janice Hahn
Local Government	Jocelyn Rivera	Deputy	Office of Los Angeles County Supervisor Janice Hahn
Ports	Allison Yoh	Director of Transportation Planning	Port of Long Beach
Ports	Matthew Arms	Acting Director of Environmental Planning	Port of Long Beach
Ports	Kerry Cartwright	Director of Goods Movement	Port of Los Angeles
Ports	Erick Martell	Legislative Representative	Port of Los Angeles
Regulatory Agencies	Denise Gailey	Manager, State/Federal Legislation, EJ, SBA	Air Quality Management District (AQMD)
Regulatory Agencies	Matt Miyasato	Deputy Executive Officer, Science and Technology Advancement	Air Quality Management District (AQMD)
Regulatory Agencies	Wayne Nastri	Executive Officer	Air Quality Management District (AQMD)
Regulatory Agencies	Sydney Vergis	Assistant Division Chief	California Air Resources Board (CARB)
State	Kevin Barker	Chief of Staff	California Energy Commission
Transportation Agencies	Dan Kopulsky	Chief, Regional Planning and Goods Movement.	Caltrans
Transportation Agencies	Hilary Norton	Commissioner	CTC/Fixing Angelinos Stuck in Traffic (FAST)
Transportation Agencies	James Shankel	Senior Environmental Planner	Caltrans
Transportation Agencies	Alison Linder	Senior Regional Planner	Southern California Association of Governments SCAG
Private Sector			
Business	Mike Ippoliti	Automated, Connected & Electric Vehicle Project Manager	HDR
Economic Development	Varalakshmi Jayaram	Managing Consultant	Ramboll
OEM	Aaron Gillmore	Vice President	BYD Motors
OEM	John Gerra	Senior Director, Business Development	BYD Motors
OEM	Vincent Pellecchia	Strategic Account Manager	BYD Motors

OEM	Enzo Bauk	Senior Mechanical Engineer	US Hybrid
OEM	Justin Loyear	Pacific Regional Sales Manager	Cummins Westport
Trucking	Matt Schrap	President	California Fleet Solutions/Velocity Vehicle Group
Utilities	Damon Hannaman	Senior Advisor	Southern California Edison
Utilities	Kevin Maggay	Program Manager	Southern California Gas
Non-Governmental Organizations			
Business	Alex Mitchell	Senior Vice President, Market Transformation	Los Angeles Cleantech Incubator (LACI)
Environmental Advocacy	Angelo Logan	Program Director	Occidental College, Moving Forward
Environmental Advocacy	Greg Roche	Vice President	Clean Energy Fuels
Environmental Advocacy	Todd Campbell	Vice President, Public Policy and Regulatory Affairs	Clean Energy Fuels
Environmental Advocacy	Jennifer Ganata	Senior Staff Attorney	Communities for a Better Environment
Environmental Advocacy	Joe Lyou	President & CEO	Coalition for Clean Air
Environmental Advocacy	Marc Carrel	President & CEO	BREATHE LA
Environmental Advocacy	Raj Dhillon	Manager of Advocacy and Public Policy	BREATHE LA
Environmental Advocacy	Mariela Manzo	Program Assistant	NRDC
Freight Industry	Marnie Primmer	Executive Director	Future Ports
Trucking	Bill Van Amburg	Vice President	Calstart
Trucking	Niki Okuk	Program Manager	Calstart
Trucking	Karla Sanchez	Director of Programs & Communications	Harbor Trucking Association
Trucking	Weston LaBar	Executive Director	Harbor Trucking Association

Appendix C: Invitation

Los Angeles County
Metropolitan Transportation Authority

One Gateway Plaza
Los Angeles, CA 90012-2952

213.922.2000 Te
metro.net

Metro

11/25/2019

Ian MacMillan
AQMD
21865 Copley Drive
Diamond Bar, CA 91765

Dear Ian,

Metro's Goods Movement Planning Team, in support of our development of the Los Angeles County Goods Movement Strategic Plan, invites you to participate in a special working group meeting focused on the development of a regional clean truck initiative on December 17, 2019 from 12:00 PM – 3:00 PM at Gateway Cities Council of Governments, 16401 Paramount Blvd. Paramount, CA 90723. Lunch will be available starting at noon.

Through collaboration and dialogue with the many goods movement stakeholders in Los Angeles County, Metro has identified the urgent need, as an early action program of our Goods Movement Strategic Plan, to develop a regional strategy and implementation plan to accelerate the introduction of cleaner truck technology on our many highways and local roads. This initiative will build upon ongoing efforts undertaken in Los Angeles County, such as the Clean Truck Program implemented by the Ports of Long Beach and Los Angeles as part of the Clean Air Action Plan and the Mobile Source Air Pollution Reduction Review Committee investments for cleaner truck technology implementation.

To accomplish this important goal, Metro understands that it must bring together key experts and leaders across the region with knowledge of the various elements that will be necessary to develop a successful regional clean truck program. At this meeting we anticipate a robust and honest discussion on the many existing obstacles and barriers to such a program, opportunities and strategies to overcome these challenges, and how best to shape this initiative to achieve success through collaboration among and broad support from our key stakeholders.

As part of this initiative, Metro recognizes the need to prioritize a strategy to deliver cleaner trucks to be operated along the heavily traveled Interstate 710 that serves our Ports, intermodal rail yards, logistics centers, and other freight needs along the corridor. To that end the Gateway Cities Council of Governments has developed a concept paper, titled the *I-710 Clean Truck Prototype Incentive Program*, to catalyze a focused discussion on the various issues involved with introducing cleaner truck technology that will relieve the health impacts suffered by disadvantaged communities adjacent to this vital trade corridor in accordance with the commitments made by the Metro Board in the I-710 environmental document. We will receive a presentation on this concept and hold a discussion on how best to implement such a proposal as part of our working group meeting.

We highly value your expertise and knowledge of this subject matter and would greatly appreciate your input at our December 17th meeting. We plan to convene this group of stakeholders on a regular basis to develop the regional cleaner truck initiative for our Goods Movement Strategic Plan and the Gateway Cities' proposal. The outcomes of this discussion

Metro

with you and other key stakeholders will be presented at the next Freight Working Group meeting in March 2020.

We look forward to engaging in meaningful dialogue with you and our stakeholders on this important initiative, and we would ask that you send your RSVP to Akiko Yamagami at YamagamiA@metro.net . We appreciate your input, your support, and your leadership in helping Metro accomplish this regional vision and in helping our team develop a transformative Goods Movement Strategic Plan to serve the many needs of our residents in Los Angeles County.

With great appreciation,

Michael Cano
Metro | Deputy Executive Officer, Goods Movement

Appendix D: Meeting Hand-Outs

File#: 2018-0053, **File Type:** Motion / Motion Response **Agenda Number:** 5.1

REGULAR BOARD MEETING
MARCH 1, 2018

REVISED Motion by:

HAHN, SOLIS, GARCIA, AND DUPONT-WALKER

Related to Item 5: I-710 South EIR/EIS Project

The 710 Freeway is a major transportation corridor not only for daily commuters, but also for freight movement from the Ports of Los Angeles and Long Beach to the nation. While "goods movement" is a major economic driver for our region, it comes at a high cost for the many communities and residents along the 19 mile freeway. For many years, children and adults alike have suffered from serious health issues as a result of the pollution emitted by the trucks delivering freight inland, and neighborhoods have been severely impacted by congestion and traffic. This freeway is known as the "diesel death zone."

For 15 years, Metro has partnered with Caltrans, the Gateway Cities Council of Governments, the Ports, the individual cities along the 710, community activists and others, to develop different 'alternatives' to re-imagine the 710 in a way that balances commerce and environmental responsibility.

There are now three alternatives for the Metro Board to choose from: "No Build", "Sc" and "7." Both include a funding target of $100 million for the purchase of "Near Zero" (NZE) or "Zero" emission (ZE) trucks that would travel on the 710 corridor. Yet, according to AQMD, even taking into consideration either build alternative, "the region will need substantial additional emission reductions to attain the National Ambient Air Quality Standards." Additionally, Metro has reported that greenhouse gas tailpipe emissions would be reduced by nearly the same levels for either alternative.

Dedicating the funding exclusively to "zero emission" technology once is available and requiring only ZE vehicles be allowed - once they are constructed - could improve air quality standards significantly. The technology for long haul trucks that would emit NO poisonous fumes is emerging quickly, as exhibited by leading auto manufacturers such as Tesla and Daimler AG. Freeways in China, Israel and Norway are being constructed to have electric chargers embedded under the pavement, thus enabling electric vehicles - both cars and long haul trucks - to charge their batteries as they are moving. This significant investment by Metro can be a game-changing accelerator of "zero emission" technology, eliminating the need to subsidize "near zero" emission vehicles.

The future 710 freeway must not be a "diesel death zone" but a corridor where freight can be moved quickly without impairing the health of communities alongside the 710 Freeway. Both can be

achieved.

SUBJECT: REVISED MOTION BY DIRECTORS HAHN, SOLIS, GARCIA, AND DUPONT-WALKER

WE THEREFORE MOVE to direct the Metro CEO and Staff to, as part of, staff recommended Locally Preferred Alternative Sc:

A. Change the Zero Emission/Near Zero Emission truck technology development program to the phased-in "Zero Emission Truck Technology Development Program."

B. Increase program funding target from $100 million to $200 million, and include in the Program incentives and grants investment in the acceleration of zero emission technology both for long hauling trucks and for freeway infrastructure, including but not limited to, "under the pavement" vehicle charging capacity as options to consider.

C. Convene a working group comprised of the California Air Resources Board (GARB), California State Department of Transportation (Caltrans), Southern California Association of Governments (SCAG), South Coast Air Quality Management District (AQMD), California Transportation Commission (CTC), the Ports of Los Angeles and Long Beach, zero-emission industry experts and other key stakeholders to develop a policy recommendation for a full, zero-emission only, dedicated lane including, but not limited to "rechargeable roadways" on the entire 19 mile long stretch of the 710 freeway, and include this as part of thefinal EIR/EIS document, presented in the September2018 Metro board meeting. as part of the reevaluation of the remaining elements of Alternative Sc, after the Early Action Projects have been completed.

File #: 2018-0068, **File Type:** Motion / Motion Response **Agenda Number: 5.2**

REGULAR BOARD MEETING
MARCH 1, 2018

Motion by:

SOLIS, GARCIA, RIDLEY-THOMAS, BUTTS, NAJARIAN, AND HAHN

Related to Item 5: 1-710 South Corridor Project

Local communities along the 1-710 freeway are plagued with life-threatening health ailments resulting from traffic-related pollution in the corridor. As such, communities have been united and explicitly clear that existing conditions are simply unacceptable and they demand and deserve relief. Nevertheless, gaining consensus on a Locally Preferred Alternative for the 1-710 South Corridor Project has been incredibly challenging due to limited right of way, public health concerns and sensitivities surrounding environmental and social justice issues.

After years of vigorous scientific environmental impact analysis, multiple engineering design variations, extensive community outreach, and thoroughly exploring all feasible alternatives, Metro staff has concluded that Alternative 5C is the most viable and cost-effective solution to maximize regional benefits related to safety, mobility, health and the environment while minimizing impacts to local communities. However, the air quality benefits proposed by Alt. 5C are largely contingent on substantial funding becoming available to deploy near-zero and zero-emission trucks to reduce pollutants such as diesel particulate matter, nitrogen oxide, carbon dioxide and others. Moreover, the regional mobility benefits rely on the assumption that passenger vehicle trips are transferred to the mainline freeway versus utilizing local arterials and residential streets, which helps alleviate "cut-through traffic" in surrounding communities. Unless these assumptions materialize the primary goals of this project may not come to fruition. It may be prudent to take a more modest approach to improving the 1-710 South corridor.

An Alt. 5C Early Action Program presents an opportunity to utilize programmed funding to sequence and complete smaller scale projects over the next decade and realize incremental benefits as soon as possible.

Any deviation from implementing viable and reasonable solutions as soon as possible will only prolong the necessary relief and further place these communities at risk.

SUBJECT: MOTION BY DIRECTORS SOLIS, GARCIA, RIDLEY-THOMAS, BUTTS, NAJARIAN, AND HAHN

WE THEREFORE MOVE that the Board adopt Alternative 5C as the Locally Preferred Alternative for the 1-710 South Corridor Project FEIR/FEIS (inclusive of Motion 22.1 from October 2015) and expedite the delivery of an Early Action Program (EAP) that emphasizes the following:

A. Projects that deliver the most immediate and significant benefits related to safety, mobility and air quality;

B. Projects that can be implemented with minimal or no displacement of residences, businesses, and sensitive land uses;

C. Developing a local/targeted hiring policy that is applicable to any and all eligible funding sources;

D. Conduct an operational performance analysis upon completion of the Early Action Program utilizing the most current State and local evaluation measures and standards to re-evaluate and re-validate the remaining elements of Alternative 5C, especially identifying opportunities to further reduce property impacts;

E. Return to the board upon completion of the aforementioned directive to seek further consideration and authorization related to implementing the balance of improvements in Alternative 5C.

FURTHER MOVE that the Board direct the CEO to establish a working group with the freight industry, air quality regulators, transportation and metropolitan planning agencies, the Gateway Council of Governments and other relevant stakeholders to explore the lead authorities, financial impact and other implementation factors related to:

A. Develop a strategic plan that is consistent with the South Coast Air Quality Management Plans, which expedites the transition from diesel freight trucks to near-zero emission vehicles as soon as possible and outlines a transition to zero-emission vehicles as thecleanest, most reliable technology becomes available;

B. Host an industry forum aimed at stimulating and accelerating the deployment of cleaner freight truck alternatives. The forum shall include, but not be limited to topics such as funding and financing, public-private partnerships, new technologies, on- and off-dock rail support facilities, best practices research and development, demonstration programs (example: rechargeable roadways), creative purchase/lease incentive programs, etc.;

C. Develop and evaluate multiple scenarios for a comprehensive congestion demand management program, to be evaluated independently, that focuses on separating freight and non-freight vehicles (i.e. dedicated toll lanes) within the existing rights of way on freeways facilities throughout Los Angeles County with priority on Near-Zero and Zero-Emission vehicles;

D. Develop an overarching transportation demand management (TOM) strategy consistent with the larger, previously approved TOM strategy development process that will minimize the impact of goods movements and people in the surrounding communities along the 1-710 corridor.

FURTHER MOVE that the CEO works with the Gateway Cities Council of Governments to assess the effectiveness and recommend potential improvements to the community participation structure that was established for the environmental review period. Report back to the board in 120 days.

FURTHER MOVE that, as part of its NextGen Bus Study, Metro evaluate the feasibility of implementing high-frequency bus service in accordance with Motion 22.1 (October 2015).

Appendix E: Sign-In Sheets

Metro Goods Movement Strategic Plan

Clean Truck Working Group

December 17, 2019 – 12:00 - 4:00 PM

Sign-in Sheet

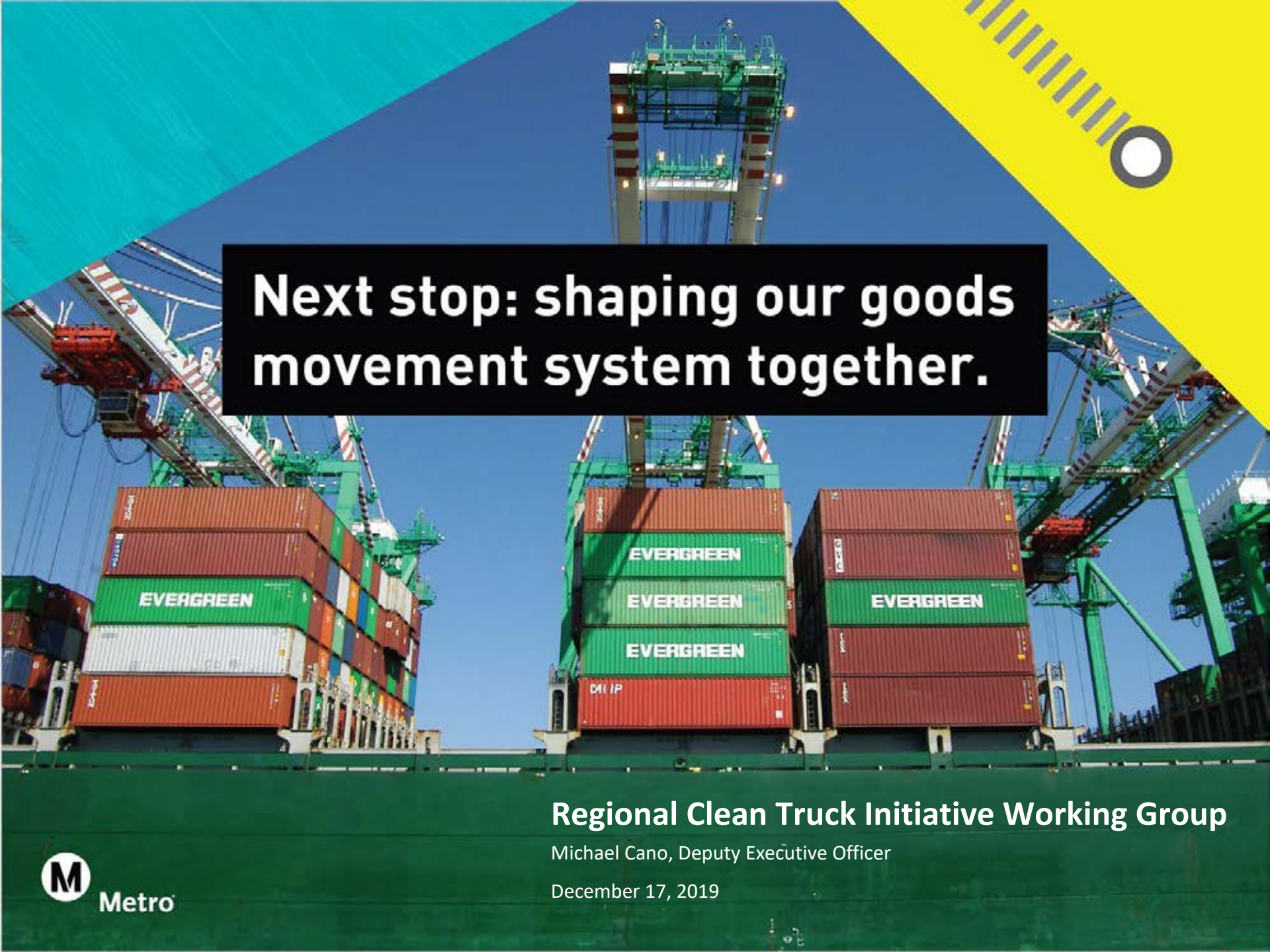
Name	Organization	Initials
Alex Mitchell	Los Angeles Cleantech Incubator (LACI)	✓
Aaron Gillmore	BYD Motors	✓
Abas Goodarzi	US Hybrid	
Adrian Martinez	Earthjustice	
Alison Linder	SCAG	✓
Allison Yoh	Port of Long Beach	✓
Bill Van Amburg	Calstart	✓
Chris Cannon	Port of Los Angeles	
Cris Liban	Metro	✓
Damon Hannaman	SoCal Edison	✓
Dan Kopulsky	Caltrans	✓
Dave MacGregor	County of LA Public Works	✓
David Libatique	Port of Los Angeles	
Deanna Matsumoto	CSULB Cittl/METRANS	
Ernesto Chaves	Metro	✓
Enzo Bauk	US Hybrid	✓
Fran Inman	CTC (Majestic Realty, Inc.)	
Gary Gero	LA County	✓
Genevieve Giuliano	USC/METRANS	✓
Greg Roche	Clean Energy Fuels	✓
Hilary Norton	CTC (Fixing Angelenos Stuck In Traffic (FAST))	✓
Jennifer Ganata	Communities for a Better Environment	✓
Joe Lyou	Coalition for Clean Air	✓
John Boesel	Calstart	
Justin Loyear	Cummins Westport	✓

Name	Organization	Initials
Keith Lehto	County of LA Public Works	✓
Ken Chawkins	SoCal Gas	
Kerry Cartwright	Port of Los Angeles	✓
Kevin Barker	California Energy Commission	✓
Luke Klipp	City of Long Beach	✓
Mariela Manzo	NRDC	✓
Marisa Creter	San Gabriel Valley Council of Governments	
Marnie Primmer	Future Ports	✓
Matt Miyasato	AQMD	✓
Matt Schrap	California Fleet Solutions/Velocity Vehicle Group	✓
Matthew Arms	Port of Long Beach	✓
Michael Ervin	LA County, Fourth District	✓
Mike Bush	NEXT Trucking	
Mike Ippoliti	HDR	✓
Nancy Pfeffer	Gateway Cities Council of Governments	✓
Norm Emerson	Gateway Cities Council of Governments	
Paul Hubler	San Gabriel Valley Council of Governments	✓
Paul Backstrom	Metro	✓
Phillip Fine	SCAQMD	
Sharon Weissman	City of Long Beach	✓
Stephanie Cadena	Gateway Cities Council of Governments	✓
Steve Cliff	California Air Resources Board	
Steve Lantz	South Bay Cities Council of Governments	✓
Sue Dexter	USC/METRANS	✓
Sydney Vergis	California Air Resources Board	✓
Todd Campbell	Clean Energy Fuels	✓
Tom Swenson	Cummins Westport	
Varalakshmi Jayaram	710 EIR Consultant	✓
Vincent Pellecchia	BYD Motors	✓
Waqas Rehman	LA County, First District	✓
Weston LaBar	Harbor Trucking Association	✓

Name	Organization	Initials
Karla Sanchez	HTA	✓
James Shankel	Caltrans	✓
Wayne Nastri	AQMD	✓
Karen Heit	Gateway Cities COG	✓
Niki Okuk	Calstart	✓
Max Reyes	City of LA	✓
Marc Carrel	Breathe LA	✓
Raj Dhillon	Breathe LA	✓
Erick Martell	POLA	✓
Angelo Logan	Occidental College	✓
Denise Gailey	AQMD	✓
Kevin Maggay	SoCal Gas	✓
John Gerra	BYD	✓
Jocelyn Rivera	LA County, fourth District	✓
Julia Lester		

Name	Organization	Initials
Danielle Rodriguez	Arellano Associates	✓
Sohrab Mikanik	Arellano Associates	✓
Susan De Santis	Arellano Associates	✓
Art Sohikian	AVS Consulting	✓
Elaine McKenzie	Cambridge Systematics	
Jim Brogan	Cambridge Systematics	✓
Lila Singer Burke	Cambridge Systematics	
Akiko Yamagami	Metro	✓
Anna Lee	Metro	✓
Cris Liban	Metro	
Ernesto Chaves	Metro	✓
Mark Yamarone	Metro	
Michael Cano	Metro	✓
Paul Backstrom	Metro	✓

Appendix F: Regional Clean Truck Initiative Working Group Presentation



Regional Clean Truck Initiative Working Group

Michael Cano, Deputy Executive Officer

December 17, 2019

Metro

Vision Statement

Metro's Mission: *To provide a world-class transportation system that enhances quality of life for all who live, work, and play within LA County.*

Goods Movement Strategic Plan Vision: Metro will become…

> …a ***national leader*** and ***regional partner*** in implementing a modern, responsive, resilient, and effective freight transportation system through policies, programs, and projects that support a competitive global economy.

> …a steward of ***equitable and sustainable investments*** and ***technological innovation*** that will increase regional economic competitiveness, advance environmental goals, and provide access to opportunity for County residents.

Metro

Sustainable Freight Competitiveness

®Metro

Metro's Coordinated Planning Efforts

Metro

Public Health Impacts of Air Quality

The South Coast Air Basin – home to Los Angeles County – has the worst air quality in the nation

Primary source of air pollution comes from tailpipe emissions associated with the transportation sector – particularly from heavy-duty trucks

The residents along the I-710 suffer from poor air quality and public health impacts associated with truck movement along the corridor

Major equity impacts for some of the more vulnerable communities in Los Angeles County

Metro

Public Health Impacts of Air Quality

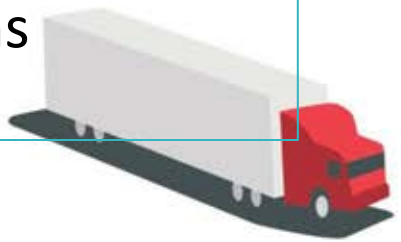
Traffic-related air pollutants known to impact public health include:

Pollutants:

- Ozone
- Diesel particulate matter
- PM_{10}
- $PM_{2.5}$
- Ultrafine particulates
- Carbon monoxide
- Nitrogen dioxide
- Sulfur dioxide
- Lead
- Benzene
- Formaldehyde
- Acrolein
- Acetaldehyde

Health Impacts:

- Asthma
- Respiratory diseases
- Cardiovascular diseases
- Cancer
- Premature death
- Mortality
- Preterm and low-weight births



Metro

Metro Board Directives

Metro Board Motions (March 2018) – I-710 South EIR/EIS

5.1 : Hahn, Solis, Garcia & Dupont-Walker

- Change the ZE/NZE truck technology program to the **phased-in** "ZE Truck Technology Development Program".
- Increase program funding from $100 million to $200 million, and include in the Program **incentives and grants investment in the acceleration of ZE technology both for long-hauling trucks and for freeway infrastructure**, including but not limited to, "under the pavement" vehicle charging capacity as options to consider.
- **Convene a working group** to develop a policy recommendation for a full, ZE only, dedicated lane…on the entire 19-mile long stretch of the 710 freeway as part of the re-evaluation of the remaining elements of Alternative 5C after the Early Action Projects have been completed.

Metro

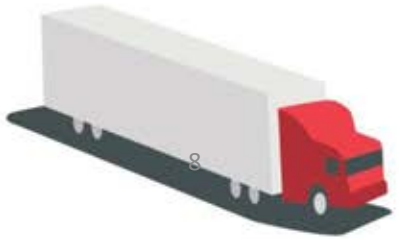
Metro Board Directives

5.2 : Solis, Garcia, Ridley-Thomas, Butts, Najarian, & Hahn

Direct the CEO to establish **a working group** with the freight industry, air quality regulators, transportation and metropolitan planning agencies, the Gateway COG and other relevant stakeholders to **explore the lead authorities, financial impact and other implementation factors** related to:

- **Develop a strategic plan** that is consistent with the South Coast Air Quality Management Plans, **which expedites the transition from diesel freight trucks to NZE vehicles as soon as possible and outlines a transition to ZE vehicles as the cleanest, most reliable technology becomes available**
- Host an **industry forum** aimed at stimulating and accelerating the deployment of cleaner freight truck alternatives. Forum shall include topics such as: funding/financing, P3, new technologies, on/off dock rail support facilities, best practices R&D, demonstration projects, creative purchase/lease incentive programs, etc.

Metro



8

Governor's Executive Order N-19-19

Governor Newsome Issued the Executive Order (EO) in September 2019

Main Points:

- Leverage available state funding "to help reverse the trend of increased fuel consumption and reduce greenhouse gas emissions associated with the transportation sector".
- CalSTA Secretary David Kim will engage stakeholders on how best to implement the EO
- Implemented partially through California Freight Mobility Plan 2020 (in draft form now)

EXECUTIVE DEPARTMENT
STATE OF CALIFORNIA

EXECUTIVE ORDER N-19-19

WHEREAS California is proof that a bold climate agenda is good for the economy, for workers, for health and for our future, as evidenced by our state having achieved record economic growth while reaching some of the strongest climate goals in the world; and

WHEREAS in the face of inaction on climate change from the federal government, California is a global leader in climate change mitigation efforts through bold climate goals and actions, as well as leadership in the US Climate Alliance and Under2 Coalition, using the state's power as the fifth largest economy in the world to drive positive action; and

WHEREAS California has ambitious and essential climate goals to transition to a healthier, more sustainable and more inclusive economy, including: reducing greenhouse gas emissions 40 percent below 1990 levels by 2030; providing 100 percent of the state's electricity from clean energy sources by 2045; reducing methane emissions and hydrofluorocarbon gases by 40 percent; and adding five million zero-emission vehicles to California's roads by 2030; and

WHEREAS California has made substantial, measurable progress on many of the goals enumerated above, but in recent years, direct tailpipe emission from cars, ships, diesel trains, airplanes, and other transportation sources have remained a stubborn driver of greenhouse gas emissions, totaling 40.1 percent of all greenhouse gas emissions statewide; and

WHEREAS the California Air Resources Board has a fifty-year history of leading the globe in addressing harmful pollution through innovative air pollution control standards, including the nation's first NOx emissions standards for motor vehicles; and

WHEREAS California's renewable energy targets have spurred innovation and private investment in new technologies with California leading the nation in clean technology patents and bringing in more than 50 percent of all clean energy investment in the nation; and

WHEREAS the state has made significant progress in lowering greenhouse gas emissions and mitigating climate risk in California's own state government operations and public schools; and

WHEREAS achieving California's climate goals will require concerted commitment and partnership by government, the private sector, and California residents,

Metro

Goals for Today's Working Group

Framework for the Clean Truck Initiative

Goals for this group:

- Develop a comprehensive, timely, fundable, implementable and broadly supported Clean Truck Initiative for the Metro Board to support, invest in, and seek supporting policies and vital funding through partnership with regional, state and federal stakeholders and agencies

- Provide a clear accounting of the landscape of cleaner truck technology – including equity community concerns, barriers to implementation, status of technology, infrastructure needs, truck driver needs, and funding needs – to inform the Metro Board on clean truck issues through the Metro Goods Movement Strategic Plan

- Become a recurrent advisory group to the Metro Board for all issues related to the implementation of clean truck technology within LA County

Concept for Working Group Meetings

Today:

- Convene stakeholders to explain purpose of the regional Clean Truck Initiative
- Through presentation and a constructive dialogue, identify the key challenges, barriers, opportunities, and community needs that surround the development of the Initiative
- Identify additional areas of inquiry for this working group and additional stakeholders for outreach by Metro
- Listen, share, discuss. No decisions made today on the specifics of a funding plan or preferred technology

Concept for Working Group Meetings

Next Meetings (Early 2020):

- Report back on comprehensive assessment of issues raised at the first meeting
- Develop the equity framework associated with implementing the Clean Truck Initiative
- Identify and discuss existing efforts to implement clean truck technology (e.g., Port Clean Truck Program, Gateway COG 710 Prototype, LACI) – and how the Initiative can complement and support these efforts
- Identify and discuss policy needs and available funding opportunities
- Construct the Clean Truck Initiative in a collaborative manner with the purpose of it being presented to the Metro Board for consideration

Truck Information

Truck Tailpipe Emissions Factors

Pollutants of Concern (Heavy-Duty Truck Tailpipe Emissions)	**Diesel Trucks (in 2035)**	**ZE / NZE Trucks**	**ZE Trucks**
NO_X	0.2 g/bhp-hr	0.02 g/bhp-hr	0.00 g/bhp-hr
PM_{10} / $PM_{2.5}$	0.01 g/bhp-hr	0.01 g/bhp-hr	0.00 g/bhp-hr
Major toxics	DPM and diesel gaseous toxics	NG toxics (gaseous and particulate)	0

DPM: Diesel Particulate Matter
NG: Natural Gas

Compare NZE & ZE Truck Performance

	Conventional Diesel Truck 	Near Zero Emission Truck 	Zero Emission Truck 
			
Diesel Particulate Matter* (DPM) (lb/10,000 miles)	0.38	0	0
Nitrogen Oxides* (NO_X) (lb/10,000 miles)	54.4	5.4	0
Greenhouse Gases* (GHG) (MT CO_2e/10,000 miles)	11.3	11.3	0
Approx. number of Trucks per $100 million of Funding**	N/A	4,000 Trucks	1,520 Trucks

* Running Exhaust emission factors are based on EMFAC2017 for heavy-heavy duty trucks in Los Angeles County for calendar year 2035.

** Unit costs represent incremental, average costs of zero emissions trucks (battery electric, fuel cell vehicles) from I-710 Zero Emissions Truck Commercialization Study, assuming pre-2035 deployment (Calstart, 2013).

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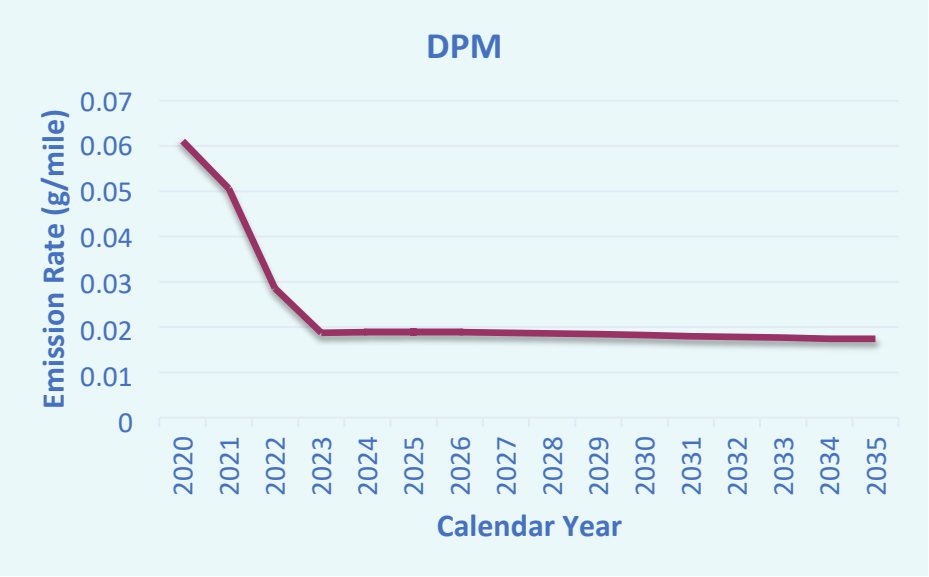
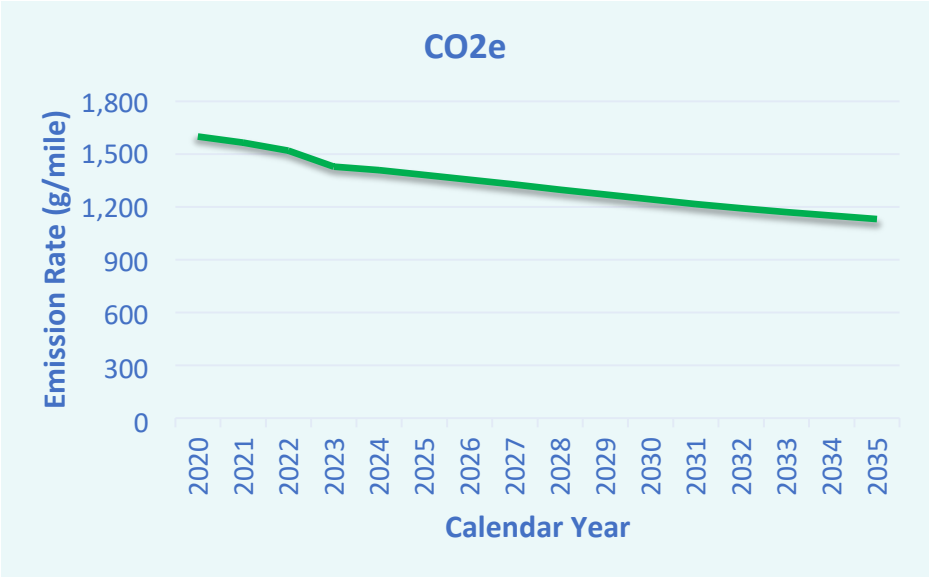
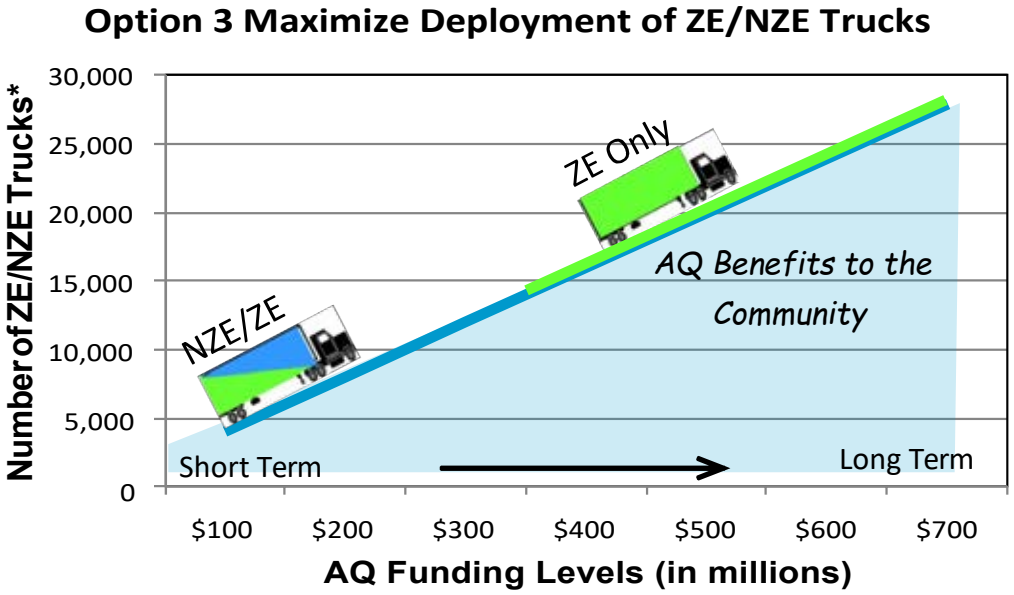
Emission Rate Trends for Conventional Diesel Trucks





Metro

I-710 ZE/NZE Deployment Strategy



Maximize Number of "Clean Emissions" Trucks and Air Quality Benefits

- Begin with mix of ZE and NZE trucks in the near term
- Transition to ZE trucks as ZE trucks become commercially available and affordable.
- Partner with SCAQMD, EPA, CARB to pursue grant funding outside of the project programmed funds to support health-benefit investments.

Metro

Appendix G: Calstart Presentation

State of Technology

- Rapid evolution underway – there is no one fixed answer, there will be multiple solutions in play and capabilities in five years will be much greater than today – multiple ways to get low NOx, low carbon good movement
- Tremendous pressure on diesel to meet fuel economy and air emissions standards at same time – 0.015-0.05 NOx coming
- Renewable fuels increasingly available due to LCFS but have production limits
- Energy storage (batteries) steadily decreasing in size, cost and increasing in capability – Class 8 regional trucks now in multiple demonstrations
- Growing global supply chain for ZE and NZE components and vehicles is leading to steady cost reductions

Most current strategy and investment plan: https://ww2.arb.ca.gov/sites/default/files/2019-09/fy1920fundingplan-appd.pdf

Infrastructure Deployment

- Transit buses are the learning platform for HD on ZE (battery electric and H2 fuel cell)
- Different model for users – fuel providers new, lead times for installation extended; requires more planning
- For battery electric, first infrastructure at depots/yards; will expand to regional charging “hubs” and along corridors;
- For H2, ideally need high-volume centralized sites with production on site or near
- Truck stop owners becoming interested in electricity and H2
- Public infrastructure decent for natural gas in key regions and some corridors; providers will build as demand grows

Most current strategy and investment plan: https://ww2.arb.ca.gov/sites/default/files/2019-09/fy1920fundingplan-appd.pdf

Trucking Industry Perspective

- Manufacturers
  - Realize transformation to lower carbon and emissions trucks and equipment coming – part of global market
  - Are investing in new tech and platforms and all OEMs have some ZE platforms coming by 2021/22
  - Concerned about market demand and acceptance and infrastructure on pace of change needed
- Users
  - Larger operations exploring business case and use profiles; TCO looks good in increasing # of applications; smaller operations need support and information
  - Concerned with first price; infrastructure timing and roll-out; service and support
  - Realize it will take a change in process – some looking at “all-in” lease covering infra, maintenance

Most current strategy and investment plan: https://ww2.arb.ca.gov/sites/default/files/2019-09/fy1920fundingplan-appd.pdf

Funding Sources

- In State
  - California has most aggressive funding and investment in US; maybe second only to China – need multi-year commitment
  - CARB (demos, pilots and early market purchase incentives – HVIP, CORE)
  - CalSTA – infrastructure and transit
  - CEC – infrastructure, fuel development
  - Utilities – infrastructure deployment
  - Ports – Clean Air Plan and investments (infrastructure)
  - Air districts – program state and local funds regionally for vehicle deployment incentives (Moyer, MSRC, 617, VW)
  - New local sales tax to raise funds for goods movement investments under consideration for So Cal
  - Metro – local tax measures added to federal
- Federal
  - DOE – demonstration and development
  - FHWA – corridors of national concern; clean corridors (infrastructure) – new STA could include funding of infrastructure
  - MARAD - harborcraft

Most current strategy and investment plan: https://ww2.arb.ca.gov/sites/default/files/2019-09/fy1920fundingplan-appd.pdf

Regulatory Environment

- **SB 32 (Climate Change) – cut GHG emissions 40% below 1990 levels by 2030; goal 80% GHG cut by 2050 – updated to carbon neutral by 2045**
- **Extreme Air Quality Non-attainment (LA Region, Central Valley) – deadlines in 2023 and 2031**
- Gov. Executive Order – 50% petroleum reduction by 2030
- Low Carbon Fuel Standard (LCFS) – secured through 2030
- Utilities – 50% renewable energy by 2030 – updated to 50% by 2026; 60% by 2030; 100% by 2045
- Carbon Cap and Trade – secured through 2030 (funding)
- **Clean Air Action Plan at San Pedro Ports – ZE operations by 2030; ZE trucks by 2035; differential rate structure for clean trucks by ~2023**
- **Advanced Clean Truck Rule – proposed rule by end of 2019; 3+% trucks ZEV starting 2023**
- Sustainable Freight Plan – being acted on and invested in

Table A-1. ZEV Sales Percentage Schedule

Model Year	Class 2b-3 Group*	Class 4-8 Group	Class 7-8 Tractors Group
2024	3%	7%	3%
2025	5%	9%	5%
2026	7%	11%	7%
2027	9%	13%	9%
2028	11%	24%	11%
2029	13%	37%	13%
2030 and beyond	15%	50%	15%

*Excluding pickup trucks until the 2027 model year

- CPUC rule making on M/HD EV infrastructure investments from utilities – approved ~$1B investment and rate recovery
- HVIP (Clean Truck and Bus Incentives) - $142m in 2019/20

Most current strategy and investment plan: https://ww2.arb.ca.gov/sites/default/files/2019-09/fy1920fundingplan-appd.pdf

Appendix H: Group Discussion Transcription

Los Angeles County
Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Te
metro.net

Metro

Clean Truck Initiative Working Group – Group Discussion

State of Technology

Michael Cano, Metro: Let's start with the CNG folks. Who is comfortable talking about CNG in terms of what is the actual state of technology and availability of trucks and the standards that they are meeting?

Justin Loyear, Cummins Westport: As far as availability and scaling, Cummins makes about three million diesel and natural gas engines a year. Right now, we're into the 10 thousands in a year as far as natural gas is concerned. When you say scalability, writing a check and having them done, it can happen. We build the natural gas engines on the same lines that the diesel engines get built on. All the major truck manufacturers offer our engines; there was a big back log with trucks as far as purchasing ability, but that back log is gone now. There are no delays as far as trucks being built here. We're operating with very large customers right now like UPS, and LA Metro is one of our largest natural gas operating customers right now. I believe that they placed an order for about 400 buses and most of those are natural gas and we're in the process of building them right now. Natural gas is here, it's ready, available and scalable.

Bill Van Amburg, Calstart: To add a little more color to what Justin just said, last quarter we reached a milestone in southern California, that is we sold over 100 engines of these low NOx engines in the Ports of Long Beach and LA, a lot of that truck traffic travels up and down the 710 Corridor. These are all new engines that were mentioned earlier, the new technology that was introduced in 2018. There's been a strong market demand and we have support from our friends at AQMD with grant funding to make that possible because these trucks have to compete in the market against the existing fleet of various diesel trucks and it's hard to do no matter what type of clean truck it is. These are very expensive pieces of equipment and they have to compete with virtually free diesel trucks. By the end of this year, the Ports will have about 150 of these low NOx trucks. This is where we can legally haul 95,000 pounds on public roads which is heavier than the 80,000 pounds. It's a very exciting project.

Genevieve Guiliano, USC/METRANS: I have a question I'm hoping somebody in the room can answer. Is there anybody who can talk about the availability of hybrid technology trucks?

Enzo Bauk, US Hybrid: We attach the hybrid with a hand transmission that is low NOx, but we also produce hybrids that use more battery fuel. This is called series hybrid. Most of these technologies are running at the Port of Long Beach right now.

Marnie Primmer, FuturePorts: When we talk about technology, we are thinking about different aspects of technology. First, there is the engine technology. Then, there is also infrastructure that supports the deployment of alternative fuel vehicles in and around the ports around the 710 Corridor, in order to make those vehicles efficient and successful in implementing zero or a near-zero emissions strategy. Can we have someone talk about some of the infrastructure that is being put in place to support this technology?

Damon Hannaman, SoCal Edison: We have been doing some pilots with the Port of Long Beach, but right now we are really focused on our transport program. It is our offering to provide infrastructure to the energy-user customer. We will be installing infrastructure, pulling in our equipment, installing panels for the customer. It is what we call a make-ready position for electric vehicle servicing equipment. Right now, we are in the middle of two pilot programs for the Port of Long Beach. One is our battery-electric cranes, but we are finishing laying infrastructure support and tractors on a charging system for that. Outside of the terminal, we have a project with SSA Marine. They have vehicles that will be moving cargo from their terminals to locations where we will be providing infrastructure support there too. This program right now has about 60 applications. We would love to have this all taken care of within five years.

Steve Lantz, South Bay Council of Governments: When you talk about electrifying drayage and buses, are you using the same common facility? What is the business plan for this?

Damon Hannaman, SoCal Edison: We don't have a public location, but there are plans for truck stops. The program has a minimum requirement of two vehicles. We know that everyone is not going to transform their fleets immediately, so we are going to work with them and grow. We are working with transit agencies outside of this group and looking at shared sites, like regional depots. There might be some solutions there. We're looking at lower voltage over longer periods of time.

Marnie Primmer, FuturePorts: Are there innovations on the technology side for the infrastructure as well as the engine technology?

Damon Hannaman, SoCal Edison: We are not only looking at the lower power units, but we are also looking at 200 KW units at 48 volts, so you can go from a very short charge time to a longer charge time, and that's the major operation on these. A lot of the yard tractors we are looking at shorter charge times to meet the needs of their labor. We are looking at that for our drayage vehicles too.

Nancy Pfeffer, Gateway Cities Council of Governments: I heard you have an investment program of $350 million dollars, are your priorities driven simply by customer's requests?

Damon Hannaman, SoCal Edison: Customers have to apply for the program, and they have to own and operate the site they manage. We have not gotten into a public site yet, but I'm sure that's not far behind. We have two charging units to Port of LA and Port of Long Beach. There will be public charging at those locations.

Hilary Norton, CTC: As you're comparing technologies, are we also looking at where trucks are idling overnight and the air quality issues about those locations? We're addressing air quality issues in terms of infrastructure. Are we also quantifying the size of cargo space among all the different types of technologies? The cargo space is not the same. It's important as we are trying to take on these different comparisons. We need to look at gains and losses and how to make up the overall cost.

Matt Miyasato, AQMD: To answer Dr. Guiliano's question, hybrids are not what they were originally, but I think now they have gone all on electric and it's refreshing to see. Right now, we are working on developing different technologies for the DOE. When we talk about scales, it is great to have these prototypes to show what can be done, but we need to work with the big OEM's. The only technology that is commercially available that is on the market that's cost-effective is natural gas. It is about 90 percent cleaner. We would love to see something else. When we look at 10 years out, we're looking at more electric technology. In the meantime, its good to have smaller class sizes. We see that as a great asset if you have near zero or natural gases.

Joe Lyou, Coalition for Clean Air: This is a glass half empty, glass half full situation. There is no perfect solution at this point in time. We are looking at battery electric and natural gas solutions. As Matt says, nobody is looking at a combination. Nobody is going that route for production. There is a draw back no matter where you go. If its electric, it takes too long to charge, uses too much energy. But that is a glass half full point of view because cost of battery is going down, energy density is improving. All the issues are being addressed. Trucks are expensive and limiting and we know infrastructure is a problem. We are investing in that and all the problems can eventually go away. It would be nice to have a leader in natural gas. The cost will come down, so there are reasons to be optimistic. We need to invest in near zero emissions so we can solve these issues faster. We need a pathway to get to zero. Unless we invest, we can't achieve our goals.

Marnie Primmer, FuturePorts: I'm hearing it's an "all the above" , not an "either or" solution .

Joe Lyou, Coalition for Clean Air: In terms of policymakers, we have to invest in zero emissions to get there. In the short term, we have the Clean Air Act and requirements for that. The sanctions we face are not as heinous - it is going to be real and devastating. There won't be funding for those transportation projects. If we don't work at all levels, it is impossible to get where we need to get.

Luke Klipp, City of Long Beach: I wanted to note that hearing all the different numbers with technology and engines is challenging. What is the current state and expectation of how things are going to change? What would it look like with a specific investment? I have no idea what some of the numbers mean. Frankly, what I'm getting from this discussion is that we are far from an environment where there is an overwhelming amount of vehicles that are zero or near-zero emissions and I am not sure how we are going to get there.

Michael Cano, Metro: Thank you. As someone who has been in both worlds, the translation of this to policy makers is a significant task in itself. They need to understand recommendations in order to make decisions and what it all means.

Vincent Pellecchia, BYD Motors: When we are talking about moving freight, we are talking about different types of trucks. The trucks that BYD makes are the duty cycle and range that our customers ask for. In terms of drayage, it is shorter. For tractors, we are providing the amount of time customers need to complete duty cycles. There are no complaints of charge because we work with customers on what charge times they need. Electricity is becoming cleaner. We can produce at a significant scale, and BYD is commercially available.

Angelo Logan, Moving Forward: I wanted to say having a conversation about technology is premature until we have a better understanding of what the truck initiative is. Right now, it is all inclusive. We have no understanding of what the scope is. I want us to have a better understanding of what the scope and operations are. It will help us understand what infrastructure needs are and the range. Can we get a better understanding? Ours is regional and I want to know, how does that fit into the development of the 710 process and region at large?

Michael Cano, Metro: That's a fair question. The intent of this initiative is regional for LA County. We understand the strategies involved are different for Corridors. We have to tailor the approach to the need. We have truck initiatives to implement on the 710 Corridor. The 710 Corridor strategy may be different than the regional discussion. We have issues on the 57, 60, in the San Gabriel Valley, and many other areas. What we're trying to do now is get information out there and find solutions that can be applied on a regional basis as well as to meet the needs of specific corridors. The issues on the 710 overlap greatly, but we will keep that in mind. This is more gathering for the entire region so we can understand investments made for different areas and the region. We need scopes and a concept of what we are doing for different projects.

Person D: We should be keeping an eye on other technologies that we can be using. People are getting smarter about using battery storage, especially mobile charging sites. But also there are challenges in using battery storage and incurring excess weight costs.

Sue Dexter, USC/METRANS: I have recently been talking to drayage operators along the 710. I have asked, what is your range requirement between charges? They are saying between 200-300 miles. From an operation perspective, that is what I am hearing as a researcher.

Julia Lester, 710 Air Quality Consultant, Ramboll, then provided a brief presentation related to trucks and their impact on air quality. She began her presentation by discussing truck tailpipe emissions factors and provided a chart that showed pollutants of concern that are in heavy-duty truck tailpipe emissions and compared that to diesel trucks in 2035, ZE and NZE trucks. Ms. Lester noted that NZE trucks are 90% less NOx emissions than diesel trucks. The presentation then continued with a comparison of NZE and ZE truck performance, followed by emission rate trends for conventional diesel trucks. Participants were informed that there are more cost-effective benefits from NZE, especially as technology matures and moves toward ZE. Ms. Lester concluded by discussing the I-710 ZE/NZE Deployment Strategy. Following the presentation, participants were given the opportunity to ask questions and continue the group discussion.

*Please see **Appendix F, slides 14-18** for the Truck Information section of the presentation.*

The following comments relate to Ms. Lester's presentation.

Weston LaBar, Harbor Trucking Association: Where do you get the definition of a near-zero emissions engine?

Julia Lester, Ramboll: The near- zero emissions engine was first discussed in the 2016 Air Quality Management Plan, spearheaded with the Environmental Protection Agency. The definition at that time was it was the lowest demonstrated NOx level which was .02 or 90% reduction.

Weston LaBar, Harbor Trucking Association: To use .02 as a reduction is problematic at this point in time and it is not an acceptable legal definition. The EPA has not come up with that yet. We have argued that in order to enforce a near-zero emissions standard, there has to be some sort of approval by EPA, which at this point in time, there is not. With the port, they do not have the ability to move forward with a Clean Truck Program fee until there is a legal definition of what near-zero emissions standard is. Our understanding with the EPA is that they are working toward a federal standard which might be higher than .02. To move forward with that will create legal issues with those who try to pursue a standard without the legal authority to do so.

Sydney Vergis, California Air Resources Board: I would contend that we both have a very different legal opinion on that, as well as our ability to implement our own program.

Julia Lester, Ramboll: These are for incentive programs, and not legal a legal standard.

Kevin Maggay, SoCal Gas: I do not have legal opinion to share. I don't think the slide illustrates that natural gas engines operate much more efficiently versus diesel. That 90% reduction can be modified. The greenhouse gases shows the same number. This is not enough to get people to switch over. It's important to show the scale of the problem here.

Julia Lester, Ramboll: I do not disagree with what you are saying now, as this was prepared a couple of years ago and I know things have changed.

Bill Van Amburg, Calstart: Do everything you can now and plan for a transition later. You do not want to pin yourself in a corner but have a policy that encourages rapid change. We need to start building early versions. Players are already in the market and ramping up. Have duel path ways and have global commercial vehicles drive to zero. You can do it right now, but maybe over time; in the meantime, have the cleanest carbon fuels available now. Another thing is that the market structures can have beneficial results on user choice. POLA and POLB are looking at different pricing models. A clean truck will pay less and a dirtier truck will pay more. If I can do three or four turns a day instead of two, I will figure out how to make a cleaner truck work. That can be a powerful tool. CARB does have a voluntary low NOx standard. There are various pieces of California legislation already at voluntary low NOx standards.

Todd Campbell, Clean Energy Fuels: I wanted to touch on the argument that a standard has a short shelf life. Where we stand in a legal position of .02 that is going to move. It could be .015 and that would be good for breathers if it was. Thank you, Julia, for your presentation. The numbers that were used looked to be certification numbers. There are two ways to look at emissions- certification and lifecycle. We need to look more at life cycle. The grid does have impacts and there are emissions that are happening. I hope we do that. The second thing, more important than CNG and hybrid, we need to figure this out and how we build the technology. This is a real threat to our region. It is air pollution and diesel. It has been a great tool, but it is impacting peoples lives. Diesel emissions are five to nine times higher. This has been backed up by UC Riverside, and we need to pay attention when looking at certification numbers that were established in 2010. They are far worse now.

Matt Miyasato, AQMD: We are going to be faced with challenges. Weston and PMSA might not take to that. About 160,000 vehicles in the slide, what class of vehicles were covered?

Julia Lester, Ramboll: I believe the 160,000 was class eight.

Matt Schrap, California Fleet Solutions/ Velocity Vehicle Group: For understanding technology availability, it would be helpful to have a breakdown of how the truck classes work. We operate 1,500 vehicles in California. There are different weight classes. When I look at medium duty, there is more potential for near-zero emissions. This is there today and it is happening. ZE is beautiful, but there's some interim stuff that needs to happen. If my clients and Weston's members are not ready to step up to this, they are not going to do it. They will use diesel trucks until they are forced not to in 2035.

Waqas Rehman, LA County, First District: I heard there was a requirement by 2023. What kind of reduction will be required even with the 710 Corridor project? I need a better understanding of that.

Julia Lester, Ramboll: The zero-emissions and near zero emission meets the requirements under CEQA analysis. The AQMD people are the experts. The most difficult road is ozone standard. ZE or NZE get us where we need to be going.

Damon Hannaman, SoCal Edison: We are focused on reduction. We want emissions-free sources. Our plan is to be 80 percent emissions free by 2030 and completely free by 2045. We are processing 35,000 connections for systems. We are working with customers on infrastructure charging, but also working with energy restorage. There will be a mix of things, but we are working toward being completely emissions free.

Trucking Industry Perspective

After a short break, participants re-assembled to discuss the remaining topics.

Michael Cano, Metro: What are the challenges and goals for this program for it to be successful in trucking?

Weston LaBar, Harbor Trucking Association: Earlier I wanted to point out that there are certain requirements that should take place when we mandate things. From a member standpoint, we need the opportunity to have an even playing field. We have had members that have been procuring near-ZE vehicles, then if the standard got changed to 0.15, all of those folks invested in equipment would get penalized for buying equipment too early. That is why we need a definition that is enforced for these things. We have concerns but our goal is to work with stakeholders to have a sustainable corridor. We have two focuses. How are we a sustainable partner in the supply chain? How can we meet the economic demands of our customers? This needs to be a partnership.

Let me tell you our concerns because they are different than what you might think. There are short-term concerns over the technology and cost. We feel like between now and 2035 we can get an affordable ZE truck. We will demonstrate pilot programs. We have members that have ZE and NZE trucks. The feedback is that a ZE truck does not do what a diesel truck does. If you are an overweight company, public policy is a big issue. A battery truck is heavier. Unless we get an exemption, we are having issues. That puts us at a disadvantage. From a policy standpoint we are not able to meet those standards because of weight. We also have local municipalities that are putting into place, based on allocations from SB1, they are putting fees on the trucking industry. Carson is a great example. Carson gets the same amount of funding as Beverly Hills because they have the same population, however, the impact is different. The have an extended overweight corridor and they have turned to the trucking industry to fill the funding

gap. We now have to pay a road impact or mitigation fee. My members are now subjected to possibly paying a fee because they invested in what they thought was a solution. This needs to be clarified at a state level. It's not fair to put a fee on a truck just because it is heavier. We have members that procured ZE trucks. The ports will tell you trucking has been great at finding a path. We do not have a resolution to our issues. That is a disincentive to move toward ZE. We have weight issues, fee issues, fee issues on technologies, what is exempt? Are we going to be double taxed on the 710 Corridor? Is it intended that we will carry the load for the entire industry? That is unreasonable and unfair. There are policy issues that need to be addressed. I do want to thank Clean Energy and SoCal Gas for helping us. We are doing our part, but we have issues. I have to pay a 12% sales tax on a truck. We need to look at trucks that are made and bought in California. That is a huge opportunity. We can redeploy that work since the aerospace industry is dwindling. If there is something taken up by the State, lets create incentives. That handles the policy stuff.

For infrastructure, a huge concern is that we have members that have 250 trucks. They have their third BYD truck, but they are capped at three. We have smaller carriers that have no ability to get more electric infrastructure, so they are capped at two. We need some assemblance of what the rates are going to look like. My members need clarification and infrastructure to be ready if we are going to deploy technology. We have lessons learned from the first Clean Truck Program. We need more demo programs and pilot programs. If we mandate things that don't work, it will set things back. Member are testing ZE tech and EV solutions, but we need standards from the EV community as well. There are different concerns beyond cost or availability.

In all, we are looking for a partnership for a reasonable pathway. All we hear is that we are the dirty truckers killing everyone up and down the710 Corridor. We have invested more resources than anyone else has. The ports made us get more expensive equipment and we have less productivity. Whatever we can do to lower the cost and increase productivity, that allows us to be more profitable, make ports more competitive, and be beneficial for everyone. This is a multi-faceted approach. We want to have a sustainable solution, but we need environmental folks to work with us.

Bill Van Amburg, Calstart: How do we actually reward people who are buying clean technology? Originally, it was one of the goals for the 710. It is good to list problems and start tackling them. Let's take legislation out there and work together. I also agree to not pay taxes on incremental cost. These are doable actions if we can work together.

Weston LaBar, Harbor Trucking Association: I'm hoping there is going to be an openness to that. We find that we are often the target but get no credit for progress. If you bought something, a truck brought it. One of the real things we deal with is everyone wants their package within 24 hours but they don't want a warehouse located where they live. We would like to see a real study done on a lifecycle on manufacturing and energy standpoint. What is the true emissions of a truck? How is the power generated? I do not know the effects on climate change. We know what it does for air quality, but we need more academic studies. A lot of the matters are coming from brakes and tires, which are not surprising, but these are new things we need to understand and not just put a band-aid on it.

Kevin Maggay, SoCal Gas I think the weight is an issue and there should be exemptions. But this is not entirely fair for disadvantaged communities. I have cautions about weight exemptions.

Person F: I know we talked about technology getting better, but I have a question related to infrastructure. There are no standards for charging equipment. To buy a ZE truck, you need a charger. How do we overcome that challenge? Does the grid have the capacity for that many trucks on the road? Do we have capacity for that many charging ports? What do I do if there is a blackout? I will need to run my business. I think we need several different technologies and not just electric. Those are the big challenges that I see.

Damon Hannaman, SoCal Edison: There are a couple more things I want to touch on. Utilities have programs available to push electrification through that the municipalities do not have yet and that does need to be pushed. EVSC and SoCal Edison is helping push those standards through programs. Finally, we are developing demand response programs to help manage the cost after implementing new technology.

As far as the other concerns, wildfires and things like that have been specific to circuits and there are ways to be strategic in alerting customers at least an hour in advance. If there is a large blackout, electricity is not the only thing that will not be available. Gas and others will be affected as well. In terms of grid capacity, the state has flattened out in consumption due to energy-saving policies and there is a lot of room for growth.

Regulatory Environment

Todd Campbell, Clean Energy Fuels: DOE and natural gas can work in the state. We should never have a policy that punishes early adopters of new technology, because that is unfair. The industry has worked together for a weight exemption and we should work together toward a bill to eliminate the sales tax.

Alison Linder, SCAG: I just wanted to point out some of SCAG's interests and that is how to best support these emerging technologies. There needs to be more public charging infrastructure, but also how do we make that work?

Genevieve Guiliano, USC/METRANS: We should be encouraging the issue of standards at the State level. There is an opportunity to build in standards so that they lasts in the long run. Also, drayage is not the majority of trucking. There needs to be a broader market for this and we need an industry-wide perspective, or else the costs will never go down.

Sydney Vergis, California Air Resources Board: In any serious study on life-cycle analysis comparing diesel trucks to ZE trucks, the lowest NOx will be ZE. SB1 does mandate that any heavy-duty truck that is not compliant starting January 1 will have their DMV registration revoked. It does not matter what kind of long-haul you have, if it is not 2010 or newer then no registration. Appropriations for grant programs happen annually. Also the Advanced Clean Truck Regulation mandated that manufacturers Class 4-8 will have to fit a manual requirement. This is already currently in progress and there are more regulations in the works.

Wayne Nastri, AQMD: 2020 will be a big deal for us. Contingency measures will need to be submitted to the USEPA. If I were a pessimistic person, I would say that the federal government would most likely reject those contingency measures and start sanctions which will impact everyone in this room. If I were a skeptic, I would say that the current administration wants to punish California by seeing cargo in the ports divert. The administration might want to look at directing cargo to other US Ports. The largest emissions reduction now needs to be 45 percent lower NOx by 2023). SB-732 gives voters the decision to invest in technology if they want to or not. It has been calculated that $1-2 billion dollar a year will be spent in years to come just in conforming in technology.

Niki Okuk, Calstart: This is in response to Sydney's comment earlier, but 40 percent of trucks need to retire within three years. Truckers and owners will be scrambling to buy trucks. They will be looking to diesel, but now there is an opportunity to put the clean trucks on their radars.

Appendix I: Event Photos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APPENDIX B

Memorandum of Understanding Creating the I-710 Corridor Air Quality Steering Committee

Memorandum of Understanding
Creating the I-710 Corridor Air Quality Steering Committee to Implement the I-710 Clean Truck Emissions Program

This Memorandum of Understanding Creating the I-710 Corridor Air Quality Steering Committee to Implement the I-710 Clean Truck Emissions Program ("MOU") is entered into between the Los Angeles County Metropolitan Transportation Authority ("Metro"), the California Department of Transportation ("Caltrans"), the Southern California Association of Governments ("SCAG"), and the Gateway Cities Council of Governments ("Gateway Cities COG"), (collectively the "Parties"). In order to implement the program contemplated herein, the Parties have voluntarily arrived at the following mutual understandings and agreements.

Recitals

WHEREAS, the I-710 Freeway is a major transportation corridor (I-710 Corridor) accommodating both daily commutes and significant freight movement to and from the Ports of Los Angeles and Long Beach.

WHEREAS, Caltrans and Metro have partnered with the Gateway Cities COG, the Ports of Los Angeles and Long Beach, the Cities along the I-710 Corridor, and community groups and worked with the California Air Resources Board (CARB), SCAG and the South Coast Air Quality Management District (SCAQMD) to identify features for the I-710 Corridor Project that improve mobility, support commerce, and address air quality and public health concerns in the corridor.

WHEREAS, Caltrans and Metro have prepared a draft Environmental Impact Statement and Environmental Impact Report ("EIS/EIR") for the I-710 Corridor Project. On March 1, 2018, the Metro Board of Directors identified Alternative 5C as the Locally Preferred Alternative ("LPA") for the I-710 Corridor Project. Caltrans has endorsed Metro's recommendation to advance Alternative 5C as the Preferred Alternative through the I-710 EIS/EIR. Alternative 5C includes the I-710 Zero Emission/Near Zero Emission Truck Technology Deployment Program (also known as the I-710 Clean Truck Emissions Program or "Program" herein) as a focused I-710 incentive program for heavy-duty trucks that meet or exceed CARB's 0.02 g/bhp-hr NOx standard (i.e., Zero Emission ("ZE")/Near Zero Emission ("NZE") trucks).

WHEREAS, within the greater project area, several agencies have published commitments to development of ZE/NZE trucks and understand that deployment will take a collaborative approach. The Parties will form a Steering Committee (and invite other agencies to join the Steering Committee) to implement the I-710 Clean Truck Emissions Program (which qualifies for and contributes to each agency's plans and goals as identified and summarized below and more comprehensibly described in Appendix A) in the I-710 Corridor to improve air quality for communities along the corridor.

a. SCAQMD: 2016 Air Quality Management Plan ("AQMP") seeks to leverage strong federal, state, and local partnerships to secure incentive funding and supporting infrastructure for early deployment of zero and near-zero technologies, inclusive of the mobile source sector, specifically heavy-duty trucks.

b. SCAG: 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy and 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy include a commitment to reduce emissions from transportation sources to comply with SB 375 by pledging to a broad deployment of zero and near zero emission transportation technologies especially in the goods movement system.

c. Port of Long Beach: The 2017 San Pedro Bay Ports Clean Air Action Plan ("CAAP") Update set the Port of LB on the path to zero emission goods movement, with a goal of transitioning terminal equipment to zero emissions by 2030 and on-road trucks by 2035.

d. Port of Los Angeles: The Zero Emission Technologies effort, including the San Pedro Bay Ports CAAP, Zero Emissions Roadmap commits to finding new ways to reduce emissions from ships, trains, trucks, harbor craft, and cargo handling equipment with the goal of eliminating all pollution from port-related operations. The Port Zero-Emissions White Paper outlines a specific plan of action including expanded development and testing of zero emission technologies, identification of new strategic funding opportunities, and new planning for long-term infrastructure development.

e. California Air Resources Board: The CARB Mobile Source Strategy: Further Deployment of Cleaner Technologies: On-Road Heavy-Duty Vehicles control measure in the 2016 AQMP and CARB's related State Implementation Plan ("SIP") submittal to USEPA commits to expanding and enhancing existing incentive funding and innovative funding programs for heavy-duty vehicles to increase the emphasis on and support for purchase of near-zero and zero emission equipment. Furthermore, full implementation of this CARB measure would require funding approximately 15,000 to 20,000 trucks per year over a seven year period, depending upon the availability of vehicles and engines certified to the ZE and/or NZE standards.

f. USEPA: The National ZEV Investment Plan commits to $1.2 billion (outside California) and $800 million (within California) for a total of $2 billion in funding over 10 years for zero emission vehicle ("ZEV") infrastructure, education, and access. The funding supports the increased adoption of ZEV technology by installing ZEV fueling infrastructure (for both electric- and hydrogen-powered cars), funding brand-neutral consumer awareness campaigns that will help grow the ZEV vehicle market, and investing in projects such as car-sharing programs that will increase access to ZEVs for all consumers in California, including those in lower-income and disadvantaged communities.

The Clean Diesel Program provides support for projects that protect human health and improve air quality by reducing harmful emissions from diesel engines. This program includes grants and rebates funded under the Diesel Emissions Reduction Act ("DERA"). The program solicited proposals nationwide for projects that achieve significant reductions in diesel emissions in terms of tons of pollution produced and exposure, particularly from fleets operating in areas designated by the Administrator as poor air quality areas. Eligible diesel vehicles, engines and equipment include school buses, class 5 – class 8 heavy-duty highway vehicles, locomotive engines, marine engines, nonroad engines, and equipment or vehicles used in construction, handling of

cargo (including at ports or airports), agriculture, mining or energy production (including stationary generators and pumps).

The Cleaner Trucks Initiative ("CTI") is a future planned rulemaking to update standards for nitrogen oxide ("NOx") emissions from highway heavy-duty trucks and engines. USEPA expects that heavy-duty trucks will be responsible for one-third of NOx emissions from transportation in 2025. Updating these standards will result in NOx reductions from mobile sources and could be one important way that allows areas across the U.S. to meet National Ambient Air Quality Standards for ozone and particulate matter.

WHEREAS, the Parties to this MOU wish to implement the I-710 Clean Truck Emissions Program (which qualifies for and contributes to each agency's plans and goals discussed above) in the I-710 Corridor to improve air quality for communities along the corridor. The purpose of this MOU is to clarify the Parties' interests, commitments, roles and responsibilities in the implementation of the I-710 Clean Truck Emissions Program.

THEREFORE, in furtherance of this MOU and incorporating by reference the above Recitals, the Parties agree as follows:

1.0 I-710 Clean Truck Emissions Program

The I-710 Phased-In Zero Emission Truck Technology Development Program (also known as the I-710 Clean Truck Emissions Program) is a component of Alternative 5C, also known as the Preferred Alternative ("PA"), for the I-710 Corridor Improvement Project. The Clean Truck Emissions Program would seek funding to assist individual owner-operators and privately owned truck fleets to subsidize the purchase of heavy duty zero or near zero emission trucks for use within the I-710 Corridor as well as seed money for electric charging stations and hydrogen refueling stations within the I-710 Corridor. The recharging/refueling stations would be constructed near locations served by heavy-duty vehicles such as intermodal terminals at the ports, rail yards, warehouses, and distribution centers. The Clean Truck Emissions Program is consistent with goals and strategies of the SCAQMD 2016 AQMP and the 2016 AQMP Funding Plan, as well as other similar clean technology incentive programs administered by the SCAQMD. The Clean Truck Emissions Program is also consistent with the plans, goals and strategies of the other Parties to this MOU as described above.

2.0 I-710 Corridor Air Quality Steering Committee

The Clean Truck Emissions Program addresses one element of the overall air quality/environmental improvement needs of the corridor. It will take a collaborative effort of all the Parties and Steering Committee members to be able to bring the Parties' plans and goals to fruition. Therefore, the Parties agree to form the I-710 Corridor Air Quality Steering Committee ("Committee"),that will consist of the Parties to this MOU and subsequent invited agencies, funding partners and industry engine/truck providers and users. The formation of the Committee will allow for a more comprehensive approach and faster implementation of the improvements/incentives, goals, plans and the Clean Truck Emissions Program. The Parties to this MOU agree to have a representative actively serve on the Committee.

3.0 Responsibilities of the Committee

The Committee will:

a. Further develop implementation details, including eligibility requirements, institutional arrangements, management, and administration for the Clean Truck Emissions Program.

b. Explore and identify funding opportunities, financial impact, and other implementation factors along with the development of a phasing plan for the achievement of the funding target developed by Caltrans and Metro for the Clean Truck Emissions Program, and the more comprehensive goals, based on existing and new potential funding, including local, state, federal and private resources. This includes collaborating with the Port of Long Beach, the Port of Los Angeles and the South Coast Air Quality Management District in identifying funding and project/program opportunities to implement.

c. Develop a strategy that outlines progressive transition to ZEVs in the corridor starting with the latest feasible and sustainable technologies.

d. Identify and evaluate other potential strategies to address the air quality concerns in the corridor.

e. Obtain or assist with obtaining funding to implement the Clean Truck Emissions Program and more comprehensive programs.

f. Issue quarterly reports on the development and progress toward the established and agreed upon goals. The progress reports will be presented to the governing bodies of the participating agencies and those of other agencies, as necessary.

4.0 TERM

4.1. The term of this MOU will begin on the Effective Date and shall continue until Program is fully implemented or until terminated by the Parties.

5.0 AMENDMENT

5.1. Amendment of any provision of this MOU shall be effective only if in writing and signed by authorized representatives of the Parties.

6.0 MISCELLANEOUS

6.1. Effective Date. The date the last signatory executes the MOU.

6.2. Assignment. The Parties shall not assign rights or responsibilities under this MOU without written permission from the remaining Parties.

6.3. Governing Law; Venue. This MOU, and any claims relating to or arising out of this MOU, whether arising in contract, tort, or otherwise, shall be governed and construed in accordance with the laws of the State of California, without giving effect to conflicts of laws and principles. Any action or proceeding between the

Parties relating to this MOU shall take place in the State of California in the County of Los Angeles.

6.4. Notices. Any notice required or permitted hereunder shall be in writing and shall be given to each Party's Designated Representative at the address below, or at such other address as the Party may hereafter specify in writing. Such notice shall be deemed given: upon personal delivery to the appropriate address; or three (3) business days after the date of mailing if sent by certified or registered mail; or one (1) business day after the date of deposit with a commercial courier service offering next business day service with confirmation of delivery. Each Party may change the Designated Representative as needed and shall provide notice to the other Parties by email of the change.

6.5. Dispute Resolution. In the event of any dispute between the Parties arising out of or in connection with this MOU, the Parties shall attempt, promptly and in good faith, to resolve any such dispute. If the Parties are unable to resolve any such dispute within a reasonable time (not to exceed thirty (30) days), then either Party may submit such dispute to non-binding mediation in Los Angeles County, California. Each Party shall bear its own expenses in connection with the mediation and share equally the fees and expenses of the mediator. If the dispute cannot be resolved through mediation within a reasonable time, then the Parties shall be free to pursue any right or remedy available to them under applicable law. The requirements of this section shall not preclude a Party from pursuing equitable relief, if delay in seeking such relief may result in irreparable harm to such Party.

6.6. Force Majeure. Subject to the express provisions of Section 4 (Term) above, no Party will be deemed in default of this MOU to the extent that performance of its obligations or attempts to cure any breach are delayed or prevented by reason of any event beyond the reasonable control of such Party, which event was not caused by such Party's negligence and could not have been avoided by such Party's commercially reasonable efforts (including, but not limited to, any act of God, fire, earthquake, natural disaster, accident, pandemic, labor unrest, civil disobedience, acts of terrorism or act of government), and provided further that such Party gives other Parties written notice thereof promptly and, in any event, within five (5) business days of discovery thereof, and thereafter uses its best efforts to continue to so perform or cure. In the event of such a force majeure event, the time for performance or cure will be extended for a period equal to the duration of the force majeure event plus reasonable repair timeframes, but in no event more than thirty (30) days unless agreed upon by the Parties.

6.7. No Third Party Beneficiaries. This MOU is executed and entered into by the Parties solely for their benefit, and for no other party (including without limitation any individual employee, officer, director, contractor or agent of a Party).

6.8. Counterparts. This MOU may be executed in one or more counterparts, each of which shall be deemed an original and all of which together shall constitute one instrument.

6.9. Waiver; Modification. No amendment, modification, waiver or supplement shall be made with respect to this MOU or any provision of this MOU by course of

performance, or by the failure of a Party to object to a deviation from the terms of this MOU. Any waiver, modification or amendment of any provision of this MOU shall be effective only if in writing and signed by authorized representatives of the Parties.

6.10. Complete Understanding. This MOU and any attached exhibits, schedules and addenda, all of which are incorporated into this MOU by this reference, constitute the full and complete understanding and agreement of the Parties relating to the subject matter hereof and supersede all prior understandings and agreements relating to such subject matter. The provisions of this MOU shall prevail over any conflicting provisions in any purchase order, acceptance notice or other document generated by the Parties except as expressly provided in the preceding sentence.

7.0 EXECUTION

7.1. By their signatures below, each of the following represents that it has authority to execute this MOU and to bind the Party on whose behalf the execution is made.

IN WITNESS WHEREOF, this MOU has been executed by each of the Parties as of the date set forth next to such Party's authorized representative's signature.

[Signature Page to follow.]

Los Angeles County Metropolitan Transportation Authority

Phillip A. Washington
Printed Name of Individual

Signature of Individual

CEO
Title

One Gateway Plaza LA 90012
Address

washingtonp@metro.net
Email

(213) 922-7555
Telephone

California Department of Transportation, District 7

JOHN BULINSKI
Printed Name of Individual

Signature of Individual

DISTRICT DIRECTOR
Title

100 S. MAIN ST LA, CA 90012
Address

john.bulinski@dot.ca.gov
Email

213-897-0540
Telephone

Gateway Cities Council of Governments

NANCY PFEFFER
Printed Name of Individual

Signature of Individual

EXECUTIVE DIRECTOR
Title

16401 PARAMOUNT BLVD
Address PARAMOUNT, CA 90723

NANCY@gatewaycog.org
Email

562-663-6850
Telephone

Southern California Association of Governments

Kome Ajise
Printed Name of Individual

Executive Director
Signature of Individual

Kome Ajise
Title

900 Wilshire Blvd Suite 1700
Address Los Angeles, CA 90017

ajise@scag.ca.gov
Email

213-236-1835
Telephone

Appendix A

Examples of Agencies Plans and Goals to Implement Clean Truck Emissions Technology

a. SCAQMD: 2016 Air Quality Management Plan (AQMP)

Page 5 Executive Summary: *Identify and secure significant funding for incentives to implement early deployment and commercialization of zero and near-zero technologies. The 2016 AQMP control strategy strongly relies on a transition to zero and near-zero emission technologies in the mobile source sector, including automobiles, transit buses, medium- and heavy-duty trucks, and off-road applications. The plan focuses on existing commercialized technologies and energy sources including their supporting infrastructure, along with newer technologies that are nearing commercialization based on recent demonstration programs and limited test markets. Prioritizing and expanding funding in Environmental Justice (EJ) areas will be sought.*

Page 4-3: *The 2016 AQMP relies strongly upon partnerships at federal, state, and local levels, seeking to expand existing collaborations and establish new coalitions. These strategies include aggressive new regulations and development of incentive funding and supporting infrastructure for early deployment of advanced control technologies… The SCAQMD will continue to support technology demonstration projects for both mobile and stationary sources and will work to create new or expanded funding opportunities for earlier deployment of cleaner technologies, thus contributing to a smooth transition to zero and near-zero emission technologies in the mobile and stationary source sectors.*

b. SCAG: 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

Page 107: *The 2016 RTP/SCS focuses on a two-pronged approach for achieving an efficient freight system that reduces environmental impacts. For the near term, the regional strategy supports the deployment of commercially available low-emission trucks and locomotives while centering on continued investments into improved system efficiencies. For example, the region envisions increased market penetration of technologies already in use, such as heavy-duty hybrid trucks and natural gas trucks. Applying ITS solutions to improve operational efficiency is also recommended. In the longer term, the strategy focuses on advancing technologies – taking critical steps now toward the phased implementation of a zero- and near zero-emission freight system. SCAG is cognizant of the need to incorporate evolving technologies with plans for new infrastructure. These include technologies to fuel vehicles, as well as to charge batteries and provide power. The plan to develop and deploy advanced technologies includes phased implementation, during which technology needs are defined, prototypes are tested and developed, and efforts are scaled up. The phases are summarized as follows:*

- *Phase 1: Project Scoping and Evaluation of Existing Work*
- *Phase 2: Evaluation, Development and Prototype Demonstrations*
- *Phase 3: Initial Deployment and Operational Demonstration*

- *Phase 4: Full-Scale Demonstrations and Commercial Deployment*

Page 43: *The* 2016 RTP/SCS Goods Movement Appendix *further details an updated environmental action plan for the goods movement system that builds on regional progress to date. This includes an Action Plan for Advancement of Zero-Emission Technology. As the four phases of the updated action plan are reviewed, the text also points to progress made related to specific action steps identified in 2012. The technology development and deployment plan is inclusive of all stages of technology development and deployment: beginning from an initial definition of key operational parameters, moving through prototype development, initial demonstration and evaluation, and eventually a staged roll-out. This start-to-finish framework is useful as there are many potential technologies available, each at different stages of readiness.*

Significant regional actions will be needed in order to realize this vision of a zero- and near zero-emission freight transportation system that meets regional objectives for long-term sustainability and can also meet the performance objectives required by industry. SCAG may act together with key partner agencies such as the Port of Los Angeles, the Port of Long Beach, the SCAQMD and the region's county transportation commissions to update and implement this plan as needed. Since SCAG adopted the 2012 RTP/SCS, the region has attracted outside funding and committed its own funding to support research and development efforts. Several studies have been conducted to date that contribute to "project scoping" by providing a greater understanding of the regional truck market and how truck use defines key performance parameters such as range and power needs. To evaluate and develop prototypes, three large-scale research and development efforts are underway to develop and test zero-emission trucks and charging infrastructure. These projects require continuing collaboration between original equipment manufacturers and public sector agencies.

c. Port of Long Beach

The 2017 San Pedro Bay Ports Clean Air Action Plan Update set the Port of Long Beach on the path to zero-emission goods movement, with a goal of transitioning terminal equipment to zero emissions by 2030 and on-road trucks by 2035.

d. Port of Los Angeles: Zero Emission Technologies

Although significant emissions reductions have been achieved under the San Pedro Bay Ports Clean Air Action Plan (CAAP), the Ports of Los Angeles and Long Beach (the San Pedro Bay Ports) continue to place great emphasis on green development, including a particular focus on zero emission technologies. Fostering the development of zero emission technologies is not only a key component of the Ports' plans to achieve their voluntary air quality goals, but it will also help to greatly reduce regional greenhouse gas emissions. To that effect, the San Pedro Bay Ports prepared a Zero-Emissions Roadmap designed to guide their actions going forward.

e. California Air Resources Board (CARB): 2016 AQMP Appendix IV-B CARB Mobile Source Strategy: "Further Deployment of Cleaner Technologies: On-Road Heavy-Duty Vehicles"

Page IV-B-50: *Overview: The goal of this proposed measure is to identify concepts that will further reduce NOx emissions. These concepts will include additional incentive funding and developing technologies to accelerate the penetration of near-zero and zero equipment beyond the rate of natural turnover achieved through implementation of the other proposed measures identified for on-road heavy-duty vehicles. This measure is specifically for the South Coast.*

Page IV-B-51: *Expand and enhance existing incentive and other innovative funding programs for heavy-duty vehicles to increase the emphasis on and support for purchase of near-zero and zero equipment. Funding mechanisms would target technologies that meet either lower NOx standards or are hybrid/zero-emission technologies. If incentive funding is the primary mechanism to achieve the scope of further technology deployment described above, funding would be required for approximately 15,000 to 20,000 trucks per year over a seven year period, depending upon the availability of zero-emission vehicles and engines certified to [C]ARB's optional low-NOx standards of 0.05 g/bhp-hr and 0.02 g/bhp-hr or other advanced hybrid/zero-emission technologies. The incentive funding required for this effort would go beyond the amount currently authorized for existing programs through 2023. Continued incentive funding post-2023 to further accelerate the deployment of trucks meeting or exceeding a 0.02 g/bhp-hr standard would provide additional reductions for 2031.*

Determination of the needed resources will be based on assessment of the incremental cost of technologies, cost effectiveness, and the type of financing mechanism employed. Funding needs and mechanisms will be identified working in collaboration with the District and other State agencies over the next several months.

f. USEPA: National ZEV Investment Plan

Page 3: *As required by Appendix C to the 2.0-Liter Partial Consent Decree entered by the U.S. District Court for the Northern District of California on October 25, 2016, Volkswagen Group of America is investing $1.2 billion over the next 10 years in zero emission vehicle (ZEV) infrastructure, education, and access outside California to support the increased adoption of ZEV technology in the United States, representing the largest commitment of its kind to date. Based on figures from the Council of Economic Advisors and U.S. Department of Transportation related to highway and transit investments, the $1.2 billion being spent here is estimated to support up to 15,000 jobs throughout the United States over the 10 year course of the investment [Dept. of Transportation, Council of Economic Advisors]. The first cycle of a separate investment of $800 million in California is the subject of the California ZEV Investment Plan, which was submitted to the California Air Resources Board on March 8.*

APPENDIX C

I-710 Clean Truck Program Roles and Responsibilities

I-710 Clean Truck Program Roles and Responsibilities

	Metro Staff / Metro Contractor (Program Administrator)	I-710 Steering Committee	Metro Board
Program Goals and Objectives	• Provides recommendations to the Metro Board for Program goals, objectives and implementation of the I-710 Clean Truck Program.	• Ensure Consistency with Board-approved Program goals and objectives as well as related Program milestones and Program NZE/ZE vehicle miles traveled (VMT) Targets.	• Consistent with the I-710 Corridor EIR/EIS and conformity finding, provide overall policy direction on Program goals, objectives and implementation through Board action. • Provide public forum to review and consider aspects of the I-710 Clean Truck Program, including public board meetings and reports on various aspects of and progress made on implementing the Program.
Program Development	• Develop and maintain Roster of I-710 Steering Committee Members • Provide Logistics and Support for Regular I-710 Steering Committee Meetings, including agendas and documentation of meeting minutes and actions • Develop Proposals and Present Options to the I-710 Steering Committee regarding: - Program Application Materials / Guidelines / Appendices - Program Eligibility Requirements, which must include specific Program Eligibility Criteria that have been developed to date (i.e., heavy-heavy duty trucks [Class 8] that adhere to accepted SCAQMD/CARB standards for zero emissions and near zero emissions trucks.) - Description of NZE/ZE Truck VMT Requirements and Procedures consistent with Program milestones established for each Deployment Phase - Description of Funding Incentives - Description of Program Penalties - Program NZE/ZE Truck Maintenance Requirements and Certifications - Description of Program Auditing Requirements - Program Educational, Recruiting, Promotional Materials for posting on the I-710 Clean Truck Program Website - Sample contract for recipients of Program funds - Criteria for partnering with agencies, local jurisdictions, non-profit, and private organizations to help facilitate the development of electric charging stations/hydrogen fueling stations within the I-710 Corridor. Criteria would include items such as proposed site location, feasibility, capacity, implementation timeline, operational efficacy, as well as the capability and financial reliability of the Partner Agency(s)/Organization(s). - Sample partner agreement for recipients of Program seed funding for electric charging stations/hydrogen refueling stations.	• Review, advise, and make recommendations on the I-710 Clean Truck Program Manual, including: - Program Application Materials / Guidelines / Appendices - Program Eligibility Requirements, which must include specific Program Eligibility Criteria that have been developed to date (i.e., heavy-heavy duty trucks [Class 8] that adhere to accepted SCAQMD/CARB standards for zero emissions and near zero emissions trucks.) - Minimum NZE/ZE Truck VMT Requirements and Procedures consistent with Program milestones established for each Deployment Phase - Funding Incentives - Program Penalties - Program NZE/ZE Truck Maintenance Requirements and Certifications - Program Auditing Requirements - Sample contract for recipients of Program funds • Review and advise on criteria for partnering with agencies, local jurisdictions, non-profit, and private organizations to help facilitate the development of electric charging stations/hydrogen fueling stations within the I-710 Corridor. Review sample partner agreement for recipients of Program seed funding for electric charging stations/hydrogen refueling stations. • Review Program Educational, Recruiting, Promotional Materials for posting on the I-710 Clean Truck Program Website • Make independent recommendations and provide suggestions to improve the Program, increase Program applicants and participation, and optimize NZE/ZE travel within the I-710 Corridor. • In addition to the I-710 Clean Truck Program, the I-710 Steering Committee will also share information to help inform the work of Metro's overall Countywide Clean Truck Initiative (CCTI), including sharing lessons learned and Program considerations for future phases of the CCTI.	• Review and offer input to the membership of the I-710 Steering Committee. • Approve the I-710 Clean Truck Program Manual, which includes: - Program Application Materials / Guidelines / Appendices - Program Eligibility Requirements, which must include specific Program Eligibility Criteria that have been developed to date (i.e., heavy-heavy duty trucks [Class 8] that adhere to accepted SCAQMD/CARB standards for zero emissions and near zero emissions trucks.) - Minimum NZE/ZE Truck VMT Requirements and Procedures - Funding Incentives - Program Penalties - Program NZE/ZE Truck Maintenance Requirements and Certifications - Program Auditing Requirements - Sample contract for recipients of Program funds • Approve criteria for partnering with agencies, local jurisdictions, non-profit, and private organizations to help facilitate the development of electric charging stations/hydrogen fueling stations within the I-710 Corridor.

* The I-710 Clean Truck Program is a voluntary, competitive grant award program. The delivery of Funding Incentives has yet to be determined and could take the form of voucher incentives towards the purchase of NZE/ZE heavy duty trucks or subsidized lease of NZE/ZE heavy duty trucks, among other delivery options.

	Metro Staff / Metro Contractor (Program Administrator)	I-710 Steering Committee	Metro Board
Program Implementation	• Provide regular reports on I-710 freeway programming and construction schedule, by major construction stage, to the I-710 Steering Committee. • Develop Proposals and Present Options to the I-710 Steering Committee regarding: - Timelines for Program Application/Award Process for Each Deployment Phase - Emerging or new NZE/ZE vehicle technologies that meet NZE/ZE standards per the Program Eligibility Criteria - Funding Incentives per ZE Truck for Each Deployment Phase - Funding Incentives per NZE Truck for Each Deployment Phase - Program Ranking Criteria & Weighting for Each Deployment Phase, which take into account factors such as: age and type of trucks to be displaced, history of travel in the I-710 Corridor, projected NZE/ZE travel in the I-710 Corridor, equity/disadvantaged community status, amount of requested incentive funds. - Need for additional Program Incentives or Penalties, if warranted • Conduct workshops to educate potential Program applicants. • Conduct call for applications for each NZE/ZE Truck Deployment Phase. • Review applications for completeness. Follow up with project applicants during application process. • Perform ranking analysis. Develop and present initial ranking recommendations for presentation to the I-710 Steering Committee. • Write staff reports to the Metro Board on recommended Program awards. • Implement contracts with Program funding recipients. Oversee disbursement of incentive funds or vouchers. • Identify partner agencies and organizations to facilitate the development of selected electric charging stations/hydrogen fueling stations within the I-710 Corridor. Develop proposals and make recommendations to the I-710 Steering Committee regarding award or contributions of Program seed funding for worthy projects per the Program criteria. Draft and implement Partner Agreements.	• Review, advise, and make recommendations on the I-710 Clean Truck Program, including: - Review and confirm NZE/ZE truck levels for *each* Deployment Phase up to full Program total of 4,000 NZE/ZE trucks - Review and confirm minimum NZE/ZE truck requirements for Program funding recipients to optimize NZE/ZE travel in the I-710 Corridor for each Deployment Phase - Timelines for Program Application/Award Process for Each Deployment Phase - Verify and provide input on Emerging or new NZE/ZE vehicle technologies that meet NZE/ZE standards per the Program Eligibility Criteria - Funding Incentives per ZE Truck for Each Deployment Phase - Funding Incentives per NZE Truck for Each Deployment Phase - Program Ranking Criteria & Weighting for Each Deployment Phase, which take into account factors such as: age and type of trucks to be displaced, history of travel in the I-710 Corridor, projected NZE/ZE travel in the I-710 Corridor, equity/disadvantaged community status, amount of requested incentive funds. - Need for additional Program Incentives or Penalties, if warranted. • Review, advise, and make recommendations for Program rankings of project applicants for Each Deployment Phase. • Make recommendations of Program awards for each Deployment Phase. • Review, advise, and make recommendations on proposals for the development of electrical charging stations/hydrogen refueling stations. Review conditions and terms of Partner Agreements.	• Upon completion of first I-710 Project construction stage (the Early Action Program), validate and approve additional I-710 Project construction stages. • Approval of scope and funding plan for each I-710 Project construction stage subsequent to the first one (the Early Action Program). The scope and funding plan for each construction stage helps determine the size, scope and schedule needed for each I-710 Clean Truck Program Deployment Phase. • Approval of funding and NZE/ZE truck deployment levels for each I-710 Clean Truck Program Deployment Phase. • Approval of Program subsidy awards for each I-710 Clean Truck Deployment Phase. • Approval of final proposals and award of seed funding for the development and implementation of selected electric charging stations/hydrogen fueling stations within the I-710 Corridor. Approval of Partner Agreements. • Award of contracts for Program Management support. • Review of staff reports on Program status (annual review). Includes communication to the public and major stakeholders (including EPA) as to the development and implementation of the Program on an annual basis.
Funding, Revenues, and Expenditures	• Develop annual Program budgets (capital and operating). • Work with the I-710 Steering Committee to identify funding opportunities. • Develop and submit grant proposals for regional, state, and federal funds. • Work with partner agencies and organizations to identify grant opportunities and funding sources to support the development and	• Review annual Program budgets (capital and operating). • Work with Metro/Program Administrator to identify funding opportunities for the Program. • Advise and provide input to support the development of grant proposals for regional, state, and federal funds. • Review fiscal plans for the I-710 Clean Truck Program for each Deployment Phase.	• Approval of fiscal plans and funding levels for the I-710 Clean Truck Program for each Deployment Phase. • Programming of approved $50 million as needed for the Program. • Approval of annual Program budgets (capital and operating).

* The I-710 Clean Truck Program is a voluntary, competitive grant award program. The delivery of Funding Incentives has yet to be determined and could take the form of voucher incentives towards the purchase of NZE/ZE heavy duty trucks or subsidized lease of NZE/ZE heavy duty trucks, among other delivery options.

	Metro Staff / Metro Contractor (Program Administrator)	I-710 Steering Committee	Metro Board
Funding, Revenues, and Expenditures (Continued)	implementation of electrical charging/hydrogen fueling stations for zero emissions trucks. • Develop fiscal plans for the I-710 Clean Truck Program for each Deployment Phase. • Program I-710 Clean Truck Program funds as part of the Metro budget process. • Program seed funding for electric charging station/hydrogen fueling station Partner Agreements as part of the Metro budget process. • Provide regular reports on Program Revenues and Expenditures to the Metro Board (annual) and to the I-710 Steering Committee (quarterly). • Update RTP/FTIP, as warranted, to reflect most current status of I-710 Clean Truck Program funding schedule.	• Review reports on Program Revenues and Expenditures on a regular (quarterly) basis.	
Tracking, Monitoring, and Reporting	• Establish Geo-Fencing Limits for the I-710 Corridor. • Procure/Disseminate Automated Vehicle Locator (AVL) Equipment or equivalent to Program Recipients, including third-party certification that equipment has been permanently affixed to the NZE/ZE vehicles. • Establish I-710 Clean Truck Program Website (also see Program Development above). • Establish and maintain NZE/ZE Truck VMT Tracking Database. • Track Program Awards. • Monitor NZE/ZE Truck VMT. Conduct 6-month check ins. Recommend actions and follow through with implementing measures for funding recipients who need to get back on track. • As warranted, develop proposals and options for corrective actions to demonstrate reasonable progress towards Program milestones for each deployment phase, including identification of need for additional Program incentives and/or penalties. • Monitor and enforce Partner Agreements for the development of electric charging stations/hydrogen fueling stations. • Write Staff Reports to the Metro Board regarding Program Status, including tracking of Program NZE/ZE Truck VMT.	• Provide Program oversight to ensure consistency with Program Objectives, Program Milestones, and Program NZE/ZE VMT Requirements. • Review status reports and monitor Program NZE/ZE VMT. • Review, advise, and make recommendations on corrective actions required to demonstrate reasonable progress towards Program milestones for each deployment phase.	• Review Program status, including tracking of Program NZE/ZE Truck VMT. • Authorize course corrections for the Program, as warranted, to ensure consistency with Program Objectives, Program Milestones, and Program NZE/ZE VMT targets.

* The I-710 Clean Truck Program is a voluntary, competitive grant award program. The delivery of Funding Incentives has yet to be determined and could take the form of voucher incentives towards the purchase of NZE/ZE heavy duty trucks or subsidized lease of NZE/ZE heavy duty trucks, among other delivery options.

APPENDIX D

I-710 Clean Truck Program
ZE/NZE Truck Vehicle Miles Traveled (VMT) Methodologies

FULL PROGRAM
4,000 ZE/NZE Trucks

<table>
<tr><th colspan="3">I-710 Corridor Project RDEIR/SDEIS
Response to Comments on “Not a Project of Air Quality Concern” Path</th></tr>
<tr><th>Reference</th><th>Comments</th><th>Responses</th></tr>
<tr><td>September 14, 2018 Teleconference Call Information Request
(Ben Machol)</td><td>Please provide additional information on the methodology that was used to develop the 24.64% ZE/NZE VMT estimate on I-710 for the 4,000 ZE/NZE trucks from the I-710 ZE/NZE Incentive Program.</td><td>The factors used to produce the VMT estimate for the I-710 ZE/NZE Truck Deployment Program were developed based on detailed discussions related to major I-710 truck markets and travel patterns in the I-710 Corridor. These discussions were conducted with SCAQMD staff over a period of several months between Feb. 2014 and May 2015. These steps are outlined as follows.
➢ The original focus for the I-710 ZE/NZE truck methodology was the proposed ZE/NZE Freight Corridor included in Alternative 7:
• The I-710 Travel Demand Forecast Model reports average daily vehicle trips for the Freight Corridor. Only trucks are eligible to use the Freight Corridor and the model assigned trucks to the Freight Corridor based on the relative attractiveness (in terms of travel times) of the Freight Corridor compared to other travel choices such as the adjacent I-710 general purpose lanes. The physical configuration of the Freight Corridor allowed for a straightforward examination of types of trips taking place, by truck travel market (Port trips, Transload-Secondary trips, Intermodal Domestic trips, and Pure Domestic trips [Light-, Medium- and Heavy-Heavies]), by average trip length.
• Using the above truck travel market analysis, Freight Corridor truck trips were converted into numbers of trucks (i.e., based on the average number of round trips per truck market type over the course of an average weekday). This step produced an estimate of the numbers of Freight Corridor trucks that would need to be incentivized to turn ZE/NZE for Alternative 7.
• The next step was to obtain an estimate endorsed by SCAQMD (with input from CARB) on a reliable, average unit incentive subsidy cost per ZE/NZE truck class [Light-, Medium-, and Heavy-Heavy] for the future year to utilize in the analysis. The unit costs were applied to the numbers of ZE/NZE trucks estimated for the Freight Corridor to produce a total ZE/NZE truck fleet cost estimate for Alternative 7.
➢ The same factors and steps developed for the Alternative 7 ZE/NZE methodology were utilized for the Preferred Alternative (Alternative 5C), only in reverse sequence:
• A target level cost for the ZE/NZE program component was established first ($100m). [Note: Alternative 5C was originally developed to be a more practical, less costly fall back option to Alternative 7. The internal target level of $100m for the ZE/NZE funding program was the maximum amount judged to be potentially feasible.]
• To optimize these program dollars and maximize air quality benefits, the funding for Alternative 5C was steered exclusively to Heavy-Heavy Duty Trucks (HHDT). The</td></tr>
</table>

		average unit ZE/NZE subsidy costs (average of $25k per Heavy-Heavy Duty Truck) developed for Alternative 7 were applied to the $100 m Alternative 5C target level ZE/NZE program cost to estimate the number of ZE/NZE trucks for Alternative 5C. [$1,000,000 Program / $25,000 per Truck ZE/NZE Incentive Cost = 4,000 ZE/NZE Trucks] • Using the same conversion factors developed for Alternative 7, the numbers of trucks were converted from trucks into average daily truck trips according to the respective major truck travel markets (Port trips, Transload-Secondary trips, Intermodal Domestic trips, and Pure Domestic trips). Further, since the subsidies would be provided to recipients on a VMT basis (i.e., eligible trucks would need to demonstrate that they traveled frequently on I-710 for sufficient distances), an estimate of the minimum VMT requirement for eligibility was established for the Program that aligned with the average trip lengths on I-710 for the high propensity truck travel markets (i.e., the Port trips, Transload-Secondary trips, Intermodal Domestic trips) as well as those Pure Domestic Heavy-Heavy Duty trips that would also make more than one roundtrip per day on I-710 on average. This is because even though the I-710 Corridor is over 19 miles in length per direction, not all of the trucks travel the full length of the Corridor. [No. of Round Trips per Truck per Weekday x No. of Directional Trips per Round Trip x Average Directional Trip Length x No. of ZE/NZE Trucks = Total Estimated ZE/NZE I-710 HHD Truck VMT. Or, 2 x 2 x 10.625 x 4,000 = 170,000.] • In order to estimate the percentage of I-710 HHD Truck VMT that would be ZE/NZE, total Daily HHD Truck VMT was extracted from the I-710 Travel Demand Forecast Model for Alternative 5C for the I-710 freeway traffic links only. [I-710 ZE/NZE HHDT VMT / I-710 HHDT VMT = I-710 ZE/NZE HHDT VMT Percentage. Or 170,000 / 689,925 = 24.64%.] • This last step – the I-710 ZE/NZE Program VMT conversion to the 24.64 percentage – was necessary for Alternative 5C, but not for Alternative 7. Since it is a funding program, the specific, future distribution of these ZE/NZE trips (i.e., exactly which individual trucks will be funded or the precise mix of the ZE/NZE fleet among the potential truck travel markets or where each truck enters and exits I-710) cannot be known; only that the funding program will produce a certain share or level of ZE/NZE VMT on I-710 based on the program requirements. This percentage was applied even-handedly to the Heavy-Heavy Duty Truck traffic – as only Heavy-Heavy Duty Trucks are eligible for program funds – to provide the final ZE/NZE estimates for I-710 traffic for the proposed project.

Table 1. Heavy Duty Truck Traffic[1]
I-710 Corridor Project

Segment	I-710 Corridor Truck Volumes - Heavy Duty Trucks[1] (Annual Average Daily Traffic)											
	2035 No Build				2035 Alternative 5C				Change in AADT Volumes (Increase / Decrease)			
		Non-Diesel[2]				Non-Diesel[2]				Non-Diesel[2]		
	Diesel[2]	Gasoline[3]	ZE/NZE	Total[4]	Diesel[2]	Gasoline[3]	ZE/NZE[5]	Total[4]	Diesel[2]	Gasoline[3]	ZE/NZE[5]	Total[4]
SR-60 to I-10	17,702	1,940	0	19,642	15,657	1,840	3,711	21,208	-2,045	-100	3,711	1,566
I-5 to SR-60	27,176	2,540	0	29,716	26,038	2,633	6,657	35,328	-1,138	93	6,657	5,612
Washington Blvd. to I-5	29,961	2,706	0	32,667	28,190	2,807	7,238	38,235	-1,771	101	7,238	5,568
Atlantic Blvd to Washington Blvd	30,926	2,712	0	33,638	27,963	2,784	7,086	37,833	-2,963	72	7,086	4,195
Florence Ave to Atlantic Blvd	33,549	2,576	0	36,125	31,237	2,725	8,415	42,377	-2,312	149	8,415	6,252
Firestone Blvd to Florence Ave	34,962	2,531	0	37,493	31,977	2,644	8,695	43,316	-2,985	113	8,695	5,823
Imperial Hwy to Firestone Blvd	35,626	2,405	0	38,031	32,105	2,470	8,848	43,423	-3,521	65	8,848	5,392
I-105 to Imperial Hwy	36,541	2,404	0	38,945	32,591	2,452	9,002	44,045	-3,950	48	9,002	5,100
Rosecrans Ave to I-105	50,281	2,520	0	52,801	40,365	2,406	11,610	54,381	-9,916	-114	11,610	1,580
Alondra Blvd to Rosecrans Ave	51,252	2,600	0	53,852	41,416	2,513	11,856	55,785	-9,836	-87	11,856	1,933
SR-91 to Alondra Blvd	49,851	2,438	0	52,289	40,106	2,333	11,571	54,010	-9,745	-105	11,571	1,721
Long Beach Blvd to SR-91	53,280	1,962	0	55,242	44,645	2,040	13,183	59,868	-8,635	78	13,183	4,626
Del Amo Blvd to Long Beach Blvd	52,936	1,855	0	54,791	44,772	1,951	13,279	60,002	-8,164	96	13,279	5,211
I-405 to Del Amo Blvd	52,092	1,589	0	53,681	44,026	1,685	13,116	58,827	-8,066	96	13,116	5,146
Willow St to I-405	50,712	892	0	51,604	43,888	1,062	13,508	58,458	-6,824	170	13,508	6,854
Pacific Coast Hwy to Willow St.	50,555	865	0	51,420	43,771	1,013	13,523	58,307	-6,784	148	13,523	6,887
Anaheim St to Pacific Coast Hwy	48,340	809	0	49,149	38,714	773	12,045	51,532	-9,626	-36	12,045	2,383
Pico Ave to Anaheim St	46,573	403	0	46,976	34,412	678	10,695	45,785	-12,161	275	10,695	-1,191
South of Pico Ave	38,546	265	0	38,811	31,129	470	9,796	41,395	-7,417	205	9,796	2,584

Notes:

[1] Total truck trips include heavy duty truck vehicle classes (including port trucks).

[2] The share of diesel/non-diesel trips by fuel type is estimated using the EMFAC2014 vehicle fleet distribution determined from the EMFAC2014 output for VMT in Los Angeles County in 2035.

[3] Gasoline truck trips also include natural gas truck trips that do not meet the standard of a ZE/NZE vehicle.

[4] Total truck trips are the sum of diesel, gasoline, natural gas, and ZE/NZE trips.

[5] ZE/NZE trips under Alternative 5C include the I-710 ZE/NZE Truck Deployment Program.

Abbreviations:

ZE/NZE - zero emission/near-zero emission

AADT - annual average daily traffic

Diesel Truck Trips on I-710

(Daily, Year 2035)

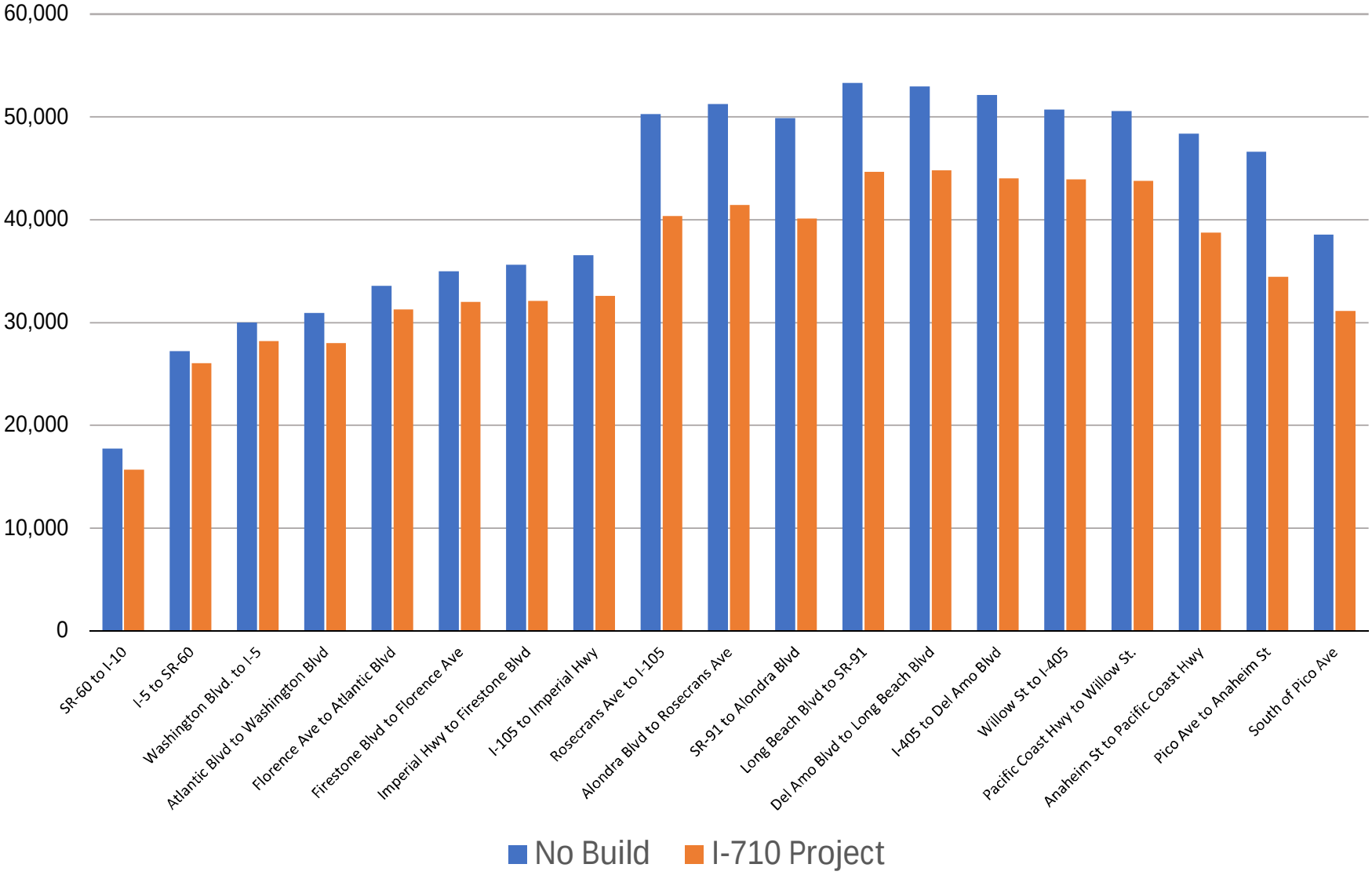


Table 2. Total Traffic[1]
I-710 Corridor Project

Segment	I-710 Corridor Traffic Volumes - All Vehicle Types[1] (Annual Average Daily Traffic)											
	2035 No Build				2035 Alternative 5C				Change in AADT Volumes (Increase / Decrease)			
		Non-Diesel[2]				Non-Diesel[2]				Non-Diesel[2]		
	Diesel[2]	Gasoline[3]	ZE/NZE[4]	Total[5]	Diesel[2]	Gasoline[3]	ZE/NZE[4]	Total[5]	Diesel[2]	Gasoline[3]	ZE/NZE[4]	Total[5]
SR-60 to I-10	19,922	155,166	13,832	188,920	17,913	157,577	17,770	193,260	-2,009	2,411	3,938	4,340
I-5 to SR-60	29,548	166,261	14,779	210,588	28,761	190,658	23,630	243,049	-787	24,397	8,851	32,461
Washington Blvd. to I-5	32,600	184,920	16,449	233,969	31,169	208,455	25,802	265,426	-1,431	23,535	9,353	31,457
Atlantic Blvd to Washington Blvd	33,575	185,627	16,512	235,714	30,890	204,835	25,325	261,050	-2,685	19,208	8,813	25,336
Florence Ave to Atlantic Blvd	36,038	174,450	15,515	226,003	34,195	206,918	26,848	267,961	-1,843	32,468	11,333	41,958
Firestone Blvd to Florence Ave	37,550	181,160	16,125	234,835	34,987	210,416	27,451	272,854	-2,563	29,256	11,326	38,019
Imperial Hwy to Firestone Blvd	38,290	186,368	16,607	241,265	35,136	211,767	27,742	274,645	-3,154	25,399	11,135	33,380
I-105 to Imperial Hwy	39,394	199,367	17,780	256,541	35,749	220,429	28,679	284,857	-3,645	21,062	10,899	28,316
Rosecrans Ave to I-105	52,822	177,960	15,837	246,619	43,020	185,688	28,155	256,863	-9,802	7,728	12,318	10,244
Alondra Blvd to Rosecrans Ave	54,055	196,106	17,468	267,629	44,429	210,531	30,634	285,594	-9,626	14,425	13,166	17,965
SR-91 to Alondra Blvd	52,365	175,969	15,665	243,999	42,725	183,084	27,888	253,697	-9,640	7,115	12,223	9,698
Long Beach Blvd to SR-91	55,385	147,294	13,119	215,798	47,125	173,229	28,636	248,990	-8,260	25,935	15,517	33,192
Del Amo Blvd to Long Beach Blvd	54,947	140,736	12,537	208,220	47,089	161,892	27,717	236,698	-7,858	21,156	15,180	28,478
I-405 to Del Amo Blvd	54,087	139,315	12,433	205,835	46,219	153,101	26,785	226,105	-7,868	13,786	14,352	20,270
Willow St to I-405	52,341	113,373	10,154	175,868	45,955	143,735	26,387	216,077	-6,386	30,362	16,233	40,209
Pacific Coast Hwy to Willow St.	52,012	101,494	9,084	162,590	45,575	125,571	24,767	195,913	-6,437	24,077	15,683	33,323
Anaheim St to Pacific Coast Hwy	49,611	88,526	7,918	146,055	40,131	98,630	20,879	159,640	-9,480	10,104	12,961	13,585
Pico Ave to Anaheim St	47,667	75,945	6,819	130,431	35,631	84,789	18,288	138,708	-12,036	8,844	11,469	8,277
South of Pico Ave	38,682	9,624	845	49,151	31,293	11,768	10,816	53,877	-7,389	2,144	9,971	4,726

Notes:

[1] Total vehicle trips include drive alone autos/shared ride vehicles and heavy duty truck vehicle classes (including port trucks).

[2] The share of diesel/non-diesel trips by fuel type is estimated using the EMFAC2014 vehicle fleet distribution determined from the EMFAC2014 output for VMT in Los Angeles County in 2035.

[3] Gasoline vehicle trips also include natural gas vehicle trips that do not meet the standard of a ZE/NZE vehicle.

[4] ZE/NZE vehicle trips include electric automobiles. Under Alternative 5C, ZE/NZE trips also include the I-710 ZE/NZE Truck Deployment Program.

[5] Total trips are the sum of diesel, gasoline, natural gas, and ZE/NZE trips.

Abbreviations:

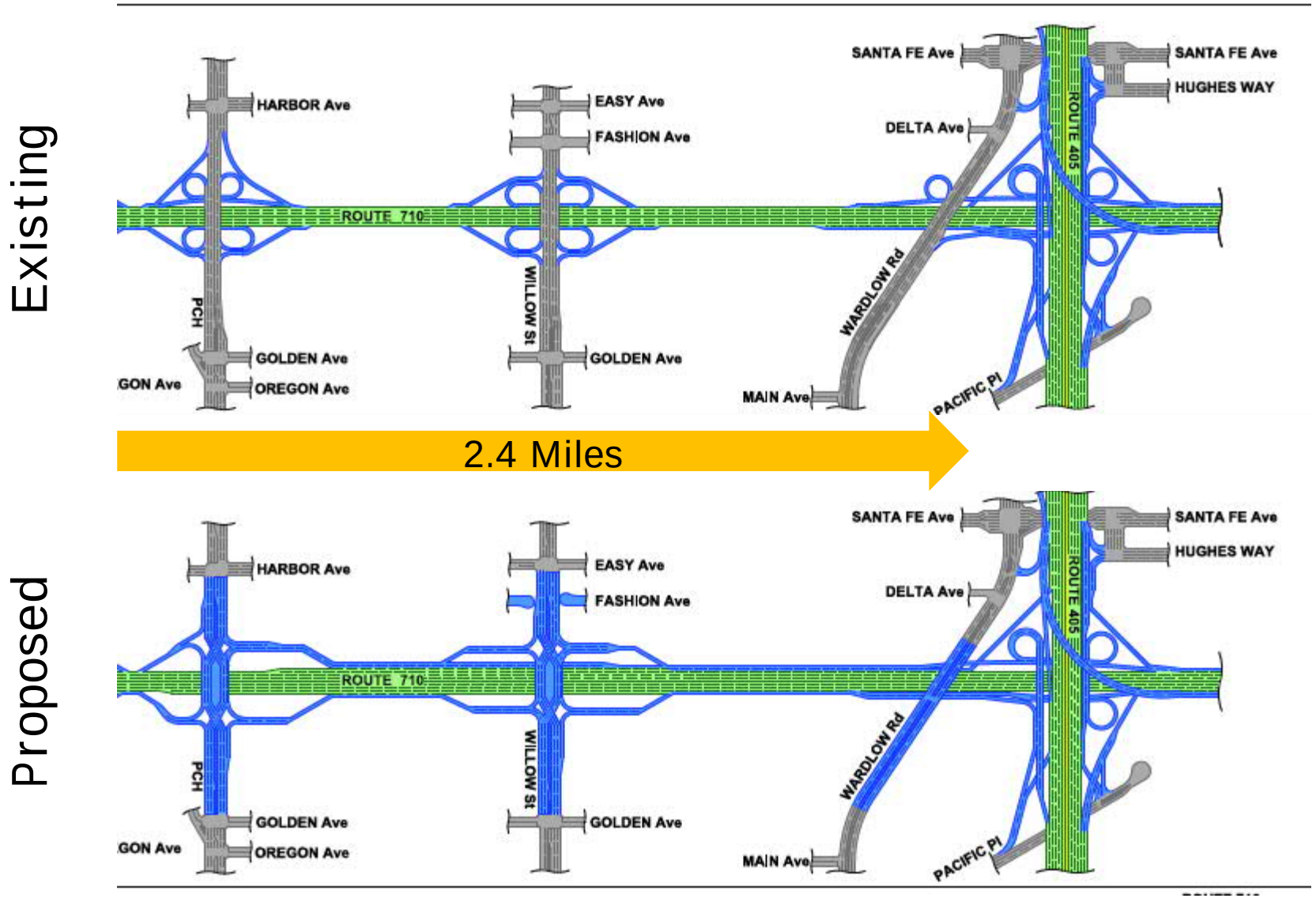
ZE/NZE - zero emission/near-zero emission

AADT - annual average daily traffic

APPENDIX E

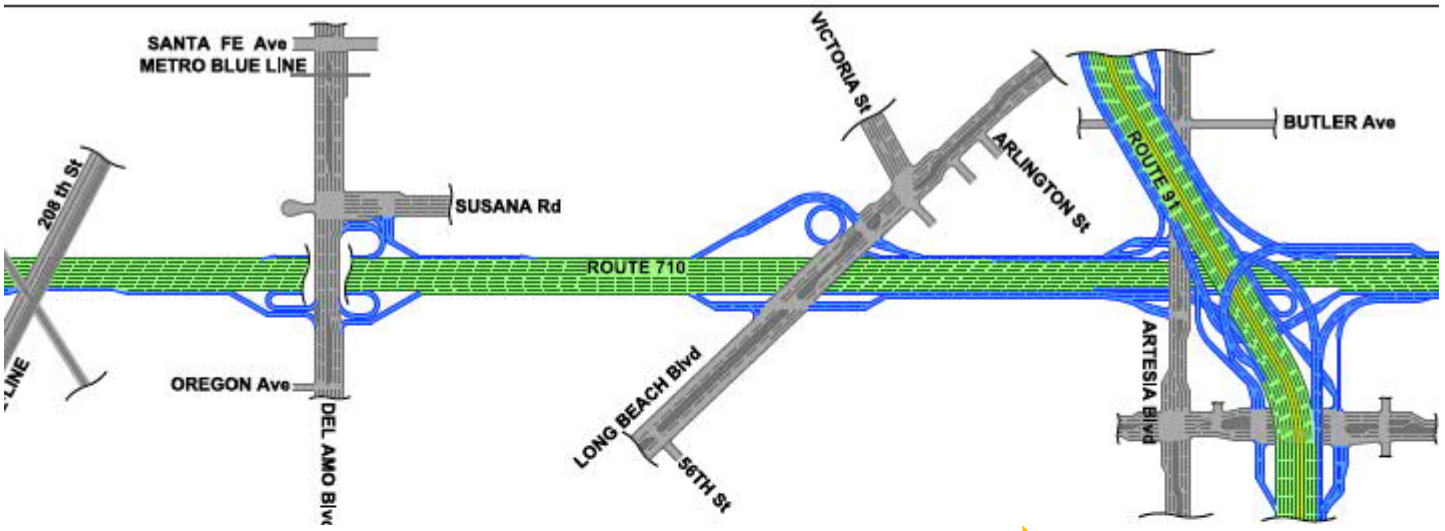
Schematics for Potential Construction Segments Initial Construction Stage – Early Action Program (EAP)

I-710: PCH to I-405



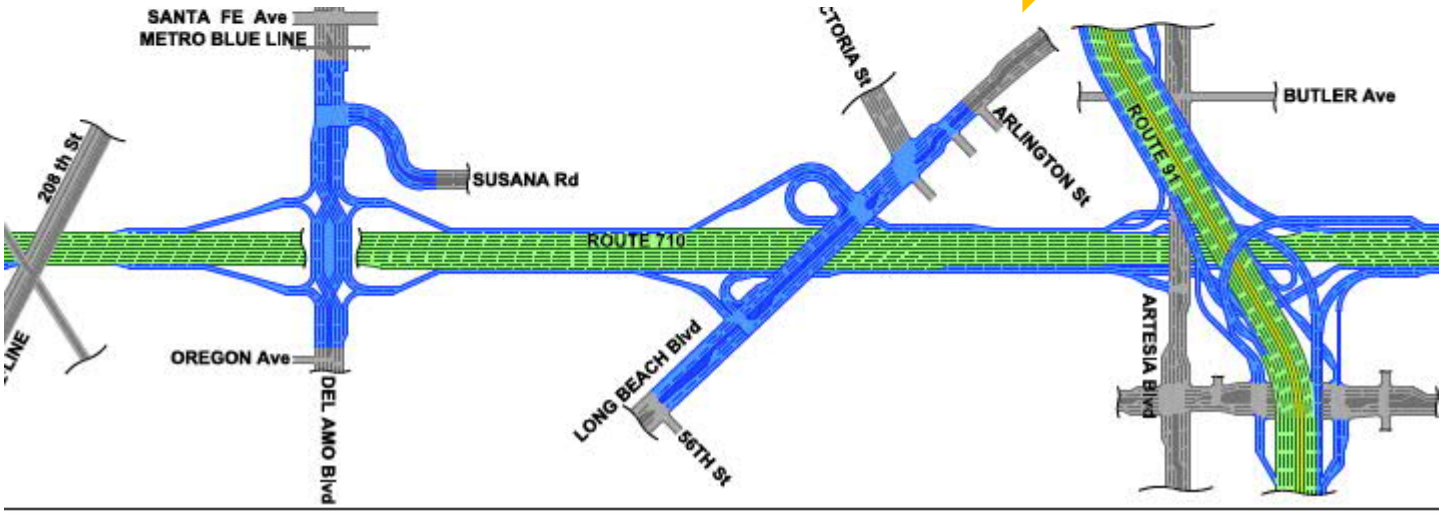
I-710: Del Amo to SR-91

Existing

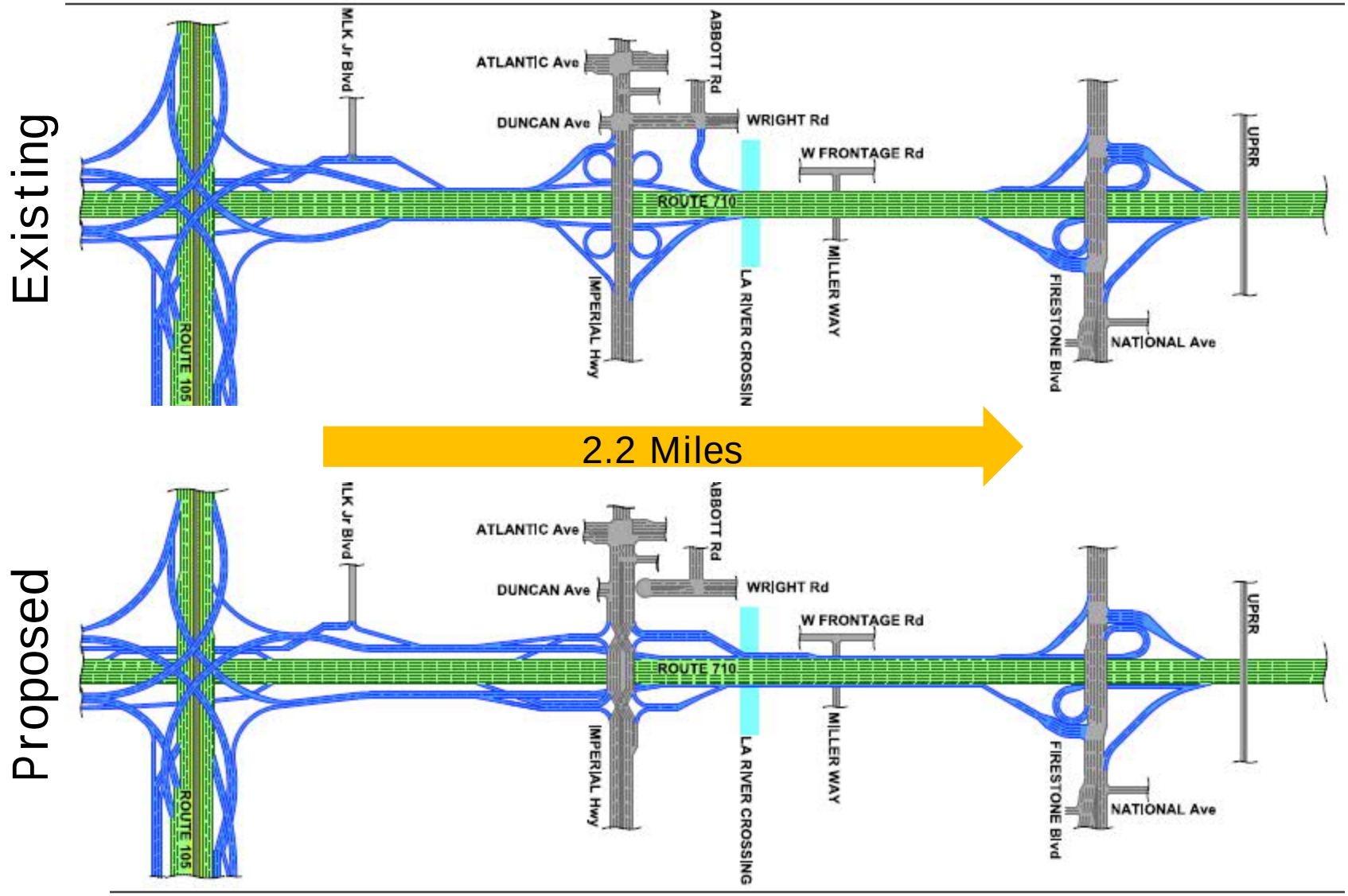


1.9 Miles

Proposed

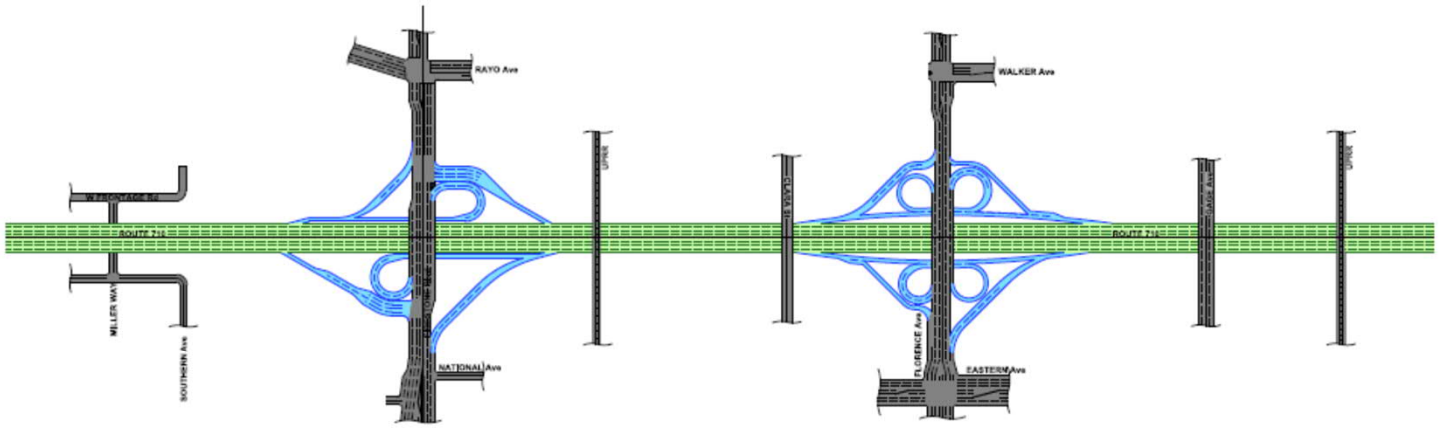


I-710: I-105 to Firestone



I-710: Firestone to Florence

Existing



2.2 Miles

Proposed