Sustainability Roadmap 2020-2021

Department of Motor Vehicles

Progress Report and Plan for Meeting the Governor's Sustainability Goals

for California State Agencies

Department of Motor Vehicles

Gavin Newsom, Governor

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Department of Motor Vehicles Roadmap

Sustainability Road Map 2020-2021

Department of Motor Vehicles

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Executive Summary

Mission

We proudly serve the public by licensing drivers, registering vehicles, securing identities, and regulating the motor vehicle industry in pursuit of public safety.

Vision

Deliver an outstanding experience to all our customers, powered by our people and technology.

Building Portfolio Overview

The majority of DMV's customer services and programs are administered at field offices located throughout the state. The building portfolio consists of both state-owned and leased facilities. The most familiar of these is the traditional public field office, which comprises approximately 51% of the department's portfolio based on square footage. Another 14% is divided among Industry Business Centers, Contact Centers, Commercial Driver License, Driver Safety, Investigations, Occupational Licensing, and Training offices. Often these separate programs are co-located in the same facility as a public field office. The balance of DMV's portfolio includes headquarters, warehouse/storage, and support facilities.

Nearly 50% of the department's facilities are state-owned by DMV, the California Highway Patrol (CHP), or the Department of General Services (DGS), and 62% of the state-owned facilities were built during, or prior to 1980. With a state-owned portfolio that averages approximately 40 years in age, these aged buildings are in need of replacement or reconfiguration to meet the department's ongoing and diverse programmatic needs and to address code deficiencies.

The chart below shows the inventory of buildings and sites by ownership.

DMV INVENTORY BY OWNERSHIP		
Building/Site Ownership	**Number of**	**Square Footage**
DMV Owned	100	1,764,788
DMV Leased	137	1,196,298
CHP Owned	7	12,927
DGS Owned	4	17,987
Totals	**248**	**2,992,000**

Challenges and Efforts Underway

Over the past decades, the number of California residents has grown substantially; it is projected that California will have 42.3 million residents by 2025. This is an important measurable driver and a challenge the DMV must meet to support future customer service needs for a growing population. As population and demographics shift within the state, the DMV must address these needs through alternative service delivery methods, existing infrastructure reconfigurations, or new buildings meeting energy efficiency polices and requirements.

Authorized capital outlay projects are DMV's best opportunity to achieve significant energy efficiency improvements in field offices. New DMV field offices are designed to modern building codes which meet energy efficiency policy directives and incorporate new technologies for energy savings.

This report focuses on Climate Change Adaptation, Zero-Emission Vehicles, Energy, Water Efficiency and Conservation, and Green Operations.

Climate Change Adaption

The most significant climate impacts and associated risks to DMV's facilities are extreme hot or cold temperatures that may cause heating, ventilation, and air conditioning (HVAC) failures, and winter storm events that may cause roof leaks and other water penetrations into DMV facilities. DMV makes a significant effort to address the most pressing deferred maintenance issues through $10 million of deferred maintenance funding received via the Fiscal Year (FY) 2021-2022 budget. With this funding, DMV is replacing critical building systems in field offices, such as HVAC and roofing, in order to minimize the likelihood of sudden, unforeseen failures and office closures.

DMV continues to integrate climate change into all planning and investment, including new construction adhering to California Green Building Code and the United States Green Building Council's Leadership in Energy and Environmental Design, as well as the renovation of aging facilities to improve energy efficiency. DMV has expanded its on-line services and business partnerships, allowing customers to reduce travel and carbon emissions.

Zero-Emission Vehicles

DMV's Fleet Management Unit purchased twelve Zero Emission Vehicles (ZEV) in fiscal year 2020/2021 to replace older gasoline powered fleet vehicles. DMV has also installed Electric Vehicle Supply Equipment (EVSE), or charging equipment, at its Sacramento headquarters to support ZEV fleet vehicles. DMV has installed EVSE at the Fresno, Grass Valley and Sacramento field offices and has specified EVSE infrastructure at five new sites throughout the state, including a future EVSE project for employee use at its headquarters. In addition, DMV has integrated EVSE for employee and public use at all proposed facility construction projects in compliance with current California Green Buildings Standard Code (CalGreen) requirements.

Energy

DMV operates 248 buildings in its portfolio. The department is committed to implementing environmentally friendly, energy and resource-efficient practices and policies. The DMV has an existing facility and infrastructure planning process with seven guiding principles that translates the department's programmatic needs into infrastructure requirements, while supporting the state's green and sustainability goals. Two of DMV's guiding principles illustrate the department's commitment to "Greening DMV" through its environmentally sound building designs and construction methods:

- Principle 6 – Utilize energy efficient and sustainable building design and construction methods that are in accordance with Executive Orders issued by the Governor, State of California's Green Building Action Plan, the California Green Building Standards Code, and the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) rating system.

- Principle 7 – Remain committed to environmentally friendly and energy and resource efficient practices and policies for both the buildings the department owns or operates and for the products DMV purchases.

DMV continues to work diligently in adopting green practices and policies by incorporating green principles into the department's existing facilities and proposed infrastructure projects.

Water Efficiency and Conservation

Ongoing facility operations and new capital outlay projects are DMV's best opportunities to achieve water conservation in field office locations. New DMV field office projects are designed to modern building codes and meet statewide water conservation policy directives. DMV had six authorized field office replacement projects that were funded between CY 1997-2017, and six new projects are currently in various stages of design and construction. DMV has been successful in reducing its water use over the past several years, primarily by reducing landscape watering. Strategies have included reduced watering days, adjustments to watering times, and installation of improved landscape watering infrastructure. At the DMV Concord field office, local government has made recycled water available and DMV has tied into the city's infrastructure for its landscape watering, thereby reducing the use of potable water for irrigation.

Green Operations

DMV has achieved the direction set forth in EO B-18-12 to reduce greenhouse gas (GHG) emissions by 20%. Further GHG reductions will be achieved through a number of strategies, including new construction and renovation projects, energy efficiency projects, repair and maintenance projects, on-site power generation and zero net energy (ZNE) facility development, and fleet vehicle purchases.

DMV is a leader in ZNE facility development. The department has completed two ZNE field office projects and there are four additional DMV ZNE projects in the early phases of design and development. DMV is also incorporating green and sustainable design elements into renovation projects throughout field offices.

Executive Director Signature

Steve Gordon

Executive Director

CHAPTER 1 - CLIMATE CHANGE ADAPTATION

Executive Order B-30-15 directs State Agencies to integrate climate change into all planning and investment. Planning and investment can include the following:

- Infrastructure and capital outlay projects
- Grants
- Development of strategic and functional plans
- Permitting
- Purchasing and procurement
- Guidance development
- Regulatory activity
- Outreach, and education

Further, Executive Order N-19-19 directs the reduction of GHG emissions in state operations.

Climate Change Risks to Facilities

For all infrastructure, it is important to assess the risk that a changing climate poses to an asset or project (e.g., sea level rise or increasing daily temperatures). It is also important to recognize the impact that an infrastructure project has on the surrounding community and the impacts on individual and community resilience (e.g., heat island impacts).

To determine how to consider climate change for a given project or plan or existing infrastructure, this department will consider the following screening questions.

1. What is the lifetime of the facility, planned project, or plan?

2. Could it be affected by changing average climate conditions or increases in extreme events over its lifetime?

3. What are the consequences of that disruption?

4. Will that disruption affect vulnerable populations, critical natural systems, critical infrastructure, or other assets?

5. Will that disruption cause irreversible effects or pose an unacceptable risk to public health and safety?

DMV's facilities are located throughout California to provide convenient access, reasonable proximity, and services to all Californians. Not all DMV services, such as driver testing, can be performed on-line or via the mail; therefore, physical visits to DMV's field offices are still required. Several existing DMV-owned field offices exceed 50 years in age and have an average facility age of 40 years across the portfolio. Despite DMV's strategy to maximize other service delivery options, the growing population of California and new legislation have continued to push the need for DMV facilities to serve an increasing number of customers.

The most immediate climate impacts and associated risks to DMV's facilities are extreme hot or cold temperatures that may cause heating, ventilation, and air conditioning (HVAC) failures and winter storm events that may cause roof leaks and other water penetrations into DMV facilities. DMV embarked on a significant effort to address its most pressing deferred maintenance issues through $8 million of Section 6.1 funding received in the FY 2015-2016 budget. With this funding, DMV replaced critical building systems in field offices, for example HVAC and roofing, in order to minimize the likelihood of sudden, unforeseen failures and office closures. DMV received $10 million for deferred maintenance funding for the FY 2021-20222 budget. This funding will be used to continue replacing critical building systems.

DMV's programs are categorized as "necessary," but not "critical" based on the State's official definitions. If a DMV field office closes for emergency repairs, DMV typically redirects staff to proximate field offices, notifies the public of the temporary office closure, and attempts to maintain the same level of services until the office is reopened. DMV offices are not immediately impacted by sea level changes, but planning should begin to replace offices likely to be impacted.

Maintenance and repair projects and building modernizations may include a combination of energy efficiency improvements and "right-sizing" of aged buildings HVAC systems to provide appropriate heating/cooling capacity for current and future anticipated customer volume and temperature changes. New construction projects are built to CALGreen Code, LEED standards or other state requirements, and are designed as Zero Net Energy (ZNE) facilities. DMV is a leader in ZNE state buildings, with two completed projects (Fresno, Grass Valley), two pending construction (Delano and Inglewood), and four more authorized projects in pre-development (San Francisco, Santa Maria, Reedley and Oxnard). All future DMV field office replacement projects will be proposed as ZNE facilities in support of the Administration's goals and policies.

DMV follows the state planning principles identified in Government Code Section 65041.1 and promotes infill development and equity by rehabilitating, maintaining, and improving existing infrastructure. DMV also pursues opportunities to reuse and redevelop previously developed, underutilized state-owned property that is well served by transit, existing streets, water, sewer, and other essential services, particularly in underserved areas. The department adheres to all state laws and policies regarding cultural and historic resource preservation. DMV protects California's environmental and agricultural resources through infill development, thereby protecting, preserving, and enhancing the state's valuable natural resources, including working landscapes.

DMV encourages efficient development patterns by ensuring that any infrastructure associated with development, other than infill development, supports new development that does all of the following: (1) uses land efficiently; (2) built adjacent to existing developed areas consistent with priorities specified in statute; (3) located in areas appropriately planned for growth; (4) served by adequate transportation and other essential utilities and services; and (5) minimizes ongoing costs to taxpayers.

Guiding Principles

DMV has an existing facility and infrastructure planning process with seven guiding principles that translates the department's programmatic needs into infrastructure requirements, while supporting the state's green and sustainability goals.

Guiding Principle 1 – Provide alternative service delivery methods such as internet, business partners, and mail services, so customers can receive services without physically visiting a DMV office.

Guiding Principle 2 – Maximize the performance of the infrastructure by ensuring maximum capacity utilization of existing transaction terminals, space, and staff resources.

Guiding Principle 3 – Enhance service delivery to customers by designing office configurations to move customers efficiently through offices and providing workstations designed to maximize productivity.

Guiding Principle 4 – Increase partnerships with local community partners such as federal and local governments, Automobile Association entities, and other business partners, where non-DMV infrastructure already exists in order to share space for our mutual benefit, thereby minimizing costs.

Guiding Principle 5 – Enhance customer segmentation by maximizing the use of space for public access services and creating separate locations for commercial or non-public programs, thereby increasing capacity for public services and moving non-public functions into locations that are more economical.

Guiding Principle 6 – Utilize energy efficient and sustainable building design and construction methods that are in accordance with Executive Orders issued by the Governor, State of California's Green Action Plan, the California Green Building Standards Code, and the USGBC LEED rating system.

Guiding Principle 7 – Remain committed to environmentally friendly and energy and resource-efficient practices and policies for both the buildings the department owns and operates and for the products DMV purchases.

Natural Infrastructure to Protect Facilities

EO B-30-15 directs State agencies to prioritize the use of natural and green infrastructure solutions. Natural infrastructure is the "*preservation or restoration of ecological systems or the utilization of engineered systems that use ecological processes to increase resiliency to climate change, manage other environmental hazards, or both. This may include, but need not be limited to, flood plain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days*" (Public Resource Code Section 71154(c)(3)).

This section does not apply to DMV programs, facilities, or construction activities, with the exception of the use of urban landscaping to reduce heat islands and to mitigate high heat days. Green infrastructure and other shading will be

incorporated into DMV facilities to reduce public exposure during high heat events. Absent any restrictions related to landscaping and water reduction measures, such as those previously implemented due to California's drought, DMV's landscaping projects and new facility construction projects will seek opportunities to plant trees and vegetation that mitigate heat days, while still responding to water conservation goals and policies.

Understanding the Potential Impacts of Facilities on Communities

It is also important to recognize the impact that an infrastructure project has on the surrounding community and the impacts on individual and community resilience (e.g., heat island impacts).

Climate change disproportionately impacts vulnerable communities, with certain populations experiencing heightened risk and increased sensitivity to climate change and have less capacity to recover from changing average conditions and more frequent and severe extreme events. Several factors contribute to vulnerability, often in overlapping and synergistic ways. These can include a number of social and economic factors, and be determined by existing environmental, cultural, and institutional arrangements. Vulnerable populations can include, but are not limited to, people living in poverty; people with underlying health conditions; incarcerated populations; linguistically or socially isolated individuals; communities with less access to healthcare or educational resources; or communities that have suffered historic exclusion or neglect.

While there is no single tool to identify vulnerable populations in an adaptation context, there are a number of state-wide, publicly available tools that when overlaid with climate projection data can help identify communities most at risk to a changing climate. Some of these tools, including a definition for vulnerable communities, are available in a resource guide developed by the Integrated Climate Adaptation and Resiliency Program in the Office of Planning and Research.

Understanding Climate Risk to Existing Facilities

Risk from Changing Extreme Temperatures

Under a changing climate, temperatures are expected to increase – both at the high and low end. As a result, facilities will experience higher maximum temperatures and increased minimum temperatures. In addition to changing

average temperatures, climate change will increase the number of extreme heat events across the State. Extreme events are already being experienced, and they are likely to be experienced sooner than changes in average temperatures.

Table 1.1: Top 5-10 Facilities that Will Experience the Largest Increase in Extreme Heat Events

Facility Name	Extreme heat threshold (EHT) °F	Average # of days above EHT (1961-1990)	Average # of days above EHT (2031-2060)	Change from Historical to projected average # of days above EHT (2031-2060)	Avg. # days above EHT (2070-2099)	Change from historical to projected average # of days above EHT (2070-2099)	Increase in # of days above EHT by mid-century (2031-2060)	Increase in Avg. # days above EHT by end of century (2070-2099)
Indio	114	4	22	17	46	42	17	46
Brawley	113	4	32	28	65	60	28	65
El Centro	113	4	27	23	59	55	23	59
Redding	108	4	20	16	50	45	16	50
Hemet	107	4	28	24	51	47	24	51
Arvin	107	4	24	20	51	46	20	51
Bakersfield	107	4	22	18	45	41	18	45
Fresno	106	4	28	23	54	49	23	54
Temecula	106	4	28	24	51	46	24	51

*DMV utilized data from Cal-Adapt and CalEnviroScreen sites

Table 1.2 a: Top 5-10 Facilities Most Affected by Changing Temperature – Annual Mean Max. Temp

Facility Name	Historical Annual Mean Max. Temp. (1961 – 1990)	Annual Mean Max. Temp. (2031 – 2060)	Change from Historical to Annual Mean Max. Temp (2031-2060)	Annual Mean Max Temp. (2070-2099)	Change from Historical to Annual Mean Max. Temp (2070-2099)
Tulelake	62	67	5	72	10
Victorville	77	83	6	87	10
Brawley	88	93	5	97	9
El Centro	88	93	5	97	9
Hemet	81	86	5	90	9
Riverside	79	85	5	88	9
Redlands	79	85	5	88	9
Pasadena	78	83	5	87	9
West Covina	78	83	5	87	9

Table 1.2 b: Top 5-10 Facilities Most Affected by Changing Temperature- Annual Mean Min Temp

Facility Name	Historical Annual Mean Min. Temp. (1961 – 1990)	Annual Mean Min. Temp. (2031 – 2060) °F	Change from Annual Mean Min. Temp (2031-2060)	Annual Mean Min. Temp. (2070-2099 °F	Change from Annual Mean Min. Temp (2070-2099)
Newhall	47	53	6	57	11
Tulelake	32	37	5	42	10
Hemet	46	52	5	56	10
Norco	49	55	6	59	10
Redlands	51	56	5	60	10
Brawley	56	61	6	66	10
El Centro	57	62	5	67	10
Hollister	44	49	5	52	9
Victorville	44	49	5	54	9

Heating and Cooling Degree Days

A Heating Degree Day (HDD) is defined as the number of degrees by which a daily average temperature is below a reference temperature (i.e., a proxy for when heat would be needed). The reference temperature is typically 65 degrees Fahrenheit, although different utilities and planning entities sometimes use different reference temperatures. The reference temperature loosely represents an average daily temperature *above which* space heating is not needed. The average temperature is represented by the average of the maximum and minimum daily temperature. Similarly, a Cooling Degree Day (CDD) is defined as the number of degrees by which a daily average temperature exceeds a reference temperature. The reference temperature is also typically 65 degrees Fahrenheit, and different utilities and planning entities sometimes use different reference temperatures. The reference temperature loosely represents an average daily temperature *below which* space cooling (e.g., air conditioning) is not needed.

Table 1.3: Top 5-10 Facilities that will be Most Impacted by Projected Changes in Heating and Cooling Degree Days (HDD/CDD)

Facility Name	Heating/Cooling Degree Days (1961-1990) (HDD/CDD)	Heating/Cooling Degree Days (2031-2060) (HDD/CDD)	Heating/Cooling Degree Days (2070-2099) (HDD/CDD)
Indio	1,006/ 4,017	472/ 5,559	254/ 6,471
El Centro	1,043/ 3,762	454/ 5,227	220/ 6,275
Arvin	1,752/ 2,683	1,145/ 3,656	767/ 4,501
Bakersfield	2,068/ 2,414	1,455/ 3,385	1,066/ 4,166
Redding	2,582/ 2,035	1,837/ 3,085	1,372/ 3,874

In addition to changing average temperatures, climate change will increase the number of extreme heat events across the State. Extreme events are likely to be experienced sooner than changes in average temperatures.

DMV's field offices serve a high volume of customers daily. This results in higher frequencies of entrance/exit door operation, allowing outside air to be introduced into the facility. To reduce the influence of outside air temperature on indoor air temperature, new designs typically include vestibules. In offices with security guards, the guards will typically direct and coordinate customer waiting lines and exterior door operations to limit the amount of time the doors remain open.

High customer volume (human density) in interior building space also influences internal temperature due to body heat and respiration. DMV facilities are designed to provide adequate cooling to accommodate seasonal external temperatures and "heat gain" from human beings, especially during peak operational hours. Internal temperatures rise very quickly if cooling systems fail during operating hours, the building's existing thermal mass, coupled with heat gain from human density inside the facility, will keep buildings warm for a period. This frequently allows DMV to complete emergency repairs without building closures.

Operational risks also include situations where internal temperatures exceed Cal OSHA regulations if the HVAC fails to meet mandated outside air exchange requirements. In such cases, the DMV facility must close until repairs are completed. External temperatures have not affected DMV facilities' structural integrity. To mitigate temperature and HVAC failure risks, DMV has prioritized the replacement of HVAC systems that have exceeded their lifecycle expectancy. DMV analyzes HVAC repair frequency, as well as lifecycle expectancy and system age, to determine the greatest risks throughout the department's portfolio. Eight million dollars in deferred maintenance funding was appropriated in the Governor's FY 2016-2017 budget and DMV has implemented a design/replacement program working through DGS, to address the most critical and "at risk" HVAC systems in field offices. The new HVAC systems were engineered to provide adequate heating and cooling in consideration of current temperatures and projected climate changes and employee/customer occupancies. Since 2017, nine new HVAC systems have been installed as part of this deferred maintenance funding.

DMV identified the top nine facilities (see Table 1.1) based on their potential for high summer temperatures. If HVAC problems were to occur, these locations present the greatest risk for sudden facility closure, as they cannot operate very long without cooling.

DMV is designing new facilities to be high efficiency, well insulated, and energy efficient. New facilities are designed to CALGreen code and LEED or state standards, and include numerous energy and water conservation features. Opportunities for heat island reduction, shading for external customer lines, landscaping, lighter colors that reduce heat gain and carport mounted Photovoltaics (PV) are examples of the concepts that are evaluated on a project level basis. If future temperature highs exceed all foreseeable predictions, the worst-case scenario would be increase cooling capacity

through new or expanded mechanical systems, but this is not an anticipated need.

Urban Heat Islands

Urban heat islands are areas with localized spikes in temperature, which impact human health, increase pollution, and increase energy demand. Urban heat islands occur during the hot summer months in areas with higher percentages of impervious surface and less vegetation. This is likely in areas with large parking lots, dense development, and lower tree density and shading. Urban heat islands can be mitigated (i.e., reduced) through tree planting and other greening measures, cool roofs (e.g., lighter roofing materials that reflect light), cooler pavements, and other measures.

Table 1.4: Facilities Located in Urban Heat Islands

Facility Name	Located in an urban heat island (yes/no)
ARLETA OFFICE BUILDING	YES
CARMICHAEL OFFICE BUILDING	YES
CONCORD OFFICE BUILDING	YES
DMV HQ Campus - East Building	YES
DMV HQ West Building	YES
EL CAJON OFFICE BUILDING	YES
EL CERRITO OFFICE BUILDING	YES
FONTANA DSO	YES
FREMONT OFFICE BUILDING	YES
FULLERTON OFFICE BUILDING	YES
GLENDALE OFFICE BUILDING	YES
HAYWARD OFFICE BUILDING	YES
HOLLYWOOD	YES
LINCOLN PARK OFFICE BUILDING	YES
LOS ANGELES OFFICE BUILDING	YES
LOS GATOS OFFICE BUILDING	YES
MONTEBELLO OFFICE BUILDING	YES
MOUNTAIN VIEW OFFICE BUILDING	YES

NAPA FIELD OFFICE	YES
NORCO OFFICE BUILDING	YES
OAKLAND COLISEUM BUILDING	YES
OAKLAND OFFICE BUILDING	YES
PASADENA OFFICE BUILDING	YES
POMONA OFFICE BUILDING	YES
REDWOOD CITY OFFICE BUILDING	YES
RIVERSIDE OFFICE BUILDING	YES
SACRAMENTO FIELD OFFICE	YES
SACRAMENTO LA MANCHA FIELD OFFICE	YES
SAN BERNARDINO OFFICE BUILDING	YES
SAN MATEO OFFICE BUILDING	YES
SANTA ANA OFFICE BUILDING	YES
SANTA CLARA OFFICE BUILDING	YES
SANTA TERESA OFFICE BUILDING	YES
VALLEJO OFFICE BUILDING	YES
WEST COVINA OFFICE BUILDING	YES
WHITTIER OFFICE BUILDING	YES

After reviewing which state-owned offices are in Urban Heat Islands, the result was that 38% reside in this type of area. DMV offices are generally small in comparison to large retailers, markets, shopping centers, schools, colleges, state institutional properties, etc. The average DMV field office site is typically 2-3 acres in total, including the building, parking lot, sidewalks and landscaping. Nearly half of DMV's field offices have less than 100 parking spaces. New field office projects are incorporating strategies for reducing heat islands into their ZNE designs. The Fresno field office has 650 carport-mounted solar panels, which has reduced heat island affects from the surface parking at this field office. All new construction projects and major renovation projects will consider opportunities for urban heat island reduction, including but not limited to, tree planting, landscaping, reflective roofing, shade structures, lighter exterior colors, and the use of non-asphalt alternative.

Risks from Changes in Precipitation

The impacts of climate change on the amount of precipitation that California will receive in the future are slightly less certain that the impacts on temperature.

However, it is expected that California will maintain its Mediterranean climate pattern (dry summers and wet winters), but more precipitation will fall as rain than as snow. It is also likely that extremes will intensify, both drought and heavy precipitation events. Larger rains can result in flooding but will also result in shifts in runoff timing (earlier) and runoff volumes (higher). It will also result in decreased snowpack.

Table 1.4: Top 5-10 Facilities that will be Most Impacted by Projected Changes in Precipitation

Facility Name	Annual Mean Max. Precip. (1961 – 1990) (in/yr)	Annual Mean Precip. (2031 – 2060) (in/yr)	Percent Change by mid-century	Annual Mean Precip. (2070 – 2099) (in/yr)	Percent change by end of century	Extreme Precip (1961-1990) (in/day)	Extreme Precip (2031-2060) (in/day)	Extreme Precip (2070-2090) (in/day)
Redding	38	43	13%	45	18%	7	6	7
Corte Madera	35	40	14%	44	25%	8	8	9
Santa Rosa	31	37	19%	40	29%	6	7	7
Los Gatos	29	35	20%	39	34%	9	9	12
Napa	24	28	16%	31	29%	6	5	7
El Cerrito	23	27	17%	30	30%	5	5	6
San Francisco	22	27	22%	29	31%	4	5	6

Increased precipitation's greatest impact on DMV facilities has historically been roof leaks, rather than flooding issues. Facilities with older roofs are the most likely to experience leaks, especially during storms with heavy rain and high winds. DMV prioritizes roof repair and replacement projects in its 5-Year Maintenance and Repair Plan based on age, condition, and repair history, in order to minimize future water penetration problems. Localized flooding in areas such as parking lots and streets are most often a result of storm drain blockages from debris or tree roots and are monitored by the DMV and local governments. New DMV facilities are designed and constructed to CALGreen code and may include first flush systems, bioswales and/or on-site storm water retention systems to mitigate localized flooding. In the future, DMV will consider the retention of reuse of storm water and/or local government sources of recycled water for landscape

irrigation. DMV currently uses city provided recycled water for irrigation at its Concord DMV field office.

A worst-case scenario for DMV would include severe regional flooding in the event of dam failure. A recent and significant event was the major damage to the Oroville Dam spillway and erosion of the emergency spillway in February 2017. DMV's Oroville and Yuba City field offices were in the path of a potential flood, had the Oroville Dam failed, but fortunately, this did not occur. DMV locates facilities based on geographic proximity to its customer base, therefore, it is not possible to locate all field offices outside of flood zones or areas of potential flood risk. DMV does consider its location alternatives on a project-level basis with preference to sites less likely to be impacted by precipitation, flooding, or other acts of nature. Of the locations identified above, Redding is potentially the most likely to be impacted by snowfall and subsequent rains which could suddenly increase runoff.

Risks from Sea Level Rise

Increasing global temperatures are contributing to rising sea levels. Rising sea levels will result in inundation of coastal areas and increased flooding due to storm surges. The California Ocean Protection Council (OPC) has issued the State of California Sea-Level Rise Guidance (Guidance) for State agencies on what level of sea level rise projections to consider in planning.

The Guidance provides estimates of sea level rise for the California Coast for all active tide gauges based on a range of emission trajectories, which are based on the report, Rising Seas in California: An Update on Sea-Level Rise Science. These data provide projections for use in low, medium-high, and extreme risk aversion decisions. Current guidance from the CA Coastal Commission suggests using the medium-high risk aversion or extreme risk when assessing the vulnerability of critical infrastructure.

Table 1.5 : All Facilities at Risk from Rising Sea Levels

Facility Name	Tide Chart Region	2050 Water Level (ft)	Exposed at 2050? (y/n)	2100 Water Level (ft)	Exposed at 2100? (y/n)
Redwood	SF Bay	+1.9 feet	Yes	+10 feet	Yes
San Mateo	SF Bay	+1.9 feet	No	+10 feet	Yes
Corte Madera	SF Bay	+1.9 feet	No	+10 feet	Yes
Vallejo	SF Bay	+1.9 feet	No	+10 feet	Yes
Oakland Coliseum	SF Bay	+1.9 feet	No	+10 feet	Yes

DMV facilities are not expected to be influenced immediately by a projected rise in sea level. DMV has not historically located facilities in close proximity to the Pacific shoreline. The greatest risk to DMV's facilities would include earthquake or tsunami event creating a temporary, sudden, and unpredictable rise in sea level. Although a rise in sea level is not anticipated to pose risk to the department, the closest DMV-owned facilities to the California coastline are identified below (from north to south):

- Crescent City (Leased) – 2.0 miles
- Eureka (Leased) – 1.7 miles
- Fort Bragg (Leased) – 0.6 miles
- Capitola (DMV Owned) 0.5 miles
- Seaside (DMV Owned) 0.75 miles
- Goleta (Leased) – 1.0 miles
- Santa Barbara (DMV Owned) – 0.75 miles
- Oxnard (DMV Owned) – 1.7 miles
- San Pedro (DMV Owned) – 3.2 miles

- Santa Monica (DMV Owned) – 1.85 miles
- Long Beach (DMV Owned) – 3.0 miles
- Costa Mesa (DMV Owned) – 1.8 miles
- Chula Vista (DMV Owned) – 1.85 miles

DMV also evaluated risks to DMV-owned facilities near the San Francisco Bay Area based on potential rising sea levels projected for the bay in 2050 and 2100. The five field offices listed in Table 1.6 have been identified as at risk for rising sea levels. There are no significant impacts expected except in the extreme situations. In the event of a nearly 100-year storm, coupled with sea level rise (between 0.00-1.41 m), these offices would be at risk for future flooding.

Risks from Wildfire

Wildfire is a serious hazard in California. Several studies have indicated that the risk of wildfire will increase with climate change. Importantly, we are already seeing more extreme wildfire seasons that are longer and with more extreme wildfires. By 2100, if greenhouse gas emissions continue to rise, one study found that the frequency of extreme wildfires would increase, and the average area burned statewide would increase by 77 percent.

Wildfire hazard is also a critical present issue. Five of California's six largest fires all occurred in 2020. The years 2017 and 2018 previously set records as the most destructive fire seasons in California's history. To contextualize how wildfire hazards already impact California's facilities, consider that 1 in 5 California children were affected by wildfire-related school closures during the 2018-2019 school year. To start to understand how wildfire could affect facilities, complete the following tables for all facilities. The first table is meant to give an indication of current risk, based on CALFIRE data for Fire Hazard Severity Zones. This is presented as low, medium, high, or very high. For future risk, the table uses data from CalAdapt to project acres burned in your facilities' area.

Table 1.6: Top 5-10 Facilities Most at risk to current wildfire threats

Facility Name	Fire Hazard Severity Zone (low, medium, high, very high)
Placerville	Very High
Grass Valley	Very High
Redding Regional	Very High
Napa	Very High
Thousand Oaks	Very High
Santa Rosa	Very High

The listed buildings in Table 1.6 are located in less densely populated urban areas than in larger cities of DMV-owned buildings. As was experienced in the 2018 fires, the surrounding rural areas pose the danger of wildfires that create their own wind-driven rapid spread that encroached into nearby urban neighborhoods. The listed buildings are in areas at risk for the same danger.

Strategies that can be employed at these locations to reduce the impact of wildfire risk in these areas are:

- Removal of shrubbery and trees within 10 feet of the building perimeter and replacing the plantings with hardscapes or artificial turf. This will help in preventing blown ash and embers from collecting at the side walls of the buildings and catching fire.

- Add fine screened protection to all air intake and exhaust points to prevent embers from entering the buildings.

- Replace exposed flammable exterior surfaces made of wood or plastics with flame-resistant materials.

- Replace non-rated window systems with fire-rated window systems.

Table 1.7: Top 5-10 Facilities that will be Most Impacted by Projected Changes in Wildfire

Facility Name	Acres Burned (1961-1990)	Acres Burned (2031-2060)	Acres Burned (2070-2099)
Placerville	21	12	12
Grass Valley	18	23	70
Redding Regional	3	0.7	0.6
Thousand Oaks	31	26	26
Santa Rosa	7	6	6
Napa	7	7	6

It is difficult to plan for longer-term impacts. Estimates for additional hectares burned later in the century are based on the effects of taking no action today to correct the causes of wildfire danger. The best way to plan for those current anticipated effects would be to properly fund and follow through with currently proposed initiatives to reduce the threat of wildfire through improved forest management and restoring a balanced use of California's natural resource of locally sourced lumber. This would also have the added benefit of helping to meet newer goals for reducing the state's carbon footprint.

Natural Infrastructure Actions to Protect Existing Facilities

EO B-30-15 directs State agencies to prioritize the use of natural and green infrastructure solutions. Natural infrastructure is the "preservation or restoration of ecological systems or the utilization of engineered systems that use ecological processes to increase resiliency to climate change, manage other environmental hazards, or both. This may include, but need not be limited to, flood plain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days" (Public Resource Code Section 71154(c)(3)).

This section does not apply to DMV programs, facilities, or construction activities, with the exception of the use of urban landscaping to reduce heat islands and to mitigate high heat days. Green infrastructure and other shading will be incorporated into DMV facilities to reduce public exposure during high heat events. Absent any restrictions related to landscaping and water reduction measures, such as those previously implemented due to California's drought,

DMV's landscaping projects and new facility construction projects will seek opportunities to plant trees and vegetation that mitigate heat days, while still responding to water conservation goals and policies.

Understanding the Potential Impacts of Facilities on Communities

As described at the beginning of the chapter, impacts on communities must be considered for resilience planning for State assets and buildings.

Disadvantaged Communities

California is required to invest certain funding streams in disadvantaged communities (DAC). Many state programs that have DAC funding requirements use CalEnviroScreen, a tool that ranks census tracts based on a combination social, economic, and environmental factors, to identify DACs. While it does not capture all aspects of climate vulnerability, it is one tool that is available, and does include several relevant characteristics. The department's facilities located in these communities can contribute or alleviate the vulnerability of these disadvantaged communities.

DMV offices are located statewide, serving all communities, including vulnerable populations and disadvantaged communities. DMV's large number of field offices provide proximate services to all California residents and are accessible by public transit. Field offices provide a comfortable interior climate and positive experience when customers receive DMV services. Whether the facilities are state-owned or leased, DMV's presence in vulnerable and disadvantaged communities represents an investment by the State. DMV facilities may help support local redevelopment and as an employer it creates job opportunities and stimulates growth within these communities.

Table 1.8: Facilities located in disadvantaged communities

Facility Name	CalEnviroScreen Score	Is it located in a disadvantaged community? Yes/No
Bell Gardens	95-100%	Yes
Modesto	95-100%	Yes
Oakland Coliseum	95-100%	Yes
Compton	95-100%	Yes
San Bernardino	95-100%	Yes
Glendale	90-95%	Yes
El Centro	90-95%	Yes
Fresno	90-95%	Yes
Indio	90-95%	Yes
Los Angeles	90-95%	Yes
Hawthorne	90-95%	Yes
Merced	90-95%	Yes
Stockton	90-95%	Yes
Bakersfield	90-95%	Yes
Brawley	85-90%	Yes
Hanford	85-90%	Yes
Inglewood	85-90%	Yes
Hollywood	85-90%	Yes
Pomona	80-85%	Yes
Santa Ana	80-85%	Yes
Visalia	80-85%	Yes
Bellflower	80-85%	Yes
Van Nuys	80-85%	Yes
Fontana	75-80%	Yes
Montebello	75-80%	Yes
San Jose	75-80%	Yes
Torrance	75-80%	Yes
Lincoln Park	75-80%	Yes

Thirty four percent (34%) of state-owned field office facilities are located within DACs. DMV field offices, industry business centers, and commercial drive test centers are located throughout California and provide a range of services to California residents in all communities. The services DMV provides are generally classified as "necessary" but not "essential" according to the state's standard criticality definitions. Although, throughout the ongoing Covid-19 pandemic, these offices have remained open for services. DMV's offices are generally smaller than many other state facilities and are not typically utilized in emergencies; however, DMV has provided staffing in affected areas when local assistance centers are set up following emergency events.

Understanding Climate Risk to Planned Facilities

Table 1.9 a-g: Climate Risks to New Facilities

a.1

Facility Name	Historical Annual Mean Max. Temp. (1961 – 1990)	Annual Mean Max. Temp. (2031 – 2060)	Change from Historical to Annual Mean Max. Temp (2031-2060)	Annual Mean Max Temp. (2070-2099)	Change from Historical to Annual Mean Max. Temp (2070-2099)
Inglewood	71	74	3	78	7
San Diego	71	75	4	80	8
Santa Maria	70	74	4	77	7
Delano	78	82	5	85	8

a.2

Facility Name	Historical Annual Mean Min. Temp. (1961 – 1990)	Annual Mean Min. Temp. (2031 – 2060) °F	Change from Annual Mean Min. Temp (2031-2060)	Annual Mean Min. Temp. (2070-2099 °F	Change from Annual Mean Min. Temp (2070-2099)
Inglewood	55	58	3	62	7
San Diego	56	59	4	62	8
Santa Maria	46	50	4	53	8
Delano	50	54	4	53	8

b.

Facility Name	Annual Mean Maximum precipitation (1961-1990) (in/yr)	Annual Mean precipitation (2031-2060) (in/yr)	Extreme Precip (1961-1990) (in/day)	Extreme Precip (2031-2060) (in/day)
Inglewood	14	16	5	6
San Diego	11	11	3	4
Santa Maria	14	16	4	4
Delano	7	7	2	3

c.

Facility Name	Extreme heat threshold (EHT) °F	Average number of days above EHT (1961-1990)	Average number of days above EHT (2031-2060)	Increase in number of days above EHT
Inglewood	91	4	4	-0.3
San Diego	89	4	5	0.7
Santa Maria	90	4	5	0.7
Delano	106	4	20	16

d.

Facility Name	Area (California Coast, San Francisco Bay, Delta)	Sea Level Rise 0.0 m	Sea Level Rise 0.5 m	Sea Level Rise 1.0 m	Sea Level Rise 1.41 m
Inglewood	N/A	N/A	N/A	N/A	N/A
San Diego	CA Coast	No	No	Yes	Yes
Santa Maria	N/A	N/A	N/A	N/A	N/A
Delano	N/A	N/A	N/A	N/A	N/A

e.

Facility Name	Current Fire Hazard Severity Zone (low, medium, high, very high)
Inglewood	Low
San Diego	Very High
Santa Maria	Low
Delano	Low

f.

Facility Name	Acres Burned (1961-1990)	Acres Burned (2031-2060)
Inglewood	N/A	N/A
San Diego	4	1.7
Santa Maria	38	48
Delano	N/A	N/A

g.

Facility Name	Heating/Cooling Degree Days (1961-1990) (HDD/CDD)	Heating/Cooling Degree Days (2031-2060) (HDD/CDD)
Inglewood	1,365/ 658	711/ 1,398
San Diego	1,429/ 802	681/ 1,670
Santa Maria	2,787/ 132	1,593/ 513
Delano	2,068/ 2,414	1,455/ 3,385

Population or customer location primarily drives the location of DMV field offices. DMV makes every effort to locate facilities close to population centers and provide convenient, nearby services to customers statewide. Within individual geographic service areas, temperature is not a primary criterion for locating individual DMV facilities within each service area.

In designing and constructing new buildings, DMV follows the CALGreen code and state policy that new facilities will be LEED Silver (or other state standard for smaller buildings) and ZNE. To maintain comfortable temperatures within the building, even during extreme temperatures, the buildings utilize insulation, reflective roofing, high-efficiency HVAC equipment with computerized energy management systems, vestibules, shade structures, and landscaping strategies.

Building heating and cooling systems are programmed to maximize the use of available free cooling and to minimize HVAC heating/cooling during non-operational hours. DMV designs new facilities with extreme heat and climate risks in mind and cooling capacity is sized based on engineering studies. As part of ZNE design, the project location takes into consideration the site shape and orientation to maximize energy efficiency, solar gathering, and natural daylighting.

Table 1.10: New Facilities and Disadvantaged Communities and Urban Heat Islands

Facility Name	Located in a Disadvantaged Community (yes/no)	Located in an urban heat island (yes/no)
Inglewood	Yes	No
San Diego	No	No
Santa Maria	No	No
Delano	Yes	No

New field office projects are incorporating strategies for reducing heat islands into their ZNE designs. All new construction projects and major renovation projects will consider opportunities for urban heat island reduction, including but not limited to, tree planting, landscaping, reflective roofing, shade structures, lighter exterior colors, and the use of non-asphalt alternative.

Natural Infrastructure

EO B-30-15 also directs agencies to prioritize natural and green infrastructure solutions. Natural infrastructure is the "preservation or restoration of ecological systems or the utilization of engineered systems that use ecological processes to increase resiliency to climate change, manage other environmental hazards, or both. This may include, but need not be limited to, flood plain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days" (Public Resource Code Section 71154(c)(3)).

DMV's offices are generally small and new facility construction projects do not include flood plain or wetlands restoration. Numerous water conservation technologies are designed into new DMV field office projects, including, but not limited to, low flow fixtures, the use of recycled water for landscaping, runoff water filtering through bioswales, drought tolerant landscaping, and high

efficiencies irrigation systems. Urban foresting/tree planting opportunities are considered to mitigate heat days, despite DMV field office sites being relatively small with limited landscaping areas.

Full Life Cycle Cost Accounting

EO B-30-15 directs State agencies to employ full life cycle cost accounting in all infrastructure investment. Lifecycle cost accounting includes:

- Considering initial investment costs, as well as lifetime operation and maintenance costs under changing climate conditions, including changing average conditions and increases in extreme events

- Applying non-market evaluation methods such as travel cost, avoided costs or contingent valuation to capture hard to quantify benefits and costs

DMV's facilities are built to CALGreen code and LEED policies and all new field offices are designed and constructed as ZNE facilities. DMV's state-owned buildings are of very high quality in anticipation that they will be housing DMV's programs for 50+ years. The Department of Finance (DOF) reviews all new capital outlay project proposals, including the range of project alternatives. When funding is available, the state traditionally chooses to build and own facilities, despite the higher initial costs, because the long-term benefits of ownership outweigh repetitive cycles of short-term facility leasing.

Integrating Climate Change into Department Planning and Funding Programs

EO B-30-15 extends beyond infrastructure to broader planning efforts. Using the tables below, indicate whether you have taken the following actions in your planning processes.

Table 1.11: Integration of Climate Change into Department Planning

Plan	Have you integrated climate?	If no, when will it be integrated?	If yes, how has it been integrated?
California DMV 5-Year Infrastructure Plan	YES	N/A	Guiding Principle 7: Remain committed to environmentally friendly and energy and resource-efficient practices and policies for both the buildings the department owns and operates and for the products DMV purchases. Also, project level engineering.

Table 1.12: Engagement and Planning Processes

Plan	Does this plan consider impacts on vulnerable populations?	Does this plan include coordination with local and regional agencies?	Does this plan prioritize natural and green infrastructure?
CA DMV 5-year Infrastructure Plan	Yes	Yes	Yes

Table 1.13: Climate Change in Funding Programs

Grant or funding program	Have you integrated climate change into program guidelines?	If no, when will it be integrated ?	Does this plan consider impacts on vulnerable populations?	Does this program include coordination with local and regional agencies?
N/A	N/A	N/A	N/A	N/A

Measuring and Tracking Progress

Barring severe and largely unforeseeable events, such as extreme changes in sea level, dam failures, tsunamis, earthquakes, or other acts of nature, the most likely future impacts are expected to be extreme temperatures that affect HVAC operation. Future HVAC failures and water penetration or roofing issues have historically been, and are expected to present, the greatest risks to facility

operations. Through the roadmap reporting and data obtained from Cal-Adapt, DMV will review changes in existing, future, and predicted climates and temperature extremes. The department will also review its own internal facility repair and maintenance projects tracking system to determine how temperature affects repair and replacement frequency, especially in-service areas with the greatest potential climate change. DMV will measure progress based on HVAC and roofing repair/replacement frequency compared to expected and historical lifecycle date.

DMV has and will continue to develop alternative service delivery methods that reduce the need for customers to travel to DMV offices. By providing greater opportunities for on-line services, partnerships with industry businesses, and expanding other program delivery options, DMV will be able to reduce energy use and carbon footprint. Further opportunities for DMV to meet the State's goals in the future may be achieved by efforts to continually research new program delivery and facility opportunities and staying up-to-date on methods and technology employed by other motor vehicles entities.

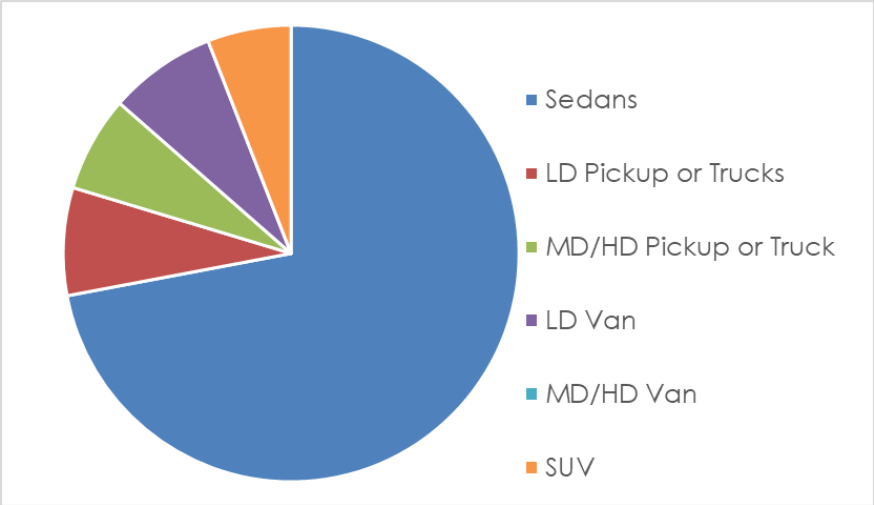
DMV is a leader in state government facility design and construction and implements projects in accordance with state policies and CALGreen Code. DMV also responds to the state's planning priorities through the development of its 5-year Infrastructure Plan. In areas of the state with extreme heat, DMV will work with project engineers to ensure HVAC systems are designed with sufficient cooling capacity for days of higher heat, should temperatures continue to escalate over the next 25 to 50 years. It is DMV's practice to adhere to the state's existing policies and building codes with each new infrastructure investment.

CHAPTER 2 – ZERO-EMISSION VEHICLES

Department Mission and Fleet

This ZEV Report and Plan demonstrates to the Governor and the public the progress the Department has made toward meeting the Governor's sustainability goals related to Zero Emission Vehicles. This report identifies successful accomplishments, ongoing efforts, outstanding challenges and future efforts.

Graph 2.1: 2020 Composition of Vehicle Fleet



Sedans	LD Pickup or Trucks	MD/HD Pickup or Truck	LD Van	MD/HD Van	SUV
85	9	8	9	0	7

Light Duty Fleet Vehicles

The DMV's light duty fleet are made up of 85 sedans, 9 light duty trucks, and 9 light duty vans, which are used by the following divisions within the DMV in a variety of ways.

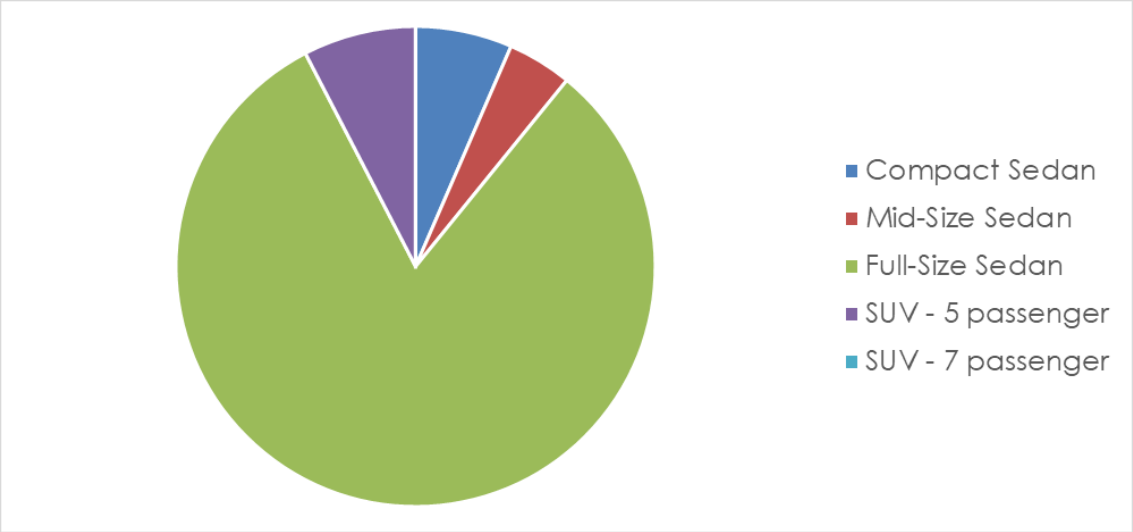
Administrative Services Division – Facilities maintenance staff use vehicles to travel daily to field offices throughout the state performing routine inspection, maintenance, contract administration, and repair activities in support of the department's mission critical activities in serving the public.

Investigation Division – Law enforcement officials use vehicles to engage in both overt and undercover police work. This includes, but is not limited to, arresting suspects, serving warrants, and inspecting business engaged in selling, repairing, or dismantling vehicles.

Field Operations Division – Use vehicles to support and carry out relief assignments, mission critical training, and the transportation of exam materials and various staff to several field office locations.

Licensing Operations Division – Use vehicles to conduct physical inspections of the licensee's business locations for statutes and regulations compliance. They also use vehicles to attend trainings, outreach meetings, and for officers to travel to assist other district offices with administrative hearings when necessary.

Graph 2.2: Composition of Light Duty Vehicle Fleet

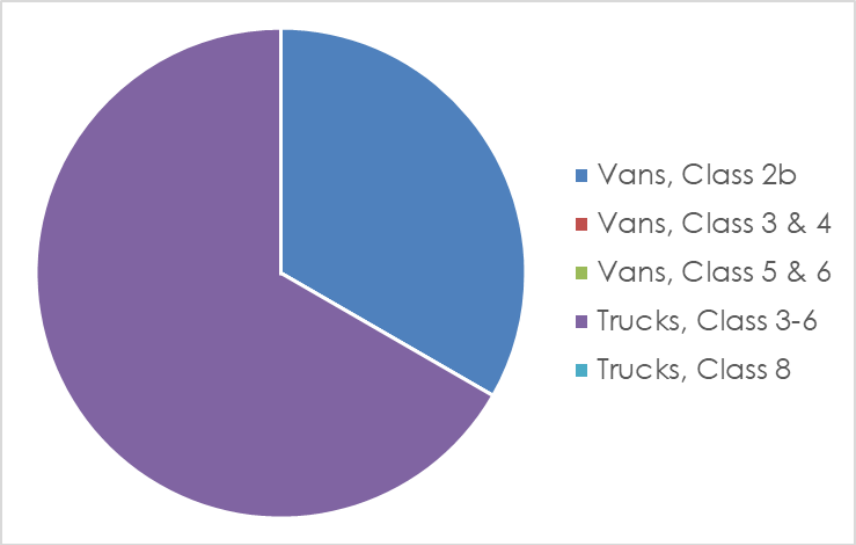


Compact Sedan	Mid-Size Sedan	Full-Size Sedan	SUV - 5 passenger	SUV - 7 passenger
6	4	75	7	0

Medium and Heavy-Duty Fleet Vehicles

The DMV's medium and heavy-duty fleet vehicles are made up of trucks that are class 3-6 and vans are class 2b. Most of these vehicles are used by Facilities Operations staff for a variety of maintenance duties. Staff use these vehicles to travel daily to field offices throughout the state performing routine inspection, maintenance, contract administration, and repair activities in support of the department's mission critical activities in serving the public.

Graph 2.3: Composition of Medium and Heavy-Duty Vehicle Fleet Subject to the ZEV First Purchasing Mandate



*There are 8 medium and heavy-duty trucks and 7 SUVs.

Table 2.1: Total Fuel Purchased in 2020

	Diesel	Gasoline	Renewable Diesel
Fuel Amount Gallons	7,237	92,781	0

Incorporating ZEVs into the State Fleet

Pursuant to the Governor's Executive Order (EO) B-16-12, state departments are required to increase the number of zero emission vehicles (ZEV) within their state fleet. As departments move towards this initiative, additional measures have

been placed on the ZEV vehicle purchasing policy. Departments are advised, as of January 1, 2020, to purchase vehicles from authorized Original Equipment Manufacturers (OEMs) that have aligned with the California Air Resources Board (CARB). In addition, the state anticipates significant economic impacts from the COVID-19 pandemic which will result in a decrease in state revenues for fleet purchasing.

With these policies in place, departments should consider the most effective ways to incorporate ZEVs into their fleet.

Light-Duty ZEV Adoption

A widespread shift to ZEVs is essential for California to meet its Green House Gas (GHG) emission goals. State departments are now required to incorporate and prioritize a larger number of light-duty ZEVs in their vehicle fleets. Starting in FY 17/18 the percentage of new light duty vehicles that must be ZEVs began increasing by 5% each year, reaching 25% in FY 19/20 and 50% in FY 24/25.

Vehicles that meet specified mileage and age thresholds are eligible for replacement. Currently ZEVs are available on statewide commodity contracts in a range of light duty vehicle categories. While many vehicle classes currently lack a ZEV alternative to purchase due to the purchasing restrictions imposed in State Administrative Manual Section 4121.8. The DMV has 46 vehicles that are currently eligible for replacement.

Table 2.2: Light Duty Vehicles in Department Fleet Currently Eligible for Replacement

Table Header Name	Sedans	Minivans	Pickups	SUVs, 5 passengers	SUVs, 7 passengers	Total
Number of vehicles eligible for replacement	37	1	1	7	0	46

The table below shows the estimated number of ZEVs that have been or are anticipated to be added to the department fleet in coming years.

Table 2.3: Light Duty ZEV Additions to the Department Fleet

Table Header Format	21/22	22/23	23/24	24/25	25/26
Battery Electric Vehicle	3	0	0	0	0
Plug-in Hybrid Vehicle	11	19	0	18	0
Fuel Cell Vehicle	0	0	0	0	0
Percent of total purchases	74%	83%	0	100%	0
Required ZEV Percentage	35%	40%	45%	50%	?? %
Total number of ZEVs in Fleet*	54	73	73	92	0

Medium- Heavy-Duty ZEV Adoption

Similar to the light-duty purchasing policy above, the adoption of MD/HD ZEVs is essential to meet greenhouse gas emission reduction goals. As of July 2020, SAM section 4121.9 requires state agencies to prioritize the purchasing of MD and HD ZEVs vehicles into their fleets. Additionally, beginning December 31, 2025, departments are required, per Assembly Bill (AB) 739, to have 15% of newly purchased vehicles with a gross weight rating of 19,000 pounds or more be ZEVs. This percentage will increase to 30% by December 31, 2030.

Vehicles over meet specified mileage and age thresholds are eligible for replacement. Currently ZEVs are available on statewide commodity contracts are the Class 2B, Class, 3, Class 4, Class 5, Class 6 and Class 8.

Table 2.4: MD/HD Vehicles in Department Fleet Currently Eligible for Replacement

	Vans, Class 2b	Vans, Class 3 & 4	Vans, Class 5 & 6	Trucks, Class 3-6	Truck, Class 8	Total
# of vehicles eligible for replacement	1	0	0	2	0	3

The table below shows the estimated number of MD/HD ZEVs that have been or are anticipated to be added to the department fleet in coming years. Currently, the DMV is not purchasing MD/ HD ZEV vehicles for our fleet, these types of vehicles are not as widely used as our ZEV light duty vehicles.

Table 2.5: MD/ HD ZEV Additions to the Department Fleet

Table Header Format	21/22	22/23	23/24	24/25	25/26
Battery Electric Vehicle	0	0	0	0	0
Plug-in Hybrid Vehicle	0	0	0	0	0
Fuel Cell Vehicle	0	0	0	0	0
Percent of total purchases	0	0	0	0	0
Total number of ZEVs in Fleet	0	0	0	0	0

ZEV Take-home Vehicles

Vehicles that are authorized for home storage, per SAM Section 4109, are subject to all applicable ZEV purchasing policies.

Currently, it is the DMV's policy that you can take home vehicles for home storage, including ZEV. Annually, DMV's Fleet Management Unit will send a memo to the effected divisions outlining proper Home Storage Permit procedures.

Telematics Plan

In accordance with SAM section 4122, state departments are required to install telematics devices on all state fleet assets. Departments are required to install all telematics devices on light duty vehicles August 1, 2021 and are required to install telematics on all remaining assets by February 1, 2022. Additionally, departments shall develop and issue a telematics policy that is specific to their needs by March 31, 2021.

It is the policy of the DMV that staff who need to travel as an essential job function utilize a State-owned vehicle that is equipped with a Telematics device.

Public Safety Exemption

DMV has been exempted from ZEV's for sworn officers. However, DMV will continue to explore their possible use as new vehicle technology is available.

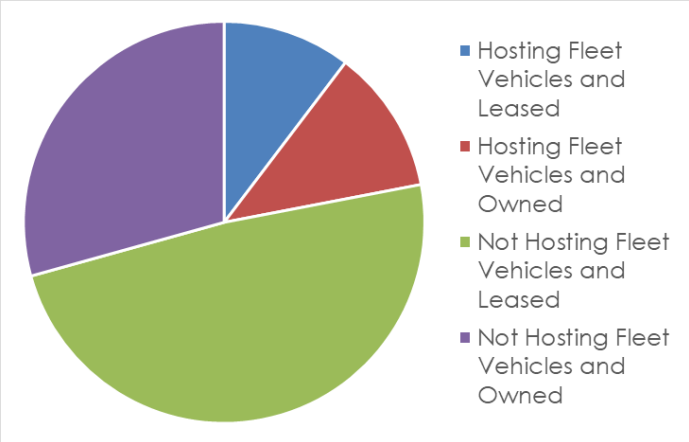
Department of Motor Vehicle Parking Facilities

The DMV operates 248 facilities: 100 DMV owned, 137 privately leased, 7 owned by the California Highway Patrol (CHP), and 4 DGS owned-leased facilities. DMV does not own or operate any parking garages. DMV's field offices have surfaced parking spaces on a shared and first come/first serve basis. Field office parking is shared between employees, customers, and vendors making deliveries. There is no delineation of spaces, reserved parking or secured parking, with the exception of spaces for fleet vehicles; however, only 13 DMV offices have spaces designated for DMV fleet vehicles.

Most DMV field offices designed with parking met California code at the time of construction. Over time, as California's population has grown and more customers are being served, the amount of available parking spaces has become deficient in most DMV locations.

EO B-18-12 requires the development of infrastructure for Electric Vehicle System Equipment (EVSE) at all state facilities where feasible. In compliance with executive orders, the DMV specifies EVSE infrastructure planning for all new facility construction projects and considers EVSE improvements for major renovation projects where feasible.

Graph 2.4: Parking Facilities



Hosting Fleet Vehicles and Leased	Hosting Fleet Vehicles and Owned	Not Hosting Fleet Vehicles and Leased	Not Hosting Fleet Vehicles and Owned
24	27	113	68

Given the nature of the department's fleet operations, the length of stay for visitors and employees DMV has determined that L2 chargers should make up approximately 100% of the chargers in employee parking areas and 100% within fleet parking areas. Employees and the public share parking on a first come/first serve basis. L1 chargers are impractical as the public spends limited time conducting their business and DMV would desire more than one employee to access the limited charging stations on site.

In 2020, the DMV purchased 40 ZEV/ HEV/ PHEV vehicles. It is estimated that in the next three years the DMV plans to purchase 45 more ZEV/ HEV/ PHEV vehicles to slowly replace older all gas vehicles in our fleet. Based on estimates of future ZEV fleet purchases and a count of visitor and workplace parking spaces, it has been determined that the Department will install all L2 chargers to adequately serve fleet vehicles and achieve the goals established in the ZEV Action Plan.

The facilities with the most urgent need for EV charging are listed below. These are the locations of DMV's largest employee parking lots. Replacement of existing parking with EV charging spaces would be least impactful to the current parking deficiencies and provide the most opportunities for employee use.

Table 2.6: High Priority EVSE Projects

Facility Name	Total Parking Spaces	Existing L1 Charging Ports (2020)	Existing L2 Charging Ports (2020)	Existing L3 Charging Ports (2020)	Total Charging Ports (2020)	EV Charging Ports Needed by 2025
Headquarters East Building	1074	0	2	0	2	10
Headquarters West Building	675	0	0	0	0	2
Headquarters South Building	107	0	2	0	2	4
Total	1,856	0	4	0	4	16

Outside Funding Sources for EV Infrastructure

DMV considers opportunities from outside funding sources provided by regional utilities, California government, and private sources as they become available.

In 2016/17, DMV worked with Southern California Edison, San Diego Gas & Electric, and EVgo to explore their EV infrastructure and funding programs. DMV was deemed ineligible for some of these programs due to their installation and program requirements. DMV will continue to explore outside funding opportunities in the future, including the DGS Office of Sustainability's Transportation Unit whose mission is to assist in the development and funding of electric vehicle charging infrastructure for state departments

Hydrogen Fueling Infrastructure

Given the nature of the department's operations, the length of stay for customers and employees, DMV has determined the return on investment for commercially available hydrogen fueling technology will require additional research for the DMV to consider installation.

Comprehensive Facility Site and Infrastructure Assessments

The DMV conducts annual assessments of its facility portfolio to determine outstanding space deficiencies. The assessment date, captured in the DMV 5-Year Infrastructure Plan, includes EVSE infrastructure. In compliance with EO's, the DMV identified three grade-5 offices (large size offices) and one grade-4 (medium size) office in high population density areas to have pilot EVSE surveys completed by EVgo. Upon completion of the surveys, DMV met with the EVgo representative to review the alternatives on each site and associated costs. DMV also discussed EVgo's contracting requirements, cost recovery processes, and the potential operational impacts to DMV's field offices.

Based on the annual surveys, the following challenges continue to exist:

- Incentives for infrastructure (not chargers) are low and do not cover the costs to install the infrastructure at the appropriate site locations.

- Loss of parking spaces due to conversions is a significant concern for DMV's programs/field operations.

- Installation of charging stations will trigger very expensive path of travel improvements (for ADA compliance), which would require significant additional funding, architecture and engineering design by DGS, and competitive bidding

through the state's standard processes.

•EVgo indicated it would only utilize their own contracts; however, DMV policy prohibits signatures on other entities contract documents.

•DMV does not have funding approved to install EVSE infrastructure at the more than 90 existing DMV field offices throughout the state. Additional costs for maintenance and vendor services would also be required for a successful program.

EVSE identified in the DMV 5-Year Infrastructure Plan will be included in new and future capital outlay construction and major renovation projects in compliance with current California Building Code and in support of the Executive Orders.

Site Assessments are performed to establish the cost and feasibility of installing needed EV infrastructure. The table below lists the facilities that have been recently evaluated with annual Site Assessments.

Table 2.7: Results of Site Assessments

Facility Name	L1 Chargers with Current Electrical System	L2 Chargers with Current Electrical System	Total cost for Project using Current Electrical System	L1 Chargers with Electrical System Upgrades	L2 Chargers with Electrical System Upgrades
Capitola	0	9	?	0	0
Bakersfield	0	0	?	0	4
El Centro	0	0	?	0	4
Arleta	0	0	?	0	9
DMV HQ	0	4	$25,000	0	0
West Covina	0	0	$20,784	0	10
Fullerton	0	0	$14,518	0	10
Montebello	0	0	$9,934	0	6
Hollywood	0	0	$7,561	0	0
TOTAL	0	13	$77,797.00	0	43

EVSE Construction Plan

The DMV will include new EVSE installations as new facility construction or major renovation projects are authorized and funded. Currently, DMV has several projects in various stages of authorization, planning, and construction. The recently authorized projects in Inglewood, Delano, Santa Maria, Reedley, Oxnard and San Francisco will include EVSE. All new projects will be designed and constructed to current CALGreen code. Each new DMV capital outlay project is also proposed as Zero Net Energy (ZNE).

The DMV also has recently purchased 20 BEAM EV ARCs (Solar Level 2 charger unit) to be placed in selected DMV HQ and Field Office parking lots. Seven of the EV ARC units have been placed in our Redding, San Diego Normal, Bellflower, Sacramento Broadway and LA Metro field offices and two at DMV HQ to provide charging for our fleet and DMV employees. Thirteen more will be placed throughout Northern and Southern California in 2022.

EVSE Operation

The DMV will operate EVSE using commercially available "networking" or online monitoring software. The software will allow the DMV to monitor usage, collect fees, identify maintenance issues, and set time-limit and cost recovery protocol. DMV Administrative Services Division (ASD) will administer EVSE policy.

CHAPTER 3 - ENERGY

This Energy Report demonstrates to the Governor and the public the progress the Department has made toward meeting the Governor's sustainability goals related to energy. This report identifies successful accomplishments, ongoing efforts, and outstanding challenges.

Department Mission and Built Infrastructure

DMV Building Portfolio – Overview

The majority of DMV's customer services and programs are administered at field offices located throughout the state. The building portfolio consists of both state-owned and leased facilities. The most familiar of these is the traditional public field office, which comprises approximately 51% of the department's portfolio based on square footage. Another 14% is divided among Industry Business Centers, Call Centers, Commercial Driver License, Driver Safety, Investigations, Occupational Licensing, and Training offices. Often these separate programs are co-located in the same facility as a public field office. The balance of DMV's portfolio includes headquarters, warehouse/storage, and support facilities.

Nearly 50% of the department's facilities are state-owned by DMV, the California Highway Patrol (CHP) or the Department of General Services (DGS), and 62% of the state-owned facilities were built during, or prior, to 1980. With a state-owned portfolio that averages approximately 40 years in age, these aged buildings are in need of replacement or reconfiguration to meet the department's ongoing and diverse programmatic needs and to address code deficiencies.

Table 3.1: Total Purchased Energy 2020

Purchased Energy	2003 Baseline Quantity		2020 Quantity		% Qty. Change
Electricity	179,856,224	kWh	31,040,693	kWh	-83%
Less EV Charging	-	kWh	-	kWh	
Natural Gas	5,877,559	therms	242,002	therms	-96%
Propane	-	gallons	243,800	gallons	N/A
Fuel Oil	-	gallons	-	gallons	N/A
Steam	8,895,701	pounds	-	pounds	N/A
Chilled H2O	499	kBtu	-	kBtu	N/A
TOTALS	**1,210,677,364**	**kBtu Site**	**152,378,053**	**kBtu Site**	**-87%**

Table 3.2: Properties with Largest Energy Consumption

Building Name	Floor Area (ft^2)	Site Energy (kBTU)	Source EUI (kBTU/ft^2-yr)
DMV Headquarters – East Building	371,709	54,373,912	146
San Diego – Normal	21,080	3,335,960	158
Newhall	6,829	2,469,331	361
San Francisco	29,119	1,788,039	61
Oakland	29,232	1,635,177	55
Total for Buildings in This Table	457,969 ft^2	63,602,419 kBTU	781
Total for All Department Buildings	1,807,197 ft^2	277,655,831 kBTU	---
% of Totals	25 %	23 %	---

Replacement field office projects provide excellent opportunities to design and construct to current building code, to meet policy directives (including ZNE),

and to incorporate new technologies for energy efficiency into the buildings. DMV's other 89 state-owned field offices have an average age of 40+ years, with 16 over 50 years old. Many of these buildings have original mechanical systems and energy management systems that cannot be updated without a complete system replacement, which can cost hundreds of thousands of dollars per project.

DMV has been successful in constructing and leasing LEED certified buildings. One of the department's most notable accomplishments was the completion of the State's first ZNE field office (Fresno). The second field office (Grass Valley) was completed in 2018. DMV has five additional authorized ZNE field office replacement projects that are currently in various stages of design and construction. DMV's 5-Year Infrastructure Plan also proposes renovation projects for older, existing field offices, with approximately three renovation projects per year. The scope of work at each facility would be based on the original construction, age, and condition of the building. Items that could improve energy efficiency include lighting retrofits, updated HVAC equipment, and new roofs.

DMV has also sought opportunities to improve energy efficiency through lighting retrofit projects, such as interior and parking lot lighting, and has implemented automated demand response projects at facilities that have sufficient infrastructure and building controls. As older HVAC equipment, controls, and energy management systems are replaced, DMV upgrades to more energy efficient systems. Roof replacement and re-roofing projects have also presented opportunities for improving insulation and the use of cool roof technologies.

All future DMV facility replacement and major renovation projects will be designed and built to the current California Green Building Code and related policy directives. ZNE building solutions will be proposed by DMV for all new construction projects and additional energy conservation measures may include renewable energy solutions and monitoring based commissioning. DMV also employs an ongoing community awareness campaign to inform California citizens of different ways to conduct their DMV business, including online and at business service centers.

DMV remains committed to serving the public with a goal of limiting field office closures due to repair and maintenance projects. DMV will also continue to

investigate and utilize alternative funding when available, including rebates and funding from utility companies, ESCOs, G$ Mart, etc.

Zero Net Energy (ZNE)

State policies set forth the following milestones for state zero net energy buildings:

- 2017 – 100% of new construction, major renovations and build-to-suit leases beginning design after 10/23/2017 to be ZNE.

- 2025 – 50% of new major renovations of state buildings will be ZNE by 2025.

The DMV is proud to be the first California state department to achieve a ZNE building project with the 20,640 gross square feet (GSF) Fresno field office completed in 2014. This building has been validated ZNE based on 12 months of energy use data and on-site energy generation data.

The Grass Valley field office project (7,584 GSF) was completed in February 2018 and will be DMVs second ZNE building once certified. DMV has five more authorized field office replacement projects, all of which are anticipated to be ZNE and their status is presented below:

Inglewood – Working Drawing Phase – 15,644 GSF

Santa Maria – Construction Phase – 13,342 GSF

Delano – Construction Phase – 10,718 GSF

San Diego – Canceled – 18,540 GSF

Reedley – Construction Phase – 13,701 GSF

San Francisco – Preliminary Plan Phase – 19,000 GSF

DMV currently operates 1.58 million square feet of agency owned buildings and has proposed that all future replacement and major renovation projects be authorized, designed, and constructed as ZNE facilities. DMV's existing portfolio averages over 40 years in age and absent a full renovation project, such buildings cannot be retrofitted to achieve ZNE: therefore, DMV's efforts to achieve a 50% ZNE portfolio will hinge largely on authorization and funding for

new buildings, including new construction projects at DMV's existing headquarters campus.

Table 3.3: Zero Net Energy Buildings

Status of ZNE Buildings	Number of Buildings	Floor Area (ft²)	% of Building Area
Buildings Completed and Verified	13	498,709	100%
Building in Design or Under Construction	4	33,000	100%
Building Proposed for Before 2025 (but not yet in design)	0	0	0%
Addtl. Exist. Bldg. Area within 15% of ZNE target EUI and have EE projects planned	N/A	0	0%
Totals for ZNE Buildings by 2025	17	531,709	20%
Totals for All Department Buildings by 2025	230	0	
% ZNE by 2025	7%	20%	

*These totals include DMV owned and leased buildings.

New Construction Exceeds Title 24 by 15%

All new state buildings and major renovations beginning design after July 1, 2012, must exceed the current California Code of Regulations (CCR) Title 24, energy requirements by 15% or more.

Table 3.4: New Construction Exceeding Title 24 by 15%

Buildings Exceeding Title 24 by 15%	Number of Buildings	Floor Area (ft²)
Completed Since July 2012	2	28,224
Under Design or Construction	5	71,945
Proposed Before 2025	8	747,603

DMV has completed two new field office construction projects (Fresno and Grass Valley) since 2012, excluding the 12-year phased renovation project for DMV's Headquarters (HQ) Building East, which was completed in 2012. All new

DMV building projects and major renovations beginning design after July 1, 2012, have been and will be overseen by DGS. The projects will be designed to exceed the current California Code of Regulations (CCR) Title 24, energy requirements by 15% or better. The five field office projects are also being designed to exceed Title 24 by over 15% and all will be at minimum LEED-silver and ZNE.

Because DMV is proposing all its field office replacement projects and major renovation projects as ZNE facilities, Table 3 (above) contains DMV's plans to achieve both ZNE and the 15% or more goal for Title 24. All future replacement and major renovation projects will also achieve LEED-Silver or better.

Reduce Grid-Based Energy Purchased by 20% by 2018

Executive Order B-18-12 requires state agencies to reduce grid-based energy purchased by 20% by 2018, compared with a 2003 baseline.

Since 2003, DMV has reduced its Grid-Based energy purchase by 24%, as compared to 2016. Between 2017 and 2018, DMV reduced its statewide energy consumption by 2.23% and completed the EO's 2018 goal ahead of schedule. DMV is committed to ongoing reductions in grid-based electrical purchases and is taking several steps to reduce energy impacts within the communities served.

The following energy conservation measures are in place, being implemented, or considered:

- Energy management systems and improved controls are installed in all new DMV facility projects, where feasible, and in older facilities as part of major renovations having full HVAC replacements. Additional efforts to reduce energy use include, but are not limited to:
    - Remote and locally controlled HVAC management systems, using state of the art energy management software to achieve the mandated +2/-2 temperature thresholds.
    - Using economizers and free outside air for cooling and heating. The HQ Building East and West mechanical systems are controlled by an Energy Management System that utilizes outside air (free cooling and heating) to control inside air temperatures through economizers. The outside air dampers are normally set at approximately 15%; however, they can become fully opened if the demand suddenly increases, for building air flushes and whenever

the outside air will provide free cooling or heating. Building East was renovated and its mechanical system and controls are equipped with features not contained within Building West, which has not been renovated since its original 1953 construction. HQ Building South, built in 1963, has a mechanical system that is operated manually. The South building is slated for eventual replacement and its older HVAC system does not lend itself to modern building energy system technologies, absent a complete and cost prohibitive, HVAC replacement.

- Lighting controls on interior lighting and electronic timers for parking lots and exterior lighting (other than security lighting).

- Installing Light Emitting Diode (LED) lighting in all new construction projects as required by current code, major renovation projects, and individual lighting retrofit projects in field offices and the HQ campus, based on life-cycle replacements.

- In 2019/2020 Building West, located on the HQ Campus, underwent an extensive lighting retrofit. All overhead lighting and outside fixtures as well as the loading dock were changed from fluorescent inside and HID outside, to all LED lighting. Another phase of this project was to install motion sensing to prevent lighting from staying on during weekends and off hours. Currently, the motion sensing is set at 15 minutes, after no movement in 15 minutes the lights will power off. During this update to Building West, three HVAC systems were replaced as well.

- Increased indoor air quality goals are achieved through periodic scheduled maintenance of the building's HVAC systems performed by DGS and DMV stationary engineers, consistent with DMV's Information Systems Division and branch PC Coordinators.

- DMV purchasing policies require statewide Energy Star rated equipment purchase of all appliances, vending machines, computers, servers, etc. DMV does not have vending machines in public service areas at its field offices. Approximately 20 vending machines are within the DMV HQ campus and they are all Energy Star rated.

- DMV sends semi-annual notifications to all employees regarding policies designed to reduce energy waste. Existing policy limits the

use of small appliances, fans, coffee makers, etc. Legally required reasonable accommodations are exempt from energy reduction policies. One frequently occurring accommodation is de-lamping, which actually reduces energy use.

- DMV-operated data centers over 200 square feet comply with ASHRAE-TC 9.9, Class A1-A4 guidelines. Maximum temperatures between 73-81 degrees are mandated by Management Memo 14-09.

- All state-owned data centers over 1,000 square feet with a power usage effectiveness (PUE) above 1.5 must reduce their PUE by a minimum of 10 percent per year until they achieve a PUE of 1.5 or lower. DMV operates 2 data centers over 1,000 square feet:

    - Sacramento HQ-East Building (PUE 1.75)

    - Sacramento HQ 28th & Broadway (PUE 1.33)

- DMV utilizes the Department of Technology provided online spreadsheet to report PUE as required by EO. DMV is continually working to identify and implement strategies to improve data center efficiencies.

    - All purchases of DMV network switches and routers meet the Energy Efficient Ethernet (EEE 802.3-2012 Section 6 standard).

    - Regulated hot water systems, including the installation of tankless water heaters and instant hot water systems, are implemented in replacement, renovations, and leasing projects, where feasible.

    - State of California stationary engineers and authorized service providers maintain DMV-owned buildings that have a central plant, primarily the DMV HQ campus, with large boiler units. DMV has a 2-year maintenance agreement with an authorized service vendor to tune-up DMV's boilers at factory specified intervals to ensure operation at peak efficiency. The great percentage of DMV's portfolio consist of small field office buildings, which do not utilize boiler units.

- Implementing Photovoltaic systems at the DMV Headquarters facility, taking advantage of the space available above parking lots.

Table 3.5: Department-Wide Energy Trends (if available)

Year	Floor Area (ft^2)	Total Source kBTU Consumption	Department Avg. Source EUI
Baseline Year 2003	1,371,911	140,305,211	102
2013	1,413,116	282,604,978	200
2014	1,400,548	277,514,279	198
2015	1,400,548	283,598,160	202
2016	1,756,542	215,926,389	123
2017	1,756,542	219,279,574	125
2018	1,756,542	1,889,412,459	1,076
2019	1,756,542	438,806,073	250
2020	1,807,197	385,604,434	220
% Change 2003-2020	32%	175%	116%

As of 2020, DMV will strive to exceed the Governor's goal of 20% grid-based energy reductions based on the baseline year. DMV has increased its total square footage since 2003 and has extended day/hours of operations to accommodate large programs such as AB 60 driver's license and REAL ID. Due to the extension of hours and operations it was expected that energy use would go up. DMV has 100 state-owned buildings, 88 of which are small field offices. With such a huge portfolio of small facilities, it is not feasible to report each building's individual EUI score, perform analysis, and develop unique strategies for improvement. DMV's priority is to maintain facility operability, avoid building closures, and serve its customers.

DMV's field office replacement and major renovation strategy will address many of its oldest inefficient buildings. Scheduled lifecycle maintenance and repair projects, including lighting and HVAC replacements, will also improve energy efficiency. DMV will continue to explore opportunities to use utility rebates and alternative funding for energy projects.

Table 3.6: Summary of Energy Projects Completed or In Progress

Year Funded	Estimated Energy Savings (kBTU/yr)	Floor Area Retrofit (sq.ft.)	Percent of Department Floor Area
2012 to 2020	Specific data not available for this table see summary below	Specific data not available for this table see summary below	Specific data not available for this table see summary below

DMV has always been committed to conserving resources in the communities it serves. Prior to the baseline year of 2003, DMV sought to reduce energy, water, natural gas, and other fuel consumption to operate and maintain its considerable building portfolio. Since 2006, DMV has achieved or taken occupancy in 13 LEED certified buildings (state-owned and leased), and currently has four more seeking LEED certification. DMV also owns two ZNE buildings (Fresno and Grass Valley) and five authorized ZNE field office replacement projects are in design/preconstruction.

DMV's HQ East and West Buildings completed a fluorescent lighting retrofit project in September 2019, which resulted in full conversion to LEDs. This HQ lighting retrofit is a large project that takes advantage of utility rebates and statewide energy-saving project funding sources. All overhead lighting and outside fixtures were converted to LED. There was also motion sensors put in place to prevent them from staying one when no one is at the workplace. DMV coordinated with DGS in the implementation of this project.

Table 3.7: Energy Surveys

Year	Total Department Floor Area (sq.ft.)	Energy Surveys Under Way (sq.ft.) Level 1	Energy Surveys Under Way (sq.ft.) Level 2	Percent of Department Floor Area Level 1	Percent of Department Floor Area Level 2
2014 to 2020	N/A	N/A	N/A	N/A	N/A

DMV conducts annual assessments of its entire building portfolio to determine outstanding space deficiencies, periodic maintenance requirements, and overall condition of its facilities. The assessment data, captured in the DMV 5-Year Infrastructure Plan and the 5-Year Maintenance Plan, includes projects to

replace various building systems that will provide energy conservation measures. DMV has six HVAC replacement projects in various stages of design and construction. Six parking lot lighting retrofit projects are scheduled this year and five roofing projects are in various stages of design and construction. Each of these projects will improve the energy efficiency of the buildings; however, there are no engineering calculations that identify anticipated savings by location.

DMV will move forward with installing EVSE at identified DMV field offices as electric vehicles are purchased as part of DMV fleet. Approximately 20 new EV chargers will be placed through-out field offices and 17 planned projects to provide outside electrical plug-in access.

DMV has not completed formal ASHRAE surveys for any facilities, therefore, Table 3.7 shows N/A in all fields. DMV is developing a strategy to conduct ASHRAE Level 1-2 surveys in the future, pending funding. Due to the large number of DMV buildings, facilities having the greatest deficiencies or those where retrofit projects would create the least disruption to customer service may be the first buildings surveyed.

In July 2015, Southern California Edison and First Fuel completed two Rapid Building Assessments on DMV's Bellflower and Whittier field offices to identify annual electric use consumption by category (ex. HVAC, lighting, plug load, ventilation, pumps) and recognize opportunities for improvement. The assessment determined that DMV's lighting typically consumes over a third of the facility's total electricity use (36% in Whittier and 44% in Bellflower). The next largest electricity use component was for HVAC/cooling. DMV includes lighting retrofit and HVAC replacement within its scheduled maintenance and repair plans. The department is very aware of its energy use profile and will continue pursuing opportunities for energy use reductions as funding allows.

Demand Response (DR)

Executive Order B-18-12 directed all state Departments to participate in available demand response programs and to obtain financial incentives for reducing peak electrical loads when called upon, to the maximum extent cost-effective.

DMV participates in DR with the San Diego Gas and Electric Company (SDG&E), for six of its field offices. In addition, DMV participates in DR with the Sacramento Municipal Utility District (SMUD) for its headquarters campus in Sacramento. DMV has not experienced any negative impacts to operations with either

program, and is exploring other DR programs with utility providers statewide. DMV does have potential challenges in implementing additional DR programs:

- Many of DMV's field offices and HQ (Buildings West and South) have mechanical systems and controls that are over 40 years old, are functionally obsolete, and cannot interface with DR programs infrastructure.
- DMV's IT safety and security protocols are designed to protect confidential, secure information, but this can limit the use of DR systems that need connectivity to DMV's energy management systems.
- Contractual language required by some utilities has conflicted with State requirements.
- DMV's field offices were originally designed to serve a smaller number of building occupants than what DMV experiences today. The building's mechanical systems can be undersized for the current building occupants (staff and customers). Maintaining a reasonable temperature on hot days is a challenge for older HVAC systems and the prospect of DR further exacerbates the challenge of cooling these older buildings.

Table 3.8: Demand Response

Demand Response Participation	Number of Buildings	Estimated Available Energy Reduction (kW)
Number of Buildings Participating in 2020	7	N/A
Number of Buildings That Will Participate in 2021	7	N/A
All Department Buildings (Totals)	14	N/A
All Department Buildings (Percent)	100%	Estimate-10 %

Renewable Energy

New or major renovated state buildings over 10,000 square feet must use clean, on-site power generation, and clean back-up power supplies, if economically feasible. Facilities with available open land must consider large scale distributed generation through various financing methods, including, but not limited to, third party power purchase agreements (PPAs).

Although there are no specific kW goals for renewable energy, renewable energy does count towards meeting: (1) Zero Net Energy goal for 2025 and; (2) 20% grid-based energy use reduction by 2018.

DMV field offices are typically small (less than 20,000 square feet), single story buildings with surface parking lots. With less site density and electrical use than a multistory general-purpose state office building, it is possible to achieve ZNE through roof mounted and/or carport mounted solar arrays. DMV's Fresno field office project, completed in 2014, was the first ZNE state office building, and the Grass Valley field office project was the second which was completed in 2018. There are five additional ZNE field office projects that have been authorized for DMV and are in various stages of design. DMV is a leading state agency in developing ZNE facilities and will continue proposing new field office replacement projects as ZNE. While DMV will propose ZNE, the decision to authorize and fund new capital outlay projects to ZNE ultimately resides with the Governor and the Legislature through the budget process.

DMV currently has four photovoltaic solar arrays at offices statewide, including an array on the roof of HQ East Building in Sacramento. DMV will continue to utilize renewable energy options where required by the California Green Building Code and in support of the Governor's EOs.

Certain DMV field office as well as HQ plan on installing Electric Vehicle (EV) Arc 2020 charging units installed with BEAM Track, which allows the attached solar panel to follow the sun throughout the day to achieve the best angle to power the solar panel.

Table 3.9: On-Site Renewable Energy

Status	Number of Sites	Capacity (kW)	Estimated Annual Power Generation (kWh)	Percent of Total Annual DGS Power Use
On-Site Renewables in Operation or Construction	5	1,135,259	1,790,304,042	55.8%
On-Site Renewables Proposed	12	900,000	1,419,300,000	44.2%
On-Site Renewables Totals	17	2,035,259	3,209,604,042	100.0%

Department-Wide ZNE-Targeted Facility & Energy Current & Proposed On-Site Totals	-10		3,209,604,042	
Off-Site Renewable Totals	0	0	0	0.0%
Off-Site Renewables Planned	0	0	0	0.0%
Off-Site Renewables Combined Current & Planned	0	0	0	0.0%
Current Combined On-Site and Off-Site Renewable Energy	**5**	**1,135,259**	**1,790,304,042**	**55.8%**
Additional Planned On-Site and Off-Site Renewable	12	900,000	1,419,300,000	44.2%

Monitoring Based Commissioning (MBCx)

New and existing state buildings must incorporate Monitoring Based Commissioning (MBCx) to support cost effective and energy efficient building operations, using an Energy Management Control System (EMCS). State agencies managing state-owned buildings must pursue MBCx for all facilities over 5,000 square feet with EUIs exceeding thresholds described in Management Memo 15-04.

DMV is continually improving EMCS in its facilities, where feasible. The department has found that onsite staff understand the systems much better when training occurs as part of the MBCx, post installations, or at the completion of a new building construction projects. New construction and or major renovation projects will include MBCx and DMV will work with DGS architects, contractors, planners, and inspectors to verify MBCx at all new projects.

Management Memo 15-04 also identifies MBCx goals for existing buildings. As previously mentioned, the majority of DMV field offices are more than 40 years old and have HVAC systems and controls that do not lend themselves to MBCx. The scope and cost of retrofits to allow MBCx in these older facilities is cost prohibitive and major retrofits to the mechanical systems would require lengthy office closures, which would impede DMV's ability to deliver services to the public. DMV's strategy for implementing MBCx will primarily be in new facility

development. Projects designated after issuance of MM15-04 have been overseen by DGS and conform to all code and policy directives.

Table 3.10 identifies DMV's recently authorized projects where MBCx will be achieved. Two challenges associated with MBCx being implemented at DMV field offices are: 1) having a secure internet connection to allow the download of trend data, and 2) having energy management control systems with adequate storage for large quantities of trend data. In addition to new facility replacement projects, DMV will also work closely with DGS to evaluate any opportunities for MBCx in HVAC replacement projects.

Table 3.10: Planned MBCx Projects

Facility	*Building Name*	Location	Floor Area (sq. ft.)	EMS Make, Model, Installation/Upgrade	EMS Year	MBCx Capable, Difficult, or No EMS	MBCx Projected To Start	MBCx Projected Cost ($)
Office Building	Inglewood FO	Inglewood	15,644	N/A	2020/21	MBCx Capable	2020/21	N/A
Office Building	Delano FO	Delano	10,718	N/A	2021	No EMCS	2021	N/A
Office Building	Santa Maria FO	Santa Maria	13,342	N/A	2021	MBCx Operational	2021	N/A
Office Building	San Diego FO	San Diego	18,540	N/A	TBD	MBCx infeasible	TBD	N/A
Office Building	Reedley FO	Reedley	13,701	N/A	2022	No EMCS	2022	N/A
Totals			**71,945**					**$ -**

Financing

State agencies are required to pursue all available financing and project delivery mechanisms to achieve these goals including, but not limited to: state revolving loan funds, utility On-Bill Financing (OBF), Power Purchase Agreements (PPAs), GS $Mart, Energy Service Contractors (ESCOs), or other available programs.

DMV has not utilized the PPA form of financing previously. DMV's existing solar arrays and associated infrastructure are state owned and have been part of the department's new capital outlay projects. Power Purchase Agreements are unlikely to be used at DMV's older field offices, as they require long-term lease commitments and many of these facilities are targeted for near term replacement or major renovation. DMV has participated in an OBF program

with PG&E and has completed 31 lighting retro fit projects in field offices within PG&E territory.

CHAPTER 4 - WATER EFFICIENCY AND CONSERVATION

This Water Efficiency and Conservation report demonstrates to the Governor and the public the progress the Department has made toward meeting the Governor's goals. This report identifies successful accomplishments, ongoing efforts, and outstanding challenges.

California experiences the most extreme variability in yearly precipitation in the nation. In 2015, California had record low statewide mountain snowpack of only 5 percent of average while 2012-14 were the 4 driest consecutive years of statewide precipitation in the historical record. The 2017 water year (October 1, 2016-September 30, 2017) surpassed the wettest year of record (1982-83) in the Sacramento River and San Joaquin River watersheds and close to becoming the wettest year in the Tulare Basin (set in 1968-69). These potential wide swings in precipitation from one year to the next show why California must be prepared for either flood or drought in any year.

Therefore, using water wisely is critical. The EOs and SAM sections listed in the previous section help demonstrate the connection between water and energy use, (the water-energy nexus), water and climate change, and water and landscaping. Further, the impact of water uses by state agencies goes beyond the scope of these EOs and SAM sections and DGS management memos as these documents do not address such related issues as water runoff from landscaping and various work processes and the potential for water pollution or the benefits of water infiltration, soil health and nutrient recycling. However, by using holistic water planning, a well-crafted water plan can not only meet all state requirements but add considerable value and benefits to the organization and surrounding communities.

The water plan component of the Governor's Sustainability Roadmap will help all agencies and departments maximize water efficiency and conservation while improving their energy savings. Further, the plan helps agencies to gain additional benefits regarding climate adaptation and other ecosystem services. The water efficiency and conservation plan set priorities, defines tasks, timelines and budgets and designates responsible personnel for each step of the plan.

This water plan has two major components. The first component consists of a quantitative inventory of indoor water use by fixtures, boilers and cooling systems and appliances in state buildings and facilities. The second component

focuses on outdoor water use and landscaping and includes a measurement of landscape areas and types as well as an assessment of irrigation equipment. Each water plan component includes a mandatory set of BMPs for ongoing water use efficiency in both buildings and landscapes. Additionally, there are further requirements for large landscape water use tracking, if an agency has a total landscape area greater than 20,000 square feet at a facility. Both components of water use include monitoring, reporting, oversight and compliance. State agencies shall complete all the applicable Building and Landscape Inventories and Best Practices assessments found in the workbook sections and report their results in the following tables and sections.

DWR suggests that state agencies contact their water supplier for advice and assistance regarding local water conditions. Water suppliers are a source of expertise and can assist with water conservation and water efficiency efforts in a number of ways including rebates and other incentives, free water audits for both buildings and landscapes, irrigation scheduling assistance, water shortage contingency plans and informational brochures.

Best Management Practices

Building Best Management Practices (BMPs) are ongoing actions that establish and maintain building water use efficiency. State agencies are required by DGS Management Memo 14-02 to implement the building BMPs outlined below.

BMPs can be continuously updated based on need and tailored to fit the facility depending on occupancy and specific operations.

One of the critical practices in effective water management is to designate a water management coordinator to conduct the building walk-through inventory, implement the building BMP's and monitor and report water use. In the beginning of implementation, these BMPs require that staff be able to have enough time and resources to perform the actions required. A certain level of expertise may also be required. It is possible that various skills are needed which may not be found in just one person but require a team approach. Additionally, many of the BMPs are location specific, and it may be that BMP responsibilities are best assigned on that basis.

Department Mission and Built Infrastructure

DMV proudly serves the public by licensing drivers, registering vehicles, securing identities and regulating the motor vehicle industry in pursuit of public safety.

The majority of DMV's customer services and programs are administered at field offices located throughout the state. The building portfolio consists of both state-owned and leased facilities.

The most familiar of these are traditional public field offices, which comprises approximately 51% of the department's portfolio based on square footage. Another 14% is divided among Industry Business Centers, Call Centers, Commercial Driver License, Driver Safety, Investigations, Occupational Licensing, and Training offices. Often these separate programs are co-located in the same facility as a public office. The balance of DMV's portfolio includes headquarters, warehouse/storage, and support facilities.

Nearly 50% of the department's facilities are state-owned by DMV, the California Highway Patrol (CHP), or the Department of General Services (DGS), and 62% of the state-owned facilities were built during, or prior to, 1980. With a state-owned portfolio that average approximately 40 years in age, these aged buildings are in need of replacement or reconfiguration to meet the department's ongoing and diverse programmatic needs and to address code deficiencies.

Table 4.1: 2020 Total Purchased Water

Purchased Water	Quantity	Cost ($/yr)
Potable	27,468,000	$ 400,000- estimate
Recycled Water	0	$ 0
	27,468,000 Gallons	$ 400,000

Table 4.2: Properties with Largest Water Use Per Capita

Building Name	Area (ft^2)	# of Building Occupants	Total 2020 Gallons	Total 2020 Irrigation in Gallons (if known)	Gallons per Capita
DMV HQ- East Building	371,709	2500	2,093,000	-	837
Arleta	11,556	64	1,108,800	-	17,325
Winnetka	11,877	96	986,700	-	10,278
San Pedro	7,073	35	933,800	-	26,680
San Francisco	29,119	67	882,500	-	13,172
Total for Buildings in This Table	431,334 ft^2	2,762	6,004,800	-	68,053
Total for All Department Buildings	1,807,197 ft^2	10,000	27,468,000	-	2746.8
% of Totals	24 %	28%	22 %	-	2486%

Table 4.3: Properties with Largest Landscape Area

Building Name	Landscape Area (ft^2)
**DMV does not track this data	**DMV does not track this data
Total Landscaping area for Buildings in This Table	
Total Landscaping for All Department Buildings	
% of Totals that is large landscape	

*The DMV does not separately track landscaping square footage.

Consistent with various EO's, and water conservation mandates, the DMV implemented multiple water conservation measures throughout its building portfolio, including:

- The Contra Costa County Sanitation District - reclaimed water infrastructure connection project at the Concord Field Office: uses recycled water for landscape irrigation.
- DMV and DGS implemented a project at DMV's Central Utility Plant (CUP) in 2016, where pumps were installed to provide additional chemical treatment in the cooling towers allowing more dissolved solids in to be held in suspension. This reduces the interval for bleed off and saves approximately 1,000,000 gallons of water annually.
- The Delano Field Office project is currently designed to have drought tolerant landscaping to help conserve water efforts.
- The new Reedley Field Office, anticipated to be built/ completed in 2024, will incorporate water efficiency components such as toilet/ urinal systems and the lavatory faucets are all designed to conserve water.
- The "Use Water Wisely" campaign. Posting of signage reminding staff and DMV visitors to conserve water in every facet of their lives.
- Continued water conservation construction specifications requiring:
    - Low consumption faucets and toilets

- Waterless urinals
- Instant heat (low consumption) water heaters
- Drought tolerant landscaping
- Rainwater collection

During the 2021 statewide drought emergency, DMV continues to restrict irrigation at all its statewide facilities to minimum levels to preserve plant resources.

Due to the age and poor condition of the landscape infrastructure at many DMV facilities, significant repairs or replacements are needed. Many of these systems were not used during the drought and have suffered from months and possibly years of non-use. Significant irrigation improvement projects are anticipated through renovation and new capital outlay field office replacement plans. Smaller repair and improvement undertakings will be accomplished within the context of DMV's 5-year scheduled maintenance and repair plan.

Table 4.3: Department Wide Water Use Trends

Year	Total Occupancy /year	Total Amount Used (Gallons/year)	Percent Change From 2010 Baseline	Per capita Gallons per person per day
Baseline Year 2010	8,948	72,230,600		8,072
2013	9,055	56,250,134	-22%	6,212
2018	9,527	28,666,800	-60%	3,009
2019	9,927	29,260,900	-59%	2,947
2020	9,927	27,468,000	-61%	2,766
2022 Goal (15% reduction from 2020)		**23,347,800**		

*DMV has already exceeded the 20% reduction goal from the 2010 baseline and the 25% reduction goal target for 2020 based on the 2013 baseline.

Table 4.4: Total Water Reductions Achieved

Total Water Use Compared to Baseline	Total Amount Used (gallons per year)	Annual Gallons Per capita
20% Reduction Achieved	27,468,000	2,766
Less than 20% Reduction	N/A	N/A
Totals	-61%	-61%
Department-Wide Reduction	-61%	-61%

DMV has continually specified water conservation technology for all DMV owned and leased space designs for more than a decade. For new field office construction projects, buildings are designed to CALGreen code and incorporate various water conservation.

In 2014, the DMV became one of the first state departments to integrate reclaimed water infrastructure, implementing this strategy at the Concord field office by means of a connection into local government's recycle water system. Historically, the DMV has always sought to reduce consumption of all resources. DMV is compliant with government mandates to quantify consumption and is ahead in meeting and exceeding the goals established by the EO's.

For the past several years, due to water conservation and drought concerns, DMV has prohibited new plantings, refrained from watering existing turf and other plants, and suspended window washing. Therefore, DMV does not have specific water conservation projects to report in Table 4.6, other than water savings from LEED rated projects (state-owned and leased) completed during that time period, as well as the aforementioned cooling tower project for the HQ campus. DMV foresees new opportunities to implement water conservation projects in the near term with new construction projects at locations such as Inglewood, Delano, Santa Maria, Oxnard and Reedley; all of these projects are authorized and in the design phase.

Building Water Management BMPS

The DMV is currently using Energy Star Portfolio Manager to collect data on monthly water usage for our facilities. The data is collected by reaching out to the water utility or the water management company of the city in which the facility resides. The water utility then supplies either consumption reports or the facilities utilities bills from which to extract data.

Leak Detection and Repair

DMV has Regional Construction Maintenance Supervisors and Stationary Engineering staff who routinely visit DMV's field offices for repair and maintenance projects. During their visits, they perform visual leak detection surveys on internal fixtures and field reviews of the landscape irrigation infrastructure. They have and continue to identify opportunities for more low flow fixtures, where the plumbing infrastructure allows successful operation.

The Facilities Operations Branch sends out water conservation reminders to DMV facilities, informing employees statewide of ways to save water while at work, including the use of DMV's breakrooms and restrooms. DMV has no laundry facilities and no showers in its field offices, so no operational guidance was provided for these types of facility systems.

Kitchens

DMV has an onsite cafeteria in headquarters East Building. DGS and maintenance contracts are utilized to perform routine maintenance and replace parts as necessary.

Laundry Facilities

DMV does not have any laundry facilities at headquarters or field offices.

Table 4.5: Summary of Indoor Water Efficiency Projects Completed 2014-2020 or In Progress

Year Completed	Water (Gallons/yr.) Saved	Number of Indoor Water Efficiency Projects Completed	Cost Savings per Year
2014	12,306	N/A	-20,328
2015	10,745	N/A	-30,264
2016	7,012	N/A	55,561
2017	0	N/A	0
2018	0	N/A	0
2019	0	N/A	0
2020	0	N/A	0

Building Heating and Cooling Systems BMPs

As indicated previously, the DMV CUP at the Sacramento headquarters campus is operated and maintained by DGS/FMD staff who follow Best Management Practices (BMP) including, but not limited to:

- Routine inspections and maintenance checking steam traps and steam lines for leaks.
- Repairing leaks and replace faulty steam traps as soon as problems are identified.
- Boiler tuning though an authorized service provider.
- Insulating steam and condensate return piping, and central storage tanks.
- A water treatment specialist is under contract to prevent system scale and corrosion and to optimize cycles of concentration. Water treatment programs include regularly scheduled checks of boiler water chemistry.
- Routine inspections and maintenance programs for condensate pumps.
- Performing scheduled inspections of both the water side and fire side of the boilers. Cleaning the tube surfaces or replacing tubes, as needed, to ensure optimal heat transfer thereby maximizing system energy efficiency.
- Adjusting boiler and cooling tower blowdown rate to maintain TDS at levels recommended by manufacturers' specifications. Utilizing chemical treatment to minimize the use of blowdown water.
- Shutting off water-cooled air conditioning units when not needed and maximizing the use of economizers.

Table 4.6: Summary of Boilers and Cooling Systems Projects Completed or In Progress

Year Completed	Water Saved (Gallons/yr.)	Number of Systems with Water Efficiency Projects
2014-2020	*DMV does not track this data	

Table 4.7: Summary of Landscaping Hardware Water Efficiency Projects Completed or In Progress

Year Funded	Water Saved (Gallons/yr.)	Estimated Annual Cost Savings	Total Number of Projects per Year
2014	12,306	-	1
2015	10,745	-	3
2016	7,012	-	1
2017	-	-	-
2018	-	-	-
2019	-	-	-
2020	-	-	-

*The DMV does not track specific landscaping hardware projects.

Table 4.8: Summary of Living Landscaping Water Efficiency Projects Completed or In Progress

Year Funded	Water Saved (Gallons/yr.)	Landscape Area MWELO (ft2)	Climate Appropriate Landscape Area (ft2)
2014	12,306	1,163,157	290,789
2015	10,745	1,163,157	290,789
2016	7,012	1,163,157	290,789
2017	DMV Does not track	DMV Does not track	DMV Does not track
2018	DMV Does not track	DMV Does not track	DMV Does not track
2019	DMV Does not track	DMV Does not track	DMV Does not track
2020	DMV Does not track	DMV Does not track	DMV Does not track

Water Shortage Contingency Plans and Critical Groundwater Basins

Urban water suppliers are required to maintain Water Shortage Contingency Plans that are customized to local conditions. These plans include a staged response to water shortages and droughts lasting up to three years. When implementing the stages of the Water Shortage Contingency Plan, the water supplier will require increasingly stringent reductions in water use.

EO 37-16 required DWR to strengthen the requirements for these Plans, including, among other proposed changes, the creation of common standards for each stage in the plan, and extending the drought planning from three to five years. For smaller water suppliers and rural communities not required to maintain a Water Shortage Contingency Plan, DWR works with counties to facilitate improved drought planning.

State agencies are to be aware of their water suppliers' Water Shortage Contingency Plan and the potential impact each stage may have on their water use. State agencies are to have their own contingency plans in place for their building and landscaping water use in order to respond to any stage implemented by the water supplier.

The Sustainable Groundwater Management Act (SGMA) established a new structure for managing California's groundwater resources at a local level by local agencies. SGMA required, by June 30, 2017, the formation of locally-controlled groundwater sustainability agencies (GSAs) in the State's high- and medium-priority groundwater basins and sub basins (basins). A GSA is responsible for developing and implementing a groundwater sustainability plan (GSP) to meet the sustainability goal of the basin to ensure that it is operated within its sustainable yield, without causing undesirable results. For those facilities located in critical groundwater basins, state agencies are to work with the local GSA plan.

Table 4.9: Number of Buildings with Urban Water Shortage Contingency Plans and in Critical Groundwater Basins

Number of Buildings with urban water shortage contingency plans.	Number of buildings in critical groundwater basins	Total Amount of water used by buildings in critical groundwater basins (Gallons)
N/A	8-state Owned	5,508,384

DMV operates eight state-owned facilities in areas having critically over drafted groundwater basins. The majority of DMV's water usage at its field offices is for landscape watering; however, other water uses include restrooms, drinking fountains, and employee breakroom kitchens. DMV has implemented water saving measures through sink aerators, low flush restroom fixtures, and reduced landscape watering. During California's recent drought, landscaping areas without significant plant and tree resources were not irrigated and grass, annuals, and other lesser-valued plant resources were allowed to die in order to

save water. With the end of the drought, DMV has returned to a more frequent, but still limited, watering program to maintain the remaining live plants with the least amount of water possible.

DMV has one large central heating and cooling plant at its Sacramento headquarters campus and implemented a water conservation project in 2016 to reduce the use of the cooling tower makeup water by approximately 1,000,000 gallons per year. The balance of DMV offices are small and generally do not have boiler plants or cooling towers.

As new DMV projects are designed and constructed to CALGreen code, DMV will be seeking opportunities for high efficiency landscape watering systems and the use of drought tolerant plantings to reduce water use. Low flow fixtures and other water conservation devices will be included in new projects; and on-site water retention systems, the use of local government recycled water for irrigation and other water conservation measures will be investigated on a project level basis.

DMV has three authorized capital outlay projects underway (Delano, Reedley and Oxnard), as well as the current Fresno field office, in critically over drafted groundwater basins. The Fresno field office was completed in 2014 and has water conservation features and no new plantings due to the multi-year drought.

Building Inventories Summary

DMV performed preliminary field reviews of low flow fixtures and aerators in a number of state-owned field offices, which range in age from 3 years to 57 years old and have an average age of 38 years. The reviews showed most DMV-owned buildings already had aerators and low flow fixtures installed, and those locations that did not, lacked the necessary plumbing infrastructure (ex. Pipe slope) to facilitate the successful operation of low flow fixtures.

A full inventory of public and employee restroom fixtures, lavatory fixtures, and breakroom fixtures could not be accomplished within existing staff resources and would not have yielded many opportunities, based on the initial field reviews. Since a full inventory could not be performed in FY 16/17, Table 4.11 has not been populated.

As indicated, DMV has sought opportunities to install water conservation measures in its existing portfolio of state-owned buildings and new DMV projects will incorporate the latest water saving measures and be constructed to

CALGreen code.

Table 4.10: Summary of Building Inventory Needs

Number of toilets to be replaced	Number of urinals to be replaced	Number of faucet aerators to be replaced	Number of showerheads to be replaced * Changing to 1.8 gallons in 2022	Number of clothes washers to be replaced	Number of garbage disposals to be replaced.	Number of pre-rinse valves to be replaced
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Heating and Cooling Systems Inventories Summary

With the exception of the DMV headquarters campus Central Utility Plant (CUP), most of DMV's state-owned offices do not utilize boilers; they use central HVAC (multi-zone) or package units. DMV and DGS implemented a project at DMV's CUP in 2016 to save approximately 1,000,000 gallons of makeup water a year. New pumps were also installed to provide additional chemical treatment for the cooling towers and allow the DGS stationary engineers who operate the plant to hold more dissolved solids in suspension, increasing the interval period for water bleed off and reducing the use of makeup water. Because field offices are small and do not have central plants and large boilers, this strategy was only implemented at the headquarters CUP.

DMV performs annual inspections of state-owned field offices and tracks the age, condition, and life cycle expectancy of HVAC equipment as part of the 5-Year Maintenance Plan. The annual surveys inform DMV's priorities and strategy for HVAC repairs and system replacements. Systems that are old and have a high frequency of repairs or failures are identified for the replacement within the 5-year planning horizon. New units are more efficient than the existing systems, which are approximately 25-50 years old. DMV is using Section 6.10 funding from the 2016-17 budget to design and construct up to 13 identified HVAC systems in DMV field offices that were deemed critical, likely to experience ongoing failures, and where replacement parts have been difficult to procure due to the age of the existing equipment. These new HVAC projects are being designed to current code and will be more efficient than the existing equipment. A list of locations where DGS is designating and implementing HVAC projects on behalf of DMV follows below:

- Carmichael

- Culver City
- Long Beach
- Pleasanton
- Redlands
- Santa Rosa

Table 4.11: Summary of Boilers and Cooling Systems Inventory

Amount of Water Used for make-up (Gallons)	Number of flash tanks to purchase and install	Number of meters to purchase and install	Amount currently reused? (Gallons)	Remaining additional water suitable for other purposes (Gallons)
No Data	No Data	No Data	No Data	No Data

Irrigation Hardware Inventories Summary

Landscaping typically uses 50% or more of an agency's total water use. While landscaping serves critical functions, the accompanying irrigation hardware, if not properly installed and maintained, can contribute to water waste. By reviewing and inventorying all irrigation hardware, it is possible to achieve significant water savings.

DMV has 100 field offices ranging in age from 3 years to 57 years old and the irrigation infrastructure varies throughout the State. Even the newer buildings do not have the modern infrastructure and technology suggested by DGS' Office of Sustainability for maximizing irrigation efficiency. DMV's headquarters campus landscaping and irrigation is overseen by DGS and together the departments have pursued opportunities to upgrade the irrigation system as funding has allowed.

DMV is currently unable to survey all of the field office irrigation hardware; however, DMV has shown the ability to conserve water within the operation of its existing irrigation systems. DMV regularly adjusts timers to maximize water efficiency. DMV's overall water use (irrigation and domestic) is approximately 0.38% of state agency/department water use statewide while DMV's building portfolio constitutes only 0.64% of the statewide portfolio (based on total gross square feet).

Table 4.12: Summary of Irrigation Hardware Inventory

Number of separate meters or sub-meters needed	Number of irrigation controllers required with weather or soil moisture adjustment and flow sensing capabilities needed.	Number of backflow prevention devices needed.	Number of flow sensors to be purchased and installed	Number of automatic rain shut-off devices needed	Number of new pressure regulators needed.	Number of new hydrozones needed.	Number of new valves needed.	Number of filter assemblies needed.	Amount of drip irrigation needed (area covered)	Number of booster pumps needed	Number of rotary nozzles or other high efficiency nozzles needed
No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

Landscaping Hardware Maintenance BMPS

DGS/FMD oversees and performs landscaping BMPs at the DMV HQ campus. DGS staff is responsible for implementing the BMPs identified by the DGS Office of Sustainability, by code, b state policy, and Executive Order. Hardware maintenance provided by DGS includes:

- Install check valves, swing joints and replace nozzles as needed
- Install faucet timers for hose or hand irrigation
- Install shut-off nozzles or quick-couplers for all hoses

A few DMV field offices receive landscaping services from DGS/FMD, but most have landscaping services through private contractors. DMV's contracts require the landscape companies to follow BMPs for landscape hardware, including leak detection and repair.

There is no available data regarding water savings for each landscape hardware maintenance BMP at DMV's field offices.

Living Landscape Inventory

Far from being just an aesthetic or ornamental feature, landscaping plays a critical role around public buildings and facilities. From providing safety and security, to reducing local heat islands, suppressing dust, reducing water runoff, maintaining soil health, aiding in water filtration and nutrient recycling, landscaping around public buildings is essential. Further, landscaping in public places frequently surrounds historic places and public memorials as well as provides pleasant public gathering spaces. The health and proper maintenance of these landscapes is vital to the physical wellbeing of California's people as well as to its social, cultural, political and historical life.

Additionally, the many vital ecosystem functions carried out by living public landscaping are critical in helping California meet its goals for greenhouse gas reduction, climate adaptation, and water and energy efficiency and water conservation.

Urban forests are vital to improve site conditions for occupants and visitors to buildings and the surrounding community. Large shade trees should be considered valuable infrastructure and given priority over other plants to maintain tree health. A voluntary urban forest plan is encouraged to assess individual trees and plan for additional tree plantings.

DMV has not performed a Living Landscape Inventory of its 100 state-owned facilities and sites located throughout California; therefore, Table 4.14 cannot be populated with data. As indicated earlier in this report, the vast majority of DMV's buildings are field offices, typically smaller in size (under 15,000 GSF), with extensive surface parking for customers and employees, and having minimal landscaped areas.

As part of new capital outlay replacement and major renovation projects, DMV will work with DGS and project architects and engineers to evaluate opportunities for urban forests, while also meeting other required code items and policy directives, such as ZNE and on-site power generation. DMV must also carefully consider how shade trees and urban foresting affects site power generation (solar arrays), ongoing operational costs, potential damage to DMV's parking lots, safety and security, and provide liability from tree or limb falls.

Table 4.13: Summary of Living Landscape Inventory

Landscape >500Sq. ft.)	Turf (Sq. ft.)	Number of historical sites or memorials	MWELO landscape area (Sq. Ft.)	Climate appropriate landscape area (Sq. Ft.)
No Data	No Data	No Data	No Data	No Data

Living Landscape BMPs

During California's historic multi-year drought, DMV and DGS followed the policy directive to prioritize and maintain the life of trees, large shrubs and significant plant resources, but to reduce water to other landscape plants and turf. This resulted in very large water savings statewide and DMV's water use reduction has been quantified in Table 4.3. As part of DMV's BMPs, the following strategies were implemented:

- Prioritize and assign value to plants within a landscape.
- Irrigation timers were used to reduce watering to bare minimums.
- Irrigation hardware was checked for leaks and repaired immediately upon detection.
- DMV continued past BMPs of watering at night or early morning.
- Sprinklers were adjusted to avoid overspray and runoff.
- No new plantings or replacement plantings took place; landscaped areas for new capital outlay projects were filled with mulch during the drought.
- New projects are being constructed with water conservation measures. They may include on-site retention, first flush systems and bioswales, moisture sensors, and high efficiency watering systems. Native and drought tolerant plants will be utilized to reduce water use and compost will be added to soil and bedding areas.

Large landscape Water Use

Large landscape water use often represents a significant percentage of a facility's water use and significant water savings can often be achieved through better irrigation scheduling or inexpensive improvements in irrigation hardware.

As part of the Water Use Guidelines and Criteria, the water uses for landscape areas over 20,000 sq. ft. shall be tracked through a water budget program.

The DMV has minimal landscaping at field office locations; there are no large contiguous landscaped areas that necessitate a landscape water budget management plan. The largest DMV site is headquarters campus where the landscaping is overseen by DGS. Table 4.15 below is not populated as DMV has no qualifying sites that are not already overseen by DGS who is responsible for water budgeting.

Table 4.14: Summary of Large Landscape Inventory and Water Budget

Number of Facility Sites/Locations with > 20,000 sq. ft. of Landscaping	Total Landscape Area all Facilities	Total Water Budget all Facilities	Total EPA WaterSense or Irrigation Association Certified Staff
N/A	N/A	N/A	N/A

Table 4.15: Summary of Completed Living Landscaping Water Efficiency Projects

Total of all Facilities	Est Annual Water Savings (Gallons)	Est Annual Cost ($) Savings	Sum of MWELO Landscape installed (Sq. Ft.)	Sum of Climate Appropriate Landscape Installed (Sq. Ft.)
No Data	No Data	No Data	No Data	No Data

Monitoring, Reporting and Compliance

Each state agency is responsible for monitoring water use and reporting baseline and annual water use for compliance with the water use reduction targets. Water use shall be measured at facilities that have meters and sub meters.

DMV reports water use into the Energy Star Portfolio Manager database and estimates water use for facilities without meters. DMV does not have sub-meters at most field offices or at headquarters; the potential of sub-meters has been deemed cost prohibitive for headquarters.

CHAPTER 5 - GREEN OPERATIONS

Greenhouse Gas (GHG) Emissions

State agencies are directed take actions to reduce entity-wide greenhouse gas emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline.

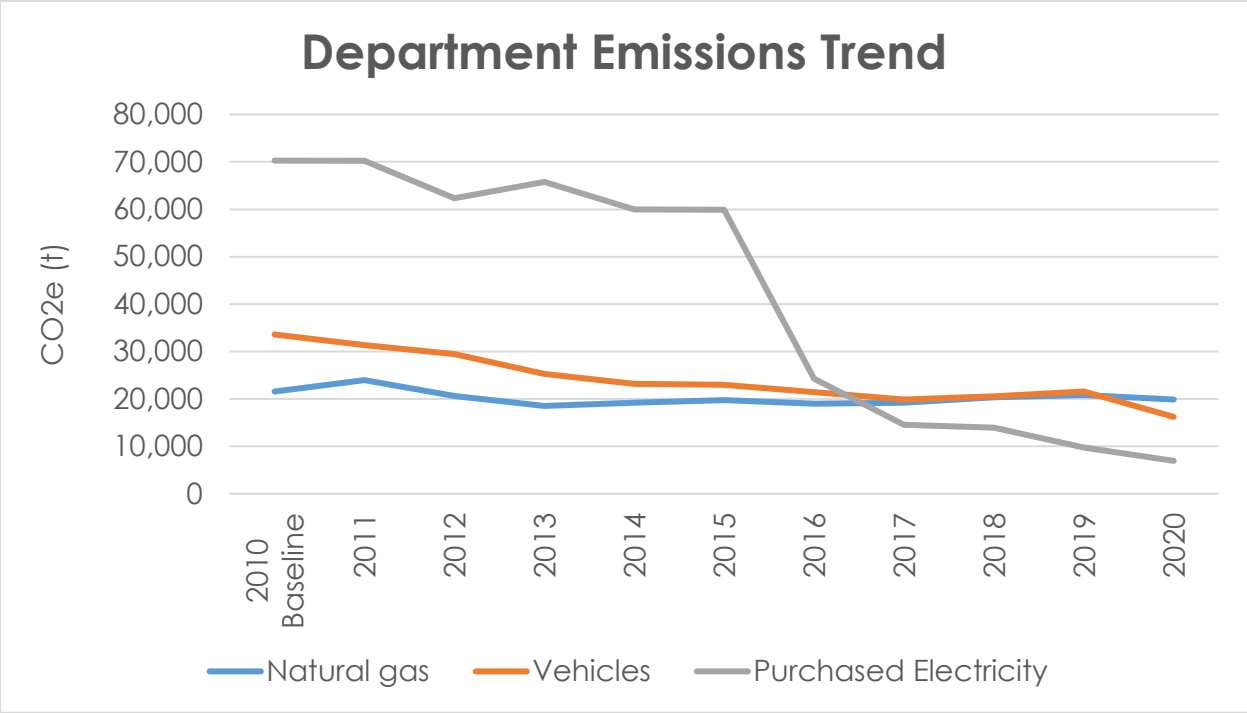
DMV has already reached the goal of 20% reduction in GHG emissions. Existing strategies used by DMV to further reduce Greenhouse Gas Emissions include:

- Energy Efficiency/On-Site Renewable Energy
    - Through new construction and leases, DMV will continue to design buildings that achieve LEED-NC Silver (or higher) and zero net energy as applicable.
    - Through field office renovations and repair/maintenance projects, DMV improves energy efficiency by replacing older roofs and HVAC systems along with replacing exiting parking lot and exterior lighting with high-efficiency LED lighting.
- Fuel Efficient/Zero Emission Vehicles
    - DMV continues to convert its older fleet vehicles to more energy efficient vehicles, including hybrids. Over time, DMV's fleet will have a higher percentage of ZEV's and other energy efficient cars and trucks. DMV installed a new dual charging station at HQ in 2017, in anticipation of future ZEV and plug-in hybrid purchases. In 2019, another dual charging station was installed for employee use.
    - No biofuel is being used by DMV currently.
- Purchased Renewable Energy
    - DMV does not use purchased renewable energy but evaluates green energy acquisitions as opportunities arise and in comparison to other utility rate structures.

Table 5.1: GHG Emissions since 2010

Emissions Source	2010 Baseline	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Percent Change since Baseline
Natural gas	21,556	23,962	20,587	18,516	19,233	19,741	18,996	19,210	20,361	20,841	19,906	**-8%**
Vehicles	33,588	31,380	29,461	25,251	23,165	22,954	21,460	19,901	20,533	21,533	16,214	**-52%**
Purchased Electricity	70,272	70,225	62,340	65,778	59,956	59,870	24,234	14,570	13,956	9,717	6,938	**-90%**
Total	125,416	125,567	112,388	109,545	102,354	102,565	64,690	53,681	54,850	52,091	43,058	**-66%**

Graph 5.1: GHG Emissions since 2010



The graph above shows a decline in emissions from 2010 to 2020. There is a decline in all groups of emissions, natural gas, vehicles and purchased electricity.

Low Emitting Landscaping Equipment

State agencies are to use manual landscape and hardscape maintenance as much as possible to reduce air pollution, dust and noise. These measures are addressed in SAM Section 1821.6.

Most of DMV field offices utilize private landscape contractors who generally use traditional landscape maintenance equipment.

Building Design and Construction

Executive Order B-18-12 requires that all new buildings, major renovation projects and build-to-suit leases over 10,000 square feet shall obtain LEED Silver certification or higher. All new buildings under 10,000 square feet shall meet applicable CalGreen Tier 1 Measures. New buildings and major renovations greater than 5,000 square feet are also required to be commissioned after construction.

All DMV state-owned and many leased space acquisition projects have been certified LEED-Silver (or better), including one state-owned ZNE facility, and six more state-owned ZNE projects in various levels of design. Building commissioning is required as part of LEED certification, California Green Building Standards Code (CALGreen), and ZNE certification.

Table 5. 2: New Construction since July 1, 2012

Facility Name	LEED Certification Type & Level Achieved	Commissioning Performed (Y/N)
Rancho Cucamonga	Certified	Y
El Monte	Silver	Y
Lodi	Silver	Y
West Hollywood	Silver	Y
Sacramento HQ East	Silver	Y
Roseville	Silver	Y
Fontana	Silver	Y

Fresno CDTC	Silver	Y
Fresno (ZNE)	Gold	Y
San Marcos Rancheros	Silver	Y
Lancaster	Silver	Y
Palm Desert	Silver	Y
Grass Valley	Silver	Y
Inglewood	Silver or Gold & ZNE	To be performed
Delano	Silver or Gold & ZNE	To be performed
Santa Maria	Silver or Gold & ZNE	To be performed
San Diego Normal	Silver or Gold & ZNE	To be performed
Reedley	Silver or Gold & ZNE	To be performed

State agencies shall implement mandatory measures and relevant and feasible voluntary measures of the California Green Building Standards Code (CALGreen), Part 11, related to indoor environmental quality (IEQ) that are in effect at the time of new construction or alteration and shall use adhesives, sealants, caulks, paints, coatings, and aerosol paints and coatings that meet the volatile organic chemical (VOC) content limits specified in *CALGreen*.

New capital outlay projects, alterations, and lease build-to-suit projects are overseen by the Department of General Services (DGS) Real Estate Services Division (RESD). DGS/RESD and its contracted architectural and engineering firms, ensure that all current building code and policy directives are incorporated into new facility designs, plans, and specification. All code requirements and Administration policies are incorporated into the contract documents by DGS and their project management and inspection services are also used to verify the facilities are built to code and performance specifications.

LEED for Existing Buildings Operations and Maintenance

All State buildings over 50,000 square feet were required to complete LEED-EBOM certification by December 31, 2015, and meet an Energy Star rating of 75 to the maximum extent cost effective.

DMV only has two buildings larger than 50,000 sq. ft., the HQ East Building (565,000 GSF) and the HQ West Building (264,500 GSF). HQ East Building was originally constructed in 1963, and underwent a phased renovation completed in 2014. HQ West was originally constructed in 1953 and has not been substantially renovated.

In 2011, during the renovation of HQ East, a Central Utility Plant (CUP) was constructed at the HQ campus. The CUP provides heating and cooling to all three DMV HQ buildings (East, West and South) and to the CHP Valley Division Building located on the easterly part of the campus. When the CUP was constructed, installation of sub-meters was not included; consequently, the DMV does not have the ability to identify the energy use by the individual buildings, a requirement of LEED-EB. DMV's HQ campus was included in the DGS LEED-EB program; however, it was subsequently determined that the age, building systems, and the original design and construction of HQ Building West does not allow the DMV HQ campus to achieve the prerequisite energy star score for LEED-EB certification without a full renovation.

DMV's 5-Year Infrastructure Plan envisions new construction on DMV's HQ campus and will propose the installation of sub-meters as part of a future capital outlay project. This will allow DMV to gather 12-months of energy data required for LEED-EB certification for HQ Building East. In the interim, DMV will continue pursuing projects to improve energy efficiency at the HQ campus, including the re-lamping of HQ Building East and West fluorescent fixtures with high efficiency LED lighting, which began in September 2019.

Table 5.3: LEED for Existing Buildings and Operations

Number of Buildings over 50,000 sq. ft. and eligible for LEED EBOM	Number of Building over 50,000 sq. ft. that have achieved LEED EBOM	Percentage of buildings over 50,000 sq. ft. required to achieve LEED EBOM that have achieved it
2	0	0

Indoor Environmental Quality

When accomplishing Alterations, Modifications, and Maintenance Repairs and when relevant and feasible, state agencies shall implement the mandatory and voluntary measures of the California Green Building Standards Code (CALGreen), Part 11, related to indoor environmental quality.

Indoor Environmental Quality must also be maintained through the use of low emitting furnishings, cleaning products and cleaning procedures.

New Construction and Renovation

Specific compliance requirements for government mandated and voluntary measures identified in CALGreen, are identified in construction plans, specifications, and code references for all building projects. These requirements are incorporated by DGS and their contracted architectural and engineering firms and ultimately verified through the regulatory process. DMV and DGS also identify specific requirements for office furnishings, green cleaning products, and office and cleaning equipment through the state's published acquisition requirements, implemented by departmental purchasing and contracts units.

Voluntary measurers for Indoor Environmental Quality and means of compliance are identified in CALGreen and they include, but are not limited to:

- Adhesives, sealants, caulks, paints, coatings, and aerosol paints and coatings that meet volatile organic chemical (VOC) content limits specified in CALGreen.

- Carpet systems, carpet cushions, composite wood products, resilient (e.g, vinyl) flooring systems, and thermal insulations, acoustical ceilings and wall panels that meet the VOC emission limits specified in CALGreen.

Through DGS' project specifications, DMV ensures that all new construction and renovation projects include, but are not limited to:

- Commissioning to ensure proper operation of all building systems, including delivering the required amount of outside air.

- All relevant mandatory and all feasible voluntary measurers from CALGreen Division 5.5 and Appendix section A5.5.

- Specialized air treatment for buildings where air quality standards are routinely exceeded, including MERV 13 or MERV 16 air filters and ozone

removing air cleaning devices.

- Outdoor airflow monitoring systems.

- An IEQ Construction Management Plan that meets CALGreen Sections A5.501.1-A5.504.2.

DGS and DMV maximize daylighting in new construction by:

- Providing a direct line of sight to the outdoors via vision glazing between 2.5 and 7.5 above the finished floor in 90% of all regularly occupied areas.

- Using top lighting and side lighting, light shelves, reflective room surfaces, means to eliminate glare and photo sensor controls.

- Verification of compliance is achieved through DGS and DMV review of the design documents and regulatory review by the Division of the State Architect's Office.

Furnishings

DMV ensures that all furniture and seating purchased by the department complies with either:

- The DGS' Purchasing Standard and Specifications (Technical Environmental Bid Specification 1-09-71-52, Section 4.7).

- The American Society of Heating, Refrigerating, and Air-Conditioning Engineers' (ASHRAE) Standard 189.1-2011 (Section 8.4.2.5).

- CALPIA manufacturing and associated products are compliant with the DGS' Purchasing Standard and Specifications (Technical Environmental Bid Specification 1-09-71-52).

Cleaning Products

- DGS and DMV ensure that all cleaning products used meet Green Seal (GS) Standard GS-37: Cleaning Products for Industrial and Institutional Use Materials and Safety Data Sheets describe cleaning products in use at DMV facilities statewide.

Cleaning Procedures

Cleaning maintenance at DMV facilities is also performed by private service providers using institutional cleaning standards, including but not limited to the following procedures:

- All vacuum cleaners used in department facilities achieve the Carpet and Rug Institute Seal of Approval.

- Entryways are maintained as specified in CALGreen Section A5.504.5.1.
-
- Cleaning procedures meet the Green Seal GS-42 standard.

- Cleaning procedures follow the Carpet and Rug Institute's Carpet Maintenance Guidelines for Commercial Applications. Cleaning procedures meet Title 8 Section 3362.

HVAC Operation

Through equipment specifications and energy management systems, DGS and DMV ensure the HVAC systems provide no less than the required minimum outdoor air requirements.

DGS and DMV Stationary Engineers oversee the ongoing operation, repairs, and preventative maintenance of HVAC systems in state-owed DMV facilities:

- HVAC systems are inspected at least annually and all HVAC inspections and maintenance are documented in writing. These inspections include, but are not limited to:

    - Verification of minimum outdoor airflows using hand-held airflow measuring instruments.

    - Confirmation that air filters are clean and replaced based on manufacturer's specified interval.

    - Air filters used have a MERV rating of no less than 11.

    - Verification that all outdoor dampers, actuators, and linkages operate properly.

    - Checking condition of all accessible heat exchanger surfaces for fouling and microbial growth, with action taken when fouling is found.

    - Ensuring that cooling towers are properly maintained and that records of chemical treatment are kept. Retrofit to prevent cooling tower plumes closer than 25 feet to any building air intake.

- A computer-based preventative maintenance program is in place for all HVAC equipment.

- Buildings are purged with outdoor air sufficient for three complete air changes or the minimum ventilation rate allowed in Section 120.1(c)2 of Title 24 for 1 hour before occupancy.

Integrated Pest Management

Department staff and contracted pest management companies will follow an integrated pest management (IPM) strategy that focuses on long-term prevention of pest problems through monitoring for pest presence, improving sanitation, and using physical barriers and other nonchemical practices. If nonchemical practices are ineffective, Tier 3 pesticides may be used, progressing to Tier 2 and then Tier 1 if necessary.

DMV requires new contract language that ensures department staff and contracted pest management companies follow an integrated pest management (IPM) strategy focusing on long-term prevention of pest problems

through monitoring for pest presence, improving sanitation, and using physical barriers and other nonchemical practices. As contracts are renewed, the new language will be incorporated, and all contracts should include the language within two years. With over 250 offices statewide, the DMV utilizes hundreds of private pest control service providers, which are required to comply with governmental mandated regulations, related to pest control management.

Table 5.4: Pest control contracts

Pest Control Contractor	IPM Specified (Y/N)
Hunter's Pest Services, Inc.	Y

Waste and Recycling Programs

The California Integrated Waste Management Act (Assembly Bill 939, Sher, Chapter 1095, Statutes of 1989 as amended) established the solid waste management hierarchy. Source reduction is at the top of the state's waste management hierarchy; recycling and composting is next, followed last by environmentally safe disposal. California's Department of Resources Recycling and Recovery (CalRecycle) administers the state's recycling and waste management programs. State agencies must report their waste and recycling efforts by May 1 of each year covering activities conducted during the prior calendar year. Using your agency's most recent annual report (State Agency Reporting Center (SARC) Report), give a waste management overview of your agency's waste, recycling and organics recycling efforts.

Pursuant to SB 1106 each state agency shall have at least one designated waste and recycle coordinator. The coordinator shall perform the duties imposed pursuant to this chapter using existing resources. The coordinator shall be responsible for implementing the integrated waste management plan and shall serve as a liaison to other state agencies and coordinators. In addition, each state agency is required to provide adequate receptacles, signage, and education and outreach to staff.

The Department of Motor Vehicles (DMV) is committed to protecting and conserving the environment and valuable resources. The Department's Recycling and Waste Management Policy is located in the Administrative Policy Manual, section 4.610. The following procedures are to help reduce waste, protect documents containing confidential information, and increase recycling by using the specified methods for each material. The DMV does have a designated waste and recycling coordinator that is responsible for submitting

the annual report (State Agency Reporting Center (SARC) Report) to CalRecyle, creating an integrated waste management plan and promotes agency recycling programs for both headquarters and field offices.

Table 5.5: State Agency Reporting Center (SARC) Report on Total Waste per Capita

Per Capita Baseline	2019	2020	Total Waste 2019	Total Waste 2020	% Change from 2019/2020
Target Per Capita Disposal Rate: 3.8	3.32	3.03	6,912.10 (tons)	6,079.02 (tons)	Decrease of 12%

The DMV has been monitoring Disposal Rate per Capita since 2001. There has been a steady Target Per Capita Disposal Rate of 3.8. For the years 2019, and 2020, the Annual Per Capita Disposal Rate has been below the target baseline, therefore, exceeding the target. The total waste for 2020, was 6,079.02 tons, which was a 12% decrease from 2019.

Recycling

Recycling is the practice of collecting and diverting materials from the waste stream for remanufacturing into new products, such as recycled-content paper. Stewardship programs help collect and recycle carpet, paint, pharmaceutical and sharps, and mattresses. AB 341, Mandatory Commercial Recycling (Chesbro, Chapter 476, Statutes of 2011) requires businesses and public entities that generate four cubic yards or more of commercial solid waste per week to arrange for recycling services under the goal of source reducing, recycling or composting 75% of solid waste generated statewide.

The DMV has a comprehensive Recycling and Disposal program with specific instructions for each of the materials listed below.

Beverage Containers: Beverage container recycling includes aluminum, plastic and glass beverage containers with CA redemption value (CRV).

Headquarters: Black containers labeled "Recycle" are located near vending machines.

Field Locations: Staff contact their respective Divisional Recycling Representative as needed to obtain information regarding current recycling procedures and service providers for specific field locations.

Mixed Plastic: Mixed plastic recycling is for bottles with no CRV, jugs, containers, and all number plastics.

Headquarters: Mixed plastic bins are in the recycle rooms listed below:

- Building East on floors 2-6.
- Building West, at the north and south ends of the hall.
- Annex, 1st floor near the double doors and the 2nd floor west end of the hall.

Field Locations: Staff contact their respective Divisional Recycling Representative as needed to obtain information regarding current recycling procedures and service providers for specific field locations.

Metal Recycling: Metal recycling is for tin, steel cans, and small scraps.

Headquarters: Metal recycle bins are located on the loading docks of both Buildings East and West. There are locked bins for license plate recycling located on the third and fourth floors of Building East.

Field Locations: Staff contact their respective Divisional Recycling Representative as needed to obtain information regarding current recycling procedures and service providers for specific field locations.

Corrugated Cardboard Boxes: Corrugated cardboard boxes are moving boxes, paper boxes, and shipping boxes.

Headquarters: Flatten boxes and place them in the cardboard recycle containers located in the recycle stations. These stations are in the recycle rooms listed below:

- Building East on floors 2-6.

- Building West, at the north and south ends of the hall.

- Annex, 1st floor near the double doors and the 2nd floor west end of the hall.

Field Locations: Staff contact their respective Divisional Recycling Representative as needed to obtain information regarding current recycling procedures and service providers for specific field locations.

Non-Confidential White Paper: White paper recycling is the collection of white paper with or without print and white envelopes.

Headquarters: Employees working at Headquarters can place white paper (including white paper with color ink, markings, graphics, and white envelopes with no plastic) into the plastic blue bins labeled "white paper only" located within the work areas of Headquarters.

Field Locations: Staff contact their respective Divisional Recycling Representative as needed to obtain information regarding current recycling procedures and service providers for specific field locations.

Mixed and Colored Paper: Mixed and colored paper recycling is the collection of various recyclable paper items utilizing one container.

Headquarters: Employees working at Headquarters can place mixed and colored paper (including Post-It notes, envelopes with plastic windows, newspaper, cardstock, colored paper, and small non-corrugated boxes) into the large round blue containers labeled "Mixed Colored Paper" located within the work areas of Headquarters.

Field Locations: Staff contact their respective Divisional Recycling Representative as needed to obtain information regarding current recycling procedures and service providers for specific field locations.

The DMV has over 200 offices, each office has different janitorial contracts and recycling services that are available in their community. Some offices have limited space and may not have room for the recycling bins.

Organics Recycling

State agencies must implement AB 1826 (Chesbro, Chapter 727, Statues of 2014). State agencies that generate 2 cubic yards or more of commercial solid waste (total trash, recyclables, and organics) per week shall arrange for organic waste recycling services.

Organic waste includes:

- Food waste
- Green waste
- Landscape and pruning waste
- Nonhazardous wood waste
- Food-soiled paper

The exemption under 42649.82 (e)(3)(E) related to businesses that generate one cubic yard or less of organic waste is no longer in effect. Furthermore, CalRecycle has extended the current AB 1826 rural exemption until December 31, 2026.

Effective January 1, 2022, state agencies must implement SB 1383 (Lara, Chapter 395, Statutes of 2016). State agencies are currently required to maintain mandatory commercial recycling and organic recycling programs, including ensuring that properly labeled recycling containers are available to collect bottles, cans, paper, cardboard, food waste, and other recyclable materials. SB 1383 builds upon these efforts by identifying non-local entities and expanding the definition of organic waste to include food scraps, landscape and pruning waste, organic textiles and carpets, lumber, wood, manure, biosolids, digestate, and sludges.

Under SB 1383, non-local entities include:

- Special districts
- Federal facilities
- Prisons
- State park facilities

- Public universities and community colleges
- County fairgrounds
- State agencies

SB 1383 organics collection requirements are effective January 1, 2022.

At the DMV Headquarters, green bins labeled "Food Waste Only" are located in the cafeteria. Employees are informed to place all food scraps (food, bones, peels, coffee grounds, and tea bags) in the bin and discard containers, plates, and utensils in trash. They are serviced twice a week. The bins are relatively small, so they are emptied into trucks and hauled away. If the bins in the cafeteria are contaminated our janitorial staff will place food waste into the trash. Our recycling coordinator, on behalf of the agency, is responsible for this program and employees are aware of the program because the recycling coordinator sends informational emails to all staff. There are also signs posted in the cafeteria.

At the DMV Field locations, Staff contact their respective Recycling Representative as needed to obtain information regarding current recycling procedures and service providers for specific field locations. Organics recycling has become routine at DMV Headquarters and there are no current challenges.

Edible Food Recovery Program

Commercial edible food recovery begins January 1, 2024, for Tier 2 generators which most state agencies would fall under. SB 1383 requires that by 2025, California will recover 20 percent of edible food that would otherwise be sent to landfills, to feed people in need. Currently, the DMV has no facilities that meet the Tier 2 generator.

Hazardous Waste Materials

Chemical and Hazardous Waste: At Headquarters, there are a couple of units that handle chemical/ hazardous waste products. These groups are provided training that they need and are kept up to date on new information. Staff are instructed to contact the ASD Management Support Section for a list of recyclable chemical and hazardous waste items and information on proper disposal.

Used Cartridges: Used cartridges include inkjet, toner, laser, copier, and fax cartridges, drum units, and fusers. Many companies have a "take back" policy and will include a prepaid label to send back the used cartridge. These pre-paid labels can be found within the papers included with the new cartridge.

Batteries: (alkaline, lithium, nickel-cadmium, and nickel-metal hydride): Batteries includes AAA, AA, C, D, button cell, 9-volt, and all others, both rechargeable and single use. There are instructions to prepare batteries for recycling at copier stations and communal areas with-in the office. The DMV does not handle other hazardous materials such as used oil, auto paint and antifreeze.

Material Exchange

The DMV participates in Material Exchanges with the following.

- Nonprofit/ school donations.
- Internal property reutilizations.
- State surplus (accepted by DGS).
- Employee supplies exchange.

Waste Prevention/Reuse

The DMV participates in the following waste prevention/ reuse programs.

- Paper forms reduction – online forms.
- Bulletin boards.
- Reusable boxes.
- Electronic document storage.
- Intranet.
- Reuse of office furniture, equipment and supplies.

- Double-sided copies.

- Email vs. paper memos.

- Rags made from waste cloth or reusable rags.

- The DMV is offering more online services and provides more information online. Transactions and forms can be completed online eliminating the office visits or reducing paperwork. In 2020, the DMV implemented online classes, all class materials are electronic.

Training and Education

Pursuant to AB 2812 (Gordon, Chapter 530, Statutes of 2016), each state agency is required to provide adequate receptacles, signage, education, and staffing, and arrange for recycling services consistent with existing recycling requirements for each office building of the state agency or large state facility. The bill requires, at least once per year, each covered state agency and large state facility to review the adequacy and condition of receptacles for recyclable material and of associated signage, education, and staffing. Additionally, the bill requires each state agency to include in its existing Report to CalRecycle a summary of the state agency's compliance with the act.

The DMV participated in active training and education in the following ways below.

- Dedicated recycling staff patriates in training (Existing or implemented by July 1, 2018).

- Signage (signs, posters, labels for recycling bins. Existing or implemented by July 1, 2018).

- Employee training (Existing or implemented by July 1, 2018).

- Adequate number and condition of receptacles (Existing or implemented by July 1, 2018.)

- Web page (intranet or internet).

- Brochures, flyers, newsletters, publications, newspaper articles/ads in the DMV Spirit, DMV's current employee newspaper.

- Office recycling guide, fact sheets.

- Outreach (internal/external) e.g. environmental fairs.

- Waste audits, waste evaluations/surveys conducted by the DMV's recycling coordinator.

At DMV Headquarters we have recycling stations and signage throughout the campus. The department Recycling Coordinator puts up displays in the lobbies and offers recycling training. The department has ten divisions, each division has as assigned recycling coordinator. Periodic recycling emails are sent to all department employees, as new information comes out, policy or code changes.

Foodservice Items

SB 1335 (Allen, Chapter 610, Statutes of 2018) Requires food service facilities located in a state-owned facility, operating on or acting as a concessionaire on state-owned property, or under contract to provide food service to a state agency to dispense prepared food using food service packaging that are reusable, recyclable, or compostable. CalRecycle approved proposed regulations December 31, 2020, to establish the process and criteria to determine what types of food service packaging are reusable, recyclable, or compostable. CalRecycle must also publish a list of food service packaging that meets these criteria within 90 days of the regulation going into effect. Food service facilities will only be allowed to purchase food service packaging from the approved list, which will be updated at least once every five years.

The only current foodservice operation at the DMV is the cafeteria at Headquarters. The DMV follows the approved Recycled Content Product (RCP) procurement policy and provides training regarding RCP/ EPP policies.

Environmentally Preferable Purchasing

State agencies are required to purchase and use environmentally preferable products (EPP) that have a reduced effect on human health and the environment when compared with competing goods that serve the same purpose.

Additionally, the State Agency Buy Recycled Campaign (SABRC) is a joint effort between CalRecycle and the Department of General Services (DGS) to implement state laws requiring state agencies and the Legislature to purchase recycled-content products (RCP) and track those purchases. Both state agency and its contractors must be track purchases that fall under eleven product categories. It complements the intent of the Integrated Waste Management Act (AB 939, Sher, Chapter 1095, Statutes of 1989, and Public Resources Code 4000 et al), which was enacted to reduce the amount of waste going to California's landfills. An annual report detailing state agencies' annual RCP purchase is due to CalRecycle by October 31, of each year.

Pursuant to Public Contract Code Sections 12203 and 12211 (AB 2675, Lowenthal. State agency: public contracts), effective January 1, 2020, this bill requires each state agency to ensure that at least 75 percent of the total purchases under the reportable categories contain recycled-content products meeting the minimum percentage content, except for paint, antifreeze, and tires which would remain at the 50 percent requirement.

Reducing Impacts

The environmental impact of the goods we buy is often larger than the impact of our own department operations. Our department is committed to reducing the environmental impact of our goods and services we purchase.

DMV remains committed to purchasing goods and services that lessen impacts to public health, natural resources, economy, and environment.

- The DMV ensures that all goods and services are purchased in compliance with the State Administrative Manual (SAM), and other government mandates designed to reduce environmental impacts, such as energy, water, and natural resources, when making purchasing decisions.

- DMV requires goods and services contractors to provide EPP goods and meet SABRC requirements in service contracts.

- DMV ensures that the goods and services meet the current DGS purchasing standards and specifications available from the Department of General Services Buying Green website.

Compliant with the Green Building and Operations requirements, the DMV ensures the following categories of goods and services are EPP purchases and specified on service contracts and leased space agreements.

- Paint (i.e. master painter's institute certified paint and recycled paint).

- IT goods (energy star rated: computers, monitors, and televisions DGS-52161505 Purchasing Standard or meet current specifications of statewide contracts).

- Janitorial supplies and cleaners (i.e., EcoLogo, Greenseal certified cleaners, DGS_471318A Purchasing Standard compliant).

- Janitorial supplies, paper products i.e. SABRC compliant and DGS_141117A Purchasing Standard Compliant).

- Desk Lamps (DGS-391115-A Purchasing Standard compliant).

- Office equipment (i.e. EPEAT compliant and EnergyStar rated printers, copiers and DGS_432121A Purchasing Standard compliant for high-end multifunctional devices).

- Paper products (i.e. Forest Stewardship Council certified, SABRC compliant copy paper, DGS-441200-A Purchasing Standard compliant).

- Remanufactured toner cartridges (available from PIA and statewide contract ID/Number: 1-15-75-61).

Measure and Report Progress

DMV utilizes the following strategies to increase EPP:

- Increase EPP spend include identifying top five percent of spend with largest opportunity to "green".

- Measure percent EPP spend in comparison to non-EPP spend.

- Incorporate EPP criteria in the goods and services the state buys.

- Embed sustainability roles and responsibilities into purchasing procedures.

- Train buyers in the benefits of buying EPP products, how to apply EPP best practices, the importance of accuracy in recording buys within SCPRS and reporting labor separate from goods in service contracts, and listing EPP goods by line item.

- Engage and educate suppliers to offer EPP products when selling to the state.

DMV tracks and measurers EPP by:

- Tracking and measuring the progress to improve EPP spending.

    - If the purchase qualifies as an EPP, there are fields in the Oracle database and the State Contract and Procurement Registration System (SCPRS) website that are completed when the buyer finalizes the purchase order. A report can be generated from the database.

- DMV records EPP purchases into the State Contract and Procurement Registration System (SCPRS).

    - Management reviews and approves the purchase orders prior to final distribution.

The DMV includes the State Agency Buy Recycled Campaign form with all RFQ packages that fall into the recycled category and the vendor must return the form when submitting their quote.

Table 5.5: State Agency Buy Recycled Campaign FY 19/20 Performance

Product Category	SABRC Reportable Dollars	SABRC Compliant Dollars	% SABRC Compliant
Antifreeze	$918.65	0	0%
Compost and Mulch	0	0	0%
Glass Products	$4,741.09	0	0%
Lubricating Oils	$13,865.76	0	0%
Paint	$4,416.30	0	0%
Paper Products	0	0	0%
Plastic Products	$944,654.85	$941,545.97	99.67%
Printing and Writing Paper	$1,133,181.17	$880,726.78	77.72%
Metal Products	$118,913.12	$118,913.12	100%
Tire Derived Products	0	0	0%
Tires	$9,298.28	0	0%

In closely working with Cal-Recycle, it was determined the following items are not available or very limited and not practical to procure.

- Tires: Currently, there are only three locations located throughout California that offer retread tires for sale.

- Antifreeze: Currently, there are no vendors available, but Cal-Recycle is working to obtain vendors.

- Glass: Currently, the only glass DMV procures are windshields and not available to purchase as SABRC.

- Lubrication Oils: Currently, there are limited number of locations throughout California that offer this. DMV puts forth an effort to purchase when feasible.

- Paint: Per Cal-Recycle, there are no known collision repair professionals in California that use recycled paint.

Table 5.6: Commodities categories with the greatest Potential to Green

Commodity	2020 Total Spend ($)	2020 Percent EPP Spend (%)	EPP Target (%)
Rollstock	$1,366,200.67		

Commodity	2020 Total Spend ($)	2020 Percent EPP Spend (%)	EPP Target (%)
Printing	$851,992.44		
Envelopes	$2,262,407.50		

Sustainability Development and Education

All DMV buyers are attentive to the EPP section in the State Contracting Manual Volume 2 and 3. When feasible, the department looks at procuring green items as much as possible. See total percentages in Table 5.6 above.

DMV's Request for Quotes (RFQ) include the information when recycled content is required. DMV also includes the State Agency Buy Recycled Campaign form with all RFQ packages that fall into the recycled category and the vendor must return the form when submitting their quote.

At present, DMV does not have any procurement staff dedicated only to EPP.

- All procurement staff are trained and can work on the same type of orders, including any that qualify as EPP. Procurement staff attend the same training courses and are aware of the environmentally preferable purchasing requirements noted in Chapter 3 of the State Contracting Manual, Volume 2. The staff/buyers have completed courses such as the 5-day Basic Acquisition training, Fair & Reasonable, Small Business/DVBE Option, Commercially Useful Function and Acquisitions under $5,000.

- In response to the EPP goals, DMV's procurement managers have committed to having their staff complete formal EPP training as soon as it is available, and within the next 12 months.

Total Number of Employees Assigned as Buyers: **12**

Table 5.7: Buyers who have completed EPP Training

CalHR Classification	Total Number of Buyers	Percent Completing EPP Training	Commitment to have buyers complete EPP training (%)
AGPA	3	0	100%
IT Associate	3	0	100%
IT Specialist I	6	0	100%
AGPA	3	0	100%

Location Efficiency

Location efficiency refers to the effect of a facility's location on travel behavior and the environmental, health and community impacts of that travel behavior including emissions from vehicles. Locating department facilities in location efficient areas reduces air emissions from state employees and users of the facilities, contributes to the revitalization of California's downtowns and town centers, helps the department compete for a future workforce that prefers walkable, bikeable and transit-accessible worksites and aligns department operations with California's planning priorities.

DMV's goal is that the average location efficiency score for all new leases be 10% higher than our average on of Jan 1, 2017.

Government Code 15808.1 and Health and Safety Code 50093.5 define statutory requirements for lease facilities to be located on transit corridors with average headways. DGS, as agent for DMV, ensures compliance with transit corridor requirements. Leasing decisions are determined based on factors such as: vacant space availability, transit access, rental rate, agency program, facility needs, and program-related location requirements. Transit score is one of many factors considered. Space availability is a result of the real estate market and is one of the strongest determinants on location.

DMV has a programmatic obligation to serve all Californians and has positioned state-owned and leased facilities in communities throughout the state, providing access to DMV services. Working with DGS, the DMV will continue to seek leased locations that are well served by public transit. Some locations will continue to have lower Smart Location Scores due to their suburban/rural locations and less developed local transit systems.

Working through DGS, the primary leasing activity has been lease renewals, not new leases; consequently, Table 5.8 has not been populated.

Table 5.8: Smart Location Score for new Leases

Facility name	Smart Location Calculator Score
No Data to report	-
Average	-
Baseline	-
% change from Baseline	-

DMV has 137 leased locations throughout California. Smart Location Score online analysis tools provided through the United State General Services Administration lacks necessary transit information for a high percentage of DMV's existing locations. DMV, therefore, performed a pilot Smart Location Score and analysis on 10 locations and determined low scores were generally due to the lack of available public transit within the community and local geographic area.

Table 5.9: Lowest Smart Location Score Leases

Facility name	Smart Location Calculator Score
Fall River Mills	20
Yreka	26
Mount Shasta	29
Willows	37

Appendix A – Sustainability Leadership

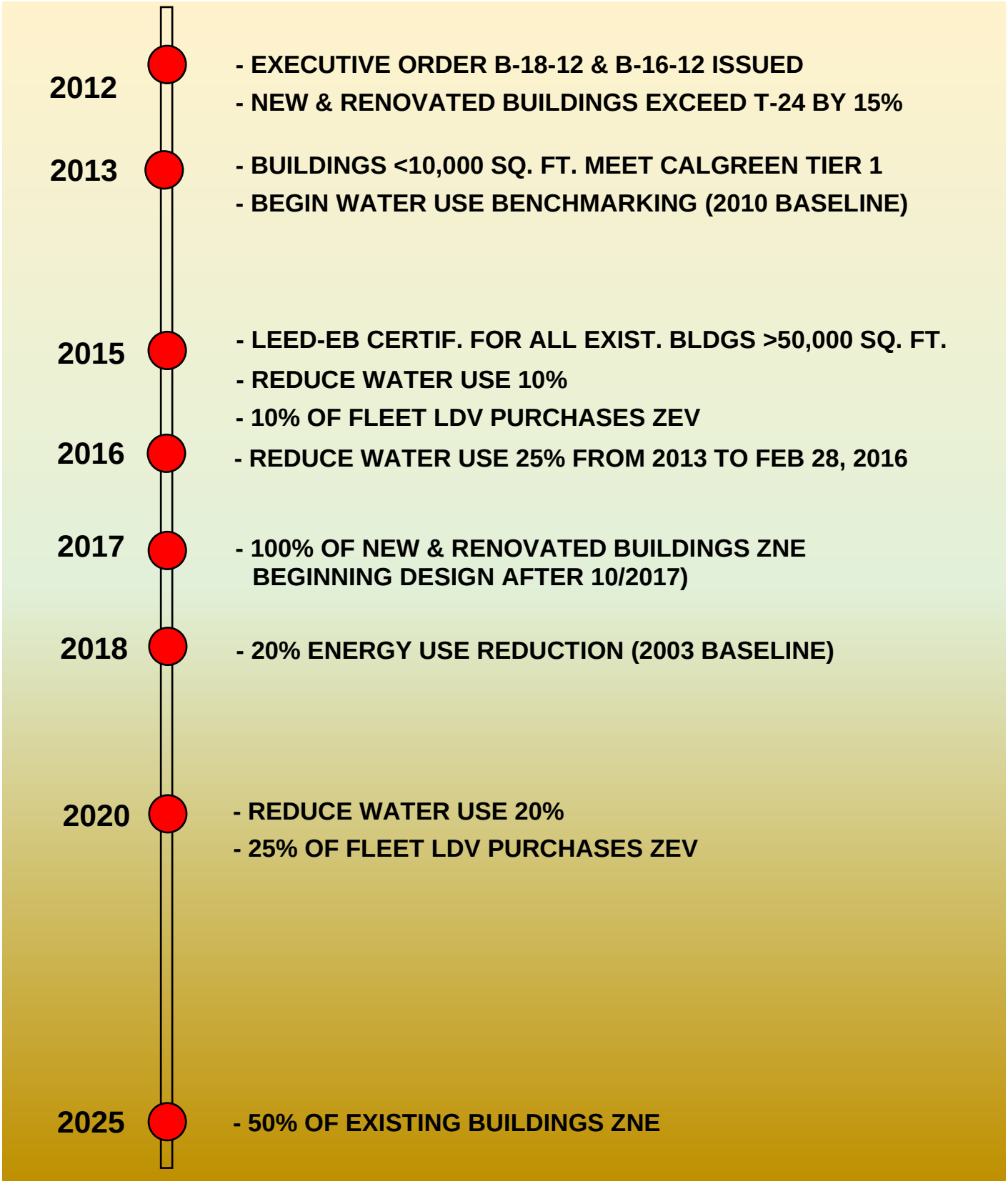
Understanding Climate Risk at Existing Facilities	
Sjon Woodlyn	Branch Chief
ASD/Facilities	Chief of Facilities Operations Branch

Understanding Climate Risk at Planned Facilities	
Sharnel Crowder	Assistant Branch Chief
Contingency Planning	Facilities Operations Branch – Infrastructure Planning Unit

Integrating Climate Change into Department Planning and Funding Programs	
Sjon Woodlyn	Infrastructure Planning – Development of DMV 5-Year Infrastructure Plan
Asst. Chief	Facilities Operations Branch - Infrastructure Planning Unit

Measuring and Tracking Progress	
Kelly Piceno	Manager of State-Owned Facilities Section,
DCMS	Facilities Operations Branch – State Owned Section

Appendix B - Sustainability Milestones &Timeline



Appendix C – Roadmap Checklists

1 - Climate Adaptation Roadmap Checklist

Policy References: Executive Order B-30-15

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to climate adaptation.

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document.)

Past Performance:

- ☐ Describe how screening process will integrate facility operations and planning processes
- ☐ Describe approach and steps taken to integrate climate considerations in planning and investment, and how this will address changes
- ☐ Use Cal-Adapt to collect data and characterize anticipated climate change
- ☐ Report Top 5 facilities most affected by changing temperature in Table 1.2a
- ☐ Discuss how temperature and extreme heat events affect your facilities and operations, and what facilities and regions are most affected
- ☐ Describe strategies to reduce impacts of changing temperatures
- ☐ Describe ways you could employ natural infrastructure to reduce risks of climate change
- ☐ Report facilities located in disadvantaged communities in Table 1.5 and discuss how these facilities can interact with the community or serve as a resource

- ☐ Report facilities located in urban heat islands in Table 1.4
- ☐ Describe whether these facilities have large parking lots or impervious surface
- ☐ Describe actions that can be or are being taken to reduce urban heat island affect at these facilities

Future Planning:

- ☐ Report five facilities that will experience the largest increase in extreme heat events in Table 1.1
- ☐ List facilities most impacted by projected changes in precipitation in Table 1.5, and describe strategies to reduce these impacts
- ☐ Identify facilities at risk from rising sea levels in Table 1.6
- ☐ Discuss actions that can be taken to minimize risks of sea level rise
- ☐ List facility climate risks in Table 1.10
- ☐ Identify new facilities anticipating future extreme heat events in Table 1.10
- ☐ Discuss how new facilities siting, design, construction and operation are accounting for these changing conditions
- ☐ Report new facilities and disadvantaged communities and urban heat islands in Table 1.11
- ☐ Describe how climate change will affect useful life of each planned facility
- ☐ Verify the integration of a Climate Change Plan into department planning in Table 1.12
- ☐ Verify the engagement and planning processes in Table 1.13
- ☐ Report if climate change is integrated into funding programs in Table 1.14
- ☐ Describe what climate impacts are of most concern to your facilities and plans, and how department will track how they are changing

☐ Describe which office or branch will develop a policy to integrate climate change into infrastructure, how it will prioritize, and when the policy will be completed

2 - Zero-Emission Vehicle Roadmap Checklist

Policy References: EO B-18-12, EO B-16-12, 2016 ZEV Action Plan

Executive Summary:

- ☐ Summary of status and actions underway to meet sustainability objectives related to fleet operations and Zero Emission Vehicles.
- ☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document, signed by the department executive director.)

Department Fleet Status:

- ☐ Describe fleet composition and uses
- ☐ Edit Graph 2.1 to reflect Department fleet vehicle composition
- ☐ Edit Graph 2.2 to reflect Department light duty vehicle fleet composition
- ☐ Edit Graph 2.3 to reflect Department medium and heavy duty vehicle fleet composition

Past Performance:

- ☐ Report all prior year Total Purchased Fuel in Table 2.1
- ☐ Describe any successes or challenges encountered by your department as it seeks to incorporate ZEVs into its portfolio
- ☐ Report on department light duty fleet eligible for replacement in Table 2.2
- ☐ Report recent and planned light duty ZEV fleet additions in Table 2.3
- ☐ Report on facilities with parking and whether hosting fleet vehicles & modify Graph 2.2 to reflect this

Future Planning:

- ☐ Identify facilities with the most urgent need for EV charging in Table 2.4

- ☐ Describe department's engagement with utility and other funding programs for EVSE's and infrastructure
- ☐ List any hydrogen fueling stations that could serve as any primary refueling stations for fleet vehicles, and any plans to install hydrogen refueling infrastructure at department facilities
- ☐ List site and infrastructure assessment results for ZEV parking in Table 2.5
- ☐ Describe plan to design, bid, construct and activate EVSE infrastructure
- ☐ Describe department's operation plan for EVSE infrastructure and how it will collect and report EVSE use data and maintain equipment
- ☐ Identify department stakeholders for ZEVs and EVSE efforts in Appendix

3 - Energy Efficiency Roadmap Checklist

Policy References: EO B-18-12, MM 14-07, MM 14-09, MM 15-04, MM 15-06, MM 17-04

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to energy use and efficiency.

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document, signed by the department executive director.)

Department Energy Status:

☐ Describe mission of your department

☐ Describe built infrastructure supporting department mission that consumes energy (electricity, natural gas, propane, etc.). Include number and total square footage of department facilities.

☐ Complete summary of actions and timeframes to meet requirements (can be bullet points)

Past Performance:

☐ Report 2020 Total Purchased Energy in Table 3.1

☐ List department properties with largest energy consumption in Table 3.2

☐ Describe any successes or challenges encountered by your department and solutions as it seeks to achieve energy efficiency

☐ Identify specific challenges to achieving ZNE, T-24+15%, reducing grid-based energy, demand response, renewable energy or monitoring-based commissioning

☐ Describe department's 5-year capital improvement program

☐ List department zero net energy buildings in Table 3.3 and department's plans to achieve ZNE at 50% of building portfolio area

☐ Report department wide energy trends in Table 3.5

☐ Report yearly energy surveys in Table 3.7

☐ Discuss energy survey status and efforts over past 5 years

Future Planning:

☐ Describe efforts to reduce plug loads and comply with energy standard operating procedures

☐ List status of new buildings exceeding Title 24 by 15% in Table 3.4, and describe strategy for ensuring this minimum level of efficiency in future

☐ Identify department energy projects in Table 3.6

☐ Identify department demand response in Table 3.8

☐ Describe demand response programs available, and positive or negative experiences or lessons learned, and department benefits for participation

☐ Discuss steps department is taking to implement DR in more buildings

☐ Identify department on-site renewable energy in Table 3.9

☐ Discuss proposed increases in on-site renewable energy

☐ Report department planned Monitoring-Based Commissioning (MBCx) projects in Table 3.10

☐ Summarize department's MBCx experience, challenges, successes, and whether MBCx is incorporated as required, or plans to implement

☐ Discuss how energy efficiency Best Management Practices have been implemented, how they were institutionalized, and quantify repairs and replacements with estimated energy savings, if possible.

☐ Describe department steps to finance energy goals and requirements, and what programs it us using

4 - Water Efficiency and Conservation Roadmap Checklist

Policy References: Executive Order B-37-16

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to water efficiency and conversation.

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document.)

Past Performance:

☐ Describe built infrastructure supporting department mission that consumes purchased water. Include number and total square footage of department facilities.

☐ Report all 2020 Total Purchased Water in Table 4.1

☐ List department properties with largest water use per capita in Table 4.2

☐ List facilities with largest landscape areas in Table 4.3

☐ Describe any successes or challenges encountered by your department, and solutions as it seeks to achieve water efficiency and conservation

☐ Report department wide water use trends in Table 4.4

☐ Report total water reductions achieved in Table 4.5

☐ Describe major water efficiency project over past five years or underway

☐ Identify indoor water efficiency projects in Table 4.6

☐ Identify boilers and cooling systems projects in Table 4.7

☐ Identify landscaping hardware water efficiency projects in Table 4.8

☐ Identify living landscaping water efficiency projects in Table 4.9

Future Planning:

- ☐ Report the number of buildings with urban water shortage contingency plans and in critical groundwater basins in Table 4.10, and discuss steps to reduce water use in those facilities
- ☐ Identify building inventory interior fixture needs in Table 4.11
- ☐ Summarize water using boilers and cooling systems inventory in Table 4.12
- ☐ Identify irrigation hardware inventory in Table 4.13 and discuss how replacements will occur
- ☐ Identify living landscape inventory in Table 4.14 and discuss results
- ☐ Identify large landscape inventory and water budget, as well as certified staff in Table 4.15
- ☐ Discuss how water conservation Best Management Practices have been implemented, how they were institutionalized, and quantify repairs and replacements with estimated water savings, if possible.

5 - Green Operations Roadmap Checklist

Policy References: Executive Order B-18-12

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to green operations

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document.)

Past Performance:

☐ Report GHG Emissions since 2010 in Table 5.1 and update Graph 5.1 to reflect department emissions trend

☐ Describe any successes or challenges encountered by your department as it seeks to achieve GHG Emission reductions, and how various strategies contribute

☐ Explain which actions your department has taken that had the largest impact on GHGe

☐ Identify newly constructed buildings since July 1, 2012 and LEED level achievement in Table 5.2 and list number of buildings eligible as well as have achieved LEED for Existing Buildings and Operations in Table 5.3.

☐ Report state agency buy recycled campaign 2016 performance in Table 5.5 and describe your department's efforts to increase green commodities

☐ Report the lowest smart location score leases in Table 5.9 and describe the department's measures to improve location efficiency scores

Future Commitment:

☐ Discuss how your department implements efficiency measures to meet Energy Star targets and to achieve LEED EBOM for buildings >50,000 sw. ft. Describe steps to achieve these and goal dates.

☐ **D**iscuss the steps taken to ensure new construction incorporates the IEQ provisions of CalGreen, and ensures IEQ is considered and incorporated into products, cleaning, and HVAC operation

☐ Identify pest control contracts in Table 5.4 and discuss the steps taken to incorporate IPM into all contracts and practices

☐ Describe department efforts to reduce waste and recycle

☐ Describe department efforts to reduce environmental impacts through purchases of goods and services

☐ Identify commodities categories with the greatest potential to green in Table 5.6 and describe your department's efforts to increase green commodities

☐ List buyers who have completed EPP Training in Table 5.7 and discuss available training and certifications buyers may have beyond the basic training courses

☐ List new leases and their smart location scores in Table 5.8 and describe the department's measures to improve location efficiency scores

☐ Describe how you will achieve greener operations and how many GHGe reductions your department will need to achieve its goal

Appendix D – Acronyms

Customize to include organizations and acronyms within your specific department

AB	Assembly Bill
ADR	Automated Demand Response
AMB	Asset Management Branch (at DGS)
BMP	Best management practices
CA	California
CALGREEN	California Green Building Code (Title 24, Part 11)
CEC	California Energy Commission
DGS	Department of General Services
DWR	Department of Water Resources
EHT	Extreme heat threshold
EMS	Energy management system (aka EMCS)
EMCS	Energy management control system (aka EMS)
EO	Executive Order
EPP	Environmentally preferable purchasing
ESCO	Energy service company

ESPM	Energy Star Portfolio Manager
ETS	Enterprise Technology Solutions (a division at DGS)
EUI	Energy use intensity (source kBTU/sq. ft.)
EVSE	Electric vehicle supply equipment (charging equipment)
FMD	Facilities Management Division (a division at DGS)
GCM	Global circulation model
GHG	Greenhouse gas
GHGe	Greenhouse gas emissions
GSP	Groundwater Sustainability Plan
IEQ	Indoor environmental quality
kBTU	Thousand British thermal units (unit of energy)
LCM	The Landscape Coefficient Method
LEED	Leadership in Energy and Environmental Design
MAWA	Maximum applied water allowance
MM	Management Memo
MWELO	Model Water Efficient Landscape Ordinance
OBAS	Office of Business and Acquisition Services (at DGS)
OBF	On-bill financing

OFAM	Office of Fleet and Asset Management (at DGS)
OS	Office of Sustainability (at DGS)
PMDB	Project Management and Development Branch (at DGS)
PPA	Power purchase agreement
PUE	Power usage effectiveness
RCP	Representative Concentration Pathway
SABRC	State Agency Buy Recycled Campaign
SAM	State Administrative Manual
SB	Senate Bill
SCM	State Contracting Manual
SGA	Sustainable groundwater agency
SGMA	Sustainable Groundwater Management Act
WMC	Water management coordinator
WUCOLS	Water Use Classifications of Landscape Species
ZEV	Zero-emission vehicle
ZNE	Zero net energy

Appendix E - Glossary

Backflow - is the undesirable reversal of the flow of water or mixtures of water and other undesirable substances from any source (such as used water, industrial fluids, gasses, or any substance other than the intended potable water) into the distribution pipes of the potable water system.

Back flow prevention device – a device that prevents contaminants from entering the potable water system in the event of back pressure or back siphonage.

Blowdown - is the periodic or continuous removal of water from a boiler to remove accumulated dissolved solids and/or sludge. Proper control of blowdown is critical to boiler operation. Insufficient blowdown may lead to deposits or carryover. Excessive blowdown wastes water, energy, and chemicals.

Compost – Compost is the product resulting from the controlled biological decomposition of organic material from a feedstock into a stable, humus-like product that has many environmental benefits. Composting is a natural process that is managed to optimize the conditions for decomposing microbes to thrive. This generally involves providing air and moisture, and achieving sufficient temperatures to ensure weed seeds, invasive pests, and pathogens are destroyed. A wide range of material (feedstock) may be composted, such as yard trimmings, wood chips, vegetable scraps, paper products, manures and biosolids. Compost may be applied to the top of the soil or incorporated into the soil (tilling).

Critical overdraft - a condition in which significantly more water has been taken out of a groundwater basin than has been put in, either by natural recharge or by recharging basins. Critical overdraft leads to various undesirable conditions such as ground subsidence and saltwater intrusion.

Ecosystem services - are the direct and indirect contributions of ecosystems to human well-being. They support directly or indirectly our survival and quality of life. Ecosystem services can be categorized in four main types:

- Provisioning services are the products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources and medicines.

- Regulating services are the benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.

- Habitat services provide living places for all species and maintain the viability of gene-pools.

- Cultural services include non-material benefits such as spiritual enrichment, intellectual development, recreation and aesthetic values.

Grass cycling -refers to an aerobic (requires air) method of handling grass clippings by leaving them on the lawn when mowing. Because grass consists largely of water (80% or more), contains little lignin and has high nitrogen content, grass clippings easily break down during an aerobic process. Grass cycling returns the decomposed clippings to the soil within one to two weeks acting primarily as a fertilizer supplement and, to a much smaller degree, mulch. Grass cycling can provide 15 to 20% or more of a lawn's yearly nitrogen requirements

Hydrozone – is a portion of a landscaped area having plants with similar water needs that are served by one irrigation valve or set of valves with the same schedule.

Landscape Coefficient Method (LCM) describes a method of estimating irrigation needs of landscape plantings in California. It is intended as a guide for landscape professionals.

Landscape water budget - is the calculated irrigation requirement of a landscape based on landscape area, local climate factors, specific plant requirements and the irrigation system performance.

Model Water Efficient Landscape Ordinance (MWELO) - The Water Conservation in Landscaping Act was signed into law on September 29, 1990. The premise was that landscape design, installation, and maintenance can and should be water efficient. Some of the provisions specified in the statute included plant selection and groupings of plants based on water needs and climatic, geological or topographical conditions, efficient irrigation systems, practices that foster long term water conservation and routine repair and maintenance of irrigation systems. DWR adopted the Model Ordinance in June of 1992. One element of the Model Ordinance

was a landscape water budget. In the water budget approach, a Maximum Applied Water Allowance (MAWA) was established based on the landscape area and the climate where the landscape is located. The latest update to MWELO was in 2015. MWELO applies to all state agencies' landscaping.

Mulch – Mulch is a layer of material applied on top of soil. Examples of material that can be used as mulch include wood chips, grass clippings, leaves, straw, cardboard, newspaper, rocks, and even shredded tires. Benefits of applying mulch include reducing erosion and weeds and increasing water retention and soil vitality. Whenever possible, look for mulch that has been through a sanitization process to kill weed seeds and pests.

Trickle flow – A device that allows users to reduce flow to a trickle while using soap and shampoo. When the device is switched off, the flow is reinstated with the temperature and pressure resumes to previous settings.

Sprinkler system backflow prevention devices – are devices to prevent contaminants from entering water supplies. These devices connect to the sprinkler system and are an important safety feature. They are required by the California Plumbing Code.

Submeter- a metering device installed to measure water use in a specific area or for a specific purpose. Also known as dedicated meters, landscape submeters are effective for separating landscape water use from interior water use, evaluating the landscape water budget and for leak detection within the irrigation system.

Water Budget - A landscape water budget is the calculated irrigation requirement of a landscape based on landscape area, local climate factors, specific plant requirements and the irrigation system performance.

Water-energy nexus - Water and energy are often managed separately despite the important links between the two. 12 percent of California's energy use is related to water use with nearly 10 percent being used at the end water use. Water is used in the production of nearly every major energy source. Likewise, energy is used in multiple ways and at multiple steps in water delivery and treatment systems as well as wastewater collection and treatment.

Water Shortage Contingency Plans - each urban water purveyor serving more than 3,000 connections or 3,000 acre-feet of water annually must have an Urban Water Shortage Contingency Plan (Water Shortage Plan) which details how a community would react to a reduction in water supply of up to 50% for droughts lasting up to three years.

Appendix F – Department Stakeholders

List individuals, offices, and divisions responsible for leading efforts related to each initiative identified in this report. Include their respective titles, roles, responsibilities.

Climate Change Adaptation

Understanding Climate Risk at Existing Facilities	
Sjon Woodlyn	Chief, Facilities Operations Branch

Understanding Climate Risk at Planned Facilities	
Vacant	Assistant Branch Chief, Facilities Operations Branch

Integrating Climate Change into Department Planning and Funding Programs	
Vacant	Assistant Branch Chief, Facilities Operations Branch

Measuring and Tracking Progress	
Kelly Piceno	DCMS, manager, DMV-Owned Property Management Section

Zero Emission Vehicles

Incorporating ZEVs Into the Department Fleet	
Aimee Booth	SSMIII, manager fleet acquisitions

Telematics	
Aimee Booth	SSMIII, manager fleet acquisitions

Public Safety Exemption	
Christina Michel	Chief, DMV Investigations Division

Outside Funding Sources for ZEV Infrastructure	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Hydrogen Fueling Infrastructure	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Comprehensive Facility Site and Infrastructure Assessments	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

EVSE Construction Plan	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

EVSE Operation	
Robbie Crockett	Deputy Director, Administrative Services Division

Energy

Zero Net Energy (ZNE)	
Sjon Woodlyn	Chief, Facilities Operations Branch

New Construction Exceeds Title 24 by 15%	
Sjon Woodlyn	Chief, Facilities Operations Branch

Server Room Energy Use	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section
Demand Response	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Renewable Energy	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Monitoring Based Commissioning (MBCx)	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Financing	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Water Efficiency and Conservation

Indoor Water Efficiency Projects In Progress First initiative	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Boilers and Cooling Systems Projects In Progress	
Brian Watkins	Chief Engineer II, Facilities Operations Branch

Landscaping Hardware Water Efficiency Projects In Progress	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Living Landscaping Water Efficiency Projects In Progress	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Buildings with Urban Water Shortage Contingency Plans In Progress	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Green Operations

Greenhouse Gas Emissions	
Stacy Woerner	AGPA, Facilities Operations Branch, Energy Program Coordinator

Building Design and Construction	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

LEED for Existing Buildings Operations and Maintenance	
Kelly Piceno	DCMS, manager DMV-Owned Property Management Section

Indoor Environmental Quality	
Brian Watkins	Chief Engineer II, Facilities Operations Branch

Integrated Pest Management	
Field Operations Division	Contracts Section

Waste Management and Recycling	
Jennifer Garces	Recycling Coordinator

Environmentally Preferable Purchasing	
Administrative Services Division	Procurement Analysts

Location Efficiency	
Vacant	Assistant Branch Chief, Facilities Operations Branch

Appendix G – Sustainability Requirements & Goals

Governor Edmund G. Brown Jr. directed California state agencies to demonstrate sustainable operations and to lead the way by implementing sustainability policies set by the state. Additionally, enacted legislation includes sustainability-related requirements of state facilities and operations. Specific references and background on executive orders, legislation, management memos and other requirements or actions are included in five general chapters within this roadmap, as follows:

Climate change adaptation

Zero-emission vehicles

Energy

Water efficiency and conservation

Green operations

These general sustainability initiatives include the following:

- GHG emissions reductions
- Climate change adaptation
- Building energy efficiency and conservation
- Indoor environmental quality (IEQ)
- Water efficiency and conservation
- Monitoring-based Building Commissioning (MBCx)
- Environmentally preferable purchasing (EPP)
- Financing for sustainability
- Zero-emission vehicle (ZEV) fleet purchases
- Electric vehicle charging infrastructure
- Monitoring and executive oversight
- Zero Net Energy (ZNE)

Appendix H – Sustainability Background References

The following executive orders, Management Memos, legislative actions, resources and guidance documents provide the sustainability criteria, requirements, and targets tracked and reported herein.

Executive Orders

The governor issued the following executive order relevant to chapters of this roadmap:

- **Executive Order B-16-12**

  EO B-16-12 directs state agencies to integrate zero-emission vehicles (ZEVs) into the state vehicle fleet. It also directs state agencies to develop the infrastructure to support increased public and private sector use of ZEVs. Specifically, it directs state agencies replacing fleet vehicles to replace at least 10 percent with ZEVs, and by 2020 to ensure at least 25 percent of replacement fleet vehicles are ZEVs.
- **Executive Order B-18-12**

  EO B-18-12 and the companion *Green Building Action Plan* require state agencies to reduce the environmental impacts of state operations by reducing greenhouse gas emissions, managing energy and water use, improving indoor air quality, generating on-site renewable energy when feasible, implementing environmentally preferable purchasing, and developing the infrastructure for electric vehicle charging stations at state facilities. The Green Building Action Plan also established two oversight groups – the staff-level Sustainability Working Group and the executive-level Sustainability Task Force – to ensure these measures are met. Agencies annually report current energy and water use into the Energy Star Portfolio Manager (ESPM).
- **Executive Order B-29-15**

  EO B-29-15 directs state agencies to take actions in response to the ongoing drought and to the state of emergency due to severe drought conditions proclaimed on January 17, 2014. Governor Brown directed numerous state agencies to develop new programs and regulations to mitigate the effects of the drought, and required increased enforcement of water waste statewide. Agencies were instructed to reduce potable urban water use by 25 percent between 2013 and February 28, 2016.
- **Executive Order B-30-15**

In 2015, the governor issued EO B-30-15, which declared climate change to be a "threat to the well-being, public health, natural resources, economy and environment of California." It established a new interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 and reaffirms California's intent to reduce GHG emissions to 80 percent below 1990 levels by 2050. To support these goals, this order requires numerous state agencies to develop plans and programs to reduce emissions. It also directs state agencies to take climate change into account in their planning and investment decisions and employ life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives. State agencies are directed to prioritize investments that both build climate preparedness and reduce GHG emissions; prioritize natural infrastructure; and protect the state's most vulnerable populations.

- **Executive Order B-37-16**

  EO B-37-16 builds on what were formerly temporary statewide emergency water restrictions in order to establish longer-term water conservation measures, including permanent monthly water use reporting; new permanent water use standards in California communities; and bans on clearly wasteful practices such as hosing off sidewalks, driveways and other hardscapes. The EO focuses on using water more wisely and eliminating water waste by taking actions to minimize water system leaks. The California Department of Water Resources (DWR) estimates that leaks in water district distribution systems siphon away more than 700,000 acre-feet of water a year in California – enough to supply 1.4 million homes for a year.

  The EO further strengthens local drought resilience and looks to improve agricultural water use efficiency and drought planning. State agencies are to cooperate with urban water management plans, which include plans for droughts lasting for at least five years by assuring that the water efficiency and conservation plan has drought contingency actions.

State Administrative Manual & Management Memos

The following section of the State Administrative Manual (SAM), and associated Management Memos (MMs) currently impose sustainability requirements on the department under the governor's executive authority:

- **SAM Chapter 1800**: Energy and Sustainability
- **MM 14-02:** Water Efficiency and Conservation

- **MM 14-05**: Indoor Environmental Quality: New, Renovated, And Existing Buildings
- **MM 14-07**: Standard Operating Procedures for Energy Management in State Buildings
- **MM 14-09**: Energy Efficiency in Data Centers and Server Rooms
- **MM 15-03**: Minimum Fuel Economy Standards Policy
- **MM 15-04**: Energy Use Reduction for New, Existing, and Leased Buildings
- **MM 15-06**: State Buildings and Grounds Maintenance and Operation
- **MM 15-07**: Diesel, Biodiesel, and Renewable Hydrocarbon Diesel Bulk Fuel Purchases
- **MM 16-07**: Zero-Emission Vehicle Purchasing and EVSE Infrastructure Requirements
- **MM 17-04**: Zero Net Energy for New and Existing State Buildings

Legislative Actions

Several pieces of legislation were signed in 2015-16 that codified several elements of the executive orders, or provided further requirements included in the policies. These include the following:

- **Assembly Bill (AB) 1482** (Gordon, 2015): Requires that the California Natural Resources Agency (CNRA) update the state's adaptation strategy safeguarding California every three years. Directs state agencies to promote climate adaptation in planning decisions and ensure that state investments consider climate change impacts, as well as the use of natural systems and natural infrastructure. (Public Resources Code Section 71153)
- **Senate Bill (SB) 246** (Wieckowski, 2015): Established the Integrated Climate Adaptation and Resiliency Program within the Governor's Office of Planning and Research to coordinate regional and local efforts with state climate adaptation strategies to adapt to the impacts of climate change. (Public Resources Code Section 71354)
- **AB 2800** (Quirk, 2016): Requires state agencies to take the current and future impacts of climate change into planning, designing, building, operating, maintaining and investing in state infrastructure. CNRA will establish a Climate-Safe Infrastructure Working Group to determine how to integrate climate change impacts into state infrastructure engineering. (Public Resources Code Section 71155)
- **Assembly Bill (AB) 4**: Passed in 1989. The State Agency Buy Recycled Campaign (SABRC) statutes are in Public Contract Code Section 12153-12217. The intent of SABRC is to stimulate markets for materials diverted by California local government and agencies. It requires state agencies to purchase enough recycled-content products to meet annual targets, report on purchases of recycled and nonrecycled products, and submit plans for meeting the annual goals for purchasing recycled-content products.

- **AB 32 Scoping Plan:** The scoping plan assumes widespread electrification of the transportation sector as a critical component of every scenario that leads to the mandated 40 percent reduction in GHG by 2030 and 80 percent reduction by 2015.

- **AB 2583** (Blumenfield 2012) **Public Resources Code §25722.8**: Statute requires reducing consumption of petroleum products by the state fleet compared to a 2003 baseline. Mandates a 10 percent reduction or

displacement by Jan. 1, 2012 and a 20 percent reduction or displacement by Jan. 1, 2020.

- **AB 75** – Implement an integrated waste management program and achieve 50 percent disposal reduction target. State Agencies report annually on waste management program

- **SB 1106** – Have at least one designated waste management coordinator. Report annually on how your designated waste and recycling coordinator meets the requirement.

- **AB 2812** - Provide adequate receptacles, signage, education, staffing, and arrange for recycling services. Report annually on how each of these is being implemented

- **AB 341** – Implement mandatory commercial recycling program (if meet threshold). Report annually on recycling program

- **AB 1826** – Implement mandatory commercial organics recycling program (if meet threshold). Report annually on organics recycling program

- **SB 1383** - 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020, a 75 percent reduction by 2025, and 20 percent of currently disposed edible food is recovered for human consumption by 2025.
    - Agencies already in compliance with AB 1826 may need to further expand their organic waste recycling service to comply with the new requirements
    - Jan. 1, 2024, Tier 2 Commercial Edible food Generators will be required to donate edible food to a recovery organization.

- **SB 1335** - requires food service facilities located in a state-owned facility, a concessionaire on state-owned property, or under contract to dispense prepared food using reusable, recyclable, or compostable. food service packaging

Action Plan

- **2016 Zero-Emission Vehicle Action Plan**

  The plan establishes a goal to provide electric vehicle charging to 5 percent of state-owned parking spaces by 2022. It also advances the ZEV procurement target to 50 percent of light-duty vehicles by 2025.

State Resources and Guidance Documents

California has invested significant resources in understanding the risks of climate change, water efficiency, strategic growth, and state actions available to respond to and reduce these risks. These include the following:

- **Safeguarding California**: The state's climate adaptation strategy organized by sector. Each sector identifies risks from climate change and actions to reduce those risks.
- **Safeguarding California Implementation Action Plans**: Directed under EO B-30-15, the Implementation Action Plans outline the steps that will be taken in each sector to reduce risks from climate change.
- **Planning and Investing for a Resilient California**: Prepared under direction of EO B-30-15, this document provides a framework for state agencies to integrate climate change into planning and investment, including guidance on data selection and analytical approach.
- **California's Climate Change Assessments**: California has completed three comprehensive assessments of climate change impacts on California. Each assessment has included development of projections of climate impacts on a scale that is relevant to state planning (i.e., downscaled climate projections). These data are available through **Cal-Adapt**, an online data visualization and access tool.
- **Water Use Reduction Guidelines and Criteria**: Issued by the California Department of Water Resources February 28, 2013, pursuant to Executive Order B-18-12. Each applicable agency was required to take actions to reduce water use in facilities and landscapes that are operated by the state, including owned, funded or leased facilities. State-operated facilities are defined as facilities where the agency has direct control of the buildings' function, maintenance and repair. For leased facilities, the Green Building Action Plan directed at that time that new and renegotiated leases include provisions for water conservation, reporting water use, and installation of sub-meters to the extent possible and economically feasible.
- **Strategic Growth Council (SGC) Resolution on Location Efficiency**: Location efficiency refers to the greenhouse gas emissions arising from the transportation choices of employees and visitors to a building as determined by the Smart Location Calculator. Adopted on December 6, 2016, the resolution directs members of the SGC to achieve a 10 percent improvement in the Smart Location Score of new leases compared to the average score of leased facilities in 2016.

Table G-1: Background References and Applicable Roadmap Chapters

	Climate Adaptation	ZEV	Energy	Water	Green Operation
Executive Orders:					
EO B-16-12		X			X
EO B-18-12		X	X	X	X
EO B-29-15				X	
EO B-30-15	X	X	X		X
EO B-37-16				X	
Management Memos					
MM 14-02				X	
MM 14-05			X		X
MM 14-07			X		X
MM 14-09			X		
MM 15-03		X	X		
MM 15-04			X		X
MM 15-06			X	X	X
MM 15-07		X			
MM 16-07		X			
MM 17-04			X		
Legislative Actions					
SB 246	X				
SB 2800	X				

SB 1106					X
SB 1383					X
AB 4					X
AB 32		X			X
AB 75					X
AB 341					X
AB 1826					X
AB 2812					X
AB 1482	X				
Action Plans					
2016 ZEV Action Plan		X			
State Resources and Guidance Documents					
Cal-Adapt	X				
California's Climate Change Assessments	X				
Public Resources Code §25722.8		X			
Planning and Investing for a Resilient California	X				
Safeguarding California	X				
Safeguarding CA Implementation Action Plan	X				
Sustainable Groundwater Management Act of 2014				X	

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