Sustainability Roadmap 2022-2023 California Department of Technology

Sustainability Master Plan and Biannual Progress Report on Legislative Sustainability Mandates and the Governor's Sustainability Goals for California State Agencies



Gavin Newsom, Governor December 2023

Sustainability Road Map 2022-2023 California Department of Technology

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EXECUTIVE SUMMARY

The California Department of Technology leads the state's drive to deliver clear, fast, dependable, and equitable public services. It provides for the delivery of digital government services through the oversight of statewide IT strategic planning, project delivery, procurement, policy and standards, and enterprise architecture. CDT is tasked with securing statewide information assets by providing oversight and infrastructure for many state departments and serves as the custodian of information for mission-critical and essential business applications. Home to the State Data Center, CDT provides infrastructure services for government customers that include on-premises and cloud-based services. CDT is leading statewide broadband planning and execution to deliver digital equity and reliability for all Californians. CDT has implemented significant energy and water efficiency strategies at its mission-critical, LEED Platinum and ENERGY STAR® rated data center in Rancho Cordova. These strategies include solar canopies in the parking lot, site-wide power, lighting, and computer room equipment mechanical upgrades and real-time cooling system control. This strategic implementation reduced grid-based energy use at the data center by 4.05 million kilowatt-hours annually, equal to the energy used by 376 homes, and saves up to a million gallons of water per year. Energy efficiency and water conservation initiatives currently underway include server virtualization through cloud computing, improved computer room cooling efficiencies, replacement of cooling towers with more efficient models and adding electric vehicle charging stations.

As power consumption and the resulting Green House Gas (GHG) emissions from computer rooms and IT equipment continue to increase at a time when the power production industry is in a fundamental state of change, striving towards sustainability continues to be a challenge for all departments and their facilities. As the state's Information Technology (IT) leader, CDT continues to lead efforts to reduce total state department IT energy equipment use by at least 20 percent, as required by Assembly Bill 2408 (Smyth and Huber, Chapter 404, Statutes of 2010). To meet required energy reductions, many state departments have consolidated their IT equipment into CDT's Rancho Cordova data center, including equipment from two of CDT's former data centers, which were decommissioned in 2010. Although energy, water, and GHG emissions increased at CDT's state-owned data center due to these consolidation efforts, overall state departmental totals from data center operations were significantly reduced.

Executive Order B-30-15 has declared climate change to be a threat to the wellbeing, public health, natural resources, economy, and environment of California. For the CDT and its mission critical data center, climate change certainly has an effect. A future increase in average maximum temperatures will negatively affect Power Usage Effectiveness (PUE), water usage, power usage, and reduce overall cooling performance. CDT anticipates this will not affect the structural integrity or staff/occupant health and safety of the Rancho Cordova Data Center. An increase in extreme heat will, however, affect the useful life of the cooling and backup power generation equipment. Strategies implemented from 2017 and 2018 to reduce the impact of temperature change include: installation of a cool roof, re-designed landscaping, installation of solar canopies, and HVAC equipment replacement. As we move towards the end of the century, where average temperature is expected to rise significantly, CDT will adapt and upgrade equipment as needed to remain operational and as efficient as possible.

As part of the Governor's 10-year plan to reduce GHG emissions at the state level, state agencies have been directed to demonstrate sustainable operations and lead the way by implementing various sustainable policies set by the Governor's office. The single largest challenge CDT faces in meeting the Governor's goals for the Rancho Cordova Data Center is that the computer room directly supporting the data processing and critical cooling systems consumed 91% of the electricity and 49% of the natural gas purchased in 2022 for use by the facility.

To reduce energy consumption, CDT invested in cold aisle containment and installed a Vigilent Dynamic Cooling Management system. In addition, CDT's five-year capital improvement plan includes several energy efficiency infrastructure upgrades for the Rancho Cordova Data Center. Executive Order B-18-12 requires that 50% of all state-owned buildings be Zero Net Energy (ZNE) by 2025. CDT will meet the ZNE requirements only when isolating the office space from the computing facility at the Rancho Cordova Data Center facility.

From the first day of operation, CDT incorporated an energy management control system (EMCS) from Automated Logic Corp (for power) and Alerton (for HVAC). These original systems gave facility and engineering staff insight into where power and natural gas was being used. This enabled set point changes to be adjusted to increase reliability, availability, and energy savings for the building. Over time, the department has made upgrades to the EMCS system to increase the number of monitoring and control points to optimize and increase efficiency.

As California faced an unprecedented drought, the CDT has taken several measures to improve water efficiency throughout its Rancho Cordova Data Center facility. With an estimated 75% of the facility's indoor water use attributed to cooling the building's computer room, emphasis is placed on

identifying ways to more efficiently use water for this purpose. One approach has been to maximize the effectiveness of the open loop cooling systems through precise monitoring of water quality, which in turn increases the number of circulation cycles before blowdown occurs. CDT has also either replaced or retrofitted all toilets, urinals, faucets, and showerheads. These changes have helped to minimize water waste. Additionally, the Department installed a new efficient landscape drip irrigation system in the spring of 2016. Nearly all grass turf was replaced with mulch or decomposed granite. Since the project was completed, an annual savings of over one million gallons has been realized. CDT continues to explore the latest cooling technology advances and is evaluating proposals to replace a majority of the open loop cooling system with closed looped air cooled chillers. Early concept estimates indicate the data center may be able to save 6.0 million gallons a year on indoor water use with the air cooled systems.

CDT achieved the Governor's goal of reducing greenhouse gas (GHG) emissions by 20% through data center consolidation. In February 2020, CDT achieved LEED-EB (Leadership in Energy and Environmental Design for an Existing Building) Platinum status for its Rancho Cordova Data Center. This was accomplished with the combined effort of an energy consulting firm, the Department's building engineering contractor, and CDT's facility staff. In the process of obtaining LEED certification, an American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) level 2 energy audit was conducted on the Rancho Cordova data center.

CDT is aware of the significance of maintaining appropriate indoor environmental quality (IEQ) and ensures all alterations, modifications, maintenance repairs, and cleaning procedures are performed in accordance with the California Green Building Standards code. Additionally, CDT requests its contracted pest management vendor to follow an integrated pest management (IPM) strategy that focuses on long-term prevention of pest problems. In similar respect, CDT emphasizes the importance of purchasing energy efficient and sustainable products. CDT is committed to following DGS's Environmentally Preferred Purchasing Program (EPP) and the Federal Energy Management Program (FEMP).

Incorporating sustainable practices within the Department of Technology saves money, which translates into lower rates for our customers and also benefits the environment. CDT also seeks to lower state government's "ecological footprint" by actively advising other state departments on how to reduce the amount of energy used to power and cool IT equipment. While the Department has made great strides in improving the sustainability of its nearly two decades-old Rancho Cordova Data Center, it is committed to continuing this effort into the future.

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Liana Bailey-Crimmins Director State Chief Information Officer

CHAPTER 1 - CLIMATE CHANGE

Department Mission and Climate Change Adaptation

Reporting Narrative Instructions:

CDT uses the assumption that the current state-owned data center will have an additional 20 years of effective use. CDT's rolling 15-year infrastructure plan will continue to consider climate change throughout the full lifespan of the data center. While the current role as primary state data center may not last this expected duration, some hosting of legacy systems and networking equipment is anticipated over the remaining facility lifespan. The general increase in expected temperatures will require an intelligent plan of mechanical and electrical equipment replacement to maximize efficiency (keeping increases in utility costs to a minimum) and preventing statewide data processing outages due to facility equipment failure.

To date, CDT replaced original infrastructure equipment with equipment that can operate in higher temperature ranges while offering the same or greater capacity for data center support. While the choice of more efficient equipment is a priority, the desire for energy savings balances with the selection of equipment that has an extended operating safety margin. This margin ensures that anticipated worse case temperature conditions over the next 20 years will not cause catastrophic equipment failure. CDT believes the approach taken will leave the department well prepared for expected climate change events.

Climate Change Risks to Facilities

Climate Change Risk Process:

Reporting Narrative Instructions:

Assessing Risk from Changing Extreme Temperatures:

Table Instructions:

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)
Rancho Cordova Data Center	103.9	4.4	23.4	18.9	46.8	42.3

Table Instructions:

Table 1.2: 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)
Rancho Cordova Data Center	74.4	79.4	5.0	83.1	8.8

Table Instructions:

Table 1.3: 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)
Rancho Cordova Data Center	49.6	53.9	4.3	57.8	8.2

Assessing Risk from Heating Degree Days (HDD) and Cooling Degree Days (CDD)

Table Instructions:

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

Facility Name	Heating Degrees 1961- 1990	Average Modeled Heating Degrees (year), 2031- 2060	Change in Heating Degree Days Historical to Mid- Century	Average Modeled Heating Degrees (year), 2070- 2099	Change in Heating Degree Days Historical to End- Century
Rancho Cordova Data Center	2511	1855	-656	1634	-877

Table Instructions:

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

Facility Name	Cooling Degrees 1961-1990	Average Modeled Cooling Degrees (year), 2031-2060	Change in Cooling Degree Days Historical to Mid- Century	Average Modeled Cooling Degrees (year), 2070-2099	Change in Cooling Degree Days Historical to End- Century
Rancho Cordova Data Center	1403	2142	739	2492	1089

Reporting Narrative on HDD and CCD

There is a definite sensitivity of operations to change in temperature. An increase in mean maximum temperature would increase water usage, power usage and reduced overall cooling performance. There is no anticipated impact to facility structural integrity or occupant health and safety. An increase in extreme heat even would affect useful life of the Data Center's cooling equipment. The facility can operate independently, using on-site diesel generators for an extended period of time in the event of a utility failure.

To reduce the impact of changing temperatures, the Department installed a cooler, more reflective roof, and are in the process of developing a contract for

the planting of native trees and drought resistant vegetation by the fall of 2025. In addition, the 2018 installation of the solar canopies has provided added square footage of shade to the facility parking lot. There is a strategy in place to replace HVAC equipment with more energy efficient and effective systems. Additionally, the Department utilizes an employee awareness campaign to make employees aware of changes to the buildings during temperature changes. Based on the rolling 15-year plan, climate adaptation will be considered for mechanical equipment, but in the event of potential catastrophic failure, a planned shutdown and replacement of the data center facility will be implemented.

Plan to Mitigate HDD and CDD

Planning Outline Instructions:

Planning Outline PO1:a: Plan for Top 5-10 Facilities HDD and CDD Mitigation

Facility Name	2030
Rancho Cordova Data	No Plan
Center	

Planning Narrative to Mitigate HDD and CDD

Planning Narrative Instructions:

Assessing Risk from Urban Heat Islands

Table Instructions:

Table 1.4: Facilities in Urban Heat Islands

Facility Name	Located in an Urban Heat Island (Yes or No)	sq. ft. of Surrounding Hardscape or Pavement if greater than 5000 sq. ft.
NO FACILITIES AT RISK		

Reporting Narrative on Urban Heat islands

NO FACILITIES AT RISK

Planning Outline for Urban Heat Islands Mitigation:

Planning Outline Instructions:

Planning Outline PO0:b: Plan for Urban Heat Islands Mitigation

Facility Name	Mitigation or Plan	Est. Implementation Date
NO FACILITIES AT RISK		

Planning Narrative for Urban Heat Islands Mitigation

Planning Narrative Instructions: NO FACILITIES AT RISK

Assessing Risk from Changes in Precipitation

Table Instructions:

Table 1.5: Top 5-10 Facilities that will be Most Impacted by Projected Changes in Precipitation

Facility Name	Annu al Mean Max. Precip (1961 – 1990) (in/yrs .)	Annual Mean Precip. (2031 – 2060) (in/yrs.)	Percent Change by mid- century	Annual Mean Precip. (2070 – 2099) (in/yrs.)	Percent change by end of century	Extreme Precip (1961- 1990) (in/day)	Extreme Precip (2031- 2060) (in/day)	Extrem e Precip (2070- 2090) (in/day)
Rancho Cordova Data Center	20.1	23.1	0.1	24.5	0.2	4.2	4.3	5.1

Reporting Narrative on Precipitation Impacts

Reporting Narrative Instructions:

Although the provided table shows increases in annual precipitation, CDT bases planning on climate models that show extended future drought conditions. If extended drought conditions require the facility to use less water, the lifespan and reliability of the cooling equipment would diminish.

Planning Outline to Mitigate Precipitation Changes

Planning Outline Instructions:

Planning Outline POO:c: Plan for Top 5-10 Facilities Most Impacted by Projected Changes in Precipitation

Facility Name	Extreme Precip (2030)		
	Plan or strategy		
Rancho Cordova Data Center	Closed loop cooling, air cooled chiller and grey water capture		

Planning Narrative on Precipitation Changes Mitigation Plan

To reduce the impact of facility performance due to changing precipitation, the Department has considered the following strategies:

- Recapture cooling tower grey water in the event of drought conditions.
- Replace open cooling systems with close looped systems to conserve water resources.
- Seek Title 24 Energy Code exemption to utilize use air cooled chillers.

Assessing Risk from Sea Level Rise

Table Instructions:

Table 1.6: All Facilities at Risk from Rising Sea Levels

Facility Name	Tide Chart Region	2050 Water Level (ft)	Exposed in 2050? (y/n)	2100 Water Level (ft)	Exposed at 2100? (y/n)
NO FACILITIES AT RISK					

Reporting Narrative on Sea Level Rise Impacts

NO FACILITIES AT RISK

Planning Outline to Mitigate Sea Level Rise Impacts

NO FACILITIES AT RISK

Planning Outline PO0:d: Planning for Sea Level Rise impacts Mitigation

Facility Name	Tide Chart Region	Plan 2030?
NO FACILITIES AT RISK		

Planning Narrative of Sea Level Rise Impact

NO FACILITIES AT RISK

Assessing Risk from Wildfire

Table Instructions:

Table 1.7: Top 5-10 Facilities Most at Risk to Current Wildfire Threats by Fire Hazard Severity Zone

Facility Name	Fire Hazard Severity Zone Designation (low, medium, high, very high)
NO FACILITIES AT RISK	

Table Instructions:

Table 1.8: Top 5-10 Facilities that will be Most Impacted by Projected Changes in Wildfire by Acres Burned

Facility Name	Acres Burned (1961-1990)	Acres Burned (2031-2060)	Acres Burned (2070-2099)
NO FACILITIES AT RISK			

Reporting Narrative on Wildfire Risks

NO FACILITIES AT RISK

Planning Outline to Mitigate Wildfire Risks

Planning Outline Instructions:

Planning Outline POO:e: Plan for Mitigating Wildfire Risk by Acres Burned for Top 5-10 Facilities Most at Risk

Facility Name	Plan 2023-2030
Rancho Cordova Data Center	NO

Planning Narrative of Wildfire Risk Mitigation Plan

NO FACILITIES AT RISK

Understanding Climate Risk to Planned Facilities

Table Instructions:

Tables 1.9: a-g: Climate Risks to New Facilities

a.1Annual Mean Max. Temperature

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)	<u>Annual</u> <u>Mean</u> <u>Max</u> <u>Temp.</u> (2070- 2099)	<u>Change</u> <u>from</u> <u>Historical</u> <u>to</u> <u>Annual</u> <u>Mean</u> <u>Max.</u> <u>Temp</u> (2070- 2099)
NO NEW FACILITIES					

a.2 Annual Mean Min. Temperature

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)
NO NEW FACILITIES					

b. Annual Mean Max. Precipitation

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)
NO NEW FACILITIES				

c. Largest Increase in Extreme Heat Events

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
NO NEW FACILITIES				

d. Sea Level Rise

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
	Della)				
NO NEW FACILITIES					

e. Wildfire Risks by Fire Hazard Severity Zone

Facility Name	Current Fire Hazard Severity Zone (low, medium, high, very high)
NO NEW FACILITIES	

f. Wildfire Risk by Acres Burned

Facility Name	Acres Burned (1961-1990)	Acres Burned (2031-2060)
NO NEW FACILITIES		

g. Risk from HDDs/CDDs

Facility Name	Heating/Cooling Degree Days (1961-1990) (HDD/CDD)	Heating/Cooling Degree Days (2031-2060) (HDD/CDD)
NO NEW FACILITIES		

Planning Narrative for Understanding Climate Risks to Planned Facilities

NO NEW FACILITIES

Understanding the Potential Impacts of Facilities on Communities

Reporting on Facilities located in Disadvantaged Communities

Table Instructions:

Table 1.10: Facilities Located in Disadvantaged Communities

Facility Name	CalEnviroScreen Score	Is it located in a disadvantaged community? Yes/No
NO FACILITIES IN		
DISADVANTAGED		
COMMUNITIES		

Planning Narrative for Facilities in Disadvantaged Communities

NO FACILITIES IN DISADVANTAGED COMMUNITIES

New Facilities and Disadvantaged Communities and Urban Heat Islands

Table Instructions:

Table 1.11: 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)
NO NEW FACILITIES		

Integrating Climate Change into Department Funding Programs

Table Instructions:

Table 1.12: Integration of Climate Change into Department Planning

Name of Plan	Have you integrated climate?	If no, when will it be integrated?
	Yes/No	Date
RANCHO CORDOVA DATA CENTER	YES	Climate change currently integrated into Department 15-year planning timeline

Reporting Narrative for Integrating Climate Change into Department Planning Process

The Department uses full LCCA planning for current facility equipment replacement, maintenance, operations, and future facility design and operation. The current facility has been designed and has operational procedures in place to be able to adapt to climate change while continuing to meet its required mission critical role.

Planning Narrative for Integrating Climate Change into Department Planning Process

CLIMATE CHANGE INTEGRATION INTO DEPARTMENT PLANNING PROCESS ACHIEVED

Community Engagement and Planning Processes

Table Instructions:

Table1.13: Community Engagement and Planning Processes

Name of Plan	Does this plan consider impacts on vulnerable populations? Yes/No	Does this plan include coordination with local and regional agencies? Yes/No	Does this plan prioritize natural and green infrastructure? Yes/No
RANCHO CORDOVA DATA CENTER	N/A	YES	YES

Reporting Narrative for Community Engagement and Planning Processes

Reporting Narrative Instructions:

Planning Narrative for Community Engagement and Planning Processes

COMMUNITY ENGAGEMENT AND PLANNING PROCESS ACHIEVED

Climate Change Implementation Planning in Funding Programs

Table Instructions:

Table1.14: Climate Change Implementation Planning in Department Funding Programs

Name of Grant or Funding Program	Have you integrated climate change into program guidelines? Yes/No	lf no, Date it be integrated?	Does this Funding Program consider impacts on vulnerable populations? Yes/No	Does this Funding Program include coordination with local and regional agencies? Yes/No
Revolving Fund	Yes	N/A	N/A	Yes

Reporting Narrative for Climate Change Implementation Planning in Funding Programs

Reporting Narrative Instructions:

Planning Narrative for Climate Change Implementation Planning in Funding Programs

CLIMATE CHANGE INTEGRATION ACHIEVED

Measuring and Tracking Progress

Reporting Narrative on Measuring and Tracking Progress

CDT plans to measure progress toward departmental goals with continued investments in monitoring tools for the accurate measurement of energy and water use. There is full accounting of energy efficiency measure costs, savings, and environmental impact. The Department forecasts the facility's cost as far into the future as possible to determine impact to customer rates and funding sources. The Office of Administration is developing a policy to integrate climate change into all infrastructure investment. Additionally, continued use of the rolling 15-year infrastructure plan will be utilized for investment prioritization and advanced customer rate planning.

CHAPTER 2 – ZERO-EMISSION VEHICLES

Department Mission and Fleet

The mission of the Department aligns with various aspects of fleet vehicle needs and requirements by emphasizing technology advancement, security, equity, reliability, effective governance, strategic planning, and innovation – all of which are critical considerations in modern fleet management. The 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. CDT has a light-duty vehicle fleet comprised of six (6) vehicles; two vans (one caravan and one cargo), one hybrid sedan, and three pure electric compact cars. Either the sedan or one of the compact pure EVs are used daily, in performance of the department's courier runs from Rancho Cordova to the downtown Sacramento area. The majority of both courier runs take place on paved highways, with city driving also occurring, but to a lesser extent. The courier runs are staggered, each taking approximately 2.5 hours to complete. The vans are only used sporadically for purposes of transporting larger equipment such as computer servers and are stored at the department's warehouse location.

Using CDT's Vehicle Reservation Program, employees making work-related trips can reserve any of the other CDT fleet vehicles, excluding the two courier vans. These trips are generally short distances within the greater Sacramento area but can occasionally extend to the Bay Area or Southern California. The majority of travel for all of CDT's fleet vehicles is a combination of city and highway.

Composition of Vehicle Fleet

Graph Instructions:

Graph 2.1: 2022 Composition of Vehicle Fleet



Fuel Types

Reporting on Total Fuel Use by Fuel Type.

Table Instructions:

Table 2.1: Total Fuel Purchased in 2021 and 2022

Year	Diesel (Gallons)	Gasoline (Gallons)	Renewable Diesel (Gallons)
2021	FUEL TYPE NOT USED	1826	FUEL TYPE NOT USED
2022	FUEL TYPE NOT USED	1018	FUEL TYPE NOT USED

Reporting Narrative on Fuel Type Selections

<u>Reporting Narrative Instructions:</u> The department selects fuel type based upon the kind of vehicle is in question. We typically use 87 octane gasoline in our Hybrid and Fuel vehicles. There have not been any discussions so far regarding hydrogen fuel use in our department. A policy regarding fuel types has been in place and includes the allowed purchase of regular unleaded gasoline or alternative fuels as necessary.

Rightsizing the Vehicle Fleet

Teleworking, Mission Changes, and Technology Changes

The department's telework policy does not affect fleet vehicle usage. There have been NO MISSION CHANGES and NO TECHNOLOGY CHANGES.

Telematics

Implementation Status

Reporting Narrative on Telematics Implementation Status

The department has not completed the telematics implementation. There has been a delay on the contract between DGS and the third-party vendor and CDT is awaiting further instruction prior to taking action. Once an agreement between DGS and the third-party contractor has been reached, CDT plans to follow the telematics program policy to the fullest extent.

Planning Narrative for Telematics Data

Planning Narrative Instructions Although the CDT does not currently have access to the telematic equipment, we will use the data to understand the need for ZEV vehicles and how they can be better utilized for our needs. Once received, we would analyze data and see if other ZEV could be acquired to further extend our percentage over the mandatory 50% by 2025, currently in which ewe sit at 58%. We would also use the telematic equipment data to help utilize our current vehicles better, possibly reducing the carbon emission through driving the ZEV when possible, over the gas option. Although the fleet program with CDT is not that large, we would use the telematic data to gain opportunities with our option to integrate zero emission vehicles into our fleet. We understand the need of other departments that have larger fleets made need to use the limited stock of telematic equipment to make more of an impact to the carbon emissions, but once released to us, we will do our part in helping as well. The telematic data will not be used for charging requirements based on the need of the department. Our usage of our vehicles does not require the need to install more chargers or have our vehicles on charge for a longer period. We currently do not have any issues with the charging system we have in place. CDT does currently have a plan but does not have access to telematic equipment on vehicles. We were scheduled to have the equipment placed on our vehicles, but the plans were delayed due to the California Air Resources Board (CARB) determining that the reporting would include smog-related data. With the goal of 50 percent already met, the steps and milestones are going to be adjusted for our department. We will further outline through management and other executives to push the 58 percent of zero emission vehicles higher in case the state changes policies.

Existing Fleet Description

Light Duty Fleet Vehicles

The current uses of our light duty vehicles consist of courier runs, business trips to Vacaville, and light cargo moving. This is typically done on surface streets and highways. Typically, the employees are making short trips only.

Reporting On Total Miles Traveled

Table Instructions:

Table 2.2: Total Miles Traveled

Year	2017	2018	2019	2020	2021	2022
Miles	N/A	63138	64344	60133	59582	60168
Traveled						

Reporting Narrative on Total Miles Traveled

The yearly mileage for CDT has consistently been around 60,000 total miles. The numbers went down a little bit, of course, due to COVID-19 patterns of behavior, but there has been no dramatic change. CDT is awaiting further instruction to complete the telematics installation to make this sort of date more readily accessible and help the department to more closely monitor fuel consumption and mileage traveled. Some strategies to employ for the purpose of miles traveled reduction can include implementation and encouragement of ride share programs.

Reporting On Miles Per Gallon

Table Instructions:

Table 2.3: Miles per Gallon

Year	2017	2018	2019	2020	2021	2022
MPG	28	39	21	45	45	73.5

Reporting Narrative on Miles Per Gallon

<u>Reporting Narrative Instructions:</u> The yearly miles per gallon of the department light duty fleet has made a dramatic increase over time, due to the switch from fuel to ZEV/Hybrid vehicles. We experienced a 1.63% increase in miles per gallon between the years of 2021 and 2022. Utilizing telematics data will allow CDT to gain insights into various aspects of fleet management, enabling us to make informed decisions to optimize MPG. This can lead to cost savings, reduced environmental impact, and improved overall efficiency in the operation of our vehicles. Strategies employed to continue the trend of reduced miles per gallon include continuing the pattern of purchasing higher mpg vehicles including that of a cargo style van once the current one is due for replacement.



Composition of Light-Duty Vehicle Fleet

Take-Home Vehicle Fleet Status

Table Instructions:

Table 2.4: "Take-Home" Vehicles

Vehicle Type	Sedans	LD Pickup or Trucks	MD/HD Pickup or Truck	LD Van	MD/HD Van	SUV
NO LIGHT DUTY TAKE HOME VEHICLES						

Planning Narrative on Integrating the Take Home Vehicle Program with Telework and Emissions Reduction Strategies

Planning Narrative Instructions: NO TAKE HOME VEHICLE PROGRAM

Medium- and Heavy-Duty Fleet Vehicles

Graph Instructions:

Graph 2.3: Composition of Medium- and Heavy-Duty (MD/HD) Vehicle Fleet Subject to the ZEV First Purchasing Mandate

CDT has no MD/HD vehicles.

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 1st, 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.

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.

CDT has been successful in converting their fleet to that of a primarily ZEV fleet. Currently, four of the seven vehicles are electric vehicles (one being a hybrid). These vehicles are all beneficial to the fleet and there are no vehicle classes missing that the Department would need to carry out its state functions.

Vehicles over the specified mileage and age thresholds are eligible for replacement. Currently ZEVs are available on statewide commodity contracts in the sub-compact, compact, mid-size sedans and mini-vans vehicle classes. There is currently one vehicle in our fleet that are eligible for replacement in vehicle classes for which ZEVs are available on contract.

Table Instructions:

Table 2.5: LD Vehicles in Department Fleet Currently Eligible for Replacement

Vehicle Type	Sedans	Minivans	Pickups	SUVs, 5 passengers	SUVs, 7 passengers	Total
# of vehicles						
eligible for	-	1	-	-	-	1
replacement						

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.

The Department does not currently purchase vehicles. All fleet vehicles are leased from DGS-OFAM.

Table 2.6: Plan for LD ZEV Additions to the Department Fleet

ZEV Category	21/22	22/23	23/24	24/25
Battery Electric Vehicle (BEV)	0	0	0	1
Plug-in Hybrid Vehicle (PHEV)	0	0	0	0
Fuel Cell Vehicle	0	0	0	0
Percent of total purchases	0%	0%	0%	100%
Required ZEV Percentage	35%	40%	45%	50%
Total number of ZEVs in Fleet*	4	4	4	5

Reporting Narrative for Light Duty ZEV Additions to the Department Fleet.

<u>Reporting Narrative Instructions:</u> ZEVs are the most beneficial to our fleet. We plan to continue adding to our ZEV fleet whenever possible. ZEVs can serve roles like urban commuting, administrative use, and local deliveries, benefiting from their environmental sustainability and cost-effectiveness for short-distance applications. ZEV integration into fleet operations requires careful consideration of range, charging infrastructure, and operational requirements to maximize efficiency and environmental impact. Some of the challenges may include concerns about the initial cost of ZEVs compared to traditional vehicles, availability of charging infrastructure, limited range of electric vehicles, charging time, and cold weather performance. The typical use for the ZEVs includes courier runs, staff transportation to the Vacaville location, and accommodation

for the executives when traveling. We currently have no vehicle classes missing within our state department.

Planning Narrative for Integrating ZEVs into Take-Home Vehicles

NO TAKE HOME VEHICLE PROGRAM

Medium- Heavy-Duty ZEV Adoption

Medium and Heavy-Duty Vehicles in Department Fleet currently Eligible for Replacement

CDT has no MD/HD vehicles in its fleet.

Table 2.7: MD/HD Vehicles in Department Fleet Currently Eligible for Replacement

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

Table 2.8: Planned MD/HD ZEV Additions to the Department Fleet

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

Reporting Narrative for Medium-Heavy Duty ZEV Adoption

Reporting Narrative Instructions: NO MD/HD VEHICLES

ZEV Public Safety Exemption

Reporting Narrative for ZEV Public Safety Exemption

Reporting Narrative Instructions: NO SWORN OFFICERS

Planning Narrative for ZEV Public Safety Exemption

Planning Narrative Instructions: NO SWORN OFFICERS

Department's Parking Facilities

Graph Instructions:



Reporting Narrative on Parking Facilities

The Department of Technology operates one state owned facility and three leased facilities. The parking lots are for security, employees, visitors, vendors and customers. The CDT-owned Rancho Cordova Data Center is gated and includes 370 parking spots. The department hosts fleet vehicles at three of the four facilities and parking spaces are reserved for their use. The Rancho Cordova data venter hosts two vehicles. Croydon Warehouse hosts three, and the PG1 campus holds one fleet vehicle.

Reporting on Status of EVSE Projects

DGS is replacing CDT's 2 Charge Point/Level 2 Electric Vehicle Chargers With BTC Model Level 2 Chargers in 2024. This is a DGS Project which includes The purchase and Installation of these 2 Electric vehicle chargers.

Table 2.9: Status of EV Charging Projects

Facility Name	Total Parking Spaces	Existing L1 Charging Ports (2022)	Existing L2 Charging Ports (2022)	Existing L3 Charging Ports (2022)	Total Charging Ports (2022)	EV Charging Ports Needed by 2025
RANCHO CORDOVA DATA CENTER	370	0	20	0	20	
Total	370	0	20	0	20	20

EV Charging Site Assessments

Reporting on 2022 Facility Site and Infrastructure Assessments

Table Instructions:

Table 2.10: 2022 EV Charging Infrastructure Site Assessments Conducted

Facility Name	L1 EVSE	L2 EVSE	L3 EVSE	Entity that
	Project	Project	Project	Conducted the
	Assessments	Assessments	Assessments	Site Assessment
NO EV CHARGING ASSESSMENTS COMPLETED				

Planning Narrative on EVSE Construction Plan

The Rancho Cordova site has 10, L2 dual port chargers. This allows 20 parking spaces for EV charging. The BTC Power chargers were purchased under the DGS statewide_contract, ensuring Energy star compliance. This project was in partnership with SMUD and Sacramento County CALEVIP charger rebate program. CDT is currently meeting the Governor's Executive Order B-16-2012 In parking availability and future EV charging needs.

On-going EVSE Charging Operations and Maintenance

Public EV Charging Policies

Reporting Narrative on Public EV Charging Policies

Reporting Narrative Instructions: PUBLIC CHARGING POLICY NOT REQUIRED

Planning Narrative on Public EV Charging Policies

Planning Narrative Instructions: PUBLIC CHARGING POLICY NOT REQUIRED

Employee EV Charging Policies

Reporting Narrative on Employee EV Charging Policies

Reporting Narrative Instructions: NO EMPLOYEE CHARGING POLICY IN PLACE

Planning Narrative on Employee EV Charging Policies

<u>Planning Narrative Instructions:</u> The next steps to developing a plan include discussions for implementation which will be carried out by the Facilities and Administrative Services team here at CDT.

Fleet EV Charging Policies

Reporting Narrative for Fleet EV Charging

<u>Reporting Narrative Instructions:</u> NO FLEET EV CHARGING POLICIES

Planning Narrative for Fleet EV Charging

<u>Planning Narrative Instructions:</u> The next steps to developing a plan include discussions for implementation which will be carried out by the Facilities and Administrative Services team here at CDT.

Hydrogen Fueling Infrastructure

Planning Narrative for Hydrogen Fueling Infrastructure

<u>Planning Narrative Instructions:</u> The need for hydrogen fueling infrastructure is under continuous evaluation. Should the demand surface, CDT will investigate practical means for the installation of the needed hydrogen infrastructure.

Department Mission and Building Infrastructure

Under the direction of the California Government Operations Agency, the California Department of Technology (CDT) maintains statutory authority over Information Technology (IT) projects and operates the state's data centers. CDT provides information technology services to many state, county, federal and local government entities throughout California. Through the use of a scalable, reliable and secure statewide network, combined with expertise in voice and data technologies, CDT delivers comprehensive, cost-effective computing, networking, electronic messaging and training solutions to benefit the people of California.

The Rancho Cordova facility, which is owned by the Department of Technology, is 154,250 square feet and divided into a computer room space (41,544 sq. ft.) and an office/computer room support space (92,444 /20,262 sq. ft). The computer room and support space that directly support the data processing and critical cooling systems for the computer room consume 91% of the electricity and 49% of the natural gas used by the facility. For the purpose of the comparison the office/computer support space is split 60/40 between the office and computer room 92,444 + 12,153 sq. ft = 104,597

Purchased Energy	2003 Baseline Quantity	Unif	2021 Quantity	2022 Quantity	% Qfy. Change 03-22	% Qfy Change 21-22
Electricity	9,307,862	kWh	16,056,357	15,410,872	65.57	-4.02
Onsite Solar	0		1,831,400	1,848,200	N/A	.92
Less EV Charging	0	kWh	-14,806	-21,566	N/A	45.66
Natural Gas	25,733	therms	14,246	15,004	-41.69	5.32
TOTALS	34,331,725	kBtu Site	62,407,109	60,314,770	75.68	-3.35

Table 3.1: Total Purchased	Energy 2021 and 2022
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Department Energy Use

Reporting High Energy Use Buildings

Building Name	Floor Area (ft²)	Site Energy (kBTU)	Source Energy (kBTU)	Source EUI (kBTU/ft²-yr)
Rancho Cordova Data Center	154,250	60,314,770	173,574,464	1124
Total for All Department Buildings	154,250	60314770	173,547464	1124
% of Totals	100	100	100	100

Table 3.2: Properties with Largest 2022 Energy Consumption

Table 3.2A: Adjusted Energy Consumption with Data Processing Usage Removed

Building Name	Floor Area (ft²)	Site Energy (kBTU)	Source Energy (kBTU)	Source EUI (kBTU/ft²-yr)
Rancho Cordova Data Center	104,597	5,429,539	15,033,296	143.72
Total for All Department Buildings	104,597	5,429,539	15,033,296	143.72
% of Totals	100	100		100

Energy Efficiency Solutions for Largest Energy Using Buildings

Planning Outline Instructions:

Planning Outline PO3a: Planning for Buildings with Largest Energy Use

Building Name	Proposed Energy Efficiency Solutions
Rancho Cordova Data Center	Retrocommisioning

Narrative for Building Energy Efficiency

Planning Narrative Instructions:

- For table 3.2A the computer room and central plant square footage, that directly supports data processing, has been removed from the building total. The remaining square footage for office space and circulation is 104,597 sq. ft.
- CDT directly measures the circuit breakers that provide power to the office for air conditioning, lighting and plug loads. For the energy used by the chiller to support the office air conditioning; CDT measures the flow and entering/exit temperature of the water and converts it to tonnage and then to kW.
- The sum of the office usage is applied to the modified building floor area to calculate adjusted Site, Source kBTU, and Source EUI.
- CDT has led efforts to reduce total state department IT energy equipment use by at least 20 percent, as required by Assembly Bill 2408 (Smyth and Huber, Chapter 404, Statutes of 2010). To meet required energy reductions, many state departments consolidated their IT equipment into GC, including equipment from two of CDT's data centers (in the amount of 62,000 sq. ft.), which were decommissioned in 2010. Although energy, water, and GHG emissions increased at CDT's state-owned data center as a result of these consolidation efforts, departmental totals from data center operations were significantly reduced.
- CDT's Rancho Cordova Data Center facility is mission critical and provides information technology services to many state, county, federal and local government entities throughout California. To meet required energy reductions, many state departments consolidated their IT equipment into Rancho Cordova's ENERGY STAR® rated data center, including equipment from two of CDT's data centers, which were decommissioned in 2010. Although energy increased at CDT's state-owned data center as a result of these consolidation efforts, departmental totals from data center operations were significantly reduced. CDT implemented significant energy efficiency strategies which include site-wide power, lighting, and computer room equipment mechanical upgrades and realtime cooling tower control and monitoring equipment installation. Future energy improvement initiatives include server virtualization through cloud computing, improved computer room cooling efficiencies, replacement of cooling towers with more water-efficient models, and solar panel installation in the parking lot.
- California Department of Technology invested in cold aisle containment. This project involved the installation of barriers to separate different parts

of the data center, to help maximize efficiency by containing the hot air produced by the data center equipment. This project has resulted in improved the power utilization effectiveness (PUE) by 7%.

• CDT installed solar panels at the Rancho Cordova Data Center facility parking lot. The panels were financed via a power purchase agreement (PPA). The solar panels contribute approximately 10% of total energy demand.

CDT participated and later expanded on a DOE grant for the Installation of a Vigilent Dynamic Cooling Management system. System monitors temperatures throughout computer room and allocates cooling from the 36 computer room air handlers to efficiently respond, with real time pinpoint precision, to the demands of IT equipment. It is estimated that the

Zero Net Energy (ZNE)

Reporting on Existing Building ZNE

CDT Rancho Cordova campus is separated into two construction types and separated by a 4-hour fire wall. The total building area is 154,250 sq. ft. and is broken down as so:

- First and Second Floor, main building type II F.R.: 133,988 sq. ft.
- Single story Central plant, type II-N: 20,262 sq. ft.
- CDT's total building area: 154,250 sq. ft.
- On the first floor of the main building, 41,544 square feet is dedicated to the computer room and 12,153 square feet in the central plant is directly allocated for computer room support.

The solar canopy system produced 1,848,200 kWh in 2022 and the office space usage is estimated at 1,640,078 kWh (table 3.2A). Natural gas usage needed to support the office would be 5,560 therms.

Table 3.3 Zero Net Energy Buildings

Status of ZNE Buildings	Number of Buildings	Floor Area (ft²)	% of Building Area
Buildings Completed and Verified	N/A	N/A	N/A
Totals for All Department Buildings by 2025	N/A	N/A	N/A

Planning Narrative of Table 3.3: Zero Net Energy Buildings

Planning Narrative Instructions:
New Construction Exceeds Title 24 by 15%

Table Instructions:

Table 3.4: New Building Construction Exceeding Title 24 by 15%

New Buildings Exceeding Title 24 by 15%	Number of Buildings	Floor Area (ft²)
Completed Since July 2012	N/A	N/A
Under Design or Construction	N/A	N/A
Proposed Before 2025	N/A	N/A

Narrative of Table 3.4 New Building Construction Exceeding Title 24 by 15%

The California Department of Technology has no plans of constructing new buildings or designing new major renovations. Additionally, CDT did not complete any new construction or major building renovations prior to 2012.

Existing Buildings Energy Efficiency

Reporting on Energy Efficiency for Existing Buildings

Table Instructions:

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

Year	Floor Area (ft²)	Total Source kBTU Consumption*	Department Average EUI (Source kBtu /square foot)
Baseline Year 2003	154,250	102,843,936	667
2013	154,250	239,238,988	1551
2014	154,250	241,171,918	1564
2015	154,250	232,642,438	1508
2016	154,250	227,500,675	1475
2017	154,250	225,829,372	1464
2018	154,250	222,710,914	1430
2019	154,250	210,930,943	1367
2020**	154,250	184,483,980	1194
2021	154,250	180,212,933	1168
2022	154,250	173,574464	1124
% Change 2003-2022	0	68.8%	68.5%

* EVSE charging is not removed from Source Consumption

** 2020-22 kBTU calculations use CAMX 2020 conversion factor

Narrative for Table 3.5: Department-Wide Energy Trends

- The CDT GC facility is the primary data center for the state and as long as it continues in that role and function the 20% reduction goal in relation the 2003 baseline will not be possible. Due to efficiency projects completed and economies of scale, the GC data center has the lowest PUE of any state computing facility. If data processing statewide had not consolidated primarily in a single, location a significant amount of energy would be wasted on cooling and power distribution losses at inefficient data centers with higher PUE ratios. The increased use of the on premise private cloud and public cloud offerings, along with infrastructure efficiency projects will continue to reduce kBTU consumption and average source EUI over the next 10 years. Advances in energy storage, fuel cells, and the expansion of onsite solar generation may enable the department to reduce source EUI to levels equivalent to 2003.
- The CDT GC facility was originally constructed in 1999 to be both energy efficient (for its time) and a reliable mission critical data center. Over the years CDT has identified the completion of energy efficiency initiatives as a priority both for the betterment of the environment and for the reduction in costs for energy purchases. Fixed operational costs directly impact the rates CDT charges to customers, and reducing these rates has

been a departmental priority. Energy projects completed since the baseline year of 2003 include:

- 2007- Complete retro commissioning of the building including an upgrade of the EMCS/BMS, HVAC VAV calibrations and economizer settings, and lowered unoccupied occupancy schedules for the mechanical system. Total energy savings 2,842,234 kBTU/year
- 2011- New Computer room air conditioners (CRAH) with EC fans. Water Side economizer, chiller rebuild with VFD's, and office lighting replacement. Implemented Vigilent for real time algorithmic control of CRAH units. Total savings 7,176,280 kBTU/year.
- 2013- Replacement of three Uninterruptable Power Systems (UPS) and Phase 1 of computer room cold aisle containment. Savings 2,593,880 kBTU/year
- 2014- Replacement of last primary UPS, Phase II of containment, and return air chimneys. Savings 4,959,772 kBTU per year.
- 2016-2018- LED lighting replacement for the entire building, replacement of the existing make up air handlers for the computer room with more efficient units featuring VFD's, and the installation of a new EMCS/BMS for enhanced control of the building mechanical systems. Savings 255,832 kBTU per year.
- The goal and strategy for future energy projects will focus on the replacement of existing equipment with units that are both more efficient and designed to work in the temperature ranges predicated by climate models in the next 20 years. For existing and new equipment, the convergence of electrical and mechanical data from unified EMCS systems will enable better system control through the use of real time data to make intelligent optimizations based on demand. These projects have been identified on the 5-year infrastructure plan.
- When analyzing trends in Table 3.5 consideration must be given to the impact of AB 2408 signed in February of 2010. The CDT GC facility received an influx of new data processing workload and equipment as other state departments reduced their IT energy by 33% by July of 2012. The kBTU savings through completed energy initiatives stemmed what would have been an even larger increase in 2012 and 2013. In 2014 energy use plateaued and in 2015 and 2016 the energy savings achieved in Table 7 began to trend with the reported energy consumption in Table 3.5. From 2021 to 2022 kBTU usage by the data center continued to decrease due to previously completed energy efficiency projects and a continued focus on cloud first policies.

Energy Savings Projects

Table Instructions:

Table 3.6: Summary of Energy Savings Projects 2021-2022

Year Funded	Estimated Energy Savings (kBTU/yr)	Floor Area Retrofit (sq.ft.)	Percent of Department Floor Area
2021	0	0	0
2022	0	0	0
Total			

Planning Narrative for Table 3.6 Energy Savings Projects 2021-2022

CDT did not have the opportunity to complete any energy saving projects during 2021-2022. Future projects planned include the upgrade of the Alerton BMS system from Envision to Compass and the replacement of the existing mechanical building controllers, The controller's domain will also be expanded to include lighting and selected office plug loads. The planned upgrades will allow CDT to gain actionable insights into real time usage data which will enable more dynamic control and curtailment of office energy usage.

CDT also plans to partner with DGS- PMDB to explore the feasibility of energy storage and micro-grid strategies to leverage the onsite solar production to reduce grid power draw during peak hours.

Planning Narrative Instructions:

Energy Audits/Surveys Completed or In-Progress

Table Instructions:

Table 3.7: Energy Audits/Surveys Completed or In-Progress

Year	Total Department Floor Area (sq. ft.)	Energy Audits/ Surveys Under Way (sq. ft.)	Percent of Department Floor Area
2021	0	None completed	0
2022	0	None completed	0

Planning Narrative for Table 3.7 Energy Audits/Surveys Completed or In-Progress

CDT plans on completing a building wide energy audit in 2024 during the implementation of the energy savings projects described earlier in the chapter.

Demand Response (DR)

Participating in DR Utility Programs & Participating in DR Events Table Instructions:

Table 3.8: Demand Response (DR) Program Participation

DR Program Participation	Number of Buildings	Estimated Available Energy Reduction (kW)	Actual Curtailment (kWh)
Number of Buildings Participating in 2021	1	1800-2250	0
Number of Buildings Participating in 2022	1	1800-2250	52544.9
Planned Number of Buildings that will Participate in 2023	1	1800-2250	0
Total Number of Department Buildings	1		
2022 Department Buildings Participating (Percent)	100%		

Planning Narrative for Table 3.8: Demand Response (DR) Program Participation

Demand Response Narrative Instructions: CDT participated in the DSGS load reduction efforts during the grid state of emergency declared by Executive orders N-14-22 and N-15-22. During the periods of peak demand, the state data center was completely removed from the grid and placed on backup generator power. The load shedding efforts saved a total of 52,545 kWh from 9/5-9/9/2022 during a time of critical power shortages.

In 2023 CDT enrolled the Rancho Cordova data center directly in SMUD's new DSGS program being the first department to do so. CDT plans to partner with SMUD to quickly respond to any future grid reduction events and to continue to look for avenues for energy reductions and automated load reduction strategies.

Renewable Energy

Table Instructions:

Status	Number of Sites	Capacity (kW)	Estimated Annual Power Generation (kWh)	Percent of Total Annual CDT Power Use
Current On-Site Renewables in Operation or Construction	1	1,000	1,850,000	
On-Site Renewables Planned				
On-Site Renewables Totals	1	2000000	1850000	
Current Combined On- Site and Off-Site Renewable Energy		2000000	1850000	
Additional Planned On- Site and Off-Site Renewables				

Table 3.9: On-Site and Off-Site Renewable Energy

Planning Narrative for Table 3.9, for all Existing Building Renewable Energy

<u>Planning Narrative Instructions:</u> CDT had 1 mW of solar capacity installed at the Rancho Cordova facility in 2018. Given the single state owned building in the department's portfolio, renewable energy will be installed at 100 percent of the buildings in the specified time frame. CDT worked with DGS to successfully implement a solar PPA in 2018. 100 percent of the onsite solar power generated is used by the facility.

Monitoring-Based Commissioning (MBCx)

Table Instructions:

Table 3.10: Current & Potential MBCx Projects

Facilit y	Building Name	Locatio n	Floor Area (sq. ft.)	EMS Make, Model, Installation/ Upgrade	EMS Year	MBCx Capabl e, Difficult , or No EMS	MBCx Project ed Start Date	MBCx Project ed Cost (\$ if known)
	Rancho Cordova Data Center		154,250	Alerton- Envision	2018		Septem ber 2024	\$85K

Planning Narrative for Table 3.10: MBCx Status of Buildings

- From 2010 to 2014 the department implemented new server based EMCS systems for precise computer room air conditioning control and electrical system monitoring. These EMCS systems directly led to energy saving initiatives, utility incentives and the replacement of existing equipment with more efficient models. The ability to identify power use at the branch circuit level has enabled the analysis and justification for projects by determining return on investment (ROI).
- The two main challenges CDT faces when updating EMCS systems is that GC is a mission critical facility that can never be completely taken down for maintenance/modifications, and IT security system restrictions on system functionality.
- Any changes in EMCS/BMS control systems must be done in a systematic manner on redundant equipment as to not affect the building operations. As such, major upgrades are typically only completed when replacing systems of equipment (example: replacing all of the computer room PDU's enabled SiteScan to be installed for precise cabinet power consumption monitoring).
- EMCS/BMS system functionality such as offsite monitoring, mobile device notifications, and wireless transmission are not currently used due to the need to have secure systems that are hardened against hacking and unauthorized access. Per our internal IT security policy, the Department cannot allow external vendor access to EMCS/BMS. Additionally, the Department allowed a DGS appointed ESCO to analyze 3 months of data in our EMCS/BMS system and had no recommended changes to the system.
- Monitoring based commissioning and EMCS/BMS systems are currently in place at the CDT GC facility as required by MM 15-04. CDT has 3 separate integrated EMCS/BMS systems that provide the required MBCx services.

• The planned upgrade of the BMS system by 2024 will further enhance MBCx capability and audit functionality.

Planning Narrative Instructions:

Building Controls

Reporting on EMS/BMS/Controls Building Capability

Table Instructions:

Table 3.11: Building Controls

Equipment Controls	% of Buildings Controlled Remotely Offsite	% of Buildings with Controls Onsite	% of Total Buildings
Lighting	0	0	100
HVAC: EMS/BMS	0	100	100
HVAC: Smart Thermostats	0	100	100
Office Plug Loads	0	100	100

Planning Narrative for Table 3.11: EMS/BMS/Controls Building Capability

Offsite monitoring and control although possible is restricted to emergency situations due to IT security controls. 24 x7 onsite engineering staff are able to make changes to the system based on demand and building conditions.

The upgrade of the BMS system will allow the expansion of the monitoring and controls to lighting and office plug loads.

Planning Narrative Instructions:

Energy Reduction Strategies - Best Management Practices (BMPs)

Planning Narrative) for Energy Reduction Strategies in Department Buildings Best Management Practices (BMPs)

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CHAPTER 4 - WATER EFFICIENCY AND CONSERVATION

Department Mission and Water Use

Reporting Narrative Instructions:

Under the direction of the California Government Operations Agency, the California Department of Technology (CDT) maintains statutory authority over Information Technology (IT) projects and operates the state's data centers. CDT provides information technology services to many state, county, federal and local government entities throughout California. Through the use of a scalable, reliable and secure statewide network, combined with expertise in voice and data technologies, CDT delivers comprehensive, cost-effective computing, networking, electronic messaging and training solutions to benefit the people of California.

The Rancho Cordova facility, which is owned by the Department of Technology, is 154,250 square feet and divided into a computer room space (41,544 sq. ft.) and an office/computer room support space (112,706 sq. ft.). The computer room and office space utilize three 560 ton evaporative cooling towers which remove heat from the chillers used to pump cool water through the closed loop air handling/conditioning system. Additionally, data center chillers are used to cool the building and were retrofitted with variable frequency drives to optimize efficiency. The data center also utilizes a 460 ton plate and frame water economizer that is able to take advantage of cooler outside air ambient temperatures to precool condenser water to the chiller. During the winter months the plate and frame, in conjunction with the cooling towers is able to provide enough cooling capacity to bypass and shut down the chillers. Based on meter readings of the cooling towers, and flow meters for the computer room versus office chilled water loops, it is estimated that 75% of the GC building water use can directly be attributed to the heat rejection needed for data processing equipment. Please note in 2009 the % of water needed for heat rejection is estimated at 60%

Reporting on Total Purchased Water

Table 4.1: Total Purchased Water

Purchased Water	2021 Quantity	2022 Quantity	2021 Cost (\$/yr.)	2022Cost (\$/ yr.)
Potable	12,656,200	9,004,900	45,562.81	33,584.66

Recycled Water	No	No	No Data	No Data
	Recycled	Recycled		
	Water Used	Water Used		

Reporting on Properties with Largest Purchased Water Use per Capita.

Table Instructions:

Table 4.2: Properties with Purchased Largest Water Use Per Capita

Building Name	Area (ft2)	# of Building Occupants	Total 2022 Gallons* (includes water for IT)	Total 2022 Irrigation in Gallons (if known)	Gallons per Capita
CDT Rancho Cordova Data Center	154,250	95	9,004,900	671,003	Not Valid*
97 of Totala	100		100		
% OF LOTAIS	100		100		

*data center usage combined with personal usage

Table 4.3A: Properties with Purchased Largest Water Use Per Capita- Metered water use with computer room cooling removed

Building Name	Area (ft2)	# of Building Occupants	Total 2022 Gallons (indoor)	Gallons per Capita
CDT Rancho Cordova Data Center	112,706	95	2,083,474	60
% of Totals	100		100	60

Reporting on Properties with Largest Landscape Area Using Purchased Water

Table Instructions:

Table 4.4: Properties with Largest Landscape Area Using Purchased Water

Building Name	Landscape Area (ft2)
Rancho Cordova Data Center	56,000
Total Landscaping for All Department Buildings	56,000

% of Totals that is large landscape	100
-------------------------------------	-----

Reporting on the Department's Purchased Water Use Trends from 2010 to Present

Table Instructions:

|--|

Year	Total Occupancy /year	Total Amount Used (Gallons/year)	Per capita Gallons per person per day
Baseline Year 2009	250	11,523,000	NV
2018	250	13,822,500	NV
2019	250	13,434,400	NV
2020	110	12,254,459	NV
2021	95	12,656,200	NV
2022	95	9,004,900	NV
2024 Goal	150	9,500,000	NV

Reporting Narrative on Purchased Water Use Trends from 2010 to Present

Reporting Narrative Instructions:

- The Rancho Cordova Data Center has struggled with meter inconsistencies from the water utility. In 2022 Golden State Water again replaced the indoor water meter due to inconsistent reporting of indoor water usage. CDT believes that the true water usage should show a steady and gradual decline from 2018 to 2022 as water usage from computer room cooling has decreased. This decline should have accelerated in 2021 as nearly all employees were working from home during the year.
- One of the most difficult challenges the department faces in meeting the Governors water efficiency and conservation goals is that nearly 75% of the building's water use is dedicated for the cooling of the computer room (2016-2022). For each Btu generated by data processing equipment, a corresponding amount of heat must be removed by the chillers from the water loop and in turn, from the chillers by the cooling towers. The cooling towers use water in two ways, primarily through evaporative loss. However, as the water travels in cycles through the towers it increasingly gains a higher concentration of silica and other dissolved solids. When this level reaches a high level, the basins must be released into the storm sewer/storm drain system. In order to save water, the department attempts to run as many cycles as possible without risking damage to the chillers.
- The goal of the department is to continue to reduce indoor and outdoor water use for property. The shift in data processing to the cloud, continued

vigilance in leak detection and prudent use of water for irrigation should result in a continued gradual reduction in water usage going forward. The ability to replace the cooling towers with air cooled chillers could result in a dramatic reduction in overall water usage.

Reporting on Total Purchased Water Reductions from 2010 to Present

Table Instructions:

Table 4.6: Total Purchased Water Reductions Achieved in Gallons*

2010 Baseline totals (Gallons)	2021 Totals (Gallons)	2022 Totals (Gallons)
11,523,000	12,656,200	9,004,900
+ or -Gallons Compared to Baseline Year	1,133,200	-2,518,100
Department- Wide Reduction as a % from 2010 baseline	9.8%	-21.8%

* water reduction numbers +/- are not believed to be valid based on metering problems

Department Indoor Water Use

Fixtures and Water Using Appliances Needs Inventories

Reporting on Building Indoor Water Fixtures and Water Using Appliances Needs

Table Instructions:

Table 4.7: Building Indoor Water Fixtures and Water Using Appliances NeedsInventories Summary

# of toilets to be replaced	# of urinals to be replaced	# of faucet aerators to be replaced	# of showerhe ads to be replaced *	# of clothes washers to be replaced	# of garbage disposals to be replaced.	# of pre- rinse valves to be replaced
Water	Water	Water	Water	Water	Water	Water
Conserva	Conserva	Conserva	Conservat	Conserva	Conservat	Conserva
tions	tions	tions	ions	tions	ions	tions
requirem	requirem	requirem	requireme	requirem	requireme	requirem

ents	ents	ents	nts	ents	nts	ents
achieved						

Planning Narrative for Indoor Building Water Fixtures and Water Using Appliances Needs

Planning Narrative Instructions:

WATER CONSERVATION REQUIREMENTS ACHIEVED

Water Conservation and Water Efficiency Projects for Purchased Water

Reporting on Current Indoor Water Efficiency Projects 2020- Present

Table Instructions:

Table 4.8: Summary of Current Indoor Water Efficiency Projects Completed 2020-Present or In Progress

Completed Projects per Year	Water Saved (Gallons/yr.)	Number of Indoor Water Efficiency Projects Completed	Cost Savings per Year
2020	NO CURRENT PROJECTS		
2021	NO CURRENT PROJECTS		
2022	NO CURRENT PROJECTS		

Planning for Future Indoor Water Efficiency for the Next 5 Years- Building Priority Projects

Planning Outline Instructions:

Planning Outline PO4:a: Building Indoor Water Efficiency Priority Projects for the Next 5 Years

Building Name	Type of Project	Est Water Savings	Est. Start Date
Gold Camp Data	Air Cooled Chiller	6,000,000	2025
Center			

Planning Narrative for Future Indoor Water Efficiency - Building Priority Projects

Planning Narrative Instructions:

Planning Narrative on General Water Management BMP

Monthly Water use is tracked using onsite GSH engineers who conduct meter reads daily. We verify meter reads with usage reports off the Golden state water dashboard. We track all water usage monthly using EnergyStar.

DGS custodial staff and GSH engineers visually inspect all water fixtures daily. Checking for leaks. 24 Faucets and showerheads were replaced with WaterSense aerators and to fulfill LEED Gold certification in 2014. 24 Touchless faucets were installed in 2020.

The irrigation schedule is adjusted for seasonal changes twice yearly. The system is tested monthly to check for leaks and misalignment, and other malfunctions. Repairs are done immediately when needed. Watering is done early in the morning or in the evening when wind and evaporation are lowest. Watering is never done between 10am and 6pm. CDT sprinklers direct water only to landscape areas, avoiding hardscapes such as parking lots, sidewalks, or other paved areas. No irrigation water leaves the site. Most plants are native to the

Planning Narrative on Leak Detection and Repair BMP

DGS custodial staff and GSH engineers visually inspect all water fixtures weekly. Checking for leaks. A leak detection survey is completed monthly. Leak repairs are completed by GSH engineers immediately.

Planning Narrative on Kitchen Water Conservation BMPs, Fixtures

DGS custodial staff and GSH engineers visually inspect all water fixtures daily. Checking for leaks. A leak detection survey is completed monthly. Leak repairs are completed by GSH engineers immediately.

Planning Narrative on Laundry Facilities Water Conservation BMPS

DGS custodial staff and GSH engineers visually inspect all water fixtures daily. Checking for leaks. A leak detection survey is completed monthly. Leak repairs are completed by GSH engineers immediately.

Department Total Nonpurchased Water

Reporting on Total Nonpurchased Water Excluding Water Reuse or Recycling

Table Instructions:

Table 4.9: Department-Wide Nonpurchased Water Use

Year	Groundwater Basin(s) Name	Number of Domestic or Irrigation Wells	Groundwat er Use in Gallons	Surface Water Use in Gallons	Total (Gallons/ Year)
Baseline Year 2020	NON- PURCHASED WATER NOT USED				
2021	NON- PURCHASED WATER NOT USED				
2022	NON- PURCHASED WATER NOT USED				

Reporting Narrative for Nonpurchased Water

<u>Reporting Narrative Instructions:</u> NON-PURCHASED WATER NOT USED

Reporting Narrative for Nonpurchased Water Use Trends

Reporting Narrative Instructions: NON-PURCHASED WATER NOT USED

Planning Narrative for Nonpurchased Water Unavailability.

Planning Narrative Instructions: NON-PURCHASED WATER NOT USED

Department Water Energy Nexus Reporting

Reporting on Annual Amount of Boiler Makeup Water Used

Table Instructions:

Table 4.10: Annual Amount of Boiler Makeup Water Used

Boiler Water Use	Year 2021	Year 2022
Amount of Water Used for	Boilers not used	Boilers not used by Facility
Makeup (Gallons)	by Facility	

Boiler Water Use	Year 2021	Year 2022
Amount of Water Currently		
Reused. (Gallons)		
Remaining additional		
water suitable for other		
purposes (Gallons)		
Totals for all Facilities		

Planning Narrative on Boiler Water Reuse Opportunities

Planning Narrative Instructions: Boilers not used by Facility.

Planning Narrative for Boiler Efficiency

Planning Narrative Instructions: Boilers not used by Facility.

Reporting on Cooling Towers' Water Use

Table Instructions:

Table 4.11: Cooling Tower Water Use

Cooling Tower Water Use	Year 2021	Year 2022
Amount of Water Used for Make-up (Gallons)	8,408,250	6,310,566
Totals for all Facilities		

Planning Narrative on Cooling Tower Water Use.

Planning Narrative Instructions:

CDT plans on replacing and upgrading the meters used in the cooling towers to enable BMS/BAS integration. While this information is currently brought into the system the lack of integration with the water controllers and bleed system limits actionable and dynamic trending and adjustments.

Planning Narrative for Cooling Tower Water Reuse

Planning Narrative Instructions:

The use of cooling tower blowdown has been evaluated for irrigation purposes. This grey water strategy was included in the WaterCAT application submitted in 2022. Although currently on hold due to funding, CDT plans to revisit this strategy at a future date.

Planning for Narrative for Cooling Tower Efficiency

Planning Narrative Instructions:

As described in the water use narrative, CDT continues to improve the efficiency of the data center cooling towers in order to mitigate and reduce the environmental impact of water use. The incoming water quality to the towers is constantly evaluated and every effort is made to run the towers at the maximum number of cycles.

Reporting on Boilers Needs Inventories Summary

Table Instructions:

Table 4.12: Summary of Boilers Needs Inventory

Number of meters to purchase and install	Water Treatment	Other
NO BOILER WATER TREATMENT NEEDS		

Planning Narrative for Boilers Needs

<u>Planning Narrative Instructions:</u> NO BOILER WATER TREATMENT NEEDS

Reporting on Cooling Systems Needs Inventory Summary

Table Instructions:

Table 4.13: Summary of Cooling System Needs Inventory

Equipment Needed	Equipment Totals for all Facilities
Meters	5
Water Treatment	
Other	1

Planning Narrative for Cooling Systems Needs

Planning Narrative Instructions:

CDT plans on replacing the current paddle wheel water meters on each of the three cooling towers with an ultra-sonic meter by 2025. In conjunction with the incoming tower meter, new ultra-sonic meters would be installed to capture total blowdown. The installation of new meters will offer greater accuracy and enhance future reporting capabilities.

Reporting on Efficiency Projects for Boilers and Cooling Systems 2020-Present

Table Instructions:

Table 4.14: Summary of Efficiency Projects for Boilers and Cooling Systems

Project Type	Water Saved (Gallons/yr.)	Number of Completed Projects	Number of Projects in Progress
2020	No current projects		
2021	No current projects		
2022	No current projects		

Planning Narrative for BMPs for Building Boilers and Cooling Systems

Planning Narrative Instructions:

Department Outdoor Water Use:

Reporting on Outdoor Irrigation Hardware Inventory

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.

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. The water budget establishes an efficient standard for the landscape area. The water budget programs use local weather measurements to adjust the irrigation schedule on a weekly, biweekly or monthly basis. A dedicated landscape meter or an irrigation sub-meter is required to track the actual landscape water use. The actual water use is entered the water budget program and the program compares the water use to an efficiency standard. A landscape water use tracking program will help improve irrigation scheduling and will also help detect irrigation system leaks. Landscape water budget management services in California are available by landscape associations and private vendors.

By reading the water meter and entering water use data into the program database, the landscape water manager can monitor water use and make immediate decisions regarding the irrigation schedule to maintain the landscape at or below the water budget. A landscape water audit and needed repairs to the irrigation system are advised at initiation of the Program to obtain optimum results. Costs for the program are the responsibility of the agency.

Water use data from the local water provider or data entered by the landscape manager and landscape water budget calculated specific to each landscape

based on local climate and plant water needs is used for landscape water management. Data from dedicated landscape meters or in the case of facilities with mixed use meters, a landscape sub-meter can provide the necessary data. If a dedicated meter or sub-meter is not available a winter / summer water use comparison can be used to estimate the summer irrigation demand and landscape water budget.

Landscape maintenance staff should attend an EPA WaterSense labeled training program. WaterSense labeled irrigation training programs include the Irrigation Association Certified Irrigation Auditor (CLIA), Certified Irrigation Contractor (CIC), Certified Irrigation Designer (CID), Sonoma Marin Water Saving Partnership Qualified Water Efficient Landscaper (QWEL) and the California Landscape Contractor Association 's Water Management Certification Program (WMCP). All listed EPA WaterSense labeled programs are available throughout California.

Water use baselines and targets do not have to be established separately for large landscapes. The large landscape water use should be included in the facilities baseline and target water use. If the landscape is served by a utility owned dedicated landscape account meter, the volume of water used should be added to the amount recorded by the utility meter serving the building. If the landscape water is sub-metered after it has gone through the mixed-use utility owned meter, it has already been accounted for in the total facility water use measurement.

CDT Contracts with DGS Landscaping, at this time DGS does not have staff that are Water Sense Certified.

Irrigation Hardware Type	Total Hardware Needed
Separate meters or sub-meters	2
Irrigation controllers required with weather or soil moisture adjustment and flow sensing capabilities	4
Backflow prevention devices	
Flow sensors to be purchased and installed	4
Automatic rain shut-off devices	8
New pressure regulators	
New hydro-zones	
New valves	

Table 4.15: Summary of Outdoor Irrigation Hardware Needs Inventory

Irrigation Hardware Type	Total Hardware Needed
Filter assemblies	
Drip irrigation emitters	
Booster pumps	
Rotary nozzles or other high efficiency	
nozzles	

Planning Narrative for Outdoor Irrigation Hardware Needs

Planning Narrative Instructions:

CDT is in the process of transitioning from DGS BPM management of the irrigation system to a department managed model. As such the determination of outdoor hardware needs is a work in progress. Leak detection and the ability to more precisely monitor where water is used for irrigation is the priority. The listed hardware inventory needs are a starting point for budgeting potential expenditures in the next two budgetary years.

Reporting on Outdoor Irrigation Hardware Water Efficiency Projects

Table Instructions:

Table 4.16: Summary of Outdoor Hardware Water Efficiency Projects Completed2020 - Present or In Progress

Year Funded	Water Saved (Gallons/yr.)	Completed Hardware Water Efficiency Projects	Hardware Water Efficiency Projects in Progress
2020	No current projects		
2021	No current projects		
2022	No current projects		

Planning Narrative for Irrigation Hardware Water Efficiency Projects

Planning Narrative Instructions:

DGS Landscaping is the current Landscaping vendor for CDT. DGS Staff Monitor the Landscaping Hardware on a weekly basis. Checking the Valves and replacing any nozzles, couplers and Hoses as needed.

Planning Narrative on Irrigation Hardware Maintenance BMPS

DGS Landscaping is the current Landscaping vendor for CDT. DGS Staff Monitor the Landscaping Hardware on a weekly basis. Checking the Valves and replacing any nozzles, couplers and Hoses as needed. CDT will have a new Landscaping vendor April 2024. With the new vendor in place the following are some projects that we Would like to consider.

Upgrade to water-efficient emitters.

Update the irrigation system with a smart controller.

Install an automatic-rain-shutoff device.

Choose more drought-tolerant plants

Remove the drip system on areas where it is not needed and replace with a thick layer of mulch.

Reporting on Living Landscape Inventory

Table Instructions:

Facilities with Landscape >500 Sq.	Total Turf (sq. ft.)	Number Of Historic Sites Or Memorials MWELO Landscape Area (sq. ft.)	Climate Appropriate Landscape Area (sq. ft.) Groundwater Basin Name	Irrigation Source is Groundwater (Yes or No)	Irrigation source is Surface Water (Yes or No)
NO LIVING LANDSCAPE		0			

Table 4.17: All Facilities With > 500 sq. ft. of Living Landscape Inventory

Reporting Narrative on Living Landscape Inventory

Reporting Narrative Instructions:

Reporting on Living Landscape Upgrades for the Next 5 Years

Planning Outline Instructions:

Planning Outline PO4:b: Planned Projects for Living Landscape Upgrades for the Next 5 Years

Landscape >500Sq. ft.) Facility Name	Replace Turf (Sq. ft.)	MWELO landscape area Upgrade (sq. ff.)	Climate appropriate landscape Upgrade area (sq. ft.)	Date for Achieving Upgrades
NO LIVING LANDSCAPE				

Planning Narrative on Living Landscape Upgrades for the Next 5 Years

Planning Narrative Instructions:

Planning Narrative for Remaining non MWELO Compliant Living Landscape Upgrades

Planning Narrative Instructions:

Reporting on Living Landscape Water Efficiency Projects 2020 – Present

Table Instructions:

Table 4.18: Summary of Completed Living Landscaping Water Efficiency Projects

Year Funded	Est Annual Water Savings (Gallons)	Sum of MWELO Landscape installed (sq. ft.)	Sum of Climate Appropriate Landscape Installed (sq. ft.)
2020	no living Landscape		
2021	NO LIVING LANDSCAPE		
2022	no living LandScape		

Planning Narrative on Living Landscape BMPs

CDT has reduced overall landscaping square footage. All shrubs and bushes

are drought tolerable.

Reporting on Large Living Landscape Inventory (>20,000 sq. ft.)

Table Instructions:

Table 4.19: Large Landscape Inventory and Water Budget Requirements

Name of Facility Sites/Locations with > 20,000 sq. ft. of Landscaping	Landscape Area per Facility	Water Budget per Facility	EPA WaterSense or Irrigation Association Certified Staff per Facility
Rancho Cordova Data Center	56,000		

Reporting on Achieving Large Living Landscape Requirements

Planning Outline Instructions:

Planning Outline PO4:c: Achieving Large Living Landscape Area Requirements

Facility Name	Landscaping sq. ft. to be upgraded to MWELO standards	Water Budget per Facility in Gallons	Ground Water Basin	# of staff Needing EPA WaterSense certification	Date for Achieving

Planning Narrative on Achieving Large Living Landscape Requirements

Planning Narrative Instructions:

Critically Overdrafted Groundwater Basins and Water Shortage Contingency Plans

Reporting on Buildings in Critically Overdrafted Groundwater Basins

Table Instructions:

Table 4.20: Buildings in Designated Critically Overdrafted Groundwater Basins

Building Name	Basin Name	Amount of water Used 2021 (Gallons)	Amount of water Used 2022 (Gallons
No Facilities			

Reporting on Buildings with Urban Water Shortage Contingency Plans

Table Instructions:

Table 4.21: Buildings with Urban Water Shortage Contingency Plans

Building Name	Name of Water Supplier with Urban Water Shortage Contingency Plans	Year of Publication or Update
Rancho Cordova Data Center	Golden State Water	2021

Planning Narrative for Urban Water Shortage Contingency Plans

<u>Planning Narrative Instructions:</u> The Rancho Cordova Data Center is in the Golden State Arden Cordova Customer Service Area (CSA). Water supply includes groundwater pumped from the Sacramento Valley Groundwater Basin through Golden State Water's wells, and surface water from the American River that is treated at the Coloma Water Treatment Plant.

The water contingency plan for the data center CSA includes 5 stages which involve limits on outdoor irrigation days, a 20% mandatory reduction in water usage, and emergency surcharges for CCF usage over the baseline allocation. The Gold Camp data center is a critical facility and water is required to cool excess heat generated through data processing. Given the critical nature of the water use the ability to reduce water usage during an emergency is limited to outdoor irrigation reductions and more limited modifications to cooling tower cycles in order to reduce blowdown losses.

Reporting Narrative for Department's Contingency Plan

Reporting Narrative Instructions: CDT is aware of the water contingency plan for the area and immediately enacts irrigation reductions when notified of a change in water conservation & rationing stage designation. Reductions in process water use for the data center are more difficult to achieve and a viable plan for moving statewide operations to another location in response to a water shortage may not be feasible in the shorter term. Water conservation projects planned for the future such as the switch to air cooled chillers combined with continued reductions in process water usage, by the migration to the cloud, will provide longer term solutions to responding to prolonged water shortages for the CSA.

Greenhouse Gas Emissions

Table Instructions:

Table 5.1: GHG	Emissions	since	2010	(Metric	Tons)
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Emissions Source	Natural gas	Vehicles	Purchased Electricity	Total
2010 Baseline	86	0	8,310	8,396
2011	248	1,912	7,249	9,409
2012	194	1,837	6,831	8,862
2013	92		6,631	6,723
2014	59		6,213	6,272
2015	87	0	6,416	6,502
2016	125	0	5,439	5,564
2017	74	0	4,708	4,782
2018	54	0	3,579	3,633
2019	102	0	3,761	3,863
2020	69	0	2,815	2,884
2021	112	0	2,745	2,857
2022	123	0	3,661*	3,784*
Percent Change since Baseline	43%	0%	-56%	-55%

*The total GHG had a noticeable increased from 2021 to 2022, this is due to the emission factor change within the Climate Registry Information System (CRIS).

• Included Cannery

Graph Instructions:

Graph 5.1: GHG Emissions since 2010



Energy Efficiency

The department met the GHG reduction goal primarily through the consolidation of two older, inefficient data centers into two energy efficient data centers (Rancho Cordova and Vacaville). Combined with the completion of energy efficient projects, described in previous Sustainability Reports, the department was able to significantly reduce the amount of GHG produced. CDT has identified several energy efficiency projects on their 15 year plan, such as replacing the cooling towers and rooftop air handlers, further reducing GHG emissions.

On-Site Renewable Energy

CDT completed a solar PPA project that generates a maximum of 1 megawatt (MW) of electricity and 10.0% of its total electrical demand annually. The reduction in grid based power purchases resulted in a continued reduction of GHG emissions beginning in 2018.

Planning Narrative Instructions:

Carbon Inventory Worksheet

Planning Narrative for Carbon Inventory Worksheet

Planning Narrative Instructions:

Building Design and Construction

New Building LEED Certification

• CDT has not constructed or moved into any new state buildings, occupied a build to suite leases and completed a major renovation of an existing state building since July 1 2012

LEED for Existing Buildings Operations and Maintenance

Table Instructions:

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. that have achieved LEED EBOM
1	1	100

Table 5.2: Large Building LEED Certification for Existing Buildings

Planning Narrative for Table 5.3 Large Building LEED Certification

The Department achieved LEED Platinum- EBOM certification for its only Department owned 154,250 Rancho Cordova facility in February 2019. The facility was awarded LEED-Platinum status for achieving a total of 65 points. CDT contracted with an energy consulting firm, Envision Realty Services, to carry out processes and procedures to achieve LEED Platinum. Using a combination of onsite contracted engineers and state staff, CDT accumulated the necessary documentation to put the LEED program in motion and follow through with achieving Platinum accreditation.

In 2019, the Rancho Cordova campus achieved an Energy Star rating of 99 out of a maximum 100 points. Although not unprecedented, obtaining an energy star score on a facility with a high percentage of process energy dedicated to data processing introduced a unique set of challenges; however, state and contracted staff were able to overcome the challenges through effective teamwork and communication. Various loads were tested in the building including the IT equipment, lighting, and HVAC system. Through the energy audit and a HVAC analysis, various energy conservation measures were identified, such as demand control ventilation, heating lockout, supply air resets for the air handling unit, chiller sequencing, and water savings in the restrooms. Energy conservation measures for the building were simulated to analyze the overall effect on both energy usage and comfort condition. In the office space, indoor air quality performance testing was also performed and CO2 monitoring was added for increased savings and employee comfort. In 2019 the CDT Rancho Cordova data center applied and earned an LEED EB Platinum certification. In addition, the Rancho Cordova data center achieved an Energy Star rating of 99 out of 100.

Planning Narrative Instructions:

Indoor Environmental Quality (IEQ)

Daylighting in New Construction

Reporting Narrative Instructions:

Planning Narrative for CALGreen Tier 1 Indoor Environmental Quality Measures

Planning Narrative Instructions:

Planning Narrative for IEQ-New Buildings and Renovation Measures

Planning Narrative Instructions:

Planning Narrative for Compliance with Furnishing Standards

CDT is compliant and remains proactive in ensuring all furniture and seating purchased complies with all mandated specifications and requirements. CDT's Facilities and Procurement units purchase seating furniture from CALPIA and routinely reference the DGS Purchasing Standard when procuring new furniture. CDT actively participates in environmentally preferred purchasing.

Planning Narrative on Using Green Seal Cleaning Products

DGS purchases cleaning supplies for CDT, DGS will follow EPP in the purchase of all supplies, tools, and equipment to minimize environmental impact. This includes purchase of Green Seal (GS) certified chemicals, recycled content paper products, and Cleaning and Rug Institute (CRI) certified machines and equipment. Minimum requirements for products and supplies will be:

Powered Equipment

Vacuum cleaners will meet no less than minimum CRI Green Label Program requirements and operate at a sound level less than 70dBA.

Carpet extraction equipment will meet no less than a minimum CRI Bronze Seal of Approval and operate at a sound level less than 70dBA.

Powered floor maintenance equipment will be equipped with controls or other devices to capture or collect particulates and operate at a sound level less than 70dBA.

Powered scrubbing machines will be equipped with a control method for variable rate dispensing to optimize the use of cleaning chemicals and operate at a sound level less than 70dBA.

Quarterly maintenance plan for inspection and maintenance of custodial equipment, and written maintenance records.

Cleaning Products and Supplies2

Cleaners: general purpose, floor, restroom, glass, and carpet cleaners will meet no less than GS-37.

Floor finishes and strippers: no less than GS-40

Hand soap: no less than GS-41.

Toilet tissue: no less than GS-1.

Paper towels: no less than GS-9.

Plastic trash can liners: will contain no less than 10% post-cons

Planning Narrative for Cleaning Procedures – Various Standards

DGS custodial staff comply and adhere to the following building cleaning standards:

- All vacuum cleaners used in department facilities achieve the Carpet and Rug Institute Seal of Approval. Facility staff review all requests for new vacuum cleaners from janitorial staff and verifies that they are certified.
 Printed copies of the appropriate sections of CA Code of Regulations have been placed in the janitor's closets for reference to TITLE 8 cleaning procedures.
- Entryways are maintained as specified in the CalGreen Section A5.504.5.1
- Green Seal GS-42 cleaning procedure standard
- Carpet and Rug Institute's Carpet Maintenance Guidelines for Commercial Applications
- Title 8 Section 3362 cleaning procedures

CDT/DGS Janitorial will follow OSHA safety standards (1919.1030), and training for cleaning of hazardous materials and/or blood borne pathogens. This includes:

 \cdot Use of safety cones or other barriers to ensure that building occupants do not come in contact with biological spills.

 \cdot Use of proper personal protective equipment (PPE), including at minimum gloves and goggles.

• Disinfection of areas with appropriate chemical solution(s) following OSHA's Bloodborne Pathogen Standard.

• Proper disposal of all contaminated materials in a biohazard bag.

Planning Narrative for HVAC Operations

Rancho Cordova Data Center's onsite building engineers ensure that the HVAC systems exceed the required minimum outdoor air requirements. The building engineers are in compliance relating to annual HVAC inspections and are documented in writing. The inspection includes:

- Verification of minimum outdoor airflows using Building Management System (BMS) 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 at the cooling towers.
- Checking the first 20 feet of ductwork downstream of cooling coils for microbial growth, take action if growth is found.
 - Rancho Cordova's HVAC system is a closed loop system and a closed loop VAV system does not require downstream microbial testing. Therefore this item is N/A.
- 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.
- Building engineers utilize a vendor supplied preventative maintenance system. Rancho Cordova Data Center meets the minimum ventilation rate required in Section 120.1(c) 2 of Title 24 for 1 hour before occupancy.

Planning Narrative for HVAC Inspection Requirements

Planning Narrative Instructions: Inspection Requirements Achieved

Integrated Pest Management (IPM)

Reporting on IPM plans

Table 5.3: Integrated Pest Management Contracts

Pest Control Contractor Name	IPM Specified (Y/N)	Contract Renewal Date
Neighborly Pest Control	Y	9/2025

Planning Narrative for Pest Control Contracts

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, <u>Tier 3 pesticides</u> may be used, progressing to Tier 2 and then Tier 1 if necessary.

CDT uses an internal intranet web page to communicate with staff when the pest management vendor is scheduled to spray any chemicals that may affect staff. Staff are highly encouraged to eat in the designated breakrooms to avoid pest infestations in the office space areas. Staff are aware to contact the Facilities Unit in the event they encounter or have any issues with pests. The current Vendor Follows CDT's IPM Program. Vendor is to use or supply environmentally sustainable products, as applicable. This includes any non-chemical control methods and any "least-toxic" pesticide formulations. The contractor shall only use these products and/or methods with the approval of the California Department of Technology contract manager or designee.

Fossil Fuel Landscaping Equipment Replacement with Low Emitting Landscaping Equipment

Planning Narrative for Replacing Fossil Fuel Landscaping Equipment

CDT currently uses DGS Landscaping for our Landscaping service. In 2024 CDT will be moving to a private vendor for Landscaping services. Written in the new Landscaping Contract we are asking the new vendor to use Electric and Battery powered equipment when possible.

Waste and Recycling Programs

Designated Waste and Recycle Coordinator and Program Basics

Reporting Narrative on Designated Waste and Recycle Coordinator and Program Basics

<u>Reporting Narrative Instructions:</u> The department has adequate receptacles for recycled materials as well as signage. We have no need for additional outreach and training and we are constantly checking in on the facilities to review and determine the adequacy of receptables for recyclable material and associated signage, education, and staffing. The recycle coordinator, who acts in an associate governmental program analyst capacity, is responsible for conducting the review.

Planning Narrative on Designated Waste and Recycle Coordinator and Program Basics

<u>Planning Narrative Instructions:</u> DESIGNATED WASTE AND RECYCLE COORDINATOR AND PROGRAM BASICS ACHIEVED

SARC Report

Table Instructions:

Table 5.4: State Agency Reporting Center (SARC) Report on Total Waste per Capita

Per Capita Disposal Rate	2021	2022	Total Waste 2021	Total Waste 2022	% Change from 2020- 2021
0.6	.29	.36	48.89 tons	63.04 tons	28.9%

Reporting Narrative on SARC Report on Total Waste per Capita

<u>Reporting Narrative Instructions:</u> 0.6 is the target per capita for CDT. In 2021, we reported .29 per capita and in 2022 we reported .36 per capita which makes for a 28.9% difference. The department is staying well below their target and that is largely due to our ongoing efforts to create awareness around the subject of recycling and waste reduction.

Planning Narrative on SARC Report on Total Waste per Capita

Planning Narrative Instructions: PER CAPITA DISPOSAL RATE ACHIEVED 2022 Annual Report

Recycling Program and Practices

Reporting Narrative on Recycling Program and Practices

<u>Reporting Narrative Instructions:</u> CDT is able to recycle the materials it generates due to our vendor contract with the waste and recycling haulers.

Planning Narrative on Recycling Program and Practices

Planning Narrative Instructions: RECYCLING PRACTICES ACHIEVED

Organics Recycling

Reporting Narrative on Organic Recycling Program and Practices

Reporting Narrative Instructions: CDT contracts with DGS Landscaping to capture the majority of landscape materials for compost. All campuses (leased and owned) have undergone extensive landscaping renovations to reduce the quantity of organic waste and save water. The department uses mulch and native plants, while also adopting water-efficient irrigation. Additionally, we encourage grasscycling practices and incorporate green infrastructure elements to contribute to waste reduction. The department has instituted a waste recycling program that facilitates the systematic segregation of waste into distinct categories, encompassing general waste, recyclables, and organic materials.

Employees working in different buildings has created communication difficulties and made managing recycling programs more challenging. Most buildings are under different property management, which has proven to be difficult. This is especially true in buildings that do not produce much waste. In our leased buildings, janitorial/waste/recycling services are provided. As such, they are responsible for hauling organic waste, as well.

Planning Narrative on Organic Recycling Program and Practices

Planning Narrative Instructions: ORGANIC RECYCLING REQUIREMENTS ACHIEVED

Reporting on Edible Food Recovery Program

Table Instructions:

Table 5.5: Edible Food Recovery Program Elements

Building Name	Cafeteria <u>≻</u> <u>5,000</u> Square Feet (Enter sq. ft.)	Cafeteria +250 Seats (Enter actual number of seats)	Was Cafeteria Open in 2022?	Food Recovery Agreement Yes, No or Unknown
NO EDIBLE FOOD RECOVERY PROGRAM				
REQUIRED				

Reporting Narrative on Edible Food Recovery Program

<u>Reporting Narrative Instructions:</u> NO EDIBLE FOOD RECOVERY PROGRAM REQUIRED

Planning Narrative on Edible Food Recovery Program

<u>Planning Narrative Instructions:</u> NO EDIBLE FOOD RECOVERY PROGRAM REQUIRED

Reporting on Food Service Items Program

Table Instructions:

Table 5.6: Food Service Concessionaire Items Program Elements

Building Name	Prepared Food Service Operations Type	Food Service Packaging Meets Requirements	Process in Place for selecting Food Services that meet Packaging Requirements
NO FOOD SERVICES			

Planning Narrative on Food Service Items Program

Planning Narrative Instructions: NO FOOD SERVICES

Hazardous Waste Materials

Reporting on Hazardous Waste Materials

Table Instructions:

 Table 5.7: Hazardous Waste Materials

Department - Wide	
Hazardous Material Name	
NO HAZARDOUS WASTE MATERIALS PROD	UCED

Reporting Narrative for Hazardous Waste Materials

Reporting Narrative Instructions: NO HAZARDOUS WASTE

Planning Narrative for Hazardous Waste Materials

Planning Narrative Instructions: NO HAZARDOUS WASTE

Universal Waste

Reporting on Department-Wide Universal Waste Materials

Table Instructions:

Table 5.8: Reporting on Department- Wide Universal Waste Materials

Category	Universal Waste Contract in Place YES or NO
Electronic Waste	YES
Batteries	YES
CRTS	YES
CRT glass	YES
Lamps	N/A
Mercury Wastes	N/A
Non-empty aerosol cans	YES
PV modules	YES

Planning Narrative for Department-Wide Universal Waste Materials

<u>Planning Narrative Instructions:</u> DEPARTMENT WIDE UNIVERSAL WASTE MATERIALS DISPOSAL ACHIEVED

Material Exchange

Reporting Narrative on Department-Wide Material Exchange

<u>Reporting Narrative Instructions:</u> The Department of Technology currently has an office supply exchange and re-inventory program for employees to drop off/pick up needed office supplies prior to purchasing new ones.

Planning Narrative on Department-Wide Material Exchange
Waste Prevention Program

Reporting Narrative on Department-Wide Waste Prevention

<u>Reporting Narrative Instructions:</u> CDT promotes the use of online forms and cloud storage to reduce paper usage. In addition, bulletin boards are placed throughout the office to minimize paper distributed, along with the use of a Department Intranet and emails. Electric hand dryers are installed in the bathrooms to cut down on paper towel usage.

For printing services, CDT uses recycled toner cartridges. There is an established bizhub program that promotes black and white printing along with double-sided copies. In addition, the printers are installed with badge scanning software to prevent waste. Lastly, Xeriscaping is employed at the CDT campuses to reduce organics waste. All landscape haulers bring landscape materials to approved grass recycling facilities.

Planning Narrative on Department-Wide Waste Prevention

Planning Narrative Instructions:

Reuse Program

Reporting Narrative for Department-Wide Material Reuse

<u>Reporting Narrative Instructions:</u> All packing materials, pallets and boxes are reused whenever possible. CDT also stores and reuses office furniture and remodeling materials in its Croydon Warehouse for future use. Other department programs include Business Source Reduction, and buying recycled products as a purchasing source when applicable.

Additionally, the use of GovDeals allows us to offer surplus items to the public for reuse. Such items include inventory like desks, computer monitors, wood shelves, storage cabinets, mailing machines, desk phones, printers, binders, white boards, chairs and more.

Planning Narrative for Department-Wide Material Reuse

Planning Narrative Instructions:

Employee Waste and Recycling Training and Education

Reporting Narrative for Employee Waste and Recycle Training and Education

Reporting Narrative Instructions: Recycling and organics receptacles are located near each trash area and in every break room. Additional recycling bins have been placed near high traffic areas including busy conference rooms. Signage highlighting the Department's recycling program are placed on or near each bin location to remind individuals what can be recycled or thrown away. The recycling program information is assessed annually to see what needs to be changed.

Regular informational emails are released to ensure employee education as well as updated flyers placed near all trash and recycling areas. The intranet has a sustainability page where employees can refer to the program. This is at all facilities and is consistent throughout the agency.

There is a dedicated Recycling and Green Programs Coordinator for the Department. This is a function of a part-time employee. Also, the custodial staff at each location is aware of our recycling policies and adheres to them.

Planning Narrative for Employee Waste and Recycle Training and Education

Planning Narrative Instructions: TRAINING AND EDUCATION ACHIEVED

Environmentally Preferred Purchasing (EPP)

Reporting Narrative for Measure and Report Progress on EPP Spend

<u>Reporting Narrative Instructions:</u> Our department is committed to reducing the environmental impact of our goods and services we purchase.

CDT realizes the value and importance of exercising the purchase power of the State in energy efficient products in order to conserve electrical power and lower energy costs to State agencies. CDT is committed to purchasing products that meet the Federal Energy Management Program (FEMP) recommended standards. Products that meet FEMP recommended standards display the Energy Star Label. In addition, CDT utilizes recycled content products and considers recycled products when conducting its purchasing activities.

CDT purchase analysts rely on the program area submitting the purchase request to identify the necessary specifications on all IT and Non-IT goods purchases. In addition, CDT purchase analysts refer to the DGS Statewide Commodity contracts list to identify mandatory purchase contracts in existence that may offer EPP or SABRC compliant products. CDT Procurement incorporates as many recommended improvement practices as directed by the DGS EPP program or requested by CDT Facilities. CDT Procurement has made commitments in purchasing only printing and copy paper, desk notepads, and a majority of other office paper supplies with a minimum post-consumer recycled content (PCRC) of 30%. This is through the statewide contract. CDT has purchased 100% PCRC in the past and unfortunately this caused issues with our printers.

Planning Narrative for Measure and Report Progress on EPP Spend

Planning Narrative Instructions: EPP SPEND ACHIEVED

Goods and Services Categories with the Greatest Potential to Green:

Reporting on Goods and Services Categories with the Greatest Potential to Green

Table Instructions:

Table 5.9: Goods and Services Categories with the Greatest Potential to Green

Good or Service	2022 Total Spend (\$)	2022 Percent EPP Spend (%)	EPP Target (%)
ALL GOODS AND SERVICES CATEGORIES MEET EPP, NO FURTHER POTENTIAL TO GREEN	\$155,720,950.97	\$497,879.62 (0.32%)	

EPP BMPs

Reporting Narrative for EPP BMPS

Reporting Narrative Instructions:

Planning Narrative for EPP BMPs

Planning Narrative Instructions:

Reporting on EPP Training and Outreach

Table Instructions:

 Table 5.10: 2022 EPP Basic Training Completions

CalHR Classification	Total Number of Staff	EPP Basic Training Completion	Percent Trained	2023 EPP Training Goal
IT MGR II	1	1	100	AS NEEDED
IT MGR I	2	0	NO BUYERS HAVE COMPLETED TRAINING	50
IT Supv II	4	1	25	75
IT Spec I	15	2	13	50
IT Assoc	7	3	43	75
SSM I	1	0	NO BUYERS HAVE COMPLETED TRAINING	100
AGPA	2	0	NO BUYERS HAVE COMPLETED TRAINING	100
SSA	1	0	NO BUYERS HAVE COMPLETED TRAINING	100
OT	1	0	NO BUYERS HAVE COMPLETED TRAINING	100

Table Instructions:

Table 5.11: 2022 EPP Intermediate Training Completions at [Agency Name]

Classification	Total number of staff	EPP Intermediate Training Completions	Percent Trained	2023 EPP Training Goal (%)

Table Instructions:

Table 5.12: 2022 EPP Executive Training Completions for Executive Members at [Agency Name]

Executive Member	Title	Date Completed

Reporting Narrative on EPP Training and Education

Reporting Narrative Instructions:

Planning Narrative on EPP Training and Education

Planning Narrative Instructions:

Reporting on State Agency Buy Recycled Campaign (SABRC), and Reducing Impacts

Reporting on SABRC Progress

Table Instructions:

Table 5.13: State Agency Buy Recycled Campaign (SABRC) FY 21/22Performance

Product Category	SABRC Reportable Dollars	SABRC Compliant Dollars	% SABRC Compliant
Antifreeze			
Carpet			
Compost and Mulch			
Glass Products			
Erosion Control			
Products:			
Lubricating Oils			
Paint			
Paper Products			
Pavement Surfacing			

Product Category	SABRC Reportable Dollars	SABRC Compliant Dollars	% SABRC Compliant
Plastic Products			
Printing and Writing Paper	11113.38	11113.38	100%
Metal Products	15660.00	15660.00	100%
Soil Amendments and Soil Toppings			
Textiles			
Tire Derived Products			
Tires			

Planning Narrative for Measure and Report SABRC Progress

Planning Narrative Instructions:

Reducing Impacts

Reporting Narrative for Reducing Impacts

Reporting Narrative Instructions:

Location Efficiency

Smart Location Score for New Leases after January 1, 2020

Table Instructions:

Table 5.14: Smart Location Score for New Leases after January 1, 2020

Facility name	Smart Location Calculator Score
NO NEW LEASES	
% change from Baseline	

Planning Narrative Instructions for Smart Location Score after January 1, 2020

Planning Narrative Instructions: NO NEW LEASES

Current (non-expired) Leases Prior to 2020 - Lowest Smart Location Score

Table Instructions:

Table 5.15: Current (non-expired) Leases Prior to 2020 - Lowest Smart Location Score

Facility name	Smart Location Calculator Score
10173 Croydon Way Sacramento, CA 95827	36
10860 Gold Center Dr, Rancho Cordova, CA, 95670	9
10911 White Rock Rd, Rancho Cordova, CA, 95670, USA	9

CHAPTER 6 - FUNDING OPPORTUNITIES

Funding Opportunity Climate Change Adaptation

Table Instructions:

Table 6.1: Climate Change Priority Projects

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
No Priorities		Choose an item.		
		Choose an item.		
		Choose an item.		
		Choose an item.		
		Choose an item.		

Funding Opportunities for ZEVs and EV Infrastructure

Table Instructions:

Table 6.2: EV Priority Projects

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
No priorities		Choose an item.		
		Choose an item.		
		Choose an item.		
		Choose an item.		
		Choose an item.		

Funding Opportunities for Building Energy Conservation and Efficiency

Table Instructions:

Table 6.3: Building Energy Conservation and Efficiency Priority Projects

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
Rancho Cordova Data Center	Energy Storage/micro - grid	ESCO Funding	2025	

Choose an item.
Choose an item.

Funding Opportunities for Water Conservation and Efficiency

Table Instructions:

Table 6.4: Water Conservation and Efficiency Priority Projects

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
Rancho Cordova Data Center	Air Cooled Chiller	Grant Funding	2025	
Rancho Cordova Data Center	Grey Water capture	Grant Funding	2025	
		Choose an item.		
		Choose an item.		
		Choose an item.		
		Choose an item.		

Funding Opportunities for Sustainable Operations

Table Instructions:

Table 6.5: Sustainable Operations Priorities

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
No Priorities	Choose an item.	Choose an item.		

Need Special Equipment	Choose an item.
Need Staff Training	Choose an item.
Need Signage	Choose an item.
Need Department Wide Outreach	Choose an item.

Full Life Cycle Cost Accounting

Reporting on Life Cycle Cost Accounting

<u>Reporting Narrative Instructions:</u> Department uses full LCCA planning for current facility equipment replacement, maintenance and operations, and future facility design and operation. The current facility has been designed and has operational procedures in place to be able to adapt to climate change while continuing to meet its required mission critical role.

Planning for Implementing Life Cycle Cost Accounting

Planning Narrative Instructions:

APPENDIX A – SUSTAINABILITY LEADERSHIP



APPENDIX B – ACRONYMS

AB	Assembly Bill
ADR	Automated Demand Response
АМВ	Asset Management Branch (at DGS)
BMP	Best management practices
СА	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

Customize to include organizations and acronyms within your specific department

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
VHSP(s)	Vehicle home storage permits
WUCOLS	Water Use Classifications of Landscape Species
ZEV	Zero-emission vehicle
ZNE	Zero net energy

APPENDIX C - 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, boilers** 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.
- **Blowdown, cooling towers** Is the water discharged to remove high mineral content system water, impurities, and sediment.
- **Building Best Management Practices (BMPs)** are ongoing actions that establish and maintain building water use efficiency. BMPs can be continuously updated based on need and tailored to fit the facility depending on occupancy and specific operations.
- **Compost** Compost is the product resulting from the controlled biological decomposition of organic material from a feedstock into a stable, humuslike 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).
- **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.

- **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
- 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.

- **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.
- Lifecycle cost accounting includes initial investment costs, as well as lifetime operation and maintenance costs under changing climate conditions, including changing average conditions and increases in extreme events. It may involve applying non-market evaluation methods such as travel cost, avoided costs or contingent valuation to capture hard to quantify benefits and costs
- **Make Up Water -** Makeup water, or the water replacing evaporated or leaked water from the boiler, is first drawn from its source, whether raw water, city water, city-treated effluent, in-plant wastewater recycle (cooling tower blowdown recycle), well water, or any other surface water source.
- 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. 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.

- 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)).
- Nonpurchased Water is water that a department uses that does not come from a 3rd party supplier. It may be water from domestic wells owned by the department or water that is taken from a river, lake, canal, or other source and used by the department. The water may be returned to source after use.
- 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.
- 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.

- 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.
- **WUCOLS -** Water Use Classification of Landscape Species. WUCOLS are used to help determine water budgets and irrigation schedules. Use this link to access the necessary information for your landscaping needs. <u>WUCOLS</u> <u>Plant Search Database (ucdavis.edu)</u>

APPENDIX D – 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

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Ian Noumov, Information Technology Specialist I, Building Engineering

Understanding Climate Risk at Planned Facilities

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Ian Noumov, Information Technology Specialist I, Building Engineering

Integrating Climate Change into Department Planning and Funding Programs

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Ian Noumov, Information Technology Specialist I, Building Engineering

Measuring and Tracking Progress

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Ian Noumov, Information Technology Specialist I, Building Engineering

Zero Emission Vehicles

Incorporating ZEVs Into the Department Fleet

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Sabrina Donelli, Staff Service Manager II, Facility and Administrative Services

Shon Gates, Business Services Officer II, Facility Services

Telematics

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Sabrina Donelli, Staff Service Manager II, Facility and Administrative Services

Sara List, Associate Governmental Program Analyst, Program Services

Public Safety Exemption

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Sabrina Donelli, Staff Service Manager II, Facility and Administrative Services

Sara List, Associate Governmental Program Analyst, Program Services

Outside Funding Sources for ZEV Infrastructure

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Sabrina Donelli, Staff Service Manager II, Facility and Administrative Services

Shon Gates, Business Services Officer II, Facility Services

Hydrogen Fueling Infrastructure

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services Ian Noumov, Information Technology Specialist I, Building Engineering

Comprehensive Facility Site and Infrastructure Assessments

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services Ian Noumov, Information Technology Specialist I, Building Engineering

EVSE Construction Plan

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services Ian Noumov, Information Technology Specialist I, Building Engineering EVSE Operation

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services

Sabrina Donelli, Staff Service Manager II, Facility and Administrative Services

Shon Gates, Business Services Officer II, Facility Services

Energy

Zero Net Energy (ZNE)

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services Ian Noumov, Information Technology Specialist I, Building Engineering

New Construction Exceeds Title 24 by 15%

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services Ian Noumov, Information Technology Specialist I, Building Engineering

Reduce Grid-Based Energy Purchased by 20% by 2018

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services Ian Noumov, Information Technology Specialist I, Building Engineering

Server Room Energy Use

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services Ian Noumov, Information Technology Specialist I, Building Engineering

Demand Response

Miles Burnett, Chief Administrative Officer,

Tracy Player, Staff Services Manager III, Facility and Administrative Services Ian Noumov, Information Technology Specialist I, Building Engineering Renewable Energy

Miles Burnett, Chief Administrative Officer,

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Living Landscaping Water Efficiency Projects In Progress

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Buildings with Urban Water Shortage Contingency Plans In Progress

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APPENDIX E – SUSTAINABILITY STATUTORY REQUIREMENTS. EXECUTIVE ORDERS AND MANAGEMENT MEMOS 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 executivelevel 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 lifecycle 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.

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:

- **<u>SAM Chapter 1800</u>**: Energy and Sustainability
- MM14-02: Water Efficiency and Conservation
- <u>MM 14-05</u>: Indoor Environmental Quality: New, Renovated, And Existing Buildings
- MM 14-09: Energy Efficiency in Data Centers and Server Rooms
- <u>MM 15-03</u>: Minimum Fuel Economy Standards Policy
- <u>MM 15-04</u>: Energy Use Reduction for New, Existing, and Leased Buildings
- <u>MM 15-06</u>: State Buildings and Grounds Maintenance and Operation
- <u>MM 15-07</u>: Diesel, Biodiesel, and Renewable Hydrocarbon Diesel Bulk Fuel Purchases
- <u>MM 16-07</u>: Zero-Emission Vehicle Purchasing and EVSE Infrastructure Requirements

Recent 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)
- <u>Senate Bill (SB) 246 (Wieckowski, 2015)</u>: 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)
- <u>AB 2800 (Quirk, 2016)</u>: 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)

Other Legislative Actions

- Assembly Bill (AB) 4: Passed in 1989. The State Agency Buy Recycled Campaign (SABRC) statutes are in Public Contract Code Section <u>12153</u>-<u>12217</u>. 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.
- <u>AB 32 Scoping Plan:</u> 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.
- <u>AB 2583 (Blumenfield 2012)</u> **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.

- <u>AB 75</u> Implement an integrated waste management program and achieve 50 percent disposal reduction target. State Agencies report annually on waste management program
- <u>SB 1106</u> Have at least one designated waste management coordinator. Report annually on how your designated waste and recycling coordinator meets the requirement.
- <u>AB 2812</u> Provide adequate receptacles, signage, education, staffing, and arrange for recycling services. Report annually on how each of these is being implemented
- <u>AB 341</u> Implement mandatory commercial recycling program (if meet threshold). Report annually on recycling program
- <u>AB 1826</u> Implement mandatory commercial organics recycling program (if meet threshold). Report annually on organics recycling program
- <u>SB 1383</u> 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.
- <u>SB 1335</u> 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:

- <u>Safeguarding California</u>: The state's climate adaptation strategy organized by sector. Each sector identifies risks from climate change and actions to reduce those risks.
- <u>Safeguarding California Implementation Action Plans</u>: 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.
- <u>Planning and Investing for a Resilient California</u>: 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.
- <u>California's Climate Change Assessments</u>: 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 <u>Cal-Adapt</u>, an online data visualization and access tool.
- <u>Water Use Reduction Guidelines and Criteria</u>: 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.
- <u>Strategic Growth Council (SGC) Resolution on Location Efficiency</u>: 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.

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