



Town of Apple Valley

Climate Action Plan 2019 Update

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TOWN OF APPLE VALLEY

2019 Climate Action Plan Update

I. EXECUTIVE SUMMARY

The 2019 Climate Action Plan (CAP) Update is Apple Valley's comprehensive strategy to reduce greenhouse gas (GHG) emissions in response to the challenges of climate change. The CAP, which was originally adopted in 2010, was designed to be revised every 3 years to respond to advances in technology, emerging policy reforms, and to build upon the successes of Apple Valley's efforts to reduce greenhouse gas emissions. The 2019 CAP represents the third update to the original document, and the information herein supersedes previous updates.

Apple Valley Town-Wide GHG Reduction Targets

- ◆ 2005 Baseline: 748,912 MTCO₂e
- ◆ 2020: 15% below baseline emission levels equal to 636,575 MTCO₂e
- ◆ 2030: 40% below baseline emission levels equal to 449,347 MTCO₂e
- ◆ 2050: 80% below baseline emission levels equal to 149,782 MTCO₂e

This 2019 CAP Update seeks to ensure that the reduction measures proposed and implemented in the CAP continue to support the Town's greenhouse gas emissions reduction targets of 15% below 2005 levels by 2020 and 40% below 2005 levels by 2030 per Senate Bill 32 (SB 32). The California Air Resources Board (CARB) determined that, in addition to achieving GHG reductions from cleaner fuels and vehicles, California must also reduce vehicle miles traveled (VMT). To achieve a VMT reduction of 40% below 1990 levels, CARB has proposed a VMT reduction of 7% below projected VMT levels in 2030¹. The 2030 GHG emissions reduction target places California on a trajectory towards meeting the new statewide reduction target of 80% below 2005 levels by 2050.

The Town of Apple Valley's total GHG emissions are comprised of Community and Municipal-specific emissions. The intent of identifying Apple Valley's Municipal GHG sources separately allows the government to estimate and track greenhouse gas emissions resulting directly from municipal operations. Throughout this report, the combined total of Community emissions and Municipal emissions is referred to as Town-wide emissions.

¹ "California's 2017 Climate Change Scoping Plan," prepared by CARB. November 2017.

Greenhouse Gas Emissions Targets

The original 2010 CAP for the Town of Apple Valley was prepared using the year 2005² as the baseline for greenhouse gas emissions reduction targets, including 15% below 2005 levels by 2020 and 40% below 2005 levels by 2030. The 2050 target of 80% below baseline is acknowledged; however, this CAP Update will focus on the near term 2030 target.

The 2010 CAP estimated Town-wide emissions to be 748,524 metric tons of carbon dioxide equivalents (MTCO₂e) in 2005, of which 2,138 MTCO₂e were Municipal-specific emissions generated directly by Town-owned and operated facilities. For this update, off-road emissions were added as a new emission sector in the Community Inventory and were retroactively added to the 2005 baseline emissions. The addition of off-road emissions increased the Town's 2005 baseline by 388 MTCO₂e resulting in a new baseline total of 748,912 MTCO₂e. All reduction targets have been adjusted accordingly per the new emissions baseline.

The 2010 CAP concluded that Apple Valley must reduce greenhouse gas emissions by a minimum of 112,337 MTCO₂e³ by 2020 in order to meet the reduction target of 15% below 2005 levels. To achieve the 2030 target of 449,347 MTCO₂e⁴, which is 40% below baseline emission levels, the Town would need to reduce overall emissions by 299,565 MTCO₂e⁵.

Apple Valley has made great strides in reducing Town-wide GHG emissions since the implementation of the 2010 CAP. Results of the 2019 greenhouse gas inventory prepared for this CAP update indicate that Town-wide CO₂e emissions are approximately 597,681 MTCO₂e, which translates to a 151,231 MTCO₂e reduction from 2005 MTCO₂e emissions. This means that the Town has exceeded the 2020 target of 15% below 2005 MTCO₂e emissions levels by 38,894 MTCO₂e. To achieve the 2030 target of 40% below 2005 MTCO₂e emissions levels, Town-wide emissions would need to be reduced by an additional 148,334 MTCO₂e.

Table 1 below shows Apple Valley's Town-wide GHG trend under business-as-usual conditions, the 2005 baseline level, and the 2020 and 2030 reduction targets.

² It should be noted that reduction target years for AB 32 and SB 32 are 15% and 40% below 1990 levels, respectively. The Town of Apple Valley made the decision to use 2005 as the baseline year, instead of 1990, because ARB released a statement around the time of the Adoption of AB 32 that "In recognition of the importance of local governments in the successful implementation of AB 32... [The ARB] recommends a greenhouse gas emissions reduction target for local government municipal and community-wide emissions of a 15 percent reduction from current levels by 2020 to parallel the State's target." Current levels, at the time, were for the year 2005.

³ Reduction targets have been adjusted to reflect the addition of off-road emissions and the new 2005 baseline.

⁴ Ibid.

⁵ Ibid.

Table 1
Apple Valley CAP Reduction Targets
Tons CO₂e

Target/Scenario	Community	Municipal	Town-Wide	Population	Per Capita
2005 Baseline	746,774	2,138	748,912	63,754	11.75
2020: 15% Below Baseline Target	≈634,758	≈1,817	636,575	74,140	8.59
2020: 2019 GHG Inventory	594,395	3,407	597,681	74,140	8.06
2030: 40% Below Baseline Target	≈448,064	≈1,283	449,347	84,535	5.32
2030: 40% Below, Forecast BAU	≈530,203	≈2,900	533,103	84,535	6.31
2030: 40% Below, Forecast w/ CAP Measures	≈408,752	≈2,170	410,922	84,535	4.86

II. INTRODUCTION TO GREENHOUSE GASES AND CLIMATE CHANGE

Greenhouse gases have, throughout earth's history, had a beneficial purpose – they keep the sun's heat in Earth's atmosphere, help to keep temperatures stable at an average of 60 degrees Fahrenheit, and influence climate across the globe. As fossil fuel use and industrial processes increased in the last two centuries, however, the production of greenhouse gases also increased beyond the natural order. As greenhouse gas concentrations rise in the atmosphere, they result in increases in temperature; this increase has become known as climate change.

GREENHOUSE GASES

The term greenhouse gases refers to a broad group of chemicals and substances which all have one thing in common: they have been found to cause changes in the atmosphere which have been shown to change, or are suspected of changing climatic conditions on earth. In most cases, these chemicals and substances have a very long life in the atmosphere, and therefore continue to affect climate over a long period of time.

The Intergovernmental Panel on Climate Change (IPCC) provides research and assessments relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC identifies six key GHG compounds: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and hydrofluorocarbons (HFCs). Due to these compounds' differing capacity to trap heat, GHG emissions are generally reported in metric tons of carbon dioxide equivalents (MTCO₂e). The primary GHGs are those most commonly resulting from human activities, which include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

Carbon Dioxide (CO₂): Carbon dioxide is the primary greenhouse gas that has raised the alarm of atmospheric scientists due to current and projected levels and the highly correlated temperature regression curve that has been observed, predicting a future path of rising carbon dioxide levels and associated increases in temperature. It is an odorless and colorless gas that is emitted from natural sources such as the decomposition of dead organic matter, respiration of bacteria, plants, animals and fungus, evaporation from oceans, and volcanic out gassing. Manmade sources of CO₂ include the combustion of coal, oil, natural gas, and wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks.

Currently (January 2021), carbon dioxide concentrations in the atmosphere are around 413 parts per million (ppm). Comparatively, prior to the Industrial Revolution, about 250 years ago, CO₂ levels were 278 ppm, and over the past 650,000 years carbon dioxide levels have fluctuated between 180 and 300 ppm, making present day atmospheric CO₂ levels substantially greater than at any point in the past 650,000 years.

Methane (CH₄): is released naturally as part of biological processes such as in low oxygen environments like swamplands, bogs, or in rice production (at the roots of the plants) and in cattle raising. Mining of coal, the combustion of fossil fuels, and biomass burning also generate methane emissions. Methane is a more efficient absorber of radiation compared to CO₂; however, its atmospheric concentration is less than carbon dioxide.

Nitrous Oxide (N₂O): is more commonly known as laughing gas and is a colorless greenhouse gas that in small doses can cause dizziness, euphoria, and sometimes slight hallucinations.

i. Regulatory Framework

Assembly Bill 4420

The first piece of California legislation directly associated with climate change was passed in 1988, when Assembly Bill (AB) 4420 was approved. This Bill directed the California Energy Commission to study the implications of global warming on California's environment, economy, and water supply, in consultation with the Air Resources Board and other agencies. The Commission was also required to prepare and maintain the state's inventory of greenhouse gas emissions. The ARB was required to adopt regulations to achieve the maximum feasible and cost-effective reduction of motor vehicle greenhouse gas emissions. ARB's proposal to implement these regulations was approved in September 2004.

Assembly Bill 32 - California Global Warming Solutions Act of 2006

On June 1, 2005 Governor Arnold Schwarzenegger issued executive order S-3-05, which calls for a reduction in GHG emissions to 1990 levels by 2020 and for a 40 percent reduction below 1990 levels by 2030. Also known as the California Global Warming Solutions Act of 2006 (AB 32) was adopted by the state legislature in 2006. It sets forth a program to achieve 1990 emission levels by 2020 and requires CARB to proclaim 1990 GHG emissions and develop a Scoping Plan, which sets forth GHG reduction methods. CARB has reported that 1990 GHG emissions totaled 427 million metric tons (MMT) for the state of California. Accordingly, to satisfy the requirements of AB 32, California needs to reduce its overall 2020 emissions for all sectors by 169 MMTCO₂e, or 28.3 percent below the "business as usual" 2020 projection of 596 million MMTCO₂e.

CARB adopted a GHG scoping plan on December 11, 2008. The Scoping Plan includes a cap-and-trade program, green building strategies, recycling and waste reduction, and Voluntary Early Actions and Reductions. In November 2017, CARB released the 2017 Climate Change Scoping Plan that not only discusses the 2030 targets, but how to substantially advance toward the State's 2050 climate goal to reduce GHG emissions by 80 percent below 1990 levels.

Typically, a local government's GHG emission reduction plan baseline year includes the most recent year for which information is available. In the 2006 AB 32 Scoping Plan, the recommended target for local government action was 15% below "current" levels by 2020, generally construed as the baseline years between 2005 – 2008.⁶ As such, the Town selected 2005 as the baseline year for all GHG emission reduction targets.

Senate Bill 32

Executive Order B-30-15 was issued by Governor Brown in April 2015 establishing a new California goal to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, ensuring the state will continue its efforts to reduce carbon pollution. Most recently, this 40% target was codified through Senate Bill 32 (2016), which adds section 38566 to the Health and Safety Code and requires that CARB ensure statewide GHG emissions meet the 40% reduction target no later than December 31, 2030.

On December 14, 2017, CARB released the final 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update), which lays out the framework for achieving the 2030 reductions as established in EO B-30-15 and SB 32. The 2017 Scoping Plan Update identifies GHG reductions by emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels by 2030.

Senate Bill 375

California SB 375 was signed by the Governor in September 2008 and is intended to, at least in part, implement greenhouse gas reduction targets set forth in AB 32 by setting regional "caps" on the GHGs emitted by the transportation sector. The bill encourages regional land use planning to reduce vehicle miles traveled and requires Metropolitan Planning Organizations (MPO) to adopt a Sustainable Communities Strategy as part of their Regional Transportation Plans. The applicable MPO for the Apple Valley is the Southern California Association of Governments (SCAG), which adopted the 2020-2045 Regional Transportation Plan and Sustainable Communities Strategy in September of 2020. SCAG's current target is to reduce GHG emissions from automobiles and light duty trucks by 8 percent per capita by 2020 and 19 percent by 2035 from 2005 emissions levels.

Other relevant federal and State regulations are identified in the following table.

⁶ "California's 2017 Climate Change Scoping Plan," prepared by CARB. November 2017.

Table 2 Federal and State Regulations

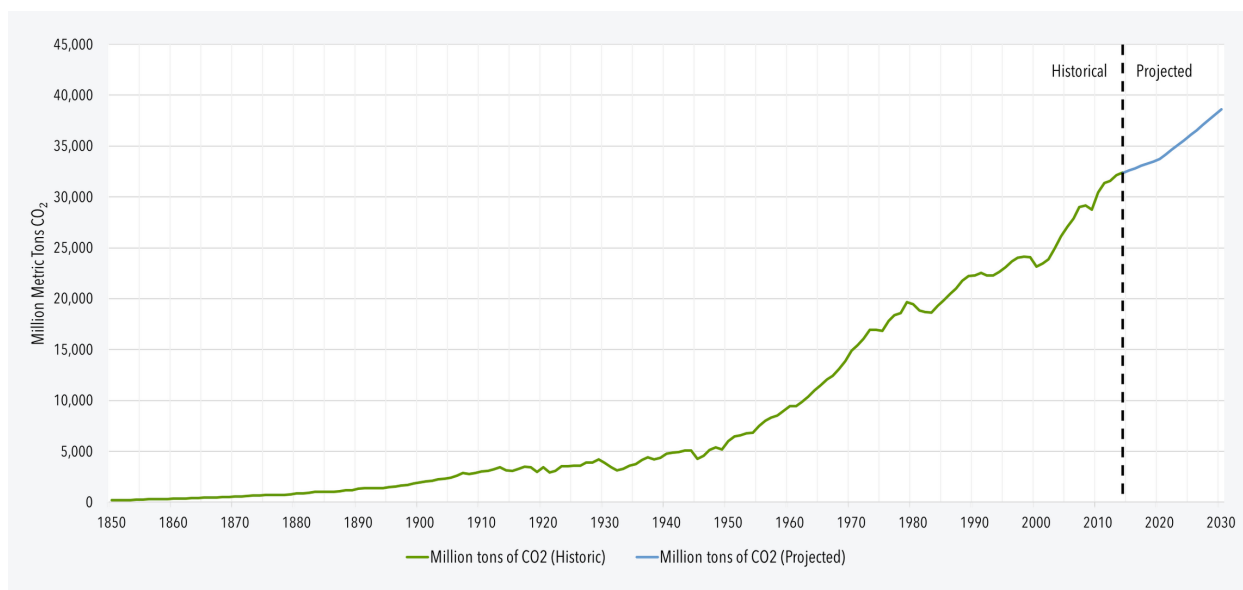
Federal	Clean Air Act (CAA)	In 2007, the U.S. Supreme Court ruled that CO ₂ is an air pollutant as defined under the CAA. This law authorizes the Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAGS) to regulate emissions of hazardous air pollutants.
Federal	Corporate Average Fuel Economy (CAFE)	Recently amended in 2020, National program for greenhouse gas emissions and fuel economy standards for light-duty vehicles jointly developed by EPA and National Highway Traffic Safety Administration (NHTSA).
State	SB 97	2010 Amendments to CEQA Environmental Checklist Form (Appendix G) and the Energy Conservation Appendix (Appendix F) that provide a framework to address global climate change in the CEQA process. State CEQA Guidelines Section 15064.4 provides an approach to assessing impacts from GHGs.
State	E.O. S-21-09	Under AB 32, Executive Order S-21-09 directed CARB to adopt a regulation by July 31, 2010 that sets a 33 percent renewable energy target as established by Executive Order S-14-08.
State	E.O. S-01-07	Executive Order S-01-07 set forth a low carbon fuel standard for California, whereby the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.
State	CA Title 24 Part 6: Green Building Code	The California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The City has adopted the Green Building Standards Code.
State	AB 197	AB 197 requires CARB to take specific actions when adopting plans and regulations pursuant to SB 32 related to disadvantaged communities, identification of specific information regarding reduction measures, and information regarding existing GHGs at the local level.
State	AB 1493	AB 1493 (Pavley) required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks.
State	Advanced Clean Cars Program	CARB approved this program In January 2012, which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025.
State	SB X1-2	SB X1-2 of 2011 requires all California utilities to generate 33% of their electricity from renewables by 2020.
State	SB 379	Starting January 2017, SB 379 requires California cities and counties include climate adaptation and resiliency strategies in the safety elements of their general plans. The bill requires the safety element update to include a set of goals, policies, and objectives for their communities based on a vulnerability assessment, as well as implementation measures to increase community resilience to climate change.

CLIMATE CHANGE AND GREENHOUSE GASES

Air pollution is a chemical, physical or biological process that modifies the chemistry and other characteristics of the atmosphere. The primary contributor to air pollution is the burning of fossil fuels used in transportation, power and heat generation, and industrial processes. The byproducts from the combustion of fossil fuels can contain a number of air polluting substances. These emissions are responsible for the poor air quality that is evident in industrial centers worldwide.

Some air polluting agents are also greenhouse gases (GHG), which are released into the atmosphere through natural processes and human activities. Carbon dioxide (CO₂) is the primary greenhouse gas that has raised the most concern of atmospheric scientists due to current atmospheric levels, current and projected emission levels, and the highly correlated temperature regression curve that has been observed, predicting a future path of rising carbon dioxide levels. The following chart demonstrates how rapidly global CO₂ emissions increased beginning in the 20th century.

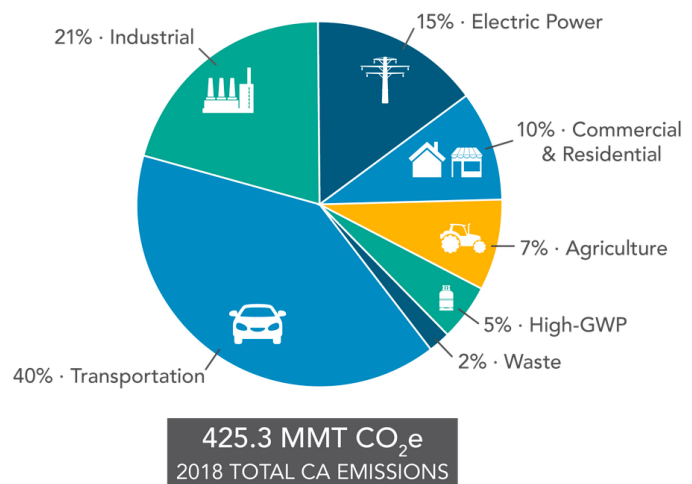
Figure 1: Global Carbon Dioxide Emissions, 1850-2030



Source: Center for Climate and Energy Solutions, www.c2es.org, accessed December 2020. Data sourced from Oak Ridge National Laboratory, 2017 and International Energy Agency, 2019.

California is the second largest greenhouse gas contributor in the U.S. and the sixteenth largest in the world. In 2004, California produced 492 million metric tons of CO₂ equivalent (MMTCO₂e), which was approximately 7% of all U.S. emissions. However, in 2018, California's total emissions were 425.3 MMTCO₂e, representing an overall decrease of 13.5% since peak levels in 2004. This puts total emissions below the 2020 target of 431 million metric tons.

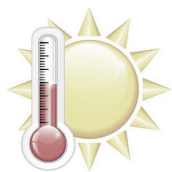
During the 2000 to 2018 period, per capita GHG emissions in California continued to drop from a peak in 2001 of 14.0 tons per person to 10.7 tons per person in 2018, a 23.6% decrease.⁷ This decrease may be due to increases in the effectiveness of energy conservation in buildings (Title 24 requirements) and the increased use of renewable energy, including solar generation, hydropower, and wind energy.



The transportation sector remains the largest source of GHG emissions in the state, accounting for 40% of California's emissions in 2018. Regulations and improved fuel efficiency of the state's vehicle fleet will drive down emissions over time, but population growth, lower fuel prices, improved economic conditions and higher employment rates are potential factors that may increase fuel use.⁸

EFFECTS OF CLIMATE CHANGE

The State of California produces statewide climate change summary reports that provide valuable research and scientific findings that directly inform State policies, plans, programs and guidance to promote and implement effective action to safeguard California from climate change. The following are key findings from State's Fourth Climate Change Assessment (Fourth Assessment).⁹



TEMPERATURE

By 2100, average annual maximum daily temperature is projected to increase by 5.6°F- 8.8°F. Studies suggest higher temperatures are worsening natural disasters, including storms, heat waves, floods, and droughts.

⁷ "California Greenhouse Gas Emission Inventory: 2000-2018," California Air Resources Board, 2020.

⁸ Ibid.

⁹ State of California's Fourth Climate Change Assessment, Air Resources Board.2018.



COMMUNITIES AND PUBLIC HEALTH

By 2050, urban heat waves could cause 2-3 times more heat-related deaths. The Central Valley is projected to experience average Heat-Health Events (HHEs) that are two weeks longer than normal, and at an occurrence 4 to 10 times more often compared to the Northern Sierra region.



WATER

Water supply from snowpack is projected to decline by two-thirds by 2100. Water management practices in California are facing growing challenges from extreme weather. Under certain precipitation conditions, it is estimated that California's agricultural production could face climate-related water shortages of up to 16 percent in certain regions by 2050. Models show that increasing soil organic matter also increases the soil water holding capacity, demonstrating an adaption option.



WILDFIRE

Studies show that the frequency of extreme wildfires would increase by 2100 if greenhouse gas emissions continue to rise, and that the average area burned statewide would increase 77 percent. The State's Forest Carbon Plan increases forest restoration and treatment, such as prescribed fire burns, to an average of 35,000 acres a year to mitigate the damage and spread of seasonal wildfires.



SEA LEVELS

By 2100, studies show that 31 to 67 percent of southern California beaches may completely erode without large-scale human interventions. It is estimated that \$17.9 billion worth of residential and commercial buildings could be inundated statewide by 2050, with a projected sea level rise of 50 cm. These costs would almost double in the event of a 100-year coastal flood under the same conditions. Rising sea levels also pose a threat to transportation infrastructure. Airports in major urban areas such as San Francisco, Oakland, and San Diego would also be susceptible to major flooding from a combination of storm events and sea-level rise. Approximately 370 miles of highway are also susceptible to coastal flooding, which is triple the miles currently at risk.



ENERGY

Hotter temperatures will increase annual electricity demand for homes, driven mainly by the increased use of air conditioning. During the hotter months of the year, increases in peak hourly demand could be more pronounced requiring an electricity-generating capacity capable of meeting such demands. California's Public Utilities Commission (CPUC) recently issued an Order Instituting Rulemaking to consider strategies and guidance for climate adaptation for electric and natural gas utilities.

III. GREENHOUSE GAS EMISSIONS, PROJECTIONS AND REDUCTION TARGETS

One of the primary objectives of the Climate Action Plan (CAP) is to identify and reduce local contributions to global GHG emissions. The CAP allows Town decision-makers and the community to understand the sources and magnitude of local GHG emissions, establish policies and programs to reduce GHG emissions, and prioritize steps to achieve emissions reduction targets.

The first step in creating a CAP is to complete a GHG inventory to identify major sources and quantification of GHG emissions associated with the activities and choices currently made by residents, businesses, and municipal operations. The inventory provides the baseline that is used to project emissions trends and to develop accurate reduction targets and interim goals consistent with State objectives. Establishing a greenhouse gas baseline allows for projecting an emission forecast and reduction target and achieving quantifiable emission reductions associated with implementing proposed measures.

It should be noted that this GHG Inventory is not intended to be exhaustive; rather a good-faith effort has been made to identify major sources of greenhouse gases and establish a baseline that can be further refined as more detailed information becomes available.

Two greenhouse gas inventories were prepared for the Town of Apple Valley: A Community Inventory and a Municipal Inventory. The inventories were conducted by reviewing records from various Town departments, such as Finance and Public Works, gathering and assembling data from local and regional utilities and management agencies, and utilizing modeling software to inventory emissions and compare to the baseline. For municipal data, the inventory included Town owned and operated facilities, such as government buildings, community parks and recreation centers, traffic signals and street lighting, operation of utility services and wastewater conveyance systems. Identifying Apple Valley's municipal GHG sources separate from community sources allows the government to estimate and track greenhouse gas emissions resulting directly from municipal operations.

There are two main reasons for completing separate emissions inventories for Community and Municipal operations. First, government has a higher degree of control and a greater opportunity to achieve GHG reductions in its own municipal emissions than those created by the community at large. Second, by proactively reducing emissions generated by its own activities, the Town of Apple Valley government takes a visible leadership role in the effort to address climate change, which is important for inspiring local action within Town limits, as well as surrounding communities.

i. Methodology

The format and methodology used in this 2019 Climate Action Plan update are modeled after those presented in previous CAP updates; however, the CAP has evolved to include and

expand upon information as new data sources become available. Wherever possible, the same data sources were contacted so that accurate and meaningful comparisons could be made between 2005 (baseline year analyzed in 2010 CAP) and current (2019) data. Where data was unavailable and assumptions were made in the previous CAPs, attempts were made to acquire actual data for 2019 to reflect current conditions and set the stage for more precise comparisons in future CAP updates. Where 2019 data was unavailable, the same assumptions as those made in the previous CAPs were used.

A greenhouse gas inventory is intended to consider all activities within the jurisdiction that result in the emission of greenhouse gases, including:

Electricity: Emissions from building energy use associated with electricity in residential, commercial and industrial buildings. Separate data for **wastewater** treatment and **water pumping** (transportation, treatment, distribution) were not provided, however emissions from these sectors have been captured in the residential and non-residential data “lump-sums” received from Southern California Edison (SCE).

Natural Gas: Emissions from building energy use associated with combustion of natural gas in residential, commercial and industrial buildings. **Propane** use is discussed as a subset of natural gas.

On-Road Transportation: Emissions associated with passenger cars, light-, medium-, and heavy-duty trucks, buses and motorcycles.

Off-Road Transportation: Emissions from heavy-duty construction equipment, landscaping equipment, and other off-road equipment.¹⁰

Solid Waste: Emissions from the disposal of organic material in landfills and community-generated mixed waste from residences and businesses within the Town.

Electricity data was provided by Southern California Edison (SCE), and natural gas data was provided by Southwest Gas Corporation. Electricity and natural gas records for individual municipal buildings were provided by the Town’s Finance Department. Public transit data was provided by Victor Valley Transit Authority (VVTa), and bus route maps and schedules were viewed on its website. Off-road emissions were generated using the EMFAC2017, a statewide mobile source emissions inventory developed by California Air and Resources Board (CARB).

¹⁰ Off-Road emissions were not analyzed in the 2010 CAP; however, CARB provides an off-road emissions analysis tool that calculates the off-road emissions within a particular jurisdiction and therefore, these emissions have been included in this CAP and subsequent CAPs. Activities that use off-road equipment include, but are not limited to, construction, industrial, and landscaping activities. Adjustments to the 2010 CAP data have been made herein to provide a meaningful comparison.

Solid waste data was provided by the Town and Burrtec Waste Industries. Town staff played a key role in providing information about municipal vehicle fleets, staffing, new development, growth rates, and other details about the community. Demographic data was acquired from the California Department of Finance. Data for this CAP update was collected for the calendar year 2019. Where 2019 calendar year data was unavailable, it was obtained for the closest year possible.

Throughout this document the terms “Community Inventory” (Community), “Municipal Inventory” (Municipal), and “Town-Wide” are used to characterize the group of greenhouse gas emissions being discussed. When referring to either Community or Municipal emissions, a distinction is being made between the two inventories and the emission sources associated with those inventories. Each inventory has its own reduction targets based on the State targets that are meant to provide guidance for reduction measures, policies and programs. Town-Wide emissions are the combined total of Community and Municipal emissions, and are the emission level assessed for compliance with State targets.

CLEARPATH SOFTWARE

To facilitate local government efforts to identify and reduce greenhouse gas emissions, the International Council for Local Environmental Initiatives (ICLEI) developed the ClearPath online software platform for completing greenhouse gas inventories, forecasts, climate action plans, and monitoring at the community or government-operations scales. ClearPath determines emissions using specific factors (or coefficients) according to the type of fuel used. ClearPath incorporates the methods and principles of the Local Government Operations Protocol (LGOP), US Community Protocol, and International Panel of Climate Change 5th Assessment, which are designed to provide a standardized set of guidelines to assist local governments in quantifying and reporting GHG emissions associated with their government operations. This software was used to estimate greenhouse gas emissions for 2019.

Emissions are aggregated and reported in terms of carbon dioxide equivalent units, or CO₂e. Converting all emissions to carbon dioxide equivalent units allows for the consideration of different greenhouse gases in comparable terms.

ii. 2019 Greenhouse Gas Emissions

EMISSIONS SUMMARY

The Table below provides a comparison of 2005 and 2019 GHG emissions by inventory and sector. As shown, Town-Wide emissions in Apple Valley were estimated at 748,912 MTCO₂e in 2005 and 597,681 MTCO₂e in 2019. This represents a CO₂e decrease of 151,231 MTCO₂e over the 15-year period. In 2019, Municipal emissions were estimated to be 3,407 MTCO₂e representing a CO₂e increase of 1,269 MTCO₂e between 2005 and 2019.

Table 3
Town of Apple Valley GHG Emissions Summary
2005 Baseline and 2019 Comparison

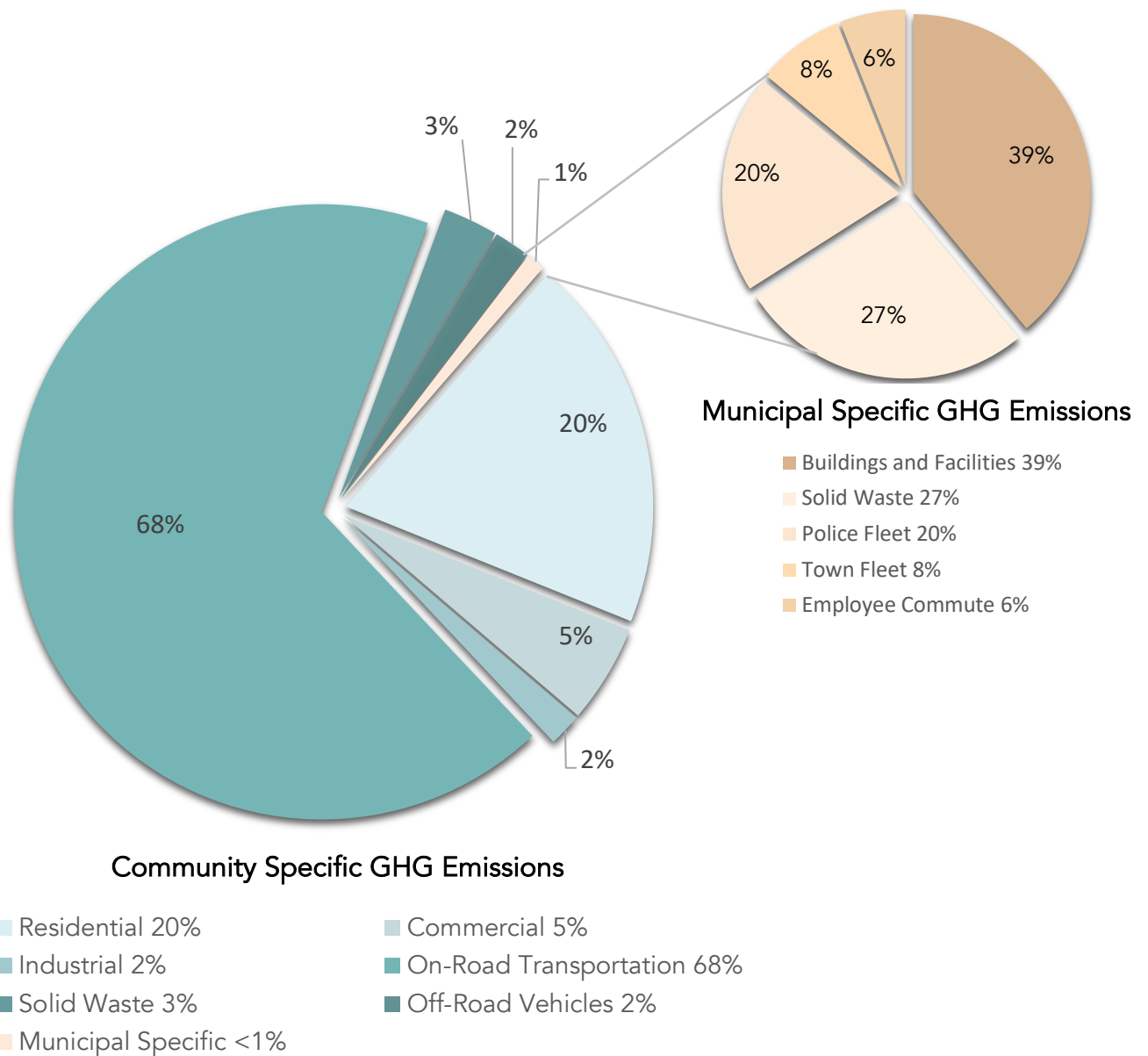
Sector	2005 MTCO ₂ e	2019 MTCO ₂ e	MTCO ₂ e Increase/Reduction
Community			
Residential	141,417	118,327	23,090 Reduction
Commercial	38,039	31,071	6,968 Reduction
Industrial ¹	14,460	10,371	4,089 Reduction
On-Road Transportation	510,676	405,797	104,879 Reduction
Solid Waste	43,932	17,229	26,703 Reduction
Off-Road Vehicles	388 ²	11,479	11,091 Increase
<i>Subtotal w/o Off-Road:</i>	<i>748,524 MTCO₂e</i>	<i>--</i>	<i>154,638 MTCO₂e</i>
Subtotal w/ Off-Road:	748,912 MTCO₂e	594,274 MTCO₂e	Reduction
Municipal	<i>Subset of Community Total</i>	<i>Separate Inventory to add to Community Total</i>	
Buildings and Facilities ³	1,100	1,332	232 Increase
Streetlights and Traffic Signals ³	--	--	--
Wastewater Facilities ³	--	--	--
Employee Commute	347	195	152 Reduction
Municipal Fleet	256	286	30 Increase
Police Fleet	364	685	321 Increase
Solid Waste ⁴	71	909	838 Increase
Subtotal:	2,138 MTCO₂e	3,407 MTCO₂e	1,269 MTCO₂e Increase
<i>Town-Wide w/o Off-Road Total:</i>	<i>748,524 MTCO₂e</i>	597,681 MTCO₂e	151,231 MTCO₂e Reduction
Town-Wide w/ Off-Road Total:	748,912 MTCO₂e		
Population:	63,754	74,140	10,386 Increase
Town-Wide Per Capita MTCO₂e:	11.75 per Capita	8.06 per Capita	3.69 per Capita Reduction

1. 2019 SCE data was provided in "lump-sum," Industrial emissions include emissions from pumping facilities, streetlights, and traffic signals for both 2005 and 2010.

2. The original CAP and CAP updates did not previously quantify off-road emissions. Off-road emissions were retroactively added to the 2005 baseline total.

3. 2019 Municipal emissions for "buildings and facilities" include emissions from streetlights, traffic signals, and pumping due to SCE "lump-sum" data, which didn't provide sector-specific data. 2005 emissions for buildings/streetlights/wastewater were combined for a similar comparison of 2005 and 2019.

4. 2019 solid waste data was provided by Town. No data was provided in 2005, and assumptions were made based on total tons of waste Town-wide divided by population, and applying that rate to the 104 employees, thus potentially understating municipal solid waste generation.



The Community and Municipal inventories combined are inclusive of all emissions generated within the entire Town of Apple Valley from electricity, natural gas, propane, on- and off-road vehicles, transit buses, and decomposition of solid waste. The data and methodology used to estimate these emissions are described below.

ELECTRICITY

Southern California Edison (SCE) provided Town-wide electricity usage data for the 2010 Climate Action Plan and for the 2019 Climate Action Plan update. SCE prepared an electricity usage report for all accounts in the Town for 2019 (see Appendix A). Table 4 compares the 2005 baseline to 2019 electricity usage. Annual electricity usage is described by sector and in terms of kilowatt-hours (kWh).

SCE provided 2019 community kWh usage in conformance with the data aggregation rules established by the California Public Utilities Commission’s (CPUC) per the Energy Data Request Program. The 15/20 and 5/25 Aggregation Rules are intended to protect customer confidentiality by reducing the possibility of identifying customers through the release of usage information. Agricultural, commercial, and residential energy data are subject to the 15/20 Aggregation Rule. This rule stipulates that energy consumption data for each customer class must contain at least 15 customers with no single customer making up more than 20% of the total energy consumption. For the industrial sector, the 5/25 Aggregation Rule must be applied and stipulates that the customer class must contain at least 5 customers with no single customer making up more than 25% of the total energy consumption.

Based on the SCE 2019 reports for Apple Valley, both agricultural and industrial sectors failed the aggregation rules. The data for the areas that fail the aggregation rules have to be omitted and, therefore, are not provided as separate data sets. SCE provided 2019 data in lump-sums using two breakdown methods. The first breakdown is by specific rate category, including agricultural, commercial, industrial, and residential data. Usage data was only provided for commercial and residential categories due to the aggregation rules for agricultural and industrial uses.

The second breakdown is in generalized lump sums for “residential” and “non-residential.” The “non-residential” category includes agricultural, commercial, and industrial uses. Municipal-specific data was also lumped into the “non-residential” sector. For municipal-specific data, billing and usage data was provided by the Apple Valley Finance Department and was then subtracted from the “non-residential” lump sum.

Based on the data breakdowns provided by SCE, it can be inferred that the combined agricultural and industrial usage would be equal to the “non-residential” lump sum minus the commercial and municipal specific usages. It should also be noted that in 2019 kWh usage data for water pumping and streetlights/traffic signals were not provided separately, and instead are aggregated with “non-residential” emissions.

The following table provides a summary comparison of 2005 and 2019 electricity consumption data and the associated GHG emissions for both Community and Municipal inventories.

Table 4
Electricity Usage
2005 Baseline and 2019 Inventory Comparison

Sector	2005 (Baseline)			2019		
	Annual kwh Consumed	No. of Accts.	kWh per Acct.	Annual kwh Consumed	No. of Accts.	kWh per Acct.
Community						
Residential Subtotal	195,613,488	23,316	8,390	205,153,100	25,572	8,022
Commercial	79,780,787	301	265,052	82,741,337	1,396	59,270
Industrial/Agricultural ¹	13,799,465	1,848	7,467	38,785,029	45 ¹	--
Streetlight and Traffic Signals	3,905,754	160	24,411	--	--	--
Water Pumping ¹	16,783,859	96	174,832	--	--	--
Non-Residential Subtotal:	114,269,865	2,405	--	121,526,366	1,441	--
Community Subtotal:	309,883,353 kWh			326,679,466 kWh		
GHG Emissions Subtotal:	109,954 MT/CO₂e			75,244 MT/CO₂e		

Municipal		
Buildings and Facilities	842,006 kWh	1,539,447 kWh
Streetlight and Traffic Signals	543,201 kWh	1,629,782 kWh
Water Pumping	298,043 kWh	
Municipal Subtotal (kWh):	1,683,250 kWh	3,169,229 kWh
GHG Emissions Subtotal:	1,100 MT/CO₂e	732 MT/CO₂e

Town-Wide Total kWh:	311,566,603 kWh	329,848,695 kWh
GHG Emissions Total:	111,054 MT/CO₂e	75,976 MT/CO₂e
Per Capita	Population: 63,754 4,887 kWh per capita 1.74 MT/CO ₂ e per capita	Population: 74,140 4,449 kWh per capita 1.02 MT/CO ₂ e per capita

Source: Southern California Edison.

1. In 2005, kWh from agricultural water pumping was provided as a stand-alone category. In 2019, agricultural sector was lumped with industrial (non-residential) sector, and therefore kWh per account cannot be compared for 2005 and 2019.

Community Inventory - Electricity

Between 2005 and 2019, the number of community SCE accounts in Apple Valley increased by 1,292 (9.6%) and total annual electricity consumption increased by 16,796,113 kwh (5.4%). There was a total kWh increase in the residential sector of 9,539,612 kWh (4.8%) due to population growth and the increase in residential accounts; however, the number of kWh consumed per residential account decreased by 368 kWh (-4.38%) This kWh per account decrease is in part due to the increased efficiencies in SCE electricity production, but also the expansion of rooftop solar and compliance with Title 24 Building Efficiency Standards (Title 24, Part 6 and 11).

According to the Town's Building Department, approximately 1,486,998 square feet of new commercial/industrial space, 391 single family residential units, and 8 multi-family residential units were built between 2016 and 2019. Of these, approximately 403 buildings exceeded Title 24 Building Efficiency Standards (Title 24, Part 6 and 11), and a number of energy efficient appliances were installed, including 399 water heaters, 188 pool pumps, and 1,317 HVAC units.¹¹ The Town also inspected 1,272 photovoltaic systems, 2 fuel cells, and 1 hydrogen generation system during this same time period. The largest commercial structure built during this period was the Big Lots distribution center (1,415,438 square feet). It was constructed to LEED standards (Leadership in Energy and Environmental Design) and was certified by the Community Development Department in November 2019.

In the non-residential category, which includes the agricultural, commercial, and industrial sectors, total usage increased by 7,256,501 kWh (6.3%) due to population growth and the addition of new businesses and services. Per SCE, emissions and number of accounts from water pumping facilities, streetlights, and traffic signals were included in the 2019 "non-residential" lump sum amount, and therefore could not provide a direct comparison to 2005.

Municipal Inventory – Electricity

SCE did not provide municipal specific data for 2019. Instead, municipal data was lumped into the "non-residential" sum. To extract municipal-specific data, billing and usage information was provided by the Apple Valley Finance Department and the kWh usage was then subtracted from the "non-residential" lump sum to avoid double counting kWhs. As shown in the table above, electricity usage by municipal accounts increased by 1,485,979 kWh (88.2%) between 2005 and 2019. Several sizeable Town facilities were built, acquired or remodeled after 2005 resulting in the significant increase. Post-2005 construction and improvements include:

- remodeling at the Public Works facility on Nomwaket Road;
- construction and expansion of recreation services at Civic Center Park, including construction and operation of the aquatic center/community pool; and
- construction of the Animal Services and Apple Valley Conference building.

The Town's records show that the municipal facility that consumed the most electricity in 2019 was the Conference Center, which used 460,076 kWh, or approximately 14.5% of all municipal electricity (see Appendix A for account details).

¹¹ Daniel Alcayaga, Town of Apple Valley, forwarded email from Building Official, Patrick Carroll, Building Department. February 4, 2021.

The largest increase in kWh was from the streetlights, traffic signals, and water pumping sectors, which increased 94% from 2005 to 2019. Although these sectors were not broken out separately by SCE, it can be logically assumed that this increase is due to the expansion of City infrastructure and services, including the new aquatic center which would increase overall water pumping.

GHG Emissions from Electricity

To determine the GHG emissions generated by electricity consumption in 2019, kWh values for each sector were entered into the ClearPath model. ClearPath does not have default SCE electricity emission factors for the year 2019. However, default electricity emission factors for 2018 were available, and being the most current electricity emission factors, were used for purposes of this analysis. ClearPath shows SCE to have an electricity emission factor of 507 CO₂ lb/MWh for the year 2018.

According to the ClearPath Software, a total of 75,244 MTCO₂e were emitted from Community electricity. Of that, 47,187 MTCO₂e was from the residential sector, and 28,057 MTCO₂e was from the Community non-residential sector. A total of 732 MTCO₂e were emitted from Municipal electricity consumption, bringing the Town-wide total 2019 GHG emissions for electricity to 75,976 MTCO₂e. This represents an overall reduction of 35,078 MTCO₂e (31.6%) from 2005.

NATURAL GAS

Southwest Gas Corporation provided 2019 natural gas usage data for commercial, residential, industrial, irrigation/water pumping, and electric generation accounts (see Appendix A). Unlike 2005, 2019 industrial data was broken down into three categories: industrial, water pumping, and power generation. The combination of these three categories produces a total therm count that is consistent with the industrial data provided in 2005; therefore, it is assumed that water pumping and power generation were included in the 2005 industrial sector data.

Data was categorized by customer class and provided in terms of therms, a standard unit for measuring heat energy. One therm is equal to 100,000 British thermal units (BTU), which is the energy equivalent of burning approximately 100 cubic feet of natural gas. A therm unit provides energy content, which varies due to variations in the mix of hydrocarbons.

The following table provides a summary comparison of 2005 and 2019 natural gas usage data and the associated GHG emissions for both community and municipal inventories.

Table 5
Natural Gas Usage
2005 Baseline and 2019 Inventory Comparison

Sector	2005 Baseline			2019		
	Annual Therms	No. of Accounts	Avg. Therms per Account	Annual Therms	No. of Accounts	Avg. Therms per Account
Community						
Residential	11,576,524	22,526	513	12,896,656	26,549	486
Commercial	1,574,978	991	1,589	2,250,176	1,171	1,922
Industrial	359,547	4	89,886	35,330		
Water Pumping	--	--	--	2,196	9	29,667
Power Plant	--	--	--	229,478		
Community Therm Subtotal:	13,511,049	23,521	575	15,413,836	27,729	556
Propane GHG Emissions	486 MT/CO ₂ e (72,000 gallons)			2,547 MT/CO ₂ e (451,000 gallons)		
Community GHG Emissions	83,474 MT/CO ₂ e			81,978 MT/CO ₂ e		
GHG Emissions Subtotal:	83,960 (MT/CO₂e)			84,525 (MT/CO₂e)		
Municipal						
Buildings and Facilities	81,211 therms			112,896 therms		
Municipal Therm Subtotal:	81,211 therms			112,896 therms		
GHG Emissions Subtotal:	502 (MT/CO₂e)			600 (MT/CO₂e)		
Town-Wide Total Therms	13,592,260 therms			15,526,732 therms		
GHG Emissions Total:	84,462 MT/CO₂e			85,125 MT/CO₂e		
Per Capita	Population: 63,754 213 therms/capita 1.32 MT/CO ₂ e /capita			Population: 74,140 209 therms/capita 1.14 MT/CO ₂ e /capita		

Community Inventory – Natural Gas

As shown above, the number of natural gas accounts in Apple Valley increased by 4,208 (17.9%) between 2005 and 2019 and annual Community natural gas consumption increased by 1,902,787 therms (14%). Per account usage decreased by approximately 5.3% in the residential sector, increased 21% in the commercial sector, and decreased 67% in the industrial sector (includes water pumping and electric generation). Overall, total community natural gas usage was approximately 15,413,836 therms in 2019.

The decrease in per account usage in the residential sector, accompanied by an overall increase in the number of accounts and natural gas usage, can be attributed to increased building efficiencies required by the Title 24 Building Energy Efficiency Standards and energy efficient appliances.

Per account usage decreased significantly (67%) in the industrial sector. Between 2005 and 2013, the 2 million square-foot Walmart distribution center installed 10 acres of solar panels that generate enough energy to power half of the facility's needs. This solar power conversion could be a significant contributor to reductions in industrial natural gas consumption.

Propane

As was done in 2005, in order to account for the use of propane within the Town of Apple Valley it was assumed that on average a single-family home utilizes 1,000 gallon of propane annually. It was estimated that homes not using natural gas utilized propane. The Town of Apple Valley determined there were approximately 27,000 housing units in Apple Valley in 2019. Southwest Gas indicated there were 26,549 residential accounts. This suggests that 451 homes did not use natural gas, and it was assumed they used propane as an alternative fuel. Based on this assumption, an estimated 451,000 gallons of propane were consumed in Apple Valley in 2019, which is 379,000 gallons more than what was consumed in 2005.

Town building permits do not track the type of fuel used in new homes and, therefore, documenting propane use is difficult. It is possible that the assumptions described above overstate reliance on propane, but the methodology used to estimate propane usage in previous CAPs is the same.

Aside from the obvious increase in population, there are a number of other reasons that may explain recent increases in propane consumption. According to a 2016 propane market analysis, consumer propane sales in the United States are expected to grow by about 8,000 million gallons (9%) between 2014 and 2025.¹² Propane production could continue to increase in the future because it has a lower-carbon fossil fuel than other petroleum-based products (e.g. distillate fuel oil, kerosene, and gasoline) and is a cleaner-burning alternative. It also has a near-zero direct global warming potential and, therefore, may be preferred over natural gas in some applications. Additionally, the decline in propane prices over the years has made it more competitive relative to electricity and natural gas.

Municipal Inventory – Natural Gas

Southwest Gas usage reports show that the largest municipal consumer of natural gas in 2019 was the community pool located at 14-999 Dale Evans Parkway. It used 36,050 therms of natural gas, or 32% of the total natural gas used by Town facilities. The second largest consumer of municipal natural gas was the Apple Valley Conference Center, which consumed 15,319 therms or 13.5% of municipal natural gas in 2019. It can be inferred that the increase in total municipal

¹² 2016 Propane Market Outlook, prepared by ICF International, Inc.

therms is due to the addition of buildings and facilities post 2005, particularly the aquatic center. Overall, total municipal natural gas usage was approximately 112,896 therms in 2019, which is a 31,685-therm increase (39%) compared to 2005.

GHG Emissions from Natural Gas

Figures for Community and Municipal natural gas and propane usage were entered into the ClearPath model to estimate GHG emissions. According to the ClearPath Software, a total of 84,525 MTCO₂e were emitted in 2019 from Community sources, which is a 565-ton increase (0.7%) from 83,960 tons in 2005.

Based on the ClearPath model, it was estimated that a total of 600 MTCO₂e were emitted in 2019 from municipal use of natural gas, which is a 98 ton increase from 502 tons in 2005. As was true in the previous CAP, no municipal facilities use propane and, therefore, no GHG emissions resulted from propane use in 2019.

Overall, Town-wide emissions increased 663 MTCO₂e (0.8%) from 84,462 MTCO₂e in 2005 to 85,125 MTCO₂e in 2019.

ON-ROAD TRANSPORTATION

The combustion of fuel during vehicle operation generates GHG emissions. Community emissions are generated by two sources: 1) vehicle used by residents, workers, and others traveling through Apple Valley, and 2) public transportation. The municipal transportation sector includes: 1) municipal fleet of vehicles, 2) Sheriff's Department fleet of vehicles (Apple Valley portion only), and 3) employee commutes.

The following assumptions were made in the 2010 CAP for the 2005 Community Inventory:

- Average Daily Trips: Referenced Town of Apple Valley General Plan Update Circulation Update (2009) traffic count data and ITE standard trip length per trip type, and estimated a total 776,790,000 VMT including both Community and Municipal VMT.
- Transit: Specific data on Victor Valley Transit Authority routes not available, it was assumed transit buses accounted for 1,500,000 VMT, which is included in the 776,790,000 VMT count described above.

The following assumptions were made in the 2010 CAP for the 2005 Municipal Inventory:

- Municipal Fleet: Town provided total annual gallons for 2008 and applied an 8.47% reduction factor applied to back cast to 2005. Estimated 21,422 gallons of gasoline and

2,427 gallons of diesel. Because VMT data was not provided, CO₂e emissions from this sector were subtracted from the Community passenger gasoline sector and accounted for under Municipal emissions to avoid double counting.

- Sheriff Department: Fleet comprised of 30 vehicles, total miles traveled in 2008 were reduced by 8.47% to estimate 2005 data. Estimated 33,815 gallons of gasoline. Because VMT data was not provided, CO₂e emissions from this sector were subtracted from the Community passenger gasoline sector and accounted for under Municipal emissions to avoid double counting.
- Employee Commute: 104 full time employees, assumed average of 23 miles roundtrip, 5-day work week year-round. Estimated 570,928 VMT.

Assumptions made for the 2019 Community and Municipal Inventories are described below.

The following table provides a comparison of On-Road VMT and GHG emissions for 2005 and 2019.

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Table 6
On -Road Transportation
2005 Baseline and 2019 Inventory Comparison

Sector	2005 Baseline VMT		2019 VMT	
Community VMT	Total VMT	Population	Total VMT	Population
Personal Vehicles	774,719,072	63,754	923,518,833	74,140
Gasoline	--	--	784,756,111	--
Diesel	--	--	138,486,373	--
Transit	1,500,000	--	555,424	--
CNG	--	--	521,918	--
Gasoline	--	--	33,506	--
Community VMT Subtotal	776,219,072 VMT	12,175 miles per capita	923,797,907 VMT	12,460 miles per capita
Municipal VMT	Total VMT	Employee	Total VMT	Employee
Employee Commute ¹	570,928	104	538,200	104
Police Fleet	--	--	938,788	--
Municipal Fleet	--	--	276,736	--
Municipal VMT Subtotal	570,928	5,490 miles per employee²	1,753,724	5,175 miles per employee²
Town-Wide VMT Total³	776,790,000 VMT	12,184 miles per capita	925,551,631 VMT	12,484 miles per capita
Sector	2005 GHG Emissions		2019 GHG Emissions	
Community GHG Emissions	MT/CO₂e		MT/CO₂e	
Personal Vehicles	510,676		400,609	
Gasoline	422,335		321,393	
Diesel	88,341		79,216	
Transit	(See footnote 4)		5,309	
CNG	--		53	
Gasoline	--		5,256	
CO₂e Emissions Total	510,676 MT/CO₂e		405,918 MT/CO₂e	
Municipal GHG Emissions	MT/CO₂e		MT/CO₂e	
Employee Commute	347		195	
Police Fleet	364		685	
Municipal Fleet	256		286	
CO₂e Emissions Total (MT/CO₂e)	967 MT/CO₂e		1,166 MT/CO₂e	
Town-Wide GHG Total²	511,641 MT/CO₂e	8.02 MT/CO₂e per capita	407,084 MT/CO₂e	5.49 MT/CO₂e per capita

Source: 2005 VMT is from 2010 Apple Valley Climate Action Plan p. III-7. 2019 VMT is based on 2016 VMT (907,403,560) plus 2% annual growth rate per the Town Engineer.

1. Employee Commute: There were 225 workdays in 2019 after accounting for holidays and weekends. Workdays (225) x 23 miles round trip x 104 employees = 538,200 VMT. 2005 did not base assumptions on calendar days, instead used Town-wide VMT assumptions, assumed 23 miles round trip x 5-day work week = 570,928 VMT.

2. The VMT per employee calculation is based on Employee Commute VMTs and number of Town employees. Police and municipal fleet VMTs were not included in the VMT per employee calculation. This also provides an apples-to-apples comparison of 2005 and 2019.

3. Town-wide 2005 VMTs based on AV General Plan Circulation Update for daily trips x ITE standard trip length = 776,790,000 VMT.

4. The 2010 CAP did not provide separate transit emissions. Instead, these emissions were captured in the total and it was assumed that transit accounted for 1,500,000 VMTs.

Residents, Workers, Through Trips

The majority of GHG emissions from the transportation sector are from vehicle miles generated by people living, working, and traveling in Apple Valley. The 2010 CAP used data from the Town's General Plan Circulation Element Update to estimate that 776.79 million miles (vehicle miles traveled, or VMT) were traveled in 2005.

Town-wide traffic counts have not been updated since the General Plan Update. To estimate Community vehicle miles traveled for this CAP update, a population growth rate was applied to the preceding CAP's VMT assumptions. For example, to estimate community vehicle miles traveled for the previous CAP update (2016), the growth rate was derived by dividing the percent population change from 2013 to 2016, which was 5.35%. This growth rate percentage was then applied to the 2013 VMTs to estimate the 2016 VMTs. The 5.3% annual growth rate yielded an estimated 907,403,560 VMT in Apple Valley in 2016.¹³

From 2016 to 2019, the Town's population increased 0.29%, from 73,925 to 74,140. For conservative analysis, a 2% growth rate for the entire 3-year period was applied to the 2016 VMTs as suggested by the Town traffic engineer. Applying the 2% growth rate to 907,403,560 VMTs yielded an estimated 925,551,631 VMT in Apple Valley in 2019. As was done in the previous CAPs, it was assumed that 85% of VMT were gasoline and 15% were diesel. A comparison of 2005 and 2019 vehicle miles traveled is provided in Table 6.

Public Transportation

Transportation in Apple Valley also includes a railroad, County-owned regional airport, and transit buses operated by the Victor Valley Transit Authority (VVTa). The Town has no control over either rail or airport activities, and therefore, cannot control emissions or emission reductions from these operations. GHG emissions associated with air and rail travel were not included in the original CAP or previous CAP updates and, therefore, are not included in this analysis.

Specific transit data was not available from VVTa for 2005, and the 2010 CAP assumed that VVTa buses accounted for 1.5 million vehicle miles per year. For the 2019 update, however, bus and route information was acquired from VVTa (see Appendix A). Based on this information and review of VVTa bus routes, it was estimated that VVTa buses traveled 555,424 miles in the Town in 2019.

¹³ A calculation typo in the 2016 CAP estimated 875,130,655 VMTs. This CAP update corrects this typo and updates the 2016 estimates and emission projections referenced herein accordingly.

Six (6) bus routes serve Apple Valley. Some routes extend into neighboring communities; however, only the route mileage located within Apple Valley Town limits was included in this analysis. VVTA provided the number of total bus trips per day, and bus schedules and routes were used to estimate the total mileage within the Town for each route. All 40-foot transit buses operated by VVTA use compressed natural gas (CNG). Of the smaller 22 to 35-foot buses, which include ADA-compliant buses and vans providing curb-to-curb service on flex routes, approximately 25% are gasoline-powered and 75% are CNG-powered. None of the revenue-generating vehicles are diesel-powered.

Municipal Inventory – On-Road Transportation

Municipal Fleet

According to the 2010 Climate Action Plan, the municipal fleet had 46 vehicles and used 23,860 gallons of fuel in 2005, which yielded an annual consumption rate of 518 gallons per vehicle.

In 2019, the Town provided information on 58 owned vehicles that used 32,494 gallons of gasoline and traveled a total of 276,736 miles. Annual consumption was 560 gallons per vehicle. Compared to 2005 this represents an increase of 12 vehicles. There was an increase in fuel consumption of 42 gallons per vehicle. Based on the ClearPath modeling, operation of the municipal fleet in 2019 generated the emission of 286 tons of CO₂e.

Police Fleet

The Town of Apple Valley contracts with the San Bernardino County Sheriff's Department for police services. The Department generated GHG emissions from the operation of vehicles. In 2005, 31 vehicles were assigned to Apple Valley. They consumed 33,815 gallons of fuel, yielding a consumption rate of 1,090 gallons per vehicle.

In 2019, the Sheriff's Department operated 37 vehicles and used 77,782 gallons of gasoline. Annual fuel consumption was 2,102 gallons per vehicle on average. In comparison with 2005, this represents an increase of six vehicles and an increase of 1,012 gallons of fuel per vehicle. Mileage was not provided for the police fleet; however, mileage was estimated using the average miles per gallon of the Town fleet (12.07 gallons/mile)¹⁴ resulting in an estimated 938,788 VMT. The ClearPath modeling indicates that operation of the police fleet generated 685 tons of CO₂e in 2019.

Fleet Analysis

The increases in fuel consumption described above could be due to methodology differences used in the 2010 CAP and this update. Actual 2005 data was not available for the 2010 CAP, so assumptions were based on data from other years. Actual 2019 figures from the Town

¹⁴ Average MPG calculated by averaging the MPGs of the vehicle fleet list provided by Town. See Appendix A for details.

Finance Department and Sheriff's Department were obtained for this update and the two previous updates. Increases in fuel consumption may also be partly due to natural growth in the Town, which demands more travel by employees and increased patrols by police personnel.

Employee Commute

GHG emissions are also generated by vehicles used by Town employees commuting to and from work. The 2010 CAP states that in 2005, 104 full-time employees traveled an average of 23 miles roundtrip to and from work in passenger vehicles. This resulted in 570,928 total vehicle miles, or 5,489 miles per employee.

In 2019, the Town employed 104 full-time personnel. Similar to the 2010 and 2014 CAPs, it was assumed that they traveled 23 miles roundtrip to and from work. This resulted in 538,200 total vehicle miles. Compared to 2005 this represents a reduction of 32,728 total vehicle miles. There was a decrease in VMTs, but same number of employees and roundtrip assumptions, because weekends and alternating Fridays were not counted for the 2019 calendar year. Compared to 2005, which assumed 251 workdays, 2019 had 225 workdays, which is a reduction of 26 workdays. ClearPath modeling estimates that 2019 employee commutes resulted in the generation of 195 tons of CO₂e.

GHG Emissions from On-Road Transportation

The data described above were entered into the ClearPath model to estimate total GHG emissions generated by on-road transportation. Emissions from the 2019 Community Inventory were 405,797 MT/CO₂e, which is a 104,879 MT/CO₂e reduction from 2005. Emissions from the 2019 Municipal Inventory were 1,166 MT/CO₂e, which is a 199 MT/CO₂e increase from 2005.

Compared to 2005, the 19% increase in VMTs combined with a 20% decrease in GHG emissions in 2019 can be attributed to improved vehicle technology and fuel emission standards.

OFF-ROAD TRANSPORTATION

Off-road activities in Apple Valley include heavy-duty construction equipment (e.g., excavators, cranes, dozers), landscaping equipment, and other off-road equipment. For analysis purposes, this sector falls entirely under the scope of the Community Inventory, and there will be no emissions applied to the Municipal Inventory.

Off-road emissions were estimated using CARB's EMFAC2017 web-based modeling tool, specifically the Project Analysis tool, which generated annual off-road emissions for the year 2019 in San Bernardino County. Emission outputs were generated under the "All Adopted Rules-Exhaust Scenario" using the "OFFROAD2017 Equipment Types," both of which are

default factors within the Project Analysis tool.¹⁵ Emission rates also account for meteorological conditions (temperature and relative humidity), for which San Bernardino County has an average of 66 degrees Fahrenheit and 54% relative humidity.

The off-road emission report for San Bernardino County does not provide city or town specific emissions, but instead provides total County-wide emissions for all off-road activities. To determine the Town’s “share” of off-road emissions, the Town’s percentage of the County’s population was applied to the total off-road emissions. San Bernardino’s 2019 population was approximately 2,180,085 and total annual off-road emissions were 337,616 MTCO₂e (see Appendix A). The Town’s 2019 population of 74,140 represents 3.4% of the County’s total population, thus it was assumed that the Town’s annual off-road emissions were 3.4% of the County’s total, or 11,479 MTCO₂.

As previously discussed, off-road emissions were not accounted for in the original 2010 CAP. Therefore, off-road emissions have been applied retroactively to the 2005 baseline to provide an accurate comparison of 2005 and 2019 emissions. This same methodology and web-based tool was used to generate the off-road emissions for the year 2005.

Table 7
Off -Road Transportation
2005 Baseline and 2019 Inventory Comparison

Sector	2005 Baseline	2019
Community		
Off-Road Emissions	388 MTCO ₂ e	11,479 MTCO ₂ e

Source: CARB EMFAC2017.

SOLID WASTE

Nearly all the Town’s solid waste disposal occurs at the Victorville Landfill on Stoddard Wells Road in Victorville. The 2010 CAP reported that 75,618± tons of solid waste were delivered to landfills by the Apple Valley community in 2005. In 2019, this number decreased to 61,038 tons, which represents a decrease of 14,580 tons or 19% over the 14-year period. The 2019 data are provided in the Town’s Annual Report Summary for its CalRecycle Electronic Annual Report (see Appendix A).

¹⁵ Email Correspondence with Cory Parmer, Manager, Off-Road Diesel Emission Inventory, California Air Resources Board. February 3, 2021.

A comparison of 2005 and 2019 solid waste figures is shown in the table below. ClearPath model outputs indicate that the decomposition of Town-wide waste in 2019 resulted in the generation of 18,138 tons of CO₂e.

Table 8
Solid Waste
2005 Baseline and 2019 Inventory Comparison

Sector	2005			2019		
	Tons Disposed	Population	Tons Per Resident	Tons Disposed	Population	Tons Per Resident
Community						
Solid Waste Disposed in Landfills	75,495	63,754	1.19	60,219	74,140	0.81
Community GHG Emissions Total (MT/CO ₂ e)	43,861 MT/CO ₂ e			17,229 MT/CO ₂ e		
Municipal	Tons	Employees	Tons/Emp.	Tons	Employees	Tons/Emp.
Solid Waste Disposed in Landfills	123	104	1.18	819	104	7.87
Community GHG Emissions Total (MT/CO ₂ e)	71 MT/CO ₂ e			909 MT/CO ₂ e		
Town-Wide Solid Waste Total	75,618 tons/ 1.18 tons per person			61,038 tons / 0.82 tons per person		
CO₂e Emissions Total (MT/CO₂e)	43,932 MT/CO ₂ e			18,138 MT/CO ₂ e		

Source: 2005 data taken from p. III-7 of 2010 Apple Valley Climate Action Plan. 2019 data taken from "CalRecycle Electronic Annual Report Summary: Apple Valley 2019," (see Appendix A).

Community Inventory – Solid Waste

In 2019, approximately 60,219 tons of solid waste was generated by the community, which is 98% of the Town-wide total tonnage of 61,038. The data indicate that per capita solid waste disposal decreased from 1.18 to 0.82 tons per year from 2005 to 2019. This substantial decrease was likely the result of numerous waste reduction efforts. In 2008, San Bernardino County began a Comprehensive Disposal Site Diversion Program (CSDSP) at all its landfills, which diverts recyclable materials (including metal, cardboard, glass, carpet, green waste, biomass materials, and others) from landfills. For example, in 2012, 4,120 tons of materials from Apple Valley sources were diverted from County landfills. In the same year, more than 5,014 tons of recyclables were recovered from Apple Valley sources at the Victorville Materials Recovery Facility (MRF).

The Town has continued to implement waste diversion and recycling programs, including grasscycling and xeriscaping, backyard composting, community and school outreach programs, waste audits, recycling of tires and building materials (including asphalt, scrap metal and concrete), and numerous related programs. In 2011, the Town adopted an ordinance requiring building permit applicants with development projects of 1,000 square feet or more to prepare a Waste Management Plan that demonstrates they have recycled a minimum of 50% of construction debris from projects. A mandatory Commercial Recycling Ordinance was also enacted in 2011 to require all commercial businesses generating 4 or more cubic yards of solid waste per week, and all multi-family dwellings with 5 or more units, to reuse, recycle, compost, or otherwise divert material away from landfills. In 2019, the Victor Valley Regional Composting facility (operated by Burrtec) began construction and has been in operation since 2020, providing a local and convenient option for organic recycling.

Additional 2019 data was obtained from CalRecycle's Local Government Central (LGCentral) disposal reporting, specifically the Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility report (see Appendix A). This report provides information by jurisdiction and destination point. For the 2019 year, the Town of Apple Valley's solid waste was deposited in 14 landfills (see Appendix A for disposal destination list). Approximately 98% of the Town's solid waste was disposed in the Victorville Landfill. According to the CalRecycle 2019 Annual Report, a total of 1,977 tons of recycled, beneficial reuse and biomass materials that originated from Apple Valley roll-off and self-hauled loads were diverted through the CDS DP at San Bernardino County landfills. Additionally, 0.06 tons of transformation¹⁶ that originated in Apple Valley were recovered through the CDS DP at Los Angeles County landfills.

Municipal Inventory – Solid Waste

Unlike previous CAPs, the Town provided direct data quantifying solid waste generation at Municipal facilities, including Public Works (Animal Shelter, Tire Grant, etc.), parks and recreation facilities, Town Hall, and the Civic Center (see Appendix A). The Town estimated there was a total of 104 full-time employees in 2019, which is same number of employees assumed in 2005. Based on 2019 data provided by the Town, municipal facilities generated approximately 819 tons of solid waste, which is equal to 7.87 per employee, and was subtracted from the CalRecycle Town-wide total of 61,038 tons. It should be noted that the 2019 per capita rate of 7.87 is inflated due to the addition of park and community center waste, which are frequently used by the public. As shown in the Town-wide data, actual 2019 per capita waste generation was closer to 0.82 tons per person.

¹⁶ "Transformation" refers to incineration, pyrolysis, distillation, or biological conversion other than composting.

Compared to 2005, municipal facilities in 2019 generated approximately 696 tons more solid waste. This increase can be attributed to the differences in data collection and methodology that may have underestimated 2005 per employee rates. For example, no direct data was available for Municipal-specific generation of solid waste in 2005, and in order to estimate the Municipal contribution, the Town-wide 2005 quantity of 75,618 tons was divided by 63,754, the 2005 population size, to determine the per person waste generation rate. Using this factor, 1.186 tons of solid waste per person, and multiplying by the Town employee number of 104 people in 2005, it was estimated that the Municipal contribution of solid was 122.68 tons. In contrast, the Town provided direct solid waste data from multiple facilities and departments for the year 2019, estimating the Municipal contribution to be 819 tons.

Greenhouse Gas Emissions

The ClearPath model was used to estimate GHG emissions generated by the decomposition of Apple Valley's solid waste in landfills. Assumptions used in the model's community waste percentage breakdown include the following: 17% paper products, 18% food waste, 7% plant debris, 26% wood/textiles, and 32% other waste. This mix is based on ClearPath's default community waste characterization factor set (see Appendix A for details).

In 2019, decomposition of Community-generated solid waste resulted in 17,229 MT/CO₂e, which is a 26,632 MT/CO₂e reduction (60%) from 2005. Municipal-generated solid waste generated approximately 909 MT/CO₂e, which is equal to a 838 ton increase (1,180%) from 2005. The decrease in Community emissions is the result of numerous waste reduction efforts and the application of landfill methane capture technology that reduces the emission rates. The substantial increase in Municipal emissions is attributed to the differences in reporting measures from 2005 to 2019, and it is likely that 2005 assumptions underestimated the actual tonnage.

Overall, Town-wide GHG emissions generated by the decomposition of Apple Valley's solid waste resulted in 18,138 MT/CO₂e, which is a 58.7% decrease from 2005 emissions.

iii. Reduction Targets

A reduction target provides a tangible goal for emission reduction efforts. Apple Valley's emissions reduction targets represent a percentage by which the community aims to decrease emissions, below the 2005 baseline. In accordance with State reduction targets, the Town's greenhouse gas emissions reduction targets are 15% below 2005 levels by 2020 and 40% below 2005 levels by 2030. The 2050 target of 80% below baseline is acknowledged, however this CAP Update will focus on the near term 2030 target.

As described in this document, the 2005 baseline level for GHG emissions was established by conducting Community- and Municipal-specific inventories in order to identify and quantify the major GHG emitters within Town limits. Section III.ii above describe the assumptions and data

used to arrive at the 2005 baseline and current 2019 emission levels. Results of the 2019 greenhouse gas inventories prepared for this CAP update indicate that Town-wide CO₂e emissions are approximately 597,681 MTCO₂e, which translates to a 151,231 MTCO₂e reduction from 2005 MTCO₂e emissions. As demonstrated in this CAP update, the Town has exceeded the 2020 target of 15% below 2005 MTCO₂e emissions levels by 38,894 MTCO₂e.

To achieve the 2030 target of 40% below 2005 MTCO₂e emissions levels (449,347 MTCO₂e), Town-wide emissions would need to be reduced by 148,334 MTCO₂e. According to the SCAG 2020-2045 Regional Transportation Plan/Sustainable Community Strategy, Apple Valley is projected to have a population of 101,400 in 2045. The ClearPath model "Compound Growth Rate Calculator" was used to determine the compound annual growth rate based on the current population (74,140) and the projected 2045 population (101,400). Based on the ClearPath calculator, the Town of Apple Valley is expected to have an annual growth rate of 1.2%. This annual growth rate was used to determine the Town's projected 2030 population of 84,535, which was used to calculate 2030 GHG emissions. (See Appendix B).

The Town has made great strides in reducing its overall community and municipal emissions since the adoption of the CAP. So much so that Business as Usual (BAU) forecasts based on the Town's declining emissions trends are expected to achieve the 40% reduction target for 2030, as shown in the following table.

Table 9
Apple Valley CAP Reduction Targets and Forecasts
Tons CO₂e

Target/Scenario	Community	Municipal	Town-Wide	Population	Per Capita
2005 Baseline	746,774	2,138	748,912	63,754	11.75
2020: 15% Below Baseline Target	≈634,758	≈1,817	636,575	74,140	8.59
2020: 2019 GHG Inventory	594,395	3,407	597,681	74,140	8.06
2030: 40% Below Baseline Target	≈448,064	≈1,283	449,347	84,535	5.32
2030: 40% Below, Forecast BAU	≈530,203	≈2,900	533,103	84,535	6.31
2030: 40% Below, Forecast w/ CAP Measures	≈408,752	≈2,170	410,922	84,535	4.86

IV. GREENHOUSE GAS REDUCTION MEASURES AND PROGRAMS

This section describes general programs, policies, and specific actions that will move the Town in the direction of realizing GHG emission reductions. Section IV.i describes the Apple Valley Choice Energy program (AVCE). Section IV.ii provide, in broad terms, policies that may contribute to GHG reductions. These measures are intended as a menu for existing and future development, any combination of which can be implemented to reach reduction targets on a project-by-project basis. Section IV.iii describes specific measures that yield quantifiable GHG reductions.

i. Apple Valley Choice Energy Program

Apple Valley is addressing issues relating to climate change through the implementation of Apple Valley Choice Energy (AVCE). This program, started in April 2017, allows residents within Apple Valley to receive energy with a higher “renewable” content than what is currently provided by the franchised utility (SCE). The minimum renewable energy content for AVCE customers is 35%. In addition, the program provides an alternate selection of 50% renewable energy content for those who choose to “opt-up” to that plan, called More Choice. AVCE’s minimum 35% renewable energy content already exceeds the California state mandate of 33% renewable energy content that were required in the year 2020. The renewable energy content is derived from solar, wind, hydro, and geothermal sources primarily within California. Apple Valley Choice Energy plans to offer customers a 100% renewable energy option in future years that will further reduce the overall impacts of greenhouse gases affecting climate change as a result of burning fossil fuels.

In addition to supplying renewable energy, AVCE actively promotes Net Energy Metering (NEM) for customers with rooftop solar by offering a premium buy-back rate that is nearly double the rate that they would receive from SCE. AVCE will also offer future incentives to Town residents and businesses for improvements that contribute to energy efficiency as well as develop programs to encourage implementation of energy conservation measures. The Town also participates in the High Desert Regional Partnership with the other cities in the High Desert to promote energy efficiency on a regional basis.

ii. Reduction Measures

Greenhouse gas emissions in Apple Valley are generated by its residents, businesses, and institutions. For purposes of this Climate Action Plan, the reduction measures included below are divided into three broad categories:

1. Those which the Town as a government entity can implement (Town Municipal Operational Measures).
2. Those which existing or new homes, businesses, and institutions can implement (Community Operational Measures).
3. Those which new development proposals for homes, businesses, and institutions can implement.

The implementation measures are listed categorically below. Each category also includes sub-categories for general measures, transportation, energy efficiency, renewable energy, and solid waste management.

TOWN MUNICIPAL OPERATIONAL MEASURES

General Measures

- MO-1. Encourage the development of residential projects at a density of at least 15 units per acre in the Medium Density Residential zone along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road.
- MO-2. Encourage the development of mixed-use projects in the Mixed Use zone along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road.
- MO-3. Encourage the development of residential projects at a density of at least 15 units per acre in the Medium Density Residential zone along the High Desert Corridor.
- MO-4. Encourage the development of mixed-use projects in the Mixed Use zone along the High Desert Corridor.
- MO-5. Encourage the development of new infill or reconstruction projects along Bear Valley Road, near its intersections with Apple Valley Road, Kiowa Road and Navajo Road; or along Highway 18.
- MO-6. Plant a minimum of 25 trees annually in Town parks, and on other Town properties.
- MO-7. Partner with the Apple Valley Unified School District to establish an “adopt a tree” education and maintenance program whereby school classes adopt and maintain specific trees in Town parks and other Town properties.

Transportation Measures

- MO-8. Install advanced technology systems and implement effective management strategies in order to improve the operational efficiency of transportation systems and the movement of people, goods, and services, including synchronization of traffic lights and signals.
- MO-9. Expand bikeways, walking paths and trails connecting residential neighborhoods to commercial projects, schools and other institutions, and transit.
- MO-10. Prioritize roadway improvements for areas experiencing Level of Service D or worse.
- MO-11. Replace gasoline or diesel fleet vehicles with hybrid or alternative fuel vehicles when they are scheduled for replacement, if available for the use intended.
- MO-12. A minimum of 50% of the Town's additional new vehicle purchases (not replacement vehicles) shall be hybrid or alternative fuel vehicles (if available for the use intended).
- MO-13. Encourage Victor Valley Transit Authority to install bicycle racks on all buses, and to operate an all-alternative fuel fleet.
- MO-14. Encourage Apple Valley Unified School District to replace traditional fueled school buses with CNG fueled school buses upon new bus purchases.
- MO-15. Encourage CalTrans to install carpool lanes on the High Desert Corridor.
- MO-16. Specify rubberized and/or recycled asphalt in Town-initiated road pavement projects to the extent economically viable.
- MO-17. When feasible, Town staff is encouraged to carpool when traveling out of Town for official functions, meetings, and events.
- MO-18. Provide employees with free public transit passes.
- MO-19. Provide secure bicycle racks at all Town facilities.

Energy Efficiency Measures

- MO-20. Reduce energy use at all Town facilities by 15% by 2030.
- MO-21. Replace all failing or failed fixtures and appliances in Town facilities with energy efficient fixtures and appliances. Light bulbs shall be replaced with CFL or LED bulbs. Appliances shall be Energy Star rated.
- MO-22. Encourage Liberty Utilities Apple Valley, Golden State, and other water purveyors to replace water systems with energy efficient motors, pumps and other equipment.
- MO-23. Encourage VVWRA to replace wastewater systems with energy efficient motors, pumps and other equipment.
- MO-24. Encourage the County of San Bernardino to capture and utilize landfill gas for use as an energy source including fuel for vehicles, operating equipment, and heating buildings.
- MO-25. Consider the installation of green roofs on Town facilities.
- MO-26. Consider the installation of cool roofs on Town facilities.
- MO-27. Reduce turf areas at Town facilities by 20% overall.
- MO-28. Modernize facilities and equipment at the golf course when financially feasible, including the well pumps.
- MO-29. Install semi-pervious surfaces which allow water to percolate at Town facilities to the extent economically feasible.
- MO-30. Install timers for all ball field lighting on Town facilities.
- MO-31. Consider a home weatherization and energy efficient appliance replacement grant program for existing residents including extremely low, very low and low-income households.
- MO-32. Continue to require that improvements made under the Residential Rehabilitation Loan Program be energy efficient.
- MO-33. Promote third-party energy efficiency programs, including the Energy Upgrade California program.

Renewable Energy Measures

- MO-34. Consider an Energy Savings Performance Contract with a private entity to retrofit public buildings, which will allow the private entity to fund all energy improvements in exchange for a share of the energy savings over a period of time.
- MO-35. Consider partnership with Southern California Edison in establishing a rebate/incentive/refund program for the installation of Energy Star appliances or alternative energy systems on private projects, including single family homes.
- MO-36. Install photovoltaic systems on the buildings and carports located at the Public Works facility and Town Hall/Police Department, which will provide electricity for the Civic Center and the Public Works/Animal Control facilities. And consider installing wind energy resources on properties greater than 2 acres.
- MO-37. Consider installing a CNG fueling station and establish a public access program for same.
- MO-38. Consider replacing failing or failed traditional water heaters in Town facilities with solar water heaters.
- MO-39. When it fails, consider replacing the municipal pool heater with a solar pool heating system.

Solid Waste Management Measures

- MO-40. Require composting of all landscaping waste from Town facilities.
- MO-41. Encourage two-sided printing and electronic document submittals to reduce paper waste.
- MO-42. Provide recycling bins for all offices, and at all employee gathering points (lunch room, conference rooms, etc.).
- MO-43. Reuse and replace transport packaging including the reuse of cardboard boxes, and the recycling of plastic film, cardboard, and paper. Utilize reusable plastic transport packaging in place of limited-use wood pallets or cardboard boxes.

- For every 1-ton of corrugated cardboard boxes that is kept from entering the landfill, about 3.87 tons of CO₂e are avoided.
- For every ton of plastic film (in the form of Low Density Polyethylene LDPE) that is recycled, about 1.9 tons of CO₂e are avoided annually.
- For every ton of mixed general paper recycled about 4.3 tons of CO₂e are avoided.

COMMUNITY OPERATIONAL MEASURES

Community Operational Measures will be implemented in a variety of ways, including voluntary implementation, partnerships with utility and appliance companies, Town incentive programs, and state and federal incentive programs as they become available.

Transportation Measures

- CO-1. Encourage replacement of personal vehicles with hybrid or alternative fuel vehicle.
- CO-2. Establish and enforce idling time limits for delivery vehicles. Idling shall not be permitted for more than 5 minutes.
- CO-3. Encourage the replacement of gasoline or diesel fleet vehicles with hybrid or alternative fuel vehicles, if available for intended use.
- CO-4. Establish an employee carpooling program, including incentives (preferred parking, flex time incentives, etc.) for participating employees.
- CO-5. (Encourage) Provide employees with free or discounted public transit passes.

Energy Efficiency Measures

- CO-6. Replace failing or failed fixtures and appliances with energy efficient fixtures and appliances. Light bulbs shall be replaced with CFL or LED bulbs. Appliances shall be Energy Star rated.
- CO-7. Replace traditional water heater with an instant water heating system.
- CO-8. Replace traditional roofing with a cool roof.
- CO-9. Increase insulation in walls and roof to a minimum R-30.

- CO-10. Install weather-stripping on all doors and windows.
- CO-11. Replace grass/turf areas with drought tolerant or native plants, or with decorative rock or gravel.
- CO-12. Replace water fixtures (faucets, toilets, etc.) with high efficiency fixtures.

Renewable Energy Measures

- CO-13. Replace water heater and/or pool heater with a solar water heating system.
- CO-14. Install solar panels or photovoltaic system
- CO-15. For apartment or condominium projects, install solar or photovoltaic systems on carport roofs.

Solid Waste Management Measures

- CO-16. Install a home composting system.
- CO-17. Increase recycling by 20%. Currently, recycling is mandatory for businesses that generate four cubic yards or more of commercial solid waste per week and for multifamily residential dwellings of five units or more (Senate Bill 1018).
- CO-18. For businesses, encourage two-sided printing and electronic document submittals to reduce paper waste.

NEW DEVELOPMENT MEASURES

General Measures

- ND-1. Develop a residential project at a density of at least 15 units per acre in the Medium Density Residential zone along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road.
- ND-2. Develop a mixed-use project in the Mixed-Use zone along Bear Valley Road, Highway 18, Dale Evans Parkway, Apple Valley Road, Navajo Road, Central Road, and Kiowa Road.

- ND-3. Develop a residential project at a density of at least 15 units per acre in the Medium Density Residential zone along the High Desert Corridor.
- ND-4. Develop a mixed-use project in the Mixed-Use zone along the High Desert Corridor.
- ND-5. Develop a new infill or redevelopment project along Bear Valley Road, near its intersections with Apple Valley Road, Kiowa Road and Navajo Road; or along Highway 18.
- ND-6. For projects within the North Apple Valley Industrial Specific Plan, develop employee housing within one mile of the industrial project.
- ND-7. Preserve trees occurring on-site either through in situ protection during and after construction, or through transplant and relocation within landscaped areas.
- ND-8. Utilize the Collaborative for High Performance Schools (CHPS) best practices for school design, building, and operation.

Transportation Measures

- ND-9. During project construction, encourage on-site and off-road construction equipment to utilize biodiesel fuel (a minimum of B20), except for equipment where use of biodiesel fuel would void the equipment warranty. As a conservative measure, no reduction in GHG emissions was taken for the implementation of this measure as it is unknown if biodiesel can be readily applied to the various pieces of construction equipment that will be necessary for the project.
- ND-10. Install bus stop(s) and secure scheduled transit service from Victor Valley Transit Authority.
- ND-11. Install pedestrian, bicycle and/or equestrian trails connecting project to school(s), commercial project(s) or transit.

Energy Efficiency Measures

- ND-12. Building and site plan designs shall ensure that the project energy efficiencies meet applicable California Title 24 Energy Efficiency Standards. Verification of increased energy efficiencies shall be documented in Title 24 Compliance Reports provided by the applicant, and reviewed and approved by the Town prior to the issuance of the first building permit. Any combination of the following design features may be used to fulfill this measure provided that the total increase in efficiency meets or exceeds Title 24 standards:

- Buildings shall meet or exceed California Title 24 Energy Efficiency performance standards for water heating and space heating and cooling.
- Increase in insulation such that heat transfer and thermal bridging is minimized.
- Limit air leakage through the structure or within the heating and cooling distribution system to minimize energy consumption.
- Incorporate dual-paned or other energy efficient windows.
- Incorporate energy efficient space heating and cooling equipment.
- Incorporate the use of tankless water heaters in all residential units and community buildings.
- Promote building design that will incorporate solar control in an effort to minimize direct sunlight upon windows. A combination of design features including roof eaves, recessed windows, “eyebrow” shades and shade trees shall be considered.
- Interior and exterior energy efficient lighting which exceeds the California Title 24 Energy Efficiency performance standards shall be installed, as deemed acceptable by Town. Automatic devices to turn off lights when they are not needed shall be implemented.
- To the extent that they are compatible with landscaping guidelines established by the Town, shade producing trees, particularly those that shade paved surfaces such as streets and parking lots and buildings shall be planted at the Project site.
- Paint and surface color palette for the Project shall emphasize light and off-white colors which will reflect heat away from the buildings.
- All buildings shall be designed to accommodate renewable energy sources, such as photovoltaic solar electricity systems, and wind energy systems on properties greater than 2 acres, appropriate to their architectural design.
- Consideration shall be given to using LED lighting for all outdoor uses (i.e. buildings, pathways, landscaping, carports).

ND-13. For residential projects, implement Green Building practices and document GHG reduction.

ND-14. Use passive solar design by orienting buildings and incorporating landscaping to maximize passive solar heating during the winter, and minimize solar heating during the summer.

ND-15. To reduce energy demand associated with potable water conveyance:

- Landscaping palette emphasizing drought tolerant plants and exceeding Town standards for water conservation.
- For residential uses, limit turf areas to no more than 25% of all landscaped areas. Encourage limiting turf areas to no more than 20% for added water/energy savings. Turf is prohibited in public rights-of-way, including parkways, and in non-residential uses with the exception of Special Landscaping Areas. (Town Municipal Code Chapter 9.75 Water Conservation/Landscaping).
- Use of water-efficient irrigation techniques exceeding Town standards for water conservation.
- U.S. EPA Certified WaterSense labeled or equivalent faucets, high-efficiency toilets (HETs), and water-conserving shower heads.
- Consider use of artificial turf.

ND-16. Install Energy Star appliances and energy efficient fixtures.

ND-17. Install all CFL or LED light bulbs.

ND-18. Install common area electric vehicle charging station(s) and secure bicycle racks.

Renewable Energy Measures

ND-19. To reduce the project's energy use from the grid:

- Install solar panels/photovoltaic systems sufficient to provide electric power and heat water within the project, and/or
- Install other clean energy system sufficient to provide electric power and heat water within the project, and/or

ND-20. Install solar or photovoltaic systems on new roofs whether on residential, commercial or industrial buildings.

ND-21. Use on-site generated bio-gas in appropriate applications.

ND-22. Install combined heat and power facilities in appropriate applications.

ND-23. Specify rubberized and/or recycled asphalt for roads and driveways to the extent economically viable.

Solid Waste Management Measures

- ND-24. Recycle and/or salvage non-hazardous construction and demolition waste, and develop and implement a construction waste management plan quantifying the reduction in the waste stream.
- ND-25. Reuse construction waste in project features (e.g. shattered concrete or asphalt can be ground and used in walkways and parking lots).
- ND-26. Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills by providing easily accessible areas that serve each building and are dedicated to the collection and storage of paper, cardboard, glass, plastics, and metals.
- ND-27. Provide educational information to residents addressing energy efficiency, solid waste reduction, and water conservation measures.

iii. Quantified Reductions

Specific reduction levels have been quantified based on the general measures listed above. Given that not all measures can be quantified, and many of the aforementioned measures will result in GHG reductions, the quantifiable reductions listed below are considered conservative.

To achieve quantifiable reductions the energy demand from electricity and natural gas use must be decreased, combustion of fuels from transportation must become more efficient, and disposal of waste to landfills must be lessened. There are numerous methods to achieve reductions from each of these sectors. The general approach taken in this action plan is described below, followed by the specific measures and assumptions set forth to achieve the reduction target.

GHG reductions to energy use can be achieved through remodeling and retrofitting existing structures, upgrading existing electric and natural gas appliances, and reducing energy use. New development can be constructed to require very little energy through building design, the use of energy efficient appliances, and use of sustainable materials.

To achieve GHG reduction from the transportation sector the Town intends to a) implement policies that reduce dependence on personal motor vehicles and encourage alternative modes of transportation, such as public transit, cycling, and walking; b) utilize vehicles that release fewer greenhouse gases, such as hybrids, more fuel-efficient vehicles, and vehicles that run on

alternative fuels; and c) encourage 'smart growth' or policies that promote efficient land use development, such as reduce the need to travel long distances, facilitate transit and other non-automotive travel, increase the availability of affordable housing, employ existing infrastructure capacity, promote social equity, help protect natural assets, and maintain and reinforce existing communities.

Residential and commercial recycling and composting, buying recycled products, green building and demolition practices, and desert-friendly landscaping play an important role in reducing emissions from the solid waste sector. Emission reductions from solid waste can be achieved by reducing the quantity of the waste stream. Avoiding disposal to landfills by increasing recycling and composting are effective ways to achieve landfill diversion targets.

COMMUNITY QUANTIFIED REDUCTIONS

The vast majority of GHG emissions reductions will be from three sectors: commercial, residential, and on-road transportation. The following table provides GHG emission estimates that can be achieved through implementation of community reduction measures. The quantified reductions are not meant to be exhaustive or precise. Instead, they provide reduction estimates based on available information applied in generalized terms. Business as Usual (BAU) projections account for increased building energy efficiency for new construction, therefore new construction reductions are not considered new reduction measures. Measures were quantified using the ClearPath Model.

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Table 10
Community GHG Reduction Measures

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO ₂ e Reductions (tons)
CO-15 CO-16 MO-34	Change in Energy Source	Expand Rooftop Solar	Rooftop solar and renewable energy production is expanded to replace 10% of forecast 2030 electricity for commercial uses. Per the 2030 BAU forecast (1.2% annual growth rate), commercial uses are expected to use 94,342,672 kWh in total. 10% of total usage is 9,434,267 kWh. Based on 2019 consumption, a commercial account demands 59,270 kWh. A 5% reduction is equivalent to 160 commercial accounts implementing rooftop solar with a 100% electricity consumption reduction, or 320 accounts with a 50% electricity consumption reduction.	Commercial	2,178
CO-15 CO-16 ND-21	Change in Energy Source	New Homes Rooftop Solar	New single-family homes built with the 2019 standards ¹⁷ and install rooftop solar will use approximately 53% less energy than those built under 2016 standards. The 2019 standards increase energy efficiency by 35% (2019 Building Code), therefore rooftop solar saves an additional 18%. At 8,022 kWh per unit, an 18% reduction would be 1,444 kWh per account. Compared to BAU (3,786 accounts x 8,022 kWh = 30,371,292 kWh), 3,786 new accounts using rooftop solar	Residential	1,262

¹⁷ Building Energy Efficiency Standards FAQ sheets for the years 2016 and 2019, California Energy Commission. Single family homes built after 2013 and before 2019 use 28% less energy. 2019 building energy standards increases efficiency by 7%, therefore homes built with 2019 standards will use about 35% less energy.

Table 10
Community GHG Reduction Measures

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO ₂ e Reductions (tons)
			would consume 24,904,308 kWh, resulting in a savings of 5,466,984 kWh of electricity.		
MO-31 MO-32 MO-33	Energy Efficiency: Appliances and Equipment	Upgrade Existing Home Appliances	Upgrades result in the following savings, 20% from clothes dryers, 40% for clothes washers, 10% for refrigerators, 12% for dishwashers, for an average energy savings of 20% ¹⁸ . At 8,022 kWh per unit, a 20% reduction would be 1,605 kWh per account, for a total of 6,417 kWh per unit. Upgrading 23,727 homes (the number of homes constructed before 2013 per DOF, assuming appliances are used for 10-20 years and will need upgrading in 2020-2030) would save 38,081,835 kWh annually (190,337,994 kWh BAU vs 152,256,159 kWh with savings)	Residential	8,792
MO-31 MO-32 MO-33	Energy Efficiency: Appliances and Equipment	Upgrade Natural Gas Appliances	Assuming an energy savings of 20% (see measure above), upgrading 23,727 homes would result in an annual savings of 2,301,519 therms. (At 486 therms per unit, a 20% reduction would be 97 therms per unit, for a total demand of 389 therms per unit. 23,727 existing homes at 486 therms per unit = 11,531,322 therms, at 386 therms per unit = 9,229,803 therms)	Residential	12,241

¹⁸ Website: Energysage.com. Reduction percentages per ENERGY STAR appliances certified by U.S. Department of Energy. On average, ENERGY STAR appliances will use 10 to 50 percent less energy. Assumed 20% total average.

Table 10
Community GHG Reduction Measures

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO ₂ e Reductions (tons)
CO-7 through CO-14 MO-21, MO-22 MO-26 MO-36	Energy Efficiency: Buildings	Existing Account Retrofit and Upgrade (Electric)	Replacing failing or failed fixtures and appliances of 698 accounts (half of all commercial accounts for 2019) with energy efficient models, installing cool roofs, weatherization of structures (caulking, weather-stripping, double-pane, windows, and insulation), will achieve an overall reduction in electricity usage rate of 10%. A commercial account uses approximately 59,270 kWh per year, if 698 existing commercial accounts reduce their natural gas usage by 5,927 kWh each (10%) then a total of 4,137,046 kWh will be saved.	Commercial	955
CO-7 through CO-14 MO-22 MO-26 MO-27 MO-36	Energy Efficiency: Buildings	Existing Account Retrofit and Upgrade (Natural Gas)	Replacing appliances with energy efficient models, installing cool roofs, and weatherizing structures to reduce heat and cooling costs for 585 accounts (half of all commercial accounts for 2019) will achieve an overall reduction in natural gas usage rate of 10%. A commercial account uses approximately 1,922 therms of natural gas per year, if 585 existing commercial accounts reduce their natural gas usage by 192 therms (10%) then a total of 112,320 therms will be saved.	Commercial	597
MO-11 MO-13 MO-35	Change in Fuel Type or Technology	Use CNG for Transit Bus	All transit bus miles operating on gasoline fuel (33,505 miles), with a fuel efficiency of 3.26 miles per gallon, are replaced with	Transportation	87

Table 10
Community GHG Reduction Measures

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO ₂ e Reductions (tons)
CO-4			CNG fuel with a fuel efficiency of 6 miles per gallon. 33,505 miles: 10,278 gallons of gas = 90 MTCO ₂ e 5,584 gallons of CNG = 3.4 MTCO ₂ e 86.6 MTCO ₂ e savings		
ND-1 ND-6 MO-1 MO-5	Land Use Related	Mixed Use Reduces Miles for Passenger Vehicles	The total miles traveled for passenger vehicles, with a fuel economy of 24 miles, are reduced by 20%, a savings of 210,538,446 miles. (Assuming 1.2% growth rate, 2030 VMTs projected to be 1,052,692,231)	Transportation	77,022
ND-11 MO-9	Walking/Biking	Alternative Mode of Transport	Expanded walking/biking infrastructure will shift 5% of 2030 community wide VMTs from passenger vehicles (gasoline) to bicycle or walking. 2030 passenger (gas) VMT = 894,788,397 at 1.2% growth rate, 5% is 44,739,420 VMT. Assumes same vehicle type percentage breakdown as 2019)	Transportation	18,317
TOTAL COMMUNITY REDUCTION					121,451

MUNICIPAL QUANTIFIED REDUCTIONS

The vast majority of Municipal GHG emissions reductions will be from three sectors: commercial, residential, and on-road transportation. The following table provides GHG emission estimates that can be achieved through implementation of community reduction measures. As with Community reductions, the Municipal quantified reductions are not meant to be exhaustive or precise. Instead, they provide reduction estimates based on available information applied in generalized terms.

Table 11
Municipal GHG Reduction Measures

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO ₂ e Reductions (tons)
CO-15 CO-16 MO-26 MO-34	Change in Energy Source	Rooftop and Above Parking Solar	Half of all municipal buildings' energy demand (1,584,615kwh; 3,169,229 kwh total) will be met through on-roof and above parking solar.	Buildings	366
MO-21 MO-22 MO-26 MO-27 ND-13	Energy Efficiency: Buildings	Reduce Electricity Demand	Upgrades to existing municipal buildings will use 15% less energy compared to BAU as a result of new building design, efficient appliances, and retrofit and weatherization of existing buildings. 475,384 kwh will be avoided.	Buildings	110
MO-21 ND-13 ND-14	Energy Efficiency: Buildings	Reduce Natural Gas Use	Upgrades to existing municipal buildings will use 15% less energy compared to BAU as a result of new building design, efficient appliances, and retrofit and weatherization of existing buildings. 16,934 therms will be avoided.	Buildings	90

Table 11
Municipal GHG Reduction Measures

Measure Number	Measure Type	Measure Name	Assumptions	Sector	CO ₂ e Reductions (tons)
MO-11 MO-12 CO-4	Change in Fuel Type	Replace Gas Vehicles with Fuel Efficient Models	Replace older fleet vehicles (2010 or earlier) with fuel efficient models (24 MPG average). Currently 46 vehicles qualify with an annual mileage of 245,801, average 12.21 MPG, and 27,831 gallons of gasoline consumed. Assuming the same annual mileage and 24 MPG, this program would save 17,589 gallons of gas a year.	Vehicle Fleet	154
MO-19 CO-6	Switch to Public Transport	Public Transit	5% of employees participate. An average employee travels 5,520 passenger miles per year. Use of transit bus replaces 27,600 passenger miles traveled by single occupancy vehicles. Assuming an average of 24 MPG for passenger vehicles (gas), equals a savings of 1,150 gallons of gas.	Employee Commute	10
				TOTAL	730

iv. GHG Reduction Summary

To achieve the 2030 emission target of 449,347 MTCO₂e, the Town would need to reduce BAU emissions (533,103 MTCO₂e) by an additional 83,756 MTCO₂e. As shown in the tables above, implementation of reduction measures would result in a Community reduction of 121,451 MTCO₂e and a Municipal reduction of 730 MTCO₂e for a total Town-Wide reduction of 122,181 MTCO₂e by 2030. Therefore, Town-Wide emissions would exceed the 2030 target by 38,425 MTCO₂e with implementation of the 2019 CAP reduction measures.

V. IMPLEMENTATION AND ADMINISTRATION

This section addresses the steps required by the Town to maintain and update the Climate Action Plan over time. The estimates of potential reduction provided in Section IV will need to be tracked to assure that the Town is meeting its targeted reductions. Since this document assumes certain growth and participation factors which may or may not prove to be accurate, the activities described below will allow the Town to record the actual progress made to meeting reduction targets.

As with the reduction measures, implementation and administration activities associated with the tracking of the Town's progress will be divided between municipal activities and community activities. The Town has greatest control over those measures it can implement itself. Those are also the measures which will be easiest to track. Community activities can be tracked by establishing an information gathering network with local businesses and agencies. A wide range of monitoring options is described below.

Annual Activities

Implementation of this CAP will occur at many levels. The monitoring of the Town's reductions will require annual reporting. The activities required to accomplish this reporting effort are detailed below. The annual reports from all departments are to be forwarded to the Community Development Department, which will be responsible for the maintenance of the Town's database for this effort. The following section lists annual activities and provides a 2019 status update as reported by the Town.¹⁹

¹⁹ Personal Communication with Daniel Alcayaga, Planning Manager, Town of Apple Valley.

Municipal Activities

1. Tabulate the number of new trees planted, and existing trees removed in Town parks, parkways and other open space (Parks Department).

From 2017-2019, the Town planted 16 and removed 239 trees Town-wide. The Town continues to track this data annually.

2. Establish a liaison with School District to:

- a. Implement an “adopt a tree” program in Town schools for the planting and maintenance of trees on school grounds and in Town parks. Tabulate number of trees planted as a result.
- b. Tabulate the use of CNG or other alternative fuel school buses used by the District. (Town Manager’s Office)

No activity to report.

3. Establish and implement a quarterly Greenhouse Gas Reduction class for Town residents and businesses (Parks and Recreation Department).

No activity to report.

4. Tabulate the number of intersections at which traffic signals have been synchronized (Town Engineer).

The Town does not currently have the capability to operate synchronized traffic signals. However, the four traffic signals on Bear Valley Road from Westmont Road to the Mojave River could be made to operate under a synchronized program. Town currently working on signal upgrades to make this possible.

5. Tabulate the new trails, bikeways and sidewalks constructed in linear miles (Town Engineer).

From 2017-2019, the Town constructed 3.73 miles (19,700 linear feet) of Class I Bike Paths, 1.28 miles (6,800 linear feet) of Class II Bike Paths, and 1.54 miles (8,140 linear feet) of sidewalks.

6. Tabulate the number of gasoline and diesel vehicles removed, and the hybrid or electric vehicles added to the Town’s vehicle fleet. A minimum of 50% of the Town’s new vehicle purchases shall be hybrid or alternative fuel vehicles (Finance Department).

No gasoline or diesel vehicles have been removed and replaced with a hybrid or electric vehicle from 2017-2019.

7. Tabulate the new Energy Star rated appliances, and CFL or LED light bulbs installed at Town facilities (Building Department).

Ongoing.

8. Tabulate water use at Town facilities (Finance Department).

Information was extracted from utility bills and GHG emissions were included in this CAP.

9. Tabulate electric usage at Town facilities (Finance Department).

Information was extracted from utility bills and GHG emissions were included in the CAP.

10. Tabulate natural gas usage at Town facilities (Finance Department).

Information was extracted from utility bills and GHG emissions were included in the CAP.

11. Tabulate propane usage (if any) for Town equipment or facilities (Facilities Department).

The Town did not use propane from 2017 to 2019.

Community Activities

1. Tabulate the number of new units constructed at a density of 15 units or more per acre (Building Department).

None constructed during the 2017-2019 period.

2. Tabulate the number of new units constructed on infill lots on Bear Valley Road and Highway 18 (Building Department).

From 2017-2019, three units were constructed on Highway 18 and no units were constructed on Bear Valley Road.

3. Tabulate the number of new residential units by type (single family, multi-family), and the square footage of commercial and industrial development constructed (Building Department).

From 2017-2019, 391 single family residential units, 8 multifamily residential units, and 1,486,998 square feet of commercial/industrial space were constructed.

4. Tabulate the number of Energy Star appliances, high efficiency water heaters, pool pumps and pool heaters installed in new residential units (Building Department).

From 2017-2019, 399 high-efficiency water heaters, 188 high-efficiency pool pumps, and 1,317 high-efficiency HVAC units were installed and certified by the California Energy Commission. Data not available for Energy Star (USEPA program) appliances.

5. Tabulate all alternative energy installations on residential, commercial or industrial buildings (new or additions) (Building Department).

From 2017-2019, 1,272 photovoltaic systems, 2 fuel cells, and 1 hydrogen generators were installed. All new developments are subject to California Energy Commissions standards

6. Establish a liaison with Southern California Edison and Southwest Gas to:

a. Collect data on Energy Star appliances, high efficiency pool pumps and other appliances and fixtures replaces in Apple Valley under a rebate or other incentive program. (Community Development Department)

No programs to report.

7. Tabulate any and all Energy Star appliances installed through the AV Choice Energy program.

No appliances to report.

8. Track buildings constructed which exceed Title 24 Building Code standards by percentage exceeded (Building Department).

All buildings comply with CA Energy Commission, which exceeds Title 24.

9. Track buildings constructed to LEED, by certification level (Community Development Department).

One new building, Big Lots Warehouse Distribution Center, was LEED certified (Platinum) in 2019.

10. Track solid waste and recycling tonnage generated by Town residents and businesses (Community Development Department).

Recycling data was obtained and included in this CAP and reported to Cal Recycle.

The annual reports prepared by the Town's departments will be the basis for the Town's GHG Reduction Database. This database will cumulatively record the annual reports.

This database must also include an annual reporting of new units constructed and Town population (Department of Finance annual report). The database will calculate the actual growth in Town, to be used to compare to the growth assumptions used in this document. As less growth will result in lower greenhouse gas emissions, population growth is an important component of the implementation program.

Activities Conducted Every Three Years

Every three years the Town will run its Greenhouse Gas Reduction Measures through the program prepared for this document, to determine if its targets are being reached. After each run of the program, Town staff will determine which measures, if any must be modified to reach the Town's reduction targets. The analysis for each update must be conducted based on known actual activities, and known actual growth rates to be effective. This document assumes a steady annual rate of growth, for example, over the life of the program.

The analysis for each update must be conducted based on known actual activities, and known actual growth rates to be effective. This document assumes a steady annual rate of growth, for example, over the life of the program. In the last three years, however, growth in Town has been significantly less than anticipated, due to economic and market conditions. A lower growth rate will be reflected in greenhouse gas emissions which are less than those anticipated in the model. Conversely, should the Town experience an economic boom in the future, that increased growth should be reflected in the CAP update undertaken at that time. By establishing and maintaining an annual reporting program, the Town can be assured that the data required to conduct the update is available at the time it is needed, and in one database (as described above).

This effort will also require the preparation of a GHG inventory, similar to the one provided in this report, but for the reporting year. The components of the inventory, and the information needed to complete it, are detailed below.

Municipal Activities and Accounts

Electricity

The Town should maintain a list for easy reference of all existing account numbers and account types currently held with SCE that can be updated when new accounts are opened or when existing accounts are closed. This will be implemented through the tracking of usage for Town facilities described above.

Natural Gas

The Town should maintain a list for easy reference of all existing account numbers and account types currently held with Southwest Gas that can be update periodically when new accounts are opened or when existing accounts are closed. This will be implemented through the tracking of usage for Town facilities described above.

Propane

The Town should maintain a list for easy reference of all quantities of propane purchased for municipal use. This will be implemented through the tracking of usage for Town facilities described above.

Transportation

To be consistent with the Community-wide analysis it was assumed that on average Town employees travel 23 miles to work. A polling of employees during reporting years should be conducted to establish the actual commute trip length at the time of each inventory update. The actual number should be input into the model when updates are conducted.

Solid Waste

The 2010 CAP assumed that Municipal waste generation was consistent with the Community-wide waste generation rate on a per person basis. That is, each employee generates an equivalent amount of waste as a resident. For the 2019 CAP update, the Town tracked solid waste disposal in total tonnage. For future CAPs, the waste should be surveyed for waste type. Town staff should coordinate with the Town's solid waste hauler to develop a tracking system for annual reporting.

Community Based Activities and Accounts

Electricity

Southern California Edison (SCE's) provided annual electricity usage per rate group including the number of accounts for the inventory in this document. SCE's rate groups are independently defined -- that is there is no direct nexus between residential, commercial, and industrial as defined by SCE, Apple Valley's General Plan, and other utilities. A coordinated effort to similarly

define rate groups and sectors would assure that similar users are properly grouped together for future inventories.

Natural Gas

While Southwest Gas provided customer categories that include residential, commercial, and industrial sectors, more specific information on account type -- such as defining customer categories -- would confirm consistency with the General Plan's and other utilities' definitions of these sectors.

Propane

For the purpose of the original inventory, propane usage was estimated by taking the difference between the total number of households, (27,00 as reported by the Town) and the number of residential customer accounts, (26,541 as reported by Southwest Gas). More refined propane usage could be obtained by surveying local and regional propane suppliers. The same tabulation will be required in subsequent inventory years.

Transportation

The 2010 CAP uses the General Plan's traffic analysis for community wide traffic count data. Some mobile sources, such as Victor Valley Transit Authority, AV Unified School District and others, can be refined with actual vehicle miles traveled, vehicle type, and fuel use. For future inventory years, base year traffic will be increased by actual growth data, to reflect an accurate growth in vehicle trips. This estimate should be compared to Town Engineer trip counts to assure consistency. The same methodology was used in the 2019 CAP update.

Solid Waste

Actual tonnage by type of waste for the following categories would yield more precise data and would determine which types of waste reduction programs would be most effective: paper products, plant debris, wood/textiles. Should this data not be available for future inventories, tonnage provided by the Town's waste hauler will be required.

Modification of the CAP

If the analysis during any given update cycle shows that the reduction measures must be amended to achieve the stated targets, such an amendment shall be completed by staff during the same year as the update was undertaken. The amended reduction measure assumptions shall be appended to this document, and disseminated to Town staff for implementation. If the amended measures result in an increase of less than 20% in activity (percentage increase over the reduction measure in this document), the change shall not require adoption by the Town Council. If, however, a reduction strategy requires an increase of 21% or more in a reduction strategy, the amended CAP shall be considered by the Town Council, and adopted by Resolution.

Appendix A

2019 CAP Update Inventory Data Workbook Town of Apple Valley

Community GHG Summary	1
Municipal GHG Summary	2
Electricity: SCE Data	3
Natural Gas and Propane: Southwest Gas Data	8
On-Road Transportation: VMT and Transit Data	10
Off-Road Transportation: Construction Emission Data	16
Solid Waste: CalRecycle Annual Summary Report and Municipal Data	20

COMMUNITY GHG 2019

Sector	2005 (Population 63,754)		2019 (Population 74,140)		CO2e Difference	Town-Wide Cross Check			
	CO2e (tons)	CO2e (%)	CO2e (tons)	CO2e (%)			2005	2019	Difference
Residential	141,417	18.88	118,327	19.91	-23,090	Community	748,912	594,274	-154,638
Commercial	38,039	5.08	31,071	5.23	-6,968	Muni	2,138	3,407	1,269
Industrial	14,460	1.93	10,371	1.75	-4,089	Total	748,912	597,681	
On-Road Transp.	510,676	68.19	405,797	68.28	-104,879	Difference		151,231	
Off-Road Transp.	388	0.05	11,479	1.93	11,091	Muni subset of Community			
Waste	43,932	5.87	17,229	2.90	-26,703				
TOTAL	748,912	100	594,274	100	-154,638				
						DECREASE			

Sector	Fuel Type	Quantity	Unit	CO2	Notes
RESIDENTIAL					
	Electricity	205,153,100	kWh	47,187	See tab 3. SCE provided lump sum residential data in 2019.
	Natural Gas	12,896,656	Therm	68,593	See tab 1. Natural Gas
	Propane	451,000	gal	2547	See tab 4. Same method as 2016.
COMMERCIAL					
	Electricity	82,741,337	kWh	19103	See tab 3. SCE provided lump sum commercial data in 2019. Municipal usage was subtracted from
	Natural Gas	2,250,176	Therm	11968	See tab 1. Southwest Gas
INDUSTRIAL					
	Electricity	38,785,029	kWh	8,954	See tab 3. SCE did not provide Industrial specific numbers in 2019. However, total non-residential usage was 124,695,595kwh for Comm/Ind/Ag, it can be assumed that Industrial = diff between
	Natural Gas	267,004	Therm	1417	See tab 1. Southwest Gas. Combined industrial, irrigation/water pumping and electric generation
TRANSPORTATION					
<i>Personal Vehicles</i>					
<i>TRANSIT</i>	Gasoline	784,756,111	VMT	321296	see tab 9.
	Diesel	138,486,373	VMT	79192	see tab 9.
	CNG	521,918	VMT	53	See tab 6. 2016 249,149
	Gasoline	33,506	VMT	5256	See tab 6. 2016 20,513
	VMT Total cross check	923,797,907	VMT		
Off- Road					
	NA	NA	NA	11479	See tab 11 for 2019 emissions. See tab 10 for 2005 emissions
Waste					
	Solid Waste	60,219	tons	17229	Community waste in 2019 = 61,038 tons, minus 819 for muni (2016 50,068 TONS) <u>Per CalRecycle Annual Report</u>

Municipal GHG 2019

Sector	2005 (Population 63,754)		2019 (Population 74,140)		CO2e Difference	Town-Wide Cross Check			
	CO2e (tons)	CO2e (%)	CO2e (tons)	CO2e (%)		Community	2005	2019	Difference
Buildings/Infrastructure	1,100	51.45	1,332	39.10	232	Muni	2,138	3,407	1,269
Vehicle Fleet	620	29.00	971	28.50	351	Total	748,912	597,681	-151,231
Employee Commute	347	16.23	195	5.72	-152	Difference		-151,231	
Water/Sewage	NA		NA		NA				
Waste	71	3.32	909	26.68	838				
TOTAL	2,138	100	3,407	100	1,269				
	Subset of Community		Separate inventory to add to Community		INCREASE		16934.4		

Sector	Fuel Type	Quantity	Unit	CO2	Notes
BUILDINGS/INFRASTRUCTURE					
	Electricity	3,169,229	kWh	732	See tab 2. Received from Sandy at SCE, rate classes appear similar to 2016. Includes streetlights, traffic signals, water/wastewater pumping
	Natural Gas	112,896	Therm	600	See tab 1. Accounts info from SW Gas match Town records.
VEHICLE FLEET					
	Gasoline	32,494	Gallons	286	TOWN FLEET: All gasoline in 2019 per Town records. VMT= 276,736 No diesel
	Gasoline	77,782	Gallons	685	POLICE: Police cars fuel use, see tab 8. VMT = 938,788 no diesel
EMPLOYEE COMMUTE					
	Gasoline	538,200	VMT	195	Tab 7. Employee Commute = 104 full-time equivalent employees in 2019,
WATER/SEWER (Still separate? Or lumped into SCE industrial data?)					
	Electricity		kWh	NA	Lumped with building/infrastructure
Waste					
	Solid Waste	819	tons	909	Partly based on accurate records, partly over estimated assuming full can at each collection. See tab 5. Accounts for All waste generated at municipal facilities; in contrast, 2016 got 15 TONS as a per capita generation by Town employees. Even if separate out Town hall alone, it's much more than 15 tons in 2016. Muni was subtracted from CalRecycle town number of 61,038

SCE Data: Community

PARAMETERS:

Request ID 'SCE17193121429'

Requestor 'Town of Apple Valley'

Billing Period Between '2019-1-01' AND '2019-12-31'

Boundaries: Town of Apple Valley

		Total Usage (KWH) by Rate Category
City	Rate of Category	2019
APPLE VALLEY, CITY OF	Agricultural	*
APPLE VALLEY, CITY OF	Commercial	85,910,566
APPLE VALLEY, CITY OF	Industrial	*
APPLE VALLEY, CITY OF	Residential	205,153,100

*Rate category did not pass aggregation rules, unable to display.

No. of Accounts

38
1396
7
25572
27013

PARAMETERS:

Request ID 'SCE17193121429'

Requestor 'Town of Apple Valley'

Billing Period Between '2019-1-01' AND '2019-12-31'

Boundaries: Town of Apple Valley

		Total Usage (KWH) by Rate Category
City	Rate of Category	2019
APPLE VALLEY, CITY OF	Non-Residential (Commercial, Industrial and Agricultural)	124,695,595
APPLE VALLEY, CITY OF	Residential	205,153,100

excluding muni	excluding muni	
121,526,366	1,407	86,373
205,153,100	25,572	8,023

Calculations:

Industrial + agricultural = 38,785,029

commercial, minus muni = 82,741,337

For Inventory Use

	kWh	CO2e	
Residential	205,153,100	47,187	
Commercial	82,741,337	19,103	Municipal Emissions were subtracted from Commercial lump sum and applied to the Municipal Inventory
Industrial	38,785,029	8,954	Non-res minus commercial

75,244

SCE Data: Municipal Billing

Apple Valley Municipal Electricity Accounts per Town Billing

Cust Name	Customer Num	Service Acct Num	Customer Acct Num	Current Rate	Meter Num	Service Street Addr	City Nam	Zip	kWh Usage (Sum)	Maximum kW (Max)
APPLE VALLEY, TC	756	817594	28004695	TOU-GS1E	222013-979882	1205 PLANT I-7	APPL	92307	37	0
APPLE VALLEY, TC	756	864984	12758207	TOU-PA2D	259000-066404	15036 RIVERSIDE DR	APPL	92307	68,059	27
APPLE VALLEY, TC	756	998270	13880117	TC-1	222011-835569	18184 US HIGHWAY 18	APPL	92307	2,697	0
APPLE VALLEY, TC	756	1015860	12758207	TOU-GS1E	256000-185001	817 PLANT C-10	APPL	92307	2,764	4
APPLE VALLEY, TC	756	1126267	28004695	TOU-PA2D	256000-046959	2231 PLANT K-9	APPL	92308	39,666	22
APPLE VALLEY, TC	756	1169374	28004695	TOU-GS1E	222020-017540	13467 NAVAJO RD	APPL	92308	3,511	8
APPLE VALLEY, TC	756	1308422	closed acct	TOU-GS2D-AE	223000-002776	13413 NAVAJO RD	APPL	92308	55,337	43
APPLE VALLEY, TC	756	1351015	28004695	TOU-GS1E	222010-276496	13467 NAVAJO RD	APPL	92308	0	0
APPLE VALLEY, TC	756	1470144	13880117	LS-3		18184 HIGHWAY 18- LS3	APPL	92307	3,045	
APPLE VALLEY, TC	756	1470145	13880117	LS-3		18 E/O MNDAMON AV P	APPL	92307	1,407	
APPLE VALLEY, TC	756	1470147	13880117	LS-3		SBD 18VCTV PIUTE L	APPL	92307	1,265	
APPLE VALLEY, TC	756	1470148	13880117	TC-1	211010-057353	SBD 18VCTV RNCHRAS L	APPL	92307	2,632	0
APPLE VALLEY, TC	756	1470149	13880117	LS-3		SBD 18VCTV AVINN L P	APPL	92307	2,625	
APPLE VALLEY, TC	756	1470151	13880117	LS-3		W/S KIOWA S/18	APPL	92307	2,703	
APPLE VALLEY, TC	756	1470152	13880117	LS-3		HWY 18 / NAVAJO RD	APPL	92307	4,916	
APPLE VALLEY, TC	756	1470156	13880117	TC-1	222014-096240	19290 YUCCA LOMA RD	APPL	92307	3,823	0
APPLE VALLEY, TC	756	1470157	13880117	TC-1	222013-602532	73 APPLE VALLEY RD SIG	APPL	92308	4,452	0
APPLE VALLEY, TC	756	1756684	28004695	TOU-PA2E	256000-128635	502 PLANT E-3	APPL	92308	22,132	11
APPLE VALLEY, TC	756	1779418	13880117	TC-1	222013-909043	833 PLANT D3	APPL	92307	3,392	0
APPLE VALLEY, TC	756	1980191	13880117	TC-1	211010-022412	73 KIOWA SIG	APPL	92308	4,693	0
APPLE VALLEY, TC	756	2241022	28004695	TOU-GS1E	222011-642266	13467 NAVAJO RD	APPL	92308	3,798	2
APPLE VALLEY, TC	756	2368646	12758207	TOU-GS1E	256000-140159	22458 OTTAWA RD	APPL	92308	1,400	3
APPLE VALLEY, TC	756	2728098	13880117	LS-3		AV RD-BY ALPHA BETA	APPL	92307	2,588	
APPLE VALLEY, TC	756	2728099	13880117	LS-1-ALLNITE		VARIOUS	APPL	92307	288,138	
APPLE VALLEY, TC	756	2728100	13880117	LS-2		VARIOUS	APPL	92307	14,436	
APPLE VALLEY, TC	756	2728101	13880117	LS-2		NAVAJO/BEAR VALLEY	APPL	92307	5,184	
APPLE VALLEY, TC	756	2728102	13880117	TC-1	211010-053897	73 WIKA-18 SGL	APPL	92307	2,348	0
APPLE VALLEY, TC	756	2728104	13880117	TC-1	222010-672745	JESS RANCH PARKWAY	APPL	92308	5,335	0
APPLE VALLEY, TC	756	2728105	13880117	TC-1	211010-056980	APPLE VALLEY INN-18	APPL	92307	4,231	0
APPLE VALLEY, TC	756	2728111	13880117	TC-1	222010-796077	73 NAVAJO-18 SGL	APPL	92308	429	0
APPLE VALLEY, TC	756	2728113	13880117	LS-3		RANCHERIAS ROAD	APPL	92307	2,630	
APPLE VALLEY, TC	756	3457436	28004695	TOU-GS1D	223000-003634	13467 NAVAJO RD	APPL	92308	43,740	22
APPLE VALLEY, TC	756	3457437	28004695	AL-2-F	223000-003637	13467 NAVAJO RD	APPL	92308	15,153	116
APPLE VALLEY, TC	756	3457438	28004695	TOU-GS1E	222011-642264	13467 NAVAJO RD	APPL	92308	1,650	2
APPLE VALLEY, TC	756	3457732	28004695	TOU-GS1E	211010-057332	73 CORWIN-DESERT VIEW	APPL	92307	42	0
APPLE VALLEY, TC	756	3527519	28004695	TOU-GS1D	222010-838542	22727 HIGHWAY-18	APPL	92307	7,284	16

APPLE VALLEY, TO	756	3655765	28004695	AL-2-F	259000-016426	13467 NAVAJO RD	APPL 92308	22,829	174
APPLE VALLEY, TO	756	3661977	28004695	OL-1		73 CORWIN/MALAHAT	APPL 92307	2,040	
APPLE VALLEY, TO	756	3715264	12758207	TOU-PA2D	259000-001987	13980 RIVERSIDE DR	APPL 92307	96,670	34
APPLE VALLEY, TO	756	3740930	28004695	TOU-GS1E	222010-798240	20700 THUNDERBIRD RD	APPL 92307	971	0
APPLE VALLEY, TO	756	4123297	12758207	TOU-GS1E	256000-184999	22484 HURONS AVE	APPL 92307	9,520	8
APPLE VALLEY, TO	756	4330015	13880117	TC-1	222012-619561	73 NAVAJO SIG	APPL 92308	10,289	0
APPLE VALLEY, TO	756	4344348	13880117	TC-1	211010-057292	73 BELL MOUNTAIN-QUARRY SC	APPL 92307	859	0
APPLE VALLEY, TO	756	4401533	28004695	OL-1		13467 NAVAJO RD	APPL 92308	348	
APPLE VALLEY, TO	756	4438533	28004695	TOU-GS1E	222010-796090	73 NAVAJO-OTTAWA	APPL 92308	287	1
APPLE VALLEY, TO	756	4476999	28004695	TOU-GS1E	223000-000906	22727 HIGHWAY-18 PIC	APPL 92307	1,741	5
APPLE VALLEY, TO	756	4707750	28004695	TOU-GS1E	211010-021920	14053 TUWEEP TRL	APPL 92307	243	0
APPLE VALLEY, TO	756	5506372	13880117	TC-1	222012-610993	12465 NAVAJO RD	APPL 92308	4,916	0
APPLE VALLEY, TO	756	5909129	13880117	TOU-GS1E	222012-619562	12707 NAVAJO RD	APPL 92308	0	0
APPLE VALLEY, TO	756	9030945	13880117	TC-1	222011-832005	19201 BEAR VALLEY RD	APPL 92308	5,732	0
APPLE VALLEY, TO	756	9521422	13880117	LS-2		19020 BEAR VALLEY RD	APPL 92308	7,776	
APPLE VALLEY, TO	756	9577547	28004695	AL-2-F	259000-001032	21024 OTOE	APPL 92307	42,509	198
APPLE VALLEY, TO	756	10809258	28004695	TOU-GS1E	222010-796078	21710 POWHATAN	APPL 92308	2,603	0
APPLE VALLEY, TO	756	10845054	13880117	LS-3		18857 1/2 HIGHWAY-18 LS3	APPL 92307	2,538	
APPLE VALLEY, TO	756	10920492	13880117	TC-1	222010-798055	18857 1/2 HIGHWAY-18	APPL 92307	3,799	0
APPLE VALLEY, TO	756	11203526	13880117	TC-1	222013-911939	22398 1/2 HIGHWAY-18	APPL 92307	3,122	0
APPLE VALLEY, TO	756	11236757	13880117	LS-3		20251 1/2 HIGHWAY-18 LS3	APPL 92307	2,753	
APPLE VALLEY, TO	756	11236758	13880117	LS-3		22095 1/2 HIGHWAY-18 LS3	APPL 92307	2,811	
APPLE VALLEY, TO	756	11236759	13880117	LS-3		22398 1/2 HIGHWAY-18 LS3	APPL 92307	3,530	
APPLE VALLEY, TO	756	11293924	13880117	TC-1	222013-739419	20251 1/2 HIGHWAY-18	APPL 92307	4,198	0
APPLE VALLEY, TO	756	11326570	13880117	TC-1	222011-834418	22095 1/2 HIGHWAY-18	APPL 92307	3,021	0
APPLE VALLEY, TO	756	11766559	13880117	TOU-GS1E	211010-022389	12142 NAVAJO RD	APPL 92308	24	0
APPLE VALLEY, TO	756	11862771	254629611	TOU-GS1E	211010-015176	13504 NAVAJO RD	APPL 92308	36	0
APPLE VALLEY, TO	756	12526859	82118464	TOU-GS1E	222013-954376	12895 QUAIL SUMMIT RD	APPL 92308	1,420	0
APPLE VALLEY, TO	756	12526861	82118464	TOU-GS1E	222010-514954	12895 QUAIL VISTA RD	APPL 92308	440	1
APPLE VALLEY, TO	756	13538323	82118464	TOU-GS1E	222010-514906	19852 SITTING BULL	APPL 92307	31	0
APPLE VALLEY, TO	756	13538326	82118464	TOU-GS1E	222011-336499	22507 CUYAMA	APPL 92307	45	0
APPLE VALLEY, TO	756	13818354	82118464	LS-1-ALLNITE		SITTING BULL / QUAIL	APPL 92308	684	
APPLE VALLEY, TO	756	14868692	28004695	TOU-GS1E	222012-615714	18577 CORWIN RD	APPL 92307	2,750	1
APPLE VALLEY, TO	756	15838841	82118464	TOU-GS1E	222011-401885	13412 PARAISO RD	APPL 92308	36	0
APPLE VALLEY, TO	756	15838871	82118464	TOU-GS1E	222012-331496	19600 OTTAWA RD	APPL 92308	49	0
APPLE VALLEY, TO	756	15872695	13880117	LS-2		14101 CENTRAL	APPL 92307	5,184	
APPLE VALLEY, TO	756	16500102	13880117	TC-1	222013-603939	14101 CENTRAL RD	APPL 92307	3,538	0
APPLE VALLEY, TO	756	16539533	82118464	LS-1-ALLNITE		IVANPAH / OTTAWA	APPL 92307	21,312	
APPLE VALLEY, TO	756	16554248	205856503	TOU-PA2D	256000-129331	18878 TOWN CENTER DRIV	APPL 92308	65,262	26

APPLE VALLEY, TC	756	16554308	205856479	TOU-PA2E	256000-176096	10900 APPLE VALLEY	APPL 92308	2,503	9
APPLE VALLEY, TC	756	16588609	13880117	TC-1	222010-800252	19299 SITTING BULL	APPL 92308	4,892	0
APPLE VALLEY, TC	756	16588610	13880117	LS-3		19299 SITTING BULL LS3	APPL 92308	5,117	
APPLE VALLEY, TC	756	19879473	234659332	TOU-GS2R	259000-077064	14955 DALE EVANS PKWY	APPL 92307	173,351	74
APPLE VALLEY, TC	756	20531242	13880117	TC-1	222012-607428	18394 HIGHWAY-18	APPL 92307	2,604	0
APPLE VALLEY, TC	756	20547161	13880117	LS-3		18394 HIGHWAY-18 LS3	APPL 92307	2,626	
APPLE VALLEY, TC	756	20818176	240221739	TOU-GS2D	259000-000887	14931 DALE EVANS PKWY	APPL 92307	233,075	69
APPLE VALLEY, TC	756	22192027	82118464	TOU-GS1E	222012-603469	12844 SKYLINE RANCH	APPL 92308	12	0
APPLE VALLEY, TC	756	22192068	82118464	TOU-GS1E	222012-603467	20260 SKYLINE RANCH	APPL 92308	0	0
APPLE VALLEY, TC	756	22192149	82118464	TOU-GS1E	222014-102582	20198 GERONIMO	APPL 92308	0	0
APPLE VALLEY, TC	756	22221257	82118464	LS-1-ALLNITE		SITTING BULL / DEEP CREEK	APPL 92307	348	
APPLE VALLEY, TC	756	23048853	13880117	TC-1	222012-610922	12916 NAVAJO RD	APPL 92308	3,421	0
APPLE VALLEY, TC	756	23105212	13880117	LS-3		12916 NAVAJO RD B	APPL 92308	11,701	
APPLE VALLEY, TC	756	27256489	13880117	LS-3		19385 SITTING BULL RD LS-3	APPL 92308	4,046	
APPLE VALLEY, TC	756	27256539	13880117	TC-1	222010-674064	19385 SITTING BULL RD	APPL 92308	5,753	0
APPLE VALLEY, TC	756	27546818	13880117	LS-3		19260 SENECA RD LS3	APPL 92307	3,139	
APPLE VALLEY, TC	756	27546860	13880117	LS-3		15473 MONDAMON RD LS-3	APPL 92307	3,572	
APPLE VALLEY, TC	756	27546867	13880117	TC-1	222012-615712	15473 MONDAMON RD	APPL 92307	4,989	0
APPLE VALLEY, TC	756	27560713	13880117	TC-1	222010-801626	19260 SENECA RD	APPL 92307	4,687	0
APPLE VALLEY, TC	756	27733742	13880117	LS-3		19294 SHOSHONEE RD LS3	APPL 92307	4,009	
APPLE VALLEY, TC	756	27733757	13880117	TC-1	222010-514839	19294 SHOSHONEE RD	APPL 92307	4,811	0
APPLE VALLEY, TC	756	27733789	13880117	LS-3		14798 MANDAN RD LS-3	APPL 92307	2,253	
APPLE VALLEY, TC	756	27733801	13880117	TC-1	222010-804655	14798 MANDAN RD	APPL 92307	5,445	0
APPLE VALLEY, TC	756	28194229	283596310	TOU-GS2D	259000-001787	14999 DALE EVANS PKWY	APPL 92307	204,883	48
APPLE VALLEY, TC	756	28226311	284786373	TOU-GS1E	222012-337139	12551 APPLE VALLEY	APPL 92307	99	0
APPLE VALLEY, TC	756	29932092	294925532	TOU-GS1E	222013-779177	21196 BEAUJOLAIS WAY	APPL 92308	60	0
APPLE VALLEY, TC	756	29932159	294926019	TOU-GS1E	222011-504945	13310 TAMIANI RD	APPL 92308	55	0
APPLE VALLEY, TC	756	30125670	294925342	AL-2-F	256000-143050	21860 TUSSING RANCH RD	APPL 92308	4,373	78
APPLE VALLEY, TC	756	30174020	296315294	AL-2-F	V349N-008590	21024 OTOE 1	APPL 92307	75,531	313
APPLE VALLEY, TC	756	30468116	13880117	TC-1	222012-603445	12267 APPLE VALLEY RD	APPL 92308	5,090	0
APPLE VALLEY, TC	756	30473156	13880117	LS-3		19420 BEAR VALLEY RD LS-3	APPL 92308	4,314	
APPLE VALLEY, TC	756	30473173	13880117	TC-1	222012-603422	19420 BEAR VALLEY RD	APPL 92308	3,025	0
APPLE VALLEY, TC	756	30473181	13880117	LS-3		12267 APPLE VALLEY RD LS3	APPL 92308	4,666	
APPLE VALLEY, TC	756	31387845	303650329	TOU-GS1E	211010-021802	12710 APPLE VALLEY RD	APPL 92308	62	0
APPLE VALLEY, TC	756	31851670	306242991	TOU-GS1E	222013-595146	13080 TAMIANI RD	APPL 92308	50	0
APPLE VALLEY, TC	756	32240869	308509785	TC-1	222010-803527	13505 NAVAJO RD	APPL 92308	3,737	0
APPLE VALLEY, TC	756	32267069	308509785	LS-3		13505 NAVAJO RD LS-3	APPL 92308	4,383	
APPLE VALLEY, TC	756	32341483	309092476	TOU-GS1E	222012-607121	13321 APPLE VALLEY RD	APPL 92308	0	0
APPLE VALLEY, TC	756	33065237	313277105	LS-3		22499 BEAR VALLEY RD LS3	APPL 92308	4,301	

APPLE VALLEY, TC	756	33065316	313353153	TC-1	222013-602157	22499 BEAR VALLEY RD	APPL 92308	5,432	0
APPLE VALLEY, TC	756	34793566	323076083	TOU-GS2D	259000-000356	22131 POWHATAN RD	APPL 92308	305,415	74
APPLE VALLEY, TC	756	35403640	326692258	TOU-GS2D	259000-001034	14975 DALE EVANS PKWY	APPL 92307	460,076	123
APPLE VALLEY, TC	756	36742954	334238953	LS-1-ALLNITE		VARIOUS	APPL 92308	21,813	
APPLE VALLEY, TC	756	36850629	334872116	TOU-GS1E	222011-397691	21742 HIGHWAY 18	APPL 92307	61	0
APPLE VALLEY, TC	756	37202242	336920194	TOU-GS2D	259000-009988	13450 NOMWAKET RD	APPL 92308	87,126	42
APPLE VALLEY, TC	756	37225535	337042956	TOU-GS1E	222013-603938	14242 CENTRAL	APPL 92307	42	0
APPLE VALLEY, TC	756	37409733	338225931	TOU-GS1E	222013-753632	15002 DALE EVANS PKWY	APPL 92307	61	0
APPLE VALLEY, TC	756	37580258	339204406	LS-3		12100 DEEP CREEK PKWY LS3	APPL 92308	5,422	
APPLE VALLEY, TC	756	37580303	339204653	TC-1	222012-331868	12100 DEEP CREEK RD	APPL 92308	2,237	0
APPLE VALLEY, TC	756	38780124	346226301	TOU-PA2D	345M-006766	1202 PLANT I-3	APPL 92307	220,968	62
APPLE VALLEY, TC	756	38780301	346226301	TOU-PA2A	359150-008018	1201 PLANT J-3	APPL 92307	159,706	134
APPLE VALLEY, TC	756	38780320	346226301	TOU-PA2D	256000-107273	1201 PLANT	APPL 92307	27,105	20
APPLE VALLEY, TC	756	38780328	346226301	TOU-GS1E	222010-795181	15200 RANCHERIAS RD	APPL 92307	14,066	6
APPLE VALLEY, TC	756	39021385	13880117	LS-2		12465 NAVAJO RD	APPL 92308	6,108	
APPLE VALLEY, TC	756	43554801	376500088	TC-1	322010-326674	12101 MOHAWK RD	APPL 92307	2,565	0
APPLE VALLEY, TC	756	43554850	376500088	LS-3		12101 MOHAWK RD LS3	APPL 92307	7,731	
APPLE VALLEY, TC	756	43864718	376500088	TC-1	322010-396718	15709 APPLE VALLEY RD	APPL 92308	3,163	0
APPLE VALLEY, TC	756	43864745	376500088	LS-3		15709 APPLE VALLEY RD LS-3	APPL 92308	5,686	
APPLE VALLEY, TC	756	45975219	13880117	LS-3		18908 YUCCA LOMA RD LS3	APPL 92308	5,075	
APPLE VALLEY, TC	756	45975240	13880117	TC-1	322010-475676	18908 YUCCA LOMA RD TC-1	APPL 92308	2,410	0
APPLE VALLEY, TC	756	46229468	13880117	TC-1	222014-050190	19231 YUCCA LOMA RD	APPL 92307	1,471	0
APPLE VALLEY, TC	756	46229469	13880117	LS-3		19231 YUCCA LOMA RD LS-3	APPL 92307	2,221	
APPLE VALLEY, TC	756	46229471	13880117	LS-3		19290 YUCCA LOMA RD LS-3	APPL 92307	6,222	
APPLE VALLEY, TC	756	46268718	395098387	TOU-GS2D	223000-013074	13467 NAVAJO RD FLD8	APPL 92308	6,118	26
APPLE VALLEY, TC	756	50545878	13880117	LS-2		18751 YUCCA LOMA RD	APPL 92308	50,488	

For Inventory Use: Lump Sum

3,169,229 kWh

732 CO2e

Breakdown

Buildings/ Facilities (address
reference from Muni Nots tab)
1,539,447 Remaining Accts. Assuming
traffic signals, pumping,
1,629,782 streetlights etc.

SOUTHWEST GAS CORPORATION

SOUTHERN CALIFORNIA DIVISION

TOWN OF APPLE VALLEY

2019 ANNUAL THERMS AND YEAR-END CUSTOMERS

CUSTOMER CLASS	Year-End Customers	Sum of JAN19*USAGE	Sum of FEB19*USAGE	Sum of MAR19*USAG E	Sum of APR19*USA GE	Sum of MAY19*USAG E	Sum of JUN19*USAG E	Sum of JUL19*USAG E	Sum of AUG19*USA GE	Sum of SEP19*USAG E	Sum of OCT19*USAG E	Sum of NOV19*USAGE	Sum of DEC19*USAGE	TOTAL*USAGE
Residential	26,549	2,345,929	2,055,117	2,204,271	1,115,970	614,175	663,149	419,722	359,789	384,127	424,274	716,465	1,593,668	12,896,656
Commercial	1,171	373,874	353,532	389,622	203,492	123,920	137,946	90,811	82,891	87,478	101,404	145,968	272,134	2,250,176
Municipal	10													112,896
Industrial	4	3,023	2,446	434	1,953	2,585	2,032	4,131	805	3,215	3,889	5,126	5,691	35,330
Irrigation/Water Pumping	2	194	122	184	165	181	165	222	169	138	228	229	199	2,196
Electric Generation	3	19,001	17,346	18,492	16,884	18,050	19,363	19,234	18,970	20,642	19,819	19,235	22,442	229,478
Grand Total	27,739	2,742,021	2,428,563	2,613,003	1,338,464	758,911	822,655	534,120	462,624	495,600	549,614	887,023	1,894,134	15,526,732

FOR INVENTORY USE

2019				
CUSTOMER CLASS	Year-End Customers	TOTAL*USAGE	Therms per Account CO2e	
Residential	26,549	12,896,656	486	68593
Commercial	1,171	2,250,176	1922	11968
Industrial	4	35,330	8833	1417
Irrigation/Water Pumping	2	2,196	1098	
Electric Generation	3	229,478	76493	
Community Total	27,729	15,413,836	556	81,978
Municipal Total	10	112,896	11290	600

Propane

For Inventory Use

2019

2019 Housing units provided by Town	27,000
No. of Residential Accounts with SW Gas	26,549
Difference (assume using propane)	451

Assumed average home consumes 1,000 gallons of propane annually

propane usage in 2019 451000 gals

CO2e 2547

VMT: Community

For Inventory Use

		VMT	CO2e	Fuel
	Town-Wide	925,551,631	406,963	
	Community			
85%	personal gas	784,756,111	321,296	
15%	personal diesel	138,486,373	79,192	
	transit CNG	521,918	53	
	Transit gas	33,506	5256	
		923,797,907	405,797	
	Municipal			
	Employee gas	538,200	195	
	Police Fleet	938,788	685	77,782
	Muni Fleet	276,736	286	32,494
		1,753,724	1166	
	Cross Check	925,551,631	406,963	

Note: Municipal VMT from Police and Muni Fleet were subtracted from "Community personal gas" VMT to not double count CO2e emissions

Note: Community VMTs were calculated by subtracting municipal VMTs from the Town-Wide total. From there, community VMTs were separated by transit and personal vehicles. Transit VMTs (tab 6) were subtracted from the community total leaving 923,242,483 miles for personal vehicles. the 85 gas/15 diesel assumption was applied, resulting in the breakdown above.

Municipal VMT 1,753,724
Community VMT 923,797,907

Personal VMT 923,242,483
Transit VMT 555,424
Total (Comm total) 923,797,907

Personal gas 85% 784756111
Personal diesel 15% 138486373
Total (Personal total) 923242483

Employee Community: VMT

Work days

According to calendar posted on Town website, 2016 and 2019 had Town halls closed on alternate Fridays. Actual net work days were calculated for 2016 and 2019, which are both 225 days.

2019 New Year's Day 1/1 Tuesday
 Memorial Day 5/27 Monday
 Independence Day 7/4 Thursday
 Labor Day 9/2 Monday
 Thanksgiving Thursday
 Christmas Wednesday
 Workday total: 261 Assume no work on 6 weekdays that are holidays, work on 255 weekdays

2019	Total Employees	Full time employee as of Nov 2020	92
January	144	Total employees as of Nov 2020	163
February	155		
March	153		
April	156		
May	187		
June	179		
July	161		
August	152		
September	158		
October	165		
November	153		
December	152		
Average	160		

For Inventory Use

Assume 23 miles roundtrip, constant throughout all report years

Year	Full-time Employee	Workdays	VMT total	CO2e	VMT cited in 2016 CAP p.III-17
2005	104	251	600,392		570,928
2013	95	253	552,805		521,455
2016	87	225	450,225		477,599
2019	104	225	538,200	195	NA

104 is full time equivalent (FTE) in 2019 from Town HR, should better capture Town employee commute than full time headcount used in previous CAPs.

Vehicle Fleet: Municipal

For Inventory Use: TOWN FLEET

Apple Valley Town Fleet 2019 Vehicle Mileage and Emissions

Vehicle #	Year	Make	Model		Miles	MPG	Fuel Use		
21	1999	FORD	EXPLORER		8,115	13.69	592.80		
24	2000	CHEVY	2500 Std Cab		6,648	11.26	590.40		
25	2001	CHEVY	S-10		3,847	13.17	218.22		
27	2002	GMC	SONOMA		720	8.38	85.88		
31	2002	GMC	SIERRA 2500		3,687	10.30	2,572.32		
32	2002	GMC	SIERRA 2500		3,955	8.17	557.36		
33	2002	CHEVY	Silverado 2500		12,340	6.47	1,056.12		
35	2002	GMC	SIERRA 2500		1,608	8.02	188.19		
36	2003	CHEVY	Silverado 2500		2,494	10.33	534.64		
37	2003	CHEVY	Silverado 3500		13,082	8.82	1,622.40		
38	2005	CHEVY	Silverado 3500		8,060	6.53	696.40		
39	2005	CHEVY	Malibu		2,982	19.85	119.00		
40	2005	CHEVY	Colorado 4WD		7,724	14.34	538.64		
41	2005	CHEVY	Colorado 4WD		6,214	11.79	579.44		
42	2005	CHEVY	Colorado		6,563	15.20	431.76		
43	2005	CHEVY	Silverado 2500		10,832	7.60	1,404.10		
44	2005	CHEVY	Silverado 2500		11,795	7.62	1,364.50		
45	2005	CHEVY	Silverado 2500		5,496	4.39	1,347.08		
46	2005	CHEVY	Silverado 3500		4,185	6.05	332.14		
47	2005	CHEVY	2500 Crew Cb		6,526	6.77	963.96		
48	2005	CHEVY	2500 Crew Cb		9,687	8.38	1,156.00		
51	2006	CHEVY	Malibu		2,380	25.58	93.04		
52	2006	CHEVY	Uplander		201	8.81	23		
53	2006	FORD	F-350		985	7.02	120.80		
54	2006	FREIGHT	M2			4.35		No longer part of fleet	
55	2006	FORD	Ranger		6,114	14.34	876.52		
56	2006	FORD	Ranger		8,168	9.69	203.75		
57	2006	FORD	F250		4,942	9.39	494.28		
58	2007	CHEVY	Silverado 1500		2,453	11.25	232.10		
59	2007	CHEVY	Trailblazer		8,313	17.12	451.96		
60	2007	CHEVY	Silverado 2500HD		2,291	7.51	365.30		
61	2007	CHEVY	Silverado 2500HD		6,491	27.20	449.56		
62	2007	CHEVY	Silverado 2500HD		6,879	5.58	889.48		
63	2007	FORD	Ranger		2,247	7.04	319.12		
64	2008	FORD	Ranger		7,036	18.06	538.64		
65	2008	CHEVY	Colorado		57	7.51	7.59		
66	2008	CHEVY	Colorado		5,586	9.11	613.17		
67	2008	FORD	F250XL		7,260	16.54	901.80		
69	2008	Ford	F250		8,763	11.98	1,029.88		
70	2008	Ford	F250		10,502	10.20	1,659.52		
71	2008	Ford	Ranger		711	18.06	39.37		

72	2009	VACON	Vactor Truck		3,795	68.16	411.95		
73	2009	Ford	F350 Flatbed		3,956	6.83	557.36		
74	2009	Ford	F250		8,316	1.91	411.95		
75	2010	Ford	Fusion		621	10.62	58.43		
76	2009	Ford	F350		985	16.46	120.00		
77	2009	FORD	F350		190	16.46	11.54		
78	2014	FORD	15 Passenger Van		4,457	6.05	971.88		
79			Street Sweeper		3,406		950.92		
80			Patch Truck		12,543		1,708.80		
81	2019	Ford	F250		3,849	12.00	474.20		
82	2019	Ford	fusion		75	12.00	6.23		
85	2019	Ford			1,848	12.00	154.00		
86	2019	Ford			502	12.00	41.83		
87	2019	Ford			1,188	12.00	99.00		
88	2019	Ford			776	12.00	64.67		
89	2019	Ford			600	12.00	50.00		
90	2019	Ford			599	12.00	49.92		
91	2019	Ford			1,092	12.00	91.00		
						12.07			

AVG MPG

TOTAL VMT = 276,736 TOTAL Fuel = 32,493.72
CO2e = 286

58 vehicles

2016 41,078

47 vehicles

Avg. Miles per Gallon 12.07

For Inventory Use: POLICE

From Pam Hoffman at Apple Valley Police:

Here is the information you requested for the 2019 calendar year for the Apple Valley Police Department:

1 – 37 vehicles

2 – 77,782 gallons

3 – all vehicles use gasoline

VMT	938788
CO2e	685

Assumes same average gallons per miles (12.07) calculated for the Town fleet.

938787.802

Transit: Community

This information is collected via phone conversation with Shelly Cable on 11/11/20. Call her Cell # 760-995-6135 for any follow up questions.

VVTA Buses

Route Number	Bus/Fuel Description	Total Bus Trips Around the Route Per Day*	Total Bus Trips Around the Route Per Year	Route Mileage Within Apple Valley (full circuit, start to finish)**	Total Bus Miles Traveled Around the Route Per Year
23***	35-40 ft. buses (100% of buses use CNG)	8	2,664	7.00	18648.0
40***	22-35 ft. buses (75% use CNG, 25% use gasoline)	15	4,761	15.75	74985.8
41	40 ft. buses (100% of buses use CNG)	24	7,316	16.34	119543.4
42	40 ft. buses (100% of buses use CNG)	15	5,021	35.36	177542.6
43	40 ft. buses (100% of buses use CNG)	21	6,551	16.13	105667.6
47***	22-35 ft. buses (75% use CNG, 25% use gasoline)	15	4,761	12.4	59036.4
<p>* based on VVTA bus schedules and information provided by Shelly Cable at VVTA on November 11, 2020.</p> <p>**only includes portion of the bus route located within Apple Valley limits.</p> <p>*** Routes 23, 40, and 47 provides pickups within 3/4 miles of the route with by reservation only. VVTA does not track miles traveled off the fixed route. Data shown above is mileage along fixed routes. Actual mileage traveled along these routes is somewhat higher than shown.</p> <p>Note: VVTA does not track mileage traveled by ADA-compliant buses, which provide curb-to-curb service on demand, not along a fixed route. ADA-compliant vehicles are 22-foot buses, most are CNG and some are gasoline-powered; none are diesel-powered.</p>					

For Inventory Use

sat trips	sun trips	CNG miles	Gasoline miles
7	5	18648.0	
13	5	56239.3	18746.4
13	10	119543.4	
13	10	177542.6	
13	10	105667.6	
13	5	44277.3	14759.1
		521918.2	33505.5
CO2e		53	5256

2019 New Year's Day 1/1
 Memorial Day 5/27
 Independence Day 7/4
 Labor Day 9/2
 Thanksgiving
 Christmas

Tuesday
 Monday
 Thursday
 Monday
 Thursday
 Wednesday

Bus did not run on 6 weekdays, ran on 255 weekdays, 52 Saturdays and 52 Sundays

2016 249149 20513

Off-Road: 2005

Model Output: OFFROAD2017 (v1.0.1) Emissions Inventory

Region Type: County

Region: San Bernardino

Calendar Year: 2005

Scenario: All Adopted Rules - Exhaust

Vehicle Classification: OFFROAD2017 Equipment Sectors

Units: tons/day for Emissions, gallons/year for Fuel, hours/year for Activity, Horsepower-hours/year for Horsepower-hours

Region	Calendar Year	Vehicle Category	Model Year	Horsepower	Fuel	HC_tpd	ROG_tpd	TOG_tpd	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd
San Bernardi	2005	Agricultural	Aggregate	Aggregate	Diesel	0.08870178	0.10732915	0.12773056	0.30687727	0.69179645	5.86225422	0.04201569
San Bernardi	2005	Airport Ground Support	Aggregate	Aggregate	Diesel	0.00714707	0.00864795	0.010291777	0.03701809	0.07837223	4.67997617	0.00476099
San Bernardi	2005	Cargo Handling	Aggregate	Aggregate	Diesel	0.02910107	0.0352123	0.041905545	0.15886648	0.37729513	27.627335	0.0206559
San Bernardi	2005	Construction	Aggregate	Aggregate	Diesel	1.0689814	1.2934675	1.53933322	6.81366973	14.3578001	983.627163	0.72526972
San Bernardi	2005	Industrial	Aggregate	Aggregate	Diesel	0.04642998	0.05618028	0.066859172	0.23141347	0.45637244	31.3962083	0.03139315
San Bernardi	2005	Locomotive - Aggregate	Aggregate	Aggregate	Diesel	3.55253096	4.29856246	5.115644584	9.90085919	63.9979278	0	2.2167522
San Bernardi	2005	Locomotive - Aggregate	Aggregate	Aggregate	Diesel	0.01743648	2.0615E-05	2.4534E-05	0.04649728	0.4608444	0	0.01162432
San Bernardi	2005	Locomotive - Aggregate	Aggregate	Aggregate	Diesel	0.01917269	5.3685E-06	6.38896E-06	0.05112719	0.51926048	0	0.0127818
San Bernardi	2005	Locomotive - Aggregate	Aggregate	Aggregate	Diesel	0.04514741	2.3322E-05	2.77556E-05	0.12128504	0.70026705	0	0.02599516
San Bernardi	2005	OFFROAD - / Aggregate	Aggregate	Aggregate	Gasoline	0.03794442	0.03490127	0.041755515	1.07461614	0.03599444	3.0684181	0.0021417
San Bernardi	2005	OFFROAD - / Aggregate	Aggregate	Aggregate	Diesel	0.00712346	0.0084775	0.010257777	0.03335877	0.06137051	6.46160886	0.00406776
San Bernardi	2005	OFFROAD - / Aggregate	Aggregate	Aggregate	Gasoline	0.05519131	0.05076496	0.060734668	1.08066776	0.21749605	17.7527927	0.00125419
San Bernardi	2005	OFFROAD - / Aggregate	Aggregate	Aggregate	Nat Gas	0	0	0.000419828	0.05404937	0.02044332	1.56941261	0
San Bernardi	2005	OFFROAD - (Aggregate	Aggregate	Aggregate	Gasoline	0.14764116	0.13580034	0.162470093	4.43278142	0.11991382	11.1862717	0.04282962
San Bernardi	2005	OFFROAD - (Aggregate	Aggregate	Aggregate	Diesel	0.00612285	0.0072867	0.008816907	0.02669256	0.04227382	4.33757343	0.00312088
San Bernardi	2005	OFFROAD - I Aggregate	Aggregate	Aggregate	Gasoline	0.171335	0.15759393	0.188543712	4.11859949	0.43504687	38.88879	0.00351727
San Bernardi	2005	OFFROAD - I Aggregate	Aggregate	Aggregate	Diesel	0.00056058	0.00066714	0.000807242	0.00256767	0.00454167	0.47192639	0.00031208
San Bernardi	2005	OFFROAD - I Aggregate	Aggregate	Aggregate	Nat Gas	0	0	0.015935518	2.26214842	0.62555669	55.5153594	0
San Bernardi	2005	OFFROAD - I Aggregate	Aggregate	Aggregate	Gasoline	0.54069382	0.49733018	0.595000569	13.6149515	0.30374699	30.6731251	0.0467614
San Bernardi	2005	OFFROAD - I Aggregate	Aggregate	Aggregate	Diesel	0.03993112	0.04752133	0.057500813	0.13591778	0.14939002	13.3009476	0.01488933
San Bernardi	2005	OFFROAD - I Aggregate	Aggregate	Aggregate	Nat Gas	0	0	0.001082861	0.28161976	0.048485	7.73972663	0
San Bernardi	2005	OFFROAD - (Aggregate	Aggregate	Aggregate	Diesel	1.2569E-05	1.4958E-05	1.80995E-05	4.3327E-05	4.6262E-05	0.00415781	4.5647E-06
San Bernardi	2005	Oil Drilling	Aggregate	Aggregate	Diesel	0.01075441	0.01301283	0.015486348	0.07084623	0.1756618	12.2911652	0.00693927
San Bernardi	2005	Portable Equipment	Aggregate	Aggregate	Diesel	0.25172887	0.30459193	0.362489573	1.33087876	3.48739566	251.749264	0.14378955
San Bernardi	2005	Transportation	Aggregate	Aggregate	Diesel	0.35264291	0.42669792	0.507805791	1.26072748	0.979584	12.3287349	0.12464178

For Inventory Use

SB County CO2 Total

daily CO2 47.45

annual CO2 11909.47 251 working days in 2005

SB County 2005 pop 1950000

AV pop 2005 63754 3.26% of county pop

AV CO2 Portion 3.26% 388 CO2e 3.26% of SB Annual CO2e

Off-Road 2019

OFFROAD2017 (v1.0.1) Emissions Inventory

Region Type: County

Region: San Bernardino

Calendar Year: 2019

Scenario: All Adopted Rules - Exhaust

Vehicle Classification: OFFROAD2017 Equipment Types

Units: Emissions: tons/day, Fuel Consumption: gallons/year, Activity: hours/year, HP-Hours: HP-hours/year

Region	CalYr	VehClass	MdlYr	HP_Bin	Fuel	CO_tpd	NOx_tpd	CO2_tpd	PM10_tpd	PM2_5_tpd	PM_tpd
San Bernar	2019	Agricultural - Agricultur	Aggregated	Aggregated	Diesel	0.181153	0.317941762	4.282629	0.02103	0.019348	0.021030153
San Bernar	2019	Agricultural - Bale Wagc	Aggregated	Aggregated	Diesel	0.00104	0.001318926	0.026597	8.31E-05	7.65E-05	8.3126E-05
San Bernar	2019	Agricultural - Balers (Sel	Aggregated	Aggregated	Diesel	0.00057	0.000738214	0.011436	5E-05	4.6E-05	5.00233E-05
San Bernar	2019	Agricultural - Combine	Aggregated	Aggregated	Diesel	0.002775	0.007500132	0.131946	0.000311	0.000286	0.000311076
San Bernar	2019	Agricultural - Hay Squee	Aggregated	Aggregated	Diesel	0.022737	0.039116652	0.55545	0.002374	0.002184	0.002374273
San Bernar	2019	Agricultural - Cotton Pic	Aggregated	Aggregated	Diesel	0.000874	0.001642029	0.038489	7.47E-05	6.87E-05	7.46584E-05
San Bernar	2019	Agricultural - Forage & S	Aggregated	Aggregated	Diesel	0.000359	0.001003344	0.02037	3.59E-05	3.31E-05	3.5935E-05
San Bernar	2019	Agricultural - Forklifts	Aggregated	Aggregated	Diesel	0.000218	0.000228343	0.003236	1.84E-05	1.7E-05	1.84379E-05
San Bernar	2019	Agricultural - Hay Squee	Aggregated	Aggregated	Diesel	0.001162	0.002876476	0.031674	0.000138	0.000127	0.000137992
San Bernar	2019	Agricultural - Nut Harve	Aggregated	Aggregated	Diesel	0.009279	0.01045861	0.270054	0.000559	0.000514	0.000558695
San Bernar	2019	Agricultural - Other Har	Aggregated	Aggregated	Diesel	0.004798	0.007335715	0.124823	0.000452	0.000416	0.000451932
San Bernar	2019	Agricultural - Others	Aggregated	Aggregated	Diesel	0.004334	0.008568243	0.134976	0.000387	0.000356	0.000387113
San Bernar	2019	Agricultural - Sprayers/S	Aggregated	Aggregated	Diesel	0.001907	0.003033938	0.043073	0.000189	0.000174	0.000189472
San Bernar	2019	Agricultural - Swathers/	Aggregated	Aggregated	Diesel	0.002618	0.003055206	0.067224	0.000194	0.000178	0.000193639
San Bernar	2019	AirGrSupp - A/C Tug Nar	Aggregated	Aggregated	Diesel	0.003383	0.005024047	0.648039	0.00028	0.000257	0.000279645
San Bernar	2019	AirGrSupp - A/C Tug Wic	Aggregated	Aggregated	Diesel	0.001821	0.004582046	0.677601	0.000164	0.000151	0.000164139
San Bernar	2019	AirGrSupp - Baggage Tug	Aggregated	Aggregated	Diesel	0.003391	0.005190731	0.398916	0.000402	0.00037	0.000402445
San Bernar	2019	AirGrSupp - Belt Loader	Aggregated	Aggregated	Diesel	0.001628	0.002234669	0.216174	0.00019	0.000175	0.000189678
San Bernar	2019	AirGrSupp - Bobtail	Aggregated	Aggregated	Diesel	0.000313	0.000565835	0.082717	2.39E-05	2.2E-05	2.3861E-05
San Bernar	2019	AirGrSupp - Cargo Load	Aggregated	Aggregated	Diesel	0.003741	0.002677112	0.692397	0.000117	0.000108	0.000116978
San Bernar	2019	AirGrSupp - Cargo Tract	Aggregated	Aggregated	Diesel	0.003551	0.005685105	0.564954	0.000436	0.000402	0.000436466
San Bernar	2019	AirGrSupp - Forklift	Aggregated	Aggregated	Diesel	0.001411	0.002250074	0.223579	0.000138	0.000127	0.000138344
San Bernar	2019	AirGrSupp - Lift	Aggregated	Aggregated	Diesel	0.001213	0.00131955	0.215003	7.8E-05	7.18E-05	7.80089E-05
San Bernar	2019	AirGrSupp - Other GSE	Aggregated	Aggregated	Diesel	0.007206	0.00860562	1.539242	0.00043	0.000395	0.000429705
San Bernar	2019	AirGrSupp - Passenger S	Aggregated	Aggregated	Diesel	3.61E-05	4.43363E-05	0.007431	1.93E-06	1.78E-06	1.93252E-06
San Bernar	2019	CHE - Rail Container Har	Aggregated	Aggregated	Diesel	0.00205	0.002184504	0.407438	2.25E-05	2.07E-05	2.24545E-05
San Bernar	2019	CHE - Rail Forklift	Aggregated	Aggregated	Diesel	0.005945	0.002827633	0.914187	3.34E-05	3.07E-05	3.33837E-05
San Bernar	2019	CHE - Rail RTG Crane	Aggregated	Aggregated	Diesel	0.01044	0.018482557	4.808581	0.000153	0.00014	0.00015266
San Bernar	2019	CHE - Rail Yard Tractor	Aggregated	Aggregated	Diesel	0.16624	0.017240852	27.21106	0.000603	0.000555	0.000603384
San Bernar	2019	ConstMin - Bore/Drill R	Aggregated	Aggregated	Diesel	0.020797	0.028170475	6.976296	0.001025	0.000943	0.001024528
San Bernar	2019	ConstMin - Cranes	Aggregated	Aggregated	Diesel	0.088466	0.15499896	16.60214	0.00714	0.006569	0.007140487
San Bernar	2019	ConstMin - Crawler Trac	Aggregated	Aggregated	Diesel	0.186789	0.357826771	41.0328	0.017618	0.016209	0.01761804
San Bernar	2019	ConstMin - Excavators	Aggregated	Aggregated	Diesel	0.264741	0.325065594	73.83218	0.013554	0.01247	0.01355424
San Bernar	2019	ConstMin - Graders	Aggregated	Aggregated	Diesel	0.113715	0.266535906	27.77555	0.011587	0.01066	0.011587568
San Bernar	2019	ConstMin - Off-Highway	Aggregated	Aggregated	Diesel	0.070792	0.087771075	15.60936	0.004785	0.004403	0.00478541
San Bernar	2019	ConstMin - Off-Highway	Aggregated	Aggregated	Diesel	0.292335	0.576552626	93.64139	0.019803	0.018219	0.019802813
San Bernar	2019	ConstMin - Other Const	Aggregated	Aggregated	Diesel	0.087643	0.141421345	20.90084	0.007025	0.006643	0.007025409
San Bernar	2019	ConstMin - Pavers	Aggregated	Aggregated	Diesel	0.02373	0.032786291	4.923071	0.00176	0.001619	0.001760027
San Bernar	2019	ConstMin - Paving Equip	Aggregated	Aggregated	Diesel	0.013241	0.01791527	2.864138	0.000897	0.000825	0.000896664
San Bernar	2019	ConstMin - Rollers	Aggregated	Aggregated	Diesel	0.079967	0.085293361	12.76429	0.005161	0.004748	0.005160734
San Bernar	2019	ConstMin - Rough Terrai	Aggregated	Aggregated	Diesel	0.082899	0.066453324	13.85678	0.002907	0.002674	0.002906793
San Bernar	2019	ConstMin - Rubber Tirec	Aggregated	Aggregated	Diesel	0.066829	0.09711919	8.191459	0.00485	0.004462	0.004849557
San Bernar	2019	ConstMin - Rubber Tirec	Aggregated	Aggregated	Diesel	0.453159	0.795801196	112.5631	0.035631	0.03278	0.035630806
San Bernar	2019	ConstMin - Scrapers	Aggregated	Aggregated	Diesel	0.348638	0.588687889	73.31357	0.023783	0.02188	0.023782561
San Bernar	2019	ConstMin - Skid Steer Lc	Aggregated	Aggregated	Diesel	0.083071	0.070107489	13.42253	0.003141	0.002889	0.003140573
San Bernar	2019	ConstMin - Surfacing Eq	Aggregated	Aggregated	Diesel	0.004324	0.007946624	1.540405	0.000301	0.000277	0.000300593
San Bernar	2019	ConstMin - Sweepers/Sc	Aggregated	Aggregated	Diesel	0.032501	0.036688931	4.135513	0.002864	0.002635	0.002863806
San Bernar	2019	ConstMin - Tractors/Lo	Aggregated	Aggregated	Diesel	0.612801	0.6681773	102.5656	0.039865	0.036676	0.039865178
San Bernar	2019	ConstMin - Trenchers	Aggregated	Aggregated	Diesel	0.0265	0.034621358	4.238884	0.002262	0.002081	0.002262387
San Bernar	2019	Industrial - Aerial Lifts	Aggregated	Aggregated	Diesel	0.017887	0.013089307	3.126757	0.00026	0.000239	0.000259957
San Bernar	2019	Industrial - Forklifts	Aggregated	Aggregated	Diesel	0.091135	0.108643614	13.16491	0.007766	0.007145	0.007765844
San Bernar	2019	Industrial - Other Gener	Aggregated	Aggregated	Diesel	0.036244	0.041724842	6.358274	0.002521	0.00232	0.002521477
San Bernar	2019	Industrial - Other Mater	Aggregated	Aggregated	Diesel	0.016243	0.023974713	3.727872	0.001101	0.001013	0.001101022
San Bernar	2019	Locomotive - Line haul	Aggregated	Aggregated	Diesel	7.694534	24.33850317	0	0.369619	0.335831	0.369618669
San Bernar	2019	Locomotive - Passenger	Aggregated	Aggregated	Diesel	0.075012	0.337758153	0	0.005878	0.005407	0.005877685
San Bernar	2019	Locomotive - Short line	Aggregated	Aggregated	Diesel	0.051127	0.519260478	0	0.008808	0.008104	0.008808345
San Bernar	2019	Locomotive - Switcher	Aggregated	Aggregated	Diesel	0.139414	0.804938914	0	0.017002	0.015642	0.017002251
San Bernar	2019	OFF - Agricultural - 2-W	Aggregated	Aggregated	Gasoline	0.035606	0.000742648	0.065523	0.000416	0.000315	0.000462571
San Bernar	2019	OFF - Agricultural - Agric	Aggregated	Aggregated	Gasoline	0.033056	0.000602107	0.055309	0.000417	0.000315	0.000463657
San Bernar	2019	OFF - Agricultural - Agric	Aggregated	Aggregated	Gasoline	0.031906	0.002800304	0.612958	4.29E-05	3.24E-05	4.77117E-05
San Bernar	2019	OFF - Agricultural - Agric	Aggregated	Aggregated	Diesel	0.027534	0.043996905	5.847403	0.001664	0.001531	0.001663815
San Bernar	2019	OFF - Agricultural - Baler	Aggregated	Aggregated	Gasoline	0.008704	0.000565358	0.169492	1.17E-05	8.88E-06	1.30538E-05
San Bernar	2019	OFF - Agricultural - Cal	Aggregated	Aggregated	Gasoline	0.002214	0.000118853	0.088843	6.3E-06	4.76E-06	7.0001E-06
San Bernar	2019	OFF - Agricultural - Hydr	Aggregated	Aggregated	Gasoline	0.030379	0.000599677	0.058871	0.000366	0.000277	0.000407092

San Bernar	2019	OFF - Agricultural - Hydr	Aggregated Diesel	0.000174	0.000298525	0.039415	1.12E-05	1.03E-05	1.12126E-05
San Bernar	2019	OFF - Agricultural - Othe	Aggregated Gasoline	0.005851	0.000285593	0.085783	4.47E-05	3.38E-05	4.96359E-05
San Bernar	2019	OFF - Agricultural - Othe	Aggregated Diesel	0.000406	0.00069765	0.09122	2.78E-05	2.56E-05	2.78028E-05
San Bernar	2019	OFF - Agricultural - Spra	Aggregated Gasoline	0.063007	0.00142427	0.204072	0.000638	0.000482	0.000708841
San Bernar	2019	OFF - Agricultural - Spra	Aggregated Diesel	3.73E-05	6.79659E-05	0.008369	3.36E-06	3.09E-06	3.35568E-06
San Bernar	2019	OFF - Agricultural - Swat	Aggregated Gasoline	0.01768	0.002353004	0.620468	4.39E-05	3.32E-05	4.87754E-05
San Bernar	2019	OFF - Agricultural - Tiller	Aggregated Gasoline	0.754175	0.010220561	1.283504	0.000583	0.00044	0.000647565
San Bernar	2019	OFF - AirGrSupp - A/C Tu	Aggregated Gasoline	0.023663	0.003307308	0.617347	4.43E-05	3.34E-05	4.91747E-05
San Bernar	2019	OFF - AirGrSupp - A/C Tu	Aggregated Gasoline	0.018373	0.00169102	0.538596	3.97E-05	3E-05	4.41472E-05
San Bernar	2019	OFF - AirGrSupp - Air Co	Aggregated Gasoline	1.68E-05	2.28947E-06	0.000553	3.96E-08	3E-08	4.40512E-08
San Bernar	2019	OFF - AirGrSupp - Air Co	Aggregated Nat Gas	7.33E-05	1.05918E-05	0.002972	0	0	2.64307E-07
San Bernar	2019	OFF - AirGrSupp - Air Sta	Aggregated Gasoline	0.001622	0.000221163	0.052312	3.75E-06	2.83E-06	4.16692E-06
San Bernar	2019	OFF - AirGrSupp - Bagga	Aggregated Gasoline	0.219188	0.017817567	5.450473	0.00038	0.000287	0.000422245
San Bernar	2019	OFF - AirGrSupp - Bagga	Aggregated Nat Gas	0.040199	0.005282049	0.895295	0	0	7.96219E-05
San Bernar	2019	OFF - AirGrSupp - Belt Lc	Aggregated Gasoline	0.054166	0.004298914	1.299679	9.06E-05	6.85E-05	0.000100685
San Bernar	2019	OFF - AirGrSupp - Belt Lc	Aggregated Nat Gas	0.003421	0.000440694	0.086308	0	0	7.6757E-06
San Bernar	2019	OFF - AirGrSupp - Bobtai	Aggregated Gasoline	0.035227	0.00286356	0.875977	6.11E-05	4.61E-05	6.78613E-05
San Bernar	2019	OFF - AirGrSupp - Bobtai	Aggregated Nat Gas	0.000778	7.07966E-05	0.021596	0	0	1.92606E-06
San Bernar	2019	OFF - AirGrSupp - Cargo	Aggregated Gasoline	0.014908	0.001188209	0.358567	2.5E-05	1.89E-05	2.77779E-05
San Bernar	2019	OFF - AirGrSupp - Cargo	Aggregated Nat Gas	0.003708	0.000492949	0.076107	0	0	6.76848E-06
San Bernar	2019	OFF - AirGrSupp - Cargo	Aggregated Gasoline	0.527006	0.02957292	6.092195	0.000425	0.000321	0.000471958
San Bernar	2019	OFF - AirGrSupp - Cargo	Aggregated Nat Gas	0.002859	0.000408638	0.108693	0	0	9.66649E-06
San Bernar	2019	OFF - AirGrSupp - Cart	Aggregated Gasoline	0.001392	1.79508E-05	0.002422	1.1E-06	8.31E-07	1.22222E-06
San Bernar	2019	OFF - AirGrSupp - Cateri	Aggregated Gasoline	0.04215	0.005877999	0.98101	7.24E-05	5.47E-05	8.04106E-05
San Bernar	2019	OFF - AirGrSupp - Cateri	Aggregated Nat Gas	0.002246	0.000315011	0.075128	0	0	6.68142E-06
San Bernar	2019	OFF - AirGrSupp - Deicer	Aggregated Gasoline	0.000253	5.0697E-05	0.013416	9.35E-07	7.07E-07	1.03935E-06
San Bernar	2019	OFF - AirGrSupp - Forklif	Aggregated Gasoline	0.01927	0.000471005	0.14835	1.02E-05	7.73E-06	1.13634E-05
San Bernar	2019	OFF - AirGrSupp - Forklif	Aggregated Nat Gas	0.00371	0.001002893	0.298992	0	0	2.65904E-05
San Bernar	2019	OFF - AirGrSupp - Fuel Tr	Aggregated Gasoline	0.000176	2.45141E-05	0.005789	4.15E-07	3.14E-07	4.6116E-07
San Bernar	2019	OFF - AirGrSupp - Fuel Tr	Aggregated Nat Gas	0.000569	7.92675E-05	0.018189	0	0	1.61761E-06
San Bernar	2019	OFF - AirGrSupp - Gener	Aggregated Gasoline	0.004069	0.000291316	0.051154	3.57E-06	2.69E-06	3.96285E-06
San Bernar	2019	OFF - AirGrSupp - Groun	Aggregated Gasoline	0.031108	0.002845908	0.92314	6.62E-05	5E-05	7.35326E-05
San Bernar	2019	OFF - AirGrSupp - Hydrai	Aggregated Gasoline	0.048966	0.006811815	1.020789	7.32E-05	5.53E-05	8.13108E-05
San Bernar	2019	OFF - AirGrSupp - Lav Ca	Aggregated Gasoline	0.00012	1.55299E-06	0.00021	9.52E-08	7.19E-08	1.05739E-07
San Bernar	2019	OFF - AirGrSupp - Lav Tr	Aggregated Gasoline	0.01932	0.001789642	0.496569	3.56E-05	2.69E-05	3.95541E-05
San Bernar	2019	OFF - AirGrSupp - Lav Tr	Aggregated Nat Gas	0.000302	4.25001E-05	0.010373	0	0	9.22467E-07
San Bernar	2019	OFF - AirGrSupp - Lift	Aggregated Gasoline	0.01914	0.002027466	0.444392	3.1E-05	2.34E-05	3.44267E-05
San Bernar	2019	OFF - AirGrSupp - Lift	Aggregated Nat Gas	0.000469	5.92737E-05	0.013154	0	0	1.1698E-06
San Bernar	2019	OFF - AirGrSupp - Maint	Aggregated Gasoline	0.016273	0.001853571	0.471213	3.38E-05	2.55E-05	3.75344E-05
San Bernar	2019	OFF - AirGrSupp - Other	Aggregated Nat Gas	0.001766	0.000664846	0.102573	0	0	9.1222E-06
San Bernar	2019	OFF - AirGrSupp - Other	Aggregated Gasoline	0.011464	0.00039469	0.113438	7.82E-06	5.91E-06	8.68922E-06
San Bernar	2019	OFF - AirGrSupp - Passen	Aggregated Gasoline	0.004901	0.000682097	0.152158	1.09E-05	8.24E-06	1.21201E-05
San Bernar	2019	OFF - AirGrSupp - Passen	Aggregated Nat Gas	0.02E-05	1.47581E-06	0.000416	0	0	3.6979E-08
San Bernar	2019	OFF - AirGrSupp - Servic	Aggregated Gasoline	0.055832	0.007798562	1.367064	0.000101	7.62E-05	0.000112054
San Bernar	2019	OFF - AirGrSupp - Servic	Aggregated Nat Gas	0.006796	0.00067058	0.19087	0	0	1.69748E-05
San Bernar	2019	OFF - AirGrSupp - Sweep	Aggregated Gasoline	0.000451	4.85079E-05	0.010713	7.47E-07	5.64E-07	8.29952E-07
San Bernar	2019	OFF - AirGrSupp - Sweep	Aggregated Nat Gas	2.74E-05	9.72897E-06	0.002271	0	0	2.0196E-07
San Bernar	2019	OFF - AirGrSupp - Water	Aggregated Gasoline	0.001276	0.00017777	0.038004	2.72E-06	2.06E-06	3.02716E-06
San Bernar	2019	OFF - ConstMin - Asphal	Aggregated Gasoline	0.056196	0.001272691	0.221382	0.000553	0.000418	0.000614076
San Bernar	2019	OFF - ConstMin - Bore/D	Aggregated Gasoline	0.02023	0.00075776	0.15891	0.00021	0.000159	0.000233697
San Bernar	2019	OFF - ConstMin - Bore/D	Aggregated Diesel	0.000211	0.000356685	0.047155	1.34E-05	1.23E-05	1.34172E-05
San Bernar	2019	OFF - ConstMin - Cemen	Aggregated Gasoline	0.502756	0.009889576	0.926558	0.00519	0.003921	0.005766747
San Bernar	2019	OFF - ConstMin - Cemen	Aggregated Diesel	0.000693	0.00089426	0.120768	3.59E-05	3.31E-05	3.59456E-05
San Bernar	2019	OFF - ConstMin - Concre	Aggregated Gasoline	0.485177	0.009371137	1.154769	0.005926	0.004477	0.006584419
San Bernar	2019	OFF - ConstMin - Concre	Aggregated Diesel	0.000516	0.00049625	0.065039	2.72E-05	2.51E-05	2.72472E-05
San Bernar	2019	OFF - ConstMin - Cranes	Aggregated Gasoline	0.007646	0.000493223	0.117575	8.19E-06	6.19E-06	9.10165E-06
San Bernar	2019	OFF - ConstMin - Crushir	Aggregated Gasoline	0.009505	0.00039921	0.08233	9.44E-05	7.13E-05	0.000104925
San Bernar	2019	OFF - ConstMin - Dumps	Aggregated Gasoline	0.049319	0.000992742	0.094864	0.000576	0.000435	0.000640058
San Bernar	2019	OFF - ConstMin - Dumps	Aggregated Diesel	4.97E-05	9.22848E-05	0.012079	3.55E-06	3.27E-06	3.55155E-06
San Bernar	2019	OFF - ConstMin - Excava	Aggregated Diesel	0.000349	0.000645485	0.084672	2.41E-05	2.22E-05	2.41188E-05
San Bernar	2019	OFF - ConstMin - Other C	Aggregated Gasoline	0.00606	0.000241492	0.188743	1.35E-05	1.02E-05	1.50343E-05
San Bernar	2019	OFF - ConstMin - Other C	Aggregated Diesel	0.001615	0.002066147	0.281101	8.01E-05	7.36E-05	8.00523E-05
San Bernar	2019	OFF - ConstMin - Pavers	Aggregated Diesel	9.43E-05	0.00017559	0.022913	6.84E-06	6.29E-06	6.8394E-06
San Bernar	2019	OFF - ConstMin - Paving	Aggregated Gasoline	0.877948	0.018279256	1.734591	0.010214	0.007718	0.01134933
San Bernar	2019	OFF - ConstMin - Paving	Aggregated Diesel	0.000112	0.000206897	0.02714	7.72E-06	7.1E-06	7.72044E-06
San Bernar	2019	OFF - ConstMin - Plate C	Aggregated Gasoline	0.324862	0.007112523	0.632484	0.003456	0.002611	0.003840135
San Bernar	2019	OFF - ConstMin - Plate C	Aggregated Diesel	0.000507	0.000605797	0.083103	2.37E-05	2.18E-05	2.36718E-05
San Bernar	2019	OFF - ConstMin - Rollers	Aggregated Gasoline	0.248806	0.005853985	0.783921	0.002647	0.002	0.002940931
San Bernar	2019	OFF - ConstMin - Rollers	Aggregated Diesel	0.002581	0.003715046	0.49892	0.000142	0.000131	0.000142028
San Bernar	2019	OFF - ConstMin - Rough	Aggregated Gasoline	0.020937	0.001789707	0.425513	2.97E-05	2.24E-05	3.29994E-05
San Bernar	2019	OFF - ConstMin - Rubber	Aggregated Gasoline	0.025749	0.001713711	0.442845	3.08E-05	2.33E-05	3.42768E-05
San Bernar	2019	OFF - ConstMin - Rubber	Aggregated Diesel	9.31E-05	0.000172413	0.022616	6.44E-06	5.93E-06	6.44108E-06
San Bernar	2019	OFF - ConstMin - Signal f	Aggregated Gasoline	0.010557	0.000209616	0.018579	0.000135	0.000102	0.000149967
San Bernar	2019	OFF - ConstMin - Signal f	Aggregated Diesel	0.008146	0.009671316	1.325865	0.000381	0.000351	0.000381211
San Bernar	2019	OFF - ConstMin - Skid St	Aggregated Gasoline	0.767741	0.014143887	2.373388	0.008821	0.006664	0.00980063

San Bernar	2019	OFF - ConstMin - Skid St	Aggregated	Aggregated	Diesel	0.009229	0.017168176	2.202468	0.000727	0.000669	0.000727258
San Bernar	2019	OFF - ConstMin - Surfaci	Aggregated	Aggregated	Gasoline	0.431588	0.009151009	0.769862	0.00539	0.004073	0.005989017
San Bernar	2019	OFF - ConstMin - Tampei	Aggregated	Aggregated	Gasoline	0.06312	0.001160861	0.119545	0.000902	0.000681	0.00100215
San Bernar	2019	OFF - ConstMin - Tractor	Aggregated	Aggregated	Gasoline	0.016023	0.000682085	0.286058	1.99E-05	1.51E-05	2.21607E-05
San Bernar	2019	OFF - ConstMin - Tractor	Aggregated	Aggregated	Diesel	0.00173	0.003204154	0.420185	0.000122	0.000112	0.000121594
San Bernar	2019	OFF - ConstMin - Trench	Aggregated	Aggregated	Gasoline	0.510344	0.011210949	1.499128	0.005485	0.004144	0.006094538
San Bernar	2019	OFF - ConstMin - Trench	Aggregated	Aggregated	Diesel	0.000899	0.001506813	0.199369	5.68E-05	5.22E-05	5.67817E-05
San Bernar	2019	OFF - Industrial - Aerial L	Aggregated	Aggregated	Gasoline	0.129557	0.003018243	1.323243	0.000914	0.000691	0.001015586
San Bernar	2019	OFF - Industrial - Aerial L	Aggregated	Aggregated	Diesel	0.001037	0.001642077	0.214747	6.8E-05	6.25E-05	6.79849E-05
San Bernar	2019	OFF - Industrial - Aerial L	Aggregated	Aggregated	Nat Gas	0.035654	0.000981105	0.209886	0	0	0.000107763
San Bernar	2019	OFF - Industrial - Forklift	Aggregated	Aggregated	Gasoline	4.073663	0.175081772	40.03163	0.002794	0.002111	0.003104025
San Bernar	2019	OFF - Industrial - Forklift	Aggregated	Aggregated	Nat Gas	2.800988	0.3029993	69.13034	0	0	0.006151052
San Bernar	2019	OFF - Industrial - Other C	Aggregated	Aggregated	Gasoline	0.129803	0.002908925	0.691686	0.000106	7.98E-05	0.000117331
San Bernar	2019	OFF - Industrial - Other C	Aggregated	Aggregated	Diesel	0.001245	0.002047276	0.271369	7.73E-05	7.11E-05	7.72994E-05
San Bernar	2019	OFF - Industrial - Other M	Aggregated	Aggregated	Gasoline	0.007286	0.000760751	0.163431	1.14E-05	8.61E-06	1.26584E-05
San Bernar	2019	OFF - Industrial - Sweep	Aggregated	Aggregated	Gasoline	0.200148	0.007520838	2.412443	0.000211	0.00016	0.000234677
San Bernar	2019	OFF - Industrial - Sweep	Aggregated	Aggregated	Diesel	0.000269	0.000413648	0.055174	1.57E-05	1.45E-05	1.57145E-05
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Gasoline	0.016248	0.024312033	4.252148	0.00381	0.002878	0.00423283
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Diesel	0.009751	0.008746572	1.113009	0.00053	0.000488	0.000530278
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Nat Gas	0.310618	0.026518808	8.471449	0	0	0.000688061
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Gasoline	7.553652	0.118822905	17.90901	0.008526	0.006442	0.009473526
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Diesel	0.032428	0.039864183	5.216152	0.001967	0.001809	0.001966754
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Nat Gas	0.007742	0.001067983	0.276313	0	0	2.45736E-05
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Gasoline	0.529277	0.007833268	1.079475	0.00144	0.001088	0.00159947
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Diesel	0.00016	0.000204179	0.02708	9.44E-06	8.68E-06	9.43614E-06
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Gasoline	1.628652	0.03775155	5.489145	0.018136	0.013702	0.020150625
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Diesel	0.018939	0.022131491	2.881173	0.001148	0.001056	0.001148336
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Gasoline	1.987542	0.042487214	5.938268	0.022886	0.017292	0.025429266
San Bernar	2019	OFF - Light Commercial	Aggregated	Aggregated	Diesel	0.045656	0.044761671	5.773307	0.002584	0.002378	0.002584252
San Bernar	2019	OFF - Oil Drilling - Comp	Aggregated	Aggregated	Diesel	1.11E-05	2.03865E-05	0.002522	9.58E-07	8.82E-07	9.58367E-07
San Bernar	2019	OFF - Oil Drilling - Gener	Aggregated	Aggregated	Diesel	1.66E-05	1.36123E-05	0.001635	8.74E-07	8.04E-07	8.74313E-07
San Bernar	2019	Oil Drilling - Drill Rig (M	Aggregated	Aggregated	Diesel	0.006083	0.013324206	1.835819	0.000524	0.000482	0.000524351
San Bernar	2019	Oil Drilling - Workover F	Aggregated	Aggregated	Diesel	0.021541	0.045951683	10.36005	0.001536	0.001413	0.001535959
San Bernar	2019	Portable Equipment - N	Aggregated	Aggregated	Diesel	0.024292	0.031454335	6.089267	0.001311	0.001206	0.001311131
San Bernar	2019	Portable Equipment - N	Aggregated	Aggregated	Diesel	0.261524	0.546671165	82.52354	0.020817	0.019152	0.020817312
San Bernar	2019	Portable Equipment - N	Aggregated	Aggregated	Diesel	0.080342	0.135359329	17.59681	0.00485	0.004462	0.004849791
San Bernar	2019	Portable Equipment - N	Aggregated	Aggregated	Diesel	0.018898	0.027935566	5.760203	0.001092	0.001005	0.001092216
San Bernar	2019	Portable Equipment - R	Aggregated	Aggregated	Diesel	0.042387	0.05466388	18.42638	0.002004	0.001843	0.002003633
San Bernar	2019	Portable Equipment - R	Aggregated	Aggregated	Diesel	0.444062	0.817650735	165.2981	0.029618	0.027248	0.029617546
San Bernar	2019	Portable Equipment - R	Aggregated	Aggregated	Diesel	0.062692	0.133566254	17.96423	0.004755	0.004375	0.00475499
San Bernar	2019	Portable Equipment - R	Aggregated	Aggregated	Diesel	0.03082	0.033429557	8.749997	0.001555	0.00143	0.001554545
San Bernar	2019	TRU - Instate Genset TRU	Aggregated	Aggregated	Diesel	0.028878	0.024218868	0.613524	0.000295	0.000272	0.000295312
San Bernar	2019	TRU - Instate Trailer TRU	Aggregated	Aggregated	Diesel	0.449144	0.34561094	7.398515	0.009605	0.008837	0.009605395
San Bernar	2019	TRU - Instate Truck TRU	Aggregated	Aggregated	Diesel	0.04194	0.050680565	1.00513	0.002133	0.001962	0.002132532
San Bernar	2019	TRU - Instate Van TRU	Aggregated	Aggregated	Diesel	0.000971	0.001173291	0.023269	4.94E-05	4.54E-05	4.93696E-05
San Bernar	2019	TRU - Out-of-State Gens	Aggregated	Aggregated	Diesel	0.018172	0.015258642	0.386598	0.000187	0.000172	0.0001873
San Bernar	2019	TRU - Out-of-State Traile	Aggregated	Aggregated	Diesel	0.255625	0.196251113	4.532805	0.003665	0.003372	0.003665338
San Bernar	2019	TRU - Railcar TRU	Aggregated	Aggregated	Diesel	0.02646	0.020314518	0.469204	0.000379	0.000349	0.00037941

For Inventory Use

SB County CO2 Total

daily CO2e 1293.549

Annual CO2e 337616.3 261 workdays in 2019

SB Population 2019 2180085

AV pop 2019 74140 3.4% of SB total

AV CO2e Portion

11479 CO2e

3.4% of SB Annual CO2e

Annual Report Summary: Apple Valley (2019)

This Annual Report Summary is an official record of your CalRecycle Electronic Annual Report submission, except for your Venue/Event section information, which is contained in a separate report. You may reach that section from the Electronic Annual Report's left navigation bar.

Before submitting your report to CalRecycle, please take the time to review everything on this page to confirm it is complete and correct. If you need to modify some information, close this window to return to the Electronic Annual Report to make your corrections. Then, preview the report again.

Summary Generated On: Thursday, October 8, 2020, 4:41:34 PM

Summary

Jurisdiction: Apple Valley
Report Year Filed: 2019
Report Status: Submitted

Submitted Information

Date Report Submitted: Thursday, October 8, 2020
Report Submitted By:
Coleen Weeks (cewks@verizon.net)

Jurisdiction Contact

Jurisdiction Contact: Guy Eisenbrey

Address: 14955 Dale Evans Pkwy, Apple Valley, CA 92307

Phone Number: (760) 240-7000

Fax Number:

Email Address: geisenbrey@applevalley.org

Update Contact Info: <https://www2.calrecycle.ca.gov/Forms/LGCentral/ReportingEntityContactChange/>

Disposal Rate Calculation

Definition of Terms

Reporting-Year Disposal Amount (tons) – defaults to the total tonnage disposed in the Reporting-Year by a jurisdiction as reported to the Disposal Reporting System (DRS). Disposal contains all jurisdiction waste that was disposed in CA landfills, transformation facilities, and exported out-of-state, except for declared disaster debris disposal and disposal in Class II facilities. Any changes will require you submit a [Reporting Year Disposal Modification Certification Sheet \(PDF\)](#). See User's Guide or contact LAMD representative if uncertain.

Disposal Reduction Credits - the EAR calculator will subtract these credits from your requested total in the Reporting-Year Disposal Amount field. Requesting credits will require you submit a Reporting Year Disposal Modification Certification Sheet (PDF). Descriptions of these credits can be found on that sheet. See EAR User's Guide or contact LAMD representative if uncertain.

Reporting-Year Transformation Waste (tons) – defaults to the total tonnage of waste sent in the Reporting-Year by a jurisdiction to a CalRecycle-permitted transformation facility as reported to the Disposal Reporting System (DRS). Transformation is factored into the Per Capita rate only, and is not deductible. To eliminate the Per Capita credit for transformation tonnage, change the Reporting-Year Transformation Waste (tons) number to 0.00.

Reporting-Year Population – January 1st estimate of the number of inhabitants occupying a jurisdiction in the Reporting-Year as prepared by the California Department of Finance (DOF)

Reporting-Year Employment – the estimate of the annual average number of employees by jurisdiction in the Reporting-Year as prepared by the California Employment Development Department (EDD).

Additional Definitions - for additional definitions and/or acronym descriptions, see the LGCentral Glossary.

Green Material ADC (tons): 934.42

Reporting-Year Disposal Amount (tons): 61,038.20

Disposal Reduction Credits (Reported):

Disaster Waste (tons):	0.00
Medical Waste (tons):	0.00
Regional Diversion Facility Residual Waste (tons):	0.00
C & D Waste (tons):	0.00
Class II Waste (tons):	0.00
Out of State Export (Diverted) (tons):	0.00
Other Disposal Amount (tons):	0.00

Total Disposal Reduction Credit Amount (tons): 0.00

Total Adjusted Reporting-Year Disposal Amount (tons): 61,038.20

Reporting-Year Transformation Waste (tons): 0.06

Reporting Entity	Quarter	Destination Facility	Transformation Ton
Los Angeles	4	Southeast Resource Recovery Facility	0.06

Reporting-Year Population: 73,464

Reporting-Year Employment: 15,150

Reporting-Year Calculation Results (Per Capita)

	Population		Employment	
	Target	Annual	Target	Annual
Disposal Rate without Transformation (pounds/person/day):		4.6		22.1
Transformation Rate (pounds/person/day):	1.3	0.0	7.2	0.0
The Calculated Disposal Rate (pounds/person/day)	6.6	4.6	36.0	22.1

As of January 1, 2020, the use of green material as alternative daily cover (ADC) will be considered disposal in terms of measuring a jurisdiction's annual 50 percent per capita disposal rate.

Annual Report Summary: Apple Valley (2019)

	Population		Employment	
	Target	Annual	Target	Annual
Calculated Disposal Rate w/out Green Material ADC:		4.6		22.1
Green Material ADC Rate:		0.1		0.3
Disposal Rate with Green Material ADC:		4.7		22.4

Calculation Factors

If either 1. Alternative disposal or 2. Deductions to DRS boxes are checked, please complete, and sign the [Reporting Year Disposal Modification Certification Sheet \(PDF\)](#) and save to your computer. You may enter the data and save the Disposal Modification Form to your computer. Then either upload the sheet and supporting documentation using the [Document Upload Section](#) before submitting your report, or mail, e-mail or FAX to CalRecycle within 7 business days of submitting your report. If you are only claiming report-year disposal deductions for waste transported to a certified Transformation facility, you do not need to fill out the certification request.

If 3. Green Material ADC (AB 1594) box is checked: Pursuant to [Public Resources Code \(PRC\) Section 41781.3](#) [(AB) 1594 ([Williams, Chapter 719, Statutes of 2014](#))], beginning in the 2017 EAR jurisdictions are required to include information on plans to address how green material that is being used as ADC will be diverted. Jurisdictions can review disposal facilities that assigned green material ADC and the amount by using the [Transported Solid Waste Map on the CalRecycle website](#). More information and brief instructions for using the inflow/outflow map is available on [CalRecycle's Green Material Used as Alternative Daily Cover \(ADC\)](#) webpage.

- ☒ 1. Alternative disposal tonnage
- ☐ 2. Deductions to DRS disposal tonnage
- ☒ 3. Green Material ADC (AB1594)

2019 Apple Valley Green Material ADC (tons): 934.42

Please describe in the box below the jurisdiction's plans to divert green material that is being used as ADC.

The green waste, under the Town's purview through the franchise hauler is delivered to a green waste processing facility. The majority of the ADC green waste comes from self-haul loads directly delivered to San Bernardino County landfills. We have reached out to San Bernardino County Environmental Services Division to ask about the future green waste processing plans at the County landfills. At this time San Bernardino County Landfill Waste Division has no plans in place to change how green waste is processed as ADC. Newsletters are sent to all commercial and multifamily customers with information on organics recycling, which includes a green waste recycling option. Note: ADC green waste tonnage dropped by 87.35 tons when compared to the prior year.

NOTE: Beginning with report year 2020, jurisdictions, as a result of not being able to claim diversion for the use of green material as ADC, that are not meeting the requirements of Section 41780, will be required to answer these additional questions:

- Identify and address barriers to recycling green material and,
- If sufficient capacity at facilities that recycle green material is not expected to be operational before the jurisdiction's next review pursuant to Section 41825, include a plan to address those barriers that are within the control of the local jurisdiction.

Although you will be able to submit your electronic Annual Report without completing a disposal modification form, your Annual Report will not be deemed complete until it is completed and received by CalRecycle. Contact your [LAMD representative](#) for details.

Questions and Responses

Rural Petition for Reduction in Requirements

Rural Petition For Reduction

1. **Question:**

Was your jurisdiction granted a Rural Petition for Reduction by CalRecycle? See [Jurisdictions with an Approved Petition for Rural Reduction](#)
For more information regarding Rural Petition For Reduction, go to [Rural Solid Waste Diversion Home Page](#).

Response:

No.

Disposal Rate Accuracy

Disposal Rate Accuracy

1. **Question:**

Are there extenuating circumstances pertaining to your jurisdiction's disposal rate that CalRecycle should consider, as authorized by the [Public Resources Code Section 41821\(c\)](#)? If you wish to attach additional information to your annual report, please send those items or electronic files to your LAMD representative; include a brief description of those files below. If so, please use the space below to tell CalRecycle.

Response:

No.

Planning Documents Assessment

Source Reduction and Recycling Element (SRRE)

1. **Question:**

Does the SRRE need to be revised?

Response:

No.

Household Hazardous Waste Element (HHWE)

2. **Question:**

Does the HHWE need to be revised?

Response:

No.

Non-Disposal Facility Element (NDFE)

3. **Question:**

Describe below any changes in the use of [nondisposal facilities](#), both existing and planned (e.g., is the jurisdiction using a different facility within or outside of the jurisdiction, has a facility closed, is a new one being planned).

Response:

N/A.

Non-Disposal Facility Element (NDFE)

4. **Question:**

Are there currently any nondisposal facilities that require a solid waste facility permit located (or planned to be sited) in your jurisdiction that are not identified in your NDFE?

Response:

No.

Areas of Concern / Conditional Approvals

Areas of concern

1. **Question:**

Did CalRecycle require your jurisdiction to address any areas of concern when determining the adequacy of your solid waste planning documents, or any of their elements?

Response:

No.

Conditional approvals

2. **Question:**

Did CalRecycle give conditional approval to any of your solid waste planning documents, or any of their elements?

Response:

No.

Additional Information

Additional Information

1. **Question:**

Is there anything else you would like to tell CalRecycle about unique or innovative efforts by your jurisdiction to reduce waste generation and increase diversion, about your jurisdiction's public education efforts, or about specific obstacles to reaching your jurisdiction's diversion goal? If you wish to attach additional information to your annual report, please use the "Document Management" button below to upload additional files or you can send them directly to your LAMD representative. Please include a brief description of those files in the text box below.

Response:

Yes. In previous years the High Desert region was lacking a composting facility with an anaerobic digestion process. The Victor Valley Compost, a Burrtec facility, began construction in 2019 and will open for business in 2020. The compost facility will be located next to the Victor Valley MRF and will offer businesses a convenient and local option for organics recycling.

Hauler Information

Parent Company:	Burrtec Waste Industries, Inc.		
Hauler Name:	AVCO Disposal Inc - Apple Valley		
Franchise Hauler:	Yes		
Activities	Curbside Organics Hauler - Commercial, Curbside Recycling Hauler - Commercial, Curbside Recycling Hauler - Residential, Solid Waste Hauler - Commercial, Solid Waste Hauler - Residential,		
Notes:			
New Hauler:	No	Contract End Date:	
Parent Company:	Burrtec Waste Industries, Inc.		
Hauler Name:	Burrtec Waste		
Franchise Hauler:	Yes		
Activities	Curbside Organics Hauler - Commercial, Curbside Recycling Hauler - Commercial, Curbside Recycling Hauler - Residential, Solid Waste Hauler - Commercial, Solid Waste Hauler - Residential,		
Notes:			
New Hauler:	No	Contract End Date:	

SRRE and HHWE Diversion Programs

Detailed information for Mandatory Commercial Recycling (MCR) in code 2030 and Mandatory Commercial Organics Recycling (MORe) in code 3035 can be found at the end of this section.

1000-SR-XGC (Xeriscaping/Grasscycling)

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: Yes
	Report Year Diversion Tons: 728.31	Selected in SRRE: Yes
		Owned or Operated: Yes

Selected Program Details:

Xeriscaping | Grasscycling

Jurisdiction Notes:

In 2019, approximately 95.83 acres of landscaping, medians, facilities and parks were maintained via grasscycling. By grasscycling 95.83 acres of turf, the Town diverted an estimated 728.31 tons of grass clippings (acres 95.83 X 7.6 tons=728.31).

Public areas are xeriscaped with native and desert adaptive plants to reduce both organic waste and water use. Apple Valley continued to promote replacement of turf with desert landscaping for Town residents. By removing just 1/2 acre of turf and replacing with desert landscaping, approximately 980,100 gallons of water are saved.

1010-SR-BCM (Backyard and On-Site Composting/Mulching)

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Annual Report Summary: Apple Valley (2019)**Jurisdiction Notes:**

Alliance for Water Awareness and Conservation (AWAC), the Mojave Water Agency, and the California Department of Water Resources staff held workshops on composting, irrigation, and landscaping conversion for Apple Valley residents in 2019. AWAC staff also manned an information booth at the Fall Home Show (November 1st-3rd). The Master Composters staff conducted additional composting workshop/training at community events. Some of the events included the Spring Home & Garden Show (April 5th-7th) and the Fall Home Show (November 1st-3rd).

1020-SR-BWR (Business Waste Reduction Program)

Current Status: AO - Alternative and Ongoing	Program Start Year: 1992	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: No
		Owned or Operated: No

Jurisdiction Notes:

To reduce paper waste, Town departments promote electronic media (i.e. email, website) as the preferred method for businesses to submit items whenever possible. In the Spring and Fall 2019, commercial newsletters were sent out by Burrtec, in partnership with the Town. Commercial newsletters promoted source reduction techniques, information on Mandatory Commercial Recycling, Mandatory Organics Recycling, and various programs available to Apple Valley businesses and multifamily complexes. The newsletters are also available on Burrtec's website for businesses to retrieve recycling information electronically. In October 2019, Burrtec also sent notices of non-compliance to Commercial Businesses regarding MCR and MORE.

1030-SR-PMT (Procurement)

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

Apple Valley's Finance department encouraged the purchase of Recycled Content Products (RCP) when it was financially feasible. In 2019, office supplies purchased were made from recycled materials ranging from green to dark green. In 2019, under the Town's vehicle replacement program, alternative fuel vehicles were purchased when possible.

1040-SR-SCH (School Source Reduction Programs)

Current Status: AO - Alternative and Ongoing	Program Start Year: 1995	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: No
		Owned or Operated: No

Jurisdiction Notes:

In January 2019, Burrtec distributed "The Greener Way of Life 2019" Educational Outreach Packets to all schools within Apple Valley School limits. The Program encourages recycling and source reduction in school offices, classrooms, in cafeterias, at school events, and for everyone from students, to teachers, to administrative staff to recycle and reduce waste.

The Town of Apple Valley's "Mr. Eco and Eco Hero shows" were held in 2019. Participation was advertised to all Apple Valley schools. Approximately 4,227 students attended presentations at 10 assemblies. The Program encouraged the reuse of items, source reduction, and recycling.

Burrtec also offered a tour of the Victor Valley MRF. Students were encouraged to participate in the Town's April Community Clean-Up Day and attend the Earth Day event at Victor Valley MRF.

1050-SR-GOV (Government Source Reduction Programs)

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: Yes
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Annual Report Summary: Apple Valley (2019)**Jurisdiction Notes:**

All Town staff printers and copy machines are defaulted to print double-sided and council agendas are sent to council members electronically. All Town employees are asked to try to conserve paper by using scratch paper for notes, printing on both sides and only printing emails when absolutely necessary. Town staff desks are supplied with blue recycling containers for recycling.

Town permits, forms and applications are now accessible on-line via Town's website reducing paper waste. The Town is currently working on electronic plan submittal program with an implementation date in March 2020. The Town's Street Signage Replacement Program recycles the old metal signs.

1060-SR-MTE (Material Exchange, Thrift Shops)

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: Yes
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: No

Jurisdiction Notes:

In 2019, 8 thrift stores continued to operate in the Town. The Victor Valley MRF has a USAgain donation bin for clothing and shoes available for Apple Valley residents to use. USAgain bin material tonnage figures are not available. The Town issued 1,123-yard sale permits in 2019.

2000-RC-CRB (Residential Curbside)

Current Status: SO - Selected and Ongoing	Program Start Year: 1994	Existed before 1990: No
	Report Year Diversion Tons: 3876.42	Selected in SRRE: Yes
		Owned or Operated: Yes

Selected Program Details:

Single-family residences | Commingled (Single-stream) | Uncoated corrugated cardboard and paper bags | Office paper (white & colored ledger, computer paper, other office paper) | Newspaper | Misc. paper or paperboard – clean | Glass | Metal – Aluminum | Metal – Tin/Steel | Plastic #1 - PET | Plastic #2 - HDPE | Plastic #3 - PVC | Plastic #4 - LDPE | Plastic #5 - PP | Plastic #6 - PS | Plastic #7 | Film plastic (any resin type)

Jurisdiction Notes:

Curbside recycling program continued. Commingled, weekly automated curbside recycling service is provided to all single-family homes and small multifamily complexes. The residential curbside program service includes either a 40-, 60-, or 95-gallon trash barrel and a 60-gallon recycling barrel. Additional recycling barrels are provided to residents at no additional charge. The 40-gallon trash barrel, along with a 60-gallon recycle barrel is an excellent option to maximize recycling while reducing trash waste.

A total of 5,304.49 tons were processed through the Residential Curbside Recycling program for 2019, with 3,593.30 tons recovered. This corresponds to a 67.7% recovery rate. Another 283.12 tons of recyclable material were recovered from residents with residential 3-yard recycling bins.

All new customers signing up for trash service are mailed a "new start" flyer that includes curbside recycling information.

2010-RC-DRP (Residential Drop-Off)

Current Status: SO - Selected and Ongoing	Program Start Year: 1994	Existed before 1990: No
	Report Year Diversion Tons: 8.35	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

In 2019 Town residents could use Town's co-owned Victor Valley MRF to drop-off recyclable materials such as mixed paper, glass bottles, tin and aluminum cans, cardboard, scrap metal, and CRTs. Back in April 2007, the Town, working in partnership with Burrtec, began a major push in publicizing use of the Victor Valley MRF as a Recycling drop off center. "Recycle Alley" was created for the public to drop off OCC, glass, scrap metal, bottles, and cans.

Four Free Shred-Fest events were held at the MRF in 2019. Having events in February, May, August and November gives residents several opportunities to use the facility and drop-off personal documents for shredding. A total of 8.35 tons of confidential documents were dropped off for the on-site shredding. Residents also took advantage of the Recycle Alley, dropping off aluminum, glass and plastics. Residents dropped off 45.26 tons of tires and 27.37 tons of metal at the community drop off /clean-up events (tonnage included in programs 4020 and 4040).

Residents can pick up free compost/mulch from the MRF during these events as well. Any materials that were self-hauled to the Victorville Landfill go through the landfill's CSDSP and recoverable materials are sorted and recycled. Residents were also given the opportunity to "tour" the MRF during the Annual Earth Day at the MRF event.

2020-RC-BYB (Residential Buy-Back)

Annual Report Summary: Apple Valley (2019)

Current Status: SO - Selected and Ongoing	Program Start Year: 1987	Existed before 1990: Yes
	Report Year Diversion Tons: 1742.9	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

Residents and businesses took advantage of local buy-back centers. A total of eight recycling centers operated within the Town in 2019. A total of 416.38 tons of aluminum, 688.72 tons of glass, 610.57 tons of PETE, 24.71 tons of HDPE, 2.34 tons of LDPE, PP, PS, and other plastics, and 0.18 tons of bimetal were collected at these recycling centers. The Town of Apple Valley's co-owned Victor Valley MRF, has a public buy back center for CRV materials, newspaper, and corrugated cardboard.

For 2019 The Town and Burrtec staff held 4 shred-fest events at the VV MRF which included a "Recycle Alley" drop off for aluminum, glass, plastic and cardboards. (Tonnage included in 2010 program totals).

2030-RC-OSP (Commercial On-Site Pickup)

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: Yes
	Report Year Diversion Tons: 1424.95	Selected in SRRE: Yes
		Owned or Operated: No

Selected Program Details:

Large Generators (4.0 cy/week) | Multi-family residences | Commingled (Single-stream) | Uncoated corrugated cardboard and paper bags | Office paper (white & colored ledger, computer paper, other office paper) | Newspaper | Misc. paper or paperboard – clean | Glass | Metal – Aluminum | Metal – Tin/Steel | Plastic #1 - PET | Plastic #2 - HDPE | Plastic #3 - PVC | Plastic #4 - LDPE | Plastic #5 - PP | Plastic #6 - PS | Plastic #7 | Film plastic (any resin type)

Jurisdiction Notes:

In 2019 Burrtec's commercial on-site recycling program collected 868.20 tons of recyclable materials (74.97% recovery rate). The Multifamily recycling program collected 513.35 tons of recovered materials (73.66% recovery rate) And 43.40 tons of recyclables were recovered under the roll-off program. Another 115.30 tons of recyclable material were recovered from Town schools (tonnage included in program 2050).

The Town continued to operate and promote its extensive commercial and multifamily recycling programs. At the end of 2019, 219 commercial and 159 multifamily complexes, subject to the MCR regulation, were recycling. This is an increase of 17 more accounts now recycling, and an overall participation rate of 84.94%.

As part of the Apple Valley's comprehensive solid waste and recycling program with Burrtec, Town businesses receive waste surveys by Burrtec's Municipal Program Coordinators. Commercial sector waste evaluations are conducted to promote recycling services to all businesses. MCR planned activities include education/outreach, print newsletter for businesses and multifamily complexes were sent in 2019 to all accounts.

In early 2019, Burrtec reevaluated and audited the MCR non-compliant businesses and multifamily dwellings list to ensure that self-haul or 3rd party programs had been identified as compliant. Locations were visited multiple times to get them signed up for service.

In Spring 2019, newsletters were mailed to all business and multifamily accounts, which included MCR recycling education. Newsletters included information asking, "Is Your Business in Compliance?", additional information on requirement updates and offered assistance in evaluating the overall recycling program.

In Fall 2019, newsletters were again mailed to all business and multifamily accounts with MCR recycling information. The newsletter included additional information on what can and cannot be recycled and diversion for construction.

MCR material was also handed out at waste assessments and community events. Burrtec developed fliers and brochures for both commercial entities and multifamily complexes. In 2019, Burrtec staff conducted Recycling Audits/Waste Surveys for Town businesses and multifamily complexes educating them about the Town's Commercial Recycling Program, encouraging accounts not already recycling, to add recycling services. A total of 64 recycling waste assessments were conducted in 2019.

Burrtec Waste offers a recycling presentation to assist businesses with staff training on recycling. Additionally, red tag contaminations were issued in an effort to educate accounts on recycling. The notice tag directs the business to call into Burrtec's Customer Service department. When calling in, the business is notified what materials are recyclable and what items are unacceptable in their recycling container and are asked to remove those materials. Burrtec billing statements included MCR information on service invoices in 2019 as well.

In 2019, notices of non-compliance with the MCR requirements were sent to commercial and multifamily accounts who were identified as not recycling. The letter informed them they were required to implement a recycling program and offered assistance in setting up a program along with a free waste assessment. Burrtec submits a list, on a routine basis, of regulated businesses and multifamily complexes who are subject to MCR that are not recycling. The Town uses this list for tracking and monitoring.

Electronically, Burrtec's website has MCR information, including uploaded newsletters. When a customer calls Burrtec and if placed on hold, a loop plays that has information about MCR.

Mojave Desert & Mountain Recycling Authority are contracted with Business Waste Management (BWM) to assist JPA member's compliance with MCR. BWM provided commercial recycling education to improve recycling practices; verification of recycling services including back-haul activities; identification of non-recyclers with education on recycling options.

On-going: In 2018, China enforced the new "National Sword" policy. This policy banned numerous materials, including several types of plastics, unsorted mixed paper and set strict standards for contamination levels. This policy has impacted recycling operations with the challenges of little to no value in commodities markets, improving and lowering the levels of contamination from recyclables, and learning that certain materials may no longer be recyclable.

2040-RC-SFH (Commercial Self-Haul)

Current Status: SO - Selected and Ongoing	Program Start Year: 1995	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: No

Jurisdiction Notes:

Many of the "big box" stores, including Walmart, back-haul various recycled materials to their regional centers for further processing and ultimately into end-use products. Commercial businesses can self-haul recyclables to Victor Valley MRF.

2050-RC-SCH (School Recycling Programs)

Current Status: SO - Selected and Ongoing	Program Start Year: 1995	Existed before 1990: No
	Report Year Diversion Tons: 115.3	Selected in SRRE: Yes
		Owned or Operated: No

Jurisdiction Notes:

The District has a policy of reduction and reuse whenever possible. All classrooms and faculty areas have recycling containers. Janitors and staff are educated on the recycling diversion policy. 115.30 tons of recyclable material were recovered from Apple Valley schools in 2019.

In January 2019, Burrtec distributed "The Greener Way of Life 2019" Educational Outreach Packets to all schools within Apple Valley School limits. The Program encouraged recycling and source reduction in school offices, classrooms, in cafeterias, at school events, and for everyone from students, to teachers, to administrative staff to recycle and reduce waste.

The Town of Apple Valley's "Eco Hero" shows with Mr. Eco were held in 2019. Seven schools took advantage of the program with 13 presentations. Approximately 4,227 students attended the presentations.

Burrtec also offered a tour of Victor Valley MRF. Students were encouraged to participate in the Town's April Community Clean-Up Day and attend the Earth Day event at Victor Valley MRF.

2060-RC-GOV (Government Recycling Programs)

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: Yes
	Report Year Diversion Tons: 249.79	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

Town employees have a trash and recycling container at every desk and new employees are told about the Town's office recycling programs (i.e. what materials can be placed into recycle containers). The Town periodically contracts with an on-site shredding company to shred Town confidential documents, a total of 10.79 tons of paper was shredded and recycled in 2019.

239 tons of asphalt were reused in 2019 under the Minor Street Repair program. Town's Fleet department recycled used oil and old tires. Additionally, all old metal from used street signage is recycled (tonnage unavailable at the time of this report).

2070-RC-SNL (Special Collection Seasonal (regular))

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: Yes
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

In 2019, The Town of Apple Valley had eight neighborhood collection events to offer residents a place to drop off tires, mattresses, appliances, and metal during the year.

Additionally, Burrtec collects e-waste, appliances, furniture, (no tires), mattresses and other unwanted items through the Residential Bulky Item Pick-Up program. 156.24 tons of white goods, 13.98 tons of metal, 0.01 tons of tires and 17.86 tons of e-waste were collected under this program (tonnage reported in programs 4020, 4030, 4040 and 9045).

A total of 295 residents utilized the Recycle Alley during Shred-Fest events dropping off 8.35 tons of confidential documents for the on-site shredding (tonnage included in program 2010). Residents also recycled CRTs, aluminum, glass and plastic.. Compost/mulch was offered for pick up, free to residents, from the MRF during these events.

2080-RC-SPE (Special Collection Events)

Current Status: AO - Alternative and Ongoing	Program Start Year: 1997	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: No
		Owned or Operated: Yes

Jurisdiction Notes:

Eight Community Clean-up events and five Tire Amnesty events were held to allow residents to drop off tires, mattresses, appliances, and metal during the year. 54.29 tons of tires were dropped off at the Tire Amnesty, along with 31.54 tons of metal at the Community Clean-up events (tonnage included in programs 4020 and 4040).

Town residents can have two free Bulky-Item pick-ups per year with up to five items per pickup (tonnage included in programs 4020, 4030, 4040 and 9045).

3010-CM-RSG (Residential Self-haul Greenwaste)

Current Status: SO - Selected and Ongoing	Program Start Year: 2000	Existed before 1990: No
	Report Year Diversion Tons: 86.35	Selected in SRRE: Yes
		Owned or Operated: No

Annual Report Summary: Apple Valley (2019)**Jurisdiction Notes:**

Residents can self-haul green waste to American Organics. Cash customers self-hauled 86.35 tons of green and sod waste to American Organics in 2019.

Any residential green waste self-hauled to the Victorville Landfill was also recovered through the San Bernardino County Comprehensive Disposal Site Diversion Program (tonnage included in 7040).

3020-CM-COG (Commercial On-Site Greenwaste Pick-up)

Current Status: SO - Selected and Ongoing	Program Start Year: 2013	Existed before 1990: Yes
	Report Year Diversion Tons: 19.6	Selected in SRRE: No
		Owned or Operated: Yes

Selected Program Details:

Green Waste

Jurisdiction Notes:

In 2019, 19.60 tons of green waste was collected under Burrtec's roll-off program. Burrtec collects green waste from the Apple Valley Golf Course. All green waste was hauled to American Organics for composting.

3030-CM-CSG (Commercial Self-Haul Greenwaste)

Current Status: SO - Selected and Ongoing	Program Start Year: 1996	Existed before 1990: No
	Report Year Diversion Tons: 27.66	Selected in SRRE: Yes
		Owned or Operated: No

Jurisdiction Notes:

American Organics, located in Victorville, accepts green and wood waste for processing into compost and mulch. This facility is open Monday-Saturday from 7am-4pm. Businesses self-hauled 27.66 tons of green waste to American Organics in 2019.

934.42 tons of green waste were self-hauled by businesses, within the Town, to the Victorville landfill and recovered through the San Bernardino County Comprehensive Disposal Site Diversion Program (tonnage included in program 7040).

3035-CM-COR (Commercial Organics Recycling)

Current Status: AO - Alternative and Ongoing	Program Start Year: 2016	Existed before 1990: No
	Report Year Diversion Tons: 277.23	Selected in SRRE: No
		Owned or Operated: No

Selected Program Details:

Food Waste | Green Waste | Nonhazardous Wood Waste | Landscape and Pruning Waste | Self-Haul

Jurisdiction Notes:

In January 2018 the Town developed an implementation plan for MORE & Edible Food Recovery Program. This plan includes, Organics Generation, account identification, Organics Recycling Program, outreach, monitoring, and an Edible Food Recovery Program.

In early 2019, Burrtec reevaluated and audited the MORE non-compliant businesses and multifamily dwellings list to ensure that self-haul or 3rd party programs had been identified as compliant. Locations were visited multiple times to get them signed up for service.

The Town adopted an organics rate, with an annual hauler rate adjustment. The adoption of the new rate was emphasized to the Council to provide a mechanism for businesses to comply with the law. The Town's food waste program expanded in June 2019 with the hauler expanding its food waste collection routes.

Burrtec is developing and constructing a Regional Organics Composting Facility adjacent to the Victor Valley MRF. Burrtec was awarded CalRecycle grant monies to develop this facility in response to the MORE facility and infrastructure needs.

Additionally, Burrtec updated their Contamination Notice Program to further educate and address businesses and multifamily properties that encounter contamination challenges. Burrtec is in the process of purchasing carts and bins for the program.

As of December 2019, 189 commercial and multifamily accounts subject to MORE had an organics recycling program.

Burrtec recovered a total of 71.92 tons of organic recyclable material in 2019. Businesses also self-hauled 205.31 tons of organic material to American Organics in 2019. Due to outreach efforts in 2019, 72 more businesses now have an organics recycling program.

MORE education and outreach were conducted by both Apple Valley and Burrtec through their social media accounts. Burrtec has a dedicated webpage for all commercial businesses in the Town, explaining MORE. It informs businesses on who is subject to MORE and how to comply. Additionally, the Town's website provides a link to Burrtec's website to help assist with easy access to information on MORE for commercial and multifamily complexes.

Mojave Desert & Mountain Recycling Authority contracted with Business Waste Management (BWM) to assist JPA member's compliance with MORE. BWM provided commercial organics recycling education to improve organics recycling practices; verification of recycling services including back-haul activities; identification of non-recyclers with education on options. BWM completed site visits to accounts without an existing organic recycling program and conducted waste assessments and education.

In the Fall 2019, Burrtec sent newsletters to commercial and multifamily accounts with information regarding the new thresholds for MORE, and how it affected their business. Besides the legislation, the newsletter included detailed information on how to make their organics recycling program a success. The information included specific requirements and how to make their business compliant, with options available including; subscribing to an organics recycling service, self-hauling their organics to an organics recycling facility, or donating to food banks or food rescue facilities. Burrtec also included a statement on the bill in case the customer skipped reading the newsletter.

In October 2019, direct letters were sent to non-complaint commercial and multifamily customers who were not recycling organics informing them on compliance with the MORE legislation. Included with the letter was information related to self-hauling and food donation programs. Waste assessments were also offered to help assist businesses in making the necessary changes in services to comply.

Burrtec staff developed an instructional video, on organics recycling, that is available to businesses to help assist in training their staff on organics recycling. Burrtec also updated their MORE recycling flyers, including information on "What you need to Know" food waste recycling, green waste recycling, a food rescue resource locations list, and landscape products information (such as compost, wood chips, and mulch).

Waste assessments provided an opportunity for outreach and education to those subject to MORE and who were not recycling. Locations were visited multiple times to get them signed up for service. 64 waste assessments were conducted by Burrtec staff in 2019. Contamination red-tags along with informational flyers were issued in 2019 to help further educate on organics recycling.

Most grocery stores self-haul their food waste to their corporate facilities for recycling. Stater Bros Market located within the Town used their own trucks, back hauling food waste to their distribution center, located in San Bernardino, Burrtec then hauls the food waste from Stater Bros. Market's distribution center to the West Valley MRF for processing to be used as compost or mulch.

Burrtec staff, working together with the Town, developed a list for Regional Food Rescue Resources. The list includes over 100 food outreach centers, including food pantries, food banks, community centers and other facilities that accept food donations to support food recycling efforts and reduce food waste while helping the local communities in need. Some include; Community Action Partnership of San Bernardino County Food Bank (capsbc.org), Feeding America (Inland Empire) (feedingamericaie.org), and California Association of Food Banks (cafoodbanks.org). In 2020, JPA is looking to partner with High Desert Second Chance to further help support food recycling programs.

3040-CM-FWC (Food Waste Composting)

Current Status: AO - Alternative and Ongoing	Program Start Year: 2013	Existed before 1990: No
	Report Year Diversion Tons: 108.27	Selected in SRRE: No
		Owned or Operated: No

Annual Report Summary: Apple Valley (2019)

Jurisdiction Notes:

Under the Town's MORE program, Burrtec recovered 52.32 tons of food waste from their Commercial accounts. Specific tonnage from the Stater Bros. Markets located within the Town is not available because they back haul their food waste to their distribution center, located in San Bernardino. Burrtec Waste then hauls organic food waste from Stater Bros Market's distribution center to West Valley MRF for processing to be used as compost or mulch. A total of 15,614.26 tons were hauled to West Valley MRF, of which a portion comes from stores within the Town of Apple Valley.

Town businesses self-hauled 55.95 tons of food waste to American Organics for compost processing in 2019.

As of 2019, a composting facility or an anaerobic digestion process is lacking in the high desert. Burrtec is in the process of developing a viable organics processing facility that when completed will provide local residents and businesses a local processing option.

3070-CM-OTH (Other Composting)

Current Status: SO - Selected and Ongoing	Program Start Year: 10	Existed before 1990: No
	Report Year Diversion Tons: 5.34	Selected in SRRE: Yes
		Owned or Operated: No

Jurisdiction Notes:

Christmas tree collection was offered during January and December for residents. All Christmas trees collected are composted. A total of 5.34 tons of trees were collected in 2019. Residents can also drop off Christmas trees to American Organics for composting.

4020-SP-TRS (Tires)

Current Status: AO - Alternative and Ongoing	Program Start Year: 1996	Existed before 1990: No
	Report Year Diversion Tons: 28.1	Selected in SRRE: No
		Owned or Operated: Yes

Jurisdiction Notes:

Code Enforcement collected 54.29 tons of material during the Tire Amnesty and Neighborhood clean-up day events. Illegally dumped tires were collected by Town Code Enforcement officers and placed in a tire box at the Town Public Works Yard for recycling.

0.01 tons of tires were collected from residents under the bulky item pick-up program. Additionally, 25.92 tons of tires were recovered under Burrtec's commercial and roll-off programs.

Note, 52.12 tons of the 80.22 tons of the tires collected were used in transformation conversion from waste-to-energy (the 52.12 tons are included in program 8000). Additionally, tires from Burrtec trucks servicing the Town of Apple Valley were recycled in 2019.

4030-SP-WHG (White Goods)

Current Status: AO - Alternative and Ongoing	Program Start Year: 1996	Existed before 1990: No
	Report Year Diversion Tons: 156.24	Selected in SRRE: No
		Owned or Operated: Yes

Jurisdiction Notes:

Burrtec collected 156.24 tons of tin/white goods from residential customers through the Bulky Item Pick-up program. Appliances are accepted free of charge throughout the year at the VV MRF.

4040-SP-SCM (Scrap Metal)

Current Status: SO - Selected and Ongoing	Program Start Year: 2000	Existed before 1990: No
	Report Year Diversion Tons: 176.83	Selected in SRRE: Yes
		Owned or Operated: No

Jurisdiction Notes:

Town residents can recycle scrap metal under the Bulky Item Pick-up program. A total of 13.98 tons of scrap metal were recycled under the program. Burrtec recovered 131.31 tons of metal under their roll-off and commercial program.

A total of 31.54 tons of scrap metal were collected and recycled from Code Enforcement's Neighborhood Clean-up events and the Town's Community Clean-up days.

4050-SP-WDW (Wood Waste)

Annual Report Summary: Apple Valley (2019)

Current Status: SO - Selected and Ongoing	Program Start Year: 1990	Existed before 1990: Yes
	Report Year Diversion Tons: 123.16	Selected in SRRE: Yes
		Owned or Operated: Yes
Jurisdiction Notes: Town residents self-hauled 1.46 tons of wood waste to American Organics, located in Victorville. Town businesses also self-hauled 121.70 tons of wood waste to American Organics.		
4060-SP-CAR (Concrete/Asphalt/Rubble)		
Current Status: SO - Selected and Ongoing	Program Start Year: 1990	Existed before 1990: Yes
	Report Year Diversion Tons: 241.72	Selected in SRRE: Yes
		Owned or Operated: No
Selected Program Details: Asphalt Paving Brick Concrete/cement Gypsum Board/drywall Rock, soils and fines Mixed C + D		
Jurisdiction Notes: In 2019, 30.00 tons of inert materials were collected under Burrtec's commercial and roll-off collection program. Apple Valley improved tracking of tonnage information on all construction projects conducted within the Town. A total of 211.72 tons of C&D debris was self-hauled from construction projects. Town crews used and recycled 239.00 tons of asphalt in 2019 under its Minor Street Repair Program. (Tonnage included in program 2060). Another 385.56 tons of C&D material originating from Apple Valley roll-off and self-hauled loads were separated and diverted through the CSDP at San Bernardino County landfills (tonnage included in program 7040).		
4090-SP-RND (Rendering)		
Current Status: SO - Selected and Ongoing	Program Start Year: 1990	Existed before 1990: Yes
	Report Year Diversion Tons: 78.86	Selected in SRRE: Yes
		Owned or Operated: No
Jurisdiction Notes: Town businesses utilized rendering companies for their waste cooking oil/grease recycling (no tonnage figure available). Additionally, 0.28 tons of cooking oil were brought to the San Bernardino County HHW facilities by Apple Valley residents in 2019. The Town's Animal Services department, who also provides services for San Bernardino County, reported approximately 78.58 tons of animal remains were sent to a rendering company for processing. No animal remains were landfilled, but instead were processed and recycled into tannage as an agricultural commodity.		
5000-ED-ELC (Electronic (radio ,TV, web, hotlines))		
Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Annual Report Summary: Apple Valley (2019)

Jurisdiction Notes:

Recycling information for recyclables, electronic waste and universal waste are listed on the Town's website. Information includes which items may be recycled, what is not recyclable, and locations where these items can be disposed of. The Town's website has a link to Burrtec's website. Burrtec has dedicated webpages, for businesses and multifamily complexes, explaining MCR and MORE. It informs businesses on who is subject to the regulations, and how to comply. Burrtec staff developed an instructional video, on organics recycling, that is available to businesses to help assist in training their staff on organics recycling.

Town also has a Facebook page where information is posted periodically. The Town's Community and Neighborhood Clean-up days included outreach through newspaper ads, radio spots and social media. In addition to the Town's website and recycling information, the joint powers authority also maintains a website with local information as does the county Zero Waste Communities organization. Through the Town's membership with the Mojave Desert & Mountain Recycling JPA, a comprehensive MCR education and outreach program was developed that included targeted outreach to Apple Valley businesses and multifamily complexes-- included web banners on five online newspapers and the creation of an informational website that provides information about MCR compliance, Town and hauler contact information, recycling ideas, and items that are recyclable.

Mojave Desert & Mountain Recycling Authority also contracted with Business Waste Management (BWM) to assist JPA member's compliance with MCR and MORE education outreach.

Additionally, the Town benefits from public service announcements and programs sponsored by San Bernardino County. San Bernardino County Fire Department County Household Hazardous Waste Division provides information on their website on HHW recycling, education and safe disposal options.

5010-ED-PRN (Print (brochures, flyers, guides, news articles))

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: Yes
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

Throughout the year, newspaper ads and public service announcements were used to promote collection events. Educational signs were installed on disposal trucks encouraging proper recycling. Town staff and Burrtec continue to develop notices, newsletters, and informational brochures promoting existing and new programs in support of diversion efforts.

Informational flyers and brochures are available in public areas of Apple Valley's department offices for the benefit of non-wired residents. Town staff also supplied various recycling education and HHW disposal informational flyers at local community events. The Code Enforcement department printed a brochure highlighting the various Community Enhancement programs available through Town Services. The Town's Community and Neighborhood Clean-up days included outreach through newspaper ads.

Burrtec sent quarterly newsletters to residents. Newsletters included information about Recycling, what goes in the blue bin, using reusable shopping bags, e-waste and HHW facilities, waste reduction, Earth Day, Bulky-Item Pick-up program and backyard composting education. The residential newsletters also advertised the Shred-Fest, along with HHW, and used oil recycling information. Additionally, anti-scavenging information was listed.

Newsletters were also mailed to all commercial and multifamily accounts in the Spring and Fall of 2019. The Spring newsletter included additional information asking, "Is Your Business in Compliance?" In the Fall 2019, the newsletters to commercial and multifamily accounts included information regarding the new thresholds for MORE, and how it affected their business. Besides the legislation, the newsletter included detailed information on how to make their organics recycling program a success, and how to make their business compliant, with options available including: subscribing to an organics recycling service, self-hauling their organics to an organics recycling facility, or donating to food banks or food rescue facilities. The hauler also included a statement on the bill in case the customer skipped reading the newsletter.

Notices of non-compliance with the MCR requirements were sent to commercial and multifamily accounts who were identified as not recycling. The letter informed them they are required to implement a recycling program and offered assistance to set up a program along with a free waste assessment. Burrtec submits a list, on a routine basis, of regulated businesses and multifamily complexes who are subject to MCR that are not recycling. The Town uses this list for tracking and monitoring.

In October 2019, direct letters were sent to non-complaint commercial and multifamily customers who were not recycling organics informing them on compliance with the MORE legislation. Included with the letter was information related to self-hauling and food donation programs. Waste assessments were also offered to help assist businesses in making the necessary changes in services to comply.

Burrtec also updated their MCR and MORE recycling flyers. Including information on "What you need to Know" about food waste recycling, green waste recycling, a food rescue resource locations list, and landscape products information (such as compost, wood chips, and mulch). These materials were handed out during waste assessments and/or when recycling services were established. Waste assessments provided an opportunity for outreach and education to those subject to MORE and who were not yet recycling. Contamination red-tags along with informational flyers were issued in 2019 to help further educate on organics recycling.

Burrtec also provided flyers for distribution, promoting the local market of processed organics to residents and businesses which include; 1) Burrtec Landscape Products, 2) Free Christmas Tree Mulch, and 3) Free Mulch for Town residents.

To ensure businesses who may have any building/plant improvement projects planned, a "Construction & Demolition Recycling Program" pamphlet was also handed out. This pamphlet was developed for all Construction & Demolition projects and was handed out when construction permits were requested.

Under the Town's membership with the Mojave Desert & Mountain Recycling JPA, the outreach education program included informative press releases sent to local newspapers that included MCR and MORE articles and print advertisements. Mojave Desert & Mountain Recycling Authority contracted with Business Waste Management (BWM) to assist JPA member's compliance with MCR and MORE. BWM provided commercial recycling education to improve recycling practices; verification of recycling services including back-haul activities; identification of non-recyclers with education regarding recycling options.

The Town continued to contract with San Bernardino County Fire Department for Household Hazardous Waste Collection, where residents can drop off HHW materials at any San Bernardino County operated HHW facility. San Bernardino County sends information to residents and businesses along with providing information on their website on HHW recycling, education and safe disposal options. The County advertises this program through articles and public notices in local papers, radio, television announcements, posters, stickers, flyers, and direct mail announcements.

5020-ED-OUT (Outreach (tech assistance, presentations, awards, fairs, field trips))

Current Status: SO - Selected and Ongoing	Program Start Year: 1991	Existed before 1990: Yes
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

The Town partners with Burrtec in educating residents and businesses about recycling and other solid waste programs in Apple Valley. This education includes sending out newsletters, brochures and flyers. Burrtec promoted the "Right Stuff" Rewards program in May and June 2019 to increase public awareness of the residential recycling program as a key element of the residue reduction campaign.

Burrtec offered outreach through their commercial assistance team. Burrtec provided free waste surveys to commercial and multifamily customers. Staff completed 64 waste assessments and provided recycling education outreach educating businesses on recycling and organics recycling.

Burrtec services along with the Town conducted five Tire Amnesty events and eight Clean-Up events in addition to the quarterly "Recycle Alley" and drop-off events held at the Victor Valley MRF.

Burrtec staff conducted outreach at community events, hosting a booth handing out kids recycling activity items, flyers and brochures. Additionally, Burrtec provided 187 cardboard boxes for community events. Events included AV Soccer Tournament, Memorial Day Service, Summer Hops Brew Fest & Wine, Lion's Club Health Fair, Police Station Mud Run, Rockin' Flea Market, Hispanic Heritage Festival, Day of the Dead, Paws & Claws, and Run for Charity.

Burrtec also hosted the Town's annual "Earth Day at the MRF" promoting awareness of the facility and its offerings.

Burrtec and the Town have also developed a Food Waste Tutorial video for participating businesses to educate and train their own staff.

The Town contracts with San Bernardino County Fire Department for Household Hazardous Waste Collection, where residents can drop off HHW materials at any San Bernardino County operated HHW facility. San Bernardino County sends information to residents and businesses on HHW recycling, education and safe disposal options. The County advertises this program through articles and public notices in local papers, radio, television announcements, posters, stickers, flyers, and direct mail announcements, along with providing information on their website.

(School outreach listed in program 5030).

5030-ED-SCH (Schools (education and curriculum))

Current Status: SO - Selected and Ongoing	Program Start Year: 1992	Existed before 1990: Yes
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: No

Jurisdiction Notes:

In January 2019, Burrtec distributed "The Greener Way of Life 2019" Educational Outreach Packets to all schools within Apple Valley School limits. The Program encourages recycling and source reduction in school offices, classrooms, in cafeterias, at school events, and for everyone from students, to teachers, to administrative staff to recycle and reduce waste.

The Town of Apple Valley contracted with the "Eco Hero" program with Mr. Eco in 2019. Mr. Eco conducts assemblies that engage students, interactive, high energy, including a song that students can remember, and teaches a message about keeping our planet safe. Seven schools took advantage of the program with 13 presentations. A total of 4,227 students attended the presentations. The Eco Hero Program encouraged the reuse of items, source reduction, and recycling. Burrtec also offered a tour of Victor Valley MRF. Students were encouraged to participate in the Town's April Community Clean-Up Day and attend the Earth Day event at Victor Valley MRF.

6010-PI-EIN (Economic Incentives)

Current Status: SO - Selected and Ongoing	Program Start Year: 1994	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Selected Program Details:

Variable can rate/Quantity based user fee | Unlimited recycling | Reward/Contest | Franchise Fee | Deposit

Jurisdiction Notes:

Pay-as-you-throw trash rates continue, as well as distribution of free residential and multifamily recycling barrels. Two residential "Right Stuff" contest winners were recognized with certificates and \$100 checks for their recycling. Residents turned in entry forms and participating Apple Valley residents (one per month) were randomly selected to have their trash and recycling barrels inspected. A resident was chosen as a winner if the right materials were in the right barrel.

6020-PI-ORD (Ordinances)

Current Status: SO - Selected and Ongoing	Program Start Year: 1990	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Annual Report Summary: Apple Valley (2019)

Selected Program Details:

C & D ordinance | Mandatory commercial organics | Mandatory commercial recycling | Mandatory multi-family recycling | Mandatory residential recycling | Mandatory waste collection | Recycled content procurement | Antiscavenging ordinance | Green building ordinance

Jurisdiction Notes:

The City has an anti-scavenging, C&D, and Green Building ordinance.

7000-FR-MRF (MRF)

Current Status: SO - Selected and Ongoing	Program Start Year: 1994	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

Apple Valley residential and commercial recyclables were processed at the VV MRF with 5,384.95 tons of recovered recyclables and 332.59 of metal and white goods received from Apple Valley routed sources at the facility (tonnages reported in programs 2000, 2030, 4030 and 4040).

Residents also took advantage of the MRF's "Recycle Alley" dropping off aluminum, glass, and plastics (Buy-Back program) when attending the Town's free drop-off events.

7010-FR-LAN (Landfill)

Current Status: AO - Alternative and Ongoing	Program Start Year: 2008	Existed before 1990: No
	Report Year Diversion Tons: 1977.24	Selected in SRRE: No
		Owned or Operated: No

Jurisdiction Notes:

The Victorville Landfill, located at 18600 Stoddard Wells Rd in Victorville, was utilized by the Town of Apple Valley. The landfill is owned by the County of San Bernardino, and operated by Athens Disposal. In 2008, San Bernardino County began a Comprehensive Disposal Site Diversion Program at all of their landfills. This program diverts recyclable materials (metal, cardboard, glass, carpet, and tires); beneficial reuse materials. In 2019, total of 1,977.18 tons of recycled, beneficial reuse, and biomass materials originating from Apple Valley roll-off and self-hauled loads were diverted through the CSDSP at San Bernardino County landfills.

Additionally, 0.06 tons of transformation were recovered through the CSDSP at Los Angeles County landfills.

7030-FR-CMF (Composting Facility)

Current Status: SO - Selected and Ongoing	Program Start Year: 2000	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: No

Jurisdiction Notes:

In 2019, Burrtec was in the process of developing a viable organics processing facility that when completed will provide local residents and businesses a local processing option. Update 2020: The Victor Valley Compost, a Burrtec facility, opened up for business in the late Summer of 2020. It is located next to the Victor Valley MRF.

American Organics Composting Facility, located in Victorville, was available for Town residents and businesses to utilize. Their operating hours are Mon-Sat 7am-4pm. In 2019 they accepted green waste, wood waste, sod, brush, and food waste. The facility accepts material from private contractors, government agencies, haulers, and residents.

Food waste from the two Stater Bros markets located within the Town of Apple Valley is back hauled to Stater Bros Market's distribution center. Burrtec then hauls this food waste to the West Valley MRF for processing to be used as compost or mulch, of which a portion comes from stores within the Town of Apple Valley.

7040-FR-ADC (Alternative Daily Cover)

Current Status: SO - Selected and Ongoing	Program Start Year: 2008	Existed before 1990: Yes
	Report Year Diversion Tons: 1319.98	Selected in SRRE: Yes
		Owned or Operated: No

Annual Report Summary: Apple Valley (2019)**Jurisdiction Notes:**

Through San Bernardino County's Comprehensive Disposal Site Diversion Program, green waste and C & D materials were used as ADC at the Victorville landfill. A total of 1,319.98 tons of green and C&D materials, originating from the Town of Apple Valley, were diverted as ADC at San Bernardino County landfills through the Comprehensive Disposal Site Diversion Program (CSDSP) in 2019.

9000-HH-PMF (Permanent Facility)

Current Status: SO - Selected and Ongoing	Program Start Year: 1995	Existed before 1990: No
	Report Year Diversion Tons: 194	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

The Town contracts with the San Bernardino County Fire Department for management of their household hazardous waste program. A total of 4,351 Town residents used the Apple Valley HHW facility and an additional 525 Town residents used other San Bernardino County HHW facility in 2019 for safe disposal of residential household hazardous waste.

In 2019, a total of 18.39 tons of motor oil/oil products, 0.79 tons of oil filters, 17.55 tons of latex paint, 5.38 tons of oil base paints, and 2.88 tons of various poisons, acids, oxidizers and aerosols, were collected for recycling at SB County HHW facilities by Apple Valley residents in 2019. Additionally, these facilities have a material exchange program, whereby residents can drop off slightly used HHW products, such as pool chemicals, paint, and pesticides. A total of 0.28 tons were dropped-off by Town residents.

DIY residents also took advantage of four Certified Collection Centers, located within the Town, dropping off 95.36 tons of used oil and 2,500 oil filters (0.64 tons). Three automotive repair/servicing businesses, located within the Town, also recycled 53.06 tons of used motor oil.

9010-HH-MPC (Mobile or Periodic Collection)

Current Status: DE - Dropped in an earlier year	Program Start Year: 1987	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: No
		Owned or Operated: No

Jurisdiction Notes:

The Town does not conduct any temporary 1-day HHW collection events because of the multiple locations that are available to residents.

9040-HH-EDP (Education Programs)

Current Status: SO - Selected and Ongoing	Program Start Year: 1991	Existed before 1990: No
	Report Year Diversion Tons: 0	Selected in SRRE: Yes
		Owned or Operated: Yes

Jurisdiction Notes:

The Town continued to contract with San Bernardino County Fire Department for Household Hazardous Waste Collection, where residents can drop off HHW materials at any San Bernardino County operated HHW facility. San Bernardino County sends information to residents and businesses along with providing information on their website on HHW recycling, education and safe disposal options. The County advertises this program through articles and public notices in local papers, radio, television announcements, posters, stickers, flyers, and direct mail announcements. Household hazardous waste recycling and disposal information was published in brochures, in addition to being listed on the Town's website.

Burrtec's website also includes a section for information on household hazardous waste. Burrtec's residential newsletters were sent to residents, which included a detailed section on household hazardous waste. The information contained, what is HHW, how to properly transport and dispose of it, and where to take items to.

The Town of Apple Valley used funds from the Oil Payment Program grant to advertise and educate residents on safe and proper disposal of used oil and filters through articles and public notices in local papers, posters, and bus shelter ads. Information included site locations for certified collection centers in addition to the HHW facility for recycling used motor oil and filters.

9045-HH-EWA (Electronic Waste)

Current Status: SO - Selected and Ongoing	Program Start Year: 2002	Existed before 1990: No
	Report Year Diversion Tons: 105.59	Selected in SRRE: No

Annual Report Summary: **Apple Valley (2019)**

		Owned or Operated: Yes
Jurisdiction Notes: In 2019, Burrtec collected 17.86 tons of e-waste items via the bulky item program. Residents were able to utilize the drop-off facilities operated by San Bernardino County Fire Department. A total of 3.68 tons of batteries, 53.91 tons of CRTs, 29.43 tons of e-waste items and .71 tons of fluorescent tubes were dropped off at these facilities.		
9050-HH-OTH (Other HHW)		
Current Status: AO - Alternative and Ongoing	Program Start Year: 2009	Existed before 1990: No
	Report Year Diversion Tons: 8.54	Selected in SRRE: No
		Owned or Operated: Yes
Jurisdiction Notes: In 2019, 1,317 sharps containers were distributed to residents at the Town's HHW facility and at Apple Valley Fire Protection District building. Home-generated medical sharps were accepted at the San Bernardino County HHW facilities, in approved sharps containers supplied by the Town. In 2019, Town residents dropped-off 1.49 tons of sharps. Additionally, residents dropped-off 0.71 tons of pharmaceuticals, 0.33 tons of compressed Gas Cylinders, 3.06 tons of Antifreeze, 2.55 tons of flammable liquids and 0.40 tons of other hazardous waste materials at the San Bernardino County HHW facilities.		
Mandatory Commercial Recycling (MCR) This detailed information was entered in the 2030 code noted above in the SRRE and HHWE Diversion Programs.		
EDUCATION AND OUTREACH <i>Note: Regional Agencies should address education and outreach for individual members.</i>		
1. Describe education and outreach methods for the reporting year for electronic, print and direct contact, including those done by the jurisdiction and by the hauler(s).		

The Town, in partnership with Burrtec, developed a Solid Waste Public Information Plan for Mandatory Commercial Recycling. This plan includes; Recycling Generation, Account Identification, Commercial Recycling Program, Outreach, and Monitoring. The Town of Apple Valley adopted an ordinance, for Mandatory Commercial Recycling in 2011.

For 2019, Burrtec and the Town, continued to implement Apple Valley MCR Plan with the goal of promoting extensive commercial and multifamily recycling programs. This MCR program continued to be an ideal solution for businesses and multifamily complexes.

The Town's website has MCR information. The Town's website also has a link to Burrtec's website. Burrtec has MCR information on its website, explaining what and who is subject to MCR, and why they need to recycle. The Town's JPA, established a website, which provides MCR information: <http://urecycle.org/business-recycling/#blaw>. The Town and Burrtec provide MCR outreach through their social media accounts as well.

Mojave Desert & Mountain Recycling Authority contracted with Business Waste Management (BWM) to assist JPA member's compliance with MCR. BWM provided commercial recycling education to improve recycling practices; verification of recycling services including back-haul activities; identification of non-recyclers with education on recycling options.

In early 2019, Burrtec reevaluated and audited the MCR non-compliant businesses and multifamily dwellings list to ensure that self-haul or 3rd party programs had been identified as compliant. Locations were visited multiple times to get them signed up for service.

In the Spring and Fall of 2019, Burrtec sent newsletters to all their commercial and multifamily accounts, which included MCR education. The newsletters also included information asking, "Is Your Business in Compliance?" with additional information on requirement updates and offered assistance in evaluating the overall recycling program. Both newsletters included an anti-scavenging message as well. The newsletters included a "Make Your Recycling Program a Success" section along with additional information on what can be recycled as well as what to keep out of recycling bins. Burrtec also uploads the newsletters to their website for businesses and multifamily complexes to have additional information viewing access.

Burrtec continued its MCR tracking program. The hauler submits a list, to the Town, of regulated businesses and multifamily complexes subject to MCR, who are not recycling. The Town uses this list for tracking and monitoring.

In October 2019, a notice of noncompliance was sent to businesses and multifamily complexes, subject to MCR, who were not participating in a recycling program. The letter informed them they were required to implement a recycling program and offered assistance to set up a program along with a free waste assessment. Attached to the letter was a questionnaire so if any self-haul or other recycling programs were being conducted the business could be credited.

Waste assessments were also offered to help assist businesses in making the necessary changes in service to comply. 64 waste assessments were conducted in 2019. Burrtec developed fliers and brochures for both commercial entities and multifamily complexes. MCR informational material was handed out at waste assessments and community events. Burrtec offered businesses a recycling presentation to assist them with staff training on recycling.

Red tags, which are commercial contamination notices, were issued to further educate proper recycling. When recycling bins/barrels were contaminated, recycling educational information was provided along with Customer Service's contact information.

Burrtec also listed MCR information on the billings for businesses that ignore newsletters.

Town continued to utilize Town-created flier "Business Recycling Opportunities" promoting cost savings and their MCR ordinance. Burrtec and the Town continue to be actively involved in the Chamber of Commerce.

2. If applicable, please describe any challenges encountered in implementing education and outreach for the jurisdiction's commercial recycling program. If not applicable, enter N/A.

Some multifamily properties are small, with no on-site manager making it challenging for discussing recycling and MCR information. Despite outreach and education efforts, some companies choose not to recycle due to the additional employment and overhead cost affecting their bottom line.

MONITORING

Note:

- **Regional Agencies should use the text boxes to list the totals in each field for individual members.**
- **Reporting Jurisdictions that cannot separate businesses and multifamily data should provide an explanation in the applicable text box.**
- **Reporting Jurisdictions that have an unknown number for any of the numeric fields must input a '0' into the data field and provide an explanation in the corresponding box below.**

Thresholds:

It is acceptable to use the 2019 MORE definition of 4 cy/week of trash/recycling/organics (the MORE FAQs webpage [FAQ 'General' #18](#)) also for MCR regulated businesses, if that is easier for reporting.

1. Total number of covered businesses: 273

Explanation: At the end of 2019, 219 out of the 273 commercial accounts subject to MCR were recycling (80.22% participation rate).

2. Total number of covered businesses NOT recycling: 54

Explanation: At the end of 2019, 54 commercial accounts subject to MCR were not recycling.

3. Total number of covered multifamily complexes: 172

Explanation: At the end of 2019, 159 out of the 172 multifamily accounts subject to MCR, were recycling (92.44% participation rate).

4. Total number of covered multifamily complexes NOT recycling: 13

Explanation: At the end of 2019, 13 multifamily accounts subject to MCR regulations not were recycling.

5. What was done to inform those not recycling about the law and how to recycle? If the jurisdiction has an enforcement program for the Mandatory Commercial Recycling program then please provide information about what enforcement was conducted.

Burrtec continued its increased efforts to educate, inform, and help businesses start recycling. In early 2019, Burrtec reevaluated and audited the MCR non-compliant businesses and multifamily dwellings list to ensure that self-haul or 3rd party programs had been identified as compliant. Direct contact was made to offer site visits to further educate and promote recycling. Burrtec provided waste assessments, workshops and employee training for those participating to educate and train their own staff. Locations were visited multiple times to get them signed up for service.

Waste evaluations were conducted to promote recycling and show the benefits of recycling to businesses that were not recycling. 64 waste assessments were conducted in 2019. Waste assessments helped increase recycling and MCR compliance awareness.

Burrtec submits a list, on a routine basis, of regulated businesses and multifamily complexes that are subject to MCR that are not recycling. The Town uses this list for tracking and monitoring.

In October, a notice of noncompliance was sent to businesses and multifamily complexes, subject to MCR, who were not participating in a recycling program. The letter informed them they were required to implement a recycling program and offered assistance in setting up a program along with a free waste assessment. Attached to the letter was a questionnaire so if any self-haul or other recycling programs were being conducted the business could be credited.

Commercial newsletters were mailed by Burrtec to all businesses and multifamily complexes in the Spring and Fall of 2019, which included an MCR notification message. The Fall newsletter included additional information on what can be recycled as well as a "Help Keep Your Recycling Clean" article. The Spring and Fall newsletters both included additional information asking, "Is Your Business in Compliance?" Burrtec also included a statement on the bill in case the customer didn't read the newsletter. Electronically, Burrtec displays MCR information on its website and uploads its newsletters to the website as well. When a customer calls Burrtec and is placed on hold, a loop plays that has information about MCR. Burrtec also sends information via their Facebook and Twitter accounts as needed. Burrtec staff developed a recycling education video. Recycling presentations were offered to businesses to assist with staff training on recycling and reduce waste within their business.

Additionally, red tags, commercial contamination notices, were issued to further educate on proper recycling. When recycling bins/barrels were contaminated, recycling educational information was provided along with Customer Service's contact information.

Commercial and multifamily accounts were sent invitations to attend a recycling workshop and MRF tour which was conducted at the Victor Valley MRF.

6. If applicable, please describe any challenges encountered in implementing monitoring related to the jurisdiction's commercial recycling program. If not applicable, enter N/A.

Scavengers continued to hamper recycling efforts. Some multifamily properties are small, with no on-site manager making it difficult to meet to discuss recycling and MCR information. Despite outreach and education efforts, some businesses do not want waste assessments completed.

7. Provide the amount of recyclable material that is being diverted by covered businesses/multifamily complexes: 1540 Tons

If this tonnage information is not available, please enter 0 and explain why:

Explanation: A total of 1,540.25 tons of recyclable material were recovered in 2019. Specifically, Burrtec recovered 911.60 tons from commercial and roll-off recycling programs and another 513.35 tons from multifamily recycling. Another 115.30 tons of recyclables were recovered from Apple Valley schools. Note, an additional 131.31 tons of scrap metal material were recycled (not included in the total above, listed in program 4040).

Mandatory Commercial Organics Recycling (MORe)

- Detailed information for Education and Outreach, and Monitoring, may have been entered in the 3035 code noted above in the SRRE and HHWE Diversion Programs.
- A Rural City, County, or Regional Agency with an exemption per [AB 1826 Exemptions](#), completion of each of the Mandatory Commercial Organics Recycling (MORe) questions is optional.
- A Rural County/Regional Agency, is required to answer the first 2 questions on the 'Infrastructure and Barriers' tab Per [AB 876 \(McCarty, Chapter 593, Statutes of 2015\)](#).

IDENTIFICATION OF COVERED BUSINESSES/MULTIFAMILY COMPLEXES

1. Please describe the methodology used to identify covered businesses and multifamily complexes.

Accounts were identified based on total weekly volume solid waste subscription and unit count where applicable for multifamily accounts. Some accounts were individually reviewed as they were not eligible based on the exemption criteria of 1/2 cubic yard per week of organics generation. The Town, in conjunction with Burrtec, mailed out informational letters and compliance survey forms to provide information and outreach/education regarding MORe requirements and to determine if any of those identified businesses had an existing organics recycling or food rescue program. Site visits were conducted as needed. Assessments were also offered to businesses below the threshold for mandatory recycling who were not recycling organics but might want to if educated. The Town reevaluated and audited the MORe non-compliant businesses and multifamily dwellings list to ensure that self-haul or 3rd party programs had been identified as compliant. Activity reports were prepared by the waste hauler concerning the MORe regulated accounts and were monitored to track program participation and progress.

2. If any of this data is not available, please explain why it is not available and how you are addressing gathering the data and when it will be available?

N/A

EDUCATION AND OUTREACH (all years)

1. Describe education and outreach methods SPECIFIC TO AB 1826 for the reporting year for electronic, print and direct contact, including those done by the jurisdiction and by the hauler(s).

Annual Report Summary: Apple Valley (2019)

In January 2018 the Town developed an implementation plan for MORE & Edible Food Recovery Program. This plan included, Organics Generation, Account Identification, Organics Recycling Program, Outreach, Monitoring, and an Edible Food Recovery Program.

In early 2019, Burrtec reevaluated and audited the MORE non-compliant businesses and multifamily dwellings list to ensure that self-haul or 3rd party programs had been identified as compliant. Locations were visited multiple times to get them signed up for service.

The Town's food waste program expanded in June 2019 with the hauler expanding its food waste collection routes. The hauler is developing and constructing a Regional Organics Composting Facility adjacent to the Victor Valley MRF. Burrtec has a dedicated webpage for all commercial businesses in the Town, explaining MORE recycling. It informs businesses on who is subject to MORE and how to comply. Additionally, the Town's website provides a link to Burrtec's website to help assist with easy access to information on MORE for commercial and multifamily complexes.

Mojave Desert & Mountain Recycling Authority contracted with Business Waste Management (BWM) to assist JPA member's compliance with MORE. BWM provided commercial organics recycling education to improve organics recycling practices; verification of recycling services including back-haul activities; identification of non-recyclers with education on options. BWM completed site visits to customers without an existing organics recycling program.

In the Fall 2019, the hauler sent newsletters to commercial and multifamily accounts with information regarding the new thresholds for MORE, and how it affected their business. Besides the legislation, the newsletter included detailed information on how to make their organics recycling program a success. The information included specific requirements and how to make their business compliant, with options available including; subscribing to an organics recycling service, self-hauling their organics to an organics recycling facility, or donating to food banks or food rescue facilities. Burrtec also included a statement on the bill in case the customer skipped reading the newsletter.

In October 2019, direct letters were sent to non-complaint commercial and multifamily customers who were not recycling organics informing them on compliance with the MORE legislation. Included with the letter was information related to self-hauling and food donation programs. Waste assessments were also offered to help assist businesses in making the necessary changes in services to comply.

Burrtec staff developed an instructional video, on organics recycling, that is available to businesses to help assist in training their staff on organics recycling. Burrtec also updated their MORE recycling flyers including information on "What you need to Know", food waste recycling, green waste recycling, a food rescue resource locations list, and landscape products information (such as compost, wood chips, and mulch).

Waste assessments provided an opportunity for outreach and education to those subject to MORE who were not yet recycling. Locations were visited multiple times to get them signed up for service. 64 waste assessments were conducted by Burrtec staff in 2019. Contamination red-tags along with informational flyers were issued in 2019 to help further educate on organics recycling.

Burrtec staff, working together with the Town, developed a list for Regional Food Rescue Resources. The list includes over 100 food outreach centers, including food pantries, food banks, community centers and other facilities that accept food donations to support food recycling efforts and reduce food waste while helping the local communities in need.

2. If applicable, please describe any challenges encountered in implementing education and outreach for the jurisdiction's organic recycling program. If not applicable, enter N/A.

Space concerns affected some businesses. Despite outreach and education efforts, due to the business's overhead cost affecting the business bottom-line profit/loss, some businesses do not want waste assessments completed. Some multifamily properties are small, with no on-site manager making it difficult to discuss organics recycling and MORE information.

Burrtec is in the process of developing a viable organics processing facility that will provide local residents and businesses a local processing option.

MONITORING

Note:

- *Regional Agencies should use the text boxes to list the totals in each field for individual members.*
- *Reporting Jurisdictions that cannot separate businesses and multifamily data should provide an explanation in the applicable text box.*
- *Reporting Jurisdictions that have an unknown number for any of the numeric fields must input a '0' into the data field and provide an explanation in the corresponding box below.*
- **Exemptions:**
How to report exemptions for MORE monitoring tab in the EAR:
 1. *Include number of exempted businesses in the total of regulated businesses.*
 2. *Do not include number of exempted businesses in "not recycling" column. The jurisdiction granted an exemption so the business is not considered out of compliance.*
Note: If a jurisdiction chooses to report this differently, they must explain this in the explanation field(s).
 3. *If Exemptions were granted by the jurisdiction, please provide each number of exemptions granted and describe the reasons why the exemptions were granted on the 'Enforcement, Self-Haul Requirements, and Exemptions' tab of the Mandatory Commercial Organics Recycling (MORE) section of the EAR.*
- **Thresholds:**
 1. *Jurisdictions are not required to report different numbers for MCR and MORE. It is acceptable to use the 2019 MORE definition of 4 cy/week of trash/recycling/organics also for MCR regulated entities, if that is easier for reporting.*
 2. *Reminder that the 2019 threshold for MORE (4 cy/week of trash/recycling/organics) has been on the MORE FAQs webpage (FAQ 'General' #18) since the program began. If a jurisdiction needs assistance please contact your LAMD liaison.*

1. Total number of covered businesses: 273

Explanation: At the end of 2019, 119 out of the 273 commercial accounts, subject to MORE, were recycling organics.

2. Total number of covered businesses NOT recycling organics: 154

Explanation: At the end of 2019, 154 commercial accounts subject to MORE were not recycling organics. Burrtec is in the process of developing a viable organics processing facility that will provide local businesses with a local processing option.

3. Total number of covered multifamily complexes: 173

Explanation:At the end of 2019, 70 of the 173 multifamily accounts, subject to MORE were recycling organics.

4. Total number of covered multifamily complexes NOT recycling green waste, landscape and pruning waste, and nonhazardous wood waste: 103

Explanation:At the end of 2019, 103 multifamily accounts, subject to MORE were not recycling organics. Burrtec is in the process of developing a viable organics processing facility that will provide local residents and businesses local processing option.

5. What was done to inform those not recycling about the law and how to recycle? If the jurisdiction has an enforcement program for the Mandatory Commercial Organics Recycling program then please provide information about what enforcement was conducted.

Annual Report Summary: Apple Valley (2019)

The Town of Apple Valley and Burrtec provided MORE outreach through their social media accounts. Information shared was to inform businesses and organizations about organics recycling requirements and how to comply. Additionally, the Town's website provided a link to Burrtec's website to help assist with easy access to information on MORE for commercial and multifamily complexes. In 2019, Burrtec continued its increased efforts to educate, inform, and help businesses start recycling.

In early 2019, Burrtec reevaluated and audited the MORE non-compliant businesses and multifamily dwellings list to ensure that self-haul or 3rd party programs had been identified as compliant. Locations were visited multiple times to get them signed up for service. Burrtec also developed MORE fliers and brochures for both commercial and multifamily entities.

In the Fall 2019, Burrtec sent newsletters to commercial and multifamily accounts with information regarding the new thresholds for MORE, and how it affected their business. Besides the legislation, the newsletter included detailed information on how to make their organics recycling program a success. The information included specific requirements and how to make their business compliant, with options available including; subscribing to an organics recycling service, self-hauling their organics to an organics recycling facility, or donating to food banks or food rescue facilities. Burrtec also included a statement on the bill in case the customer skipped reading the newsletter.

In October 2019, direct letters were sent to non-complaint commercial and multifamily customers who were not recycling organics informing them on compliance with the MORE legislation. Included with the letter was information related to self-hauling and food donation programs. Waste assessments were also offered to help assist businesses in making the necessary changes in services to comply.

Burrtec staff developed an instructional video, on organics recycling, that is available to businesses to help assist in training their staff on organics recycling. Burrtec also updated their MORE recycling flyers to include information on "What you need to Know", food waste recycling, green waste recycling, a food rescue resource locations list, and landscape products information (such as compost, wood chips, and mulch).

Waste assessments provided an opportunity for outreach and education to those subject to MORE and who were not yet recycling. Locations were visited multiple times to get them signed up for service. 64 waste assessments were conducted by Burrtec staff in 2019. Contamination red-tags along with informational flyers were issued in 2019 to help further educate on organics recycling.

Note: Burrtec is in the process of developing a viable organics processing facility that will provide local residents and businesses a local processing option.

6. If applicable, please describe any challenges encountered in implementing monitoring related to the jurisdiction's commercial organics recycling program. If not applicable, enter N/A.

Despite outreach and education efforts, due to the business's overhead cost affecting the business bottom-line profit/loss, some businesses do not want waste assessments completed. Some multifamily properties are small with no on-site manager, making it difficult to discuss organics recycling and MORE information.

Burrtec is in the process of developing a viable organics processing facility that will provide local residents and businesses a local processing option.

7. Provide the amount of organic material that is being diverted by covered businesses/multifamily complexes: 277 Tons

If this tonnage information is not available, please enter 0 and explain why:

Explanation: In 2019, a total of 277.23 tons of organic material were recovered. Specifically, Burrtec recovered 19.60 tons of organics was recovered under their Commercial and Roll-Off programs along with 52.32 tons from the Town's schools. Businesses self-hauled 55.95 tons of food waste along with 149.36 tons of organic material to American Organics for compost recycling in 2019. Specific tonnage from the Stater Bros. Market, located within the Town, was not available because they back haul food waste to their distribution center, located in San Bernardino. Burrtec hauled 15,614.26 tons of food waste from this distribution center to West Valley MRF for processing, of which a portion comes from the store within Apple Valley. Tonnage from Albertsons, Food 4 Less, Target and WinCo who also back-haul was unavailable.

INFRASTRUCTURE AND BARRIERS

These questions are pursuant to [AB 876 \(McCarty, Chapter 593, Statutes of 2015\)](#), and [AB 1826 Chesbro \(Chapter 727, Statutes of 2014\)](#).

Per AB 876, Questions #1, #1a, and #2, are to be reported for the entire County or Regional Agency (RA), including all cities within their boundaries. If a regional agency does not consist of all of the jurisdictions in a county, CalRecycle recommends that the county coordinate with the RA(s) and discuss how they want to compile their data. For example, it would be best if the data were for the county as a whole and not broken out by RA. In the EAR, regional agencies and the county should report the same data and explain that the data is for the county as a whole.

Per AB 1826, #3-13 are to be answered by all non-rural/exempted reporting jurisdictions for progress achieved in implementing their commercial organics waste recycling program. *Beginning with the 2017 report year, the [AB 876 \(Organics Management Infrastructure Planning\) Calculator](#) now has additional lines to show users how much of the county's/regional agency's organic waste stream is comprised of food waste. Of all the fractions of the organics waste stream, food is the most difficult to process. Chip and Grind facilities are limited to processing green material which expressly excludes food waste [(14 CCR Sections (a)(10) and (a)(21.)). Therefore, if a jurisdiction's organics capacity planning primarily relies on Chip & Grind, there is a shortfall of food waste capacity. Only a limited number of all composting facilities are permitted to take food waste; contact your hauler or facility operator to find out whether they are permitted to take food waste, or if they have plans to expand their permit to accept food waste in the future. In-vessel digesters are still fairly uncommon, but many of these do accept food waste. Additionally, do not overlook food waste reduction and edible food rescue programs in your planning.*

1. Please provide an estimate of the amount of organic waste, in cubic yards or tons, that will be disposed by the entire county (unincorporated and incorporated areas) or regional agency over a 15-year period ("Over a 15-year period," means how many tons of organic waste will be disposed of in one single year 15 years from now, not the cumulative total of 15 years).

Please indicate which unit of measurement you are reporting in for this question and the rest of this report tab.

a. Please provide an estimate of the additional organic waste recycling facility capacity, that will be needed to process the amount of organic waste identified in #1 above.

2. Please identify areas for new or expanded organic waste recycling facilities capable of safely meeting the additional organic waste recycling facility capacity need identified in #1a above. If the answer to #1a is less than #1, please be sure to explain why, e.g. note that there is currently unused capacity that can be utilized, and/or note that since there is tangible planning for new or expanded facilities now, that in 15 years, the needed capacity will be available. These details can be further clarified in #4 - #7 below.

3. Please provide the names of existing organic waste recycling facilities within a reasonable distance from your major population centers, and the available capacity at each facility to accept your jurisdiction's organic materials, including food waste. Note: CalRecycle strongly encourages counties and regional agencies to collaborate with cities and special districts within their boundaries, and communicate with haulers and with organics facility operators servicing those entities, in order to understand available capacity and to minimize double counting at facilities used by multiple jurisdictions. Listed capacities should be specific to the amount of capacity available to your jurisdiction.

Answer Box below: Consider the following when answering question #3:

- i. Differentiate between facilities currently being used and potential facilities.
- ii. Make it clear which facility is being listed [by including its SWIS #](#). If no SWIS number is available, give details about the name, address and type of facility.
- iii. Available capacity may be calculated by subtracting a facility's current throughput from its maximum capacity to process organic materials; however, maximum capacity should be discussed with the facility operator.
- iv. Do not include ranges of greater than 10,000 tons.

Burrtec is in the process of developing a viable organics processing facility that will provide local residents and businesses a local processing option.

In San Bernardino County:

Agromin Chino Green Materials Composting Operation (Chino, Calif) Composting Organics Food Pre-Consumer- annual capacity 50K to 75K.

West Valley Materials Recovery Facility (Fontana, Calif) Composting Organics Food Pre & Post-Consumer-annual capacity 10K to 25K.

Victor Valley Composting Facility/ American Organics (Victorville, Calif) Composting Organics- annual capacity 100K to 300K green waste composting capacity.

4. Please identify existing organic waste recycling facilities within the jurisdiction that may be suitable for potential expansion, and/or existing solid waste facilities within the jurisdiction that may be suitable for colocation with organic waste processing facilities.

Burrtec is in the process of developing a viable organics processing facility that will provide local residents and businesses a local processing option.

Outside the High Desert area: West Valley Materials Recovery Facility (Fontana, Calif.) is fully operational and accepts food waste and organic material for compost, mulch, and anaerobic digester feedstock. Robert A Nelson Transfer Station and Agua Mansa MRF (Jurupa Valley, Calif.) expansion is underway to accept organic waste for processing, including, but not limited to, the use of food waste as compost, mulch, and feedstock in anaerobic digester options.

5. Please describe any efforts underway to develop new private or public regional organic waste recycling facilities, the anticipated timeline for completion, the types of feedstocks these facilities may accept, and the potential available organic material capacity at those facilities for your county or regional agency's organic waste, including food.

Burrtec is in the process of developing a viable organics processing facility that will provide local residents and businesses a local processing option.

Robert A Nelson Transfer Station and Agua Mansa MRF (Jurupa, Calif) expansion is under way to accept organic waste for processing including, but not limited to, the use of food waste as compost, mulch and feedstock in anaerobic digester options.

6. Please provide a list of closed or abandoned sites that may be available for new organic waste recycling facilities.

Unknown at this time.

7. Please describe other non-disposal opportunities (on-site composting, food waste to animal feed, etc.) available to covered entities in the jurisdiction.

Stater Bros Market back-hauls their organic food waste back to its distribution center located in San Bernardino for further separation. Several Multifamily complexes use on-site grasscycling to reduce or eliminate the disposal of organic materials.

8. Please describe the jurisdiction's efforts to reduce food waste at the source and increase edible food recovery (e.g. promoting source reduction, expanding food donation, incentivizing partnerships with local food recovery organizations, changes in local government and school programs to reduce and/or donate surplus edible food).

Burrtec's staff, working together with the Town, developed a list for Regional Food Rescue Resources. The list includes over 100 food outreach centers, including food pantries, food banks, community centers and other facilities that accept food donations to support food recycling efforts and reduce food waste while helping the local communities in need. Some include; Community Action Partnership of San Bernardino County Food Bank (capsbc.org), Feeding America (Inland Empire) (feedingamericaie.org), and California Association of Food Banks (cafoodbanks.org). These organizations accept food donations and distribute them back into the community.

9. Describe local zoning codes that allow organic waste processing facilities and local permit requirements for siting a new organic waste recycling facility within the jurisdiction.

N/A

10. Please describe any local incentives available for developing new organic waste recycling facilities within the jurisdiction (e.g. economic incentives, workforce training, permit fee waivers etc.)

N/A

11. Describe any local efforts by the jurisdiction or its partners to promote local markets for processed organic material (e.g. jurisdiction purchase of recycled organic products, compost giveaways to residents, promotion of sustainable landscaping, or education and outreach about recycled organic products).

The hauler provides flyers for distribution for promoting the local market of processed organics to residents and businesses which include; Burrtec Landscape Products, Free Christmas Tree Mulch for Town residents and Free Mulch for Town residents.

12. Describe any waste and recycling service-rate adjustments implemented or planned in the jurisdiction, how they target the diversion of organic waste, and/or fund organic recycling infrastructure development.

1. Did the jurisdiction make a rate adjustment this year, or in prior years, for garbage or organics rates related to AB 1826 (or in anticipation of SB 1383) Implementation?
2. Is this planned in the future, if so what year?
3. Did the jurisdiction go through a Prop 218 Process?

A program rate structure was approved by the Town in 2018. There was a CPI adjustment and an organics rate added to the fee schedule. The CPI is adjusted annually.

13. Any other barriers? No

Indicate all known barriers to siting or expanding organic waste recycling facilities in the jurisdiction, such as lack of suitable parcels, zoning issues, economic issues, lack of local markets for finished products, environmental justice issues or the known opposition of community groups, regulatory agencies or public officials, or other impediments. If there are identified barriers that are within the jurisdiction's control, please provide a summary of the jurisdiction's plan to remedy the barriers that are under its control.

An anaerobic digestion processing facility is lacking in the high desert. However, Burrtec is in the process of developing a viable organics processing facility that, when completed, will provide residents and businesses a local processing option.

ENFORCEMENT, SELF-HAUL REQUIREMENTS, AND EXEMPTIONS

The following elements do not need to be implemented as part of the jurisdiction's organic waste recycling program; however, if the jurisdiction implements any of these, then the jurisdiction is required to report on any efforts related to these provisions.

1. Has the jurisdiction implemented any enforcement measures for covered businesses (including multifamily) that are not in compliance? If so, please describe.

None in 2019.

2. Has the jurisdiction implemented any certification requirements for self-haulers? If so, please describe.

None in 2019.

3. Have any exemptions been granted? Exemptions noted in the law include;

- i. Lack of sufficient space to provide additional bins,
- ii. Current business practices already result in a significant reduction in its organic waste (can be revoked 2020),
- iii. The business does not generate at least one-half cubic yard of organic waste per week,
- iv. Limited term exemptions,
- v. Unforeseen events,

If exemptions were granted by the jurisdiction;

- i. Please provide the number of exemptions granted,
- ii. Describe the reasons why the exemptions were granted,
- iii. Guidance on how to report exemptions for MORE monitoring tab in the EAR:
 - 1. Include number of exempted businesses in the total of regulated businesses
 - 2. Do not include number of exempted businesses in "not recycling" column. The jurisdiction granted an exemption so the business is not considered out of compliance.

Note—If a jurisdiction chooses to report this differently, they must explain this in the explanation field(s) of the 'Monitoring' tab or the 3035-CM-COR Diversion Program Code monitoring fields.

Total Number of Business Exemptions: 41
Total Number of Multi-Family Exemptions: 54

In 2019, 41 businesses and 54 multi-family complexes were granted exemptions. The businesses and multi-family complexes granted exemptions were because they did not generate at least one-half cubic yard of organic waste per week.

ADDITIONAL INFORMATION

Is there anything else you would like to tell CalRecycle about unique or innovative efforts by your jurisdiction to reduce organic waste generation and increase diversion, about your jurisdiction's public education efforts, or about specific obstacles to reaching your jurisdiction's implementation of an organic recycling program?

No additional information.

Brief description of additional information files, including calculation data for infrastructure planning.

Solid Waste: Municipal Data

Service Customer	Service Date	Service	Tonnage
Public Works - Animal Shelter	02/05/2019	IT-40yROL-OC	1.44
Public Works - Animal Shelter	02/05/2019	IT-40yROL-OC	0.11
Public Works - Animal Shelter	02/12/2019	IT-40yROL-OC	2.3
Public Works - Animal Shelter	02/12/2019	IT-40yROL-OC	1.55
Public Works - Animal Shelter	02/19/2019	IT-40yROL-OC	3.23
Public Works - Animal Shelter	02/19/2019	IT-40yROL-OC	2.8
Public Works - Animal Shelter	02/26/2019	IT-40yROL-OC	2.93
Public Works - Animal Shelter	02/26/2019	IT-40yROL-OC	2.08
Public Works - Animal Shelter	03/05/2019	IT-40yROL-OC	2.21
Public Works - Animal Shelter	03/12/2019	IT-40yROL-OC	1.84
Public Works - Animal Shelter	03/19/2019	IT-40yROL-OC	2.37
Public Works - Animal Shelter	03/26/2019	IT-40yROL-OC	1.27
Public Works - Animal Shelter	03/26/2019	IT-40yROL-OC	0.62
Public Works - Animal Shelter	04/03/2019	IT-40yROL-OC	2.58
Public Works - Animal Shelter	04/09/2019	IT-40yROL-OC	1.94
Public Works - Animal Shelter	04/16/2019	IT-40yROL-OC	1.33
Public Works - Animal Shelter	04/23/2019	IT-40yROL-OC	1.96
Public Works - Animal Shelter	04/30/2019	IT-40yROL-OC	1.34
Public Works - Animal Shelter	05/07/2019	IT-40yROL-OC	1.69
Public Works - Animal Shelter	05/14/2019	IT-40yROL-OC	1.66
Public Works - Animal Shelter	05/21/2019	IT-40yROL-OC	2.29
Public Works - Animal Shelter	05/21/2019	IT-40yROL-OC	2
Public Works - Animal Shelter	05/28/2019	IT-40yROL-OC	2.31
Public Works - Animal Shelter	06/04/2019	IT-40yROL-OC	2.22
Public Works - Animal Shelter	06/04/2019	IT-40yROL-OC	1.98
Public Works - Animal Shelter	06/11/2019	IT-40yROL-OC	1.72
Public Works - Animal Shelter	06/18/2019	IT-40yROL-OC	1.97
Public Works - Animal Shelter	06/18/2019	IT-40yROL-OC	1.03
Public Works - Animal Shelter	06/25/2019	IT-40yROL-OC	1.75
Public Works - Animal Shelter	07/02/2019	IT-40yROL-OC	1.65
Public Works - Animal Shelter	07/02/2019	IT-40yROL-OC	1.19
Public Works - Animal Shelter	07/09/2019	IT-40yROL-OC	3.78
Public Works - Animal Shelter	07/09/2019	IT-40yROL-OC	1.58
Public Works - Animal Shelter	07/23/2019	IT-40yROL-OC	1.74
Public Works - Animal Shelter	07/30/2019	IT-40yROL-OC	1.77
Public Works - Animal Shelter	07/30/2019	IT-40yROL-OC	1.43
Public Works - Animal Shelter	08/06/2019	IT-40yROL-OC	0.58
Public Works - Animal Shelter	08/13/2019	IT-40yROL-OC	1.63
Public Works - Animal Shelter	08/20/2019	IT-40yROL-OC	0.64
Public Works - Animal Shelter	08/27/2019	IT-40yROL-OC	0.54
Public Works - Animal Shelter	08/27/2019	IT-40yROL-OC	0.08
Public Works - Animal Shelter	09/03/2019	IT-40yROL-OC	0.61
Public Works - Animal Shelter	09/10/2019	IT-40yROL-OC	0.45
Public Works - Animal Shelter	09/17/2019	IT-40yROL-OC	1.49
Public Works - Animal Shelter	09/17/2019	IT-40yROL-OC	0.81
Public Works - Animal Shelter	09/24/2019	IT-40yROL-OC	0.75
Public Works - Animal Shelter	10/01/2019	IT-40yROL-OC	2.16
Public Works - Animal Shelter	10/01/2019	IT-40yROL-OC	1.64
Public Works - Animal Shelter	10/08/2019	IT-40yROL-OC	1.1
Public Works - Animal Shelter	10/15/2019	IT-40yROL-OC	1.09
Public Works - Animal Shelter	10/15/2019	IT-40yROL-OC	0.1
Public Works - Animal Shelter	10/22/2019	IT-40yROL-OC	0.97
Public Works - Animal Shelter	10/29/2019	IT-40yROL-OC	1.15
Public Works - Animal Shelter	11/05/2019	IT-40yROL-OC	0.86
Public Works - Animal Shelter	11/05/2019	IT-40yROL-OC	0.27
Public Works - Animal Shelter	11/12/2019	IT-40yROL-OC	0.81
Public Works - Animal Shelter	11/19/2019	IT-40yROL-OC	2.09
Public Works - Animal Shelter	11/26/2019	IT-40yROL-OC	0.62
Public Works - Animal Shelter	11/27/2019	IT-40yROL-OC	1.22
Public Works - Animal Shelter	12/03/2019	IT-40yROL-OC	1.1
Public Works - Animal Shelter	12/10/2019	IT-40yROL-OC	0.73
Public Works - Animal Shelter	12/17/2019	IT-40yROL-OC	2.92
Public Works - Animal Shelter	12/18/2019	IT-40yROL-OC	2.36
Public Works - Animal Shelter	12/24/2019	IT-40yROL-OC	3.34
Public Works - Animal Shelter	12/24/2019	IT-40yROL-OC	2.38

Public Works - Animal Shelter	12/31/2019	IT-40yROL-OC	1.2	
Public Works - Animal Shelter	01/07/2020	IT-40yROL-OC	1.27	
Public Works - Animal Shelter	01/14/2020	IT-40yROL-OC	1.45	
Public Works - Animal Shelter	01/14/2020	IT-40yROL-OC	1.31	
Public Works - Animal Shelter	01/21/2020	IT-40yROL-OC	1.28	
Public Works - Animal Shelter	01/28/2020	IT-40yROL-OC	1.75	
Public Works - Animal Shelter	01/28/2020	IT-40yROL-OC	0.81	
Public Works - Animal Shelter	02/07/2020	IT-40yROL-OC	2.99	114.21 2/5/2019 - 2/7/2020
Public Works - Animal Shelter	02/11/2020	IT-40yROL-OC	1.67	
Public Works - Animal Shelter	02/25/2020	IT-40yROL-OC	1.65	
Public Works - Animal Shelter	02/25/2020	IT-40yROL-OC	1.26	
Public Works - Animal Shelter	03/03/2020	IT-40yROL-OC	4.42	
Public Works - Animal Shelter	03/03/2020	IT-40yROL-OC	0.78	
Public Works - Animal Shelter	03/05/2020	IT-40yROL-OC	2.95	
Public Works - Animal Shelter	03/10/2020	IT-40yROL-OC	1.5	
Public Works - Animal Shelter	03/17/2020	IT-40yROL-OC	1.47	
Public Works - Animal Shelter	04/20/2020	IT-40yROL-OC	1.45	
Public Works - Animal Shelter	04/30/2020	IT-40yROL-OC	2.69	
Public Works - Animal Shelter	05/05/2020	IT-40yROL-OC	0.22	
Public Works - Animal Shelter	05/12/2020	IT-40yROL-OC	0.25	
Public Works - Animal Shelter	05/26/2020	IT-40yROL-OC	8.98	
Public Works - Animal Shelter	05/26/2020	IT-40yROL-OC	11.09	
Public Works - Animal Shelter	08/04/2020	IT-40yROL-OC	3.31	
Public Works - Animal Shelter	08/07/2020	IT-40yROL-OC	11.88	
Public Works - Animal Shelter	08/11/2020	IT-40yROL-OC	0.77	
Public Works - Animal Shelter	08/25/2020	IT-40yROL-OC	11.17	
Public Works-Tire Grant	02/04/2019	IT-40yROL-OC	4.4	
Public Works-Tire Grant	04/01/2019	IT-40yROL-OC	2.46	
Public Works-Tire Grant	04/01/2019	IT-40yROL-OC	2.46	
Public Works-Tire Grant	04/17/2019	IT-40yROL-OC	1.35	
Public Works-Tire Grant	07/16/2019	IT-40yROL-OC	3.49	
Public Works-Tire Grant	11/21/2019	IT-40yROL-OC	4.04	
Public Works-Tire Grant	02/18/2020	IT-40yROL-OC	3.47	21.67 2/4/2019 - 2/18/2020
Public Works**1046**	01/03/2019	IT-10yROL-OC	9.24	
Public Works**1046**	01/03/2019	IT-10yROL-OC	9.05	
Public Works**1046**	01/03/2019	IT-10yROL-OC	2.43	
Public Works**1046**	01/10/2019	IT-10yROL-OC	3.89	
Public Works**1046**	01/10/2019	IT-10yROL-OC	1.5	
Public Works**1046**	01/22/2019	IT-10yROL-OC	2.88	
Public Works**1046**	01/22/2019	IT-40yROL-OC	1.81	
Public Works**1046**	01/22/2019	IT-10yROL-OC	1.5	
Public Works**1046**	01/29/2019	IT-40yROL-OC	2.22	
Public Works**1046**	01/31/2019	IT-10yROL-OC	6.89	
Public Works**1046**	01/31/2019	IT-10yROL-OC	3.47	
Public Works**1046**	02/06/2019	IT-10yROL-OC	4.3	
Public Works**1046**	02/06/2019	IT-40yROL-OC	2.84	
Public Works**1046**	02/06/2019	IT-10yROL-OC	2.76	
Public Works**1046**	02/20/2019	IT-10yROL-OC	3.61	
Public Works**1046**	02/20/2019	IT-10yROL-OC	3.57	
Public Works**1046**	02/26/2019	IT-10yROL-OC	4.93	
Public Works**1046**	02/26/2019	IT-10yROL-OC	1.27	
Public Works**1046**	03/05/2019	IT-10yROL-OC	7.02	
Public Works**1046**	03/05/2019	IT-10yROL-OC	5.09	
Public Works**1046**	03/07/2019	IT-40yROL-OC	5.47	
Public Works**1046**	03/12/2019	IT-10yROL-OC	7.71	
Public Works**1046**	03/12/2019	IT-10yROL-OC	7.29	
Public Works**1046**	03/14/2019	IT-10yROL-OC	7.91	
Public Works**1046**	03/14/2019	IT-10yROL-OC	6.63	
Public Works**1046**	03/20/2019	IT-10yROL-OC	8.08	
Public Works**1046**	03/20/2019	IT-10yROL-OC	3.45	
Public Works**1046**	03/26/2019	IT-10yROL-OC	1.33	
Public Works**1046**	03/26/2019	IT-10yROL-OC	0.52	
Public Works**1046**	04/02/2019	IT-10yROL-OC	5.49	
Public Works**1046**	04/02/2019	IT-10yROL-OC	4.98	

Public Works**1046**	04/10/2019	IT-10yROL-OC	5.71
Public Works**1046**	04/10/2019	IT-10yROL-OC	3.1
Public Works**1046**	04/16/2019	IT-40yROL-OC	5.12
Public Works**1046**	04/16/2019	IT-10yROL-OC	2.48
Public Works**1046**	04/16/2019	IT-10yROL-OC	2.47
Public Works**1046**	04/16/2019	IT-40yROL-OC	1.89
Public Works**1046**	04/18/2019	IT-40yROL-OC	9.16
Public Works**1046**	04/18/2019	IT-40yROL-OC	6.1
Public Works**1046**	04/23/2019	IT-10yROL-OC	2.93
Public Works**1046**	04/23/2019	IT-10yROL-OC	2.08
Public Works**1046**	05/01/2019	IT-10yROL-OC	0.8
Public Works**1046**	05/01/2019	IT-10yROL-OC	0.8
Public Works**1046**	05/07/2019	IT-10yROL-OC	0.51
Public Works**1046**	05/07/2019	IT-10yROL-OC	0.42
Public Works**1046**	05/10/2019	IT-10yROL-OC	7.46
Public Works**1046**	05/10/2019	IT-10yROL-OC	7.15
Public Works**1046**	05/14/2019	IT-40yROL-OC	3.28
Public Works**1046**	05/14/2019	IT-10yROL-OC	3.06
Public Works**1046**	05/14/2019	IT-10yROL-OC	1.73
Public Works**1046**	05/21/2019	IT-10yROL-OC	2.87
Public Works**1046**	05/21/2019	IT-10yROL-OC	1.65
Public Works**1046**	05/28/2019	IT-10yROL-OC	4.71
Public Works**1046**	05/28/2019	IT-10yROL-OC	12.04
Public Works**1046**	06/06/2019	IT-10yROL-OC	8.39
Public Works**1046**	06/06/2019	IT-40yROL-OC	6.11
Public Works**1046**	06/06/2019	IT-10yROL-OC	5.28
Public Works**1046**	06/11/2019	IT-10yROL-OC	6.39
Public Works**1046**	06/11/2019	IT-10yROL-OC	1.34
Public Works**1046**	06/18/2019	IT-10yROL-OC	4.66
Public Works**1046**	06/18/2019	IT-10yROL-OC	0.45
Public Works**1046**	06/25/2019	IT-10yROL-OC	8.18
Public Works**1046**	06/25/2019	IT-40yROL-OC	5.53
Public Works**1046**	06/25/2019	IT-10yROL-OC	5.03
Public Works**1046**	07/03/2019	IT-10yROL-OC	4.55
Public Works**1046**	07/03/2019	IT-10yROL-OC	3.11
Public Works**1046**	07/11/2019	IT-10yROL-OC	4.18
Public Works**1046**	07/11/2019	IT-40yROL-OC	2.45
Public Works**1046**	07/11/2019	IT-10yROL-OC	1.8
Public Works**1046**	07/16/2019	IT-10yROL-OC	6.14
Public Works**1046**	07/16/2019	IT-10yROL-OC	4.24
Public Works**1046**	07/23/2019	IT-10yROL-OC	4.71
Public Works**1046**	07/23/2019	IT-10yROL-OC	3.42
Public Works**1046**	07/26/2019	IT-10yROL-OC	3.44
Public Works**1046**	07/30/2019	IT-10yROL-OC	5.35
Public Works**1046**	07/30/2019	IT-10yROL-OC	3.41
Public Works**1046**	08/02/2019	IT-10yROL-OC	4.31
Public Works**1046**	08/02/2019	IT-10yROL-OC	2.33
Public Works**1046**	08/08/2019	IT-10yROL-OC	5.23
Public Works**1046**	08/08/2019	IT-10yROL-OC	0.19
Public Works**1046**	08/16/2019	IT-40yROL-OC	3.71
Public Works**1046**	08/16/2019	IT-10yROL-OC	3.54
Public Works**1046**	08/16/2019	IT-10yROL-OC	2.8
Public Works**1046**	08/21/2019	IT-10yROL-OC	2.55
Public Works**1046**	08/21/2019	IT-10yROL-OC	1.14
Public Works**1046**	08/22/2019	IT-40yROL-OC	1.32
Public Works**1046**	08/28/2019	IT-10yROL-OC	1.48
Public Works**1046**	09/03/2019	IT-10yROL-OC	5.57
Public Works**1046**	09/10/2019	IT-10yROL-OC	1.53
Public Works**1046**	09/10/2019	IT-10yROL-OC	1.1
Public Works**1046**	09/12/2019	IT-10yROL-OC	3.9
Public Works**1046**	09/12/2019	IT-10yROL-OC	2.68
Public Works**1046**	09/17/2019	IT-10yROL-OC	3.35
Public Works**1046**	09/17/2019	IT-10yROL-OC	2.75
Public Works**1046**	09/24/2019	IT-40yROL-OC	2
Public Works**1046**	09/25/2019	IT-10yROL-OC	4.06

Public Works**1046**	09/25/2019	IT-10yROL-OC	1.32	
Public Works**1046**	10/02/2019	IT-10yROL-OC	1.8	
Public Works**1046**	10/08/2019	IT-10yROL-OC	5.21	
Public Works**1046**	10/08/2019	IT-10yROL-OC	2.41	
Public Works**1046**	10/16/2019	IT-10yROL-OC	4.31	
Public Works**1046**	10/16/2019	IT-10yROL-OC	4.07	
Public Works**1046**	10/24/2019	IT-40yROL-OC	3.81	
Public Works**1046**	10/24/2019	IT-40yROL-OC	3.37	
Public Works**1046**	11/05/2019	IT-10yROL-OC	1.63	
Public Works**1046**	11/05/2019	IT-10yROL-OC	0.92	
Public Works**1046**	11/13/2019	IT-10yROL-OC	2.45	
Public Works**1046**	11/13/2019	IT-40yROL-OC	1.96	
Public Works**1046**	11/13/2019	IT-10yROL-OC	0.46	
Public Works**1046**	11/21/2019	IT-10yROL-OC	3.05	
Public Works**1046**	11/21/2019	IT-10yROL-OC	2.98	
Public Works**1046**	11/22/2019	IT-40yROL-OC	1.2	
Public Works**1046**	12/03/2019	IT-10yROL-OC	4.17	
Public Works**1046**	12/03/2019	IT-10yROL-OC	3.05	
Public Works**1046**	12/11/2019	IT-10yROL-OC	3.44	
Public Works**1046**	12/11/2019	IT-10yROL-OC	0.89	
Public Works**1046**	12/17/2019	IT-10yROL-OC	4.93	
Public Works**1046**	12/17/2019	IT-10yROL-OC	4.6	
Public Works**1046**	12/18/2019	IT-40yROL-OC	2.15	
Public Works**1046**	12/20/2019	IT-10yROL-OC	4.89	
Public Works**1046**	12/20/2019	IT-10yROL-OC	3.75	
Public Works**1046**	01/03/2020	IT-10yROL-OC	1.98	
Public Works**1046**	01/03/2020	IT-10yROL-OC	1.44	456.59 1/3/2019 - 1/3/2020

	Quantity	Size	Frequency	
James Woody	5	3 Yard	1 Time A Week	15
Lenny Brewster	3	3 Yard	1 Time A Week	9
Civic Center	4	3 Yard	1 Time A Week	12
Town Hall	3	3 Yard	3 Times A Week	27
				63
				3276
				2019 had 52 weeks

Assumes that 1 CY of municipal solid waste (commercial uncompact) is equivalent to 138 lbs. "Volume to Weight Conversion Factors," US EPA Office of Resource Conversion and Recovery. April 2016.

226.044 US tons for

This is an overestimate assuming every can is full at every collection, because these four locations do not track actual tonnage.

For Inventory Use

Total Municipal Waste in 2019	818.51 tons
-------------------------------	-------------

909 CO2e

Appendix B

2019 CAP Update 2030 BAU Projections Workbook Town of Apple Valley

2030 BAU Forecast Summary.....	1
ClearPath Growth Rate Assumptions	2
Energy Projections.....	3
VMT and Transportation Projections.....	10
Solid Waste Projections.....	15

Townwide Reduction Target		
2030 Target	BAU 2030	Short
449,347	533,103	83,756

Community Inventory 2030 BAU Forecast

Sector	2019 CAP Update		2030 BAU		Difference
	CO2e (tons)	CO2e (%)	CO2e (tons)	CO2e (%)	
Residential	118,327	19.91	116,146	21.91	-2,181
Commercial	31,071	5.23	27,828	5.25	-3,243
Industrial	10,371	1.75	4,719	0.89	-5,652
On-Road Transp.	405,797	68.28	355,631	67.07	-50,166
Off-Road Transp.	11,479	1.93	13,088	2.47	1,609
Waste	17,229	2.90	12,791	2.41	-4,438
Total	594,274	100	530,203	100	-64,071

COMMUNITY GHG 2019

Sector	2005 (Population 63,754)		2019 (Population 74,140)		CO2e Difference
	CO2e (tons)	CO2e (%)	CO2e (tons)	CO2e (%)	(tons)
Residential	141,417	18.88	118,327	19.91	-23,090
Commercial	38,039	5.08	31,071	5.23	-6,968
Industrial	14,460	1.93	10,371	1.74	-4,089
On-Road Transp.	510,676	68.19	405,918	68.29	-104,758
Off-Road Transp.	388	0.05	11,479	1.93	11,091
Waste	43,932	5.87	17,229	2.90	-26,703
TOTAL	748,912	100	594,395	100	-154,517

DECREASE

Municipal Inventory 2030 BAU Forecast

Sector	2019 CAP Update		2030 BAU		Difference
	CO2e (tons)	CO2e (%)	CO2e (tons)	CO2e (%)	
Buildings/Infrastructure	1,332	39.10	1,228	42.34	-104
Vehicle Fleet	971	28.50	852	29.38	-119
Employee Commute	195	5.72	145	5.00	-50
Water/Sewage	NA		NA		
Waste	909	26.68	675	23.28	-234
TOTAL	3,407	100	2,900	100	-507

Municipal GHG 2019

Sector	2005 (Population 63,754)		2019 (Population 74,140)		CO2e Difference
	CO2e (tons)	CO2e (%)	CO2e (tons)	CO2e (%)	(tons)
Buildings/Infrastructure	1,100	51.45	1,332	39.10	232
Vehicle Fleet	620	29.00	971	28.50	351
Employee Commute	347	16.23	195	5.72	-152
Water/Sewage	NA		NA		NA
Waste	71	3.32	909	26.68	838
TOTAL	2,138	100	3,407	100	1,269

INCREASE

ClearPath Growth Rate Assumptions:

Editing Forecast Helper Compound Growth Rate Calculator [?](#)

* Name

SCAG RTP 2020-2045 Growth Rate

Global warming potential

IPCC 5th Assessment 100 Year Values [?](#)

Inputs

	Value	Units
Start Year Value ?	74140	Activity Level ?
Start Year ?	2019	Year ?
End Year Value ?	101400	Activity Level ?
End Year ?	2045	Year ?

Outputs

Name	Value
Compound Annual Growth Rate ?	0.012

Notes

SCAG RTP 2045 population estimates for AV: 101,400

ClearPath: Residential Energy Projections

Year Usage CO2e Output Name

Electricity

2019	700181	47187	Electricity Energy Equivalent (MMBtu)
2020	708583	45748	Electricity Energy Equivalent (MMBtu)
2021	717086	44352	Electricity Energy Equivalent (MMBtu)
2022	725691	42999	Electricity Energy Equivalent (MMBtu)
2023	734400	41688	Electricity Energy Equivalent (MMBtu)
2024	743213	40416	Electricity Energy Equivalent (MMBtu)
2025	752131	39183	Electricity Energy Equivalent (MMBtu)
2026	761157	37988	Electricity Energy Equivalent (MMBtu)
2027	770291	36829	Electricity Energy Equivalent (MMBtu)
2028	779534	35706	Electricity Energy Equivalent (MMBtu)
2029	788888	34617	Electricity Energy Equivalent (MMBtu)
2030	798355	35032	Electricity Energy Equivalent (MMBtu)

Residential Energy 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Electricity	47,187	35,032	-12,155
Natural Gas	68,593	78,210	9,617
Propane	2,547	2,904	357
TOTAL	118,327	116,146	-2,181

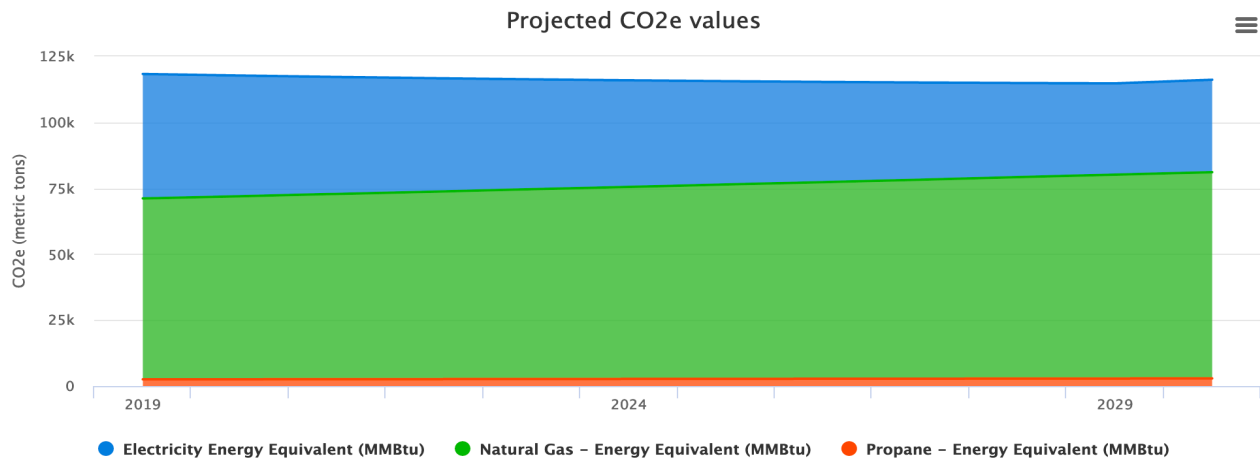
Natural Gas

2019	1289666	68593	Natural Gas - Energy Equivalent (MMBtu)
2020	1305142	69416	Natural Gas - Energy Equivalent (MMBtu)
2021	1320803	70249	Natural Gas - Energy Equivalent (MMBtu)
2022	1336653	71092	Natural Gas - Energy Equivalent (MMBtu)
2023	1352693	71945	Natural Gas - Energy Equivalent (MMBtu)
2024	1368925	72808	Natural Gas - Energy Equivalent (MMBtu)
2025	1385352	73682	Natural Gas - Energy Equivalent (MMBtu)
2026	1401976	74566	Natural Gas - Energy Equivalent (MMBtu)
2027	1418800	75461	Natural Gas - Energy Equivalent (MMBtu)
2028	1435826	76367	Natural Gas - Energy Equivalent (MMBtu)
2029	1453056	77283	Natural Gas - Energy Equivalent (MMBtu)
2030	1470492	78210	Natural Gas - Energy Equivalent (MMBtu)

Propane

2019	41041	2547	Propane - Energy Equivalent (MMBtu)
2020	41533	2578	Propane - Energy Equivalent (MMBtu)
2021	42032	2608	Propane - Energy Equivalent (MMBtu)
2022	42536	2640	Propane - Energy Equivalent (MMBtu)
2023	43047	2671	Propane - Energy Equivalent (MMBtu)
2024	43563	2703	Propane - Energy Equivalent (MMBtu)
2025	44086	2736	Propane - Energy Equivalent (MMBtu)
2026	44615	2769	Propane - Energy Equivalent (MMBtu)
2027	45150	2802	Propane - Energy Equivalent (MMBtu)
2028	45692	2836	Propane - Energy Equivalent (MMBtu)
2029	46241	2870	Propane - Energy Equivalent (MMBtu)
2030	46795	2904	Propane - Energy Equivalent (MMBtu)

Residential Energy Projections



* Name

Residential Energy 2030 ☐ Official

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

SAVE

[Export](#)

Notes

Forecast Records for Residential Energy

Name	Official Forecast	Actions
Residential Energy 2030	false	Edit Delete

Inventory Output	Starting Value	Coefficients	Growth Rates
Natural Gas - Energy Equivalent (MMBtu)	Quantity 1289665.6	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate <input type="button" value="v"/>
X Remove	CO2e 68592.7994344		
Electricity Energy Equivalent (MMBtu)	Quantity 700181.228668942	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate <input type="button" value="v"/>
X Remove	CO2e 47187.2043982183	Carbon Intensity Factor	Default SCE Renewable Energy Portfolio to 2030 <input type="button" value="v"/>
Propane - Energy Equivalent (MMBtu)	Quantity 41041.0	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate <input type="button" value="v"/>
X Remove	CO2e 2546.95936		

ClearPath: Community Energy Projections

Year Usage CO2e Output Name

Electricity

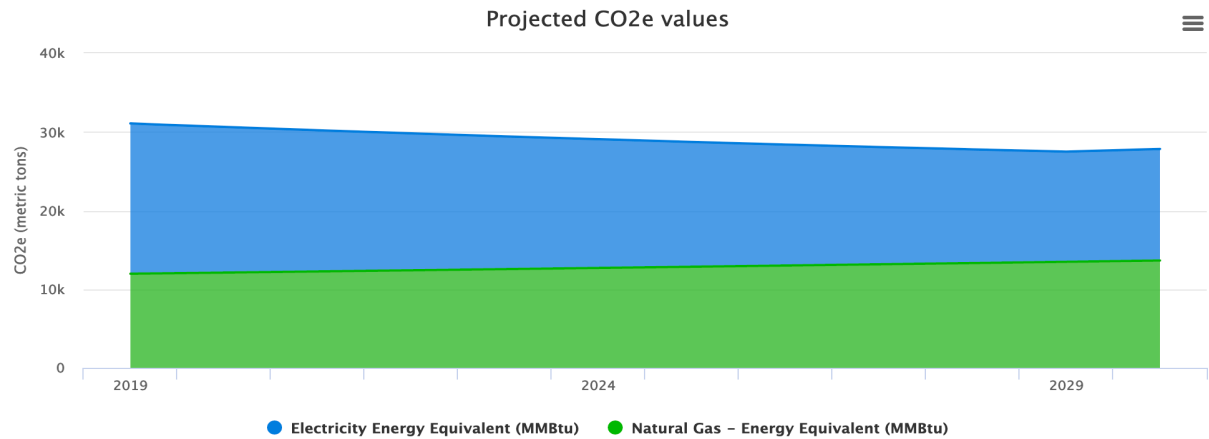
2019	282394	19103	Electricity Energy Equivalent (MMBtu)
2020	285782	18520	Electricity Energy Equivalent (MMBtu)
2021	289212	17955	Electricity Energy Equivalent (MMBtu)
2022	292682	17407	Electricity Energy Equivalent (MMBtu)
2023	296194	16876	Electricity Energy Equivalent (MMBtu)
2024	299749	16361	Electricity Energy Equivalent (MMBtu)
2025	303346	15862	Electricity Energy Equivalent (MMBtu)
2026	306986	15379	Electricity Energy Equivalent (MMBtu)
2027	310670	14909	Electricity Energy Equivalent (MMBtu)
2028	314398	14455	Electricity Energy Equivalent (MMBtu)
2029	318171	14014	Electricity Energy Equivalent (MMBtu)
2030	321989	14182	Electricity Energy Equivalent (MMBtu)

Commercial Energy 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Electricity	19,103	14,182	-4921
Natural Gas	11,968	13,646	1,678
TOTAL	31,071	27,828	-3243

Natural Gas

2019	225018	11968	Natural Gas - Energy Equivalent (MMBtu)
2020	227718	12112	Natural Gas - Energy Equivalent (MMBtu)
2021	230450	12257	Natural Gas - Energy Equivalent (MMBtu)
2022	233216	12404	Natural Gas - Energy Equivalent (MMBtu)
2023	236014	12553	Natural Gas - Energy Equivalent (MMBtu)
2024	238847	12703	Natural Gas - Energy Equivalent (MMBtu)
2025	241713	12856	Natural Gas - Energy Equivalent (MMBtu)
2026	244613	13010	Natural Gas - Energy Equivalent (MMBtu)
2027	247549	13166	Natural Gas - Energy Equivalent (MMBtu)
2028	250519	13324	Natural Gas - Energy Equivalent (MMBtu)
2029	253525	13484	Natural Gas - Energy Equivalent (MMBtu)
2030	256568	13646	Natural Gas - Energy Equivalent (MMBtu)

ClearPath: Community Energy Projections



* Name
Commercial Energy 2030 ☐ Official

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

[SAVE](#) [Export](#)

Notes

Forecast Records for Commercial Energy

Name		Official Forecast		Actions	
Commercial Energy 2030		false		Edit Delete	

Inventory Output		Starting Value		Coefficients		Growth Rates	
Electricity Energy Equivalent (MMBtu)	Quantity	<input type="text" value="282393.641638225"/>		Growth Rate	<input type="text" value="SCAG RTP SCS 2020-2045 Population Growth Rate"/>		
	CO2e	<input type="text" value="19102.6193500957"/>			<input type="text" value="Default SCE Renewable Energy Portfolio to 2030"/>		
	X Remove						
Natural Gas - Energy Equivalent (MMBtu)	Quantity	<input type="text" value="225017.6"/>		Growth Rate	<input type="text" value="SCAG RTP SCS 2020-2045 Population Growth Rate"/>		
	CO2e	<input type="text" value="11967.8985824"/>					
	X Remove						

ClearPath: Industrial Energy Projections

Year Usage CO2e Output Name

Electricity

2019	132372	8954	Electricity Energy Equivalent (MMBtu)
2020	126812	8218	Electricity Energy Equivalent (MMBtu)
2021	121486	7542	Electricity Energy Equivalent (MMBtu)
2022	116384	6922	Electricity Energy Equivalent (MMBtu)
2023	111496	6353	Electricity Energy Equivalent (MMBtu)
2024	106813	5830	Electricity Energy Equivalent (MMBtu)
2025	102327	5351	Electricity Energy Equivalent (MMBtu)
2026	98029	4911	Electricity Energy Equivalent (MMBtu)
2027	93912	4507	Electricity Energy Equivalent (MMBtu)
2028	89968	4136	Electricity Energy Equivalent (MMBtu)
2029	86189	3796	Electricity Energy Equivalent (MMBtu)

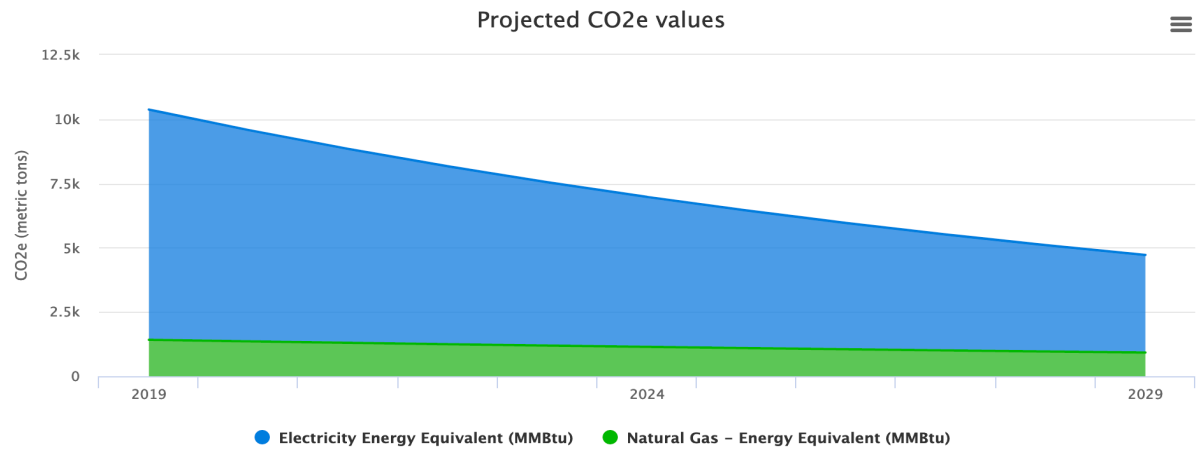
Industrial Energy 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Electricity	8,954	3,796	-5158
Natural Gas	1,417	923	-494
TOTAL	10,371	4,719	-5652

Natural Gas

2019	26700	1417	Natural Gas - Energy Equivalent (MMBtu)
2020	25579	1358	Natural Gas - Energy Equivalent (MMBtu)
2021	24505	1301	Natural Gas - Energy Equivalent (MMBtu)
2022	23475	1246	Natural Gas - Energy Equivalent (MMBtu)
2023	22490	1194	Natural Gas - Energy Equivalent (MMBtu)
2024	21545	1143	Natural Gas - Energy Equivalent (MMBtu)
2025	20640	1095	Natural Gas - Energy Equivalent (MMBtu)
2026	19773	1049	Natural Gas - Energy Equivalent (MMBtu)
2027	18943	1005	Natural Gas - Energy Equivalent (MMBtu)
2028	18147	963	Natural Gas - Energy Equivalent (MMBtu)
2029	17385	923	Natural Gas - Energy Equivalent (MMBtu)

Note: Same 2030 forecast factors assumed, however Industrial forecasts in ClearPath only went to 2029. Don't know why, possible glitch

ClearPath: Industrial Energy Projections



* Name

Industrial Energy 2030 ☐ Official

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

SAVE

Export

Notes

Forecast Records for Industrial Energy

ClearPath: Municipal Energy

Year Usage CO2e Output Name

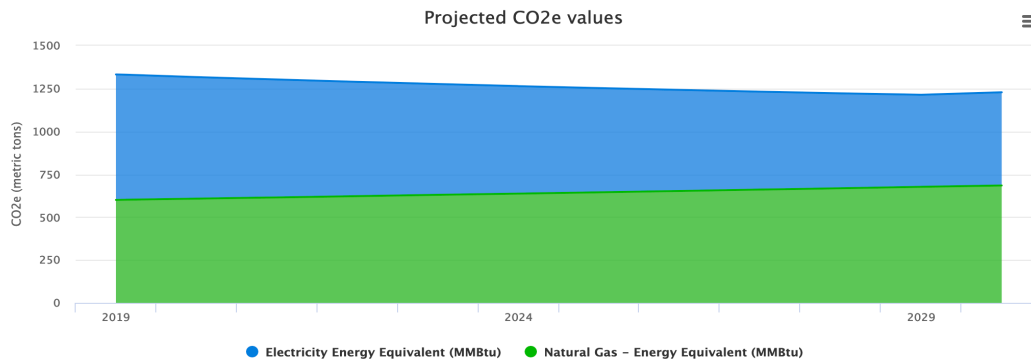
Muni Buildings and Facilities Electricity

2019	10816	732	Electricity Energy Equivalent (MMBtu)
2020	10946	709	Electricity Energy Equivalent (MMBtu)
2021	11078	688	Electricity Energy Equivalent (MMBtu)
2022	11211	667	Electricity Energy Equivalent (MMBtu)
2023	11345	646	Electricity Energy Equivalent (MMBtu)
2024	11481	627	Electricity Energy Equivalent (MMBtu)
2025	11619	608	Electricity Energy Equivalent (MMBtu)
2026	11758	589	Electricity Energy Equivalent (MMBtu)
2027	11900	571	Electricity Energy Equivalent (MMBtu)
2028	12042	554	Electricity Energy Equivalent (MMBtu)
2029	12187	537	Electricity Energy Equivalent (MMBtu)
2030	12333	543	Electricity Energy Equivalent (MMBtu)

Muni Build/Fac Energy 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Electricity	732	543	-189
Natural Gas	600	685	85
TOTAL	1,332	1,228	-104

Muni Buildings and Facilities Natural Gas

2019	11290	600	Natural Gas - Energy Equivalent (MMBtu)
2020	11425	608	Natural Gas - Energy Equivalent (MMBtu)
2021	11562	615	Natural Gas - Energy Equivalent (MMBtu)
2022	11701	622	Natural Gas - Energy Equivalent (MMBtu)
2023	11841	630	Natural Gas - Energy Equivalent (MMBtu)
2024	11983	637	Natural Gas - Energy Equivalent (MMBtu)
2025	12127	645	Natural Gas - Energy Equivalent (MMBtu)
2026	12273	653	Natural Gas - Energy Equivalent (MMBtu)
2027	12420	661	Natural Gas - Energy Equivalent (MMBtu)
2028	12569	669	Natural Gas - Energy Equivalent (MMBtu)
2029	12720	677	Natural Gas - Energy Equivalent (MMBtu)
2030	12873	685	Natural Gas - Energy Equivalent (MMBtu)



* Name

Buildings/Facilities 2030 ☐ Official

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

SAVE **Export**

Notes

Forecast Records for Buildings & Facilities

Name	Official Forecast	Actions
Buildings/Facilities 2030	false	Edit Delete

Inventory Output	Starting Value	Coefficients	Growth Rates
Electricity Energy Equivalent (MMBtu)	Quantity: 10816.4812286689	Growth Rate: SCAG RTP SCS 2020-2045 Population Growth Rate	
X Remove	CO2e: 731.684758977057	Carbon Intensity Factor: Default SCE Renewable Energy Portfolio to 2030	
Natural Gas - Energy Equivalent (MMBtu)	Quantity: 11289.6	Growth Rate: SCAG RTP SCS 2020-2045 Population Growth Rate	
X Remove	CO2e: 600.4543104		

ClearPath: Community VMT

Year Usage CO2e Output Name

Passenger Gas

2019	784756111	321296	Gasoline - On Road VMT
2020	794173184	316698	Gasoline - On Road VMT
2021	803703263	312165	Gasoline - On Road VMT
2022	813347702	307698	Gasoline - On Road VMT
2023	823107874	303294	Gasoline - On Road VMT
2024	832985169	298953	Gasoline - On Road VMT
2025	842980991	295582	Gasoline - On Road VMT
2026	853096763	292249	Gasoline - On Road VMT
2027	863333924	288954	Gasoline - On Road VMT
2028	873693931	285696	Gasoline - On Road VMT
2029	884178258	282474	Gasoline - On Road VMT
2030	894788397	281576	Gasoline - On Road VMT

Passenger Diesel

2019	138486373	79192	Diesel - On Road VMT
2020	140148209	78059	Diesel - On Road VMT
2021	141829988	76942	Diesel - On Road VMT
2022	143531948	75841	Diesel - On Road VMT
2023	145254331	74755	Diesel - On Road VMT
2024	146997383	73685	Diesel - On Road VMT
2025	148761352	72854	Diesel - On Road VMT
2026	150546488	72033	Diesel - On Road VMT
2027	152353046	71221	Diesel - On Road VMT
2028	154181282	70418	Diesel - On Road VMT
2029	156031458	69623	Diesel - On Road VMT
2030	157903835	69402	Diesel - On Road VMT

Transit Gas

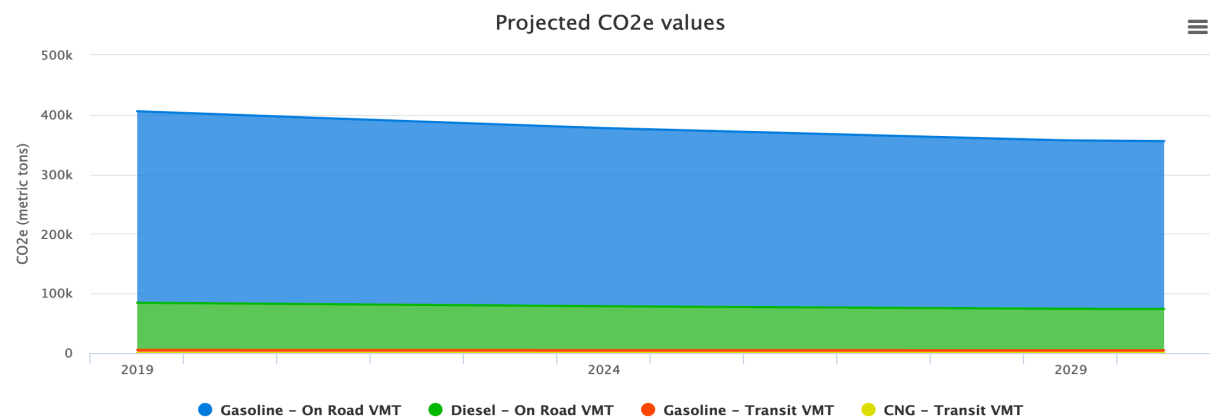
2019	33506	5256	Gasoline - Transit VMT
2020	33908	5181	Gasoline - Transit VMT
2021	34314	5107	Gasoline - Transit VMT
2022	34726	5034	Gasoline - Transit VMT
2023	35143	4962	Gasoline - Transit VMT
2024	35565	4891	Gasoline - Transit VMT
2025	35991	4836	Gasoline - Transit VMT
2026	36423	4781	Gasoline - Transit VMT
2027	36860	4727	Gasoline - Transit VMT
2028	37303	4674	Gasoline - Transit VMT
2029	37750	4621	Gasoline - Transit VMT
2030	38203	4607	Gasoline - Transit VMT

Transit CNG

2019	521918	53	CNG - Transit VMT
2020	528181	52	CNG - Transit VMT
2021	534519	51	CNG - Transit VMT
2022	540934	51	CNG - Transit VMT
2023	547425	50	CNG - Transit VMT
2024	553994	49	CNG - Transit VMT
2025	560642	49	CNG - Transit VMT
2026	567370	48	CNG - Transit VMT
2027	574178	48	CNG - Transit VMT
2028	581068	47	CNG - Transit VMT
2029	588041	47	CNG - Transit VMT
2030	595097	46	CNG - Transit VMT

Community VMT 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Passenger Gas	321,296	281,576	-39720
Passenger Diesel	79,192	69,402	-9790
Transit Gas	5,256	4,607	-649
Transit CNG	53	46	-7
TOTAL	405,797	355,631	-50166

ClearPath: Community VMT



* Name

On-Road Transportation 20 ☐ Official

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

SAVE

Export

Notes

Forecast Records for Transportation & Mobile Sources

Name	Official Forecast	Actions
On-Road Transportation 2030 BAU	false	Edit Delete
Off-Road Emissions 2030	false	Edit Delete

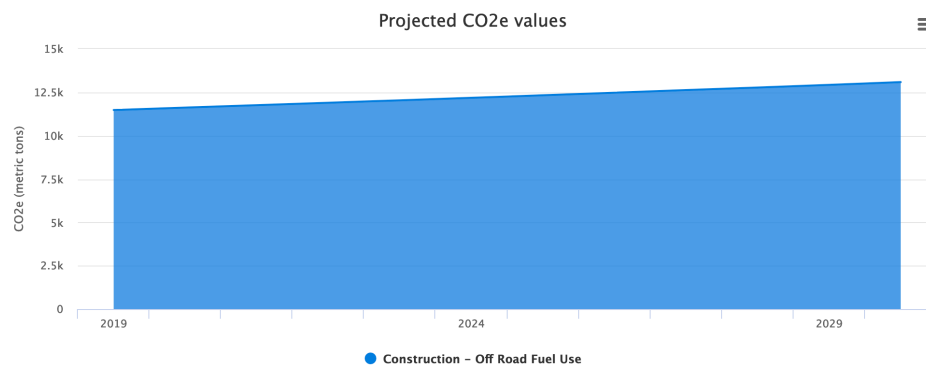
Inventory Output	Starting Value	Coefficients	Growth Rates
Gasoline - On Road VMT	Quantity 784756111.0	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate
X Remove	CO2e 321296.447535362	Carbon Intensity Factor	Passenger Vehicle Carbon Intensity Factors
Diesel - On Road VMT	Quantity 138486373.0	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate
X Remove	CO2e 79192.3132550738	Carbon Intensity Factor	Passenger Vehicle Carbon Intensity Factors
Gasoline - Transit VMT	Quantity 33505.5	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate
X Remove	CO2e 5256.4918992684	Carbon Intensity Factor	Passenger Vehicle Carbon Intensity Factors
CNG - Transit VMT	Quantity 521918.0	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate
X Remove	CO2e 52.934489314	Carbon Intensity Factor	Passenger Vehicle Carbon Intensity Factors

ClearPath: Community Off-Road

Year	Usage	CO2e	Output Name
2019	1	11479	Construction - Off Road Fuel Use
2020	1	11617	Construction - Off Road Fuel Use
2021	1	11756	Construction - Off Road Fuel Use
2022	1	11897	Construction - Off Road Fuel Use
2023	1	12040	Construction - Off Road Fuel Use
2024	1	12184	Construction - Off Road Fuel Use
2025	1	12331	Construction - Off Road Fuel Use
2026	1	12479	Construction - Off Road Fuel Use
2027	1	12628	Construction - Off Road Fuel Use
2028	1	12780	Construction - Off Road Fuel Use
2029	1	12933	Construction - Off Road Fuel Use
2030	1	13088	Construction - Off Road Fuel Use

Off-Road 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Off-road	11,479	13,088	1609

Direct data entry of 11,479 MTCO2 from CARB's EMFAC2017 Project Analysis tool. Emission forecasts use SCAG growth rate of 0.012



Name

Off-Road Emissions 2030 ☐ Official

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

SAVE

Export

Notes

Off-ro

Inventory Output	Starting Value	Coefficients	Growth Rates
Construction - Off Road Fuel Use	Quantity 1.0	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate
X Remove	CO2e 11479.0		
CNG - Transit VMT	Quantity 0.0	Growth Rate	
X Remove	CO2e 0.0	Carbon Intensity Factor	
Gasoline - Transit VMT	Quantity 0.0	Growth Rate	
X Remove	CO2e 0.0	Carbon Intensity Factor	
Diesel - On Road VMT	Quantity 0.0	Growth Rate	
X Remove	CO2e 0.0	Carbon Intensity Factor	
Gasoline - On Road VMT	Quantity 0.0	Growth Rate	
X Remove	CO2e 0.0	Carbon Intensity Factor	

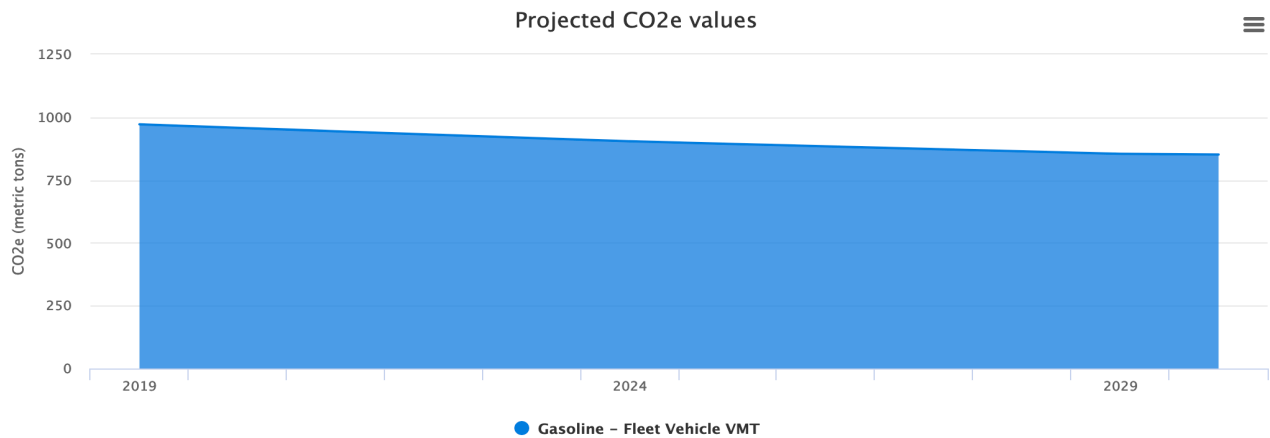
ClearPath: Municipal Police Fleet

Year Usage CO2e Output Name

Town Fleet and Police

2019	1215524	972	Gasoline - On Road VMT
2020	1230110	958	Gasoline - On Road VMT
2021	1244872	944	Gasoline - On Road VMT
2022	1259810	931	Gasoline - On Road VMT
2023	1274928	917	Gasoline - On Road VMT
2024	1290227	904	Gasoline - On Road VMT
2025	1305710	894	Gasoline - On Road VMT
2026	1321378	884	Gasoline - On Road VMT
2027	1337235	874	Gasoline - On Road VMT
2028	1353282	864	Gasoline - On Road VMT
2029	1369521	854	Gasoline - On Road VMT
2030	1385955	852	Gasoline - On Road VMT

Town Fleet 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Gasoline	972	852	-120
TOTAL	972	852	-120



* Name

Town Fleet 2030 BAU

☐ Official

Notes

Forecast Records for Vehicle Fleet

Name	Official Forecast	Actions
Town Fleet 2030 BAU	false	Edit Delete

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

SAVE

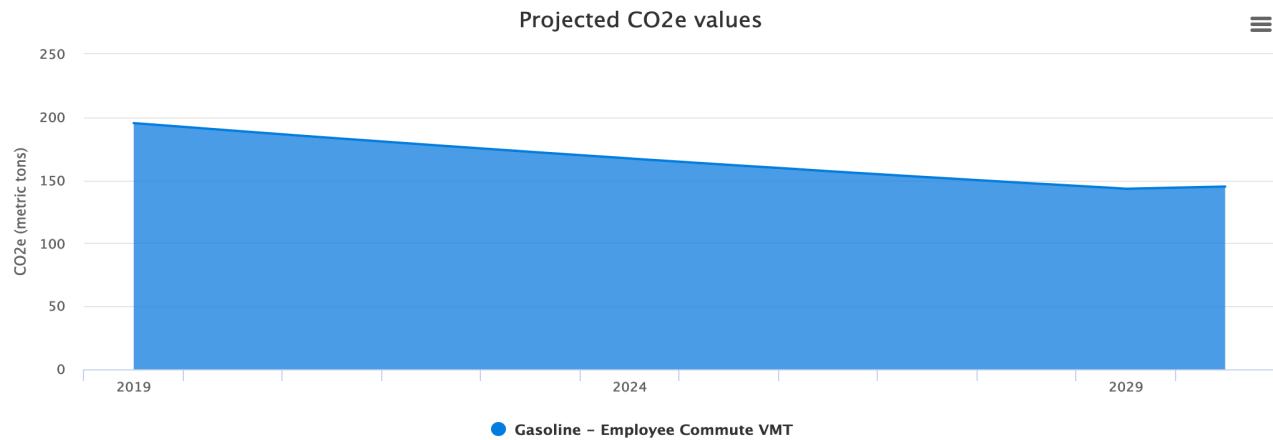
[Export](#)

Inventory Output	Starting Value	Coefficients	Growth Rates
Gasoline - Fleet Vehicle VMT	Quantity 1215524.0	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate
X Remove	CO2e 971.7594143196	Carbon Intensity Factor	Passenger Vehicle Carbon Intensity Factors

ClearPath: Municipal Employee Commute

Year	Usage	CO2e	Output Name
2019	538200	195	Gasoline - On Road VMT
2020	544658	189	Gasoline - On Road VMT
2021	551194	184	Gasoline - On Road VMT
2022	557809	178	Gasoline - On Road VMT
2023	564502	173	Gasoline - On Road VMT
2024	571276	167	Gasoline - On Road VMT
2025	578132	162	Gasoline - On Road VMT
2026	585069	157	Gasoline - On Road VMT
2027	592090	152	Gasoline - On Road VMT
2028	599195	148	Gasoline - On Road VMT
2029	606386	143	Gasoline - On Road VMT
2030	613662	145	Gasoline - On Road VMT

Emp. Commute 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Gasoline	195	145	-50
TOTAL	195	145	-50



* Name

Employee Community 2030 ☐ Official

Notes

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

SAVE

[Export](#)

Forecast Records for Employee Commute

Name	Official Forecast	Actions
Employee Community 2030	false	Edit Delete

Inventory Output

Starting Value

Coefficients

Growth Rates

Gasoline - Employee Commute VMT

Quantity

538200.0

Growth Rate

SCAG RTP SCS 2020-2045 Population Growth Rate

[X Remove](#)

CO2e

195.305005468956

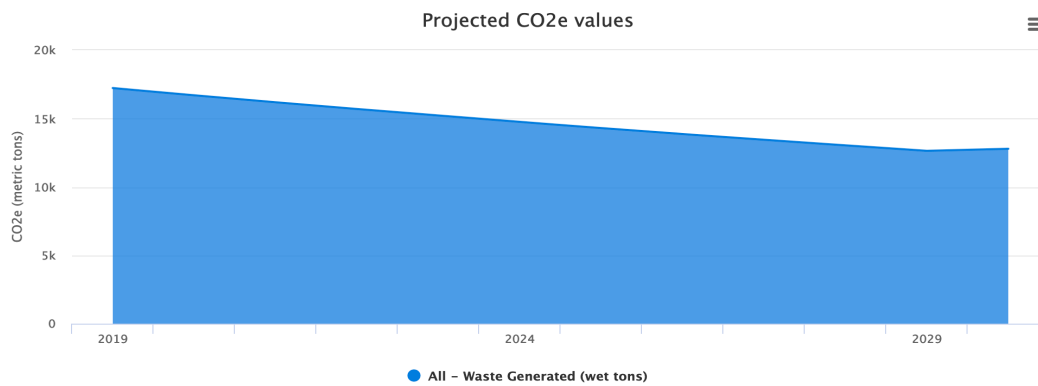
Carbon Intensity Factor

Default SCE Renewable Energy Portfolio to 2030

ClearPath: Solid Waste

Year	Usage	CO2e	Output Name
2019	60219	17229	All - Waste Generated (wet tons)
2020	60942	16703	All - Waste Generated (wet tons)
2021	61673	16194	All - Waste Generated (wet tons)
2022	62413	15700	All - Waste Generated (wet tons)
2023	63162	15221	All - Waste Generated (wet tons)
2024	63920	14757	All - Waste Generated (wet tons)
2025	64687	14306	All - Waste Generated (wet tons)
2026	65463	13870	All - Waste Generated (wet tons)
2027	66249	13447	All - Waste Generated (wet tons)
2028	67044	13037	All - Waste Generated (wet tons)
2029	67848	12639	All - Waste Generated (wet tons)
2030	68662	12791	All - Waste Generated (wet tons)

Community Solid Waste 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Solid Waste	17,229	12,791	-4438



* Name
Solid Waste 2030 ☐ Official

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

Notes

Forecast Records for Solid Waste

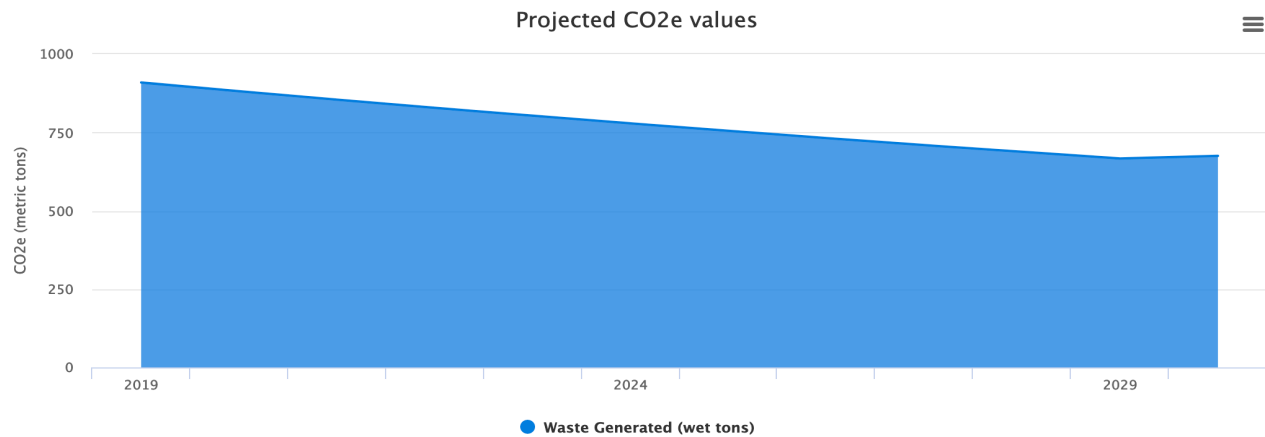
Name	Official Forecast	Actions
Solid Waste 2030	false	Edit Delete

Inventory Output	Starting Value	Coefficients	Growth Rates
All - Waste Generated (wet tons)	Quantity 60219.0	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate <input type="button" value="⚙"/>
X Remove	CO2e 17228.881096237	Carbon Intensity Factor	Default SCE Renewable Energy Portfolio to 2030 <input type="button" value="⚙"/>

ClearPath: Municipal Solid Waste

Year	Usage	CO2e	Output Name
2019	819	909	Waste Generated (wet tons)
2020	829	882	Waste Generated (wet tons)
2021	839	855	Waste Generated (wet tons)
2022	849	829	Waste Generated (wet tons)
2023	859	803	Waste Generated (wet tons)
2024	869	779	Waste Generated (wet tons)
2025	880	755	Waste Generated (wet tons)
2026	890	732	Waste Generated (wet tons)
2027	901	710	Waste Generated (wet tons)
2028	912	688	Waste Generated (wet tons)
2029	923	667	Waste Generated (wet tons)
2030	934	675	Waste Generated (wet tons)

Muni Solid Waste 2030 Forecast BAU			
MTCO2e			
	2019	2030	Difference
Gasoline	909	675	-234
TOTAL	909	675	-234



* Name

Municipal Solid Waste 2030 ☐ Official

Notes

If you've changed any factor profiles used below, be sure to click on "Save" at the bottom of the page to recalculate the forecast's data.

[SAVE](#) [Export](#)

Forecast Records for Solid Waste Facilities


Name	Official Forecast	Actions
Municipal Solid Waste 2030	false	Edit Delete

Inventory Output	Starting Value	Coefficients	Growth Rates
Waste Generated (wet tons)	Quantity 819.0	Growth Rate	SCAG RTP SCS 2020-2045 Population Growth Rate ↕
X Remove	CO2e 909.242334	Carbon Intensity Factor	Default SCE Renewable Energy Portfolio to 2030 ↕


Appendix C

2019 CAP Update ClearPath Inventory Factor Sets
Town of Apple Valley


Electricity

* Name	
SCE 2018 Default - AV CAP	
Year	2019 
CO2 lbs/MWh	507
CO2 kg/MWh	
CH4 lbs/GWh	33
CH4 kg/GWh	
N2O lbs/GWh	4
N2O kg/GWh	
Notes	
Used for 2019 AV CAP	

Solid Waste

* Name	
Community Waste Characterization	
Year	2019 
Percentage Mixed MSW	0
Percentage Newspaper	1.3
Percentage Office Paper	4.9
Percentage Corrugated Cardboard	5.2
Percentage Magazines / Third Class Mail	5.9
Percentage Food Scraps	15.5
Percentage Grass	1.9
Percentage Leaves	1.9
Percentage Branches	3.3
Percentage Dimensional Lumber	14.5
Notes	

Transportation

* Name	
2019 US National Defaults (updated 2020)	
Year	2019 
Gas Passenger Vehicle Fuel Economy (MPG)	24.37713
Gas Passenger Vehicle g CH4/mi	0.0183
Gas PassengerVehicle g N2O/mi	0.0083
Gas Light Truck Fuel Economy (MPG)	17.86788
Gas Light Truck g CH4/mi	0.0193
Gas Light Truck g N2O/mi	0.0148
Gas Heavy Truck Fuel Economy (MPG)	5.371652
Gas Heavy Truck g CH4/mi	0.0785
Gas Heavy Truck g N2O/mi	0.0633
Gas Transit Bus Fuel Economy (MPG)	17.86788
Gas Transit Bus g CH4/mi	0.0193
Gas Transit Bus g N2O/mi	0.0148
Gas Para Transit Bus Fuel Economy (MPG)	17.86788
Gas Para Transit Bus g CH4/mi	0.0193

Gas Para Transit Bus g N2O/mi	0.0148
Gas Motorcycle Fuel Economy (MPG)	24.37713
Gas Motorcycle g CH4/mi	0.0183
Gas Motorcycle g N2O/mi	0.0083
Electric Vehicle Fuel Economy (MPGe)	
Diesel Passenger Vehicle Fuel Economy (MPG)	24.37713
Diesel Passenger Vehicle g CH4/mi	0.0005
Diesel PassengerVehicle g N2O/mi	0.001
Diesel Light Truck Fuel Economy (MPG)	17.86788
Diesel Light Truck g CH4/mi	0.001
Diesel Light Truck g N2O/mi	0.0015
Diesel Heavy Truck Fuel Economy (MPG)	6.392468
Diesel Heavy Truck g CH4/mi	0.0051
Diesel Heavy Truck g N2O/mi	0.0048
Diesel Transit Bus Fuel Economy (MPG)	17.86788
Diesel Transit Bus g CH4/mi	0.001
Diesel Transit Bus g N2O/mi	0.0015
Diesel Para Transit Bus Fuel Economy (MPG)	17.86788
Diesel Para Transit Bus g CH4/mi	0.001
Diesel Para Transit Bus g N2O/mi	0.0015
Diesel Motorcycle Fuel Economy (MPG)	24.37713
Diesel Motorcycle g CH4/mi	0.0005
Diesel Motorcycle g N2O/mi	0.001