RESOURCE MANAGEMENT AGENCY
COUNTY OF TULARE
AGENDA ITEM

AGENDA DATE: December 11, 2018 – REVISED

Public Hearing Required	Yes ☐	N/A ☒
Scheduled Public Hearing w/Clerk	Yes ☐	N/A ☒
Published Notice Required	Yes ☐	N/A ☒
Advertised Published Notice	Yes ☐	N/A ☒
County Counsel Sign-Off	Yes ☐	N/A ☒
Meet & Confer Required	Yes ☐	N/A ☒
Electronic file(s) has been sent	Yes ☒	N/A ☐
Budget Transfer (Aud 308) attached	Yes ☐	N/A ☒
Personnel Resolution attached	Yes ☐	N/A ☒
Agreements are attached and signature line for Chairman is marked with tab(s)/flag(s)	Yes ☐	N/A ☐

CONTACT PERSON: Celeste Perez PHONE: 559-624-7000

SUBJECT: Climate Action Plan 2017/2018 Annual Progress Report

REQUEST(S):
That the Board of Supervisors:

1. Approve the Climate Action Plan 2017/2018 Annual Progress Report.

2. Direct the Resource Management Agency Director, or designee, in concert with the County Administrative Officer, to take all necessary and proper action to implement the Climate Action Plan and satisfy the terms of the Stipulated Settlement.

SUMMARY:

On August 28, 2012, the Tulare County Board of Supervisors adopted the General Plan Update 2030. Shortly thereafter, litigation was filed by the Sierra Club against the County challenging the General Plan Update, Climate Action Plan and the related Final Environmental Impact Report.

After extensive negotiations, the lawsuit was settled in March 2015 with the approval of all affected parties. One aspect of the settlement calls for an updated and expanded Greenhouse Gas Emissions Inventory as specified in the Stipulated Settlement, pp. 3-4 and Attachment A thereto, relating to the Scope of Work for the Update.

According to the settlement, Tulare County will retain a qualified, professional consultant to perform a scope of work addressing the following tasks:

(1) Emission Inventory Update.
(2) CAP Monitoring and Tracking Protocol and Tools.
(3) Assistance with Annual Progress Reports.

Applied here, in 2015 Tulare County retained a qualified, professional consultant to perform the affected scope of work, namely David Mitchell an Air Quality Scientist who is the Owner of Mitchell Air Quality Consulting.

With respect to these tasks, the Greenhouse Gas Inventory Update (Task No. 1), was completed and approved by the Board on February 23, 2016. Please note that the Comprehensive Inventory Update identified in Task 1.3 of the settlement is required to be updated every four (4) years following the Regional Transportation Plan (RTP) update by Tulare County Association of Governments. The 4-year update of the RTP was adopted by TCAG on August 20, 2018. The draft "comprehensive" CAP inventory update included in the proposed 2018 CAP Update will update the comprehensive Greenhouse Gas Inventory Update that was completed and approved by the Board on February 23, 2016 pursuant to Task 1 of the GPU settlement and meet in advance the August 20, 2019 GPU settlement deadline to prepare a "comprehensive" CAP inventory update required by the Sierra Club GPU settlement within one year of the date that TCAG adopted its 2018 RTP update. The proposed 2018 CAP Update is on the Board of Supervisors December 11, 2018, agenda for consideration. Tasks No. 2 and No. 3 were completed and approved by your Board on December 6, 2016.

Specifically, the Climate Action Plan 2017/2018 Annual Progress Report is required to address the following two provisions according to the Stipulated Settlement, pp. 3-4 and Attachment A thereto, relating to the Scope of Work for the Update:

CAP Monitoring and Tracking Protocol and Tools.

The Consultant has provided procedures and tools to track progress on CAP implementation. The inventory update described above and the tracking tools will provide the data needed for the County to prepare the CAP Annual Progress Reports and information for the annual General Plan Implementation Report.

The CAP Annual Progress Report uses a number of metrics and sources to show progress to date. Report preparation entailed collection of data from multiple sources within Tulare County and from State agency reports and databases. The sources may, however, present the data for different timeframes and at different levels of detail making precise comparisons difficult for some metrics. The report strives to present the data that most clearly illustrates the extent of progress achieved. The metrics addressed in the Progress Report are listed below:

- Overall growth in population and housing compared to amount projected in CAP;
- The number of residential units constructed by type (that is, single-family, multi-family, mobile home, etc.);
- The average development density of the residential projects for comparison to Tulare County Blueprint targets;
- The percentage of residential construction in Community Plan areas and in rural residential areas (also compares development in cities with unincorporated Tulare County);
- The average percentage Title 24 energy efficiency standards were exceeded

in residential subdivisions compared to efficiencies used for CAP projections;

- Assessment of vehicle miles traveled (VMT) from new development in the previous year in comparison to forecasted amounts;
- Overall progress from water conservation measures;
- Overall progress in achieving solid waste reduction goals;
- Energy retrofit projects completed (kW of solar installed, efficiency retrofits completed, etc.);
- County of Tulare transportation, energy and water conservation programs implemented and effectiveness of the programs; and
- Status of State regulations adopted to reduce greenhouse gas emissions including newly adopted or amended regulations and the State's estimate of the effectiveness of the regulations.
- Adoption of County land use plans for rural communities and hamlets.

The Progress Report also provides information on current grants and incentive programs that are available to residents and businesses of Tulare County to reduce greenhouse gases.

The Climate Action Plan 2017/2018 Annual Progress Report is the third in a series of progress reports that describes the progress since the County adopted the CAP in 2012. Progress in achieving CAP goals is based on growth and control. The growth that occurs in the County results in increases in emissions. The controls and programs in place reduce emissions from new and existing sources of greenhouse gas emissions. The CAP uses growth projections to predict the emissions that would occur in the 2020 and 2030 milestone years without controls in place to reduce the emissions. This is known as a business as usual (BAU) scenario. The reductions needed to achieve consistency with state targets are calculated as a percentage reduction from BAU.

Measuring progress in reducing emissions in Tulare County requires examination of growth in emissions sources and measures in place to reduce emissions from both existing and new sources. The primary measures of growth are changes in population and housing, which in turn result in increases in energy use for housing, transportation, and utilities. The CAP Annual Report refers to greenhouse gas emissions increases caused by these increases in energy use as "development related" emissions because they are generated by people occupying new and existing development projects. The increases in development-related emissions are offset by measures adopted to reduce greenhouse gas emissions from existing and new sources.

Conclusion

The following are highlights presented in the CAP 2017/2018 Annual Report:

- Growth continues to be lower than projected in unincorporated Tulare County (occupied housing units declined in 2017/2018) resulting in lower emissions than were projected in the CAP, and the County remains on track to achieve its 2020 target.

- Alternative energy project completions have been strong during the previous fiscal year with 498 residential solar projects, 34 ag/dairy solar projects (for information purposes only), and 13 other commercial solar projects with 29.1 megawatts of generating capacity.
- In 2017/2018 the County adopted 8 community plan updates, 11 hamlet plans, and 5 legacy plans.
- The statewide and Tulare County economy has continued to recover. Unemployment in Tulare County has dropped to 8.4 percent as of May 2018 after being over 19 percent at the height of the recession in 2010.
- The State has successfully implemented the regulations needed to achieve the Assembly Bill (AB) 32 2020 target accounting for statewide emissions.
- SB 32 was signed by Governor Brown on September 8, 2016. The 2017 Scoping Plan to reach 2030 targets was adopted in December 2017.
- The Draft Update to the Tulare County CAP to determine an appropriate and feasible 2030 target consistent with SB 32 has been completed.

According to the settlement as specified in section IV, the CAP Annual Report is required to report on the following two requirements:

(1) Beginning in 2016, the County will annually review ("Annual Review") the Emissions Inventory including per capita Vehicle Miles Traveled ("VMT"), in a manner in substantial conformance with Task 3 of the scope of work set forth in Attachment A.

(2) If the Annual Review concludes there is an increase in GHG emissions or VMT for two (2) consecutive years, the County Board will hold a noticed public hearing to consider staff recommendations to reduce GHG/VMT's. The County Board will make findings as to staff recommendations. The County Board reserves the right to accept or reject staff recommendations.

The Climate Action Plan 2017/2018 Annual Progress Report provides findings and concludes in accordance with the two requirements mentioned above, that there has not been an increase in GHG emissions or VMT for two (2) consecutive years.

The Progress Report assesses the VMT in the unincorporated areas of the County with the amounts used in preparing the CAP. Overall estimates of VMT for the entire County are prepared by the Tulare County Association of Governments (TCAG) to support the Regional Transportation Plan (RTP) and Federal Transportation Conformity Requirements. The latest VMT update is from data supporting the TCAG 2018 RTP/SCS (TCAG 2018). The portion of VMT that is assigned to the unincorporated areas of Tulare County are estimated based on the percentage of County population in the unincorporated areas. The percentage of population in the unincorporated areas of the County has declined from 31.9 percent in 2014, to 31.0 percent in 2017. This change is due to more growth occurring in the incorporated cities than the unincorporated County areas. The VMT assigned to unincorporated Tulare County has declined from 2,518,809 VMT in 2015 to 2,468,559 in 2017 for a 0.5 percent reduction. VMT is projected to be

nearly flat to 2020 with growth continuing at a rate of 0.57 percent per year to 2030 reflecting a return to higher population growth rates in the future.

The TCAG 2018 RTP/SCS used updated models, traffic data, and demographic data to estimate VMT. This has resulted in more accurate VMT estimates that are substantially lower VMT than was used to develop the 2012 CAP emission inventory. The estimated VMT for 2015 in the 2012 CAP was 4.38 million VMT per day. The VMT from the TCAG 2018 RTP/SCS for unincorporated Tulare County is 2.47 million, a difference of 43.6 percent below CAP projections. In addition to the TCAG modeling changes, growth is well below projections as illustrated by comparing the percentage VMT growth projected in the CAP to actual population growth that has occurred between 2015 and 2018 in unincorporated Tulare County. The 2012 CAP predicted growth averages 3.1 percent per year which would result in a 12.4 percent increase in four years. The growth in unincorporated Tulare County between 2015 and 2018 based on changes in population reported by the DOF is negative 1.72 percent meaning growth in VMT was negative over the last four years.

Accordingly, it is respectfully requested that the Board of Supervisors approve the proposed Climate Action Plan 2017/2018 Annual Progress Report as part of the implementation of the Settlement Agreement.

FISCAL IMPACT/FINANCING:

There will be No Net County Cost to the General Fund as the Climate Action Plan 2017/2018 Annual Progress Report is funded in the FY 2017/18 adopted budget.

LINKAGE TO THE COUNTY OF TULARE STRATEGIC BUSINESS PLAN:

The County's five-year strategic plan includes the (i) "Economic Well Being Initiative - to promote economic development opportunities, effective growth management and a quality standard of living"; and (ii) "Quality of Life Initiative – to promote public health and welfare, educational opportunities, natural resource management and continued improvement of environmental quality."

ADMINISTRATIVE SIGN-OFF:

Aaron R. Bock, MCRP, JD, LEED AP
Interim Assistant Director, Economic Development and Planning Branch

Michael Washam
Associate Director

Reed Schenke P.E.
Director

cc: County Administrative Office

Attachment A – Climate Action Plan 2017/2018 Annual Progress Report

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA

IN THE MATTER OF THE 2017/2018 CLIMATE ACTION PLAN ANNUAL PROGRESS REPORT) **Resolution No.** _____

UPON MOTION OF SUPERVISOR _____, SECONDED BY SUPERVISOR _____, THE FOLLOWING WAS ADOPTED BY THE BOARD OF SUPERVISORS, AT AN OFFICIAL MEETING HELD DECEMBER 11, 2018, BY THE FOLLOWING VOTE:

AYES:
NOES:
ABSTAIN:
ABSENT:

ATTEST: JASON T. BRITT
COUNTY ADMINISTRATIVE OFFICER/
CLERK, BOARD OF SUPERVISORS

BY: _____
Deputy Clerk

* * * * * * * * * * * * * * * * * * *

The Board of Supervisors:

1. Approved the Climate Action Plan 2017/2018 Annual Progress Report.
2. Directed the Resource Management Agency Director, or designee, in concert with the County Administrative Officer, to take all necessary and proper action to implement the Climate Action Plan and satisfy the terms of the Stipulated Settlement.

Attachment A

Climate Action Plan 2017/2018 Annual Progress Report

Mitchell Air Quality Consulting

2017/2018
Climate Action Plan Progress Report
Tulare County, California

Prepared for:
Tulare County Resource Management Agency
5961 South Mooney Boulevard
Visalia, CA 93277

Contact: Dave Bryant, Special Projects Manager

Prepared by:
Mitchell Air Quality Consulting
1164 E. Decatur Avenue
Fresno, CA 93720
559.246.3732

Contact: Dave Mitchell, Senior Air Quality Scientist

December 6, 2018

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ARB	California Air Resources Board
BAU	Business as Usual
CalEEMod	California Emissions Estimator Model
CAP	Climate Action Plan
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CO_2	carbon dioxide
CVRP	Clean Vehicle Rebate Project
DOF	California Department of Finance
EMFAC	EMission FACtors Model
FY	Fiscal Year(s)
GHG	greenhouse gases
HFC	hydrofluorocarbon
HVIP	California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project
$MTCO_2e$	metric tons of carbon dioxide equivalent
MW	megawatts
RMA	Tulare County Resource Management Agency
SB	Senate Bill
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	Short-Lived Climate Pollutant
TCAG	Tulare County Association of Governments
TCAT	Tulare County Area Transit
TSM	Tentative Subdivision Map
VMT	vehicle miles traveled

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SECTION 1: ANNUAL PROGRESS REPORT

1.1: Background

The purpose of this report is to provide an annual report on the progress achieved in implementing the Tulare County Climate Action Plan (CAP) as adopted in August 2012 (Tulare County 2012).[1] The following is the Third Annual Progress Report (Progress Report or Report), which describes the progress achieved during Fiscal Year (FY) 2017/2018.

Photo Source: Tulare County Economic Development, 2016

This Progress Report uses a number of metrics and sources to demonstrate progress to date. Report preparation entailed collection of data from multiple sources within Tulare County, and from state agency reports and databases. The data generally reflects only those unincorporated areas within the County's jurisdictional areas; incorporated cities are not accounted for in the County's CAP. A constraint in making precise comparisons for some metrics is that some sources cited present the data for different timeframes and at different levels of detail. The Report strives to present the data that most clearly demonstrates and illustrates the extent of progress achieved. The metrics addressed in the Progress Report are listed as follows:

- Overall growth in population and housing compared with amounts projected in the CAP;
- The number of residential units constructed by type (that is, single-family, multi-family, mobile home, etc.);
- The average development density of the residential projects compared with Tulare County Blueprint targets;
- The percentage of residential construction in Community Plan areas and in rural residential areas (also compares development in cities with unincorporated Tulare County);
- The average percentage Title 24[2] energy efficiency standards were exceeded in residential subdivisions compared with efficiencies used for CAP projections;
- Amount of non-residential construction by type (that is, commercial and retail projects, industrial and agricultural processing);
- Sustainability features incorporated into non-residential projects beyond regulation;
- The energy efficiency of new residential and non-residential projects;

[1] Dairy and feedlot emissions are not addressed in the General Plan CAP or this progress report. They are being addressed separately in the Draft Dairy and Feedlot Climate Action Plan (Dairy CAP) currently under preparation (Tulare County 2016).

[2] "Title 24" refers to the California Building Standards Code (Title 24, California Code of Regulations). It was last updated July 1, 2016, (2016 Triennial Edition) and is effective January 1, 2017.

- Assessment of vehicle miles traveled (VMT) from new development in the previous year in comparison to forecasted amounts;
- Overall progress from water conservation measures;
- Overall progress in achieving solid waste reduction goals;
- Energy retrofit projects completed (kilowatts of solar installed, efficiency retrofits completed, etc.);
- County of Tulare transportation, energy and water conservation programs implemented and effectiveness of the programs;
- Status of state regulations adopted to reduce greenhouse gas emissions, including newly adopted or amended regulations and the State's estimate of the effectiveness of the regulations; and
- Adoption of County land use plans for rural communities and hamlets.

The Progress Report also provides information on current grants and incentive programs that are available to residents and businesses of Tulare County to reduce greenhouse gases.

1.2: Highlights

- Growth continues to be lower than projected in unincorporated Tulare County (occupied housing units declined in 2017/2018), resulting in lower emissions than were projected in the CAP, and the County remains on track to achieve its 2020 target.
- Alternative energy project completions have been strong during the previous fiscal year with 498 residential solar projects, 34 agricultural/dairy solar projects, and 13 other commercial solar projects with 29.1 megawatts of generating capacity. (agriculture/dairy project statistics provided for information only)
- In 2017/2018, the County adopted eight community plan updates, eleven hamlet plans, and five legacy plans.
- The statewide and Tulare County economy has continued to recover. Unemployment in Tulare County has dropped to 8.4 percent as of May 2018 after peaking at over 19 percent at the height of the recession in 2010.
- The State has successfully implemented the regulations needed to achieve the Assembly Bill (AB) 32 2020 target accounting for statewide emissions.
- Senate Bill (SB) 32 was signed by Governor Brown on September 8, 2016. The 2017 Scoping Plan to reach 2030 targets was adopted in December 2017.
- The Draft Update to the Tulare County CAP including an updated emission inventory has been completed for use in determining an appropriate and feasible 2030 target consistent with SB 32.

1.3: Measuring Progress

Progress in achieving CAP goals is based on growth and control. The growth that occurs in the County results in increases in emissions. The controls and programs in place reduce emissions from new and existing sources of greenhouse gas (GHG) emissions. The CAP uses growth projections to estimate the emissions that would occur in the 2020 and 2030 milestone years without controls in place to reduce the emissions. This is known as a "business as usual" (BAU) scenario. The reductions needed to achieve consistency with state targets are calculated as a percentage reduction from BAU.

All projections require course corrections to adjust to changing conditions and new information. For example, growth can be slower or faster than projected. Controls can be more or less effective than estimated. Growth continues to be slower than projected when the CAP was adopted; as such, there are fewer emissions from growth to offset. Conversely, controls and programs to reduce GHG emissions at the state level have proceeded in accordance with the 2008 Scoping Plan adopted by the California Air Resources Board (ARB) to implement AB 32—The Global Warming Solutions Act of 2006. These conditions benefit the County as they result in the County being ahead of where it needs to be to meet the CAP 2020 target and in position to make continued progress toward the SB 32 2030 target.

1.3.1 - Estimating Emission Reductions

GHG emission reductions are achieved by a number of ways such as reducing energy consumption, by reducing VMT and by using cleaner (lower carbon) energy sources. Energy efficiency improvements are achieved by using less energy to accomplish the same work, whether traveling in a vehicle or heating and cooling a building.

The emission reductions for motor vehicle fuel efficiency are based on state and federal fuel efficiency standards that apply to the manufacture and sale of vehicles. The manufacturers are required (by state and federal law) to meet gradually increasing levels of fuel efficiency each year. As new more fuel-efficient vehicles are purchased and older, less fuel-efficient vehicles are retired, the average fuel efficiency for the vehicle fleet is improved.

On the energy production side, carbon intensity is reduced by increasing the percentage of renewable sources of energy (such as wind, solar, geothermal, and hydroelectric sources) compared with energy generated using fossil fuels (such as natural gas and coal).

Measuring progress in reducing GHG emissions in Tulare County requires examination of growth in emissions sources and measures in place to reduce GHG emissions from existing and new sources. The primary measures of growth are changes in population and housing, which in turn result in increases in energy use for housing, transportation, and utilities. This Report refers to GHG emissions increases caused by these increases in energy use as "development-related" emissions because they are generated by people occupying new and existing development projects. The increases in development-related emissions are offset by measures adopted to reduce GHG emissions from existing and new sources.

1.3.2 - Emission Inventories/Progress Summary

Inventories are accounting systems that allow for the identification of significant sources of GHG emissions and consequently opportunities for reducing GHG emissions. The community inventory is being updated for the CAP update. The updated inventory shows that the County's 2020 target is within reach. The updated inventory also reflects statewide 2030 targets mandated by SB 32 and regulations. The Progress Report includes draft data where available.

1.3.3 - Growth in Population and Housing

This Progress Report includes population and housing estimates and forecasts that are used to predict growth in GHG emissions. For many source categories, GHG emissions are closely correlated with population. For example, on a community average, home energy use is directly related to the number of people in the community.

Population

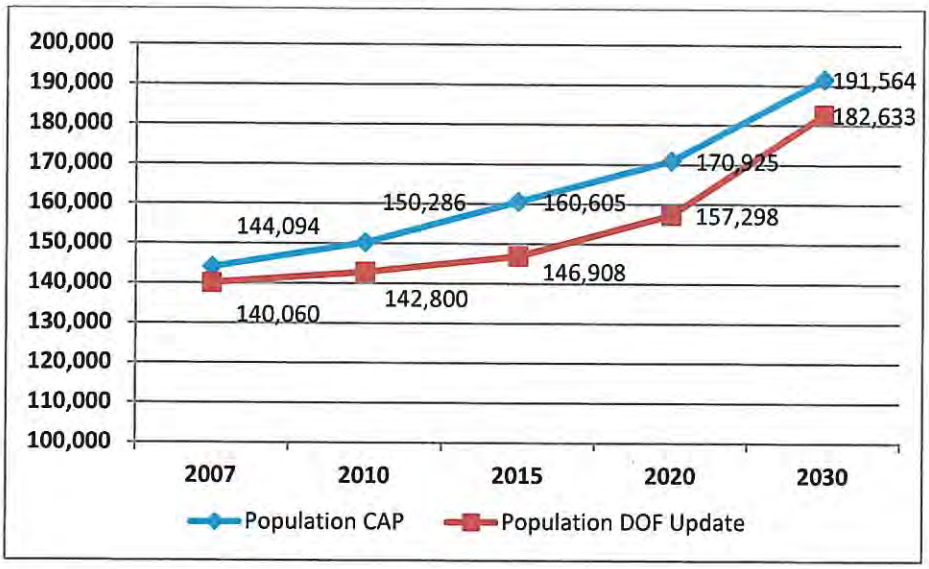
Population growth in unincorporated areas from 2010 to 2030 used in forecasting emissions in the CAP is compared with current State of California Department of Finance (DOF) estimates and projections in Table 1. The growth in population as of 2018 was 13.4 percent less than the amount projected in the CAP. The population growth projected for 2020 is 11.5 percent lower than projected in the CAP. The population in unincorporated areas of the County grew at an average rate of 0.64 percent per year between 2010 and 2015. The population in the unincorporated area has declined by 2,533 persons or 1.7 percent from 2015 to 2018, for an annual average decrease of 0.6 percent. The CAP originally required a 26.2 percent reduction accounting for growth its 2020 target. Based on current growth estimates, the County would need a reduction of 14.7 percent to reach the 2020 target. In the 2017 Scoping Plan Update, the ARB also includes lower growth forecasts and indicates that the entire State is on track to reach the AB 32 2020 target (ARB 2017).

**Table 1: Tulare County Unincorporated Population, 2010 to 2030—
Differences in Projections from CAP Inventory and Current DOF Estimates**

Source	Population				
	2010	2015	2018	2020 (Est.)	2030 (Est.)
Tulare County CAP Population Data and Projections	150,286	160,605	166,797	170,925	191,564
Updated DOF Population and Projections	142,800	146,908	144,375	151,197	167,580
Difference	7,486	13,697	22,422	19,728	23,984
Percent Difference	-4.98%	-8.53%	-13.44%	-11.54%	-12.52%
Source of Estimate: Tulare CAP and DOF Report E-5 (2017) and P-1, 2015.					

As shown in Figure 1 (which compares the CAP and DOF projections under the DOF projections), growth would return to historic rates after 2020. However, even accounting for this trend, the total population would remain below projections used in the CAP.

Figure 1: Comparison of Population Projections 2007 to 2030



The growth in Tulare County between 2014 and 2018 has taken place primarily in the incorporated cities. The population of the cities grew by 18,989 during this period while the population in the unincorporated County declined by 1,995 persons. The population growth rate in incorporated areas averaged 1.5 percent per year while the rate in the unincorporated County has declined by an average of 0.1 percent per year since 2014.

Housing

Some emission forecasts are directly related to housing growth. Housing growth forecasts are also used to allocate emissions among the unincorporated County and the cities in Tulare County when only countywide data is available. Table 2 provides the DOF housing estimates for 2010, 2015, 2017, and 2018, and forecasts for 2020 and 2030 for the unincorporated areas of Tulare County. The DOF used the Housing Unit Method to estimate total and occupied housing units, household size, household population, and group quarters population. Housing units are estimated by adding new construction (and annexations) and subtracting demolitions, then adjusting for units lost or gained by conversions. For unincorporated Tulare County, the DOF receives annual housing unit change data from Tulare County Resource Management Agency (RMA) for unincorporated areas (and from cities in Tulare County for applicable incorporated areas), and it also uses the most recent U.S. Census Bureau data.

Occupied housing units are estimated by applying a derived civilian vacancy rate to the estimated civilian housing units. Occupied units were used as a metric to estimate GHG emissions because little or no emissions-generating activity would occur at vacant residences.

The growth in occupied housing units from the 2010 base year to 2015 was 310 units for an increase of 0.79 percent over 5 years or 0.15 percent per year. This indicates that housing growth also remains below CAP projections, which assumed an average annual increase in 1,009 housing units. Over the period from 2010 to 2015, the number of housing units was projected by the CAP to increase by 5,045 compared with the actual increase of 310 occupied units. Since 2015, the number of housing units has declined by 758 units making the difference between CAP projections and actual occupied housing even greater with a net decline of 448 units since 2010.

Table 2: Tulare County Unincorporated Residential Housing Units 2010 to 2030

Source	Occupied Residential Housing Units					
	2010	2015	2017	2018	2020 (Est.)	2030 (Est.)
California DOF Housing Estimates	39,109	39,419	39,002	38,661	42,754	49,328

Note:
Data are for January 1 of each year. Projections of data for years 2020 and 2030 are based on population growth and average occupancy per dwelling unit in Tulare County from DOF Report P-1.
Source of Estimate: California Department of Finance Report E-5 Population and Housing Estimates for 2010, 2015, 2017, 2018.

Table 3 provides the housing growth from 2010 to 2018. This information provides a more detailed picture of housing trends in the unincorporated areas of Tulare County. The number of occupied housing units has declined by 341 units in the last year and by 448 units since 2010.

Table 3: Tulare County Housing—2010 to 2018

Year	Total Housing Units	Occupied Housing Units
2010	44,456	39,109
2011	44,497	39,128
2012	44,616	39,148
2013	44,720	39,108
2014	44,884	39,295
2015	45,049	39,419
2016	44,437	38,883
2017	44,573	39,002
2018	44,432	38,661

Source of Estimate: DOF Report E-5, 2018. Data is for January 1 of each year.

The CAP land use strategy assumes that new urban development in Tulare County will occur primarily to cities and rural communities (as stated in General Plan Policy PF-1.2 Location of Urban Development). Review of housing data compiled by the DOF confirms that this has indeed occurred. Table 4 shows the number of occupied housing units in cities and unincorporated Tulare County from 2014 to 2018 and year-to-year increases over the period. Occupied housing units increased by 5,558 units in Tulare County cities, but declined by 634 units in the unincorporated areas of Tulare County,

resulting in a negative growth of 1.61 percent in the unincorporated areas and an increase of 5.97 percent in the cities over this 4-year period.

Table 4: City and County Occupied Housing 2014–2018

Year	Occupied Housing Units					
	Cities	Unincorporated	Total	Total Increase from Previous Year	Increase from Previous Year: Cities	Increase from Previous Year: Unincorporated
2014	93,565	39,224	132,860	—	—	—
2015	94,349	39,341	133,768	908	784	124
2016	95,907	38,792	134,790	1,022	1,558	-536
2017	96,845	39,002	135,847	1,057	938	119
2018	99,153	38,661	137,814	1,967	2,308	-341
Inc. 2014–2018	**5,588**	**-634**	**4,954**	—	—	—
Percent Increase 2014–2018	**5.97%**	**-1.61%**	**3.7%**	—	—	—

Note:
Data as of January 1 of each year
Source: DOF Report E-5, 2018, Internet Version

Although net occupied units in unincorporated Tulare County have declined in the past 4 years, some new housing has been constructed in the unincorporated County. Table 5 lists the number of single-family, multi-family, and mobile homes with finalized building permits for FY 2015/2016 through 2017/2018. As shown in Table 5, the number of building permits issued for residential housing units in the most recent year (2017/2018) was 214 units. The net decline in occupied units may be due to demolitions, increased vacancy rates, increased persons per unit, and annexations to incorporated cities. The new units are required to meet the current 2016 Title 24 Building Energy Efficiency Standards and the CalGreen Code requirements and will use substantially less energy than the older existing homes. Three years of data were provided to represent the most current development trends.

Table 5: Tulare County Residential Housing Permits FY 2015/2016 to 2017/2018

Category	Time Period		
	FY 2015/2016	FY 2016/2017	FY 2017/2018
Single-Family	121	208	163
Multi-Family (duplexes)	7	35	5
Mobile Homes	46	52	46
Total Units	**174**	**295**	**214**

Table 5 (cont.): Tulare County Residential Housing Permits FY 2015/2016 to 2017/2018

Category	Time Period		
	FY 2015/2016	FY 2016/2017	FY 2017/2018

Note:
Mobile homes are sometimes referred to as manufactured homes. The homes reported in this table would meet the definition of mobile homes in the Tulare County Zoning Ordinance.
Source: Tulare County RMA Building Permit Database queried November 2017 and 2018.

1.3.4 - Average Development Density of New Development

One indicator of future growth is the approval of new subdivisions within unincorporated areas of the County. The County has approved four subdivisions during the last fiscal year (2017/2018). Although the projects were approved, they do not add to emissions until the projects are constructed and occupied. As shown in Table 6, the subdivisions include 251 new lots. The density of the subdivision in Orosi was 6.5 units per acre, which is greater than the 5.3-unit-per-acre goal in the CAP, based on the Tulare County Association of Governments (TCAG) Blueprint; and the Kingsburg subdivision has a density of 4.16 units per acre, which is less than the 5.3-unit-per-acre goal. The Kingsburg project is part of the Hash Farms Specific Plan that is within Tulare County and the City of Kingsburg and is consistent with City development plans for that area. The subdivisions in the rural area of the County had an average density of 0.08 unit per acre but created only 14 lots. The projects in rural communities and adjacent to cities provide 94 percent of the total lots added. In addition, most development of all types and high-density residential have been occurring within the cities of Tulare County that are expected to be denser and more numerous than development in rural areas of Tulare County and will allow the County including the cities to meet or exceed the 5.3-unit-per-acre goal.

Table 6: Tulare County Approved Tentative Subdivision Maps FY 2017/2018

Map No.	Location	Acres	Lots	Density (Units per Acre)
TSM 16-002	Kingsburg	48	200*	4.16
TSM 17-003	Cutler Orosi	7.04	37	6.5
Community Plan Area Totals	—	**55.04**	**237**	**4.31**
TSM 17-001	Tulare (Rural)	11.52	6	0.52
TSM 17-004	Delano (Rural)	159.85	8	0.05
Rural Area Totals	—	**171**	**14**	**0.08**
Total	—	**226**	**251**	—

Note:
* TSM 16-002 has 172 lots in Tulare and the City of Kingsburg has 20 lots, with a total of 200 units allowed.
Source of estimate: Tulare County RMA Planning.

1.3.5 - Commercial and Industrial Development

There was limited commercial development activity during FY 2017/2018. Review of building permit completions identified a total of 45,510 square feet of retail, commercial, and office space during the fiscal year ending June 30, 2018. This compares with 45,418 square feet of retail and office projects in FY 2016/2017.

Data for new commercial projects is shown in Table 7. Providing local retail and commercial services in Tulare County rural communities will generally reduce VMT by replacing trips to the more distant cities with closer local trips. The projects include three Dollar Stores, four medical/dental office buildings, and veterinarian facility, a commercial addition, and a small office project.

Table 7: Tulare County Commercial and Industrial Projects FY 2017/2018

Project	Location	Square Feet
Commercial/Office		
Family Dollar Store	Pixley	8,320
Dollar General Store	Porterville	9,070
Dollar General Store	Goshen	7,500
Large Animal Vet Lab Facility	Tulare	6,160
Dental Clinic Addition	Woodville	369
Medical Clinic – Modular Building	Exeter	5,760
Medical Clinic- Modular Building	Exeter	5,760
Commercial Building Addition – Dental	Exeter	121
Commercial Building Addition	Farmersville	530
Office Building – Pallet Repair and Sales	Pixley	1,920
Total for Unincorporated County		**45,510**
Source: Tulare County RMA Building Permit Database queried November 2017.		

1.3.6 - Percentage of Residential Construction in Community Plan Areas and in Rural Residential Areas

Where growth occurs is also an important factor in Tulare County's GHG reduction strategy. As described in the CAP, the Tulare County General Plan Update provides goals and policies for accommodating growth in the County. The goals and policies are expected to result in land use patterns that reduce GHG emissions by encouraging new growth to occur in existing communities (including cities) and to be constructed at higher than historic development densities to reduce VMT. Review of housing permit data for FY 2017/2018 from the RMA permit database indicates a total of 214 units were built. Of these units, 106 were built in rural communities and 108 were built in rural areas of the County. 49.5 percent of housing units were permitted in rural communities and 50.5 percent were permitted in rural areas. The address for each permit was reviewed to determine its location in a rural community or in a rural area.

1.3.7 - Assessment of Vehicle Miles Traveled

The Progress Report assesses the VMT in the unincorporated areas of the County with the amounts used in preparing the CAP. Overall estimates of VMT for the entire County are prepared by the TCAG to support the Regional Transportation Plan (RTP) and Federal Transportation Conformity Requirements. The latest VMT update is from data supporting the TCAG 2018 RTP/SCS (TCAG 2018). The estimate of the portion of VMT that is assigned to the unincorporated areas of Tulare County is based on the percentage of County population in the unincorporated areas. The percentage of population in the unincorporated areas of the County has declined from 31.9 percent in 2014, to 31.0 percent in 2017. This change is due to more growth occurring in the incorporated cities than the unincorporated County areas. The VMT assigned to unincorporated Tulare County has declined from 2,518,809 VMT in 2015 to 2,468,559 in 2017 for a 0.5 percent reduction. VMT is projected to be nearly flat to 2020 with growth continuing at a rate of 0.57 percent per year to 2030 reflecting a return to higher population growth rates in the future.

The TCAG 2018 RTP/SCS used updated models, traffic data, and demographic data to estimate VMT. This has resulted in more accurate VMT estimates that are substantially lower VMT than was used to develop the 2012 CAP emission inventory. The estimated VMT for 2015 in the 2012 CAP was 4.38 million VMT per day. The VMT from the TCAG 2018 RTP/SCS for unincorporated Tulare County is 2.47 million, a difference of 43.6 percent below CAP projections. In addition to the TCAG modeling changes, growth is well below projections as illustrated by comparing the percentage VMT growth projected in the CAP to actual population growth that has occurred between 2015 and 2018 in unincorporated Tulare County. The 2012 CAP predicted growth averages 3.1 percent per year, which would result in a 12.4 percent increase in 4 years. The growth in unincorporated Tulare County between 2015 and 2018 based on changes in population reported by the DOF is negative 1.72 percent meaning growth in VMT was negative over the last 4 years. The results of the comparison are provided in Table 8.

Table 8: CAP VMT Comparison for 2015 to 2018

Category	Rate of Vehicle Miles Traveled Increase (Percentage)				
	2015	2016	2017	2018	2015–2018
VMT Growth Rate 2012 CAP Inventory	3.1	3.1	3.1	3.1	12.4
VMT Growth Rate 2016 Inventory Update	1.3	1.3	1.3	1.3	5.2
VMT Growth Rate for Progress Report Based on Actual Population	0.4	-1.1	0.7	-1.3	-1.7
VMT Annual Growth Rate Differential (% Under CAP Rates)	**-2.7%**	**-4.2%**	**-2.4%**	**-4.4%**	**-14.1%**
Source: ARB 2017 and Tulare County 2012 and Tulare County 2016.					

Although population in the unincorporated areas of Tulare County has declined, new homes continue to be constructed, but at a slower pace than projected in the CAP. VMT from new residential development for the last two fiscal years was estimated using the CalEEMod emissions

model. The results were then compared with the increase in VMT anticipated by housing buildout rate used for the CAP projections. Review of the RMA permit database identified a total of 295 residential units with final permits in FY 2016/2017 and 214 residential units in FY 2017/2018 (see Table 5). The VMT for the new units was estimated using the CalEEMod emission modeling. The CAP growth projections assumed that 23,208 residential units would be constructed between 2007 and 2030 for an average of 1,009 residential units each year. The data shows that the amount of residential development activity is much lower than predicted in the CAP. The VMT from new residential development is 27.8 percent of CAP forecast for FY 2016/2017 and 20.3 percent of CAP forecast in 2017/2018. However, since the net number of occupied housing units in unincorporated Tulare has declined, the true impact is less. The results of the analysis are presented in Table 9.

Table 9: Annual Vehicle Miles Traveled from New Residential Development FY 2016/2017–2017/2018

Category	Annual Vehicle Miles Traveled	
	FY 2016/2017	FY 2017/2018
VMT from New Residential Units	6,908,097	5,055,701
VMT Residential Units Forecast in CAP (1,009/year)	24,866,337	24,866,337
Percentage of Forecasted VMT	**27.8%**	**20.3%**

Note:
Source: Tulare County RMA Building Permit Database queried November 2017 and Tulare County CAP, 2012.
VMT estimates generated using CalEEMod 2016.

The annual VMT generated from commercial and industrial development projects during the last two fiscal years is presented in Table 10. The type and amount of retail, commercial and industrial development used for this analysis is found in Table 7. The VMT was estimated by modeling each land use type with the CalEEMod model. The CAP does not include estimates of the amount of commercial development that would occur each year, so a direct comparison with the CAP is not possible. However, the data from the last two years reflects recent trends. Most of the VMT increase is from new retail and medical office in Tulare County rural communities. This development provides local services to underserved communities and would be expected to reduce travel to more distant businesses in neighboring cities to obtain goods and services. No industrial projects were identified in the permit database as final in FY 2017/2018.

Table 10: Annual Vehicle Miles Traveled from New Commercial and Industrial Development FY 2016/2017 and FY 2017/2018

Category	Annual Vehicle Miles Traveled FY 2016/2017	Annual Vehicle Miles Traveled FY 2017/2018
VMT from New Industrial, Commercial and Retail Development	2,726,737	2,598,298

Note:
VMT estimates generated using CalEEMod.
Source: Tulare County RMA Building Permit Database for Building Data.

1.3.8 - Percentage Title 24 Exceeded

The Progress Report assesses the extent to which recent projects exceeded the Title 24 Energy Efficiency Standards in effect at the time the CAP was prepared. The 2008 Title 24 Standards were in place in 2012 when the CAP was adopted. The CAP states that development subject to CEQA review would need to achieve a 1.1 percent overall reduction beyond regulation and an average project reduction of 6 percent from all development-related emission sources to meet the CAP target. No specific reduction amount was required for exceeding Title 24, but this measure was expected to be tracked to ensure adequate progress is achieved to meet the 2020 target. However, since the CAP was adopted, two new versions of Title 24 have been adopted that achieve energy savings well in excess of 2008 Title 24 that was the basis of the emission reduction requirement in the CAP and substantially less development has occurred than was anticipated in the CAP.

The 2013 Title 24 Standards became effective July 1, 2014. The California Energy Commission (CEC) estimated that the 2013 standards would increase building energy efficiency by 25 percent in residential buildings and 30 percent in non-residential buildings compared to the 2008 standards (CEC 2014). Therefore, projects permitted in Tulare County after July 1, 2014 would exceed Title 24 Energy Efficiency Standards used in the CAP emission inventory estimates by a minimum of these amounts. As such, residential projects constructed between July 1, 2014 and December 31, 2016 exceed 2008 Title 24 by at least 25 percent and non-residential projects exceed 2008 Title 24 by at least 30 percent. Title 24 is updated approximately every 3 years. The 2016 Title 24 standards went into effect on January 1, 2017. The new 2016 Title 24 standards are expected to increase energy efficiency in new residential development by 28 percent compared to the 2013 Title 24 standards. New commercial buildings are required to increase energy efficiency by 5 percent compared to 2013 Standards (CEC 2016). Therefore, residential structures constructed after January 1, 2017 would exceed the 2008 energy efficiency standard by a combined 46 percent; and commercial development constructed after January 1, 2017 would exceed the 2008 standard by 33.5 percent.

Title 24 compliance is demonstrated through Title 24 reports submitted to the local building department. Some Title 24 reports provide a percentage above (beyond) regulation requirements, but not all. Buildings can comply with a prescriptive approach that includes specific requirements for each building component, or a whole building approach, which is based on achieving an overall energy efficiency that can be expressed as a percentage above standard. The County currently has not prepared a compilation of Title 24 reports that can be used to determine if (or in what amount) development in the unincorporated areas of the County exceeds the standards. Therefore, GHG emission reductions from building energy efficiency are based on the CEC estimates of energy savings.

The ability of developers to exceed the standard becomes increasingly difficult with each new version of Title 24. According to the California Energy Efficiency Plan, New Residential Zero Net Energy Action Plan 2015 to 2020, the State's goal is to achieve net zero energy consumption for new residential development by 2020, after which it will not be possible for projects to exceed the standard. The State Energy Plan goal for commercial buildings is to follow a path to net zero energy by 2030 for all new buildings and a substantial proportion of existing buildings (CPUC 2011).

In FY 2017/2018, manufactured homes comprised about 21 percent of residential homes permitted in Tulare County, making them an important component of the housing stock. However, energy efficiency for manufactured housing is not regulated under Title 24 and, as such, is not enforced by the County. Manufactured homes are required to meet federal standards enforced by the Department of Housing and Urban Development. Mobile homes are part of the ENERGY STAR program. To earn an ENERGY STAR label and to qualify for a tax credit under the Energy Policy Act of 2005, a manufactured home must meet strict guidelines for energy efficiency set by the United States Environmental Protection Agency and be 15 percent more energy-efficient than homes built to the minimum energy code. They include additional energy-saving features and appliances that usually make them 20 to 30 percent more efficient than most homes built today, whether factory built or site built (EESI 2009).

1.3.9 - Sustainability Features Incorporated into Non-Residential Projects beyond Regulation

Projects completed in FY 2017/2018 include four retail projects and five office projects (and no agricultural industrial projects). Two Dollar General Stores and one Family Dollar Store were constructed in the rural communities of Pixley, and Goshen and in an unincorporated area of Porterville, but no sustainability features beyond compliance with regulations were identified for in the projects. However, all projects are required to comply with the increasingly stringent Title 24 energy efficiency standards and the CalGreen building code. Solar retrofit projects are described separately.

1.3.10 - Overall Progress in Achieving Solid Waste Reduction Goals

The State's goal is to achieve 75 percent recycling, composting, or source reduction of solid waste by 2020 to decrease reliance on landfills. The Tulare County Solid Waste Management Department reported the diversion rate in the unincorporated County was 63.7 percent in 2015. With the implementation of AB 341 through Licensed Hauler's Franchise Agreements, the County anticipates achieving the 75 percent mandate (Tulare County 2015). CalRecycle reports that unincorporated Tulare County achieved an annual disposal rate of 5.8 pounds per person per day in 2017 compared with the target rate of 6.2 pounds per person per day. The rate per employee was 18.7 pound per day compared to the target rate of 21.3 pounds per day (CalRecycle 2018).

The County of Tulare has six private solid waste haulers that operate recycling programs for residences, businesses, and government facilities in the unincorporated areas of the County. Each waste hauler provides its customers with recycling services.

The waste haulers provide information to their customers regarding mandatory recycling for commercial businesses that generate 4 or more cubic yards of garbage per week and for multi-family apartments that have five or more units. Effective April 1, 2016, businesses and schools that generate 8 or more cubic yards of waste must subscribe to organic waste recycling services. In addition, Tulare County Construction and Demolition Ordinance No. 3321 requires projects to divert a minimum of 50 percent construction and demolition debris and 100 percent of inert materials such as cement, brick, asphalt, etc. (Tulare County 2016a).

1.3.11 - Overall Progress in Achieving Water Conservation Goals

The County operates four water systems serving a total of 289 connections as of January 2016 and over 200 privately owned public water systems (each serving multiple service connections) in the unincorporated areas. Only urban water systems are subject to statewide water conservation mandates and reporting requirements. Data for unincorporated Tulare communities were not available since connections are not metered; however, the major cities in the County achieved substantial water savings. None of the county water systems qualify as urban water subject to Public Utilities Commission reporting requirements. The County adopted the Ordinance Establishing the Staged Water Conservation Program at All County-Operated Water Systems in County Service Area No. 1 on May 17, 2016, which was designed to meet the Governor's Executive Order B-29-15 that requires a 25 percent reduction in potable urban water use compared with a 2013 baseline (Tulare County 2016b). The 2016 inventory update (Tulare County 2016c) used data from the County's three Community Service Districts (CSDs)—Delft Colony, Yettem Water, and Seville Water Company—to estimate overall water use and GHG emissions from water treatment and transport in the areas served by the CSDs in 2015. Data from the CSDs are currently being collected for use in the next inventory update and Climate Action Plan Update that will allow an estimation of year-to-year progress in meeting the 25 percent reduction from the 2013 baseline.

1.3.12 - Energy Retrofit Projects Completed

Solar Projects

Photo Source: Dave Mitchell, 2014

The County has been very successful in permitting utility-scale, commercial, and residential photovoltaic solar projects. During the period from 2011 to 2018, the County approved 3,077 permits with a total generating capacity of about 600 megawatts (MW). Most residential and commercial solar projects are retrofits of existing buildings and ground mounted installations at existing developments. Emission savings for this amount of capacity was estimated using the PVWatts Calculator developed by the National Renewable Energy Laboratory (NREL) for energy production from solar panels in Tulare County (NREL 2016). The 600 MW of capacity would provide a reduction in emissions of approximately 268,816 $MTCO_2$ per year.

The County continues its success in permitting photovoltaic solar projects. As shown in Table 11, during FY 2017/2018, the County deemed 545 solar building permits final with a total generating capacity of 29.1 MW. This amount of capacity would provide an emission reduction of approximately 13,350 $MTCO_2$ per year.

Regarding new subdivisions, the County Board of Supervisors passed an ordinance on November 17, 2015 that requires solar photovoltaic systems or alternative energy systems to be installed on a specific percentage of single-family residences in each new residential development proposed in subdivision map applications.

Table 11: Solar Projects FY 2017/2018

Project Type	No. of Permits	Total Capacity (MW)
Solar Projects for Ag/Dairy Uses	34	22.90
Commercial Solar Projects	13	1.37
Residential Solar Projects	498	4.82
Total	**545**	**29.08**

Note:
The energy capacity of the residential solar projects as reported in the RMA Building Permit Database.
Source: Tulare County RMA Building Permit Database queried November 2018.

1.3.13 - Tulare County Transportation, Energy and Water Programs

The County has achieved reductions in emissions on a number of fronts. A description of these accomplishments is provided as follows.

Fleet Vehicles

Data on the County vehicle fleet were obtained from the County's fleet management database. The County vehicle fleet includes 1,487 vehicles, including passenger cars and light trucks, work trucks, and buses. The fleet includes 155 fuel-efficient light duty hybrid vehicles. As vehicles reach retirement age, the County has continually purchased new, more fuel-efficient vehicles, thus meeting the latest standards. The County operated 195 2017 and 2018 model year vehicles as of June 30, 2018. The fleet includes 53 diesel-powered vehicles, with the remainder operating on unleaded gasoline. The County fleet traveled a total of 18,218,745 miles and consumed 803,131 gallons of gasoline and diesel fuels during FY 2017/2018.

Photo Source: Tulare Long Range Transit Plan, State of the System Report March 2015

The County also operates Tulare County Area Transit (TCAT), a fleet of 19 transit vehicles all of which are fueled by compressed natural gas (CNG). CNG buses emit about 9 percent fewer GHG emissions compared with the older diesel buses they replaced (TCAG 2017).

Vanpools

According to TCAG, CalVans vanpools have traveled 7.7 million miles and provided 1.6 million trips, resulting in a VMT reduction of 63 million miles since program inception. Overall, this figure represents an annual reduction of 27,000 tons of GHG (TCAG 2014).

New County Buildings

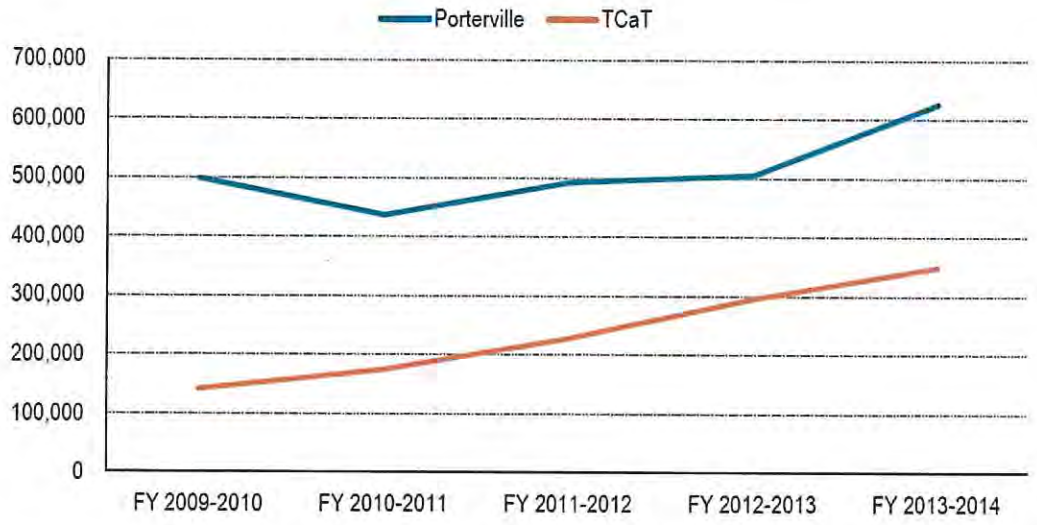
The County's new South County Detention Facility is expected to be completed in late 2018 with operations beginning in early 2019. The facility will be the County's most energy-efficient building. The project will meet or exceed the latest energy and water efficiency standards and will be the

County's most energy- and water-efficient building. No other significant new County buildings were constructed during the reporting period (2017–2018).

Transit Service

Transit use by county residents has seen a steady increase in recent years. Figure 2 illustrates the increase in use by the Porterville and TCAT transit systems. TCAT, which provides regional service, saw its ridership increase from about 150,000 riders in FY 2009/2010 to about 350,000 in FY 2013/2014 (TCAG 2015). This is a 133 percent increase in ridership over a 4-year period compared with an increase in population of only 2.4 percent over the same period (DOF 2016). Review of data published in the 2017 Tulare County Long Range Transit Plan Final Report did not contain more current ridership information (TCAG 2017).

Figure 2: Historical Fixed Route Ridership by Agency



Source: Southeast Tulare County Transit Mobility Plan Final Report, December 2015.

Landfills

The County's landfills captured about 175 million cubic feet of methane in 2016. The methane is burned in flares. Methane is 25 times more potent as a greenhouse gas than CO_2. Therefore, capturing and flaring the landfill gas provides a substantial emission reduction than if the methane emissions were to escape to the atmosphere. The AB 32 Annual Landfill Methane Rule Reports prepared for each County landfill indicate that flares used at the sites have a destruction efficiency of 99.997 percent. The Visalia, Woodville and Teapot Landfills provide an estimated 40,918 $MTCO_2e$ reduction each year by flaring the methane captured (Tulare County 2016d, 2016e, and 2016f).

County Energy Conservation Programs

The County is responsible for enforcing Title 24 Building Energy Efficiency Standards and the CalGreen Building Code. No additional County ordinances or programs have been adopted; however, in June 2018, the County approved a project to install solar panels at seven County-owned buildings. Three locations will include energy storage. The project will provide 9.45 MW of generation capacity

and energy storage capacity of 1.0 MW. Construction activities are expected to begin in the near future.

County Water Conservation Programs

The County enforces water conservation requirements of the CalGreen Building Code and the Model Water Efficient Landscape Ordinance. The County has adopted a staged water conservation ordinance (adopted May 17, 2016) to meet the Governor's Executive Order B-29-15, which requires a 25 percent reduction in potable water consumption as described in section 1.3.11. The water conservation ordinance applies to the three water systems operated by the County: Delft Colony, Yettem Water, and Seville Water Company. The 2016/2017 water year experienced above-average precipitation throughout the San Joaquin Valley and the Sierra Nevada, resulting in easing of water restrictions in many jurisdictions. The 2017/2018 water year was below normal with only 4.7 inches of precipitation falling at the Lindsay monitoring station.

1.3.14 - Agriculture

Although the State is taking steps to address agriculture GHG emissions (please see the discussion in Section 1.4 below), the Tulare County CAP at this time does not set or impose any targets or action programs for agriculture-generated GHG emissions. Dairy and feedlot emissions are not addressed in the General Plan CAP or this progress report. They are being addressed separately in the Draft Dairy and Feedlot Climate Action Plan (Dairy CAP) currently under preparation (Tulare County 2017). Consequently, agricultural GHG emissions are discussed in this Progress Report for informational purposes only. Emission reductions for the agricultural sector will be achieved by improving the fuel efficiency of equipment used for farming, use of low carbon fuels, more efficient use of water, and purchase of electricity from utilities that comply with the Renewable Portfolio Standard. An additional 34 agricultural solar projects received permits in the County during FY 2017/18 with a total of 22.9 MW of generation capacity; see Table 11. Twenty-five dairy anaerobic digesters were completed in Tulare County during FY 2017/2018 compared with four in the previous fiscal year. The energy production capacity of the facilities was not included in the report. Currently, GHG reduction programs for agricultural sources are voluntary and incentive-based.

Photo Source: Tulare County Agricultural Commissioner/Sealer

Emissions related to fertilizer use and open field agricultural burning are based on acres of production for each crop type. The acreage of crops harvested for the last 2 years shows a net decrease. The County Agricultural Commissioner reports that Tulare County saw a decrease in acres of field crops from 1.34 million acres in 2016 to 1.27 million acres in 2017 for a net decrease of 73,330 acres. Permanent plantings of tree crops increased by 20,538 acres in 2017. Total value for 2017 was $7.04 billion compared with $6.37 billion in 2016. This represents an increase of 9.5

percent from 2016. Changes in crops grown and valuation are caused by a number of economic and market factors, and water availability (which can vary substantially during drought conditions, such as those experienced during 2011–2015). The San Joaquin Valley Air Pollution Control District (SJVAPCD) requires burn permits for open field burning; however, the data provide insufficient detail to provide a reasonable emission estimate. The emissions inventory is based on average rates of burning per acre of crop grown and not on actual burn reports.

1.4: Status of State Regulations Adopted to Reduce GHG Emissions

California continues to be a leader in adopting legislation to address climate change. Implementation of previously adopted legislation and adoption of new climate change legislation and Executive Orders continues at a fast pace.

AB 32 Global Warming Solutions Act (2006). AB requires the State to reduce California's GHG emissions to 1990 levels by 2020. The State's strategy for achieving AB 32 targets is contained in the ARB Scoping Plan and its updates. The ARB announced that total statewide carbon emissions fell to 429 million metric tons in 2016, a drop of 12 million tons from the year before. The decline means California met the Legislature's goal of reducing emissions to 1990 levels, and did so a full 4 years before the target year of 2020. Under Assembly Bill 32 passed in 2006, California must reduce its emissions to 1990 levels (431 million metric tons) by 2020. The 2016 Greenhouse Gas Emissions Inventory shows that California emitted 429 million metric tons of climate pollutants in 2016—a drop of 12 million metric tons, or 3 percent—from 2015 (ARB 2018).

AB 398 Cap-and Trade Extension (2017). On July 25, 2017 Governor Brown signed a bill extending the Cap-and-Trade program to 2030 fulfilling a major part of the States strategy to achieve the 2030 target.

SB 100 California Renewable Portfolio Standard (2018). The goal of the program is to achieve that 50 percent renewable resources target by December 31, 2026, and to achieve a 60 percent target by December 31, 2030. The bill approved by Governor Brown on September 10, 2018 would require that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030 (California State Senate 2018).

Executive Orders B-55-18 Carbon Neutrality by 2045 (2018). This Executive Order signed on September 10, 2018 sets a new statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the statewide targets of reducing greenhouse gas emissions (Brown 2018).

Progress on Achieving AB 32 (2006) targets. The First Update to the AB 32 Scoping Plan approved in 2014 states that California is on track to achieve the 2020 target with the adopted regulatory program and to make continued progress after 2020. Governor Brown, in the introduction to Executive Order B-30-15, states "California is on track to meet or exceed the current target of

reducing greenhouse gas emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32) (Brown 2015)."

1.4.1 - Recent State Regulatory Actions

The 2019 Title 24 Building Energy Efficiency Standards, adopted on May 9, 2018, take effect on January 1, 2020 and focus on four key areas: smart residential photovoltaic systems, updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa), residential and nonresidential ventilation requirements, and nonresidential lighting requirements. The ventilation measures improve indoor air quality, protecting homeowners from air pollution originating from outdoor and indoor sources. Under the new standards, nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades. The standards require solar photovoltaic systems in new homes starting in 2020 (CEC 2018a)

Single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures compared with those built under the 2016 standards. Once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy than those under the 2016 standards. Net electricity metering rules limit residential rooftop solar generation to produce no more electricity than the home is expected to consume on an annual basis. If the home generates more, the surplus is compensated at much lower than the retail rate (CEC 2018b).

The most important ongoing state regulatory programs impacting sources of emissions in Tulare County include:

- Pavley I and II Motor Vehicle Fuel Efficiency Standards
- Low Carbon Fuel Standard
- Heavy-Duty Truck Efficiency Standards
- Title 24 Building Energy Efficiency Standards
- Title 24 CalGreen Building Code
- Renewable Portfolio Standard (RPS)
- Model Water Efficient Landscape Ordinance
- Solid Waste Diversion Mandate
- Cap-and-Trade Program

1.4.2 - New State Laws and Regulations

Senate Bill 32 (2016)

In 2016, the California Legislature passed and the Governor signed SB 32, which is follow-up legislation to AB 32 California Global Warming Solutions Act of 2006 (Chapter 249, Statutes of 2016). The original legislation requires the ARB to reduce statewide GHG emissions to at least the 1990 emissions level by 2020 and to maintain and continue reductions thereafter. Under SB 32, the ARB must ensure that statewide GHG emissions are reduced to at least 40 percent below the statewide GHG emissions limit no later than December 31, 2030. The ARB is required to achieve the State's more stringent GHG emission reductions in a manner that benefits the State's most disadvantaged

communities and is transparent and accountable to the public and the Legislature. The 2017 Scoping Plan Update implementing SB 32 was approved by the ARB in December 2017.

Achieving the new target will be challenging. As shown in Figure 3, emissions would need to decrease at a more rapid rate after 2020 to reach the 2030 target. After 2030, the rate of decrease would be less in order to follow a trajectory to achieve the target from Executive Order S-03-05 for emissions to reach levels that are 80 percent below 1990 levels by 2050. If the rate of decrease required to meet the 2030 target were maintained after 2030, the State would achieve the 2050 target about 10 years earlier.

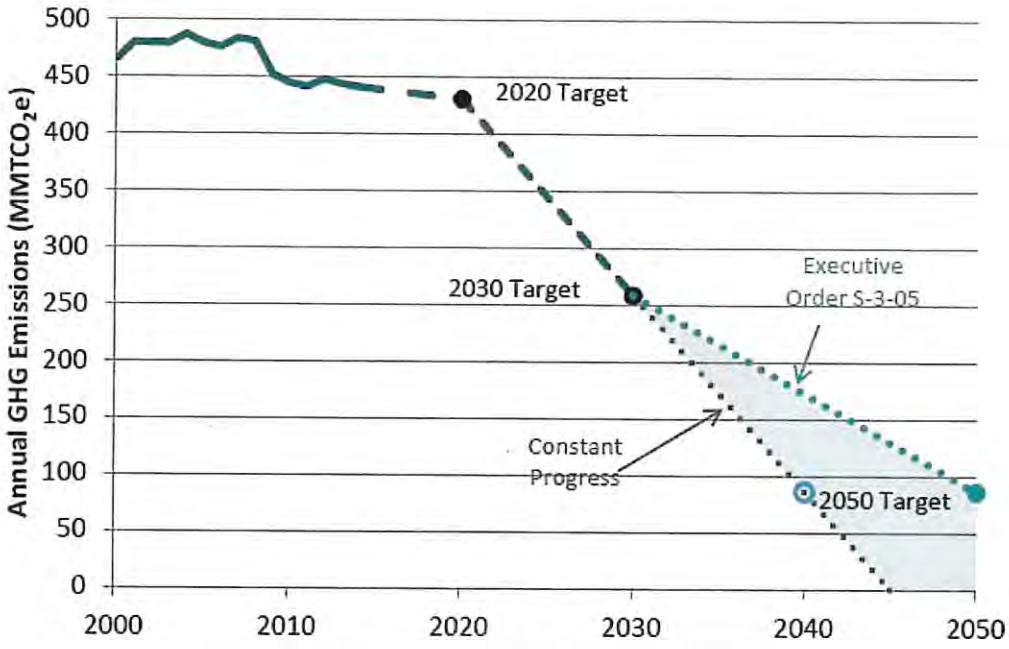
The major elements of the framework proposed in the Draft Scoping Plan Update to achieve the 2030 target are as follows:

1. SB 350 (2015)
   - Achieve 50 percent Renewables Portfolio Standard (RPS) by 2030.
   - Doubling of energy efficiency savings by 2030.
2. Low Carbon Fuel Standard (LCFS)
   - Increased stringency (reducing carbon intensity 18 percent by 2030, up from 10 percent in 2020).
3. Mobile Source Strategy (Cleaner Technology and Fuels Scenario)
   - Maintaining existing GHG standards for light- and heavy-duty vehicles.
   - Put 4.2 million zero-emission vehicles (ZEVs) on the roads.
   - Increase ZEV buses, delivery and other trucks.
4. Sustainable Freight Action Plan
   - Improve freight system efficiency.
   - Maximize use of near-zero emission vehicles and equipment powered by renewable energy.
   - Deploy over 100,000 zero-emission trucks and equipment by 2030.
5. Short-Lived Climate Pollutant (SLCP) Reduction Strategy
   - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030.
   - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.
6. SB 375 Sustainable Communities Strategies (2008)
   - Increased stringency of 2035 targets.
7. Post-2020 Cap-and-Trade Program
   - Declining caps, continued linkage with Québec, and linkage to Ontario, Canada.
   - ARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements. In fall 2016, ARB staff described potential future amendments, including reducing the offset usage limit, redesigning the allocation strategy to reduce free allocation to support increased technology and energy investment at covered entities, and reducing allocation if the covered entity increases criteria or toxics emissions over some baseline.
8. 20 percent reduction in greenhouse gas emissions from the refinery sector.

9. By 2018, develop Integrated Natural and Working Lands Action Plan to secure California's land base as a net carbon sink (ARB 2017c).

The required emission trajectory to achieve the 2050 goal is shown in Figure 3.

Figure 3: California's Path to Achieving the 2050 Target



Source: ARB Draft 2030 Scoping Plan Update (ARB 2017)

Short-lived Climate Pollutants

SB 605 of 2014 (Chapter 523, Statutes of 2014) calls for ARB to develop a Short-lived Climate Pollutant (SLCP) Strategy. SLCPs include black carbon (soot), methane (CH_4), and fluorinated gases (F-gases, including hydrofluorocarbons [HFCs]). The strategy approved by ARB on March 24, 2017 describes goals, regulations, incentives, and other efforts that would:

- Encourage national and international deployment of California's well-established and proven measures to reduce black carbon emissions;
- Further reduce black carbon emissions from off-road and non-mobile sources, including forests;
- Significantly reduce methane emissions from dairy operations and effectively eliminate disposal of organics in landfills;
- Create and expand industries to capture value from organic waste resources in California;
- Significantly reduce fugitive methane emissions from oil and gas systems and other sources; and

- Accelerate the transition to low-GWP refrigerants and more energy-efficient refrigeration systems

SB 1383 of 2016 (Chapter 395, Statutes of 2016) sets forth more specific legislative direction for control of SLCPs. It requires ARB, no later than January 1, 2018, to approve and begin implementing its SLCP strategy to achieve the following reductions in emissions by 2030 compared with 2013 levels: methane by 40 percent, hydrofluorocarbons by 40 percent, and black carbon (non-forest) by 50 percent. The law also specifies targets for reducing organic waste in landfills. SB 1383 also requires ARB to consider regulations to be implemented on or after January 1, 2024 specific to the dairy and livestock industry, requiring up to a 40 percent reduction in methane emissions below 2013 levels by 2030, if feasible and certain conditions are met. Lastly, the bill requires CalRecycle to adopt regulations to take effect on or after January 1, 2022 to achieve specified targets for reducing organic waste in landfills. The ARB approved the SLCP strategy on March 24, 2017.

The ARB has incorporated the SLCP strategy into the 2017 Scoping Plan Update. The strategy includes the 40 percent reduction in methane and hydrofluorocarbons and a 50 percent reduction in black carbon emissions by 2030 from the SLCP strategy.

1.5: Programs Available to Citizens and Businesses to Reduce GHG Emissions

1.5.1 - State and Federal Tax Credits

Solar consumers are eligible for federal tax incentives for the purchase and installation of eligible solar systems, including both solar photovoltaics (PV) and solar hot water (solar thermal) systems, as well as other renewable energy investments. The federal tax credit is currently 30 percent of the total system cost with no upper limit. The credit drops incrementally to zero by the end of 2021.

1.5.2 - Southern California Edison Programs

Rebates

Southern California Edison offers programs and rebates to its residential and commercial customers. The following rebates are available in 2018 (SCE 2018):

- Smart Thermostat rebate of up to $150
- Variable Speed Pool Pump rebates up to $200
- Evaporative Cooler rebates up to $400
- Hybrid Electric Heat Pump Water Heater rebates up to $200
- Window Evaporative Cooler rebates up to $200
- Whole House Fan rebates up to $125

Southern California Edison's Self-generation Program

Southern California Edison customers can generate their own power to supplement the electricity purchased from Southern California Edison. "Self-generation," also called "distributed generation," can serve various purposes that include:

- "Back-up" or emergency generation designed to be used during utility power outages.
- "Cogeneration," or combined heat and power applications, used by customers that have a consistently high need for steam or another form of thermal energy.
- Generation to be used during "peak demand," when it may be less costly to operate a generator than to buy power from Southern California Edison. "Environmentally friendly" generation used by customers who want to reduce pollution.
- Generation to be used to improve reliability or power quality when operational needs exceed the level of service that Southern California Edison can provide. *Note: Self-generation does not include "merchant generation" intended for sale in California's wholesale electricity market.*
- Net Energy Metering (NEM) pays for excess solar generation from home solar generation systems.
- Self-Generation Incentive Program. Qualifying projects receive incentives ranging from $0.44 per watt for non-renewable combined heat and power to $1.07 per watt for renewable and waste energy recovery projects, and $1.46 per watt for emerging technology projects such as advanced energy storage and fuel cells.

1.5.3 - PG&E Rebate Programs

Pacific Gas and Electric Company (PG&E) offers a variety of rebates for residential customers who install energy efficient equipment in eligible homes. Prescriptive rebates are available for eligible energy efficiency improvements such as HVAC, appliance, water heating, ventilation and pool pump upgrades. The following rebates are available in 2018:

- Smart Thermostat replacing manually operated or programmable thermostat—$50 per household.
- High Efficiency Gas Storage Water Heater—$125 per unit
- High Efficiency Electric Heat Pump Storage Water Heater—$300 per unit.
- Energy Upgrade California provides up to $5,500 in rebates for home heating, cooling, and water heating systems (PGE 2018a).

PG&E's Self Generation Incentive Program provides financial incentives for the installation of new, qualifying wind or fuel cell self-generation equipment. Solar rebates are currently administered under PG&E's California Solar Initiative. While residential customers are not excluded from the program, the minimum 30-kilowatt system size for renewable technologies generally limits most applications to non-residential energy consumers (PG&E 2018b).

PG&E's Schedule NEM—Net Energy Metering Service provides solar customers with the option to offset the cost of their electricity usage with energy that their solar generating system exports to the grid. A "net meter" is installed to measure the difference between electricity supplied to the customer by PG&E and electricity the customer exports to the grid, over a billing month. The corresponding charges and credits are reconciled after 12-monthly billing periods of the system's interconnection. Typically, solar systems export more energy during the summer months, generating credits for customers to use during the winter months when the system does not meet their energy needs.

1.5.4 - SoCal Gas Non-Residential Programs

Zero Percent Interest On-Bill Financing. SoCal Gas offers to finance the purchase and installation of eligible energy-efficiency upgrades at zero percent for qualified customers. Loans range from $5,000 to $1,000,000.

Natural gas equipment rebates, which are available to large commercial, small commercial, industrial and institutional customers for a wide variety of efficiency projects. Qualifying equipment includes boilers, pipe and tank insulation, steam traps, water and pool heaters, energy management systems, furnaces and food service equipment.

The Energy Efficiency Calculated Incentive Program provides incentives of up to $1 million per project ($2 million per location) per year for large gas efficiency projects not covered by the basic rebate program (including new or replacement equipment, as well as for process improvements or new processes). The payment is $1.00 per annualized therm savings or 50 percent of project cost, whichever is less. Eligible projects are required to undergo an energy analysis, but projects saving less than an estimated 200,000 therms/year may qualify to receive a no-cost analysis.

The Energy Assessments for Business Customers program offers free energy assessments to customers that use 250,000 therms or more per year to in order to help identify energy efficiency projects that may qualify for rebates (maximum $1 million per project or $2 million per site per year).

1.5.5 - Other Programs and Incentives

California Climate Investments (CCI) & Greenhouse Gas Reduction Fund (GGRF)

Revenue for the CCI Fund comes from the proceeds of The California Cap-and-Trade Program Auctions. To date, nearly $3.4 billion has been appropriated by the Legislature to State agencies implementing GHG emission reduction programs and projects. The Governor proposed $2.2 billion in funding for the GGRF for FY 2017/2018. The fund supports a number of local assistance programs, including the following (CCI 2017):

- Affordable Housing and Sustainable Communities (AHSC)
- Active Transportation
- High Speed Rail
- Low Carbon Transit Options

- Low Carbon Transportation
- Sustainable Agricultural Lands Conservation (SALC)
- Transit and Intercity Rail Capital
- Transformative Climate Communities

Vehicle Incentive Programs

New Plug-in Car Purchases. Buyers of plug-in hybrids and electric cars benefit from a federal tax credit of $2,500 to $7,500, depending on the size of the battery in the car. On the low end of the spectrum, cars with 4 kWh battery packs will qualify for a $2,500 tax credit. The credit has a maximum value of $7,500 for cars with a 16-kWh battery pack (e.g., the Chevrolet Volt). The credits were provided as part of the American Recovery and Reinvestment Act, otherwise known as the "Stimulus Bill." The incentive begins phasing out after an automaker sells 200,000 vehicles that are eligible for the credit.

The Clean Vehicle Rebate Project (CVRP) offers State rebates for the purchase or lease of qualified vehicles. Since program inception in 2009, the program administrator—the Center for Sustainable Energy—has issued over $440 million to fund rebates for individuals, nonprofits, government entities, and business owners. The rebates offer up to $2,500 for light-duty zero emission and plug-in hybrid vehicles that the CARB has approved or certified and $5,000 for hydrogen fuel cell vehicles. The rebates are available on a first-come, first-served basis to individuals, business owners, and government entities in California that purchase or lease new eligible vehicles. The Legislature approved $140 million in Cap-and-Trade auction proceeds in September 2017. In periods when funding exceeds current budgets, waiting lists can form. Households earning more than $300,000 and individuals reporting more than $150,000 per year are no longer eligible.

The "REMOVE II Program" is administered by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and provides incentives for the purchase of low emission passenger vehicles, light duty trucks, small buses, and trucks with Gross Vehicle Weight Ratings of 14,000 pounds or less. The SJVAPCD's Drive Clean Rebate Program offers between $1,000 and $3,000 per vehicle and varies according to the emission certification level and size of the vehicle. Vehicles must be powered by alternative fuel, electric, or hybrid electric motors. The SJVAPCD is made up of eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare and the San Joaquin Valley Air Basin portion of Kern. Rebate vouchers are available for the purchase of electric vehicles in qualifying counties for up to $3,000 (Plug-In Cars 2016).

California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) is a program to help speed the early market introduction of clean, low-carbon hybrid and electric trucks and buses. HVIP accomplishes this by addressing the biggest barrier to the purchase of medium- and heavy-duty advanced trucks: the high incremental cost of these vehicles in the early market years when production volumes are still low. All fleets are eligible, whether they're public or private, large or small (SJVAPCD 2017).

1.6: Progress Report Summary

The primary purpose of the Annual Progress Report is to determine if the County is on track (i.e., progress) to achieve the CAP emission reduction target. If on track, no additional action is needed at this time to meet the target. If not on track (i.e., not progressing at the desired rate), the County would need to adopt/implement new measures or programs to achieve the desired reduction target. A review of the measures of progress indicate that the County is on track to achieving the 2020 target and is well positioned to achieve later targets related to the recent enactment of SB 32. Table 12 summarizes the measures of progress.

Table 12: Tulare CAP Progress Summary

Metric	CAP Comparison	Progress on Track?
Overall growth in population and housing compared to amount projected in CAP	CAP 2018 Population: 166,797 Actual 2018 Population: 144,375	Yes
	CAP 2010-2018 Housing Unit Increase: 8,072 Actual 2010-2018 Housing Units: -248	Yes
	Change in Occupied Housing 2010-2018: -0.6%	Yes
Average Development Density in Community Plans	CAP Goal from Blueprint Strategy: 5.3 units/acre Approved TSMs in 2017/2018: 6.5 units/acre	Yes[1]
VMT Comparison	CAP 2015–2018 Growth Estimate: 12.4% Actual 2015–2018 Growth Rate: -1.7% Under CAP by 14.1%	Yes
Per Capita Emissions	CAP 2020 Target: 8.8 $MTCO_2e$/person Updated 2020 Estimate: 5.8 $MTCO_2e$/person 2015 Per Capita Emissions: 6.9 $MTCO_2e$/person	Yes[3]
Solar Projects FY 2017/2018	Residential: 498 projects—4.8 MW Commercial: 13 projects—1.37 MW Ag/Dairy: 34 projects—22.90 MW	Yes
Amount Title 24 Exceeded (compared with 2008 Title 24)	CAP Goal: 20% Residential: 46% Commercial: 33%	Yes
Progress from water conservation measures	New development would achieve the 20 percent reductions in landscape water use and indoor water use through compliance with regulations. Insufficient data were available to quantify benefits beyond regulations and from existing development in the unincorporated area.	Yes[2]
Solid Waste	The County reports that it is on track to achieving the State's 75 percent solid waste goal.	Yes
Status of State regulations	Sufficient regulations adopted for the State to achieve AB 32 2020 target.	Yes
Notes:		

[1] The 5.3 units per acre density goal applies to all residential development within unincorporated areas where zoning allows residential units (not including existing large lots zoned for agricultural purposes which allows a maximum number of residences to maintain its agricultural nature). For FY 2017/2018 one TSM was in a rural community and had density exceeding the goal at 6.5 units per acre. A second TSM for a project was an extension of the City of Kingsburg and not a rural community. 94 percent of new lots were created in rural communities or adjacent to a city. It is noted that including multi-family units in incorporated and unincorporated Tulare County would increase the average density within unincorporated areas where zoning allows residential units.

[2] Many residences and businesses in unincorporated Tulare County use private wells or are serviced by small water services with limited reporting requirements that would allow better tracking.

[3] Updates to per capita emission rates from Draft CAP update.

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