CLEAN TRANSPORTATION PLAN

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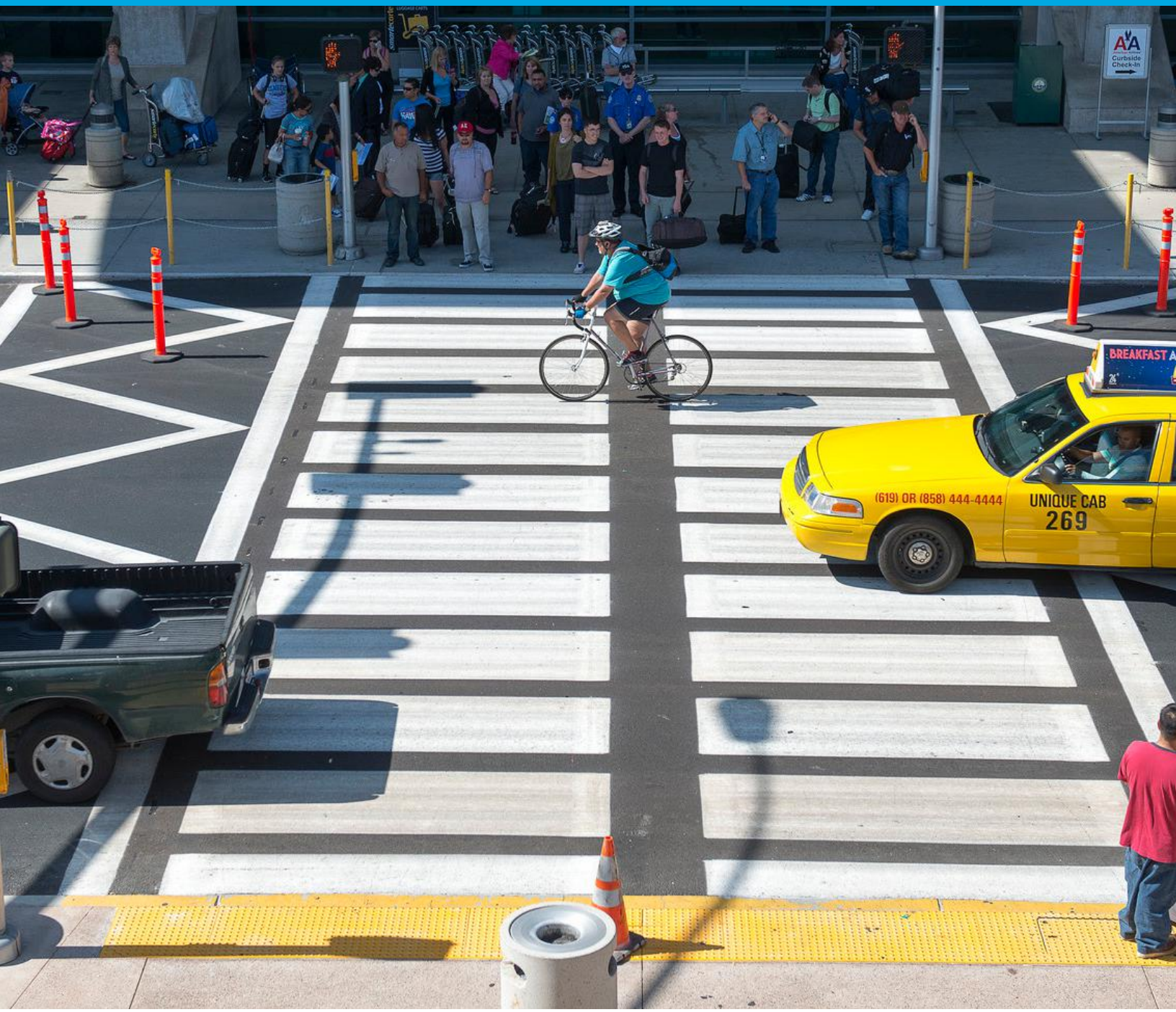
ROAD TO ZERO EMISSIONS GROUND TRANSPORTATION



July 2020

SAN DIEGO INTERNATIONAL AIRPORT

LET'S GO.

The Clean Transportation Plan establishes the Authority's program to holistically reduce ground transportation-related GHG emissions, while improving multi-modal connections to the Airport and embracing technological innovation in the mobility sector.

CLEAN TRANSPORTATION PLAN

ROAD TO ZERO EMISSIONS GROUND TRANSPORTATION

Prepared by:

AECOM

Disclaimer

The Clean Transportation Plan is provided as a summary of current efforts by and future goals of the San Diego County Regional Airport Authority. The information provided in the Clean Transportation Plan has been obtained from sources believed to be reliable, but there is no guarantee as to accuracy or completeness. It is provided for reference only and does not purport to include every item that may be relevant, nor does it purport to present full and fair disclosure with respect to any financial reports, transactions, bonds, notes, and other obligations related to the San Diego County Regional Airport Authority or San Diego International Airport within the meaning of applicable securities laws and regulations. Nothing in this Clean Transportation Plan may be construed to imply that specific projects, means, or methods have been approved, funded, or committed to by the San Diego County Regional Airport Authority or require it to take any specific action in the future.

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Executive Summary

Ground transportation represents a significant portion of airport operations and contributes to regional air quality and greenhouse gas (GHG) emissions. With technology advancing at a fast pace, airports need to find ways to adapt, react and take advantage of trends such as low emission and autonomous vehicles, the increasing electrification of ground transportation and equipment, and the advent of new business models such as the app-based ridesharing services that are disrupting traditional urban mobility systems.

For this reason, the San Diego County Regional Airport Authority (Authority) considers the topic of ground transportation and associated emissions one of the critical elements of its sustainability program, which warranted the development of a dedicated Clean Transportation Plan (CTP) as part of the suite of plans that comprise the overarching Sustainability Management Plan.

The CTP, like other sustainability-focused plans, has been developed through a grant provided by the Federal Aviation Administration.

Defining Success for the Clean Transportation Strategy

The CTP serves as the Authority's strategy and plan for managing various ground transportation issues and covers all ground transportation emission sources including all vehicles and equipment accessing and operating at the San Diego International Airport (SAN or Airport) whether owned and operated by the Authority or by third parties. In recent years, the Authority has been working toward solutions that would allow for improvements in areas related to transportation that go beyond complying with existing regulations. These initiatives range from improving the Authority's fleet emissions performance and supporting electrification of ground support equipment vehicles to developing programs to incentivize third parties such as taxis and Transportation Network Companies (TNCs), like Uber and Lyft, to switch to lower emissions vehicles.

> Mission: The Authority is committed to operating San Diego's air transportation gateways in a manner that promotes the region's prosperity and protects its quality of life.

Air emissions reductions represent one of the most important metrics the Authority uses to measure success of the clean transportation strategies. This emphasis is borne out of the Authority's commitment to actively manage GHG emissions and air pollutants as part of its operational requirements and mission to make the Airport a leader in sustainability.

A Plan to Manage and Advance Clean Transportation

The CTP provides an organized framework for reducing fossil fuel use by expanding the use of alternative vehicles and other sustainable transportation methods and advancing supporting infrastructure. The Authority sees clean transportation addressing six primary focus areas: alternative fuels & vehicle efficiency, efficient & sustainable transportation infrastructure, congestion & emission reduction, employee transportation, construction, and public transit. The Authority's strategy for addressing air quality and other GHG emission sources can be found in the Carbon Neutrality Plan, a complementary document that the CTP also supports.

The CTP builds on existing Airport initiatives and programs to define an overarching strategy aimed at reducing GHG emissions from ground transportation, with ambitious and well-defined goals and targets and a set of initiatives and tactics through which these can be achieved. The CTP was developed through a facilitated planning effort, by first defining a vision for clean transportation at the Airport, then identifying the most relevant focus areas along with the associated baseline and background information, followed by developing aspirational goals, targets, and a comprehensive set of initiatives. The final step is the development of a monitoring and implementation plan to serve as an operational tool that will support the Airport in fulfilling its strategy.

Aspirational Goals	Metric(s)	Target(s)	Target Time Frame
1. Move Toward A Zero-Emission Fleet Minimize the Airport's reliance on fossil fuels for Authority fleet vehicles and equipment	Conversion of Authority-owned vehicles to hybrid, electric, or alternative fuels	100%	by 2035
	Conversion of Authority-owned equipment to hybrid, electric, or alternative fuels	100%	by 2035
2. **Provide Fueling Infrastructure for Low Emission Vehicles** Provide enabling infrastructure for electric and other alternative fuel vehicles used by employees, passengers, and tenants	Airport-wide parking (employee, passenger, etc.) designated for clean air vehicles* and/or EV-ready with pre-wiring	Step 1: 20% of total spaces Step 2: 50% of total spaces	Step 1 by 2025 Step 2 by 2035
3. Minimize Impact of Ground Transportation Operators Incentivize adoption of low carbon strategies by ground transportation operators	Use GHG rating (GGR**) to measure GHG intensity (gCO_2e/mile) of ground transportation providers (taxis, shuttle buses, hotel vans, limos, TNCs, etc.)	Step 1: GGR of 9 Step 2: GGR of 10	Step 1 by 2020 Step 2 by 2030
4. Promote and Support Use of Public Transit Provide regional leadership, collaboration, and infrastructure to increase use of public transit and other sustainable methods of transportation	Passengers/employees that use sustainable transportation methods (e.g., public transit, vehicles sharing options such as carpool/vanpool, bicycle) to travel to/from the Airport	15%	by 2035
5. Support Emissions Reduction by Third Parties Encourage and help propel reductions in air emissions from airline, tenant, contractor, and construction vehicles and equipment	Conversion of non-Authority vehicles to hybrid, electric or alternative fuels***	100%	by 2035

* *"Any combination of low-emitting, fuel-efficient and carpool/van pool vehicle" (CalGreen 2016)*
** *A Greenhouse Gas Rating of 9 is assigned to vehicles with CO_2e emissions between 205-237 grams/mile, while a GGR of 10 is for vehicles with emissions between 0-204 grams/mile. (www.fueleconomy.gov)*
*** *While certain alternative vehicles may be "commercially available," other factors – such as safety concerns, operational characteristics, and fueling infrastructure availability – must be taken into consideration in order to justify their deployment.*

EV - Electric vehicle
GHG - Greenhouse gases


AVIS

01

Introduction


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HARBOR DRIVE LOT

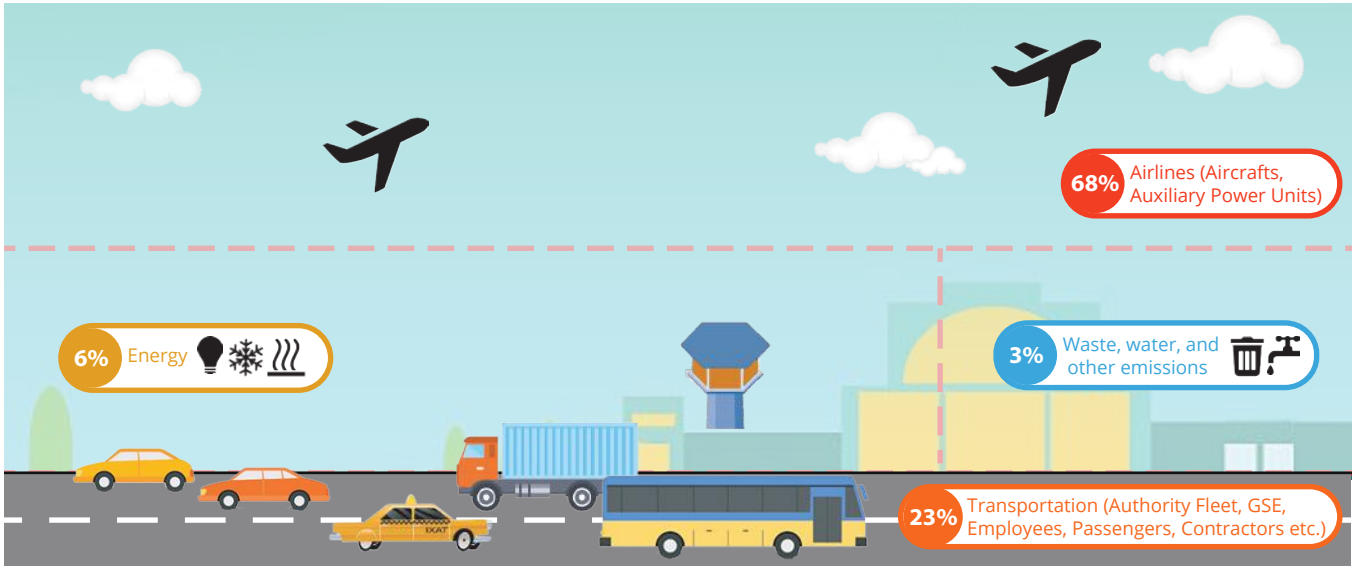
The San Diego County Regional Airport Authority (Authority) has a long-standing commitment to sustainability, leading with progressive initiatives in the San Diego Region and the broader aviation industry. While the aviation industry continues to make advancements in the improvement of economic, social, and environmental outcomes through the identification and implementation of innovative sustainability strategies, the San Diego International Airport (SAN or Airport) is committed to maintaining a leadership position and inspiring others to take a similar approach within the aviation industry and beyond. Driven by this commitment, the Authority has completed ambitious projects, such as the construction of the world's first LEED Platinum-certified Airport terminal (Terminal 2 West Expansion "Green Build", completed in 2013 and certified in 2014), and has developed innovative and effective greenhouse gas (GHG) reduction programs, such as the Airport Clean Vehicle Conversion Incentive Program (2010).

The Clean Transportation Plan establishes the Authority's program to holistically reduce ground transportation-related GHG emissions, while improving multi-modal connections to the Airport and embracing technological innovation in the mobility sector.

The Authority believes climate change is one of the critical issues to be tackled to guarantee a sustainable future for the Airport and for the global community. The Authority also appreciates that ground transportation-related GHG emissions account for close to a quarter of the Airport's carbon footprint,[1] even though the Authority only controls a portion. The graphic below visualizes the Airport's GHG emissions profile showing the contribution from ground transportation compared to aircraft, energy, and other emission sources. With the sizable impact of GHG emissions from ground transportation, the development of GHG emissions reductions strategies has a prominent place in the sustainability strategy currently being developed and implemented for the Airport. The Carbon Neutrality Plan (CNP) outlines the Authority's overall approach to GHG emissions reductions and climate change leadership.

The Clean Transportation Plan (CTP) has been developed as a standalone document with the intent of addressing the specific issues related to transportation at the Airport. Consequently, the CTP covers all ground transportation emission sources including all vehicles and equipment accessing and operating at the Airport whether owned and operated by the Authority or by third parties. Figure 1 below shows the contribution of transportation, and other sources, to Airport-wide greenhouse gas emissions in 2015.

Figure 1: SAN's GHG emissions breakdown by main sources



Vision for Clean Transportation

The Authority recognizes the critical role of transportation for the Airport, both from an operational and business perspective, and that transportation choices all have some impact on the environment. Authority staff, contractors, airlines, suppliers, tenants, and passengers rely on different modes of transportation to access the Airport or conduct other aviation-related operations. These transportation methods – many of which rely on fossil fuels – impact local air quality, GHG emissions, and congestion at the Airport and in the broader region.

Clean Transportation is one of the programmatic sustainability elements of the Authority's broader environmental sustainability management program for the Airport. The CTP documents the scope and approach for addressing all forms of ground transportation that are involved with the Airport's operations, whether owned, controlled, managed, or influenced by the Authority or by third parties. As the focus is on ground transportation, no form of air transportation is included.[2]

In alignment with the strategy and approach outlined in the CNP for the Airport, the Authority believes reducing the GHG emissions of transportation-related activities is the primary driver of a clean transportation strategy for the Airport. The CTP is consequently geared toward the development of a comprehensive and holistic strategy for GHG emissions reductions – one that generates additional air quality and community co-benefits, or secondary and indirect benefits, from the implementation of a low-carbon strategy and associated transportation improvements. These co-benefits include better air quality, reduced traffic congestion, and improved accessibility to the Airport.

The Authority's approach is reflected in the goals and actionable initiatives in the CTP and is organized by the following six primary focus areas (Figure 2).

1. Alternative Fuels & Vehicle Efficiency – Authority-owned fleet of vehicles and mobile equipment, ground support equipment (GSE), and other tenant and airline owned vehicles, commercial vehicles (e.g., taxis, Transportation Network Companies [TNCs]), emergency response and security vehicles, alternative fuels, and electric vehicle (EV) support equipment such as charging infrastructure.
2. Efficient & Sustainable Transportation Infrastructure – Parking structures, bicycle lanes, and related infrastructure
3. Congestion & Emission Reduction – Carpool, vanpool, delivery vehicles, new technologies that foster congestion reduction, idling
4. Employee Transportation – Employee commute and business travel
5. Construction – Construction vehicles and equipment operating on Airport property
6. Public Transit – Public transit lines serving the Airport, intermodal transit opportunities, collaboration with other regional agencies to improve transit ridership

Figure 2: CTP Focus Areas

Integration with Authority Sustainability Program

The Authority's approach for sustainability is far-reaching, touching virtually every aspect of Airport operations and development. This approach is embodied in the Authority's definition of sustainability for the Airport, formalized in the Board-approved Sustainability Policy and communicated regularly through the Airport's ongoing sustainability reporting efforts (e.g., Annual Sustainability Report).

The structure of the CTP was influenced by, and developed in coordination with, several other existing plans, policies, programs, and initiatives, as summarized in the following sections.

> The Authority is committed to building an enduring and resilient enterprise by effectively managing our financial, social, and environmental risks, obligations, and opportunities.

Sustainability Plans

The Authority has established seven programmatic sustainability elements that are part of the Airport's environmental sustainability management program:

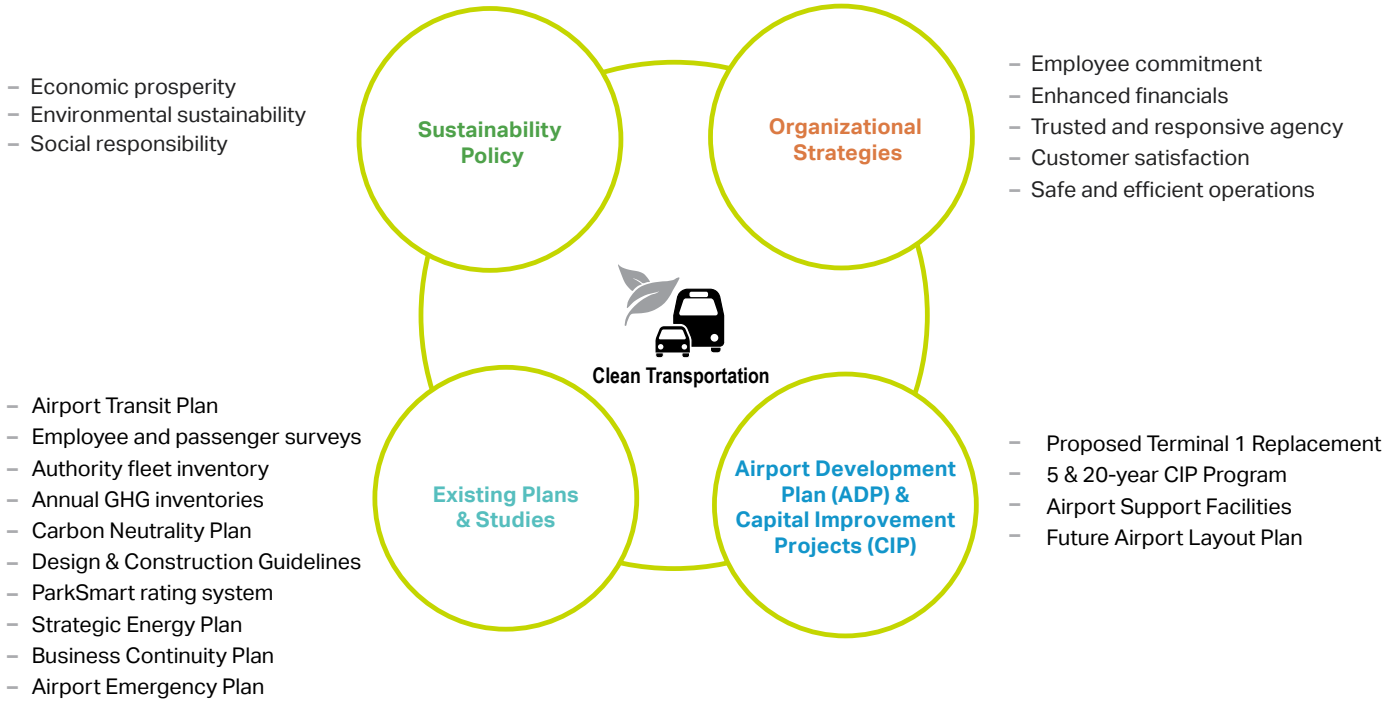
- Air Emissions
- Clean Transportation
- Climate Resilience
- Zero Waste
- Biodiversity
- Sustainable Energy
- Water Stewardship

Each programmatic element has a dedicated strategic action plan that formalizes aspirational goals, initiatives, and an implementation plan for that area. The compendium of plans together serves as the Authority's approach for managing environmental sustainability at the Airport.

Ground Transportation Plans and Programs

Transportation, and specifically ground transportation, represents a key topic for the Airport and has been addressed in several plans and programs. One of the more relevant documents is the 2016 Airport Transit Plan, which analyzes the Airport's current connections for public transit, highlights critical issues, and proposes potential strategies and solutions that would encourage public transit ridership to and from the Airport for both passengers and employees. This document was a key source of information for the CTP. Other important documents the CTP draws on are passenger and employee transportation surveys, ParkSmart[3] rating system initiatives, and existing programs such as those dedicated to taxi and TNC emissions reduction. A framework for how the CTP influences, and is influenced by, Airport policy, plans, and ongoing projects and operations is depicted in Figure 3.

Figure 3: CTP Integration with Existing Policies and Programs



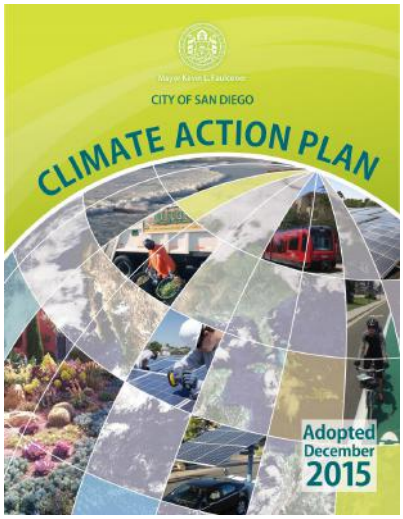
Airport Planning Documents

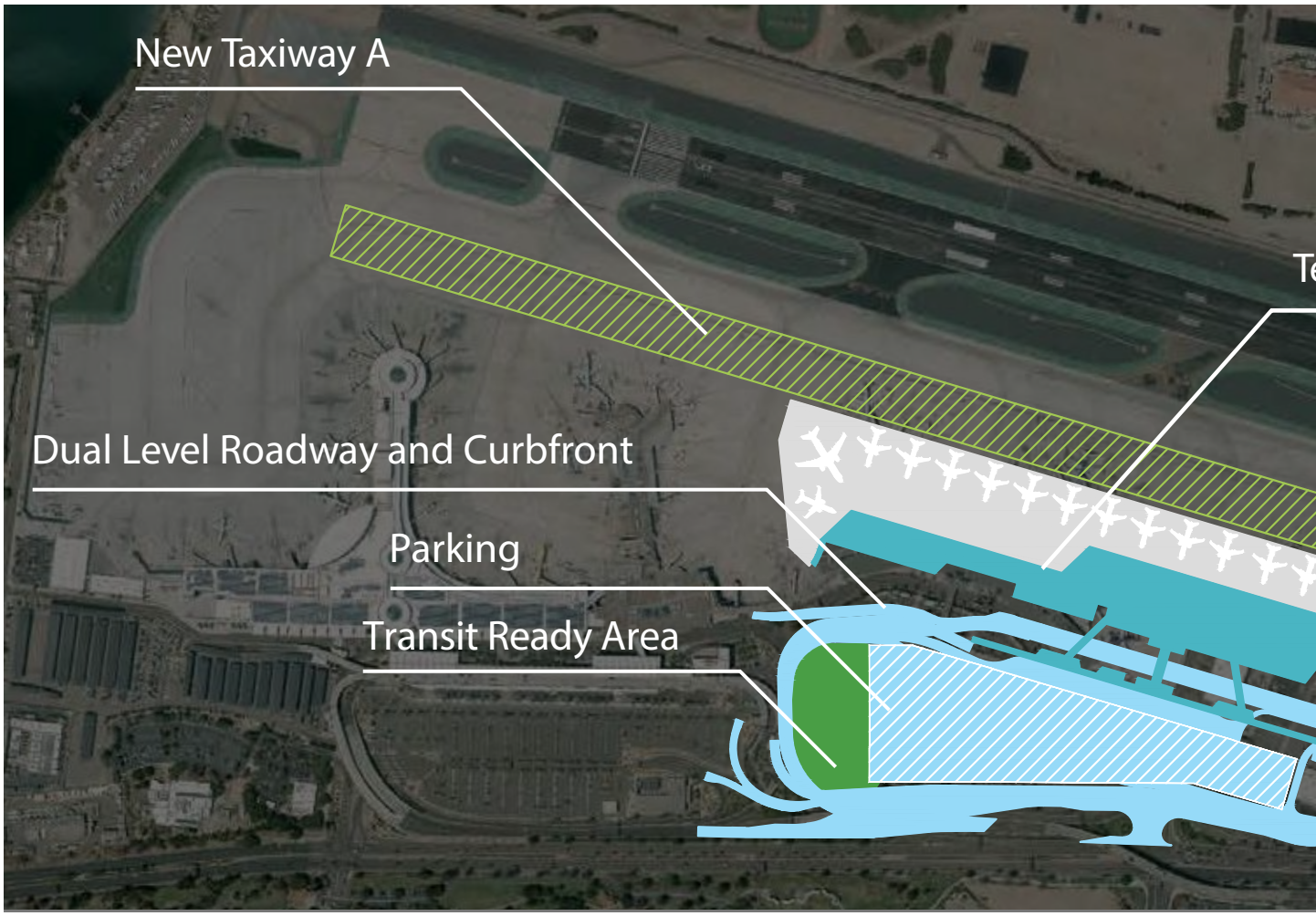
The Authority is planning for the future and shaping what the Airport will look like in the next decades through the Proposed Airport Development Plan (ADP) and the 5-year and 20-year rolling Capital Improvement Plan (CIP). While the ADP recommends improvements that will allow the Airport to meet demand through 2035, the CIP identifies specific upcoming projects that are planned for construction, several of which could strongly influence clean transportation strategies (e.g., Terminal 1 Parking Plaza). Further information about the ADP can be found in the inset.

Regional Plans and Policies

The CTP and associated goals and initiatives may also be influenced by a host of other regional plans, policies, and programs. A listing of these is provided below:

- Regional Plan – San Diego Forward
- San Diego Regional Transportation Improvement Program
- City of San Diego Climate Action Plan
- City of San Diego Bicycle Master Plan
- iCommute San Diego Program
- Downtown Mobility Plan
- Harbor Drive Mobility Committee
- Innovative Clean Transit Regulation
- California Climate Change Scoping Plan
- California Zero Emission Vehicle (ZEV) Roadmap
- California Sustainable Freight Action Plan
- California Mobile Source Plan

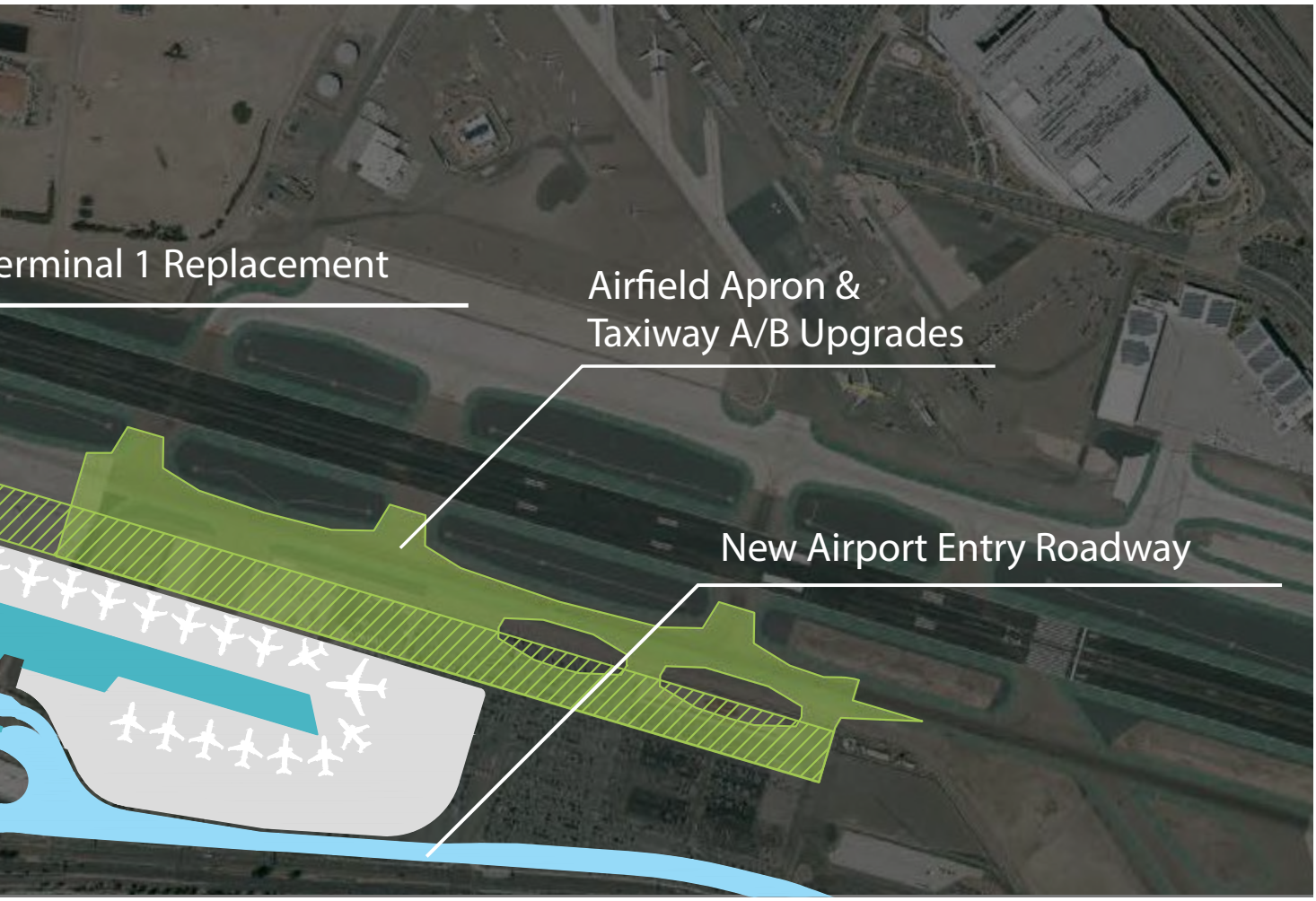




Our ADP – Driving sustainability planning through 2035 and beyond

In 2017, the Airport served over 22 million passengers, up from the 20 million it served just the year before. This translates to an average of 550 flights per day, making SAN a top or "Core" 30 airport in the US, thus playing an important role in the national aviation system. ADP represents the Airport's master planning effort to determine the facilities needed to meet the region's air travel demand through the year 2035. The ADP's overarching goal is to optimize the Airport's 661-acre site to accommodate this growing demand, while maintaining high levels of passenger satisfaction.

The centerpiece of the ADP is the replacement of the Airport's 50-year-old Terminal 1 with a more efficient and comfortable facility. The new Terminal 1 will increase from 19 gates to as many as 30 gates and will include more gate-area seating, restaurants, and shops, as well as expanded security check point lanes. Similar to the curbfront of the Airport's Terminal 2, the new Terminal 1 will also separate arriving and departing passenger traffic with an elevated departures roadway that will include curbside check-in.



A new on-airport entry roadway will provide a dedicated Airport access point from west-bound Laurel Street and North Harbor Drive, for vehicles coming to the Airport from the east, and will also include a multi-use path for pedestrians and bicyclists. This will help reduce traffic on North Harbor Drive. In addition, all buses currently moving to and from the Rental Car Center will be removed from Harbor Drive and routed exclusively through the new on-airport entry and link road. On the airside, Taxiway B will be realigned to meet FAA standards and a new Taxiway A will allow bidirectional flow of aircraft. Future phases could include an expansion of Terminal 2 West (the Stinger). Areas have also been preserved for a transit station to directly serve the terminals and for on-airport exit lanes that can be integrated into future regional transportation network improvements, which are now being evaluated as part of SANDAG's new Regional Transportation Plan. Please note that the Authority, at this time, has not approved or committed to undertake any of the project elements included in the ADP. Any formal approval of the ADP is dependent on completion of appropriate state and federal environmental review.

The CTP is a part of the Authority's broader sustainability management planning framework, helping to establish long-term environmental stewardship goals for the Airport. As such, the CTP will help inform the further design and implementation of the ADP, as well as guide the Airport's daily operations in the future.

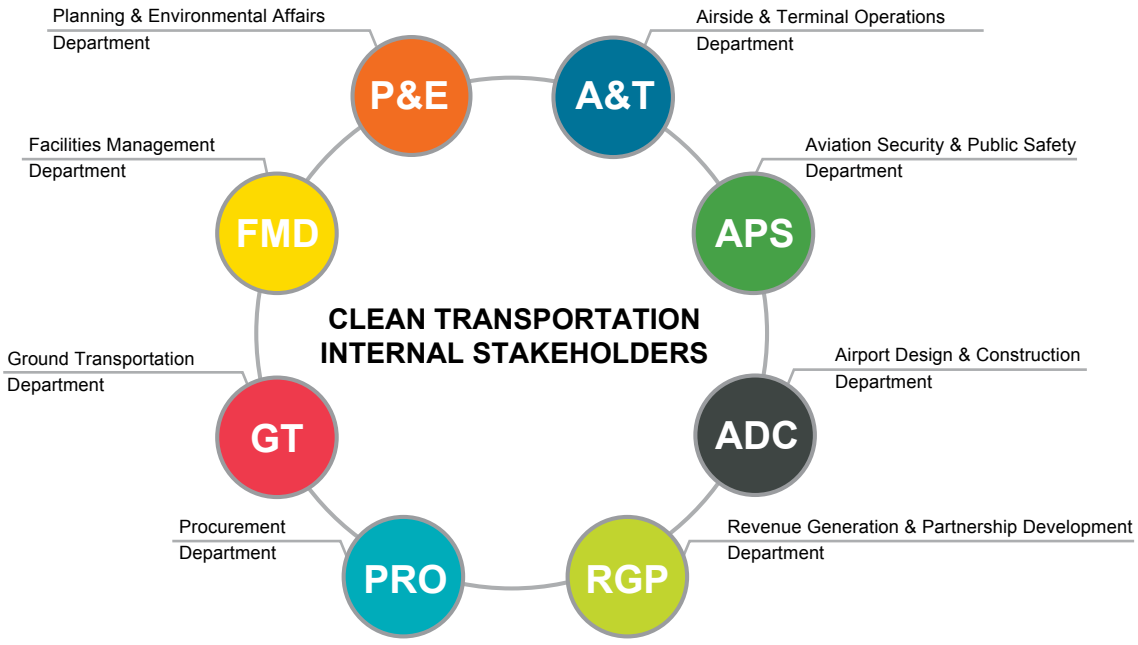
Stakeholder Engagement

As the Airport relies on tenants, airlines, cargo, ground transportation firms, and others to function, the Authority also relies on engagement with these same entities to advance its sustainability strategy and achieve goals. Ground transportation at the Airport is mostly controlled by third parties. Because of this, stakeholder engagement is central to the fulfilment of a clean transportation strategy, as the Authority can implement improvement actions in areas where they have direct control, but needs to engage business interests and other third parties in areas where they only have limited influence. It should also be noted that the Authority's level of influence over these key stakeholders and their respective emissions can vary greatly. This is in addition to engaging the local and regional community on transportation-related topics such as local air quality, GHG emissions, connection to public transit and congestion reduction. Considering key internal and external stakeholders is essential for ensuring a holistic approach to stakeholder engagement and optimizing buy-in, accountability, and support of sustainable transportation strategies. Finally, the Authority will prioritize voluntary programs, when possible, to help facilitate and maintain Airport stakeholders' access to federal and state grant funding for implementation of emission reduction strategies.

Internal Stakeholders

Workshops were held with internal stakeholders at key milestones during development of the CTP, to ensure accurate information and alignment with Airport operations, and to identify the best and most feasible goals and initiatives. Staff from the following departments (Figure 4) participated in these workshops and provided supporting background information for plan development.

Figure 4: Authority Departments that Participated in the Development of the Plan



Additionally, staff from the Marketing & Air Service Development, Government Affairs, and Small Business Development departments, provided supporting background information for plan development and will be involved in the implementation phase for some of the initiatives.

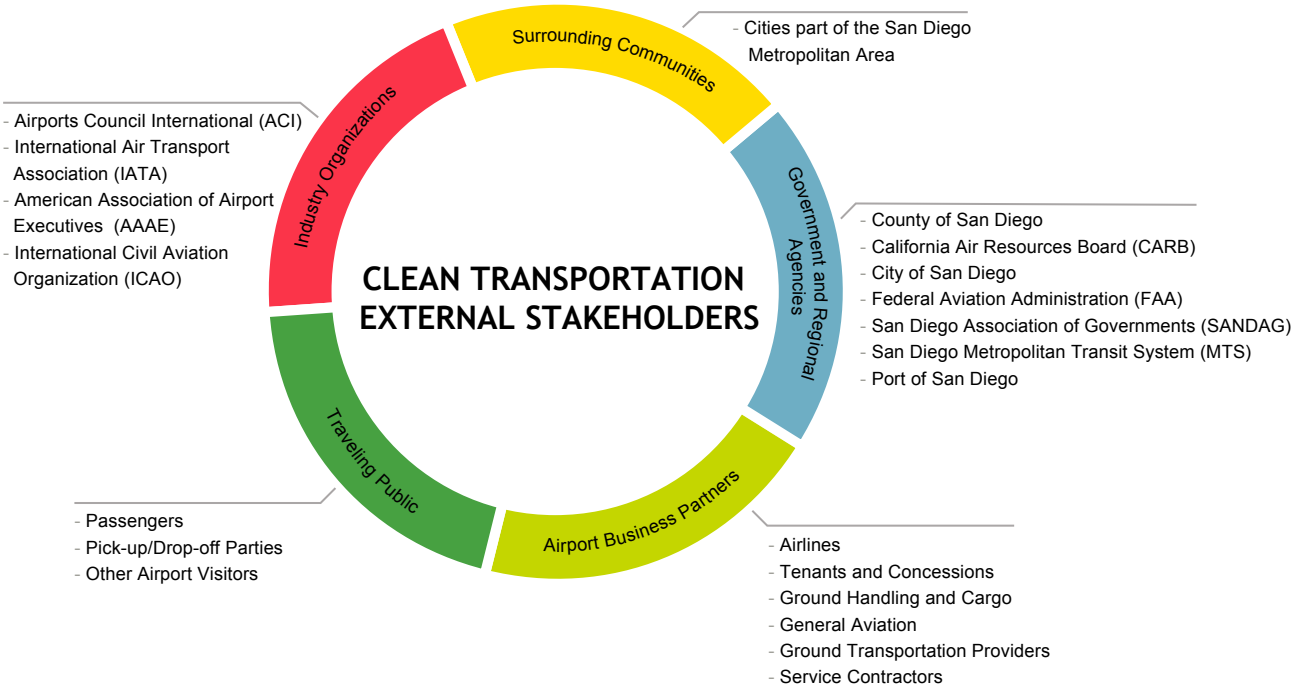
External Stakeholders

To improve fleet environmental performance, increase public transit ridership and drive reductions in GHG emissions, it is crucial that the Authority engage with the community, traveling public, regional planning and Airport business partners, and service companies including airlines, ground transportation firms, and contractors. As such, the Authority is committed to continued and expanded collaboration to achieve GHG emission reductions with external stakeholders (Figure 5), such as:

- Individual airlines and ground handlers, to collaborate on the conversion of their fleets to lower emissions vehicles and equipment;
- Fleet managers, ground transportation providers, tenants, and other organizations operating at the Airport to work together on the development and implementation of clean transportation strategies;
- Aviation industry, including other airports and industry organizations, to collaborate on funding for research and development, and creative ways to reduce the environmental impact of non-aviation transportation among airports;
- Regional planning partners to strategize on ways to further initiatives such as increasing public transportation ridership to and from the Airport; and
- Other public/external organizations, where engagement is appropriate, to advance clean transportation policies at the Airport.

The Authority has also developed a dedicated Stakeholder Engagement Plan to complement the GHG reduction activities moving forward. This document is included in the CNP and outlines the Authority's approach and documentation of engagement with owners and operators of third-party emission sources, including those mentioned in this Plan. The Stakeholder Engagement Plan is managed by the Authority as a separate stand-alone document to allow for flexibility, in accommodating changing stakeholder engagement activities, and to document stakeholder engagement efforts for reporting purposes.

Figure 5: Main External Stakeholder Groups for the Authority's Clean Transportation Plan

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02

Goals and Targets

The Authority has established goals and evaluation metrics as a framework for reducing fossil fuel use by expanding the use of alternative fuel vehicles, and other sustainable transportation methods and advancing supporting infrastructure.

The Authority has identified five main aspirational goals and related targets representing the foundational blocks of the clean transportation strategy. The goals were developed through an information-gathering and validation process, by combining analysis of existing plans, policies, and regulations with the identification of the main drivers for clean transportation at the Airport and validating goal achievability with feedback from Airport stakeholders. The goals represent where the Airport wants to be in the next 15-20 years; consequently, the goals are the engine for the development and implementation of initiatives that will improve sustainability performance of ground transportation associated with the Airport. The goals are built to maximize GHG emission reductions, while also addressing other key topics such as improved air quality and traffic congestion reduction at the Airport.

While the goals are relatively broad in nature, they have been developed with one or more metrics, related targets, and time frame for achievement, which allows for more quantitative and practical management as well as the ability to convey progress against the goal and other goal-oriented messaging to a larger audience. The five goals and related key information, including metrics, targets, and timeline for implementation are summarized in Table 1 and described in the following sections.

Table 1: CTP Goals and Targets

Aspirational Goals	Metric(s)	Target(s)	Target Time Frame
1. Move Toward A Zero-Emission Fleet Minimize the Airport's reliance on fossil fuels for Authority fleet vehicles and equipment	Conversion of Authority-owned vehicles to hybrid, electric, or alternative fuels	100%	by 2035
	Conversion of Authority-owned equipment to hybrid, electric, or alternative fuels	100%	by 2035
2. Provide Fueling Infrastructure for Low Emission Vehicles Provide enabling infrastructure for electric and other alternative fuel vehicles used by employees, passengers, and tenants	Airport-wide parking (employee, passenger, etc.) designated for clean air vehicles* and/or EV-ready with pre-wiring	Step 1: 20% of total spaces Step 2: 50% of total spaces	Step 1 by 2025 Step 2 by 2035
3. Minimize Impact of Ground Transportation Operators Incentivize adoption of low carbon strategies by ground transportation operators	Use GHG rating (GGR**) to measure GHG intensity (gCO_2e/mile) of ground transportation providers (taxis, shuttle buses, hotel vans, limos, TNCs, etc.)	Step 1: GGR of 9 Step 2: GGR of 10	Step 1 by 2020 Step 2 by 2030

Aspirational Goals	Metric(s)	Target(s)	Target Time Frame
4. Promote and Support Use of Public Transit Provide regional leadership, collaboration, and infrastructure to increase use of public transit and other sustainable methods of transportation	Passengers/employees that use sustainable transportation methods (e.g., public transit, vehicles sharing options such as carpool/vanpool, bicycle) to travel to/from the Airport	15%	by 2035
5. Support Emissions Reduction by Third Parties Encourage and help propel reductions in air emissions from airline, tenant, contractor, and construction vehicles and equipment	Conversion of non-Authority vehicles to hybrid, electric or alternative fuels***	100%	by 2035

* *"Any combination of low-emitting, fuel-efficient and carpool/van pool vehicle" (CalGreen 2016)*
** *A Greenhouse Gas Rating of 9 is assigned to vehicles with CO_2e emissions between 205-237 grams/mile, while a GGR of 10 is for vehicles with emissions between 0-204 grams/mile. (www.fueleconomy.gov)*
*** *While certain alternative vehicles may be "commercially available," other factors – such as safety concerns, operational characteristics, and fueling infrastructure availability – must be taken into consideration in order to justify their deployment.*

EV - Electric vehicle
GHG - Greenhouse gases

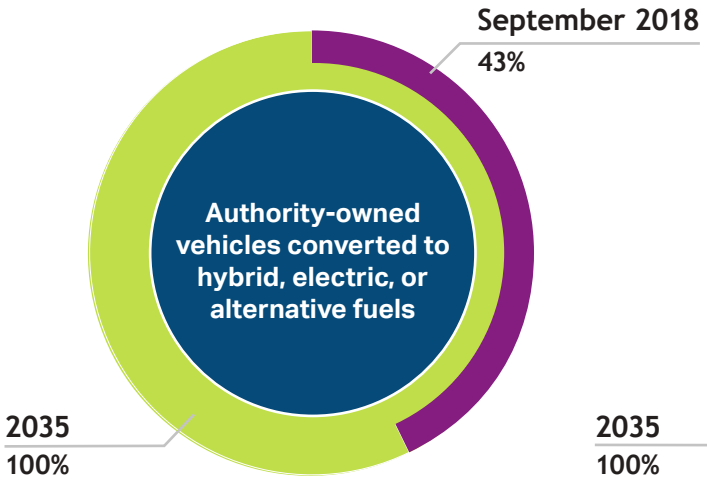
The goals, and associated initiatives, identified in the CTP have a time horizon that spans through 2035; however, given the pace of change occurring in the regulatory landscape regarding GHG emissions (particularly in California) and with the developments regarding alternative fuels, vehicles, and other clean transportation technologies, the goals and initiatives should be periodically reviewed and revised as needed to adapt to potential changes. For example, targets and timeframes could be subject to change due to the market for low emissions vehicles, which will evolve based on technology improvements, diffusion, and cost. Regulations may also play a role in accelerating progress on some or all of the goals in this plan, given the aggressive emission reduction policies planned in California (e.g., more stringent vehicle fuel efficiency standards, phase out of fossil fuels for transportation).

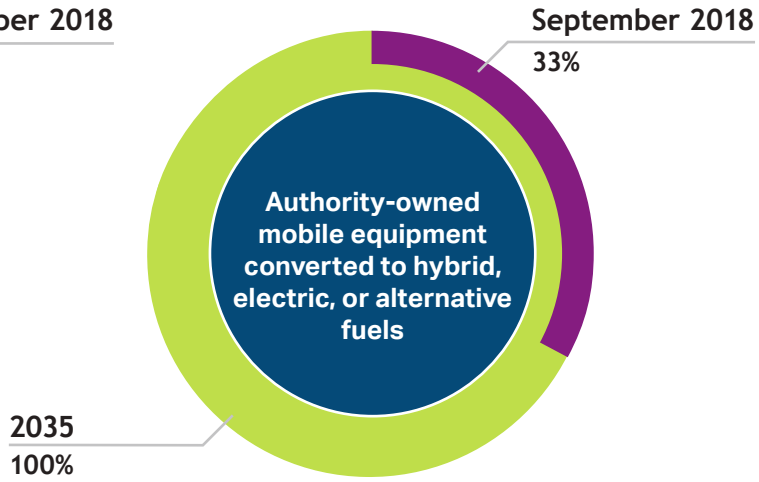
Goal #1: Move toward a zero-emission fleet

Minimize the Airport's reliance on fossil fuel for Authority fleet vehicles and equipment.

The Authority has been improving the efficiency of its fleet by reducing the average age of the vehicles and, where the balance of budget and performance allow, by switching to more efficient fleet vehicles or choosing models powered by alternative fuels (e.g., propane, renewable natural gas, renewable diesel, biodiesel) or electricity. While it would be most beneficial to convert all vehicles to electric by 2030 (due to the high amount of grid-delivered renewable electricity), the variability of the functions performed by the fleet vehicles, especially larger horsepower, multi-function vehicles such as pickup trucks, may require use of other alternative fuels. These limitations may be overcome over time, as a result of more stringent regulations (e.g., California Fuel Efficiency Standards) and technological improvements, allowing the Authority to someday have a zero-emission fleet.

The issues described for traditional vehicles are even more relevant for the mobile equipment fleet owned by the Authority. Currently, alternatives to traditional fossil-fueled trailers, tractors, and some other GSE used at the Airport are not commercially available or are in initial stages of development. This complicates planning for the equipment fleet composition over the next 20 years. As with traditional vehicles, technological improvements for Airport mobile equipment and GSE will be monitored, and the 100 percent conversion target and 2035 timeline set for its achievement could be modified accordingly.





Enabling Factors	Obstacles
• Technology improvement and scale that would allow for lower costs • Current composition of the fleet (57% currently powered by alternative fuels 15% of which electric) • New regulations (e.g. California Fuel Efficiency Standards)	• Slow rate of adoption and related high cost of vehicles • Complex and specialized tasks performed by airport vehicles and equipment

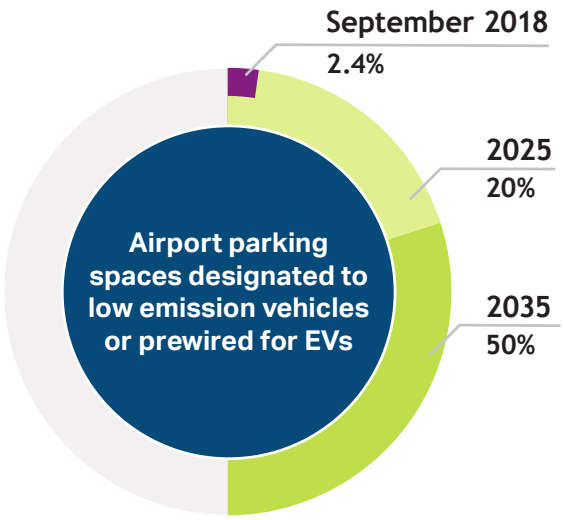
Goal #2: Provide fueling infrastructure for low emission vehicles

Provide enabling infrastructure for electric and other alternative fuel vehicles used by employees, passengers, and tenants.

Electrification of vehicles is one of the key strategies that the Authority intends to pursue to reduce emissions from transportation both locally, where the tail pipe emits directly into the atmosphere, and remotely, in terms of vehicle power/fuel mix. This is particularly true with EVs, which are powered by the local utility grid and are becoming more sustainable because of the increasing deployment of renewables and lower carbon power sources in the energy mix provided by utilities to the electric grid. In short, the electricity that powers EVs is becoming "cleaner" due to the growth of renewables in the utilities' portfolios and the phasing out of coal power plants in favor of natural gas.

As regulations in California, such as the Fuel Efficiency Standards, become more stringent and technology and market factors improve, driving down battery costs, increasing driving range, and expanding the type of functions EVs can perform, the Authority will need to be able to provide the necessary parking and associated charging infrastructure for its fleet vehicles and for those owned by employees, passengers, and other third parties such as airlines, tenants, contractors, and suppliers.

As the transition toward a zero-emission fleet (all-electric or fuel cell) occurs, the Authority aims to support as a priority the use of vehicles running on other alternative fuels with near-zero emissions such as those running on renewable diesel and renewable natural gas. The target for this goal has been split into two steps; a 20 percent increase in dedicated alternative fuel parking spaces by 2025 and 50 percent increase by 2035, to allow for the Airport to monitor and follow the trend in fleet conversion to lower emission vehicles. These targets, while ambitious, can be considered achievable, considering the 2016 California green building code (CalGreen) requires new parking lots with at least 200 spaces to allocate 8 percent of the total to clean air vehicles and to have 6 percent of the total with EV charging stations installed or prewired for future installations.



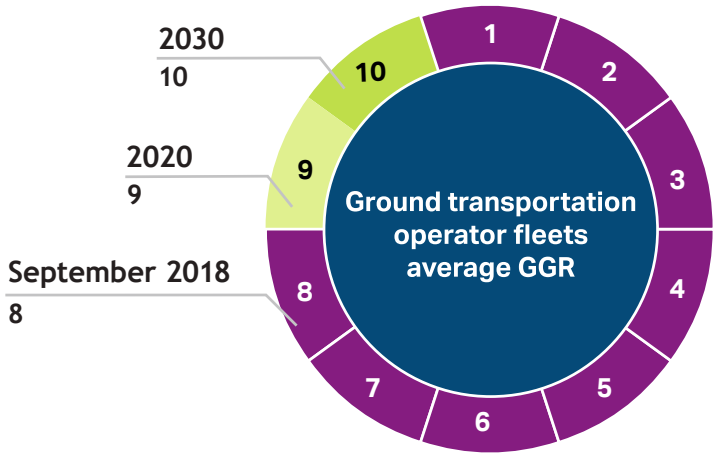
Enabling Factors	Obstacles
• Technology improvement and scale that would allow for lower costs • CalGreen code (current requirement: 6% EV-ready (pre-wired) parking & 8% clean air vehicles designated) • New regulations (e.g. California Fuel Efficiency Standards)	• Slow rate of adoption of low emission vehicles and consequent low demand for related parking infrastructure • Timing imbalance between demand for conventional vs alternative fuel vehicles

Goal #3: Minimize impact of ground transportation operators

Incentivize adoption of low carbon strategies by ground transportation operators.

While the Authority does not have direct control on how third-party ground transportation operators manage the fuel efficiency and air emissions of their fleets, it can exert some influence on these parties by developing programs that incentivize higher performance standards. Some of these industry-leading programs have already been successfully implemented, such as with taxi companies and TNCs. The Authority and third-party operators are encountering limitations with other ground transportation vehicle options, such as limousines and hotel shuttles, due to the absence of alternative low emissions models that provide similar performance with reasonable cost. As noted earlier, in the coming years, the combination of emissions regulations, technological improvements, and lower costs should hopefully fill these gaps and expand the opportunity to use lower emissions vehicles for these ground transportation options.

The goal establishes a target to reach a greenhouse gas rating (GGR) of 10 by 2030. This target can be considered achievable considering the current TNC program requires TNC fleets to reach a GGR of 9 by 2020, which represents an interim step towards the overall goal. However, the GGR values for vehicles should be monitored to make sure the Airport program is aligned to any potential changes.

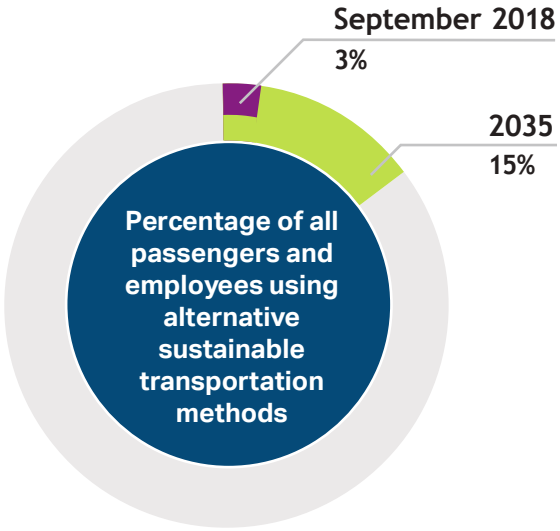


Enabling Factors	Obstacles
• Technology improvement and scale that would allow for lower costs and more model options • Authority's current industry-leading TNC program • New regulations (e.g. California Fuel Efficiency Standards)	• Concerns from ground transportation providers • Limited availability of low emission models for certain categories of vehicles

Goal #4: Promote and support use of public transit

Provide regional leadership, collaboration, and infrastructure to increase use of public transit and other sustainable methods of transportation.

The Authority intends to play a relevant regional role in supporting the development of sustainable transportation methods such as public transit, bicycle, and shared rides via vanpool and carpool. Collaboration with other local and regional agencies will be critical to identify opportunities to improve connections to/from the Airport, especially for public transit and biking. For example, the Airport Authority is currently partnering with SANDAG and other agencies through an "Airport Connectivity Subcommittee" to analyze various mobility options in order to potentially include in the upcoming 2021 Regional Transportation Plan. The communication of benefits and incentives will play an important role in raising awareness and increasing the number of participants in these initiatives. The 15 percent target set for this goal includes a combination of public transit, bicycle, and vehicle sharing without any specific allocation for any method. This was purposely done to allow for flexibility, as different scenarios may play out in the next two decades shaping how the goals and related targets are achieved.

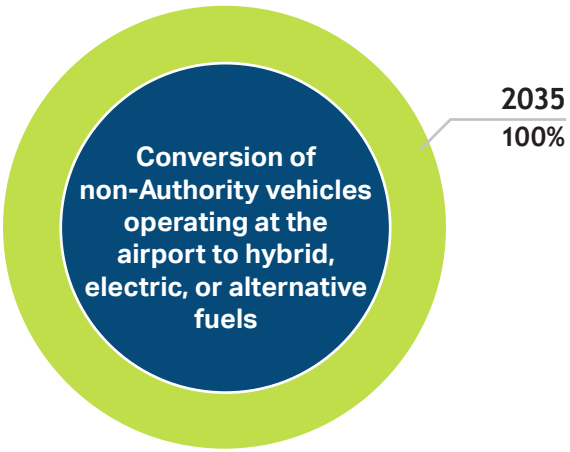


Enabling Factors	Obstacles
• Technology improvement and scale that would allow for increased low-carbon mobility options • SANDAG's greater emphasis on public transit and mobility hubs in the upcoming 2021 Regional Transportation Plan • Complementary local organizations and increasing community demand for low carbon mobility options	• Limited connecting infrastructure to public transit network • Low adoption by users

Goal #5: Support emissions reduction by third parties

Encourage and help propel reductions in air emissions from airline, tenant, contractor, and construction vehicles and equipment.

Airlines, tenants, contractors, and suppliers all have transportation needs related to the activities they perform at the Airport. The Authority is increasingly engaging these entities to support and encourage the shift toward lower emission vehicles, where possible. The Authority is using different approaches to stimulate this shift and exert influence, including providing infrastructure such as EV charging stations (in parking lots and on the airfield) and including contract language in leasing agreements that requires meeting minimum vehicle emissions standards. This approach, combined with advancements in transportation technologies, could help change the way contractors and other third parties operate at the Airport and support reaching the ambitious target of having 100 percent alternative-fueled vehicles operating at the Airport by 2035.



Enabling Factors	Obstacles
• Technology improvement and scale that would allow for lower costs and more model options • New regulations (e.g. California Fuel Efficiency Standards)	• Concerns from airline, tenant, and other fleet/ equipment operators • Limited availability of low emission models for certain categories of vehicles • Potential high cost of alternative and lower emission vehicles and equipment • Limited charging infrastructure on airfield

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03

Clean Transportation Focus Areas and Initiatives

The Authority has established a comprehensive and progressive set of focus areas and associated initiatives to reduce fossil fuel use and expand use of alternative vehicles and other sustainable transportation methods.

Supporting the achievement of the Authority's goals are programmatic focus areas and a set of initiatives to advance progress for the clean transportation strategy. The focus areas serve as the basis for evaluating performance and organizing the goals, targets, and initiatives that the Airport will implement to improve ground transportation sustainability. The selection of focus areas and supporting initiatives was informed by the analysis of Airport operations and validated with feedback from Airport stakeholders.

Developing Focus Areas to Advance Sustainable Ground Transportation

A fundamental step in the development of the CTP and organization of focus areas was to evaluate GHG emissions associated with transportation-related sources at the Airport. The basis for this analysis was the 2015 GHG inventory conducted by the Authority, which included all mobile sources related to Airport operations.

Outside of actual aircraft, transportation represents the largest source of GHG emissions associated with the Airport. As GHG emissions can be tracked and monitored, or evaluated at some level, they also represent a method for managing and monitoring progress in terms of environmental, economic, and even social considerations. The sources of transportation-related GHGs at the Airport include the following:

- Authority-owned shuttles (on and off Airport roadways)
- Other Authority-owned vehicles (on Airport roadways)
- Ground support equipment (GSE)
- Tenant staff/visitor vehicles
- Authority employee commuting
- Authority staff business travel
- Private vehicles (passengers), taxi/limos, TNCs, rental cars
- Public transit bus, non-Authority-owned shuttles, shared ride vans/charters, hotel/motel courtesy, off-Airport parking shuttles, rental car shuttles, cargo vans/trucks

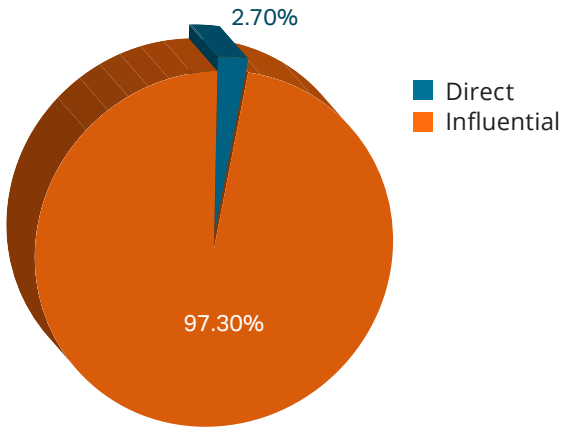
The Authority has varying levels of control and influence over each of these sources. Some sources, such as the Authority-owned vehicles, represent areas where the Authority has direct control while others, like tenant staff transportation and passenger vehicles, the Authority can only influence. Table 2 shows the overall breakdown of Airport GHG emission sources, which formed the basis for development of focus areas, and the level of control the Authority has on each of them.

Table 2: Summary of Airport GHG Emissions and Sources

GHG Emission Source	GHG Specific Source	Authority Level of Control
Airlines (68% of Total $mtCO_2e$)	Aircrafts, APUs	Influential*
Transportation (23% of Total $mtCO_2e$)	Authority vehicles	Direct
	Tenant staff and visitor vehicles	Influential
	Authority employee commuting	Influential
	Authority staff business travel	Direct
	Public access vehicles - cars, taxi	Influential
	Ground support equipment	Influential
	Public access vehicles - bus, shuttles	Influential
Energy (6% of Total $mtCO_2e$)	Energy used in buildings and Airport operations (e.g. electricity, natural gas).	Direct (Authority has direct control on usage not on generation and consequently on the emissions source).
Water, Waste, & Other Emissions (3% of Total $mtCO_2e$)	Emissions related to several operational processes (e.g. waste, water, refrigerants).	Influential

** Per federal law, the Authority has very little influence over aircraft engines and supporting functions.*

Figure 6: Authority 2015 Transportation GHG Scope Breakdown



In the case of Scope 3 emission from transportation sources, the Authority, despite not having direct control, can still influence emissions performance of third-party vehicles by implementing dedicated programs, policies, and providing incentives.

Figure 6 outlines the breakdown of the Airport's 2015 Transportation GHG inventory based on the level of control the Authority can exert. Given the breakdown of the emissions sources, the ones where the Authority can be influential (i.e.,Scope 3) represent the clear majority of transportation-related GHG emissions for the Airport, with the Authority's fleet only accounting for 2.7 percent of the total.

A detailed inventory of the Airport's 2015 Transportation GHG emissions is shown in Table 3.[4]

Table 3: Detailed Airport 2015 Transportation GHG Emissions Inventory

Responsible Entity	Source	mt CO_2e	CO_2e % of Scope	CO_2e % of Total
Authority	Vehicles and equipment	1,904.40	100.00%	2.70%
	Scope 1 Total	**1,904.40**	**100.00%**	**2.70%**
Airlines and Handlers	Ground support equipment (GSE)	3,394.00	4.94%	4.81%
Tenants	Tenant staff/visitor vehicles	22,287.50	32.45%	31.57%
Authority	Employee commuting	1,510.60	2.20%	2.14%
	Staff business travel	157.90	0.23%	0.22%
Public Access	Cars, taxi	40,283.70	58.65%	57.07%
	Bus, shuttles, and other ground transportation providers	1,052.70	1.53%	1.49%
	Scope 3 Total	**68,686.40**	**100.00%**	**97.30%**
	Scopes 1 & 3 Total	**70,590.80**		**100.00%**
	Total Airport GHG Emissions	**304,198.90**		**100.00%**
	Transportation-Related Emissions	**70,590.80**		**23.21%**

Six focus areas and one general category were identified to be included in the CTP, which align the inventory transportation sources with categories that describe and reflect the Airport's operations.

1. General Transportation. This represents a broader category that captures topics that overlap multiple aspects of transportation (e.g., grant opportunities, data analysis).
2. Alternative Fuels and Vehicle Efficiency. Authority-owned fleet of vehicles, shuttles and mobile equipment (e.g., light-towers, lifts), GSE, and other tenant and airline owned vehicles, taxis, TNCs, emergency response and security vehicles, alternative fuels, and EV charging stations.
3. Efficient and Sustainable Transportation Infrastructure. Parking structures, bicycle lanes, and related infrastructure.
4. Employee Transportation. Employee commute and business travel.
5. Congestion and Emissions Reduction. Carpool, vanpool, delivery vehicles, new technologies that foster congestion reduction (e.g., autonomous vehicles), idling.
6. Construction. Construction vehicles operating on Airport property.
7. Public Transit. Public transit lines serving the Airport, intermodal transit opportunities, collaboration with other regional agencies to improve transit ridership.

In addition to the GHG inventory, each focus area was evaluated, and a baseline inventory was completed to document existing programs and activities and to identify performance areas for quantitative trends. The results of the baseline effort helped to identify the most appropriate initiatives and tactics that will allow the Authority to achieve the stated goals and targets.

The focus areas collectively capture the Authority's intent to reduce fossil fuel use and expand use of alternative fuel vehicles and other sustainable transportation methods. As such, the initiatives, tactics and overall goals often drive benefits for more than one focus area. In general, the initiatives and tactics support progress toward one or more goal; however, some initiatives have a broader scope that supports the advancement of the clean transportation strategy as a whole. The following sections provide a comprehensive summary of each focus area and the related initiatives and tactics. Further information about the implementation of these initiatives is provided in the Implementation and Monitoring section of the plan.

1. General Transportation

The General Transportation category captures broader aspects of transportation at the Airport that can have influence over multiple other focus areas (Table 4). For this reason, there are no specific goals or quantitative targets; however, initiatives and related tactics have been identified.

Table 4: General Transportation Initiatives and Tactics

ID	Initiative	Goals Supported	Tactics	Authority Lead Department	Time Horizon
GT-1	Identify and evaluate opportunities for grant funding of transportation initiatives.	All	Explore available grants from programs such as: CA GHG Reduction Transportation and Sustainable Communities Funding programs Federal Aviation Administration (FAA) Voluntary Airport Low Emissions Program (VALE) funding for intermodal connections, alternatively fueled vehicles, etc.	P&E/GT	Ongoing
GT-2	Leverage big data to analyze vehicle performance, routes, and frequencies to identify patterns and potential solutions to current issues.	All	Expand the amount of data gathered through the Automatic Vehicle Identification system.	P&E/GT	Ongoing
			Complete periodic updated passenger and employee transportation survey.	P&E	Ongoing

GT - Ground Transportation
P&E - Planning & Environmental Affairs

Initiatives

GT-1: Identify and evaluate opportunities for grant funding of transportation initiatives.

As outlined in the "Funding Sources and Strategy" section of this plan, being able to leverage funding opportunities will allow the Authority to implement its sustainability strategy, while reducing the burden of fully covering the costs. In recent years, the Authority has been successful in obtaining grant funding from several sources. This initiative aims at further improving results through the development of a systematic and consistent grant monitoring process. This process will allow matching existing funding programs to the Airport needs.

GT-2: Leverage big data to analyze vehicle performance, routes, and frequencies in order to identify patterns and potential solutions to current issues.

Being able to understand trends and patterns for Airport transportation represents a critical aspect of the clean transportation strategy. Data coming from sources such as the Authority's Automatic Vehicle Identification system will improve knowledge of the type and quantity of vehicles accessing Airport property, supporting the identification of improvement strategies, and monitoring progress toward goals. The Authority already has a tracking system in place, but with technology improving and providing more accurate data, it will be important to keep up with the pace. Another data-related aspect is the one related to passenger and employee transportation habits. The Authority has been tracking this information to some extent for years, with the latest and most comprehensive passenger transportation survey completed in 2016. On the other hand, employee transportation information has not been captured with the same level of detail and has not been updated recently. Updating this information on a regular basis would allow for better planning, strategy development, and monitoring of results.

2. Alternative Fuels and Vehicle Efficiency

Every day, thousands of vehicles and mobile equipment access the Airport or perform activities within Airport grounds. These vehicles and equipment can be part of the Authority fleet; be owned by tenants, contractors, employees, suppliers, and airlines; or be part of other ground transportation provider fleets. According to the 2015 GHG inventory, these vehicles and equipment account for a substantial amount of GHGs that are emitted into the atmosphere. Considering that vehicle exhausts occur locally at the Airport, being able to improve the efficiency of these components of the Airport's transportation mix could provide a significant benefit not only in terms of GHG emission reduction but also in terms of local air quality and reduction of other air pollutants. For this reason, four out of the five main goals established for the CTP are directly related to improvements to the fuel efficiency and emission performance of vehicles that access the Airport.

Table 5: Alternative Fuel and Vehicle Efficiency Initiatives and Tactics

ID	Initiative	Goals Supported	Tactics	Authority Lead Department	Time Horizon
AFVE-1	Encourage use of private and rental vehicles running on alternative fuels.	#2	Provide preferred parking locations.	FMD/P&E/ RGP	Near-Term
			Offer reduced parking rates and fees.	P&E/GT/RGP	Near-Term
			Advertise benefits available to Airport users with alternative fueled vehicles.	P&E/MAS	Near-Term
AFVE-2	Expand the EV charging infrastructure.	#1, 2, 3, 5	Continue monitoring and pursuing funding for the design and installation of additional EV charging stations.	P&E/GT	Ongoing
			Continue including EV charging stations or pre-wired stalls in new developments or major renovation projects with the goal to increase the ratio of stations installed /pre-wired stalls.	ADC/P&E/ FMD	Ongoing
			Install enough EV charging stations to go beyond the CalGreen minimum requirements (6% of total parking spaces for lots over 200 stalls).	ADC/P&E/ FMD	Long-Term
AFVE-3	Electrify entire Authority fleet including cars, shuttles and other equipment; when not possible, use other alternative fuels.	#1	Use renewable natural gas produced by on-site bio digesters to power non-electric fleet vehicles.	ADC/FMD/ P&E	Long-Term
			Require procurement of electric or alternative fuel vehicles by developing a formal policy.	P&E/FMD/ RGP/PRO	Long-Term
			Develop standards/guidelines regulating the phase-out of older vehicles	P&E/FMD	Long-Term

ID	Initiative	Goals Supported	Tactics	Authority Lead Department	Time Horizon
AFVE-4	Support the conversion of GSE and emergency generators to alternative fuels, or to reduced emission fossil fuel models when alternative fuels are not possible.	#2-5	Adopt the use of renewable diesel for GSE.	P&E/FMD	Near-Term
			Provide eGSE charging infrastructure at all gates.	P&E/FMD	Near-Term
			Introduce a permitting requirement for all airside vehicles to be able to track emissions performance before they start operating at the Airport.	GT/P&E	Near-Term
AFVE-5	Further refine current programs and policies that incentivize taxis, TNCs, and other ground transportation providers (hotels, limousines, shuttles, etc.) to convert to electric or other alternative, lower emission fuels.	#3	Continue monitoring the conversion rate of the various ground transportation fleet categories to track results of existing programs and allow for future strategy development.	GT/P&E	Ongoing
			Install EV charging stations in hold lot, working with utility for incentives on electrification.	P&E/RGP/ FMD	Near-Term
AFVE-6	Encourage the conversion of emergency response and security vehicles to alternative fuels.	#5	Monitor technical progress in this space with new technology allowing for emergency vehicles to be more sustainable while still reliable given the critical role they play and support the purchase of alternative fuel vehicles when appropriate.	P&E/ASP/FMD	Long-Term
AFVE-7	Develop a vehicle inspection program to ensure vehicles are properly maintained and, where applicable, pollution control devices are in place.	#1-2	Include all types of vehicles in the program including electric and other alternative fueled ones.	GT/P&E	Near-Term
			Train staff on new transportation technologies to be able to perform some of the activities in house.	GT/P&E/FMD	Near-Term

ADC - Airport Design & Construction
ASP - Aviation Security & Public Safety
FMD - Facilities Management
GT - Ground Transportation
GR - Government Relations
MAS - Marketing & Air Service Development
P&E - Planning & Environmental Affairs
RGP - Revenue Generation & Partnership Development

Near-Term - 0-5 Years
Mid-Term - 5-10 Years
Long-Term - 10+ Years

Initiatives

AFVE-1: Encourage use of private and rental vehicles running on alternative fuels.

While private and rental vehicles represent the category of vehicles the Authority likely has the least control or influence over, they also represent the largest contributor of GHG emissions given they account for roughly 75 percent of passenger traffic, based on the last passenger survey.

The transition toward and growth of lower emission vehicles will be mostly driven by the market, with regulations, new technologies, and cost reductions all playing a role. Nonetheless, the Authority can contribute to this transition by encouraging the use of more efficient and sustainable vehicles at the Airport. The Authority may apply this influence by offering incentives such as preferred parking location and lower fees for green vehicles, communicating to Airport visitors the benefits available, and providing supporting infrastructure such as charging stations for EVs.

AFVE-2: Expand the EV charging infrastructure.

To support the transition to lower emissions vehicles and equipment being used to access or operate at the Airport, the Authority will need to provide the necessary infrastructure. This will include fueling stations for alternative fuels and charging stations for electric or hybrid/electric plug-in vehicles.

Funding for the infrastructure could potentially come from the Volkswagen settlement program (see the Funding Sources and Strategy section of this plan) or other grant program, which highlights the importance of monitoring financing opportunities. In order to allow for future expansion of the EV charging infrastructure, and to align to CalGreen, new parking projects will be developed with several spaces prewired to be “EV-ready,” with only the charging stations needing to be installed.

AFVE-3: Electrify entire Authority fleet including cars, shuttles, and other equipment; when not possible, use other alternative fuels.

Converting the entire Authority fleet to EVs by 2035, or to alternative fuels when certain vehicles/equipment cannot be converted due to technology, cost, or other operational constraints, is one of the Authority's primary goals and one in which it has more direct influence.

The Authority's fleet includes 201 assets (updated December 2017) that are categorized into four main categories:

- 115 vehicles (e.g., cars, vans, SUVs, light- and medium-duty trucks)
- 29 employee and economy parking shuttles
- 24 Rental Car Center (RCC) shuttles
- 33 pieces of equipment (e.g., lifts, light towers)

The Authority has been implementing several strategies to reduce the carbon footprint of owned vehicles and mobile equipment. Some examples include: fleet optimization based on actual operational needs, gradual conversion of vehicles to alternative fuels, and improvement of the fuel efficiency of traditional vehicles. The current fleet includes assets that run on 11 different kinds of fuels (Figure 7). These include traditional fossil fuels (i.e., gasoline, diesel) and "alternative" types of fuel (e.g., electric, renewable diesel and natural gas, propane). While this broad mix provides flexibility in allowing the Authority to improve the overall performance of its fleet, it can potentially increase complexity, inefficiencies, and costs of fleet management. For this reason, fuel mix should be monitored closely.

The obstacles to completing this transition are mostly related to the combination of budget constraints, turnover time for vehicles, and technology limitations. Having a formal multi-year plan in place outlining the estimated budget for purchases of low emission vehicles and phase-out time for fossil fuel vehicles, in addition to a policy outlining the purchasing procedure (including financial as well as environmental considerations), should allow for the achievement of the goal. The plan will also need to account for the growth of the Airport and the potential need for an increased fleet size. Existing technology constraints, especially those for the larger horsepower, multi-function vehicles and pieces of equipment, will be likely overcome by the development of new and cheaper technologies, but the transition to new technologies can be managed by using alternatives to electric such as renewable diesel and renewable natural gas.

Authority's fleet breakdown by type of fuel

Figure 7 shows the percentage distribution of each fuel category and breakdown of alternative fuel ratio for the entire fleet:

Gasoline is the fuel type for the majority of vehicles (30.6%), followed by liquefied propane gas (LPG) used in shuttles (16.8%), electric (14.8%), and diesel (12.8%). Alternative fuel vehicles represent 57% of the total number.

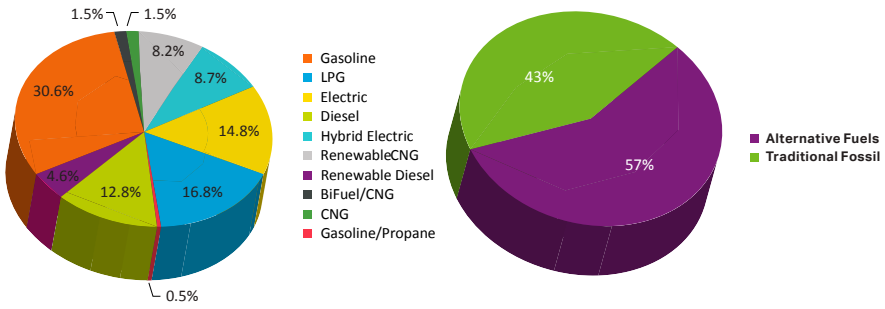


Figure 7: Analysis of Fleet Composition by Fuel Type

AFVE-4: Support the conversion of GSE and emergency generators to alternative fuels or to reduced emission fossil fuel models when alternative fuels are not possible.

GSE is operated by the airlines and ground handlers at the Airport. The Authority, in collaboration with the airlines and other ground handlers, tracks GSE fleet composition on a yearly basis, which allows the Authority to track not only the current composition of the GSE fleet but also changes that occurred in the last few years in terms of number of units, fuel type distribution, and age of equipment.

As shown in Figure 8, since 2010 there has been a consistent growth in the number of GSE, driven by the increasing number of flights and passenger activity the Airport has experienced over the same years. Figure 8 also shows the percentage of GSE inventory that is electric. This percentage shows a consistent upward trend starting with 13 percent in 2010 and reaching 25 percent in 2017, despite the significant growth in the number of vehicles. However, the majority of the GSE still run on traditional fossil fuels.

Currently, the Authority is requiring airside charging ports for any new projects, which will help accelerate the conversion of GSEs to electric. Additional efforts the Authority will look to implement to reach the target of having a fully electric GSE fleet include installing additional EV charging stations as outlined in initiative AFVE-2 and, to manage the transition to a lower emission GSE fleet, adopting the use of renewable diesel for the types of vehicles with greater technical constraints. Another consideration is the introduction of a permitting requirement for all airside vehicles in order to be able to record emissions performance before they start operating at the Airport and eventually prohibit their use if performance does not match a minimum threshold. However, the further deployment of alternative fuel GSE and vehicles must take into consideration safety needs, operational characteristics, and fueling infrastructure availability.

Historical trend in GSE electrification

Figure 8 shows how, since 2010 there has been consistent growth in the number of GSE, driven by the increasing number of flights and passenger activity the Airport has experienced over the same years. It also shows the percentage of GSE inventory that is electric. This percentage shows a consistent upward trend starting with 13 percent in 2010 and reaching 25 percent in 2017, despite the significant growth in the number of vehicles.

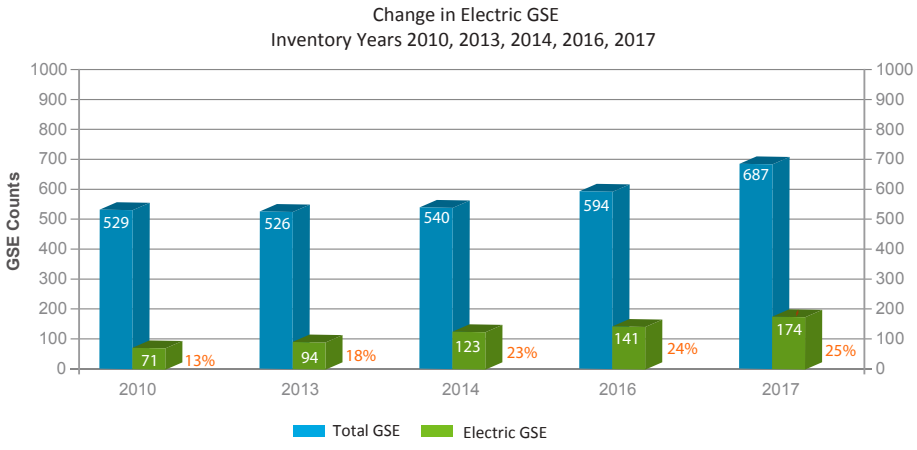


Figure 8: Historical Trend in GSE Fleet Number and Percentage of EVs

AFVE-5: Further refine current programs and policies that incentivize taxis, TNCs, and other ground transportation providers (hotels, limousines, shuttles, etc.) to convert to electric or other alternative, lower emission fuels.

Ground transportation providers include several types of vehicles that offer passenger service to/from the Airport and transfers to hotels or other locations. Being third parties, the Authority has limited influence on their fleet efficiency. However, in the last few years, the programs which the Authority has developed have provided positive results (See spotlight: Clean Vehicle Conversion Incentive Program).

AFVE-6: Encourage the conversion of emergency response and security vehicles to alternative fuels.

Emergency response and security vehicles (e.g., fire trucks and ambulances) perform very specific functions and play a critical role in safety and operations that requires the highest level of reliability. For this reason, identifying alternative fuel or EVs is even more challenging, given the requirement to address the functional and operational needs for these vehicles. Nonetheless, the Authority is committed to support the conversion to lower emission options for these vehicles as well, as soon as the market offers vehicle options with the appropriate balance of performance, reliability, and cost. Several concept vehicles are currently being tested by various manufacturers and should be ready in the coming years to be introduced and substitute traditional vehicles. In the meantime, the Authority is exploring opportunities to use renewable diesel in emergency response vehicles.

AFVE-7: Develop a vehicle inspection program to ensure vehicles are properly maintained and, where applicable, pollution control devices are in place.

Other activities that help maintain and keep track of Authority fleet environmental performance include scheduling periodic maintenance and monitoring emissions for vehicles. Employees that perform maintenance on vehicles and mobile equipment should be aware of the Authority's goals and targets for fleet emissions and the minimum requirements that should be met. Having a formal procedure in place including controls that need to be performed (e.g., presence and status of pollution control and anti-idling devices) and level of emissions to be achieved will allow the Authority to have a higher level of control on the fleet's condition. Employee training will be critical for the success of this initiative. In addition, the initiative should cover traditional fossil fuel vehicles as well as alternative fuel and EVs.


Taxi
TAXI
VENUS CAB
463
23902G1
MOSSY TOYOTA

Spotlight: Clean Vehicle Conversion Incentive Program

In 2010, the Authority launched an Airport Clean Vehicle Conversion Incentive Program to encourage taxis and vehicles for hire to switch to alternative fuels (e.g., hybrid, electric). The program provided discounted permits (to access and work at the Airport) to drivers whose vehicles were low emissions; otherwise, the Authority would apply higher premium access fees for those who did not comply.

In 2012, the conversion of ground transportation vehicles started with many providers switching to low emission vehicles, leveraging the growing number of hybrid vehicle models available on the market. This conversion was especially noticeable for those categories of ground transportation providers that used traditional vehicles (e.g., taxis). Other ground transportation providers encountered more problems in adapting to these rules, primarily because of a lack of alternatives for converting over their traditional fossil fuel vehicles. For this reason, limousines have been exempted from the application of these rules, while shuttle buses have had varied success. However, as shown in the table below, the results of the program, in terms of conversion rates, have been very positive overall.

In the early months of 2017, a program to support the improvement of TNC fleets GHG emissions performance was launched. The program is based on fleet average GHG emissions performance targets and includes non-compliance trip premiums. This makes the TNC companies responsible for the implementation of strategies to reduce vehicle miles traveled (VMTs) and to incentivize drivers to have more efficient and sustainable vehicles. The program requires TNC fleets to reach a minimum GGR of 9 by 2020.

In the coming years, lower costs and improved performance will likely increase the number of lower emission vehicles among ground transportation providers. By building on and enhancing the existing conversion programs and providing supporting infrastructure such as EV charging stations in holding lots, the Authority can achieve the target set for 2030 to have ground transportation provider fleets with a GGR of 10.

Summary of Results for the Clean Vehicle Conversion Incentive Program

Mode	GHG Emission Reduction Program	Clean Vehicle % or Greenhouse Gas Rating
Taxi	Yes	97%
Vehicle for Hire (VFH)	Yes	70%
Limousine/Charter & Livery	Exempt by Board	2%
Courtesy Vehicles	Exempt by Board	13%
Off-Airport Parking	Yes	88%
Buses/Shuttles	Yes	100%
Rent-a-Car	No	-
TNCs	Yes	8

Note: Data updated up to September 2018.

3. Efficient and Sustainable Transportation Infrastructure

In addition to adopting and promoting the use of more efficient and lower emission vehicles, the Authority recognizes the need to encourage the use of alternative transportation modes, such as bicycles, and to improve parking and related Airport features in order to support GHG emissions reduction. Strategies such as providing charging stations for EVs and preferred parking for the broader "clean air vehicle" category, have already been discussed within the "Alternative Fuels and Vehicles Efficiency" section of this plan. This focus area and related initiatives focus on other types of infrastructure that can support the adoption of bicycles as a clean transportation option and on tactics that can increase parking efficiency and consequently reduce emissions (Table 6).

Table 6: Transportation Infrastructure Initiatives and Tactics

ID	Initiative	Goals Supported	Tactics	Authority Lead Development	Time Horizon
ESTI-1	Support use of bicycles as an alternative transportation mode.	#4	Provide safe bicycle lanes and walking paths to and from the Airport, and to nearby commercial office, retail, and hotel zones.	P&E/FMD	Long-Term
			Provide connection to Harbor Drive multi-use path.	P&E/FMD	Mid-Term
			Improve bike infrastructure for employees biking to work (e.g., secure bike storage, covered parking).	P&E/FMD	Mid-Term
			Participate in a bike sharing program.	P&E/FMD	Near-Term
ESTI-2	Design new parking structures and retrofit existing ones to minimize congestion, idling, and related environmental impacts and to improve passenger experience.	#2-4	Certify parking structure according to the ParkSmart framework.	P&E	Near-Term
			Install additional lanes and booths at parking structures.	GT	Mid-Term
			Install a "smart park" system to efficiently utilize garage capacity and reduce emissions from excessive spot searching.	GT/P&E	Mid-Term

FMD - Facilities Management
GT - Ground Transportation
P&E - Planning & Environmental Affairs

Near-Term - 0-5 Years
Mid-Term - 5-10 Years
Long-Term - 10+ Years

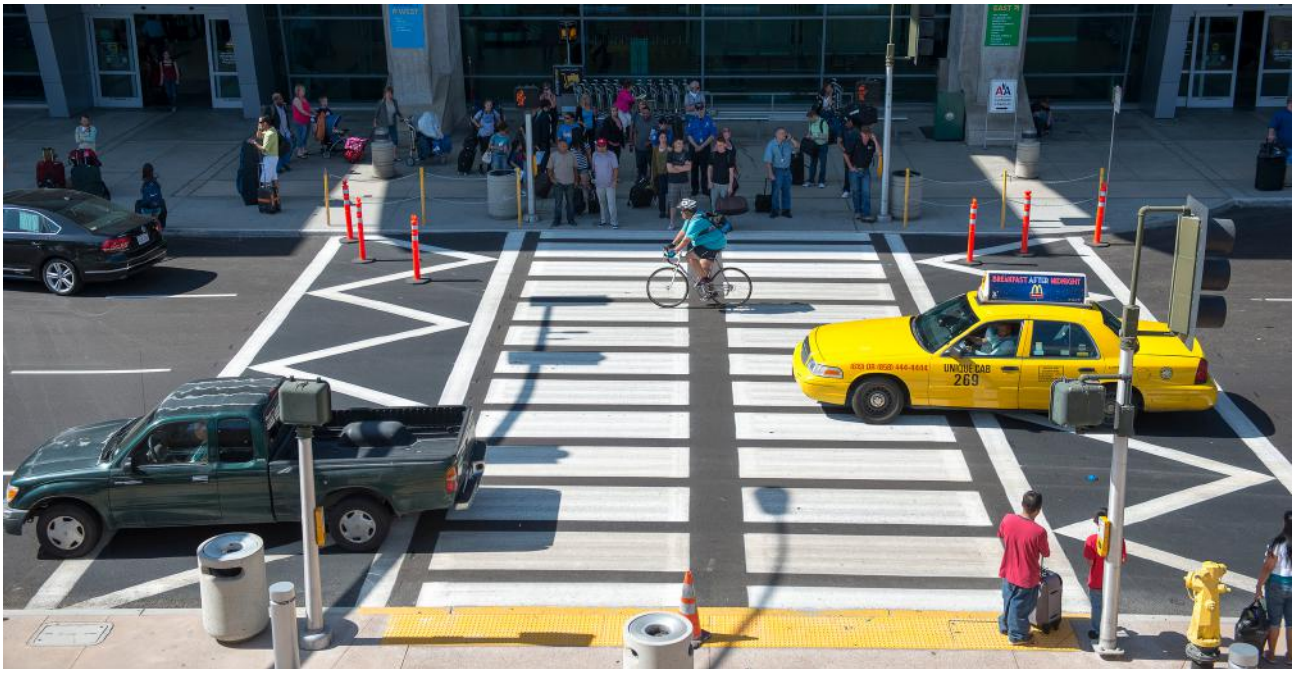
Initiatives

ESTI-1: Support use of bicycles as an alternative transportation mode.

Bicycle ridership across the nation has been consistently increasing in popularity not only as a leisure activity, but also as an alternative to traditional commuting (+51% from the year 2000)[5] and as a complement to public transit. San Diego is showing a similar trend, and the Authority is committed to encourage and support the use of bicycles in consideration of the benefits it can provide to health and the reduction in emissions. Travel to and from the Airport by bike may not be ideal for passengers, considering luggage and other travel constraints, but for employees and the broader community, increasing safe access to bicycle lanes, connecting to existing paths, and participating in a bike-sharing program could represent a relevant achievement. Although no specific goals and targets have been set for this aspect of transportation, this initiative supports alignment with LEED requirements for biking infrastructure (i.e., racks and showers) and can support achievement of LEED certification.

ESTI-2: Design new parking structures and retrofit existing ones to minimize congestion, idling, and related environmental impacts and to improve passenger experience.

Parking structures offer several opportunities to improve efficiency and, consequently, environmental benefits. For example, having more lanes or booths at the entrance and exits of a lot or additional signage guiding drivers toward available spaces can reduce congestion, idling, and overall miles driven, with the related benefits in terms of emissions reduction. Some of these tactics are included in ParkSmart, a dedicated certification program for parking structures that provides guidelines on how to implement efficient design and choose efficient technologies. The Airport is already adopting ParkSmart tactics for new structures (e.g., Terminal 2 Parking Plaza). Parking infrastructure will also need to consider the impact autonomous vehicles could have in terms of land use and consequently parking design (i.e., less parking may be required, and consequently existing structures would need to be converted to different uses). The Authority is currently participating in the San Diego Regional Autonomous Vehicle Proving Grounds project that is being led by SANDAG.



4. Employee Transportation

Unlike the traveling public and community, who access the Airport on an infrequent basis, employees are the Airport's biggest users, accessing the Airport daily and impacting congestion, parking, and local emissions. The two main topics discussed in this focus area are employee commute and business travel (Table 7).

Table 7: Employee Transportation Initiatives and Tactics

ID	Initiative	Goals Supported	Tactics	Authority Lead Department	Time Horizon
ET-1	Support the reduction of employee commute by developing dedicated policies, programs, and incentives.	#2	Provide training and post flyers to encourage eco-friendly driving habits.	P&E	Near-Term
			Provide subsidized train and/ or bus passes to employees and construction workers.	P&E	Ongoing
			Encourage telecommuting and off-site work.	P&E	Near-Term
			Allow employees to adopt alternative work schedules.	P&E	Near-Term
			Create motorcycle/scooter parking for employees.	P&E	Mid-Term
			Provide employees with bicycles and related infrastructure (e.g., storage space, bike paths) to move within Airport boundaries both airside and landside.	P&E	Mid-Term
			Create an employee ride board to support carpooling.	P&E	Near-Term
			Provide incentives such as rebates and/or preferred parking for staff vanpools/carpools.	P&E	Ongoing
ET-2	Establish policies to manage and reduce emissions related to staff business travel.	#2	Utilize conference calls and web-based conferences when possible to reduce emissions from transportation.	P&E	Ongoing
			Select public transportation accessible venues/hotels (with directions provided) for employee business travel.	P&E	Near-Term
			Require use of rental vehicles with high fuel economy/alternative fuels.	P&E	Near-Term
			Provide incentives for shared rides in taxis and TNCs.	P&E	Near-Term

P&E - Planning & Environmental Affairs

Near-Term - 0-5 Years
Mid-Term - 5-10 Years
Long-Term - 10+ Years

Initiatives

ET-1: Support the reduction of employee commute by developing dedicated policies, programs and incentives.

The Authority includes roughly 400 employees, while other badged personnel, including tenants and contractors, account for roughly 7,100 people.

Based on results from a 2013 employee survey, over three quarters (78%) of respondents rely exclusively on private vehicles to complete their commute, while only 4 percent of respondents consistently use public transportation. The main reasons provided by respondents for this outcome is the lack of convenient public transit connections to the Airport and, consequently, longer commute times.

In addition to improving the convenience and efficiency of traveling to and from the Airport using public transit, which is a separate focus area in this plan, the Authority intends to implement initiatives that aim at reducing the environmental impact of employee commute. One of the options being considered is increasing flexibility for employees by encouraging telecommuting and allowing alternative work schedules, if appropriate for their duties and the Authority's business needs. This would help avoid trips to the Airport, reducing emissions and congestion in addition to fostering potential productivity gains. Other tactics that are being considered have the goal of making commutes more sustainable. These tactics include incentives for carpooling and vanpooling that can range from preferred parking locations and reduced fees to the creation of a ride board that can help match routes for employees interested in sharing rides, such as the iCommute program mentioned earlier in the plan. Providing infrastructure such as EV charging stations dedicated to employee vehicles (refer to initiative AFVE - 2) can also support emission reductions as adoption of EVs increases.

ET-2: Establish policies to manage and reduce emissions related to staff business travel.

Monitoring and reducing GHG emissions generated by employee business travel is a topic that is especially relevant for the Authority considering its implications for the Airport Carbon Accreditation (ACA) program. Business travel is the only Scope 3 source that is required to be included in the GHG inventory for purposes of obtaining and maintaining ACA certification. While the focus will be on avoiding travel, when possible, by increasing the use of teleconference and web-based applications, in many cases travel needs to occur. To reduce its impact, the Authority will work on the development of policies or guidelines that will encourage and guide employees in choosing low emission rental vehicles, staying in hotels and venues with close connection to public transit, and sharing taxi/TNC rides when feasible. Residual carbon emissions from Authority employee business travel will be offset annually as part of the organization's broader efforts to achieve and maintain ACA Level 3+ certification.

5. Congestion and Emissions Reduction

While some of the other focus areas touch upon the issues related to congestion and emissions reduction, the scope of this focus area covers a broader set of topics that are part of the clean transportation discussion, including issues such as idling, impacts of delivery trucks, education and best practices, and use of new and emerging ideas and technologies (Table 8).

Table 8: Congestion and Emissions Reduction Initiatives and Tactics

ID	Initiative	Goals Supported	Tactics	Authority Lead Department	Time Horizon
CER-1	Continue to manage and support programs to facilitate shared vehicle usage.	#4	Create carpool drop-off areas.	P&E/FMD	Near-Term
			Increase shuttle services to mass transit.	P&E/GT/FMD	Near-Term
			Support the implementation of vanpooling services for all Airport agencies and vendors.	P&E/GT	Ongoing
			Encourage use and communicate benefits of shared vehicle usage among passengers	P&E/MAS	Ongoing
CER-2	Reduce congestion caused by delivery trucks by identifying adequate policies and infrastructure.	#5	Continue using the north-side delivery consolidation center to reduce delivery traffic and explore opportunities for further improvement and higher efficiency.	PRO/A&T/FMD	Ongoing
			Develop a program that requires off-peak delivery schedules when possible.	P&E/FMD/ RGP/A&T	Near-Term
CER-3	Develop and enforce a vehicle anti-idling plan.	NA	Verify Airport's idling plan is in alignment with current California anti-idling laws.	P&E	Near-Term
			Strengthen and enforce existing anti-idling policies.	P&E	Near-Term
			Educate all Airport users (employees, contractors, passengers, etc.) on idling policies.	P&E/MAS	Ongoing
			Install anti-idling devices on all Authority-owned vehicles.	P&E/FMD	Near-Term
CER-4	Explore the possibility of using new and emerging ideas and technologies (e.g., autonomous vehicles) within the Airport to improve local transportation times and reduce congestion.	#1-2-3-4-5	Monitor achievements in autonomous and connected vehicle technology to identify appropriate timing of implementation.	P&E/FMD/GT	Ongoing
			Explore potential use for standard on-site operations such as rental car and parking shuttle services.	P&E/FMD/GT	Ongoing
			Coordinate with transit providers on potential transit connectivity, frequency, and other improvements related to autonomous and connected vehicle technology.	P&E/FMD/GT	Ongoing

A&T - Airside & Terminal Operations
FMD - Facilities Management
GT - Ground Transportation
MAS - Marketing & Air Service Development
P&E - Planning & Environmental Affairs
PRO - Procurement
RGP - Revenue Generation & Partnership Development
Near-Term - 0-5 Years
Mid-Term - 5-10 Years
Long-Term - 10+ Years

Initiatives

CER-1: Continue to manage and support programs to facilitate shared vehicle usage.

Shared rides such as vanpools and carpools are an effective way to reduce the number of vehicles on the road. While employee adoption for these practices seems to be more applicable, for passengers this practice can happen through ground transportation providers such as Airport shuttle services and TNCs. The Authority intends to support the adoption of these practices internally by providing employees with incentives and tools and externally by making it easier and more convenient for travelers and visitors to choose the rideshare options (e.g., dedicated drop-off areas, parking incentives).

CER-2: Reduce congestion caused by delivery trucks by identifying adequate policies and infrastructure.

Optimizing deliveries can be another option to gain benefits in terms of emissions reduction from vehicles operating at the Airport. The Authority has already established a north-side delivery consolidation center and intends to build on this initiative to further improve delivery efficiency. Other aspects that will be explored are the development of an off-peak delivery program that would shift deliveries for when congestion at the Airport is not at critical levels and to encourage suppliers to use low emission vehicles.

CER-3: Develop and enforce a vehicle anti-idling plan.

Idling can significantly contribute to vehicle emissions, and the Authority intends to pursue plans to reduce the activity. While idling regulations are already in place at the Airport, there are no formal procedures for enforcement. Combining some of the tactics included in this plan, which include better understanding of regulations, developing a policy for enforcement, and educating internal and external Airport users, should allow the Authority to reduce idling at the Airport. It will also be important to ensure that all Authority-owned vehicles still running on fossil fuels have anti-idling devices installed.

CER-4: Explore the possibility of using new and emerging ideas and technologies (e.g., autonomous vehicles) within the Airport to improve local transportation times and reduce congestion.

Clean transportation and mobility advancements are some of the areas where innovation is currently showing encouraging progress. Solutions ranging from electric or fuel cell-powered vehicles (cars, trucks, etc.) to autonomous vehicles and Hyperloop[6] could all influence Airport operations directly or indirectly. For this reason, the Authority intends to monitor progress and the evolution of technology in the mobility sector and respond accordingly, potentially using new technologies to shape a more efficient and environmentally sound future for the Airport and region as a whole.

6. Construction

Airports are complex facilities that need to keep up with and manage a variety of external and internal issues such as changes in passenger needs and air traffic volumes, security needs, technological advancements, regulations, and capital projects and routine renovations. This often entails the need for large and complex construction projects that disrupt normal Airport activities and impact the environment in many ways, including by increasing emissions from mobile equipment. The Authority decided to include construction (Table 9) under clean transportation with the goal of working toward the reduction of impacts from contractor vehicles and equipment during construction projects.

Table 9: Construction Initiatives and Tactics

ID	Initiative	Goals Supported	Tactics	Authority Lead Department	Time Horizon
C-1	Define appropriate sustainability requirements that contractors bidding on construction projects need to meet to be considered or to have better scoring during the selection process.	#5	Require that construction vehicles go through a Tier compliant and retrofit program (e.g., retrofit all pre-Tier, Tier 1, and Tier 2 construction vehicles).	P&E	Ongoing
			Require use of alternatively-fueled and/or hybrid construction vehicles if applicable.	P&E	Ongoing
			Bus construction workers into the construction site from consolidated vehicle parking/staging areas to reduce security checkpoint delays and emissions from individual riders and vehicle idling.	GT/FMD/P&E	Ongoing
			Require contractors to demonstrate that vehicles have installed low emission engines, particulate filters and diesel oxidation catalysts on construction vehicles.	P&E	Ongoing
			Reward (with higher evaluations) proposals that include alternative construction methods and techniques that require limited use of vehicles.	PRO/SBD/RGP	Ongoing

FMD - Facilities Management
GT - Ground Transportation
P&E - Planning & Environmental Affairs
PRO - Procurement
RGP - Revenue Generation & Partnership Development
SBD - Small Business Development

Initiatives

C-1: Define appropriate sustainability requirements that contractors bidding on construction projects need to meet to be considered or to have better scoring during the selection process.

The market currently does not offer many options in terms of alternative-fueled construction vehicles (e.g., excavators, bulldozers). While alternative solutions are identified, tested, and eventually commercialized, the Authority intends to work towards the reduction of emissions from transportation-related construction by providing incentives to contractors that adopt sustainable measures during the development of projects. One way that the Authority is currently trying to achieve this is to include sustainability as one of the evaluation criteria in the contractor selection process. For example, Requests for Proposals could specify that bidding contractors must use retrofitted and compliant equipment and hybrid or alternative-fuel vehicles with low emission engines, particulate filters, and diesel oxidation catalysts. Contractors that can show compliance to all or some of these requirements could have advantages in the selection process.

7. Public Transit

Increasing the use of public transit for accessing the Airport is an ambitious goal that the Authority intends to address given the environmental benefits that are related to increased public transit use. Based on passenger and employee surveys, utilization in the past decade has consistently been between 3–5 percent. Increasing the number of public transit users is difficult because the Airport lacks direct connections to rail lines. There are four main public transportation routes that allow access to the Airport (as of Summer 2018):

- Metropolitan Transit System (MTS) 992 bus line. This line stops at the Terminals and is the most direct transit connection to the Airport.
- The Trolley (Green line). Connected to the Terminal though dedicated Authority-operated shuttles.
- The Coaster commuter train operated by the North County Transit District. Connected to the Airport at the Santa Fe Depot through MTS Route 992 bus.
- Amtrak. Connected to the Airport at the Santa Fe Depot through MTS Route 992 bus.

Additionally, there are land availability constraints and regulations that limit the Airport from using its own funding to develop offsite transit infrastructure. In this context, the ongoing collaboration with other regional agencies aimed at improving connections between public transit and the Airport and communication and education of Airport users represent key strategies to pursue to support the growth of public transit utilization (Table 10).

Table 10: Public Transit Initiatives and Tactics

ID	Initiative	Goals Supported	Tactics	Authority Lead Department	Time Horizon
PT-1	Work toward increasing public transit ridership for passengers and employees by improving infrastructure and connections to existing modes of mass transportation.	#4	Provide direct, safe access to commuter rail station or bus stop.	ADC	Ongoing
			Improve information and services related to public transit for passengers (e.g. information displays and ticket vending machines in baggage claim area, social media posts).	P&E	Ongoing
			Preserve a transit station area that could directly serve the terminals and integrate into future regional transit network expansions	ADC/FMD	Ongoing
			Maximize public transit marketing and passenger information, utilizing Airport and non-Airport information channels.	MAS/FMD/ ADC/P&E/GT	Mid-Term
			Enhance the new Trolley access, building on the Trolley-to-Terminal connection, utilizing the new exclusive Airport roadway and bus stop.	MAS/FMD/ ADC/P&E/GT	Mid-Term
			Convert the existing MTS bus route between the Airport and downtown San Diego, Route 992, to a "Rapid" route, with improvements to the operations on the Airport and on the route through downtown.	MAS/FMD/ ADC/P&E/GT	Mid-Term
			Partner with transit operators to launch a shuttle service from the Old Town Transit Center and Amtrak Station to the Airport.	MAS/FMD/ ADC/P&E/GT	Mid-Term

ADC - Airport Design & Construction
FMD - Facilities Management
GT - Ground Transportation
MAS - Marketing & Air Service Development
P&E - Planning & Environmental Affairs

Near-Term - 0-5 Years
Mid-Term - 5-10 Years
Long-Term - 10+ Years

Initiatives

PT-1: Work toward increasing public transit ridership for passengers and employees by improving infrastructure and connections to existing modes of mass transportation.

The lack of direct connections to the Airport represents the main cause for the low utilization of public transit by both passengers and employees. Strengthening the connection to existing routes and creating new ones that are more convenient and better connected to the Terminals are two key parts of the strategy the Authority intends to implement. To evaluate this situation, the Authority completed the 2016 Airport Transit Plan to identify options that could increase public transit ridership. Four recommendations were selected based on their feasibility and potential benefits:

- Maximize marketing to promote public transport.
- Enhance the new Trolley-to-Terminal Shuttle service from Middletown Station.
- Convert bus line 992 to a "Rapid" route.
- Consider a transit line from the Old Town Transit Center and Amtrak Station to the Airport.

More recently, the Airport Authority has partnered with SANDAG to create a new "Airport Connectivity Subcommittee." The Subcommittee, which also has representatives from the City of San Diego, Port of San Diego, MTS, and North County Transit District, is working to analyze a mix of mobility options that could help increase transit ridership for passengers and employees. The results of this analysis will inform the development of new airport transit connections and programs that may be included in the upcoming 2021 Regional Transportation Plan.

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04

Funding Sources and Strategy

The Authority has established a process for identifying and positioning for potential funding opportunities for GHG and emission-reduction initiatives.

Considering the challenges associated with raising capital for project development, being able to identify and have access to available funding sources will allow for a successful implementation of the initiatives outlined in this plan.

For this reason, the Authority will be regularly monitoring potential grant opportunities in addition to available funding put aside in the Airport's annual operating budget or for capital improvement projects detailed in the CIP and ADP. It should be noted that airports do not receive revenue from local taxes, but rather are financially self-sufficient enterprises relying on user fees. In addition, there are federal restrictions for using this revenue for non-airport purposes.

Currently, there is a range of potential funding opportunities, both specific to the aviation industry or for transportation projects in general, that could be pursued and that are provided by the FAA, local and state government, or other sources such as the Volkswagen Settlement Agreement. Table 11 provides a summary of these options.

Table 11: Potential Funding Sources for Clean Transportation Initiatives

Funding Program	Program Summary	Potential Areas for Application
FAA's Voluntary Airport Low Emissions (VALE) program	• As summarized on the FAA website: VALE improves airport air quality and provides air quality credits for future airport development. Created in 2004, VALE helps airport sponsors meet their state-related air quality responsibilities under the Clean Air Act. Through VALE, airport sponsors can use Airport Improvement Program funds and Passenger Facility Charges to finance low emission vehicles, refueling and recharging stations, gate electrification, and other airport air quality improvements.[7]	The Authority has been successfully using VALE funding and will continue doing so to help enact projects that reduce GHG and air pollutant emissions at the Airport including transportation projects.
FAA's Airport Zero Emissions Vehicle and Infrastructure Pilot Program	• As summarized on the FAA website: The Airport Zero Emissions Vehicle (ZEV) and Infrastructure Pilot Program improves airport air quality and facilitates use of zero emissions technologies at airports. Created in 2012, the program allows airport sponsors to use Airport Improvement Program (AIP) funds to purchase ZEVs and to construct or modify infrastructure needed to use ZEVs (also add note with the following link https://www.faa.gov/airports/environmental/zero_emissions_vehicles/)	The Authority can use this program to fund project that involve the purchase of airport-owned on-road zero emission vehicles (e.g., all-electric or hydrogen powered drive trains) and construction or modification of infrastructure to facilitate fuel delivery to funded ZEVs.

Funding Program	Program Summary	Potential Areas for Application
Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)	• The CARB in partnership with CALSTART launched the HVIP and Low NOx Engine Incentives in 2009 to accelerate the purchase of cleaner, more efficient trucks and buses in California. HVIP provides point-of-sale discounts to vehicle purchasers (i.e., no rebate check or tax credit). HVIP works closely with truck and bus dealers to apply the voucher incentive at the time of purchase.[8]	The Authority can use this program to purchase heavy-duty vehicles or shuttle buses with low emissions to improve the overall performance of its fleet.
Clean Vehicle Rebate Project (CVRP)	• CVRP promotes clean vehicle adoption by offering rebates of up to $7,000 for the purchase or lease of new, eligible zero-emission vehicles, including electric, plug-in hybrid electric and fuel cell vehicles. As long as funds are available, eligible California residents can follow a simple process to apply for a CVRP rebate after purchasing or leasing an eligible vehicle. Besides CVRP, CARB offers the Public Fleet Pilot Project, which replaces standard CVRP rebates with increased incentives for public agencies operating in California's most vulnerable and pollution-burdened areas. Public agencies are eligible for up to 30 vehicle rebates annually.[9]	This rebate program can be used to purchase low emissions vehicles including: fuel cell and battery EVs, plug-in hybrid EVs, or electric motorcycles.
FAA Modernization and Reform Act (FMRA), Section 512	• Section 512 of the FMRA encourages public-use airports to identify opportunities to increase energy efficiency and directs the Department of Transportation to consider grants for the airport to acquire or construct equipment, including hydrogen equipment and related infrastructure, to achieve the goal of increasing energy efficiency.	This funding program could potentially be used to help fund several CTP initiatives, especially those related to alternative fuel vehicles and related fueling infrastructure.

Funding Program	Program Summary	Potential Areas for Application
CARB's Carl Moyer program	• As summarized on CARB's website: The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) provides grant funding for cleaner-than-required engines and equipment. Local air districts administer these grants and select which projects to fund. CARB works collaboratively with the districts and other stakeholders to set guidelines and ensure the Program reduces pollution and provides cleaner air for Californians. The Carl Moyer Program achieves reductions in emissions of key pollutants which are necessary for California to meet its clean air commitments under regulatory requirements. Eligible projects include cleaner on-road trucks, school and transit buses, off-road equipment, marine vessels, locomotives, agricultural equipment, light-duty vehicle scrap, and lawn mowers.[10]	This air quality-specific funding can be used to reduce air pollutants. Some of the vehicle and equipment upgrades result in less fossil fuel combustion, and thereby also reduce GHG emissions. It is believed that this program can be used by the Authority, airlines, and shuttle operators to assist in securing funds for equipment not mandated by federal, state, or local regulations.
Volkswagen (VW) Settlement Fund	• As summarized on the USEPA website: The U.S. government and VW have resolved allegations that VW violated the Clean Air Act by selling approximately 590,000 vehicles equipped with defeat devices. As a part of this settlement, VW will provide $2.7 billion for the 2.0-liter violating vehicles and $225 million for the 3.0-liter violating vehicles to an Environmental Mitigation Trust. Funds from the trust will be used to fully remediate the excess NOx emissions from the illegal vehicles. • Beneficiaries may select from a defined list of ten Eligible Mitigation Actions that have proven records of reducing NOx emissions. These Eligible Mitigation Actions can be found in Appendix D of the Consent Decree.	To date, the Authority has applied for funding from this program for four initiatives that will reduce GHGs as well as air pollutants: • Employee EV Charging Stations • Passenger EV Charging Stations • Airside Electric Charging Infrastructure • ZEV Outreach & Incentives for Taxis/TNCs
California GHG Reduction Fund: Transportation and Sustainable Communities Funding Programs » Public transportation improvements could help increase non-vehicle trips to the airport. » All have the co-benefit of air quality improvements » The Authority could coordinate with the appropriate transportation agencies to apply for funding		

Funding Program	Program Summary	Potential Areas for Application
CalSTA Transit and Intercity Rail Capital Program	• Transformative capital improvements that modernize California's intercity rail, bus, ferry and rail transit system • Connectivity to existing/future rail systems by adding new rail cars/engines • Increased service and reliability, and decreased travel times of intercity and commuter rail systems • Rail integration (e.g. integrated ticketing and scheduling)	Focus areas including Employee Transportation, and Public Transit.
Caltrans Low Carbon Transit Operations Program	• New/expanded bus, rail services, or expanded intermodal transit facilities • Service or facility improvements, e.g. equipment, fueling, and maintenance • Priority on serving disadvantaged communities	Focus areas including Employee Transportation and Public Transit.
Caltrans Active Transportation Program	• Bike facilities • Pedestrian facilities	Focus areas including Employee Transportation and Congestion and Emission Reduction.
Strategic Growth Council Affordable Housing and Sustainable Communities Program	• Transit-oriented development • Intermodal affordable housing • Transit capital projects • Active transportation/complete streets • Local planning and implementation	Focus areas including Employee Transportation, and Public Transit.
California Air Resources Board Low Carbon Transportation	• Zero and near-zero emission passenger vehicle rebates • Heavy duty hybrid/ZEV trucks and buses • Freight demonstration projects • Pilot programs (car sharing, financing, etc.)	Primarily the Alternative Fuels and Vehicle Efficiency Focus area.

CARB - California Air Resources Board
CTP - Clean Transportation Plan
CVRP - Clean Vehicle Rebate Project
EV - electric vehicle
FAA - Federal Aviation Administration
FMRA - FAA Modernization and Reform Act
GHG - greenhouse gas
HVIP - Hybrid and Zero Emission Truck and Bus Voucher Incentive Project
NOx - nitrogen oxides
TNC - Transportation Network Companies
VALE - Voluntary Airport Low Emissions
VW - Volkswagen
ZEV - zero-emissions vehicle


N2

05

Implementation and Monitoring Program

The Authority has developed a monitoring program to track progress of the clean transportation strategy and facilitate data collection, sharing, evaluation, and reporting from and among Airport stakeholders.

The CTP is meant to be an operational plan for the Airport to reduce the reliance on fossil fuels, reduce GHG emissions, support the growth of sustainable transportation and allow for ongoing, future program assessment and evaluation. The plan is intended to be a hands-on management tool that will be regularly referenced and updated as needed or required. This will be particularly important in consideration of the fast-paced changes occurring in business models, technology, and regulations related to ground transportation. Therefore, robust supporting tools and resources are appropriate so that the implementation plan can serve its primary purpose – to support and enable the clean transportation management program and monitor progress toward meeting established goals and targets.

The Authority currently tracks several ground transportation-related metrics, including the following:

- Number and age of Authority-owned vehicles and equipment in addition to in addition to the type of fuel used.
- Number of GSE, type of fuel used, and age of equipment.
- Number and type of vehicles accessing the Airport.
- Fuel types used by taxis and other ground transportation providers and average GHG emission levels for TNC fleets.
- Public transit ridership for some of the lines connecting to the Airport.

Further, the annual GHG inventories conducted in ACERT and reported to ACA provide a deeper level of detail on the Airport's mobile GHG emission sources. These inventories therefore support detailed monitoring of the Authority's progress towards meeting specific ground transportation GHG reduction goals and targets, and potentially tracking the success of specific initiatives. Essentially the combination of the metrics listed above and the historical GHG data gathered on a yearly basis captures monitoring of all goals and targets developed in the plan.

Additionally, progress towards the achievement of goals and implementation of GHG reduction initiatives is communicated in the Authority's annual Sustainability Report. This report, available online at sustain.san.org, is developed in accordance with the Global Reporting Initiative (GRI) standards and provides updated information for several of the Authority's sustainability focus areas, including sustainable transportation

Table 12 summarizes the established goals and targets and the monitoring approach that will be used. In addition to the above monitoring protocol, the Authority also maintains a one-page Clean Transportation monitoring dashboard, and also uses various spreadsheets and monitoring tools to compile data, track progress, and monitor implementation of activities (e.g., ACERT, Authority Fleet Inventory, GSE Inventory).

Table 12: CTP Goals and Targets

Aspirational Goals	Metric(s)	Target(s)	Monitoring
1. Move Toward A Zero-Emission Fleet Minimize the Airport's reliance on fossil fuels for Authority fleet vehicles and equipment	Conversion of Authority-owned vehicles to hybrid, electric, or alternative fuels	100% by 2035	Vehicle Fleet Inventory spreadsheet is updated periodically and accounts for all owned vehicles. Reports fuel type and age of vehicles among other information.
	Conversion of Authority-owned equipment to hybrid, electric, or alternative fuels	100% by 2035	Equipment Fleet Inventory spreadsheet is updated periodically and accounts for all owned vehicles. Reports fuel type and age of vehicle among other information.
2. Provide Fueling Infrastructure for Low Emission Vehicles Provide enabling infrastructure for electric and other alternative fuel vehicles used by employees, passengers, and tenants	Airport-wide parking (employee, passenger, etc.) designated for clean air vehicles* and/or EV-ready with pre-wiring	Step 1: 20% by 2035 Step 2: 50% by 2035	Authority keeps track of clean air vehicle parking spaces. EV charging station, and prewired slots.
3. Minimize Impact of Ground Transportation Operators Incentivize adoption of low carbon strategies by ground transportation operators	Use GHG rating (GGR**) to measure GHG intensity (gCO_2e/mile) of ground transportation providers (taxis, shuttle buses, hotel vans, limos, TNCs, etc.)	Step 1: GGR of 9 by 2020 Step 2: GGR of 10 by 2030	GGR is reported by taxis and TNCs every 3 months.
4. Promote and Support Use of Public Transit Provide regional leadership, collaboration, and infrastructure to increase use of public transit and other sustainable methods of transportation	Passengers/employees that use sustainable transportation methods (e.g., public transit, vehicles sharing options such as carpool/vanpool, bicycle) to travel to/from the Airport	15% by 2035	Authority currently tracks ridership for the Trolley. Data for other transportation methods should be provided by MTS and through employee and passenger surveys.
5. Support Emissions Reduction by Third Parties Encourage and help propel reductions in air emissions from airline, tenant, contractor, and construction vehicles and equipment	Conversion of non-Authority vehicles to hybrid, electric or alternative fuels***	100% by 2035	Based on lease agreements and permits, the Authority should track number of vehicles operating at the Airport and type of fuel they use.

** "Any combination of low-emitting, fuel-efficient and carpool/van pool vehicle" (CalGreen 2016)*
*** A Greenhouse Gas Rating of 9 is assigned to vehicles with CO_2e emissions between 205-237 grams/mile, while a GGR of 10 is for vehicles with emissions between 0-204 grams/mile. (www.fueleconomy.gov)*
**** While certain alternative vehicles may be "commercially available," other factors – such as safety concerns, operational characteristics, and fueling infrastructure availability – must be taken into consideration in order to justify their deployment.*

EV - Electric vehicle
GHG - Greenhouse gases

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Airside & Terminal Operations (A&T)
Airside Security & Public Safety (ASP)
Facilities Management (FMD)
Ground Transportation (GT)
Planning & Environmental Affairs (P&E)
Revenue Generation & Partnership Development (RGP)

Endnotes

[1] *In the 2015 GHG inventory, ground transportation-related emissions accounted for 23.2% of the total.*
[2] *Aircraft operations and the emissions associated with air travel are discussed in the Airport's Carbon Neutrality Plan.*
[3] *http://parksmart.gbci.org/certification*
[4] *Since 2016, the Authority uses the Airport Carbon and Emissions Reporting Tool (ACERT) developed by Airports Council International to complete all GHG inventory updates, which provides consistent reporting of emissions from the categories listed. More detailed information on the ACERT tool and results can be found in CNP.*
[5] *Data from the "Where we ride - Analysis of bicycle commuting in American cities" report based on U.S. Census Bureau data http://bikeleague.org/sites/default/files/LAB_Where_We_Ride_2016.pdf*
[6] *Hyperloop is a land-based high-speed mass transportation system currently being tested and evaluated through feasibility studies and pilot projects. More information can be found at https://hyperloop-one.com/*
[7] *https://www.faa.gov/Airports/environmental/vale/*
[8] *https://www.californiahvip.org/*
[9] *https://cleanvehiclerebate.org/eng*
[10] *https://www.arb.ca.gov/msprog/moyer/moyer.htm*

SAN DIEGO INTERNATIONAL AIRPORT

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