Sustainability Plan 2020

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Message from VTA's General Manager and CEO

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VTA General Manager and CEO

The Santa Clara Valley Transportation Authority has always been a champion of environmental sustainability, and we are about to double down on those efforts to help protect our environment. Sustainable practices are at the core of VTA's mission to provide transportation solutions, and fundamental to how we do business.

I am proud of VTA's accomplishments to reduce energy use and conserve water. Given the climate emergency and challenges our region and state currently face, we must take aggressive action to protect our planet for our children and grandchildren.

The creation of VTA's first Sustainability Plan is much more than a planning exercise. It provides a roadmap to guide our actions toward specific targets and provides a pathway to a more sustainable future. It is an opportunity for every employee, elected official, and every community member to reflect on their contribution to a healthy, resilient, and sustainable environment.

I invite you to read the Plan, track our progress, and partner with us to become part of the solution.

Sustainability at VTA

VTA has long valued sustainability as part of its mission. In 2008, the Sustainability Program was approved by VTA's Board of Directors with the goal "to strengthen VTA's commitment to the environment by reducing the consumption of natural resources, the creation of greenhouse gases, and the generation of pollution in the provision of public transportation services." In 2009, VTA became a founding signatory to the American Public Transportation Association's (APTA) Sustainability Commitment and pledged to meet the following goals:

1. Making sustainability part of the organization's strategic objectives.
2. Identifying a sustainability champion within the organization coupled with the proper human and/or financial resources and mandates.
3. Establishing an outreach program (awareness raising and education) on sustainability for all organization staff.
4. Undertaking an annual inventory for the organization of the APTA sustainability indicators.

Since signing the Sustainability Commitment, VTA made many improvements to reduce energy, water, and waste; adopted policies to support sustainability goals; and implemented a utility management system to help track usage. These actions achieved gold-level recognition from APTA in 2016. Figure 1 provides a visual representation of VTA's Sustainability Program and highlights major milestones to date. A complete list of past achievements for each year is documented in prior annual sustainability reports.

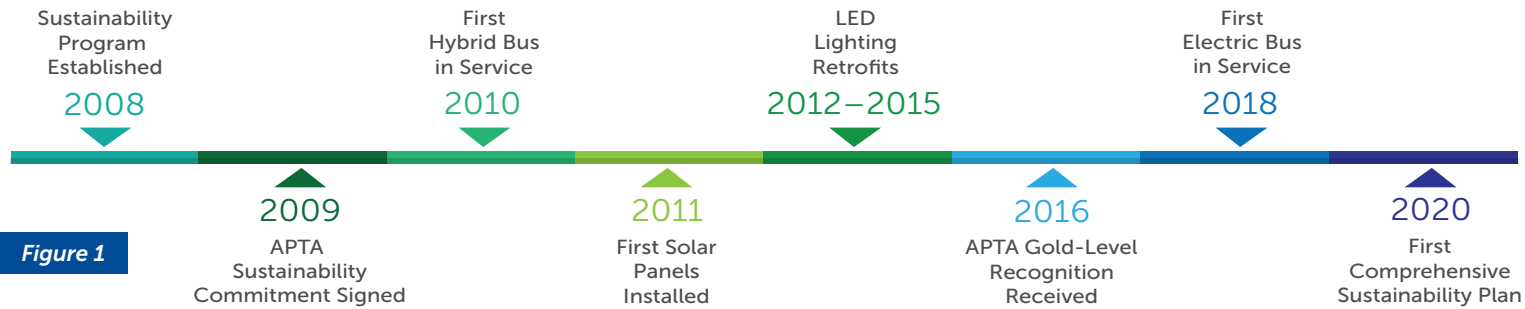


Figure 1

Reporting Framework

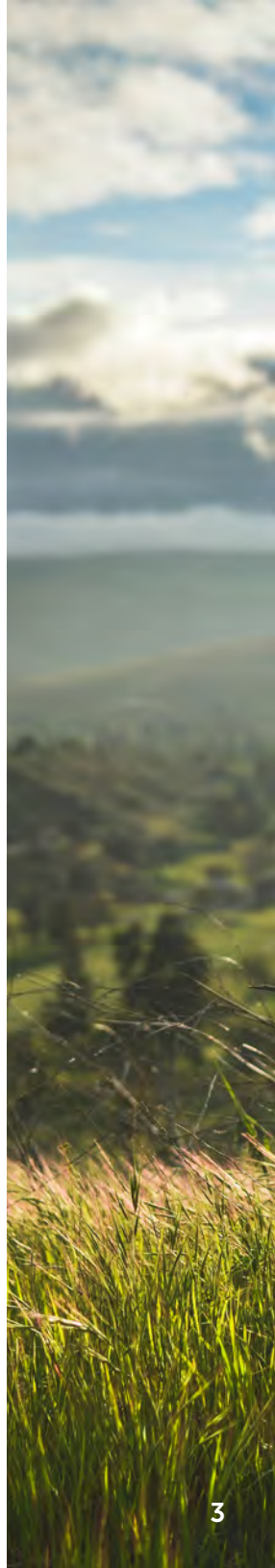
The purpose of this Sustainability Plan (Plan) is to set agency-wide objectives and targets to guide VTA's Sustainability Program through 2040. In February 2020, VTA's Board of Directors adopted a resolution declaring a climate emergency. Among other things, the resolution directed VTA to identify specific metrics to guide its response to climate change. The Plan is a direct response to this urgent call to action, creating a bold roadmap for VTA. It recognizes that aggressive actions are necessary, not only to meet VTA's commitment to continual improvement, but also to halt, reverse, restore, mitigate, and prepare for the consequences of climate change (VTA 2020).

The Sustainability Plan employs the following terminology:

- **Key Performance Indicator (KPI):** Focus areas selected to measure performance
- **Objective:** Overall goal VTA seeks to achieve within each indicator area
- **Target:** Specific metric to achieve within a set timeframe.

Sustainability metrics are used to measure VTA's performance over time. The five KPIs tracked by VTA include greenhouse gas (GHG) emissions, criteria air pollutants, energy use (buildings and fleet), water, and waste. Fiscal Year (FY) 2009 was selected as the baseline year based on available data. The sustainability metrics are applicable to the facilities and fleet under the operational control of VTA. The data found in this Plan is derived from utility bills, invoices, and fuel and mileage reports, and is as accurate and complete as these data sources allow.

The sustainability metrics and methodology used in the Plan generally follow APTA's recommended practices for transit agencies and protocol from the International Council for Local Environmental Initiatives. The Plan also supports VTA's efforts to apply for a higher recognition under APTA's Sustainability Commitment. To achieve a platinum level of recognition, VTA must implement 40 action items, reduce by 10 percent below baseline for at least two indicators, reduce by five percent below baseline for at least another two indicators, reduce by two percent below baseline for all other indicators, and commit to achieving further reductions and stretch goals. Additional information on the methodology and assumptions used to calculate and track sustainability metrics is available upon request.



Sustainability Objectives and Targets

Objectives and targets for each KPI are summarized in Table 1 and discussed in detail under each indicator area. Fiscal Year (FY) 2025 was selected as a short-term target and FY 2040 was identified as a stretch target for the future. The targets are informed by an analysis of trends from historical data collected from FY 2009 through FY 2019 and compiled into an inventory. To account for annual fluctuations, a moving average over the past ten years was calculated. The targets are based on existing VTA policies; State, regional, and local plans on climate and the environment; and targets adopted by other APTA-member transit agencies. While the targets are connected to specific years to be measurable, they remain flexible, and may change based on new legislation, technology, and information. The Sustainability Plan will be reviewed and updated as needed, and if feasible, coincide with updates to VTA's Strategic Plan. All data is presented as an absolute value. Normalized results are provided in the Appendix.

Table 1 *Sustainability Objectives and Targets at a Glance*

Key Performance Indicator[1]	Objective[2]	Targets[3]
Greenhouse Gas Emissions	Reduce greenhouse gas (GHG) emissions generated	• Reduce GHG emissions by 60% by FY 2025 • Reduce GHG emissions by 90% by FY 2040
Criteria Air Pollutants[4]	Reduce criteria air pollutant emissions generated	• Reduce criteria air pollutant emissions by 80% by FY 2025 • Reduce by criteria air pollutant emissions by 95% by FY 2040
Building Energy	Reduce building energy consumption	• Reduce building energy consumption by 15% by FY 2025 • Reduce building energy consumption by 40% by FY 2040
Fleet Energy	Reduce revenue fleet energy consumption	• Reduce revenue fleet energy consumption by 35% by FY 2025 • Reduce revenue fleet energy consumption by 60% by FY 2040
Water	Reduce potable water use	• Reduce potable water use by 45% by FY 2025 • Reduce potable water use by 60% by FY 2040
Waste Diverted	Increase waste diversion rate	• Increase waste diversion rate to 50% by FY 2025 • Increase waste diversion rate to 80% by FY 2040

[1] As recommended by the American Public Transportation Association (APTA).

[2] Overall goal VTA seeks to achieve.

[3] Quantitative measures to track performance over time compared to Fiscal Year (FY) 2009 baseline.

[4] Emissions from Reactive Organic Gas, Nitrogen Oxide, Carbon Monoxide, and Particulate Matter.

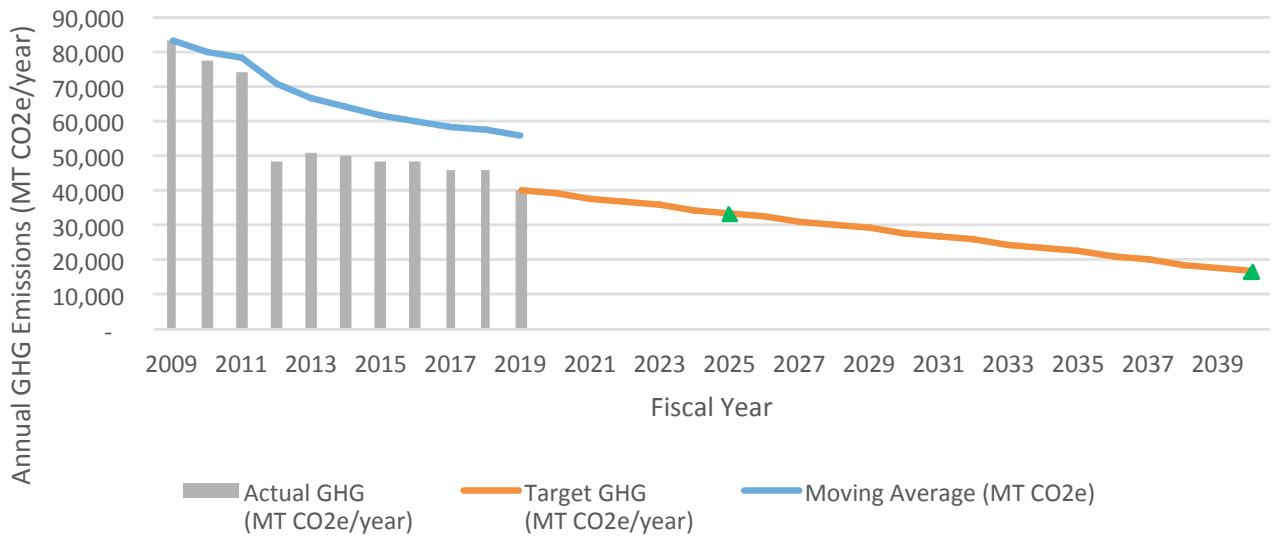
Greenhouse Gas Emissions

Short-Term Target: Reduce GHG emissions generated by 60 percent below FY 2009 levels by FY 2025.

Stretch Target: Reduce GHG emissions generated by 90 percent below FY 2009 levels by FY 2040.

GHGs include carbon dioxide, methane, and nitrous oxide, and are reported as metric tons of carbon dioxide equivalent (MT CO2e). In FY 2019, VTA generated 40,055 MT CO2e of GHG emissions. To reach the short-term target, VTA would need to reduce annual GHG emissions to 33,346 MT CO2e by FY 2025. This represents a reduction of 6,709 MT CO2e from the FY 2019 level (equivalent to taking approximately 1,458 passenger cars off the road for one year [EPA 2020]). To reach the stretch target, VTA would need to reduce annual GHG emissions to 16,673 MT CO2e by FY 2040. This is a reduction of 23,382 MT CO2e from FY 2019 level (equivalent to taking approximately 5,083 passenger cars off the road for one year [EPA 2020]).

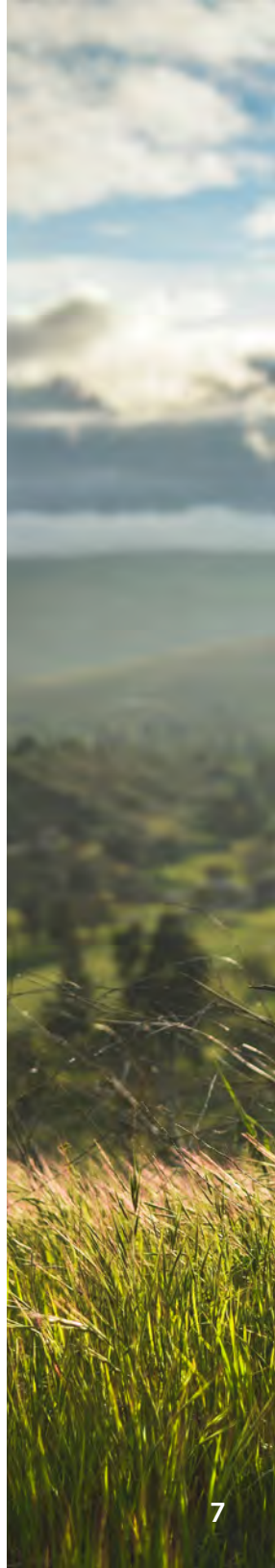
Figure 2 ***GHG Emissions Reduction Targets***



As shown in Figure 2, VTA's GHG emissions decreased substantially since FY 2009. Between FY 2009 and FY 2019, annual emissions decreased by 52 percent from 83,366 to 40,055 MTCO2e, for an average of a six percent reduction year-over-year. Much of this reduction was due to the replacement of older, diesel buses with fuel-efficient and cleaner, hybrid diesel-electric buses. The recommended targets require GHG emissions generated by VTA to decrease at a rate of approximately three to six percent year-over-year starting from FY 2019 levels.

VTA's targets align with state and local GHG reduction plans and California Air Resources Board's (CARB) Innovative Clean Transit regulation (California Code of Regulations Title 13, Section 2023.1). Senate Bill (SB) 32 and Assembly Bill (AB) 32 target a statewide reduction of GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The State's target was adopted for the San Francisco Bay Area region in the Bay Area Air Quality Management District's (BAAQMD) 2017 Clean Air Plan (BAAQMD 2017). Although VTA does not have 1990 emission estimates, the State's GHG emissions inventory suggests that 2009 statewide emissions were six percent lower than in 1990 (CARB 2019a). Thus, targeting a 90 percent reduction in GHG emissions below FY 2009 levels by FY 2040 for VTA operations, is intended to follow the State's target. The trajectory in meeting the 2040 target also follows the trends shown for FYs 2009 through 2019.

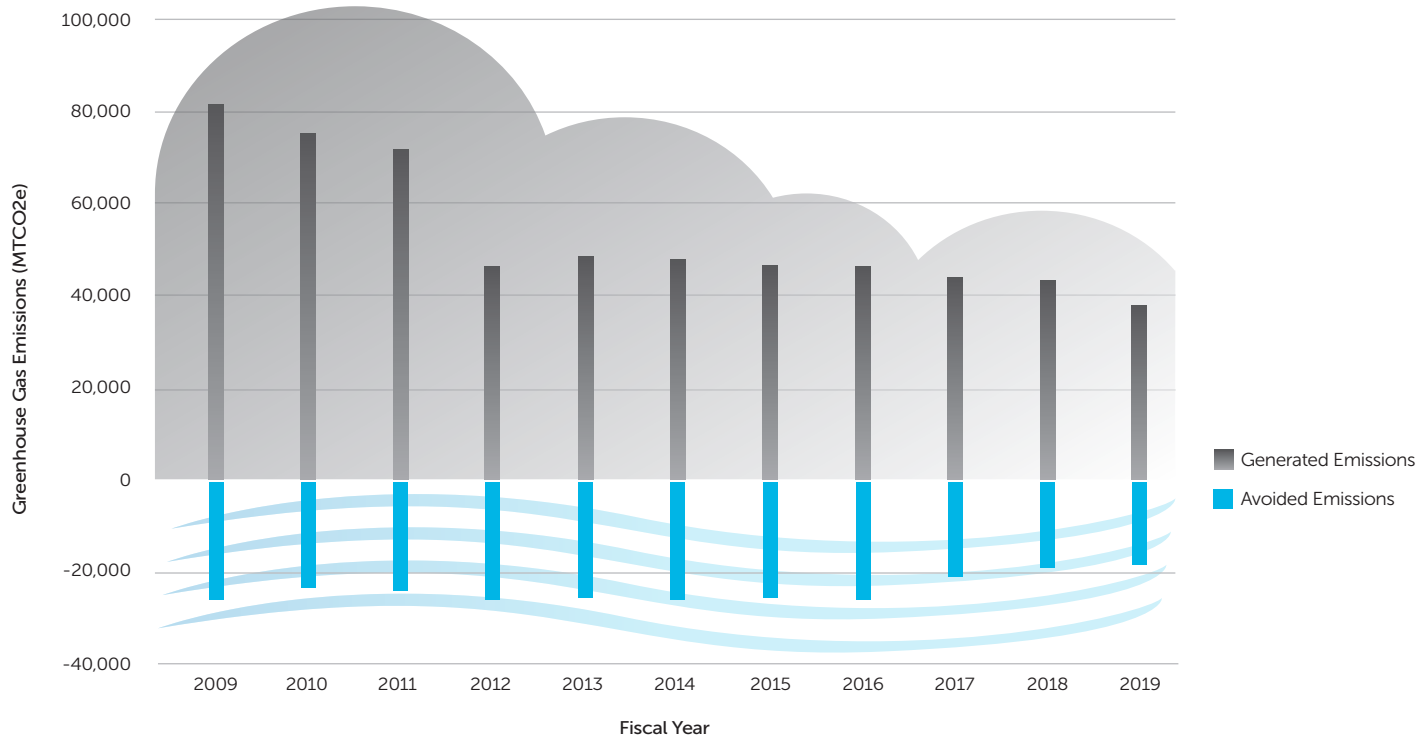
The Innovative Clean Transit regulation sets a goal to transition all transit buses in the State to zero-emission by FY 2040. Revenue fleet activity accounted for 86 and 80 percent of VTA's GHG emissions in FY 2009 and FY 2019, respectively. Assuming all non-fleet activity remains constant from FY 2009, and all fleet emissions are eliminated with 100 percent renewable energy sources, VTA could achieve an 86 percent reduction in GHG emissions from FY 2009 levels by FY 2040. Additional reductions, particularly in building energy use, could help reduce emissions to meet the target of a 90 percent reduction below FY 2009 levels by FY 2040. Some transportation agencies have goals that exceed the State's target. For example, Bay Area Rapid Transit (BART) seeks to achieve an 89 percent reduction in GHG per vehicle revenue mile by 2025 (BART 2017). The Los Angeles County Metropolitan Transportation Authority (LA Metro) targets a GHG reduction of 79 percent below 2017 levels by 2030 (LA Metro 2019). VTA's targets are reasonable for the agency because they would increase the rate of reduction in emissions gradually as described above. However, VTA could achieve higher targets at an earlier date if VTA accelerates the transition to zero emission vehicles and upgrades to 100 percent renewable sources of energy for its fleets and buildings as described in the Energy section below.



It is important to note that VTA's targets are for GHG emissions generated by VTA operations. As a transit provider, VTA helps offset regional GHG emissions by providing commute alternatives to single-occupancy vehicles. Every trip taken with VTA, as opposed to driving alone, reduces both GHG emissions and criteria air pollutants. Figure 3 shows the GHG emissions avoided through mode shift from private vehicles to transit.

Avoided GHG emissions are associated with emissions that would have been generated by passenger vehicles whose trips were assumed to be displaced by persons taking transit instead. VTA's avoided emissions are dependent on ridership, which has experienced a downward trend consistent with other transit agencies across the nation over the last five years.

Figure 3 ***Avoided Greenhouse Gas Emissions***



Criteria Air Pollutants

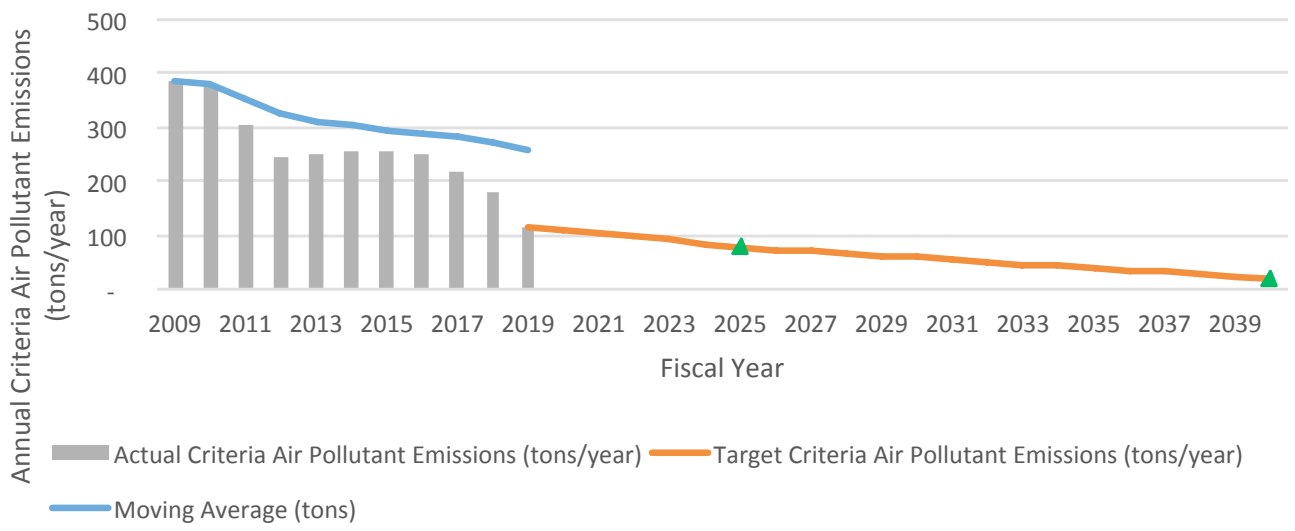
Short-Term Target: Reduce criteria air pollutants by 80 percent below FY 2009 levels by FY 2025.

Stretch Target: Reduce criteria air pollutants by 95 percent below FY 2009 levels by FY 2040.

Criteria air pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter, and lead generated by VTA operations. In FY 2019, VTA's criteria air pollutant emissions were 117 tons. The short-term target would require reducing annual criteria air pollutant emissions to 77 tons by FY 2025. This is a reduction of 40 tons from the FY 2019 level (equivalent to the emissions generated by approximately 204 diesel buses). The stretch target would require reducing annual criteria air pollutant emissions to 19 tons by FY 2040. This is a reduction of 98 tons from the FY 2019 level (equivalent to the emissions generated by approximately 499 diesel buses).

Figure 4

Criteria Air Pollutant Emissions Targets



Like GHG emissions, VTA's criteria air pollutants have decreased substantially since the baseline year, as shown in Figure 4. Between FY 2009 and FY 2019, VTA's annual emissions decreased from 386 tons to 117 tons, a 70 percent reduction over ten years. This reduction was primarily due to reduced fuel use, transition to newer vehicles, and equipping buses with diesel particulate filters. Based on these trends, and state and local air quality improvement plans, the recommended target would continue year-over-year reductions at a rate of six percent per year through FY 2025, gradually increasing to 17 percent per year by FY 2040.

State and local air quality plans aim to reduce the emission of criteria air pollutants from all sources, including transit vehicles. CARB State Implementation Plans propose strategies to achieve and maintain state and federal ambient air quality standards in regions across the state (CARB 2019b). For the San Francisco Bay Area, the BAAQMD Clean Air Plan includes a proposed control strategy of reducing emissions of criteria air pollutants from all key sources. This includes working with local agencies to implement transportation control measures aimed at reducing pollutants from local and regional bus and rail service. The strategy is consistent with the Health Element of Santa Clara County's General Plan (Santa Clara 2015) and Envision San Jose 2040 General Plan, which recognize the impact of air pollution on community health and support the expansion and improvement of public transportation (San Jose 2020).

Revenue fleet activity accounted for 90 and 89 percent of VTA's criteria air pollutant emissions in FY 2009 and FY 2019, respectively. Assuming all non-fleet activity remains constant from FY 2009, and all fleet emissions are eliminated as the diesel bus fleet is replaced with zero emission vehicles per the Innovative Clean Transit regulation, VTA could achieve a 90 percent reduction in GHG emissions from FY 2009 levels by FY 2040. Additional reductions from other contributors (e.g., employee commute, non-revenue fleet) could help further reduce emissions to meet the target of a 95 percent reduction below FY 2009 levels by FY 2040.

Energy

VTA uses multiple sources of energy to power its operations. Buildings and facilities are powered by electricity (purchased directly from the utility, or grid, as well as from the generation of on-site solar panels), natural gas, and propane. VTA's revenue fleet uses electricity, gasoline, diesel, and biodiesel (discontinued in FY 2016 due to lower fuel economy compared to conventional diesel). Separate targets were established for energy consumption by VTA buildings and revenue fleet. Energy use is presented in British Thermal Units (BTUs) to provide an equal level of comparison across the various energy sources used.

Building Energy

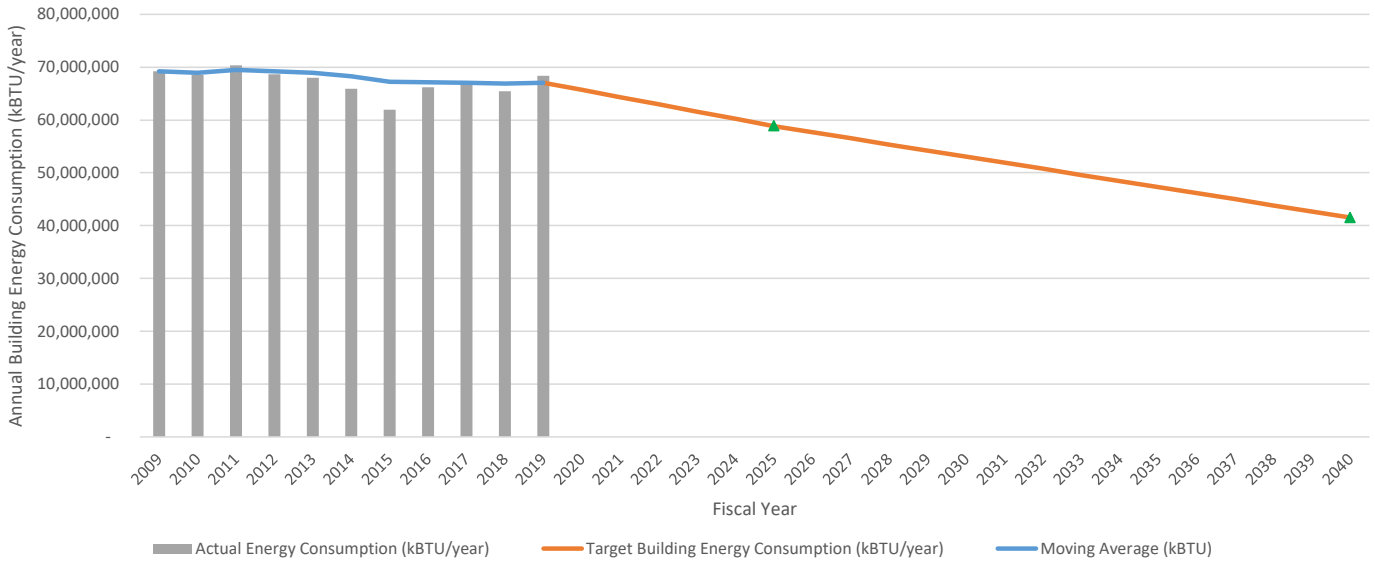
Short-Term Target: Reduce building energy consumption by 15 percent below FY 2009 levels by FY 2025.

Stretch Target: Reduce building energy consumption by 40 percent below FY 2009 levels by FY 2040.

VTA facilities consumed 68,392 million BTU (MMBTU) of energy in FY 2019. To reach the short-term target, annual energy consumption would need to be reduced to 58,837 million MMBTU by FY 2025. This is a reduction of 9,555 MMBTU from the FY 2019 level (equivalent to the amount of energy needed to power approximately 166 households for one year [EIA 2018]).

To meet the stretch target, annual energy consumption would need to be reduced to 41,532 MMTBU by FY 2040. This is a reduction of 26, 860 MMBTU from the FY 2019 level (equivalent to the amount of energy needed to power approximately 466 households for one year [EIA 2018]).

Figure 5 **Building Energy Consumption Targets**



Between FY 2009 and FY 2019, annual energy use at VTA facilities declined slightly, but generally has remained constant over the ten-year period, as shown in Figure 5. VTA made several retrofits to facilities from FYs 2009 to 2015, such as the replacement of light fixtures with LEDS at offices, fuel islands, and light rail stations, and installation of solar panels at bus maintenance divisions. Energy consumption began increasing in FY 2017. This increase is consistent with the increase in VTA's employee population, installation of electric vehicle charging stations, and the construction of new facilities, including Eastridge Paratransit Center and Milpitas and Berryessa BART stations. The recommended targets aim to reduce building energy consumption at a rate of approximately two to three percent year-over-year starting from FY 2019 levels. Assuming the targets are distributed evenly across the types of energy used, this translates to reducing annual electricity use to 10,959 megawatt-hours (MWh), reducing annual natural gas use to 129,488 therms, and reducing annual propane use to 93,379 gallons by FY 2025.

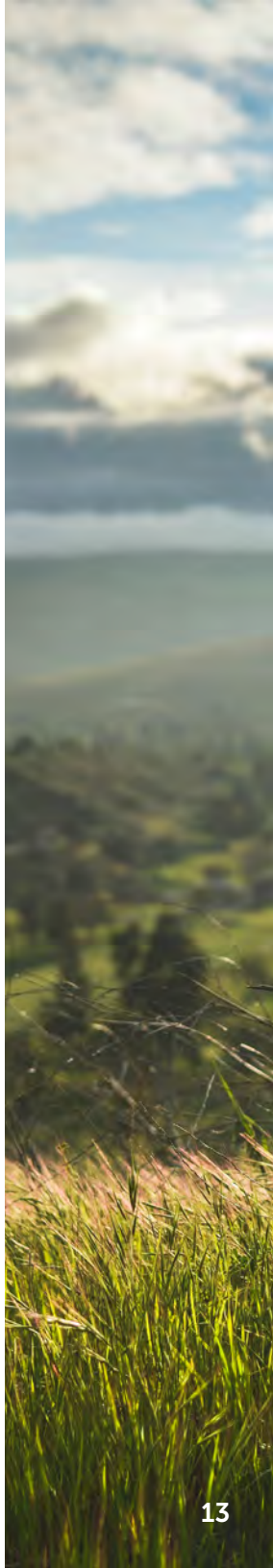
Electricity and natural gas consumption in VTA buildings would need to be reduced in the future to meet state goals. SB 350 requires utilities to double statewide energy efficiency savings in electricity and natural gas uses by 2030 (California Energy

Commission 2017). Local climate action plans typically include strategies to reduce energy consumption in existing buildings, given that the use of these resources contributes to GHG emissions (Palo Alto 2019; San Jose 2018). LA Metro's goal is to reduce energy consumption at facilities by 17 percent from their 2030 business as usual scenario (LA Metro 2019).

In addition, SB 350 establishes California's renewable energy goal to 50 percent by 2030. The City of Mountain View committed to achieve carbon neutrality by 2045 (Mountain View 2019). Sound Transit, located in Washington, is committing to using 100 percent carbon-free electricity by 2030 (Sound Transit 2019). Currently, VTA purchases renewable energy from Silicon Valley Clean Energy and San Jose Clean Energy. Most of this energy comes from 45-50 percent renewable sources, with a small amount from 100 percent renewable energy sources.

The California Long-Term Energy Efficiency Strategic Plan also targets Zero Net Energy (ZNE) standards for all new residential buildings by 2020 and all new commercial buildings by 2030 (California Public Utilities Commission 2011). Several cities, including 12 in Santa Clara County, are considering adopting local amendments to building codes, also known as reach codes, to improve energy efficiency of new construction (Silicon Valley Clean Energy 2020). Reach codes are building codes that are more advanced than those required by the state. Examples include requiring new construction to utilize only electricity as a fuel source and include infrastructure for solar and electrical vehicle charging stations.

VTA could meet the recommended building energy targets by making retrofits to existing facilities (e.g. LED lighting, substitution of natural gas consuming appliances with energy-efficient electric equivalents), ensuring new facilities meet or exceed ZNE standards and reach codes, and evaluating energy storage, renewables, and other alternatives to optimize energy use.



Fleet Energy

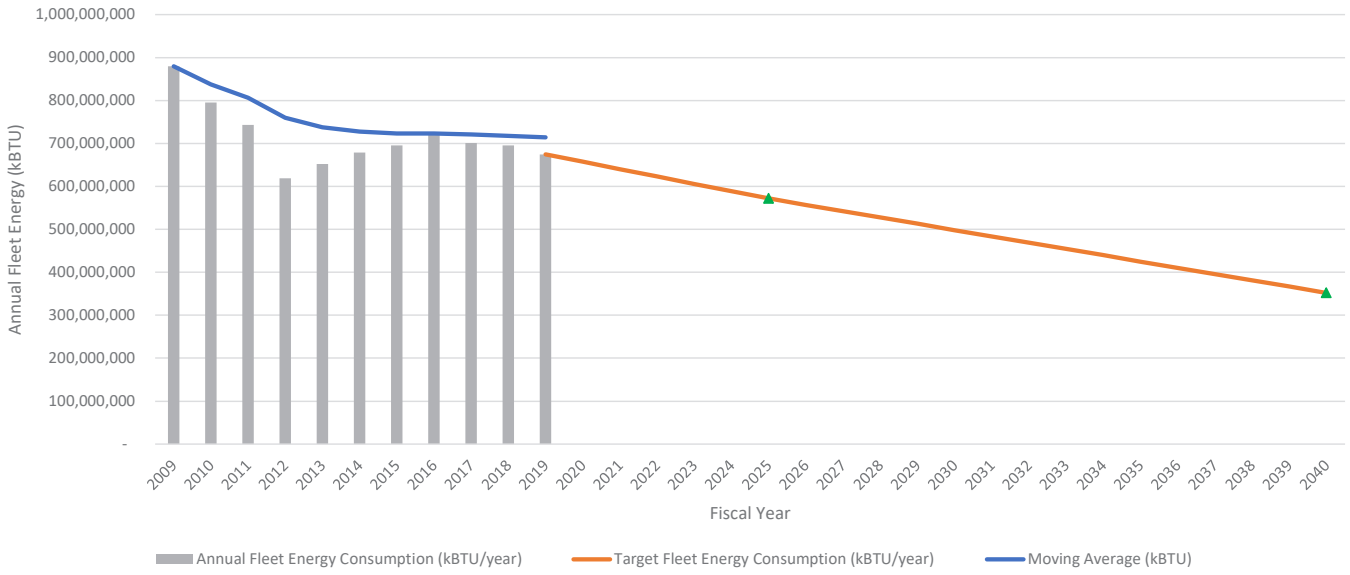
Short-Term Target: Reduce revenue fleet energy consumption by 35 percent below FY 2009 levels by FY 2025.

Stretch Target: Reduce revenue fleet energy consumption by 60 percent below FY 2009 levels by FY 2040.

The targets were developed with the contribution of both bus and light rail activities and associated fuel consumption in mind. Bus and light rail operations account for 79 and 12 percent of VTA's revenue fleet energy consumption, respectively, with paratransit service accounting for the remainder. The bus fleet consumes a combination of energy sources, the majority of which is diesel fuel, followed by a smaller amount of gasoline, electricity, and biodiesel (B20 blend, discontinued in FY 2016). Light rail is powered by electricity (traction power).

The energy consumption of the revenue fleet in FY 2019 was 674,570 MMBTU. The short-term target would

Figure 6 ***Fleet Energy Use Targets***

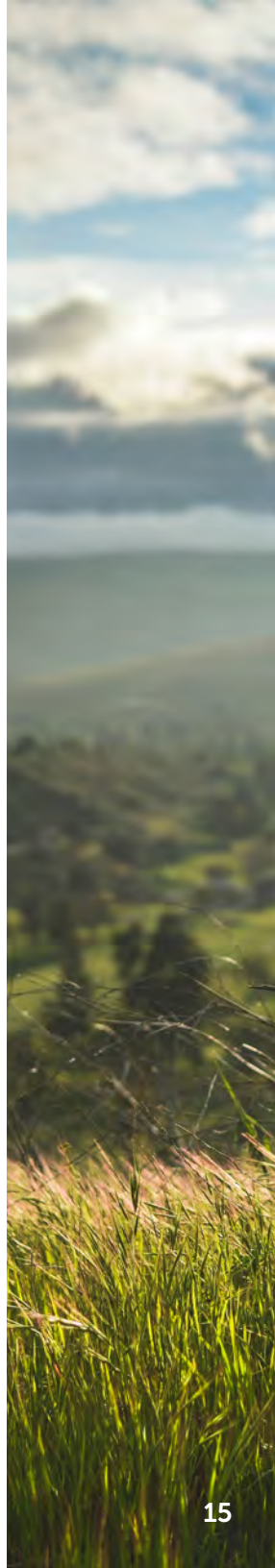


require reducing annual energy consumption from the revenue fleet to 571,732 MMBTU (equivalent to 4.1 million diesel gallon equivalents or 167,558 MWh) by FY 2025. To meet the short-term target, VTA would need to reduce energy consumption by 102,838 MMBTU from the FY 2019 level. The stretch target would require reducing annual energy consumption from the revenue fleet to 351,835 MMBTU (equivalent to 2.2 million diesel gallon equivalents or 103,113 MWh) by FY 2040. To meet the stretch target, VTA would need to reduce energy consumption by 322,735 MMBTU from FY 2019 level.

As shown in Figure 6, VTA's revenue fleet energy consumption dramatically decreased from 2009 through 2012, rose slightly, then steadied between FY 2016 and FY 2019, at about 20 percent lower than FY 2009 levels. These fluctuations are attributed to changes in revenue service (e.g., VTA reduced service during the economic recession in FYs 2009 and 2010, and increased service to match demand as a result of events at Levi's Stadium beginning in FY 2015) and the procurement of more fuel efficient vehicles starting in FY 2010. While the results for this indicator vary year-to-year based on the moving average, fleet energy use declined by about two percent per year from FY 2009 to FY 2019. For the reasons discussed below, this rate was increased to about 2.5 to 5 percent per year for the purpose of establishing the short-term and stretch targets.

Targeted reductions in revenue fleet energy consumption assume complete replacement of the diesel bus fleet with zero-emission vehicles by FY 2040, per the Innovative Clean Transit regulation. According to the Argonne National Laboratory's (ANL) Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model, electric transit buses have an average efficiency of 15 miles per diesel gallon equivalents (DGE), which is approximately three times more efficient than VTA's bus fleet in FY 2019 (ANL 2018). Based on this difference in efficiency and assuming the average energy use from non-bus fleet activity from the past ten years remains constant, VTA could achieve a 63 percent reduction in fleet energy use from FY 2009 levels in 2040. The stretch goal is rounded to 60 percent to provide for flexibility in achieving this target due to variations in bus efficiencies. Efficiencies can also be achieved in paratransit revenue vehicles, which also have the potential to be electrified by FY 2040.

VTA is currently developing a zero-emission bus rollout plan to meet the Innovative Clean Transit regulation. VTA is also advocating for increased funding to support major upgrades needed for electrical infrastructure associated with operating electric buses, better electricity rates that make electricity more competitive with diesel fuel, battery storage, and the development of smart charging technology to minimize costs and impacts to the grid.



Water

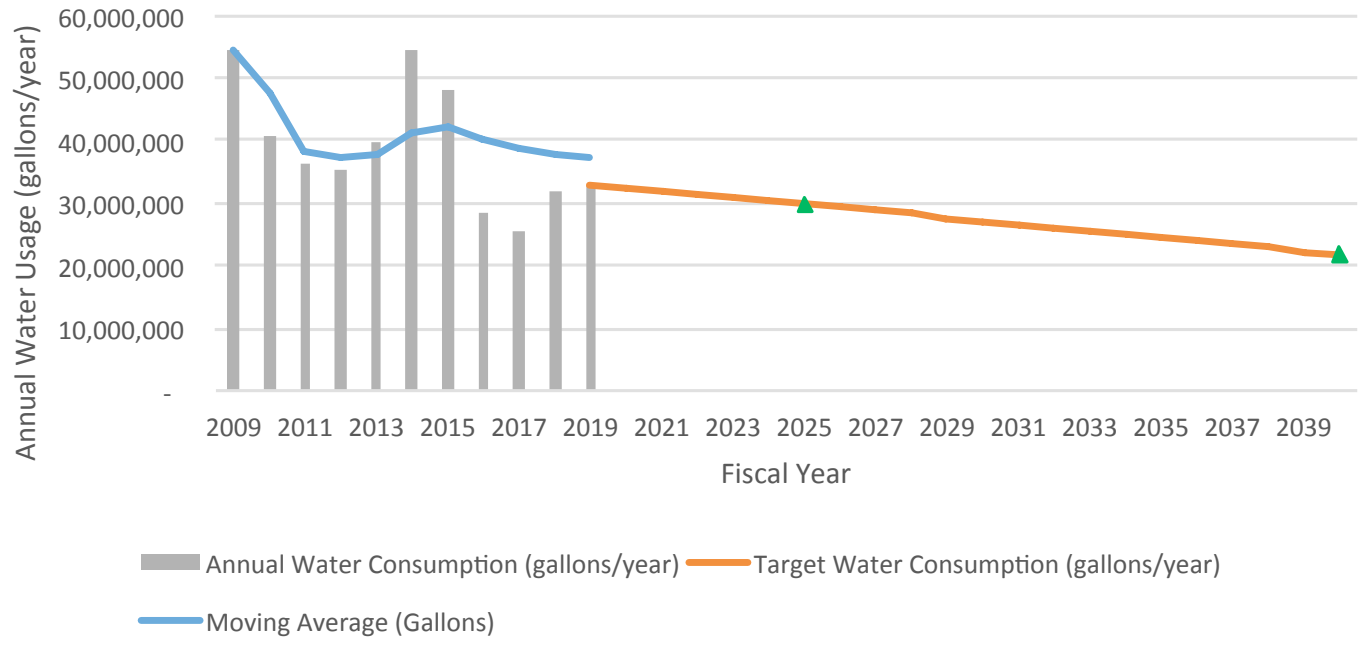
Short-Term Target: Reduce potable water consumption by 45 percent below FY 2009 levels by FY 2025.

Stretch Target: Reduce potable water consumption by 60 percent below FY 2009 levels by FY 2040.

VTA utilized about 32.7 million gallons of potable water in FY 2019. The short-term target would require decreasing annual potable water consumption to 30 million gallons by FY 2025. To achieve this target, VTA would need to reduce 2.7 million gallons of potable water from the FY 2019 level (equivalent to the amount of water used by approximately four Olympic-size swimming pools [USGS 2020]).

The stretch target would require decreasing annual potable water consumption to 22 million gallons by FY 2040. Meeting this target would require VTA to reduce 11 million gallons of potable water from the FY 2019 level (equivalent to the amount of water used by approximately 17 Olympic-size swimming pools [USGS 2020]).

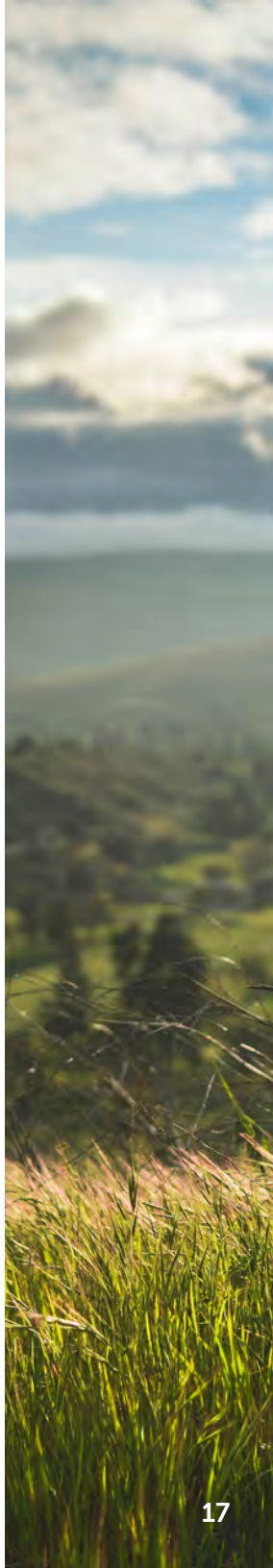
Figure 7 ***Potable Water Usage Targets***



Annual potable water use is shown in Figure 7. Between FY 2009 and FY 2019, potable water use varied significantly depending on climate conditions but has generally decreased by 40 percent from 54 million gallons to 33 million gallons per year. Higher water consumption in FYs 2014 and 2015 is attributed to irrigation leaks and water line breaks at River Oaks, repairs at bus washing facilities, and increased outdoor water use due to record-breaking dry conditions in 2013. Mandatory drought restrictions, imposed by the state in 2015, resulted in dramatic reductions in water use. VTA responded to the drought emergency by reducing irrigation and vehicle washing schedules and by replacing water-intensive landscaping (e.g., turf) with native and drought-tolerant plants. Like energy, recent increases in water use are due primarily to the construction of new facilities (Eastridge and BART). The targets are aligned with reducing potable water use by one to two percent year-over-year from FY 2019 through FY 2040. The targets encourage increased use of non-potable (recycled water) to offset and balance out increases in overall water demand as new facilities are built.

The Water Conservation Act of 2009, SB X7-7, requires California water suppliers to reduce per capita use by 20 percent by FY 2020. Through Urban Water Management Plans (UWMP), local agencies implement strategies to achieve the requirements of SB X7-7, as well as develop long-term targets. The Santa Clara Valley Water District's (Valley Water) 2015 UWMP includes a long-term target of 98,800 acre-feet of water per year by 2030, representing a 23 percent reduction in water use (Valley Water 2015). The City of San Jose's goal is to reduce per capita residential water consumption by 30 percent compared to 2009 levels by 2030 (San Jose 2018). LA Metro and BART set goals to reduce potable water use by 22 and 17 percent, respectively, compared to a 2030 business as usual scenario (LA Metro 2019; BART 2017). VTA's recommended target is more aggressive by requiring a 45 percent reduction from the baseline year by FY 2025 and continuing that downward trend to 60 percent through FY 2040.

To meet these aspirational targets, VTA would need to complete upgrades to vehicle washing facilities (e.g., replace original train wash facility at Guadalupe), wastewater treatment systems, and irrigation equipment; connect to existing recycled water lines, where available near VTA facilities (e.g., River Oaks); and convert more landscaping to drought-tolerant plants. VTA could also consider maintaining the reduced vehicle washing and irrigation schedules imposed during the drought emergency as a regular practice.

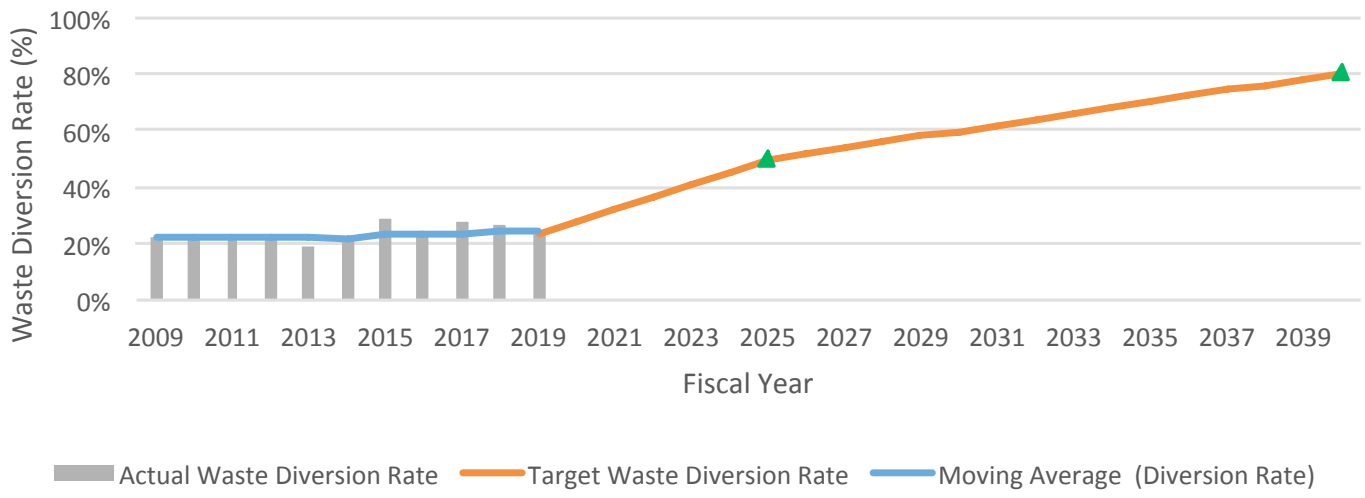


Waste Diverted

Short-Term Target: Increase waste diversion rate to 50 percent by FY 2025.

Stretch Target: Increase waste diversion rate to 80 percent by FY 2040.

Figure 8 ***Waste Diversion Rate Targets***

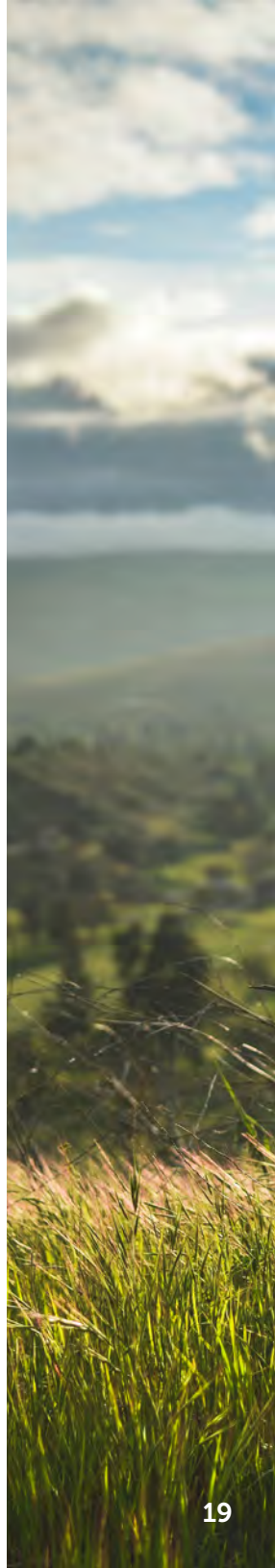


Unlike other sectors where targets aim at reducing consumption or emissions, increases in waste diversion are an indicator of success. Figure 8 shows the percent or rate of waste being diverted from landfills. Between FY 2009 and FY 2019, VTA's waste diversion rate remained around 24 percent, with only slight increases since FY 2014. These increases likely result from additional outreach efforts during that period, such as educational events or campaigns, and fluctuations in project cycles and operations. In FY 2019, VTA diverted 23 percent of its waste from landfills to either be recycled or composted. This falls short of current targets set by the state.

Under AB 341, California is aiming for 75 percent of waste to be diverted from landfills by 2020. Additionally, the State passed SB 1383 that tasked CalRecycle with creating the Short-Lived Climate Pollutants (SLCP): Organic Waste Methane Emissions Reductions Program. Through this Program, CalRecycle set a statewide requirement for a 50 percent reduction in the disposal of organic waste from the 2014 level by 2020 and a 75 percent reduction by 2025. Under SB 1383, local governments are required to enforce the State's regulations starting in 2022, to divert organic waste streams from businesses and residences to regional food recovery, aerobic digestion, and composting facilities. Local strategies for implementing these regulations are still being developed. However, some businesses already have experience with these practices because AB 1826, in effect since 2016, requires that commercial businesses generating four cubic yards or more per week of solid waste arrange for food waste recycling service.

Some agencies have already achieved VTA's short-term target. The City of San Jose achieved a 69 percent diversion rate in 2016 (San Jose 2018). Santa Clara County's diversion rate was 72 percent in 2019 (Santa Clara 2019). Transit agencies with waste diversion goals include: Sound Transit, which seeks to achieve a 50 percent diversion rate by 2024 (Sound Transit 2019); San Francisco Municipal Transportation Agency (SFMTA), which follows the City of San Francisco's goal of 100 percent zero-waste by 2020 (City and County of San Francisco 2013); and LA Metro, which seeks to achieve a 50 percent diversion rate for operational waste by 2030 (LA Metro 2019).

To achieve the recommended targets, VTA could expand composting to all major facilities; reduce or eliminate single-use plastics and other disposables; utilize environmentally preferable purchasing practices (e.g., working with vendors to reduce packaging); convert to paperless processes for major agency functions (e.g., employee recruitment, hiring, and on-boarding); provide recycling containers at bus stops, light rail stations, transit centers, and other facilities; evaluate the collection of waste from transit facilities, which is picked up by a combination of VTA staff, cities, and/or other vendors; and improve the recycling rate of wood (e.g., pallets), metal, and green waste (landscaping).



Implementation and Next Steps

The sustainability metrics presented in this Plan provide an important foundation to what lies ahead, which includes the development of a prioritized list of actions corresponding to the targets set forth in the Plan, as well as climate adaptation and restoration measures. Sustainability and climate action planning are agency-wide efforts that require collaboration and innovation across all departments within VTA. While the Environmental Programs Department, within the Engineering and Program Delivery Division, is tasked with managing the Sustainability Program, it is the responsibility of everyone at VTA to integrate sustainability targets into plans, projects, programs, budgets, policies, and procedures.

Implementation of the Sustainability Plan and development of the future Climate Action Plan will be led by staff in the Environmental Programs Department with oversight by VTA's Sustainability Team. The team is composed of representatives from nearly every agency function, including programming and grants, community engagement, engineering, operations, planning, facilities maintenance, technology, real estate, and human resources. The Team will assess the progress towards meeting sustainability objectives and targets at monthly meetings, provide annual status updates to VTA's executive management and Board of Directors, and review and update the Sustainability Plan as needed.

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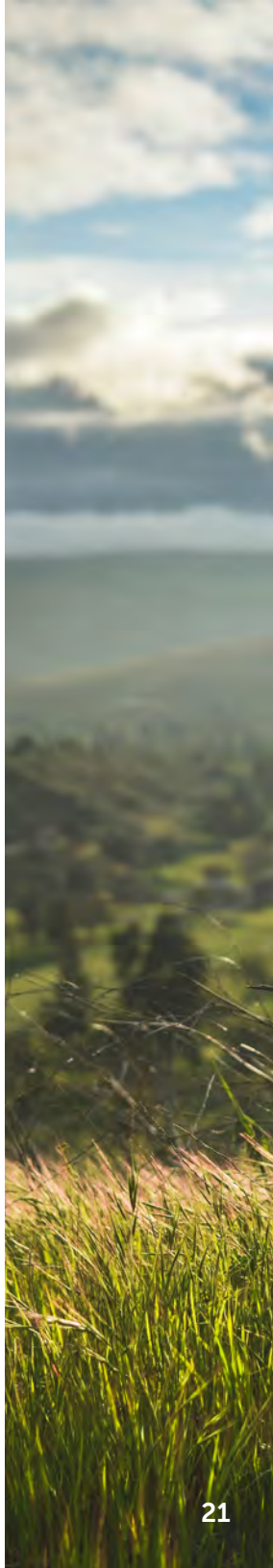

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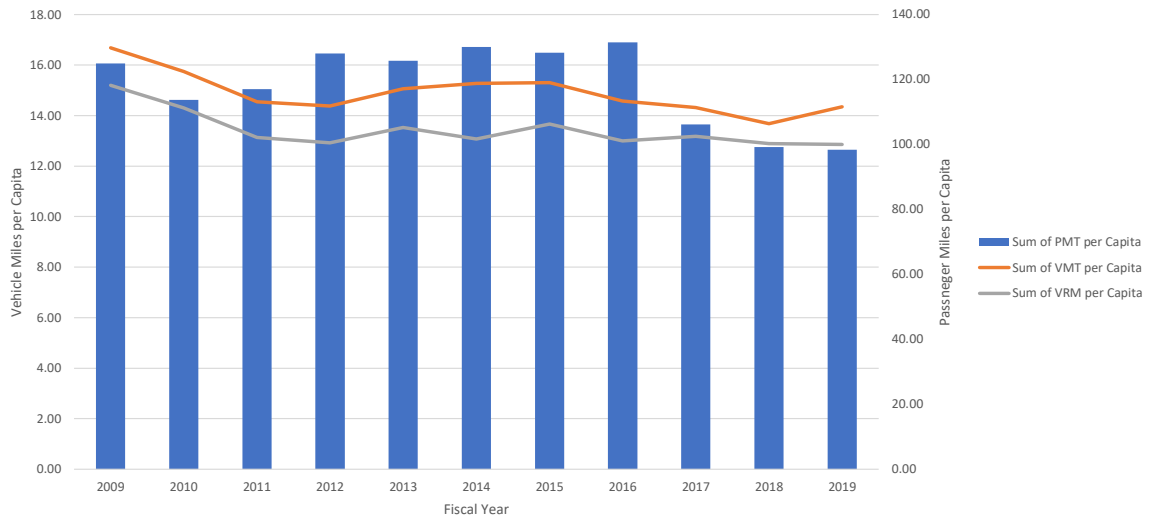
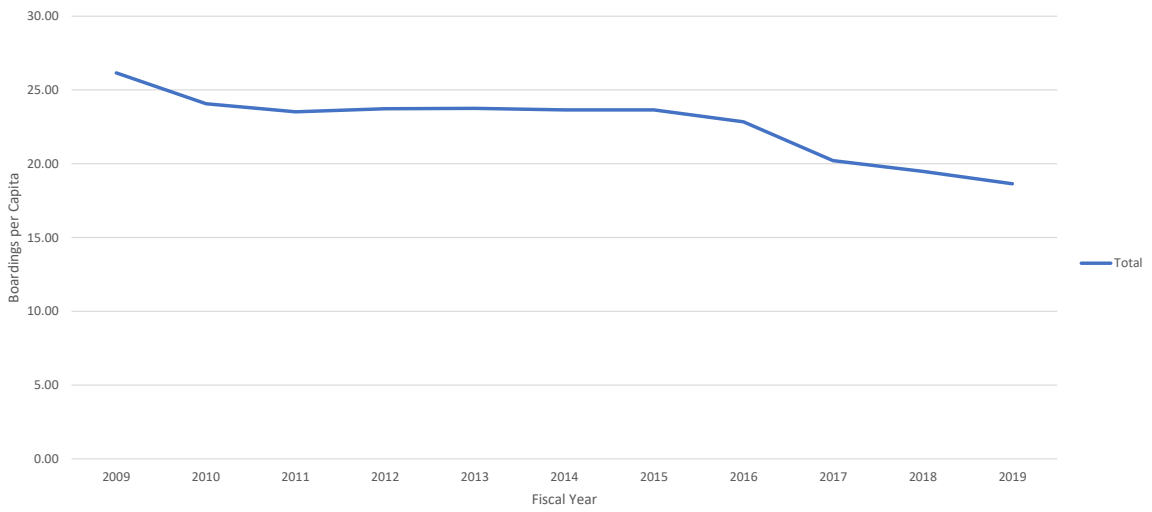
Appendix

The following presents additional information and results that are normalized by factors such as ridership and miles traveled.

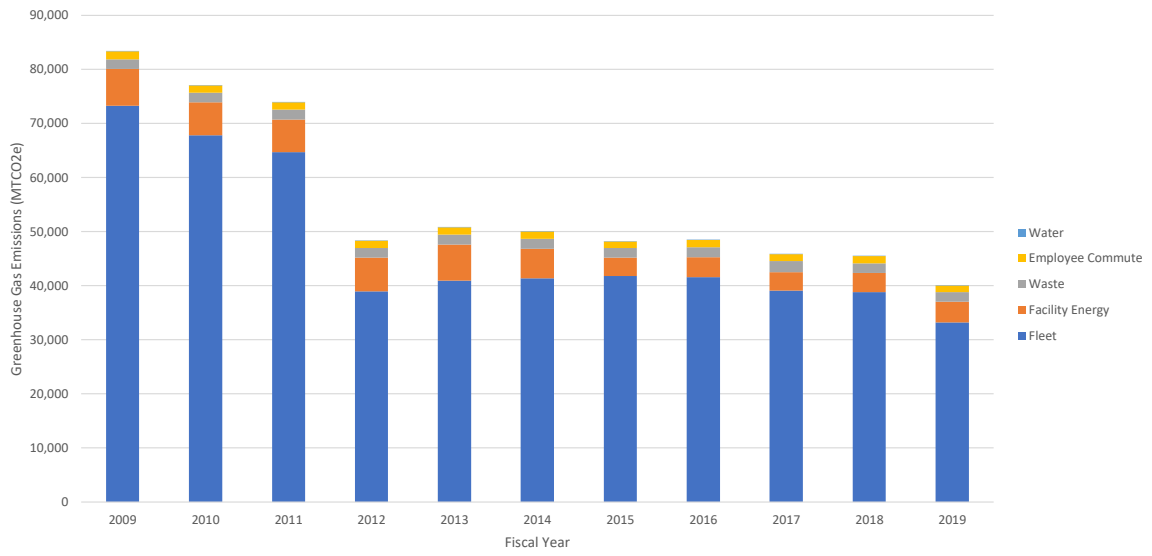
Passenger Mile, Vehicle Mile, and Vehicle Revenue Mile per Capita



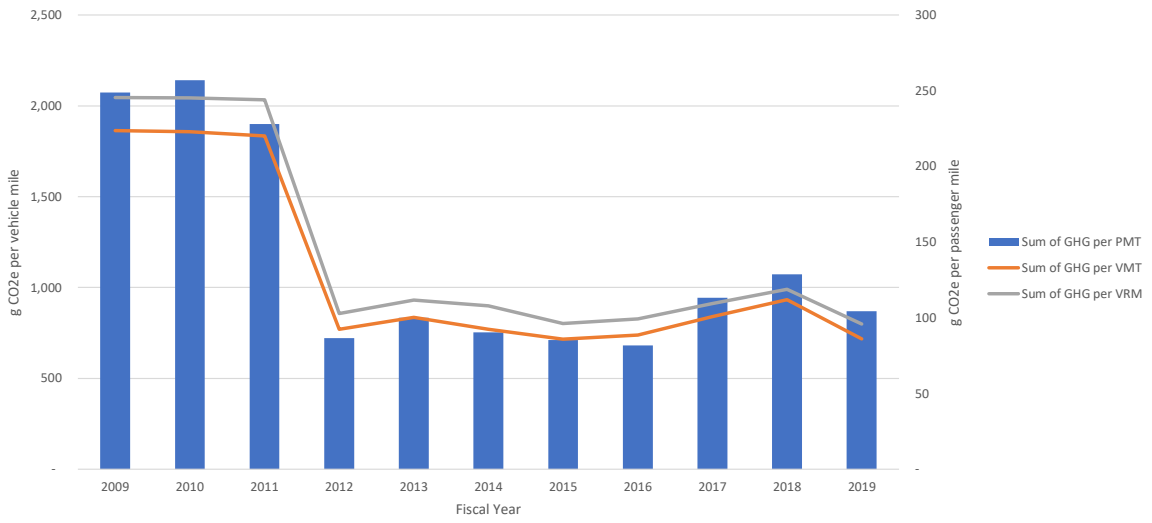
Unlinked Passenger Trips per Capita



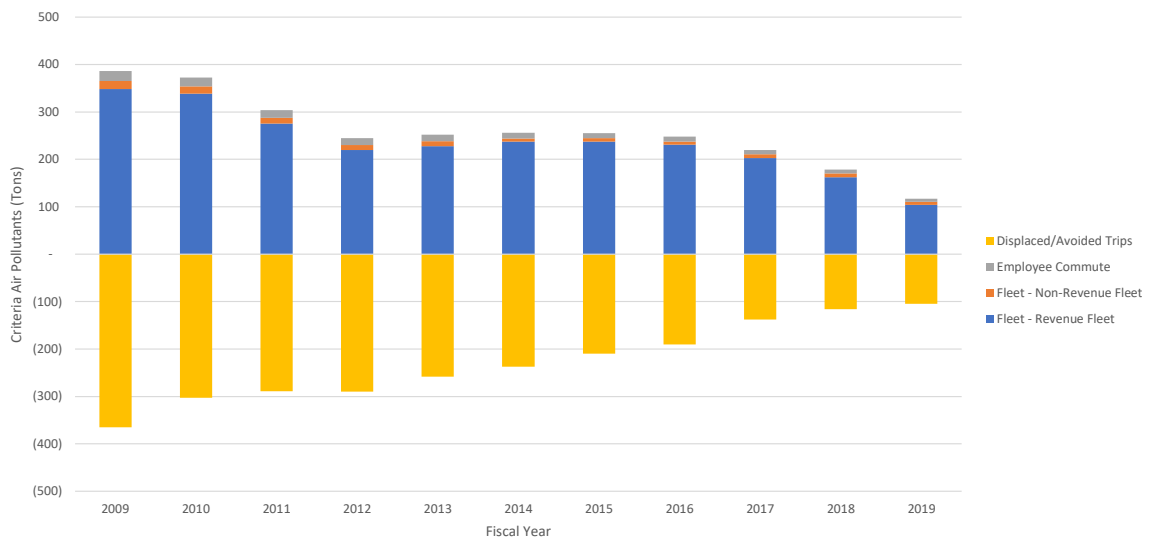
Annual Generated Greenhouse Gas (GHG) Emissions by Sector



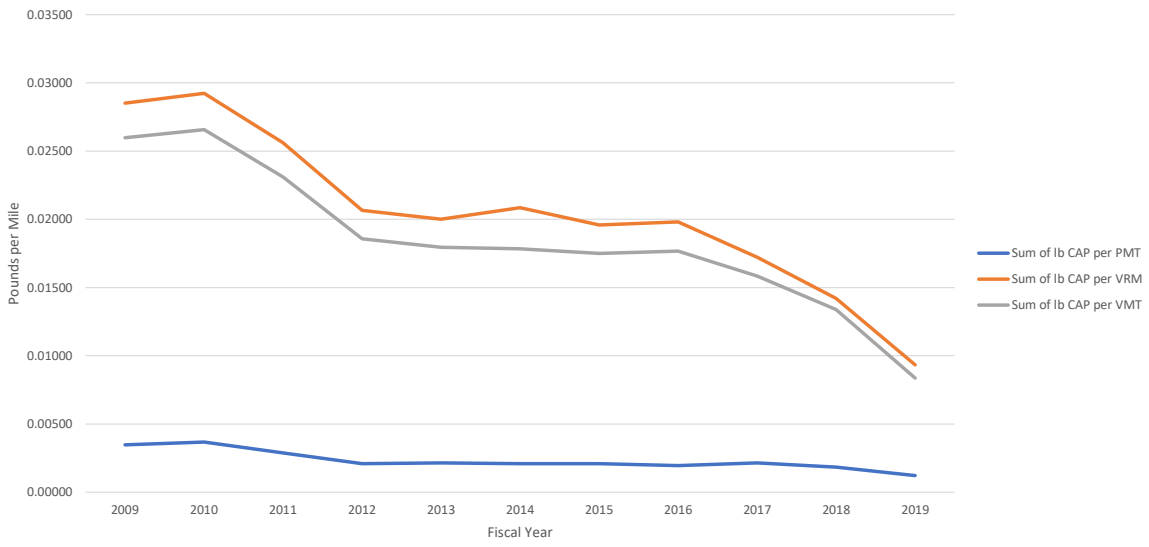
Normalized GHG Emissions



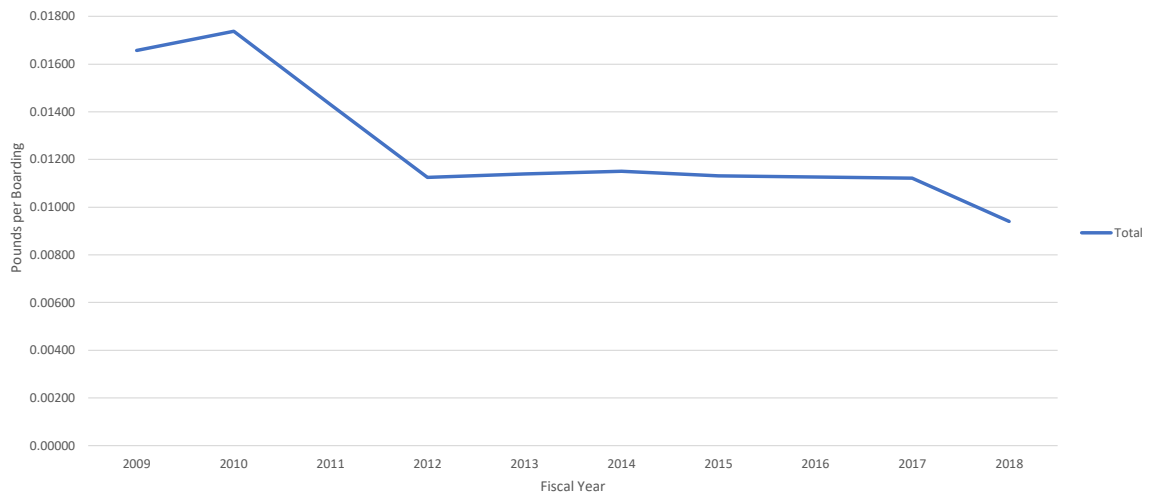
Annual Net Criteria Air Pollutant (CAP) Emissions by Sector



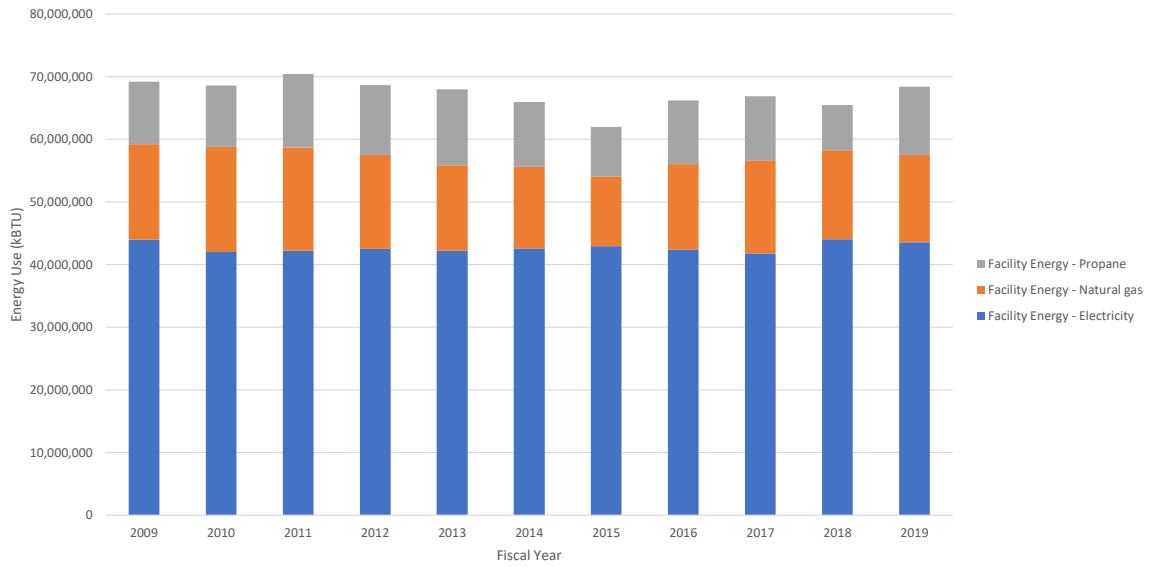
Generated CAP Emissions per Passenger Mile, Vehicle Mile, and Vehicle Revenue Mile



Generated CAP Emissions per Unlinked Passenger Trip



Total Building Energy Usage by Fuel Type



Facility Energy Usage

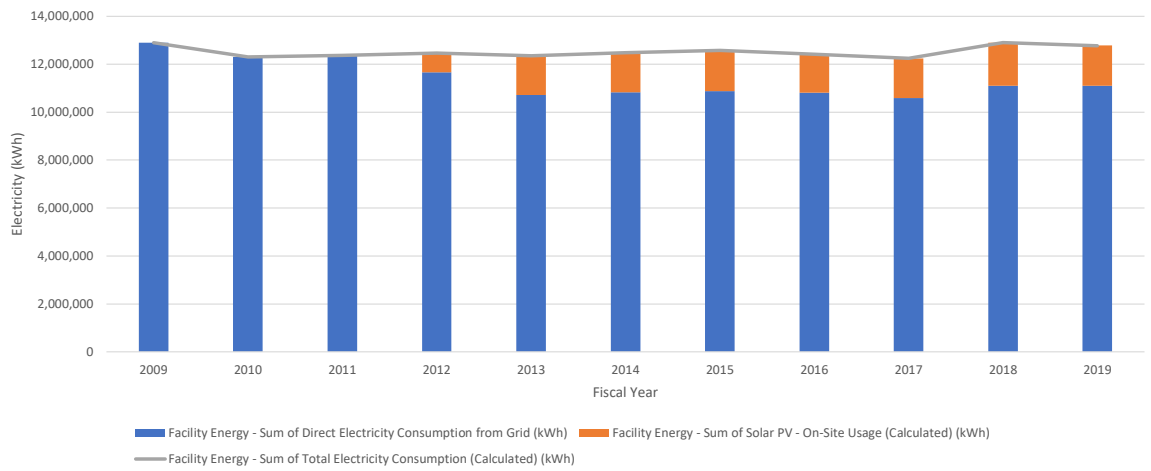
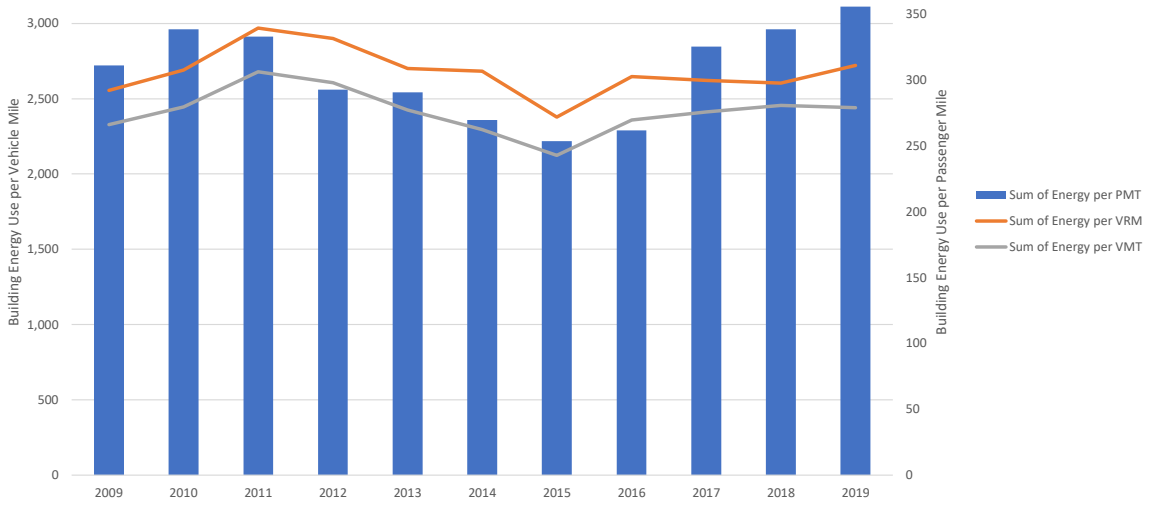


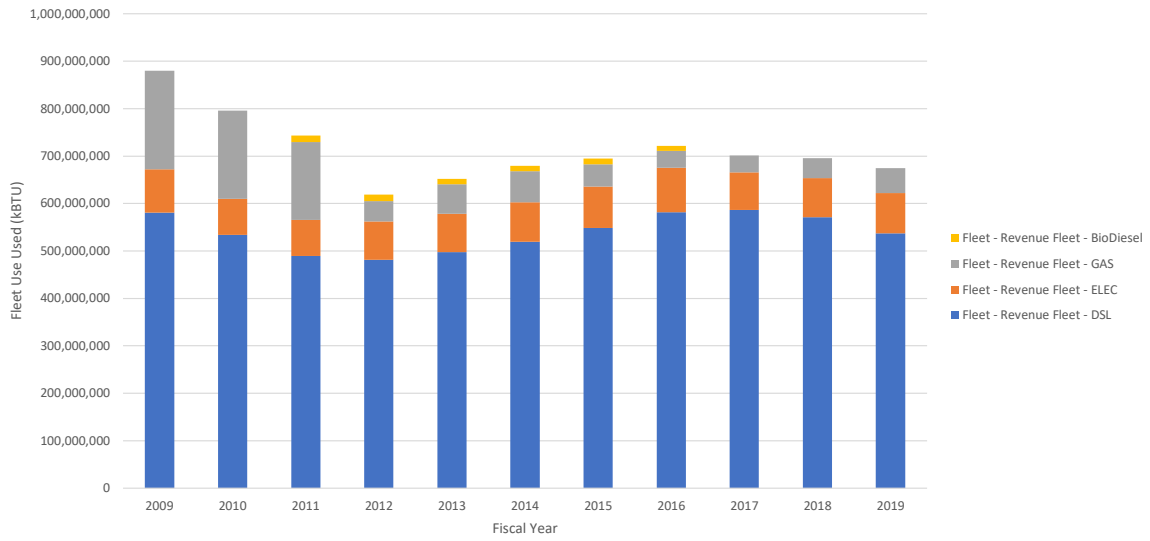
Table: Facility Energy Usage

Year	Sum of Direct Electricity Consumption from Grid (kWh)	Sum of Solar PV - On-Site Usage (Calculated) (kWh)	Sum of Total Electricity Consumption (Calculated) (kWh)	Sum of Net Grid Usage (Calculated) (kWh)
2009	12,893,062	0	12,893,062	12,893,062
2010	12,314,087	0	12,314,087	12,314,087
2011	12,374,638	0	12,374,638	12,374,638
2012	11,660,125	801,049	12,461,174	10,619,296
2013	10,712,847	1,645,476	12,358,324	8,931,183
2014	10,831,165	1,652,256	12,483,421	9,155,952
2015	10,881,006	1,695,708	12,576,714	9,332,502
2016	10,813,198	1,605,273	12,418,471	9,207,327
2017	10,592,780	1,655,800	12,248,581	8,915,141
2018	11,098,312	1,806,134	12,904,445	9,402,136
2019	11,110,836	1,669,263	12,770,290	9,339,838
			Grand Total	112,485,161

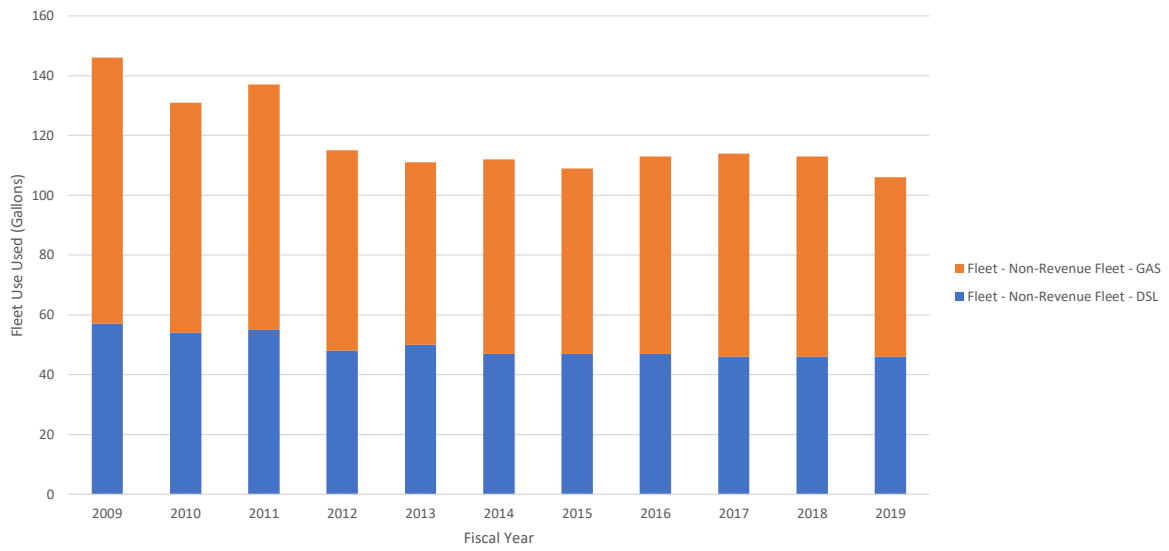
Building Energy Use per Passenger Mile, Vehicle Mile, and Vehicle Revenue Mile



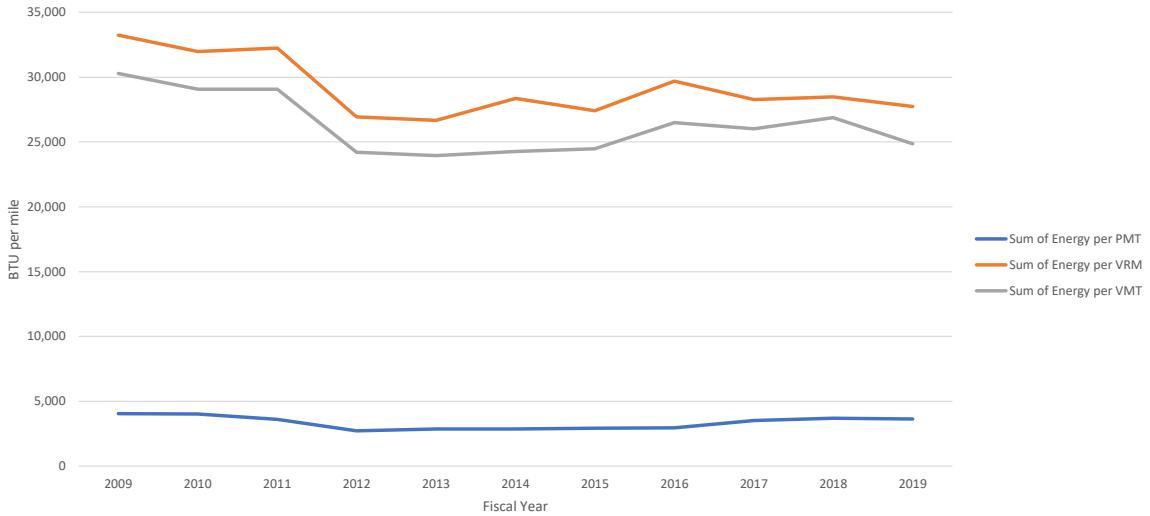
Revenue Fleet Energy Usage by Fuel Type



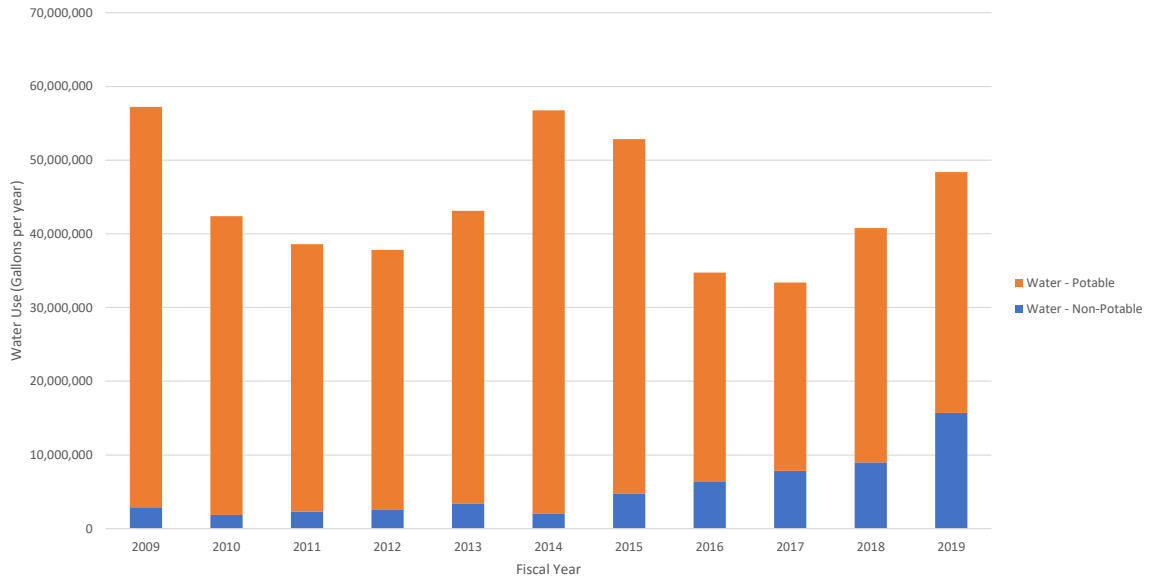
Non-Revenue Fleet Fuel Use by Fuel Type



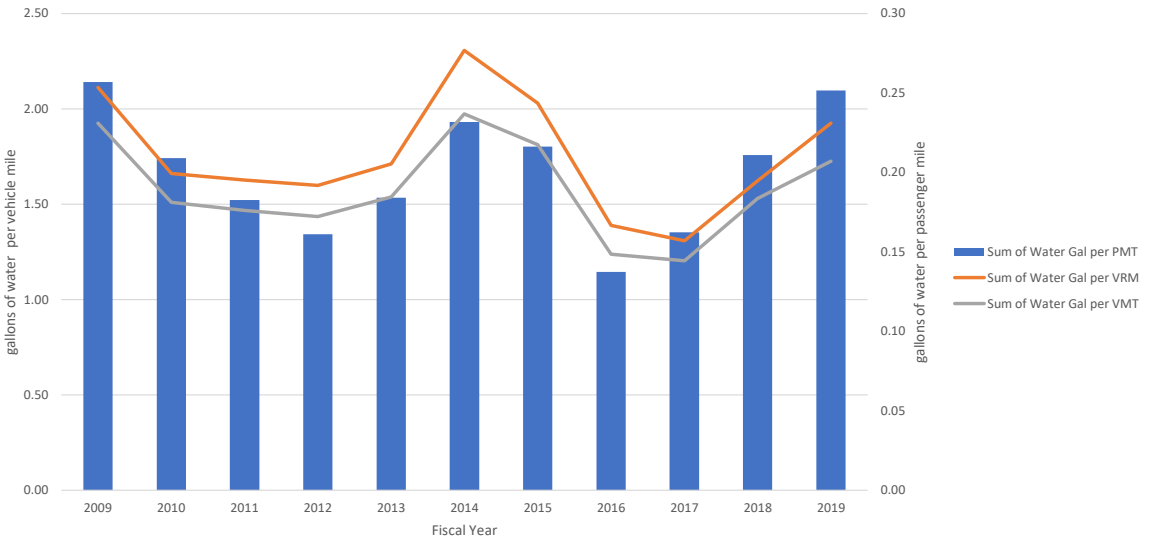
Fleet Energy Usage per Passenger Mile, Vehicle Mile, and Revenue Mile



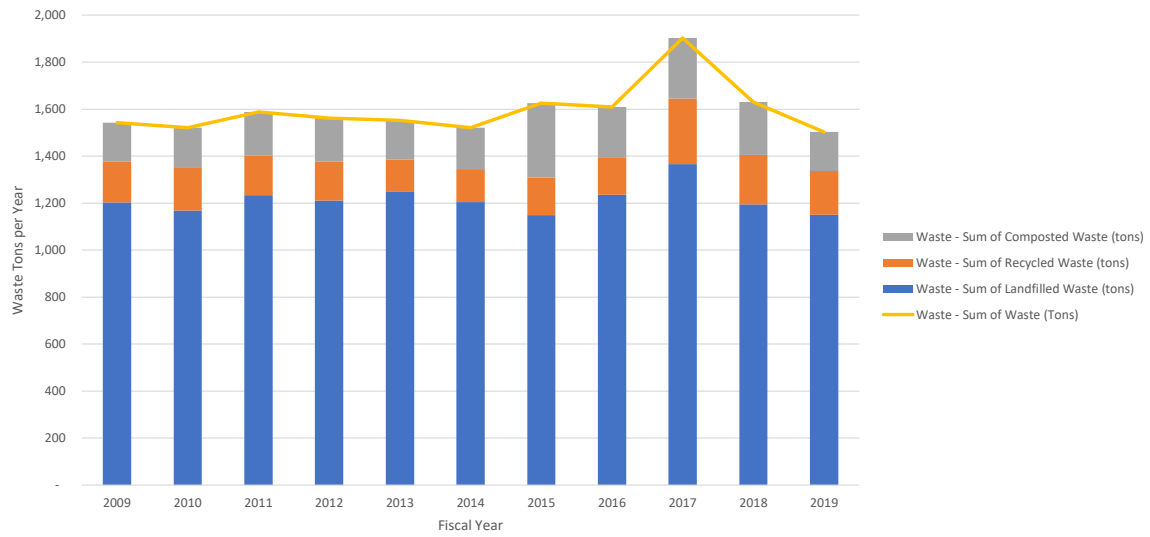
Potable and Non-Potable Usage



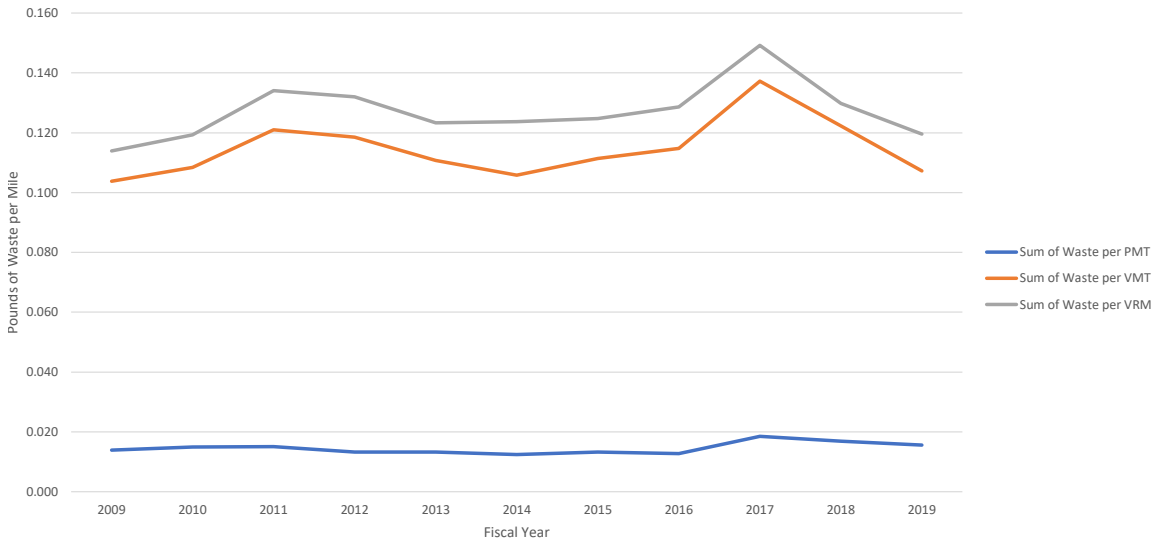
Water Usage by Passenger Mile, Vehicle Mile, and Vehicle Revenue Mile



Waste Tons by Type



Waste Generated per Passenger Mile, Vehicle Mile, and Vehicle Revenue Mile



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