



2023/2024
Climate Action Plan Progress Report
Tulare County, California

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Table of Contents

Acronyms and Abbreviations	v
Section 1: Annual Progress Report	1
1.1— Background	1
1.2— Highlights	2
1.3— Measuring Progress	2
1.4— Status of Regulations Adopted to Reduce GHG Emissions	21
1.5— Programs Available to Citizens and Businesses to Reduce GHG Emissions	31
1.6— Climate Change Adaptation and Resiliency	36
1.7— Progress Report Summary	39
Section 2: References	41

List of Tables

Table 1: Tulare County Unincorporated Population, 2010 to 2030	5
Table 2: Tulare County Unincorporated Occupied Housing Units, 2010 to 2030	6
Table 3: Tulare County Unincorporated Housing by Year, 2010 to 2024	7
Table 4: City and County Occupied Housing, 2015–2024.....	8
Table 5: Tulare County New Residential Housing Permits, FY 2015/2016 to 2023/2024.....	9
Table 6: Tulare County Approved Tentative Subdivision Maps, FY 2023/2024	10
Table 7: Tulare County New Commercial and Industrial Permits, FY 2023/2024	11
Table 8: Unincorporated County VMT Comparison, 2015 to 2024	12
Table 9: Annual Vehicle Miles Traveled from New Unincorporated Residential Development.....	13
Table 10: Annual Vehicle Miles Traveled from New Unincorporated Commercial and Industrial Development	14
Table 11: Tulare County Solar Projects, FY 2023/2024	17
Table 12: TCRTA Unincorporated County Ridership, FY 2014/2015 to FY 2023/2024.....	19
Table 13: Tulare County CAP Progress Summary.....	40

List of Figures

Figure 1: Tulare County Development-Related Emissions Estimated by the 2018 CAP	4
Figure 2: Comparison of Population Projections, 2010 to 2030.....	6
Figure 3: TCRTA Unincorporated County Annual Ridership.....	19

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ADA	Americans with Disabilities Act
AGI	Adjusted gross income
APG	California Adaptation Planning Guide
ASH	Anti-sweat heater
BAR	Bureau of Automotive Repair
BAU	Business as Usual
CalEEMod	California Emissions Estimator Model
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBSC	California Building Standards Commission
CCI	California Climate Investments
CCUS	Carbon Capture, Utilization, and Storage
CDR	Carbon Dioxide Removal
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH ₄	methane
CIP	capital improvement program
CNG	compressed natural gas
CNRA	California Natural Resources Agency
CO ₂	carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CPUC	California Public Utilities Commission
CVRP	Clean Vehicle Rebate Project
DAC-SASH	Disadvantaged Communities – Single-family Affordable Solar Homes
DMA	Federal Disaster Mitigation Act
DOE	U.S. Department of Energy
DOF	California Department of Finance
DWR	Department of Water Resources
EERE	Energy Efficiency and Renewable Energy
EMFAC	EMission FACTors Model
EPA	U.S. Environmental Protection Agency
EPSS	Enhanced Power Safety Settings
EV	electric vehicle

FEMA	Federal Emergency Management Agency
FY	Fiscal Year(s)
GGRF	Greenhouse Gas Reduction Fund
GHG	greenhouse gas
GWP	global warming potential
HAN	Home Area Network
HFC	hydrofluorocarbon
HVAC	heating, ventilation, and air conditioning
HVIP	California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project
LCFS	Low Carbon Fuel Standard
LHMP	local hazard mitigation plan
MJLHMP	Multi-Jurisdictional Local Hazard Mitigation Plan
MMTCO ₂ e	million metric tons of carbon dioxide equivalent
MPO	metropolitan planning organization
MSRP	Manufacturer's Suggested Retail Price
MT	metric tons
MTCO ₂ e	metric tons of carbon dioxide equivalent
MW	megawatt(s)
NEM	net energy metering
NOAA	National Oceanic and Atmospheric Administration
NREL	National Renewable Energy Laboratory
NSC	Net Surplus Compensation
NSHP	New Solar Homes Partnership
NWL	Natural and Working Lands
OES	Office of Emergency Services
OPR	Office of Planning and Research
PG&E	Pacific Gas and Electric Company
PV	Photovoltaic
RHNA	Regional Housing Needs Allocation
RMA	Tulare County Resource Management Agency
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SBP	Solar Billing Plan
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SGIP	Self-Generation Incentive Program
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	Short-Lived Climate Pollutant

SOMAH	Solar on Multifamily Affordable Housing
TCAG	Tulare County Association of Governments
TCAT	Tulare County Area Transit
TCRTA	Tulare County Regional Transit Agency
TSM	Tentative Subdivision Map
UAB	urban area boundary
UDB	urban development boundary
VMT	vehicle miles traveled
ZEV	zero-emission vehicle

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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) and revised in December 2018 (Tulare County, 2018).¹ The following is the ninth annual progress report (Progress Report or Report), which describes the progress achieved during Fiscal Year (FY) 2023/2024.



Photo Source: Tulare County Economic Development

This progress report uses numerous 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 reflect only those unincorporated areas within the County's jurisdictional areas; incorporated cities are not accounted for in the County's CAP. An obstacle in making precise comparisons for some metrics is that some sources cited present the data for different timeframes and at different levels of detail. This report strives to present the data that most clearly demonstrate and illustrate the extent of progress achieved. The metrics addressed in the Progress Report are listed as follows:

- Per capita greenhouse gas (GHG) emissions;
- Growth in population and housing;
- Average development density of residential projects;
- Percentage of residential construction in Community Plan areas;
- Amount of non-residential construction;
- Vehicle miles traveled (VMT);
- Energy efficiency of new residential and non-residential projects;
- Sustainability features incorporated into non-residential projects;
- Overall progress in achieving solid waste reduction goals;
- Overall progress in achieving water conservation measures;
- Energy retrofit projects completed;
- County transportation, energy, and water conservation programs;
- Status of state regulations adopted to reduce GHG emissions; and
- Status of climate change adaptation and resiliency planning.

¹ Dairy and feedlot emissions are not addressed in the Tulare County CAP or this progress report. They are addressed separately in the Dairy and Feedlot Climate Action Plan (Dairy CAP) that was approved on December 17, 2017 (Tulare County, 2017).

This progress report also provides information on current grants and incentive programs that are available to residents and businesses of Tulare County to reduce GHGs, and information regarding County initiatives regarding climate change adaptation and resiliency.

1.2—Highlights

- The population of unincorporated Tulare County remained below projections used in the 2018 CAP. The population of 134,267 at the beginning of 2024 was 14.8 percent below CAP projections.
- Development continued to be focused in cities, consistent with County goals to protect farmland and open space and to increase overall development density in amounts required to meet Senate Bill (SB) 375 VMT targets. Occupied housing in incorporated cities increased by 13,609 units from 2015 to 2024, while occupied housing in the unincorporated County declined by 474 units during this period.
- Vehicle-miles traveled (VMT) remained below projections used in the 2018 CAP. VMT in 2024 was 14.8 percent below CAP projections.
- Alternative energy project completions continued at a good pace during the previous fiscal year with 790 residential solar projects, 19 agricultural/dairy solar projects, and 15 other commercial solar projects with a total of 28.8 megawatts of generating capacity. (Agriculture/dairy project statistics are provided for informational purposes only.)

1.3—Measuring Progress

Progress in achieving CAP goals is affected by growth and control measures. Growth in population and housing in the County generally increases GHG emissions. Control measures reduce GHG emissions from new and existing sources. The 2018 CAP used growth projections to estimate the emissions that would occur in 2020 and 2030 under existing regulations at the time the CAP was prepared, but without assuming any planned or future new regulations or emission controls. This is known as a “business as usual” (BAU) scenario.

The reductions needed to achieve consistency with state targets were calculated as a percentage reduction from BAU. Specifically, the 2018 CAP set the following GHG reduction targets for unincorporated County development-related emissions of carbon dioxide equivalent (CO₂e):

- The 2020 target is 26.2 percent below 2020 BAU emissions, where BAU is calculated based on regulations that were in effect as of 2012. On a per capita basis, the 2020 target is equivalent to 8.8 metric tons of CO₂e per person (MTCO₂e/person).
- The 2030 target is 31 percent below 2015 actual emissions. This target represents a 9 percent reduction from BAU emissions, where BAU is calculated based on regulations that were in effect as of 2018. On a per capita basis, the 2030 target is equivalent to 4.18 MTCO₂e/person.

Development-related emissions refer to emissions from electricity use, heating and cooling, water use, mobile sources, and construction activities. These are sources for which the County can affect GHG emissions through its land use authority and other governmental powers related to development. As stated earlier, dairies and feedlots are addressed in a separate CAP prepared as part of the Animal Confinement Facilities Plan and Dairy CAP process adopted in 2017.

Actual growth and control measure implementation in the County can deviate from the CAP projections due 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. Actual growth in Tulare County continued to be slower than projected in the CAP. Meanwhile, controls and programs to reduce GHG emissions at the state level have proceeded in accordance with the Scoping Plans adopted by the California Air Resources Board (CARB) to implement AB 32, the Global Warming Solutions Act of 2006. These conditions benefited the County as they resulted in the County being ahead of where it needed to be to meet the CAP's 2020 target and in position to make continued progress toward the CAP's 2030 target.

1.3.1 - Estimating Emission Reductions

GHG emission reductions are achieved in several ways such as reducing energy consumption, reducing VMT, using lower carbon energy sources, and using more energy efficient emission 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.

Emission reductions from 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, hydroelectric, and biofuels 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 new and existing 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 Progress Report refers to GHG emissions related to population and housing as "development-related" emissions because they are generated by people occupying new and existing development projects. Emission reductions occur when increases in development-related emissions are more than offset by measures adopted to reduce GHG emissions from new and existing sources.

1.3.2 - Emission Inventories/Progress Summary

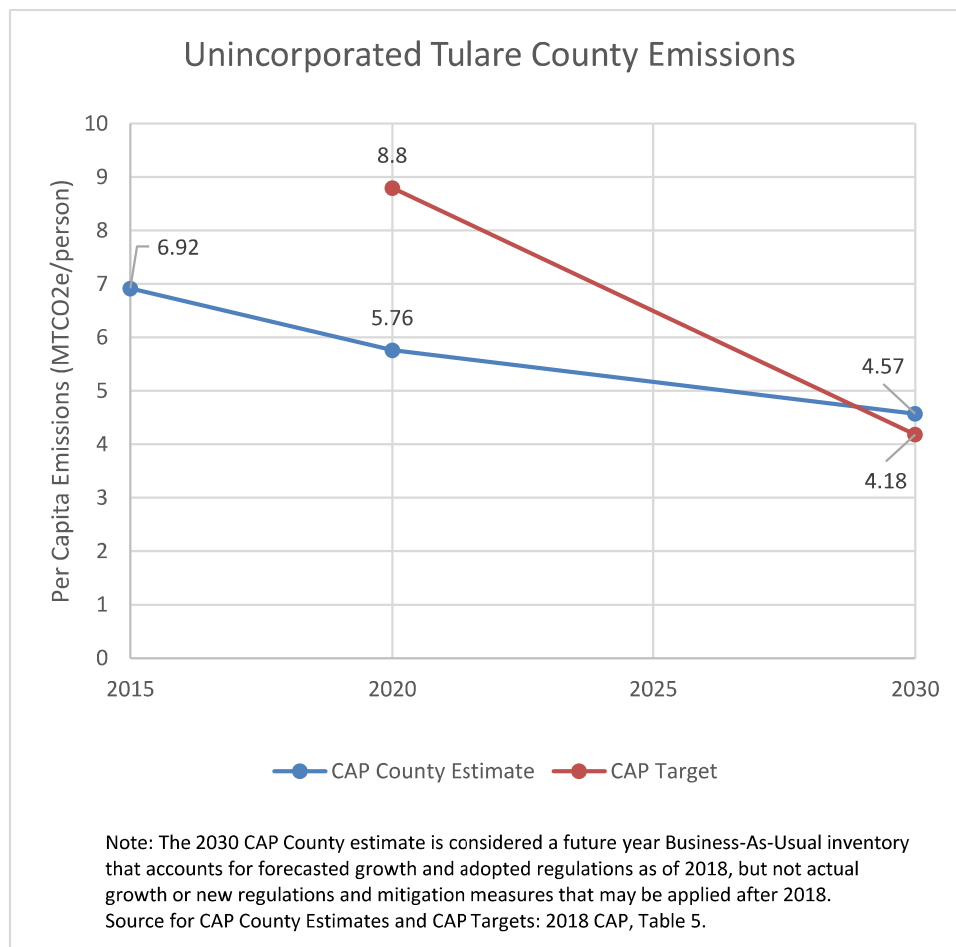
Emission inventories are accounting systems that allow for the identification of significant sources of GHG emissions and consequently opportunities for reducing GHG emissions. The most recent unincorporated County GHG emissions inventory was included in the 2018 CAP. The CAP's estimates

of per capita emissions from development-related sources are summarized in Figure 1 along with the per-capita CAP targets for 2020 and 2030.

Figure 1 shows that the County's 2020 per-capita emission rate of 5.76 MTCO₂e/person, as estimated by the 2018 CAP, was substantially below the CAP target of 8.8 MTCO₂e/person. The 2020 target was met primarily due to compliance with existing statewide GHG regulations. The County's projected 2030 per-capita emission rate of 4.57 MTCO₂e/person, as estimated by the 2018 CAP, is slightly above the CAP target of 4.18 MTCO₂e/person. However, the County's 2030 emission rate is a BAU estimate that accounts for projected growth and adopted regulations as of 2018 but not for new regulations and mitigation measures applied after 2018. As the State implements new regulations, the County's 2030 per-capita emission rate will likely be reduced to below the 2030 CAP target.

The County plans to update its GHG emissions inventory by the end of 2025 to include the effects of new GHG regulations and to incorporate updated population estimates and vehicle mileage data from the Tulare County Association of Governments (TCAG) 2022 Regional Transportation Plan/Sustainable Communities Strategy (2022 RTP/SCS). The 2022 RTP/SCS was finalized in August 2022 (TCAG, 2022).

Figure 1: Tulare County Development-Related Emissions Estimated by the 2018 CAP



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 proportional to the number of people living in the community.

Population

Table 1 shows the population trend in unincorporated areas of the County from 2010 to 2030. The table compares the population forecasts used in the 2018 CAP to current State of California Department of Finance (DOF) actuals and future projections. The table shows that the DOF actual population in the unincorporated area declined by 12,310 persons (-8.4 percent) from 2015² to 2024. The 2024 DOF actual population was 14.8 percent less than the 2024 population projected in the CAP.

Table 1: Tulare County Unincorporated Population, 2010 to 2030

Source	Population					
	2010	2015	2020	2024	2025 (Est.)	2030 (Est.)
2018 CAP Forecast ^[1]	142,872	146,908	151,202	157,603	159,203	167,586
Current DOF Data ^[2]	142,872	146,577	135,760	134,267	134,023	137,215
Difference (DOF minus CAP)	0	-331	-15,442	-23,336	-25,180	-30,371
Percent Difference (DOF relative to CAP)	0.0%	-0.2%	-10.2%	-14.8%	-15.8%	-18.1%
Notes: 1. Source: Page 6 of Appendix A of the 2018 CAP (Tulare County, 2018). Year 2024 is interpolated. 2. Source: 2021 DOF Report E-5 (California DOF, 2021) for Years 2010 and 2015; and 2024 DOF Report E-5 (California DOF, 2024) for Years 2020 and 2024. Years 2025 and 2030 were estimated by multiplying the DOF total county future population estimates from DOF Report P-2 (California DOF, 2024b) by the most recent (2024) DOF unincorporated population percentage (28.035%) from the 2024 DOF Report E-5.						

Figure 2 shows the unincorporated County population trend in graphical format. The DOF trend line shows that population growth is expected to resume after 2025. However, even accounting for this trend, the County population would remain well below CAP projections through 2030.

Housing

Some emission forecasts are directly related to housing growth. Occupied units are used as a metric to estimate GHG emissions because little or no emissions-generating activity occurs at vacant residences.

² 2015 is the base emissions inventory year in the 2018 CAP.

Table 2 compares the occupied housing estimates in the 2018 CAP to the current DOF data for the unincorporated areas of Tulare County. The DOF estimated housing units by adding new construction and annexations, subtracting demolitions, and adjusting for units lost or gained by conversions. For unincorporated Tulare County, the DOF received annual housing unit change data from the Tulare County Resource Management Agency (RMA), and it, too, used the most recent U.S. Census Bureau data.

Figure 2: Comparison of Population Projections, 2010 to 2030

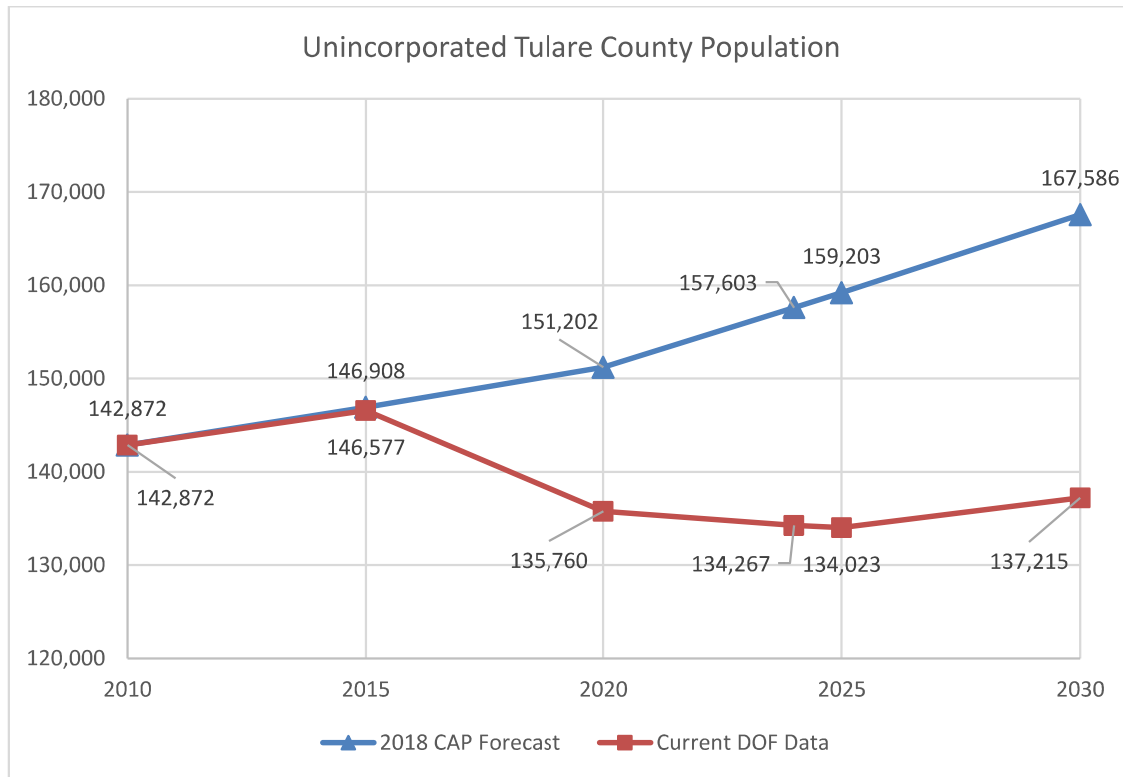


Table 2: Tulare County Unincorporated Occupied Housing Units, 2010 to 2030

Source	Occupied Housing Units				
	2010	2015	2020	2024	2030 (Est.)
2018 CAP Forecast ^[1]	39,093	39,419	40,316	42,063	44,684
Current DOF Data ^[2]	39,093	39,592	38,380	39,118	39,977
Difference (DOF minus CAP)	0	173	-1,936	-2,945	-4,707
Percent Difference (DOF relative to CAP)	0.0%	0.4%	-4.8%	-7.0%	-10.5%
Notes: 1. Source: Pages 7 and 25 of Appendix A of the 2018 CAP (Tulare County, 2018). Year 2024 is interpolated. 2. Source: 2021 DOF Report E-5 (California DOF, 2021) for Years 2010 and 2015; and 2024 DOF Report E-5 (California DOF, 2024) for Years 2020 and 2024. Housing units in 2030 were scaled by the ratio of 2030 to 2024 DOF-projected populations from Table 1.					

The DOF data show that the actual number of occupied housing units in unincorporated Tulare County declined by 474 units (-1.2 percent) from 2015 to 2024. By comparison, the CAP forecasted an increase of 2,644 units (+6.7 percent) over the same period. The current DOF estimate of 39,118 occupied housing units in 2024 is 7.0 percent less than the CAP forecast for the same year.

Table 3 provides the DOF total and occupied housing counts by year from 2010 to 2024. This information provides a more detailed picture of housing trends in the unincorporated areas of Tulare County. The number of occupied housing units increased by 325 units (+0.8 percent) from 2023 to 2024 and increased by 25 units (+0.1 percent) since 2010.

Table 3: Tulare County Unincorporated Housing by Year, 2010 to 2024

Year	Total Housing Units	Occupied Housing Units
2010	44,440	39,093
2011	44,497	39,148
2012	44,616	39,246
2013	44,720	39,311
2014	44,884	39,449
2015	45,049	39,592
2016	44,437	39,038
2017	44,573	39,152
2018	44,432	39,016
2019	44,492	39,062
2020	42,978	38,380
2021	43,110	38,490
2022	43,307	38,674
2023	43,442	38,793
2024	43,806	39,118

Source: 2021 DOF Report E-5 (California DOF, 2021) for Years 2010-2019; and 2024 DOF Report E-5 (California DOF, 2024) for Years 2020-2024.

The CAP land use strategy assumes that new urban development in Tulare County will occur primarily in cities and unincorporated urban development boundaries (UDBs) (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 2015 to 2024 and year-to-year changes over the period. Over the nine-year period, occupied housing units increased by 13,609 units (+14.3 percent) in Tulare County cities but declined by 474 units (-1.2 percent) in the unincorporated areas of Tulare County. From 2023 to 2024, city-occupied housing increased by 1,575 units (+1.5 percent) compared with an increase of 325 units (+0.8 percent) in the unincorporated areas.

Table 4: City and County Occupied Housing, 2015–2024

Year	Occupied Housing Units					
	Cities	Unincorporated	Total	Change from Previous Year: Cities	Change from Previous Year: Unincorporated	Change from Previous Year: Total
2015	95,011	39,592	134,603	--	--	--
2016	96,721	39,038	135,759	1,710	-554	1,156
2017	97,710	39,152	136,862	989	114	1,103
2018	99,143	39,016	138,159	1,433	-136	1,297
2019	100,325	39,062	139,387	1,182	46	1,228
2020	103,607	38,380	141,987	3,282	-682	2,600
2021	104,892	38,490	143,382	1,285	110	1,395
2022	105,923	38,674	144,597	1,031	184	1,215
2023	107,045	38,793	145,838	1,122	119	1,241
2024	108,620	39,118	147,738	1,575	325	1,900
Change 2015 to 2024	13,609	-474	13,135	--	--	--
Percent Change 2015 to 2024	14.3%	-1.2%	9.8%	--	--	--

Source: 2021 DOF Report E-5 (California DOF, 2021) for Years 2015-2019; and 2024 DOF Report E-5 (California DOF, 2024) for Years 2020-2024.

Although net occupied units in unincorporated Tulare County have declined since 2015, some new housing has been constructed. Table 5 lists the number of single-family, multi-family, and manufactured homes with finalized building permits from FY 2015/2016 to FY 2023/2024, as recorded in the Tulare County RMA Building Permit Database (C. Panh, Tulare County RMA, personal communication, November 12, 2024). As shown in Table 5, final building permits were issued for 97 residential housing units in the most recent fiscal year (2023/2024). Of these new units, 77 percent were constructed within UDBs and 23 percent were constructed in rural areas. Because new housing units are required to meet the current Title 24 Building Energy Efficiency Standards and the CalGreen Building Code (see Sections 1.3.8 and 1.4), they will use substantially less energy than older existing homes.

Table 5: Tulare County New Residential Housing Permits, FY 2015/2016 to 2023/2024

Fiscal Year	Single-Family Dwellings	Multi-Family Dwellings	Manufactured Homes ^[1]	Total Units ^[2]
FY 2015/16	121	7	46	174
FY 2016/17	208	35	52	295
FY 2017/18	163	5	46	214
FY 2018/19	109	6	8	123
FY 2019/20	144	0	1	145
FY 2020/21	117	93	24	234
FY 2021/22	90	0	27	117
FY 2022/23	114	0	33	147
FY 2023/24	79	0	18	97
Source: Tulare County RMA Building Permit Database.				
^[1] Manufactured homes are factory built and transportable in one or more sections.				
^[2] Any differences between Tables 4 and 5 may be due to demolitions, changes in vacancy rates, or annexations to incorporated cities.				

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. Development within UDBs is consistent with General Plan goals and policies. Moreover, new development assists the County in achieving its housing needs as contained in its Regional Housing Needs Allocation (RHNA).

Table 6 shows that the County approved one tentative subdivision map (TSM) during FY 2023/2024:

- TSM 23-002 (Landmark Surveying, Inc.) will subdivide 3.95 acres into 18 parcels that range in size from 6,000 to 10,200 square feet, located in the R-1 (One-Family) Zone, within the Pixley Urban Development Boundary, with the Land Use Designation of Low-Medium Density Residential (California OPR, 2024). The project site is located 100 feet north of the corner of Pine Street and Avenue 100 (Court Avenue), on the east side of Pine Street, in the town of Pixley. Its average residential density is 4.6 units per acre, slightly below the CAP goal of 5.0 units per acre within the boundaries of rural communities.

In addition, 11 of the 97 new residential housing permits included in Table 5 for FY 2023/2024 were for second or third units that will be constructed on existing lots. Additional units increase the overall development density by a small amount compared to existing conditions.

Table 6: Tulare County Approved Tentative Subdivision Maps, FY 2023/2024

Map No.	Location	Total Acres	Gross Residential Acres ^[1]	Residential Units	Density (Units per Acre) ^[1]
TSM 23-002 (Landmark Surveying, Inc.)	Pixley UDB	3.95	3.95	18	4.6
Total	--	3.95	3.95	18	4.6
Source: California OPR, 2024. ^[1] Density is based on the gross residential acreage (i.e., the approximate area dedicated to lots and roadways with curbs, gutters, and sidewalks).					

1.3.5 - Commercial and Industrial Development

A review of building permit completions identified a total of 91,827 square feet of new commercial, warehouse, and office space during the fiscal year ending June 30, 2024. This compares with 202,505 square feet in the previous year, FY 2022/2023. Data for new commercial projects completed in FY 2023/2024 are shown in Table 7. Providing local 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 commercial buildings, commercial storage buildings, a transit center building, agricultural buildings, agricultural storage buildings, a church building, industrial buildings, and a medical building. Dairy projects for housing animals were not included in the table.

Table 7: Tulare County New Commercial and Industrial Permits, FY 2023/2024

Project	Location	Square Feet
Commercial Building	Delano	2,160
Commercial Storage	Earlimart	6,000
Commercial Storage	Earlimart	5,040
Commercial Storage	Earlimart	6,000
Transit Center Building	Farmersville	3,644
Commercial Storage	Lindsay	10,000
Agricultural Building	Pixley	2,214
Commercial Building	Porterville	5,250
Agricultural Storage	Porterville	2,400
Agricultural Building	Reedley	8,750
Industrial Building	Reedley	4,435
Medical Building	Springville	8,169
Commercial Building	Springville	5,125
Commercial Building	Strathmore	1,200
Commercial Storage	Terra Bella	1,200
Industrial Building	Visalia	2,500
Commercial Storage	Visalia	10,000
Church Building	Visalia	1,420
Agricultural Storage	Visalia	6,000
Agricultural Building	Woodlake	320
Total Project Square Feet for Unincorporated County Finaled in 2023/2024		91,827
Source: Tulare County RMA Building Permit Database.		

1.3.6 - Percentage of Residential Construction in Community Plan 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 per capita by encouraging new growth to occur in existing communities (including cities) and to be constructed at higher-than-historic development densities to reduce VMT. This strategy of placing most new residential growth in existing communities better facilitates walking, bicycling, and transit, and is consistent with Tulare County's SB 743 Guidelines (Tulare County, 2020).

Review of unincorporated housing permit data from the Tulare County RMA Building Permit Database indicates that a total of 97 single family, multi-family, and manufactured home units were permitted in

FY 2023/2024 (see Table 5). Of these units, 75 (77 percent) are in UDBs and 22 (23 percent) are in rural areas of the County.

1.3.7 - Assessment of Vehicle Miles Traveled

This Progress Report compares current estimates of VMT in the unincorporated areas of the County with the amounts used in preparing the 2018 CAP. Overall estimates of VMT for the entire County were prepared by TCAG to support the Regional Transportation Plan (RTP) and Federal Transportation Conformity Requirements. The CAP relied on the VMT estimates in the TCAG 2018 RTP/SCS (TCAG, 2018). The CAP estimated the portion of VMT assigned to the unincorporated areas of Tulare County based on the percentage of County population in the unincorporated areas. The CAP assumed that 31.8 percent of the County population was in unincorporated areas in 2015, and 31.0 percent of the County population would be in unincorporated areas in all projected years from 2020-2035, which was the most recent estimate available at the time the CAP was prepared. The actual percentage of population in the unincorporated areas of the County has declined to 28.0 percent in 2024 (California DOF, 2024), lower than the estimate of 31.0 percent in the CAP. This change is due to more growth occurring in the incorporated cities than the unincorporated County areas.

Table 8 shows that the unincorporated VMT predicted by the 2018 CAP would increase from 2,518,809 VMT per day in 2015 to 2,597,248 VMT per day (interpolated) in 2024 (+3.1 percent since 2015). Based on the actual population in the unincorporated areas, the current 2024 estimate for unincorporated VMT is 2,212,681 VMT per day (-12.0 percent since 2015). The current unincorporated VMT estimate for 2024 is 14.8 percent lower than the CAP projection for 2024.

Table 8: Unincorporated County VMT Comparison, 2015 to 2024

Source	Daily Vehicle Miles Traveled		
	2015	2020	2024
2018 CAP ^[1]	2,518,809	2,505,712	2,597,248
Current Estimate ^[2]	2,513,134	2,249,808	2,212,681
Percent Difference (Current Estimate minus 2018 CAP)	-0.2%	-10.2%	-14.8%
^[1] Source: Appendix A of the Tulare County 2018 CAP (Tulare County, 2018). Year 2024 is interpolated. ^[2] The current estimates represent the 2018 CAP VMT adjusted per current DOF population estimates (California DOF, 2024).			

Although population in the unincorporated areas of Tulare County has declined since 2015, new residential units continue to be constructed. The VMT generated by actual new residential development was estimated using the most recent available version of the California Emissions Estimator Model (CalEEMod) (CAPCOA, 2024). The results were then compared with the VMT anticipated by the housing buildout rate projected in the 2018 CAP. Review of the Tulare County RMA Building Permit Database identified a total of 97 new residential units in FY 2023/2024 (see Table 5). By comparison, the 2018 CAP forecasted an average of 179 new occupied units per year through 2020 and 351 new occupied units per year from 2021 through 2030.

Table 9 presents the results of the VMT analysis for new residential development in unincorporated Tulare County. For FY 2023/2024, actual VMT, as estimated by CalEEMod, was only 32 percent of the amount forecasted in the 2018 CAP. Moreover, since the net number of occupied housing units in unincorporated Tulare County has declined since 2015 despite the new development (see Table 4), the true VMT impact of the new residential development is less than shown in Table 9.

Table 9: Annual Vehicle Miles Traveled from New Unincorporated Residential Development

Fiscal Year	2018 CAP Annual VMT Forecast ^[1]	Annual VMT from Actual Permitted New Residential Units ^[2]	Percentage of CAP Forecast
FY 2019/2020	4,766,588	3,848,390	81%
FY 2020/2021	9,346,773	6,784,416	73%
FY 2021/2022	9,346,773	4,817,521	52%
FY 2022/2023	9,346,773	4,050,769	43%
FY 2023/2024	9,346,773	3,008,946	32%
^[1] The VMT forecasted in the 2018 CAP assumed 179 new occupied units in 2020 and 351 new occupied units per year from 2021-2030. ^[2] VMT for FY 2019/2020 through FY 2022/2023 are from the 2022/2023 CAP Progress Report (Tulare County, 2023). VMT for FY 2023/2024 was estimated using CalEEMod Version 2022.1.1.29.			

The annual VMT generated from new commercial and industrial development projects 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 CalEEMod. The 2018 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 in Table 10 reflects recent trends. Commercial services and employment provided by the new development provide local services to underserved communities and would be expected to reduce travel to more distant businesses in neighboring cities to obtain jobs and goods and services. This reduction in VMT per capita is consistent with Tulare County's SB 743 Guidelines (Tulare County, 2020).

Table 10 shows that the new FY 2023/2024 commercial and industrial projects generated an increase in VMT of 2,662,890 miles per year. The VMT is highly dependent on the types of projects that were completed. For example, fast food restaurants, vehicle service stations, medical facilities, and convenience markets have higher trip generation per square foot than most other projects.

Table 10: Annual Vehicle Miles Traveled from New Unincorporated Commercial and Industrial Development

Fiscal Year	Annual VMT from Actual Permitted New Commercial and Industrial Development ^[1]
FY 2019/2020	14,123,337
FY 2020/2021	3,426,793
FY 2021/2022	5,799,936
FY 2022/2023	1,936,157
FY 2023/2024	2,662,890
^[1] VMT for FY 2019/2020 through FY 2022/2023 are from the 2022/2023 CAP Progress Report (Tulare County, 2023). VMT for FY 2023/2024 was estimated using CalEEMod Version 2022.1.1.29.	

1.3.8 - Compliance with Energy Efficiency Regulations

In 2008, California targeted zero-net-energy use in all new homes by 2020 and commercial buildings by 2030. Accordingly, the California Energy Commission (CEC) is responsible for adopting, implementing, and updating the Title 24 Energy Efficiency Standards every three years. “Title 24” refers to the California Building Standards Code (Title 24, Part 6, California Code of Regulations). This Progress Report assesses the extent to which recent projects exceeded the 2016 Title 24 Energy Efficiency Standards, which were in effect at the time the 2018 CAP was prepared. The 2016 Title 24 standards increased energy efficiency in new residential development by 28 percent compared to the previous 2013 Title 24 standards. New commercial buildings were required to increase energy efficiency by 5 percent compared to the 2013 Standards (CEC, 2016).

The 2019 Title 24 standards went into effect on January 1, 2020. Compared to the 2016 standards, homes built to the 2019 standards use roughly 53 percent less grid energy due to a requirement for new homes to install solar panels (CEC, 2019). For new commercial development, the 2019 standards provide an additional energy efficiency increase of 10.7 percent for electricity usage and 1.0 percent for natural gas usage compared to the 2016 standards (CEC, 2022).

The 2022 Title 24 standards went into effect on January 1, 2023. The 2022 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, and strengthen ventilation standards. Buildings whose permit applications are applied for on or after January 1, 2023 must comply with the 2022 standards. (CEC, 2022b).

Title 24 compliance is demonstrated through Title 24 reports submitted to the local building department. Some, but not all, Title 24 reports provide a percentage above (beyond) regulation requirements. 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 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.

In FY 2023/2024, manufactured homes comprised about 19 percent of the new residential units permitted in unincorporated Tulare County. Manufactured homes make up an important component of the housing stock because in many cases energy efficiency is not regulated under Title 24. Instead, since 1976, manufactured homes have been required to meet federal standards enforced by the Department of Housing and Urban Development. These federal standards were most recently updated on May 31, 2022, when the U.S. Department of Energy (DOE) established new Energy Conservation Standards for Manufactured Housing (10 CFR part 460, subparts A, B, and C). The new standards are based on the 2021 version of the International Energy Conservation Code. They address climate zones; the building thermal envelope; air sealing; installation of insulation; duct sealing; heating, ventilation, and air conditioning (HVAC); hot water systems; mechanical ventilation fan efficacy; and heating and cooling equipment sizing. The DOE estimated that the standards would reduce overall demand for energy in manufactured homes and other unquantified energy security benefits. Further, the standards would produce environmental benefits in the form of reduced emissions of air pollutants and greenhouse gases associated with electricity production. Compliance with the updated standards is required starting July 1, 2025 for Tier 2 (multi-section) homes, and until 60 days after DOE issues enforcement procedures for Tier 1 (single-section) homes.

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

Projects permitted in FY 2023/2024 include 91,827 square feet of commercial and industrial development. No sustainability features beyond compliance with regulations were identified for the projects. However, all projects are required to comply with the increasingly stringent Title 24 Building Energy Efficiency Standards and CalGreen Building Code. Solar retrofit projects are described separately.

1.3.10 - Overall Progress in Achieving Solid Waste Reduction Goals

California's solid waste recycling goal was to achieve 75 percent by 2020, as defined by AB 341 (Chesbro). California's actual recycling rate in 2020 was 42 percent, short of the goal set out in AB 341. California's recycling rate in 2022, the most recent reporting year available, was 41 percent (CalRecycle, 2024). California remains committed to ultimately achieving this goal. Implementation of SB 1383 is an important step. SB 1383 required a 50 percent reduction in the level of the statewide disposal of organic waste by 2020 and requires a 75 percent reduction by 2025. It also requires that 20 percent of currently disposed edible food be recovered for human consumption by 2025 (CalRecycle, 2024b).

CalRecycle reported that unincorporated Tulare County had an annual solid waste disposal rate of 10.0 pounds per day per resident in 2022 (the most recent year available), compared with a target maximum rate of 6.2 pounds per person per day. The disposal rate per employee was 28.7 pounds per day in 2022, compared with a target maximum rate of 21.3 pounds per day (CalRecycle, 2024c).

To implement SB 1383 regulations, the County Board of Supervisors approved an update to the Tulare County Solid Waste Ordinance on December 7, 2021. This ordinance supports SB 1383 regulations including but not limited to: commercial and residential mandatory organics recycling, edible food recovery to divert edible food from landfills, and use of recycled organics products. The Solid Waste Department has also taken steps to permit compost operations that will meet the capacity planning component. At this time, the Solid Waste Department is working with franchise haulers to implement organics collection services in compliance with SB 1383.

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 residents, commercial businesses that generate four or more cubic yards of garbage per week, and multi-family apartments that have five or more units (Tulare County, 2024). 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.

With the implementation of AB 1383 and AB 341 through Licensed Hauler's Franchise Agreements, the County anticipates achieving the 75 percent diversion mandate. Therefore, the County reports that it is on track in implementing State regulations aimed at achieving the State's 75 percent solid waste diversion goal.

1.3.11 - Overall Progress in Achieving Water Conservation Goals

The County operates four water systems serving 289 connections as of January 2016 and over 200 privately owned public water systems (each serving multiple service connections) in 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 (Tulare County, 2020b). None of the county water systems qualifies 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 2016).

1.3.12 - Energy Retrofit Projects Completed

Solar Projects

The County has been very successful in permitting utility-scale, commercial, and residential photovoltaic solar projects. During the period from 2011 to 2023, the County approved 6,890 permits with a total generating capacity of about 795 megawatts (MW). Most residential and commercial solar projects are retrofits of existing buildings and ground mounted installations at existing developments. Emission



Photo Source: Dave Mitchell

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 2024), and using CalEEMod for current electric utility GHG emission factors. The 795 MW of capacity would provide a reduction in emissions of approximately 206,000 metric tons of carbon dioxide equivalent (MTCO₂) per year. In addition, the County operates solar panels at seven County campuses, serving 13 County-owned facilities, providing 9.4 MW of generation capacity and 0.75 MW of energy storage.

The County continues its success in permitting photovoltaic solar projects. As shown in Table 11, during FY 2023/2024, the County finalized an additional 824 solar building permits with a total generating capacity of 28.8 MW, which will provide an estimated 46,900 megawatt-hours per year. This amount of capacity would provide an emission reduction of approximately 7,450 MTCO₂ per year.

As previously reported, 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. Title 24 Building Energy Efficiency Standards require most residential projects to include solar panels to generate a portion of their energy needs.

Table 11: Tulare County Solar Projects, FY 2023/2024

Project Type	Number of Permits	Total Capacity (MW)
Solar Projects for Ag/Dairy Uses	19	13.78
Commercial Solar Projects	15	8.10
Residential Solar Projects	790	6.92
Total	824	28.80
Source: Tulare County RMA Building Permit Database.		

1.3.13 - Tulare County Transportation, Energy and Water Programs

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

Fleet Vehicles

Data on the County vehicle fleet was obtained from the County's fleet management database. The County vehicle fleet consists of 1,517 vehicles, including passenger cars and light trucks, work trucks, and buses. The fleet includes 200 fuel-efficient light-duty hybrid and electric vehicles. As vehicles reach retirement age, the County has continually purchased new, more fuel-efficient vehicles, thus meeting the latest standards. The County operated 166 model year 2023 and 2024 vehicles as of January 1, 2024. The fleet includes 91 diesel-powered vehicles, with the remainder operating on unleaded gasoline. The County fleet traveled a total of 13,807,458 miles and consumed 922,163 gallons of gasoline and diesel in 2022. The fleet consumed 1,034,626 gallons of gasoline and diesel in

2023 (R. Lamb, Fleet Services Superintendent, Tulare County, personal communication, December 3, 2024).

New County Buildings

No significant new County buildings were constructed during the reporting period (FY 2023/2024).

Transit Service

Transit service in unincorporated Tulare County is provided by the Tulare County Regional Transit Agency (TCRTA). TCRTA operates fixed route (local and commuter), Americans with Disabilities Act (ADA) paratransit, and on-demand (microtransit) services seven days a week, and additional dial-a-ride services from Monday through Friday. The TCRTA service area includes the cities of Dinuba, Exeter, Farmersville, Lindsay, Tulare, Woodlake, the Tule River Tribe of California, and the unincorporated communities of Tulare County. The 2024 TCRTA fleet consists of 129 vehicles, 38 of which are electric and 58 of which are compressed natural gas (CNG) (C. Landis, TCRTA, personal communication, December 3, 2024).



Photo source: TCAG

Table 12 presents the annual unincorporated County ridership figures achieved by TCRTA (formerly TCAT) from FY 2014/2015 to FY 2023/2024 on fixed routes and Dial-a-Ride. The total ridership trend is illustrated in Figure 3.

The 2022 TCRTA Capital Improvement Program (CIP) includes nearly \$17 million in investments to further the agency's zero-emission transition plan. TCRTA is currently in discussion with Southern California Edison (SCE) regarding any required utility upgrades and design of the charging infrastructure at the Central Yard. The 2022 CIP's \$17 million investments have been programmed for the Central Yard. Depending on the procurement process, TCRTA is planning to purchase an additional 10 zero-emission transit buses and 20 zero-emission shuttle vans. (R. Tree, TCRTA, personal communication, October 27, 2022).

Landfills

Tulare County currently owns and operates two landfills and six transfer stations. The County's landfills captured about 175 million cubic feet of methane in 2016. The methane is destroyed (i.e., burned) in flares. As a GHG, methane is 25 times more potent than CO₂. 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 Dome (now closed) landfills provide an estimated 40,918 metric tons of MTCO₂e reduction each year by flaring the methane captured (Tulare County 2016b, 2016c, and 2016d). No newer reports were available; however, the methane emissions in the landfills are

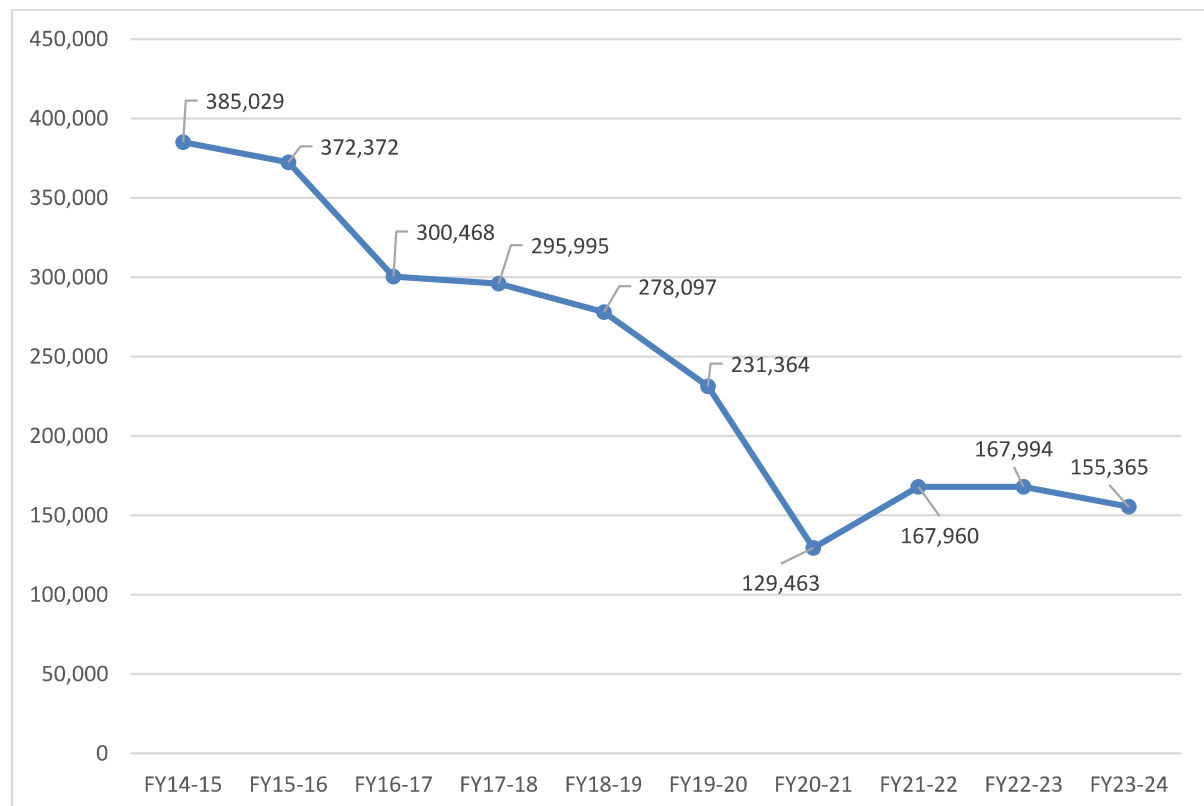
expected to gradually decline at a steady rate over the years as the organic matter in the landfill completes the decomposition process.

Table 12: TCRTA Unincorporated County Ridership, FY 2014/2015 to FY 2023/2024

Fiscal Year	Fixed Route Annual Ridership	Dial-a-Ride Ridership	Total System Ridership
2014-15	374,312	10,717	385,029
2015-16	362,061	10,311	372,372
2016-17	292,835	7,633	300,468
2017-18	288,561	7,434	295,995
2018-19	270,886	7,211	278,097
2019-20	227,089	4,275	231,364
2020-21	127,418	2,045	129,463
2021-22	165,490	2,470	167,960
2022-23	166,462	1,532	167,994
2023-24	154,359	1,006	155,365

Source: C. Landis, TCRTA, personal communication, December 3, 2024. Dial-a-Ride includes Micro Transit.

Figure 3: TCRTA Unincorporated County Annual Ridership



County Energy Conservation Programs

The County is responsible for enforcing the Title 24 Building Energy Efficiency Standards and CalGreen Building Code. No additional County ordinances or programs have been adopted; however, the County installed solar panels at seven County-owned campuses serving 13 County-owned buildings. Two locations include energy storage. The panels provide 9.4 MW of generation capacity and an energy storage capacity of 0.75 MW.

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 water systems operated by the County. The 2023/2024 water year experienced near-average to slightly below average precipitation throughout the San Joaquin Valley and the Sierra Nevada. Precipitation at the Visalia monitoring station was 10.1 inches, down from 12.7 inches in 2022/2023 (NOAA, 2024). The average precipitation for the City of Visalia is 10.9 inches per year.

1.3.14 - Agriculture

Although the State is taking steps to address agriculture-related GHG emissions (see Section 1.4), the Tulare County CAP does not set or impose any targets or action programs for agriculture-generated GHG emissions. Dairy and feedlot emissions are addressed separately in the Dairy and Feedlot Climate Action Plan (Dairy CAP) adopted on December 17, 2017 (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, purchase of electricity from utilities that comply with the Renewables Portfolio Standard, solar projects, and dairy GHG reduction projects. The County issued final permits for 19 new agricultural solar projects during FY 2023/2024 with a total of 13.78 MW of generation capacity (see Table 11). The County also issued final permits for two new dairy anaerobic digesters during FY 2023/2024. The *2023 Annual Report of Total Greenhouse Gas Emissions from Dairies and Feedlots for 2022* reported that there were approximately 798,953 MT of CO₂e reductions from digester, Alternative Manure Management Program, and solar projects that were operating at dairies in 2022, and another 235,111 MTCO₂e per year of reductions from projects currently planned for 2023 and beyond (Tulare County, 2024b). Currently, GHG reduction programs for agricultural sources are voluntary and incentive-based.

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 slight increase. The County Agricultural Commissioner reported that Tulare County saw a decrease in harvested acres of field crops (including pasture and rangeland) from 1.148 million acres in 2022 to 1.144 million acres in 2023, a net decrease of 4,317 acres. However, harvested acres of tree crops increased by 9,403 acres. The total value of all agricultural products was \$7.87 billion in 2023 compared with \$8.61 billion in 2022. This represents a decrease of \$746 million, or 8.7 percent, from 2022 (Tulare County Agricultural Commissioner/ Sealer, 2024). Changes in crops grown and valuation are caused by numerous economic and market factors, and water availability (which can vary substantially during drought conditions). 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.



Photo Source: Tulare County Agricultural Commissioner/Sealer

1.4—Status of Regulations Adopted to Reduce GHG Emissions

1.4.1 - Status of State Regulations, Policies, and Plans

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.

Title 24 Building Energy Efficiency Standards

The 2019 Title 24 Building Energy Efficiency Standards, adopted on May 9, 2018, took effect on January 1, 2020 and focused 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 2019 standards, nonresidential buildings use about 30 percent less energy compared with those built under the 2016 standards, due mainly to lighting upgrades. The standards required solar photovoltaic systems in new homes starting in 2020. (CEC, 2022).

Single-family homes built with the 2019 standards 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 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, 2022).

The 2022 Title 24 standards went into effect on January 1, 2023. The 2022 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expand solar photovoltaic and battery storage standards, and strengthen ventilation standards. Buildings whose permit applications are applied for on or after January 1, 2023 must comply with the 2022 standards. (CEC, 2022b).

CalGreen Building Code

The California Green Building Standards Code (Part 11, Title 24, California Code of Regulations), known as CALGreen, was first established in 2007 by the California Building Standards Commission (CBSC) to help meet the goals of AB 32. CALGreen includes mandatory and voluntary measures for residential and nonresidential building construction. CALGreen measures focus primarily on planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. Recent updates to CALGreen include water conservation and recycling, electric vehicle infrastructure and charging, and changes intended to eliminate conflicts with the Title 24 Building Energy Efficiency Standards (Part 6 of Title 24). (CBSC, 2024).

2022 Scoping Plan

In December 2022, CARB released the *2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan). The 2022 Scoping Plan is the most comprehensive and far-reaching AB/SB 32 Scoping Plan developed to date. It identifies a technologically feasible and cost-effective path to achieve carbon neutrality by 2045 while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan. Given the focus on carbon neutrality, this Scoping Plan also includes discussion for the first time of the Natural and Working Lands (NWL) sectors as both sources of emissions and carbon sinks. In line with the governor's Executive Order N-16-22 to take additional actions to embed equity analysis and considerations, this plan works to center equity by addressing disparities for historically underserved and marginalized communities. (CARB, 2022).

The two primary elements of the Plan are carbon reduction and carbon sequestration. Carbon reduction will require an aggressive reduction of fossil fuels wherever they are currently used in California, building on and accelerating carbon reduction programs that have been in place here for a decade and a half:

- Rapidly moving to zero-emission transportation by electrifying cars, buses, trains, and trucks;
- Phasing out the use of fossil gas used for heating homes and buildings;
- Further regulating chemicals and refrigerants that are thousands of times more powerful at trapping heat than CO₂;
- Providing communities with sustainable options for walking, biking, and public transit;
- Continuing to build out the solar arrays, wind turbine capacity, and other resources that provide clean, renewable energy to displace fossil-fuel fired electrical generation; and
- Scaling up new options such as renewable hydrogen for hard-to-electrify end uses and biomethane where needed.

Carbon sequestration will involve a re-envisioning of California’s forests, shrublands/chaparral, croplands, wetlands, and other lands—that is, Natural and Working Lands—to ensure that they play as robust a role as possible in incorporating and storing more carbon in the trees, plants, soil, and wetlands that cover 90 percent of the state’s 105 million acres. Balancing carbon output with carbon sequestration will require research, development, and deployment of additional methods of capturing CO₂ that include pulling it from the smokestacks of facilities, or drawing it out of the atmosphere itself and then safely and permanently storing it. (CARB, 2022).

Four scenarios were extensively modeled to develop this Scoping Plan, with the objective of informing the most viable path to remain on track to achieve the 2030 GHG reduction target, and to reduce anthropogenic emissions by 85 percent below 1990 levels and to achieve carbon neutrality by 2045. All four have their merits and are informed by stakeholder input. The scenario ultimately chosen as the basis of this Scoping Plan is the alternative that most closely aligns with existing statute and Executive Orders. It was selected because it best achieves the balance of cost-effectiveness, health benefits, and technological feasibility. (CARB, 2022).

2017 Scoping Plan

CARB adopted the 2017 Scoping Plan Update on December 14, 2017 (CARB, 2017b). The plan provides the State’s strategy to achieve the SB 32 2030 target of a 40 percent reduction in emissions compared with 1990 levels. The plan includes existing and new measures that, when implemented, are expected to achieve the SB 32 2030 target. The 2017 Scoping Plan achieves substantial reductions beyond 2020 through continued implementation of existing regulations. The major elements of the framework proposed to achieve the 2030 target are as follows:

- SB 350
 - Achieve 60 percent Renewables Portfolio Standard (RPS) by 2030.
 - Doubling of energy efficiency savings by 2030.
- Low Carbon Fuel Standard (LCFS)
 - Increased stringency (reducing carbon intensity by at least 20 percent by 2030).
- 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.
- 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. The Advanced Clean Truck Regulation was approved on June 25, 2020.
- Short-Lived Climate Pollutant (SLCP) Reduction Strategy
 - Reduce emissions of methane and hydrofluorocarbons 40 percent below 2013 levels by 2030. Working groups for Dairy and Livestock, Oil and Natural Gas Production, Processing, and Storage, and Stationary Hydrofluorocarbon Reduction Measures have been established.
 - Reduce emissions of black carbon 50 percent below 2013 levels by 2030.

- Sustainable Communities Strategies
 - The region's 2018 Sustainable Communities Strategy (SCS), a component of the TCAG 2018 RTP/SCS, is required by SB 375. It sets forth a forecasted development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, will reduce GHG emissions from passenger vehicles and light trucks to achieve GHG reduction targets set by CARB. The future land use and transportation scenario presented in the SCS must accommodate forecast population, employment, and housing sufficient to meet the needs of all economic segment of population, including the State-mandated RHNA, while considering State housing goals. The current CARB per-capita GHG reduction targets for auto and light truck emissions in the TCAG region are a 5 percent reduction by 2020 and a 10 percent reduction by 2035, relative to 2005 levels. (TGAG, 2018).
- Cap-and-Trade Program
 - A system in which power plants, refineries, and other large facilities buy and sell greenhouse gas emissions allowances in order to meet overall emissions limitations set by CARB. CARB will look for opportunities to strengthen the program to support more air quality co-benefits, including specific program design elements.

The 2030 statewide GHG emission target is 260 million MTCO₂e (MMTCO₂e). CARB estimated that the 2030 Business-as-Usual (BAU) (reference) inventory – including existing policies and programs but not including known commitments that are already underway – will be 392 MMTCO₂e. As a result, an additional 132 MMTCO₂e of reductions will be needed to meet the 2030 target. The Scoping Plan would achieve the bulk of the needed reductions from the electric power, industrial fuel combustion, and transportation sectors. Cap-and-Trade would provide between 10 and 20 percent of the required reductions depending on the amounts achieved by the other reduction measures.

AB 1279 (Muratsuchi, 2022)

AB 1279 establishes the policy of the state to achieve carbon neutrality as soon as possible, but no later than 2045; to maintain net negative GHG emissions thereafter; and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. The bill requires CARB to ensure that Scoping Plan updates identify and recommend measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable CO₂ removal solutions and carbon capture, utilization, and storage (CCUS) technologies. (CARB, 2022).

SB 905 (Caballero, 2022)

SB 905 requires CARB to create the Carbon Capture, Removal, Utilization, and Storage Program to evaluate, demonstrate, and regulate CCUS and carbon dioxide removal (CDR) projects and technology. The bill requires CARB, on or before January 1, 2025, to adopt regulations creating a unified state permitting application for approval of CCUS and CDR projects. The bill also requires the Secretary of the Natural Resources Agency to publish a framework for governing agreements for two or more tracts of land overlying the same geologic storage reservoir for the purposes of a carbon sequestration project. (CARB, 2022).

SB 1020 (Laird, 2022)

SB 1020 adds interim renewable energy and zero carbon energy retail sales of electricity targets to California end-use customers set at 90 percent in 2035 and 95 percent in 2040. It accelerates the timeline required to have 100 percent renewable energy and zero carbon energy procured to serve state agencies from the original target year of 2045 to 2035. This bill requires each state agency to individually achieve the 100 percent goal by 2035 with specified requirements. This bill requires the CPUC, California Energy Commission (CEC), and CARB to issue annual joint reliability progress reports that review system and local reliability. The bill also modifies the requirement for CARB to hold a portion of its Scoping Plan workshops in regions of the state with the most significant exposure to air pollutants by further specifying that this includes communities with minority populations or low-income communities in areas designated as being in extreme federal non-attainment. (CARB, 2022).

SB 1075 (Skinner, 2022)

SB 1075 requires CARB to prepare an evaluation that includes: policy recommendations regarding the use of hydrogen, and specifically the use of green hydrogen, in California; a description of strategies supporting hydrogen infrastructure, including identifying policies that promote the reduction of GHGs and short-lived climate pollutants; a description of other forms of hydrogen to achieve emission reductions; an analysis of curtailed electricity; an estimate of GHG and emission reductions that could be achieved through deployment of green hydrogen through a variety of scenarios; an analysis of the potential for opportunities to integrate hydrogen production and applications with drinking water supply treatment needs; policy recommendations for regulatory and permitting processes associated with transmitting and distributing hydrogen from production sites to end uses; an analysis of the life-cycle GHG emissions from various forms of hydrogen production; and an analysis of air pollution and other environmental impacts from hydrogen distribution and end uses. (CARB, 2022).

AB 1757 (Garcia, 2022)

AB 1757 required the California Natural Resources Agency (CNRA), in collaboration with CARB, other state agencies, and an expert advisory committee, to determine a range of targets for natural carbon sequestration, and for nature-based climate solutions, that reduce GHG emissions in 2030, 2038, and 2045. These targets must support state goals to achieve carbon neutrality and foster climate adaptation and resilience. The CNRA published its targets on April 22, 2024 (CNRA, 2024). The targets address wildfire risk reduction, forest management, shrubland and chaparral management, grassland management, cropland management, developed lands management, wetlands and seagrasses management, sparsely vegetated lands management, and additional state actions. AB 1757 also requires CARB to develop standard methods for state agencies to consistently track GHG emissions and reductions, carbon sequestration, and additional benefits from natural and working lands over time. These methods will account for GHG emissions reductions of CO₂, methane, and nitrous oxide related to natural and working lands and the potential impacts of climate change on the ability to reduce GHG emissions and sequester carbon from natural and working lands, where feasible. (CARB, 2022).

SB 27 (Skinner, 2021)

SB 27 requires the CNRA, in coordination with other state agencies, to establish the Natural and Working Lands Climate Smart Strategy. CNRA published the strategy in 2022 (CNRA, 2022). This bill also requires CARB to establish specified CO₂ removal targets for 2030 and beyond as part of its Scoping Plan. Under SB 27, CNRA is to establish and maintain a registry to identify projects in the state that drive climate action on natural and working lands and are seeking funding. CNRA also must track carbon removal and GHG emission reduction benefits derived from projects funded through the registry. (CARB, 2022).

SB 596 (Becker, 2021)

SB 596 requires CARB to develop a comprehensive strategy for the state's cement sector to achieve net-zero emissions of GHGs associated with cement used within the state as soon as possible, but no later than December 31, 2045. The bill establishes an interim target of 40 percent below the 2019 average GHG intensity of cement by December 31, 2035 (CARB, 2022). CARB is in the process of developing the strategy.

SB 552 (Hertzberg, 2021)

SB 552 requires state and local governments to share the responsibility in preparing and acting in the case of a water shortage event. These new requirements are expected to improve the ability of Californians to manage future droughts and help prevent catastrophic impacts on drinking water for communities vulnerable to impacts of climate change. The bill outlines the new requirements for small water suppliers, county governments, the Department of Water Resources (DWR), and the State Water Board to implement more proactive drought planning and be better prepared for future water shortage events or dry years. (DWR, 2021).

Executive Order N-79-20 (2020)

This executive order established targets for the transportation sector to support the state in its goal to achieve carbon neutrality by 2045. The targets are: 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles will be zero-emission by 2045 for all operations where feasible, and by 2035 for drayage trucks; and 100 percent of off-road vehicles and equipment will be zero-emission by 2035 where feasible. The Executive Order also tasked CARB to develop and propose regulations that require increasing volumes of zero-electric passenger vehicles, medium- and heavy-duty vehicles, drayage trucks, and off-road vehicles toward their corresponding targets of 100 percent zero-emission by 2035 or 2045, as listed above. (CARB, 2022).

Executive Order N-82-20 (2020)

This executive order enlists California's vast network of natural and working lands to store and remove carbon from the atmosphere and establishes a goal of conserving at least 30 percent of California's land and coastal waters by 2030. The Executive Order also instructed the CNRA, in consultation with other state agencies, to develop a Natural and Working Lands Climate Smart Strategy that serves as a framework to advance the state's carbon neutrality goal and build climate resilience. In addition to setting a statewide conservation goal, the Executive Order directed CARB to

update the target for natural and working lands in support of carbon neutrality as part of the 2022 Scoping Plan, and to take into consideration the NWL Climate Smart Strategy. (CARB, 2022).

Executive Order N-19-19 (2019)

This Executive Order instructs the Department of Finance to create a Climate Investment Framework that includes a proactive strategy for the state’s pension funds that reflects the increased risks to the economy and physical environment due to climate change. It also directs the State Transportation Agency to leverage more than \$5 billion in annual state transportation spending to help reverse the trend of increased fuel consumption and reduce GHG emissions associated with the transportation sector. It also calls on the Department of General Services to leverage its management and ownership of the state’s 19 million square feet in managed buildings, 51,000 vehicles, and other physical assets and goods to minimize state government’s carbon footprint. Finally, it tasks CARB with accelerating progress toward California’s goal of five million ZEV sales by 2030 by developing new criteria for clean vehicle incentive programs to encourage manufacturers to produce clean, affordable cars; proposing new strategies to increase demand in the primary and secondary markets for ZEVs; and considering strengthening existing regulations or adopting new ones to achieve the necessary GHG reductions from within the transportation sector. (CARB, 2022).

SB 100 (De Leon, 2018), California Renewables Portfolio Standard

SB 100 mandates that the California Public Utilities Commission, CEC, and CARB plan for 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. This bill also updates the state’s Renewables Portfolio Standard to include the following interim targets: 44 percent of retail sales procured from eligible renewable sources by December 31, 2024; 52 percent of retail sales procured from eligible renewable sources by December 31, 2027; and 60 percent of retail sales procured from eligible renewable sources by December 31, 2030. Under SB 100, the CPUC, CEC, and CARB shall use programs under existing laws to achieve 100 percent clean electricity. The statute requires these agencies to issue a joint policy report on SB 100 every four years. The first of these reports was issued in 2021 (CARB, 2022).

Executive Order B-55-18 (2018)

This Executive Order set a new statewide goal to achieve carbon neutrality as soon as possible, no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the statewide targets of reducing GHG emissions.

AB 2127 (Ting, 2018)

This bill requires the CEC, working with CARB and the California Public Utilities Commission, to prepare and biennially update a statewide assessment of the electric vehicle charging infrastructure needed to support the levels of electric vehicle adoption required for the state to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030 and of reducing emissions of GHGs to 40 percent below 1990 levels by 2030. CEC’s most recent report was prepared in February 2024 (CEC, 2024).

SB 32 (Pavley, 2016)

SB 32 is follow-up legislation to AB 32. Under SB 32, CARB must ensure that statewide GHG emissions are reduced to at least 40 percent below 1990 levels no later than December 31, 2030. CARB 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.

SB 1383 (Lara, 2016)

SB 1383 (Chapter 395, Statutes of 2016) sets forth specific legislative direction for control of Short-lived Climate Pollutants (SLCPs). It requires CARB 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. CARB published its SLCP strategy in March 2017 (CARB, 2017). SB 1383 also requires CARB 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 achieve specified targets for reducing organic waste in landfills (see Section 1.3.10).

SB 605 (Padilla, 2014)

SB 605 (Chapter 523, Statutes of 2014) calls for CARB to develop a SLCP Strategy. SLCPs include black carbon (soot), methane (CH₄), and fluorinated gases (F-gases, including hydrofluorocarbons [HFCs]). The strategy, approved by CARB on March 24, 2017, describes goals, regulations, incentives, and other efforts that:

- 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 (CARB, 2017).

SB 375 (Steinberg, 2008)

The Sustainable Communities and Climate Protection Act, also known as SB 375 is a law passed in 2008 by the California legislature that requires each metropolitan planning organization (MPO) to demonstrate, through the development of an SCS, how its region will integrate transportation, housing, and land use planning to meet the GHG reduction targets set by the State. In addition to

creating requirements for MPOs, it also creates requirements for the California Transportation Commission and CARB. Some of the requirements include the following:

- CARB must develop regional GHG emission reduction targets for automobiles and light trucks for 2020 and 2035 by September 30, 2010 (completed).
- Each MPO must prepare an SCS as part of its RTP to demonstrate how it will meet the regional GHG targets. If an SCS cannot achieve the regional GHG target, the MPO must prepare an Alternative Planning Strategy showing how it would achieve the targets with alternative development patterns, infrastructure, or transportation measures and policies.
- Each MPO must adopt a public participation plan for development of the SCS that includes informational meetings, workshops, public hearings, consultation, and other outreach efforts (completed).

CARB set targets for the TCAG region to maintain or reduce greenhouse gas emissions in 2020 and in 2035. These targets apply to the TCAG region as a whole for all on-road light-duty trucks and passenger vehicles emissions, and not to individual cities or sub-regions. On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions to 2005 levels by 2020 and 2035. TCAG was assigned targets of a 13 percent reduction in GHG emissions from per capita passenger vehicles by 2020 and a 16 percent reduction in GHG emissions from per capita passenger vehicles by 2035, relative to 2005 emission levels. SB 375 also requires that the RTP's forecasted development pattern for the region be consistent with the eight-year regional housing needs as allocated to member jurisdictions through the RHNA process under state housing law. (TCAG, 2022b).

AB 32 Global Warming Solutions Act (Pavley, Nunez, 2006)

AB 32 required the State to reduce California's GHG emissions to 1990 levels (431 million metric tons) by 2020. The State's strategy for achieving the AB 32 targets is contained in the California Air Resources Board (CARB) Scoping Plan and its updates. The 2020 target was achieved by the state four years ahead of schedule in 2016.

1.4.2 - Status of County Regulations, Policies, and Plans

2022 RTP/SCS

On August 15, 2022, TCAG adopted the 2022 RTP/SCS, which succeeded the 2018 RTP/SCS. The 2022 RTP/SCS provides a long-range, fiscally constrained guide for the future of Tulare County's Transportation system. It forecasts future growth, identifies regional priorities, and plans for infrastructure improvements. Many of the programs and funding in the 2022 RTP/SCS target disadvantaged communities. The SCS portion of the 2022 RTP/SCS has two main objectives: (1) to meet the GHG reduction targets for automobile and light truck emissions that CARB has set for the region and (2) to promote better coordination of land use, transportation, and housing planning at the local and regional level. (TCAG, 2022).

The preferred scenario in the 2022 RTP/SCS is the Cross-Valley Corridor, Blueprint Plus Scenario. The vision for this scenario was built around the planned High Speed Rail Station in the Hanford Area with connections to an existing east-west rail corridor that stretches from Huron in Fresno County to

the west, through Naval Air Station Lemoore, the City of Lemoore, Hanford, and eastward into Tulare County through Goshen, Visalia, Farmersville, Exeter, Lindsay, Strathmore, and Porterville. The ultimate vision of passenger rail sharing the existing rail line or right of way with freight trains is the backbone of an increasingly dense corridor that would concentrate future growth in urban centers surrounding future passenger rail stations that are planned or now operating as bus transit centers. (TCAG, 2022).

Under the 2022 RTP/SCS, higher residential and commercial densities would be encouraged to allow a greater number of residents and businesses to be located within walking distance of the new rail stations, reducing some dependency on the automobile. Those who did not live in walking distance of a rail station would be served by new and improved transit services, such as on-demand transit, active transportation corridors, and electric vehicle car-sharing services all oriented toward bringing people into the transit centers. Cities and communities not located on the rail line, such as Tulare, Dinuba, and Woodlake would be served by an efficient and coordinated busing system designed to link those communities with the Cross Valley Rail Stations. When fully implemented, most urban residents in the region will have access to the High-Speed Rail Station in Hanford. (TCAG, 2022).

The SCS portion of the 2022 RTP/SCS incorporates new strategies to address a rapidly changing regional, national, and global context. It incorporates a new RHNA Plan (addressing the state's expanded fair housing planning requirements under AB 686) and regional growth forecast. It also lays out the blueprint for achieving updated CARB per-capita GHG reduction targets for auto and light truck emissions in the TCAG region, which are a 13 percent reduction by 2020 and a 16 percent reduction by 2035, relative to 2005 levels. The 2022 RTP/SCS meets the requirements of SB 375 and demonstrates how the integrated land use and transportation plan achieves the region's mandated greenhouse gas emission targets for passenger vehicles. (TCAG, 2022).

The Tulare County RMA is committed to fully integrated modal options in its General Plan and various Community Plans. This includes supporting projects that enhance active transportation infrastructure. To help accomplish this, RMA has developed Complete Street Policies for its disadvantaged, unincorporated communities. These policies contain visions, priorities, goals, objectives, policies, analysis, and ultimately project lists and cost estimates. These align with the overall regional goals contained in this RTP/SCS. (TCAG, 2022).

Electric Vehicle Charging Stations

The Tulare County RMA and the Tulare County Fire Department updated Chapter 15 of Part VII of the Tulare County Ordinance Code to reflect the new regulations in the 2022 Building Standards Code. The update also includes new Article 32 "Electric Vehicle Charging Stations Review Process" as outlined in AB 1236 and AB 970. The law was developed to further the availability of charging infrastructure to help drive the deployment of zero emission vehicles to reduce greenhouse gas emissions. (Tulare County RMA, 2022).

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

1.5.1 - Federal Solar Tax Credits

Solar consumers are eligible for federal tax incentives for the purchase and installation of eligible solar systems, including both solar photovoltaic and solar hot water (solar thermal) systems, as well as other renewable energy investments. The federal tax credit for homeowners is currently 30 percent of the total system cost with no upper limit for installed between 2022-2032. For businesses, solar systems that are placed in service in 2022 or later and begin construction before 2033 are eligible for a 30 percent investment tax credit or a 2.75 ¢/kWh production tax credit if they meet labor requirements issued by the Treasury Department or are under 1 MW in size (EERE, 2024).

1.5.2 - Southern California Edison Programs

Rebates

Southern California Edison (SCE) offers programs and rebates to its residential and commercial customers. The following rebates are available (SCE, 2024; SCE, 2024c):

- Smart Thermostat rebate of up to \$75
- Electric Portable Power Stations - \$150 in high fire risk zone
- Portable Power Generator - \$200 or \$600 (income-qualified) in high fire risk zone
- Pre-Owned EV Rebate - \$1,000 to \$4,000 based on income eligibility
- Clean Vehicle Rebate Project – Up to \$4,500 for new zero-emission or plug-in hybrid
- Home or Business Area Network (HAN) Device - \$25 rebate
- Charge Ready Home Rebate Program - \$4,200 in rebates to install a Level 2 (L2) electric vehicle (EV) charger within 120 days of getting an EV (income-qualified households and residents living in disadvantaged communities)

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 (SCE, 2024b). Current programs include:

- New Solar Homes Partnership (NSHP). The NSHP provides financial incentives and other support to encourage homebuilders to construct new, energy efficient solar homes that reduce energy demand, save homeowners money, and help protect the environment.
- Solar Billing Plan (SBP). The Solar Billing Plan is designed to help modernize solar rates to promote grid reliability, incentivize solar and battery storage, and help control electricity costs for all Californians. Each month, billing will include charges for energy used from the electric grid, as well as energy credits exported to the grid.
- Self-Generation Incentive Program offers rebates to customers who install new, qualifying self-generation equipment.

Other Programs

- Energy Savings Assistance program – Income-qualified customers may be eligible to receive energy-efficient appliances at no charge or at a minimal charge (including installation).
- Comprehensive Manufactured Homes Program – SCE partnered with Synergy Companies to offer energy-saving products and services that optimize air conditioning operation, efficiency, and comfort. Products and services may include a Smart Thermostat, Fan Controller, Duct Test and Seal, and more.
- Solar on Multifamily Affordable Housing (SOMAH) program – Provides incentives for building owners to install solar.
- TOU-D-PRIME – Lower rates during off-peak hours for electric vehicle owners, households with residential batteries, and households with electric heat pumps.

1.5.3 - PG&E Rebate Programs

Pacific Gas and Electric Company (PG&E) offers a variety of rebates for residential and business customers who install energy efficient equipment. Prescriptive rebates are available for eligible energy efficiency improvements such as HVAC, appliance, water heating, ventilation, and pool pump upgrades. The following rebates for residential customers are available (PG&E, 2024):

- Smart Thermostat replacing manually operated or programmable thermostat—\$75 per household.
- High Efficiency Electric Heat Pump Storage Water Heater—\$500 to \$900.
- Gas tank water heater - \$75.
- Room air conditioners - \$90.
- Backup Power Generator or Battery - \$300 when in high-risk fire area and serviced by an Enhanced Power Safety Settings (EPSS) circuit.
- Pre-Owned Electric Vehicle Rebate Program - \$1,000 to \$4,000 for purchase or lease, depending on level of income.
- Residential Charging Solutions rebate - Income-eligible households can receive a \$700 rebate on EV charging equipment installed in their homes.
- Single-family Affordable Solar Homes (DAC-SASH) program – A state of California program for low- or fixed-income families to receive free solar installations.
- Self-Generation Incentive Program (SGIP) - A financial rebate program for qualified PG&E residential and business customers installing battery storage systems.

The following rebates for businesses are available (PG&E, 2024b):

- Variable speed drive for dust collection fan/blower; \$250-\$15,000.
- Advanced digital economizer control systems for packaged HVAC units.
- Demand Controlled Ventilation for Packaged HVAC Units; \$300-\$500.
- Enhanced Ventilation Control for Packaged HVAC Units; \$10/ton-\$194/ton depending on equipment.
- Agricultural Irrigation Pump Variable Frequency Drive incentives from \$8 to \$15 per horsepower depending on size and type of pump selected.
- Agricultural Process Fan Variable Speed Drive provides rebates of \$75 per horsepower for fans used in exhaust, pressurization or other process actions.
- Agricultural ventilation fans; \$75 to \$200 depending on fan size.
- Variable Frequency Drives for HVAC Fans; \$80/hp.
- High-efficiency ultra-low temperature freezer; \$300 to \$600 depending on size.
- Anti-sweat heater (ASH) controls for refrigeration system; \$25 per linear foot.
- New high-efficiency refrigeration display case doors (low temperature); \$75 per linear foot.
- New display cases to replace open multi-deck refrigerated displays; \$75 to \$175 per linear foot depending on temperature.
- Pipe insulation; \$3 per linear foot or fitting.
- Ozone laundry system; \$39 per pound washing machine capacity.
- Modulating gas valve for on-site natural gas commercial dryers; \$350 per unit.
- Commercial pool and spa heaters; \$2 per MBtuh.

PG&E's Net Surplus Compensation (NSC) program pays a fair market value for any balance of surplus energy from a business's solar or renewable energy system. PG&E's Net Energy Metering Aggregation (NEM2A) allows a single customer with multiple meters on the same property, or on adjacent or contiguous properties, to use renewable generation (e.g. solar panels) to serve the aggregated load behind all eligible meters and receive the benefits of Net Energy Metering (NEM2).

1.5.4 - SoCalGas Residential Programs

SoCalGas offers the following rebates on natural gas appliances for residential customers (SoCalGas, 2024):

- Dryer—\$70
- Tankless Water Heater—\$80–\$1,300
- Storage Water Heater—\$75
- Pool Heater—\$400–\$1,000
- Natural Gas Fireplace Insert—\$300–\$500
- Wall Oven - \$300
- Freestanding Oven—\$100
- Solar Thermal Water Heating System - \$2,500 to \$4,500
- Patio Heaters - \$400
- Energy Star Certified Furnace - \$14 per kBtuh

1.5.5 - SoCal Gas Non-Residential Programs

SoCal Gas offers a variety of energy-efficiency rebates designed to help businesses save money and energy when planning to purchase qualifying equipment (SoCalGas, 2024b). Categories include:

- Business and Food Service Equipment Rebates – Available to large commercial, small commercial, industrial, and institutional customers for a wide variety of efficiency projects. Qualifying equipment includes natural gas boilers, pipe and tank insulation, steam traps, water and pool heaters, energy management systems, and food service equipment.
- Prescriptive Energy Efficiency for New Construction – Provides rebates to residential and non-residential customers for the permanent installation of qualified high-efficiency equipment. New eligible construction projects may be eligible if built to meet or exceed the State of California Title 24 Energy Efficiency Standards and equipped with qualifying natural gas measures.
- Zero Percent On-Bill Financing – 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.
- Energy-Efficiency Financing – Offers a variety of financing options to help pay for energy efficient products and upgrades.

1.5.6 - Other Programs and Incentives

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

Revenue for the CCI Fund comes from proceeds of the California Cap-and-Trade Program auctions that are deposited into the Greenhouse Gas Reduction Fund (GGRF). In 2023, state agencies that administer CCI programs invested \$1.7 billion in 17,000 new projects. These dollars are funding programs that support reduced air pollution through community emissions reduction programs and incentives for cleaner vehicles and equipment, and increase mobility through transit projects and transit-oriented affordable housing. In 2023, CCI programs implemented projects that are expected to reduce 14.7 million MTCO₂e over project lifetimes. Cumulatively, investments implemented since the inception of CCI are expected to reduce 109.2 million MTCO₂e over project lifetimes. Cumulatively, 76 percent, or \$8.1 billion, in implemented CCI project dollars has benefited disadvantaged communities and low-income communities and households. (CARB, 2023).

The Legislature appropriates money from the Greenhouse Gas Reduction Fund (GGRF) to agencies to administer CCI programs that facilitate GHG emission reductions and provide additional economic, environmental, and public health benefits, consistent with existing legislative guidance (CARB, 2023). The fund supports numerous local assistance programs, including the following:

- Incentives for zero-emission vehicles and equipment;
- Increasing clean mobility options through transit and active transportation projects;
- Diverting organic waste from landfills to composting;
- Protecting forests from catastrophic wildfire;
- Supporting sustainable agricultural lands; and
- Expanding urban tree canopies

Vehicle Incentive Programs

SJVAPCD Grants and Incentives. The SJVAPCD is currently providing funding opportunities under several components of its Grants and Incentives Program. The program targets reducing harmful emissions throughout the Valley. Numerous incentive programs are available to public agencies, residents, and businesses. For example, the Drive Clean in the San Joaquin rebate program provides funding of up to \$12,000 for low-income Valley residents to replace their 2006 and older vehicles with plug-in hybrid electric vehicles (PHEVs) or EVs. The “Tune In, Tune Up” program helps vehicle owners take voluntary action to improve air quality by subsidizing expensive smog repairs. The “Charge Up!” electric vehicle charger incentive program provides funding for public agencies, businesses, and property owners of multi-unit dwellings (apartment complexes, condominiums, etc.) in the San Joaquin Valley to install electric vehicle (EV) chargers. Funding incentives maximums range from \$5,000 to \$25,000 depending on the type of charger. Other programs provide incentives to agricultural businesses, such as the Agricultural Equipment Trade-Up program for small growers to trade up to cleaner equipment at a fraction of the cost of new equipment; and the Tractor and Certified Pre-Owned Equipment Replacement Program. (SJVAPCD 2024).

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 zero-emission 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. HVIP accelerates commercialization by providing point-of-sale vouchers to make advanced vehicles more affordable. Launched by the California Air Resources Board in 2009, the project is part of CCI. (HVIP 2024).

California Consumer Assistance Program – Vehicle Retirement. The Consumer Assistance Program’s vehicle retirement option offers eligible consumers an incentive to retire their operational vehicle. Consumers meeting the income eligibility requirement may receive \$1,500 for each vehicle retired. All other vehicle owners may receive \$1,000 to retire their vehicle at a Bureau of Automotive Repair (BAR)-contracted dismantler. (CARB, 2024b).

Federal Tax Credit for New Electric Vehicles (Income Qualified). Eligible electric, plug-in hybrid and fuel cell electric vehicles purchased new in 2023 or after may be eligible for a federal income tax credit of up to \$7,500. The availability of the credit will depend on several factors, including the

vehicle's MSRP, its final assembly location, battery component and/or critical minerals sourcing, and the buyer's modified adjusted gross income (AGI). (CARB, 2024b).

Federal Tax Credit for Used Electric Vehicles (Income Qualified). Pre-owned all-electric, plug-in hybrid, and fuel cell electric vehicles purchased on or after January 1, 2023, may be eligible for a federal income tax credit. The credit equals 30 percent of the sale price up to a maximum credit of \$4,000. (CARB, 2024b).

Federal Alternative Fuel Infrastructure Tax Credit. Consumers who purchase qualified residential fueling equipment between January 1, 2023, and December 31, 2032, may receive a tax credit of up to \$1,000. (CARB, 2024b).

Incentive programs are subject to change and funding limitations. Most programs are offered on a first come, first served basis.

1.6—Climate Change Adaptation and Resiliency

Climate change adaptation and resiliency planning seeks to address the impacts of climate change on communities. The potential impacts of climate change on the health, safety, and general welfare of the people of Tulare County are many. The most important potential impacts for Tulare County are those related to changes in water supply, increases in wildfire risk, increases in extreme storm events and related flooding, and temperature increase predicted with a changing climate. Issues related to water supply, flooding, and wildfire risk are not new and have been the subject of County planning efforts for many years. Climate change is expected to make addressing these impacts more difficult in the future, requiring hazard mitigation planning and water planning to rise to a new level.

The State of California has adopted legislation requiring local governments to take additional action regarding climate adaptation and has provided guidance through the Office of Emergency Services on this topic. The California Adaptation Planning Guide (APG) was updated in June 2020 and reflects the latest information and best practices for climate change adaptation planning (CalOES 2020).

1.6.1 - Adaptation and Resiliency Planning Requirements

In 2015, SB 379 revised Section 65302(g)(4) to require that cities and counties update their safety elements to address climate adaptation and resiliency strategies applicable to their jurisdiction. The updates are required at the next update of their local hazard mitigation plan (LHMP) on or after January 1, 2017. Local jurisdictions without an LHMP must update their safety elements beginning on or before January 1, 2022. The safety element update must include:

1. A vulnerability assessment identifying the risks that climate change poses to the local jurisdiction.
2. A set of goals, policies, and objectives based on a vulnerability assessment for the protection of the community.
3. A set of feasible implementation strategies to carry out the goals, policies, and objectives.

Section 65302(g)(4) identifies resources and considerations in support of the requirements, including the APG. Section 65302(g)(4)(D) allows local jurisdictions to meet this requirement in the safety element of the general plan or with an adopted LHMP, stand-alone climate adaptation plan, or a similar document if it “fulfills commensurate goals and objectives and contains the information required.” If a local jurisdiction elects to meet this requirement with other stand-alone plans or equivalent content in other portions of the general plan, it “shall summarize and incorporate by reference into the safety element the other general plan provisions, climate adaptation plan or document, specifically showing how each requirement of this subdivision has been met.”

In 2018, SB 1035 further revised Section 65302 to require that after 2022 the safety element be reviewed and updated upon each revision of the housing element or LHMP, but no less than once every eight years, to address climate adaptation and resiliency and identify new information relating to flood and fire hazards.

The APG includes the following definition of resilience and adaptation:

Adaptation is “an adjustment in natural or human systems to a new or changing environment” (such as the increased frequency and intensity of climate-related hazards or other climate-related conditions). An adaptation adjustment “moderates harm or exploits beneficial opportunities” brought about by the change.

Resilience is “the capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience.” A community’s resilience is determined by its ability to survive, adapt, and thrive no matter what acute shock or chronic stressor it experiences.

1.6.2 - 2023 Local Hazard Mitigation Plan

Tulare County prepared the 2023 Multi-Jurisdictional Local Hazard Mitigation Plan (MJLHMP) to assess the natural, technological, and human-caused risks to County communities to reduce the potential impact of the hazards by creating mitigation strategies (Tulare County, 2023b). The MJLHMP represents the County’s commitment to create a safer, more resilient community by taking actions to reduce risk and by committing resources to lessen the effects of hazards on the people and property of the County.

Tulare County, eight incorporated communities, and nine special districts prepared the 2023 MJLHMP, which serves to update the FEMA-approved 2018 Tulare County MJLHMP. The 2023 update brings the MJMHMP into compliance with recent legislation related to climate change and to address new human-health and natural hazards and emerging concerns. Once approved by FEMA, the 2023 MJLHMP will be adopted into the Safety Element of the Tulare County General Plan.

The MJLHMP is a 5-year strategic plan that also seeks to identify and mitigate natural hazards. The MJLHMP is related but distinct from the Safety Element, directly responding to the requirements of the Federal Disaster Mitigation Act (DMA) of 2000. The DMA establishes requirements to identify

hazards, evaluate mitigations, and prioritize strategies to mitigate hazard risks. To maintain eligibility for FEMA funding, the County must update the MJLHMP every five years.

In preparing the MJLHMP, the County conducted a risk assessment that identified and profiled hazards that pose a risk to the County and participating jurisdictions, assessed the vulnerability of the Tulare County Planning Area to these hazards, and examined the existing capabilities to mitigate them. Floods, earthquakes, drought, levee failures, wildfires, and other severe weather events are among the hazards that can have a significant impact on the County.

Based on the results of the risk assessment, the participating jurisdictions developed a mitigation strategy for reducing Tulare County and all participating jurisdiction's risk and vulnerability to hazards. The resulting Mitigation Strategy for the Tulare County Planning Area is comprised of LHMP goals and objectives and a mitigation action plan which includes a series of mitigation action projects and implementation measures. The goals and objectives are:

- Protect life, property, and reduce potential injuries from natural, technological, and human-caused hazards.
- Improve public understanding, support, and need for hazard mitigation measures.
- Promote disaster resistance for the County's natural, existing, and future built environment.
- Strengthen partnerships and collaboration to implement hazard mitigation activities.
- Enhance the County's ability to effectively and immediately respond to disasters.

The MJLHMP's section on Hazard Profiles and Vulnerability Assessment addresses climate change. It states that sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and earlier runoff of both snowmelt and rainwater in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing. (Tulare County, 2023b).

In Tulare County, climate change will be more localized in the form of changes in existing conditions or new natural hazards. They include agriculture and forestry pests and diseases, avalanche, drought, extreme heat, flooding, pandemic hazards, landslides, severe weather, severe winter weather, and wildfire. Tulare County is currently experiencing some of these changes, but others may not occur or be apparent for several years or decades. (Tulare County, 2023b).

Section 5.4, Table 5-5 of the 2023 MJLHMP includes 95 County-specific mitigation actions to implement the plan. The table presents the agency responsible for implementation of each measure, the implementation priority (high, medium, or low), the schedule (short, long, and ongoing), the measure benefit (high, medium, or low), and the funding source. Mitigation actions were derived from numerous sources including the General Plan, the 2018 CAP, and input from the public and stakeholders. The County shall strive to implement these mitigation actions as determined to be economically and technically feasible under current regulations and fiscal constraints.

1.7—Progress Report Summary

The primary purpose of this Annual Progress Report is to determine if the County is on track (i.e., has made progress) to achieve the CAP emission reduction targets (see Section 1.3). If on track, no additional action is needed at this time to meet the targets. If not on track (i.e., is not progressing at the desired rate), the County would need to adopt and implement new measures or programs to achieve the desired reduction target. A review of the measures of progress indicates that the County achieved the 2020 CAP emissions target and is well-positioned to achieve the 2030 target. Table 13 summarizes the key measures of progress as developed in Section 7.1 of the 2018 CAP.

Table 13: Tulare County CAP Progress Summary

Metric	CAP Comparison	Progress on Track?
Overall growth in population and housing compared to amount projected in CAP	CAP 2024 Population: 157,603 Actual 2024 Population: 134,267	Yes
	CAP 2015-2024 Occupied Housing Unit change: +2,644	Yes
	Actual 2015-2024 Occupied Housing Unit change: -474	
Average Development Density in Community Plans	CAP Goal for rural communities: 5.0 units/acre Approved TSMs in 2023/2024: 4.6 units/acre	Yes ¹
VMT Comparison	2018 CAP 2015-2024 VMT Change: +3.1% Actual 2015–2024 VMT Change: -12.0% Under 2018 CAP by 14.8%	Yes
Per Capita Emissions	CAP 2020 Target: 8.8 MTCO ₂ e/person Latest 2020 Estimate: 5.76 MTCO ₂ e/person	Yes ²
Solar Projects FY 2023/2024	Residential: 790 projects—6.92 MW Commercial: 15 projects—8.10 MW Ag/Dairy: 19 projects—13.78 MW	Yes
Amount Title 24 Exceeded (compared to 2016 Title 24)	New Residential: 53% less grid energy New Commercial: 10.7% less grid energy	Yes
Progress from water conservation measures	New development would achieve 20 percent reductions in landscape water use and indoor water use through compliance with regulations and the County’s Staged Water Conservation Program. Insufficient data were available to quantify benefits beyond regulations and from existing development in the unincorporated area.	Yes ³
Solid Waste	The County reports that it is on track in implementing State regulations aimed at achieving the State’s 75 percent solid waste diversion goal.	Yes
Status of State regulations	Sufficient regulations adopted for the State to achieve AB 32 2020 target.	Yes
<p>Notes:</p> <p>¹ The approved TSM in FY 2023/2024 includes only 18 residential units; therefore, although its density of 4.6 units/acre is slightly under the CAP goal of 5.0 units/acre, the small development size would not substantially affect the overall average density of new developments in the County.</p> <p>² Per capita emission rates are from the 2018 CAP.</p> <p>³ 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.</p>		

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