

Sustainability Roadmap 2018-2019: Climate Change Adaptation

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

Employment Development Department
Edmund G. Brown Jr., Governor



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Employment Development Department Sustainability Road Map 2018-2019: Climate Change Adaptation

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Acronyms

AJCC	America's Job Center of California
AB	Assembly Bill
DGS	Department of General Services
DI	Disability Insurance
DAC	Disadvantaged Communities
EV	Electric Vehicle
EDD	Employment Development Department
EO	Executive Order
EHD	Extreme Heat Day
EHT	Extreme Heat Threshold
GovOps	Government Operations Agency
GHG	Greenhouse Gas
LEED	Leadership in Energy and Environmental Design
OPC	Ocean Protection Council
PG&E	Pacific Gas and Electric
SB	Senate Bill
UI	Unemployment Insurance
UHII	Urban Heat Island Index
WIOA	Workforce Innovation and Opportunity Act
WS	Workforce Services

EXECUTIVE SUMMARY

Overview

The Employment Development Department (EDD) recognizes the importance of Governor Edmund G. Brown, Jr.'s Executive Orders (EO) B-18-12, B-16-12, B-29-15, and B-30-15, including the importance of sustainable government operations, the efficient use of natural resources, and the need to incorporate climate change adaptation strategies into facility and infrastructure planning.

With guidance from the Government Operations (GovOps) Agency and the Department of General Services (DGS), Office of Sustainability, EDD has prepared the following Climate Change Adaptation Roadmap to estimate the potential future impact of various climate change scenarios on EDD's operations and the communities EDD serves. The information contained herein will be used as a baseline to develop mitigation plans and strategies to address the impact of climate change at EDD facilities in the coming decades.

As of December 31, 2016, EDD's real estate portfolio consists of 26 EDD-owned properties, including 2 parking lots, 16 DGS-owned properties, and 129 properties leased or subleased from private ownership. Of EDD's 23 owned buildings, 19 were built before 1970, which presents unique challenges for maintenance and improvements.

For consideration in this Roadmap, EDD has included only the 26 EDD-owned properties and 30 additional leased or subleased properties identified as essential to the continuity of EDD's operations. This will ensure that EDD can provide a meaningful analysis of available climate data and develop adaptation strategies that will have the most significant impact on EDD and the communities it serves.

Department Functions

The EDD is one of the largest state departments, which administers Workforce Services (WS), Unemployment Insurance (UI), Disability Insurance (DI), employment tax collection programs, and related administration, technology, policy, accountability, and compliance activities to citizens and employers throughout California. EDD continuously strives to align system operations, practices, and resources with programmatic priorities and budgetary parameters.

The Department's WS program is subject to the federal Workforce Innovation and Opportunity Act (WIOA), which strengthens the ability of the WS program to align investments in workforce, education, and economic development with regional in-demand jobs. It also focuses on the importance of providing customers with access to high-quality employment centers that connect them with a full range of services available in their communities. Every local area, as outlined in WIOA, must have at least one comprehensive America's Job Center of California (AJCC), which provides customers access to all appropriate job services in a single location.

Challenges

The majority of EDD's real estate portfolio is office space leased from private ownership. Although some lessors may be willing to consider changes to their facilities, many are not willing to invest the capital necessary to make large scale improvements. Furthermore, WIOA guidelines require that AJCC locations are driven by EDD's partner agencies. EDD maintains sublease agreements at these locations, which limits EDD's ability to negotiate energy efficiency and other improvements directly with lessors. However, green building operations and energy efficiency are recommended as part of standard state lease terms.

EDD's owned buildings present unique challenges to climate change adaptation. Many have extensive deferred maintenance requirements which must be prioritized before significant progress can be made toward sustainability and climate change mitigation improvements. EDD strives to identify opportunities to incorporate sustainability and conservation in conjunction with maintenance projects wherever possible.

Accomplishments and Efforts Underway

The San Francisco EDD-owned facility was certified Leadership in Energy and Environmental Design (LEED) Existing Building: Operation and Maintenance (EBOM) Gold in 2017, which brings EDD's largest owned facility in compliance with the requirements of EO B-18-12 and the Green Building Action Plan. Additionally, the building exceeds the EnergyStar requirements, with a score of 85. These certifications were made possible by many of the sustainable business and procurement practices implemented in Departmental business operations.

The EDD was awarded a Water Conservation Grant from the GovOps Agency, which provided \$25,000 to invest in various water-saving equipment retrofits in EDD's owned facilities statewide. These retrofits have contributed to EDD's overall conservation efforts, while simultaneously improving building maintenance in a cost-effective manner.

The Department has worked diligently to conserve energy and water, and reduce greenhouse gas (GHG) emissions, and has met or exceeded the requirements of B-18-12. The following data demonstrate EDD's achievements to date, as documented at www.green.ca.gov.

- Energy use is down 32% since 2003.
- Water use is down by 46% since 2010. Water use was reduced by 57% between 2013 and 2016 during the California drought.
- GHG emissions have been reduced by 54% since 2010. EDD's participation in green energy programs at 4 sites eliminated approximately 260 tons of GHG emissions at these sites.

The EDD is currently working with EVgo to utilize available funding to provide support for electric vehicles (EV) through installation of EV charging station infrastructure at 12 EDD-owned properties at no cost to EDD. The contractor has completed site assessments of eligible EDD sites, and will be moving forward with installation of electrical upgrades and construction necessary to support up to 10 charging stations at each of the 12 selected facilities. This project will prepare EDD to support a growing ZEV fleet. Infrastructure construction will be

completed at 2 of the 12 facilities by the end of 2017. All sites are expected to be complete by the end of 2018.

Conclusion

As climate change has an increasing impact on our environment, EDD will continually evaluate and adjust its business practices. EDD's Administration Branch will work to educate the Department's staff on evolving considerations in facility planning, and the role they play in adapting to a changing climate. In addition, EDD will work in conjunction with the DGS Real Estate Services Division to advocate for best practices to improve policies and procedures which include consideration of climate change.

In summary, EDD will continue to work diligently to remain a leader in California governments' green movement and help to provide a sustainable future for Californians for generations to come.



Patrick W. Henning
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SUSTAINABILITY GOALS

The Governor has directed California state agencies to demonstrate sustainable operations and to lead the way by implementing sustainability policies set by the state. Sustainability includes the following general initiatives:

- *Greenhouse Gas (GHG) Emissions Reductions*
- *Climate Change Adaptation*
- *Building Energy Efficiency and Conservation*
- *Indoor Environmental Quality (IEQ)*
- *Water Efficiency and Conservation*
- *Monitoring Based Building Commissioning (MBCx)*
- *Environmentally Preferable Purchasing (EPP)*
- *Financing for Sustainability*
- *Zero Emission Vehicle (ZEV) Fleet Purchases*
- *Electric Vehicle (EV) Charging Infrastructure*
- *Monitoring and Executive Oversight*

These topics will be covered in-depth in individual Sustainability Roadmaps.

The Governor has issued numerous executive orders directing sustainable state operations. The order relevant to climate adaptation is:

Executive Order B-30-15

EO B-30-15 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 by 80 percent below 1990 levels by 2050. To support these goals, this order requires numerous state agencies to develop plans and programs to reduce emissions. It also directs state agencies to take climate change into account in their planning and investment decisions and employ life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives. State agencies are directed to prioritize investments that both build climate change preparedness and reduce GHG emissions, prioritize natural infrastructure, and protect the state's most vulnerable populations.

Legislative Direction

Several pieces of legislation were signed in 2015-16 that codified several elements of the EO. These include the following:

Assembly Bill (AB) 1482 (Gordon, 2015): Requires that the California Natural Resources Agency (CNRA) update the State's adaptation strategy, Safeguarding California, every three years. Directs state agencies to promote climate adaptation in planning decisions and ensure that state

investments consider climate change impacts, as well as the use of natural systems and natural infrastructure. (Public Resources Code Section 71153)

Senate Bill (SB) 246 (Wieckowski, 2015): Established the Integrated Climate Adaptation and Resiliency Program within the Governor's Office of Planning and Research to coordinate regional and local efforts with state climate adaptation strategies to adapt to the impacts of climate change. (Public Resources Code Section 71354)

AB 2800 (Quirk, 2016): Requires state agencies to take the current and future impacts of climate change into planning, designing, building, operating, maintaining, and investing in state infrastructure. CNRA will establish a Climate-Safe Infrastructure Working Group to determine how to integrate climate change impacts into state infrastructure engineering. (Public Resources Code Section 71155).

State Resources and Guidance Documents

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

Safeguarding California: The State's climate adaptation strategy organized by sector. Each sector identifies risks from climate change and actions to reduce those risks.

Safeguarding California Implementation Action Plans: Directed under EO B-30-15, the Implementation Action Plans outline the steps that will be taken in each sector to reduce risks from climate change.

Building a Resilient California: Prepared under direction of EO B-30-15, this document provides a framework for state agencies to integrate climate change into planning and investment, including guidance on data selection and analytical approach.

California's Climate Change Assessments: California has completed three comprehensive assessments of climate change impacts on California. Each assessment has included development of projections of climate impacts on scale that is relevant to state planning (i.e., downscaled climate projections). These data are available through [Cal-Adapt](#), an online data visualization and access tool.

CLIMATE CHANGE ADAPTATION

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

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

This report will focus on the first three of these activities, and follows the guidance created by the Technical Advisory Group developed under EO B-30-15 to assist state agencies to complete this task.

Climate Change Risks to Facilities

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

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

1. *What is the lifetime of the facility, planned project, or plan?*
2. *Could it be affected by changing average climate conditions or increases in extreme events over its lifetime?*
3. *What is the consequence of that disruption?*
4. *Will that disruption affect vulnerable populations, critical natural systems, critical infrastructure, or other assets?*
5. *Will that disruption cause irreversible effects or pose an unacceptable risk to public health and safety?*

In this Roadmap, EDD's analysis will be focused on the impact of climate change at 23 EDD-owned and 30 leased buildings, which have been identified as critical to the continuity of EDD's operations. Even short-term disruptions at these locations could have a significant impact on EDD's ability to continue operations and deliver services to the public. The remainder of EDD's property inventory will not be specifically evaluated, with the assumption that any risks or

impacts to these facilities would either be mitigated by the property owner, or EDD would terminate its lease at the location and relocate to a more resilient facility.

To date, the effects of climate change have not had a significant material impact at EDD facilities. As these effects become more apparent, EDD will adapt its facilities planning processes and policies accordingly. However, the uncertain and unpredictable impact of climate change limits EDD's ability to develop long-term mitigation strategies. EDD will continue to balance climate risk considerations with program need, available budget, and building life expectancy, among other factors.

Understanding Climate Risk to Existing Facilities

Risk from Increasing Temperatures

Under a changing climate, temperatures are expected to increase - both at the high and low ends. As a result, facilities will experience both higher maximum temperatures and minimum temperatures. The result is hotter days with less time to recover overnight.

**Table 1: Top 5 Facilities Most Affected by Changing Temperature
Annual Average Temperatures (Degrees Fahrenheit)**

Facility Name	Max Temp 1961-1990	Max Temp 2031-2060	Max Temp 2070-2099	Min Temp 1961-1990	Min Temp 2031-2060	Min Temp 2070-2099
50 D St. Santa Rosa	59.7	73.5	77	42.6	46.5	50.4
629 12 th St. Modesto	74.63	79	85.02	48.19	51.69	55.54
409 K St. Eureka	58.71	65.36	66.34	46.49	50	53.8
Rancho Cordova *7 leases	74.35	79.37	83.12	49.59	53.94	57.81
2420 E. Lincoln Ave. 2450 E. Lincoln Ave. Anaheim *3 leases	76.07	81.58	85.14	52.58	56.62	60.54

In addition to changing average temperatures, climate change will increase the number of extreme heat events across the state. Extreme events are likely to be experienced sooner than changes in average temperatures. Extreme Heat Days (EHD) refer to days when the maximum temperature exceeds the Extreme Heat Threshold (EHT). The Extreme Heat Threshold is determined for each area based on the maximum temperature that exceeds the 98th historic percentile of maximum temperatures.

**Table 2: Five Facilities that Will Experience the Largest Increase in Extreme Heat Events
Average Number of Days above the Extreme Heat Threshold (EHT)**

Facility Name	EHT (Degrees Fahrenheit)	Avg. # of days above EHT 1961-1990	Avg. # of days above EHT 2031- 2060	Increase in # of days above EHT by 2060	Avg. # days above EHT 2070-2099	Increase in Avg. # days above EHT by 2099
1550 W. Main St. El Centro	113.3	4.3	26	22	58	54

Facility Name	EHT (Degrees Fahrenheit)	Avg. # of days above EHT 1961-1990	Avg. # of days above EHT 2031-2060	Increase in # of days above EHT by 2060	Avg. # days above EHT 2070-2099	Increase in Avg. # days above EHT by 2099
240 W. 7th St. Chico	104.5	4.3	24	20	55	51
1205 W. 18th St. Merced	104.7	4.3	24	20	53	49
2555 S. Elm Ave. Fresno	106.6	4.3	24	20	49	45
Rancho Cordova *7 leases	103.7	4.3	25	21	49	45

Several EDD-owned facilities are listed in Tables 1 and 2 and are predicted to be dramatically impacted by increases in average temperature and extreme heat events in the future. Aging HVAC systems at these buildings may struggle during high heat days to maintain office and data closet temperatures. This could result in reduced occupant comfort and increased utility and operating costs. In a worst case scenario, equipment failure could require that EDD close operations until a repair could be effected. Extended periods of extreme heat may lead to accelerated degradation of buildings systems, including HVAC equipment, roofing materials, parking lots, and paint, resulting in increased overall facility maintenance costs. The sites included in Tables 1 and 2 are critical to EDD operations, either providing essential services to the public, or for maintaining business continuity.

- During sustained extreme heat events, EDD's computer rooms and data closets could be compromised if HVAC systems are unable to provide adequate cooling to these spaces. Failure of a data closet or computer room could sever connectivity to the local office, or could be more widespread where the location serves as a network hub.
- A worst-case scenario would be a failure in EDD's Central Office computer room, which provides services statewide. Although Sacramento is not projected to have the highest increases, this risk is noted due to the severity of its impact on the Department's functions. EDD has commissioned an infrastructure study with the DGS to evaluate vulnerabilities of the Central Office computer room and recommend improvements to mitigate risk of failure.
- The Rancho Cordova offices serve as the business recovery locations for EDD's Central Office, which hosts critical functions for EDD to maintain operations. If these sites are compromised by sustained increases in temperatures and extreme heat events, they may be unavailable for business recovery operations. EDD must ensure that the lessors of these locations plan appropriately to accommodate changing climate conditions. If they are unable to provide adequate support, EDD must identify alternate locations for business recovery functions. EDD is continuously evaluating its recovery facilities as part of its Continuity of Operations Plan.
- Due to the age of the EDD-owned facilities, many buildings are currently experiencing failures of critical building systems, including HVAC. Proactive replacement of these systems with more efficient models will help to mitigate the impact of heat-related climate change. EDD has been working with the DGS to perform studies and upgrades of

these systems; however, these projects are both time-intensive and costly, which poses challenges in accomplishing necessary building improvements. Increases in heat events will also degrade vegetation, increasing heat island effect on buildings, occupants, and communities.

- EDD’s warehouse operations are not climate controlled, which could pose additional risk to staff, equipment, and warehoused materials.
- EDD is currently pursuing energy efficiency upgrades, such as LED lighting retrofits, which will help balance electrical loads as HVAC usage increases. Additionally, EDD has installed window tinting at all EDD-owned facilities for the combined benefit of increased security, reduced ambient heat, and energy savings.
- In the most extreme heat increase scenario, EDD could have to dramatically reevaluate its approach to facility design. Due to EDD’s required presence throughout the state, buildings could require complete retrofit or new construction to provide facilities capable of withstanding extreme heat events. The size of the Department would pose unique and large scale challenges due to budgetary and programmatic limitations.

Risks from Changes in Precipitation

**Table 3: Facilities that will be Most Impacted by Projected Changes in Precipitation
Average Annual Precipitation (Inches per Year)**

Facility Name	Annual Mean Precipitation 1961 - 1990	Annual Mean Precipitation 2031 - 2060	Percent change by 2060	Annual Mean Precipitation 2070 - 2099	Percent change by 2099
50 D St. Santa Rosa	24.96	39	56%	42.5	70%
7677 Oakport St. Oakland *3 leases	14.52	22.5	55%	24.3	67%
130 E. Ortega St. Santa Barbara	14.4	20.3	41%	23.4	63%
4540 W. Century Blvd. Inglewood	11.76	17.3	47%	18.9	61%
1733 W. Sports Dr. Sacramento	15	21.7	45%	23.7	58%

The sites identified in Table 3 are modeled to have the greatest annual precipitation increase. However, these facilities do not pose any specific flooding or operational impact. EDD’s operations could be impeded by localized flooding, leaking roofs, or compromised drainage systems. Periods of extreme drought could indirectly impact EDD facilities with higher water costs or landscape watering restrictions similar to the 2013-2016 drought. The most severe precipitation events could result in landslide, mudslide, or erosion. Such events could disrupt employee and customer services for extended periods of time.

EDD will continue to pursue sustainability initiatives to reduce water use and mitigate negative effects from changes in precipitation. The end of century models indicate that the precipitation increase is modest over mid-century projections. Incremental mitigation efforts will likely be

effective toward preventing the future effects. If facilities are poorly maintained by lessors or property management, EDD will ensure lease compliance or relocate from problematic facilities.

Risks from Sea Level Rise

Increasing global temperatures are contributing to rising sea levels. Rising sea levels will result in inundation of coastal areas and increased flooding due to storm surges. The California Ocean Protection Council (OPC) has issued guidance for state agencies on what level of sea level rise to consider. The guidance document provides the following estimates of sea level rise for the California Coast, which are based on a study by the National Academy of Sciences:

Time Period	North of Cape Mendocino	South of Cape Mendocino
2000 - 2030	-4 to 23 cm (-0.13 to 0.75 ft)	4 to 30 cm (0.13 to 0.98 ft)
2000 - 2050	-3 to 48 cm (-0.1 to 1.57 ft)	12 to 61 cm (0.39 to 2.0 ft)
2000 - 2100	10 to 143 cm (0.3 to 4.69 ft)	42 to 167 cm (1.38 to 5.48 ft)

An accompanying OPC resolution recommends that departments base analyses on estimates of sea level rise in the upper two-thirds of the range.

**Table 4: Facilities at Risk from Rising Sea Levels
Projected Sea Level Rise (Meters)**

Facility Name	Area	Sea Level Rise 0 m	Sea Level Rise 0.5 m	Sea Level Rise 1.0 m	Sea Level Rise 1.41 m
7677 Oakport St. Oakland *3 leases	Coast Mosaic	N/A	N/A	N/A	0.006

Impact to existing EDD facilities due to sea level rise appears to be minimal through the end of the century. As seen in Table 4, the only anticipated impact is to a leased property in Oakland, according to the most aggressive sea level rise model. EDD will continue to monitor its facilities for potential impact of sea level rise as modeling evolves with additional data. No action is needed at this time for the Oakland location; if conditions worsen, EDD has the ability to relocate from this facility and conduct operations in a less vulnerable location while remaining within the same general service area.

Natural Infrastructure to Protect Existing Facilities

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

EDD will look for opportunities to increase landscaping and reduce hardscape at EDD facilities. This could include planting drought tolerant and resilient vegetation, shade trees to improve conditions for buildings and occupants, and design that encourages rainwater infiltration

instead of storm water runoff. However, EDD occupies relatively small facilities, often in urban areas, which limits the ability to implement large scale infrastructure projects.

EDD is working with the DGS to renovate the landscape with climate-appropriate landscaping at the EDD-owned facilities in Sacramento and Oakland, which account for approximately 80% of EDD's landscape area. As part of these projects, EDD will also evaluate landscape and irrigation practices statewide in order to reduce water use. This will have the combined benefit of reduced water use and enhanced aesthetics for the surrounding community.

Understanding the Potential Impacts of Facilities on Communities

Vulnerable Populations

Certain populations are more susceptible to the effects of changing climate conditions, and will have less capacity to recover from changing average conditions and more frequent and severe extreme events. A number of factors contribute to vulnerability, often in overlapping and synergistic ways. These can include a number of social and economic factors, and be determined by existing environmental, cultural, and institutional arrangements. Vulnerable populations can include, but are not limited to, people living in poverty; people with underlying health conditions; incarcerated populations; linguistically or socially isolated individuals; communities with less access to healthcare or educational resources; or communities that have suffered historic exclusion or neglect.

A significant portion of EDD's business is to support vulnerable populations through UI, DI, and WS programs. The need for EDD services may increase due to the impact of climate change on various industries, such as agriculture and transportation, as well as increased need for DI where populations experience negative health effects due to climate change. In response, EDD may need to increase its presence throughout the state and consider each facilities' impact on the community during the project planning phase. In accordance with EDD's strategic goals of fiscal stewardship, sustainable business operations, technological innovation, and responsible service, the Department will continue to explore methods of improving efficiency of service in meeting these changing service demands. For example, EDD may be able to implement more targeted services to specific incidents resulting from the effects of climate change similar to EDD's current participation in local assistance centers for disaster response with partner agencies.

Disadvantaged Communities

California is required to invest resources in disadvantaged communities (DACs). DACs are identified using CalEnviroScreen, a tool that ranks census tracts based on a combination of social, economic, and environmental factors. While it does not capture all aspects of climate vulnerability, it is one tool that is available, and does include several relevant characteristics. In many cases, DACs are more likely to suffer damage under changing climate conditions, including extreme events. The department's facilities located in these communities can contribute to or alleviate the vulnerability of these communities.

Table 5: Facilities Located in Disadvantaged Communities

Facility Name	CalEnviroScreen Score
2555 S. Elm Ave. Fresno	96-100%
1400 S. Hill St. 1405 S. Broadway Los Angeles *Complex	96-100%
629 12th St. Modesto	96-100%
1180 and 1190 Palmyrita Ave. Riverside	96-100%
371 W. 3rd St. 480 N. Mountain View Ave. 658 E. Brier Dr. *2 leases San Bernardino	96-100%
7677 Oakport St. Oakland *3 leases	96-100%
15315 Texaco Ave. Paramount	96-100%
6150 Van Nuys Blvd. Van Nuys	96-100%

More than half of the sites considered in this Roadmap are located in DACs with CalEnviroScreen scores above 75%. The 15 sites identified in Table 5 represent the highest scoring locations. The facilities included provide UI, DI, and WS services either directly to the surrounding communities or through the administration of statewide programs.

A core principle of EDD's business is providing services in communities where there is a need, and EDD will continue to support DACs similar to its role in supporting vulnerable populations. EDD's participation in local assistance centers also aids DACs during times of increased need.

Urban Heat Islands

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

The Urban Heat Island Index (UHII) score indicates the increase in temperature per hour. The scores in Table 6 have been averaged across the 8,760 hours in a year. Therefore, a score of 8,760 would be an average increase of 1°F per year due to the urban heat island effect. Increased temperatures in urban areas will result in increased temperatures in surrounding rural areas.

Table 6: Facilities Located in Urban Heat Islands

Facility Name	UHII Score	Avg. Annual Temperature Increase Due to Urban Heat Island Effect (Degrees Fahrenheit)
480 Mountain View Ave. 371 W. 3rd St. 658 E. Brier St. (2 leases) San Bernardino	Between 35090.6 and 35761	Between 4.01 and 4.08
1180 and 1190 Palmyrita Ave. Riverside	31474.9	3.59
6150 Van Nuys Blvd. Van Nuys	24921.9	2.84
1207 E. Green St. Pasadena	21843.9	2.49

50 of the 56 EDD locations considered in this Roadmap are located in urban heat islands. The sites included in Table 6 are the most severe heat islands with scores in excess of 20000, or an average increase of 2.28°F annually. These sites are all located in Southern California, however, EDD has locations statewide in urban heat islands. Due to EDD’s mandate to maintain a presence in defined regions using established service delivery methods, EDD cannot easily relocate or change its operations in order to reduce the heat island effect.

However, EDD can incorporate climate change considerations in the facilities project planning and evaluation process as applicable for building improvements, planned facility upgrades, or maintenance, and will continue to explore opportunities to decrease hardscape in favor of more landscape. EDD’s public offices offer climate controlled lobby space for client comfort. EDD will include the temperature data when considering space needs in future projects, including lobby space. The Department has completed several roof replacements using “cool roof” materials, which reduce the amount of heat absorbed by the roof, and will continue to pursue such cool roofs in future roof replacements. In addition, EDD is investigating opportunities to use “cool” parking lot surfaces in place of typical blacktop asphalt sealants to help with heat island effect.

Understanding Climate Risk to Planned Facilities

The WIOA mandates often require a minimum EDD presence in DACs based on accessibility of resources. These site locations are driven by EDD’s mandated partners based on ever-changing needs for services to the public.

At this time, EDD has no plans to construct new facilities. EDD will continue to pursue leases when new or additional space is required for EDD’s operations. EDD recognizes the need for considering these impacts when identifying facilities, and will continuously work with partners and lessors to mitigate impacts and improve facilities, wherever feasible.

The effect of climate change may reduce the useful life of EDD’s facilities and result in increased maintenance costs. However, the effects on DACs could also impact EDD’s operations as these communities may experience an increased demand for services, and therefore require EDD to expand existing facilities or open new facilities. In this scenario, EDD can consider how climate change effects could impact need for services and the types of facilities needed.

EDD will work with the DGS to develop EDD-specific standards for all lease requests, including various green standards and practices, location requirements, and security requirements, as appropriate.

Natural Infrastructure

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

EDD does not conduct projects involving natural infrastructure or undertake new construction that could incorporate natural infrastructure. EDD's focus is on maintenance of existing owned facilities and management of leased space. In the event that EDD undertakes a project that incorporates natural infrastructure, EDD will consult with DGS to ensure that opportunities to reduce the impact of climate change are included as a part of the project planning process.

Full Life Cycle Cost Accounting

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

- *Considering initial investment costs, as well as lifetime operation and maintenance costs under changing climate conditions, including changing average conditions and increases in extreme events.*
- *Applying non-market evaluation methods such as travel cost, avoided costs or contingent valuation to capture hard-to-quantify benefits and costs*

EDD does not invest in new facility construction, but will consider climate change risks in ongoing maintenance of existing facilities, incorporating life cycle cost accounting for upgrades or repairs when appropriate.

Integrating Climate Change into Department Planning and Funding Programs

EDD has included “Sustainable Business Operations” as one of its strategic goals in the 2017-2021 EDD Strategic Plan. In line with this goal, EDD is continually identifying and implementing process improvements to increase efficiency and eliminate waste, which support both operational and environmental sustainability. Examples include program changes like the implementation of UI Online, which transitions customers to online resources rather than in-person and paper forms; or office policies to print documents two-sided by default to reduce paper waste. Furthermore, the EDD's Lease Management and Sustainability Unit serves as the Department's climate champion, constantly pursuing new opportunities to incorporate consideration of climate change and conservation into everyday business operations. EDD will

continue to innovate business practices while administering programs in accordance with state and federal requirements.

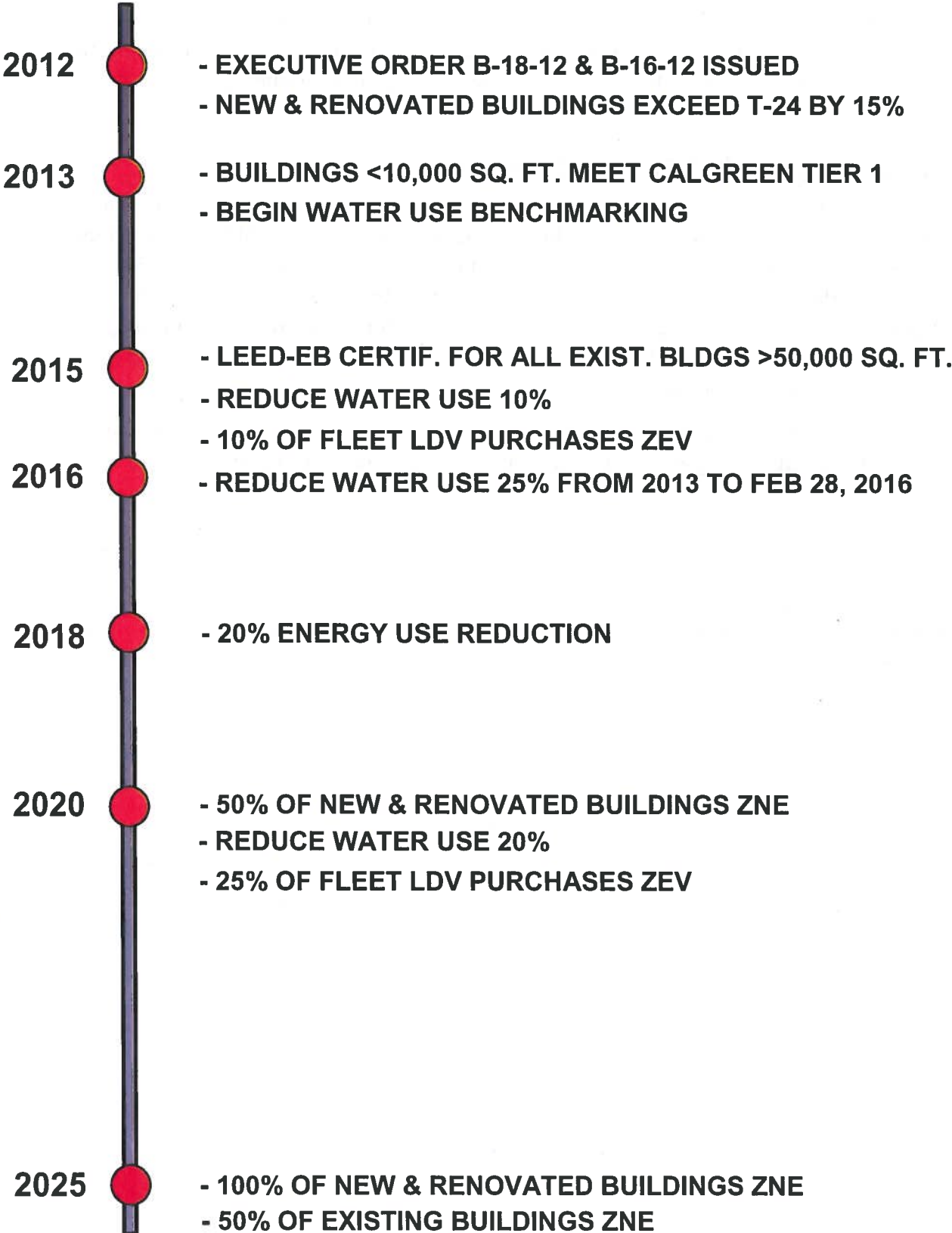
These efforts include educating EDD's facilities management staff on new green or sustainable maintenance materials and programs, and to continue evolving maintenance practices to incorporate consideration of the various factors affecting EDD's resiliency toward climate change.

Measuring and Tracking Progress

EDD makes a concerted effort to track and report energy, water, and GHG emissions in both EnergyStar Portfolio Manager and the Climate Registry databases. In addition to providing data for owned property, EDD collects data for leased properties when EDD is responsible for utility payments. Monitoring of EDD's energy and water use and GHG emissions allows the Department to continue to optimize business processes for service delivery and compliance with state requirements, help to identify opportunities to further reduce waste, and generate relevant data for decision making.

Finally, this Roadmap serves as a biennial checkpoint for EDD to review its progress on sustainability initiatives completed to date, and strategize on plans for future years.

SUSTAINABILITY MILESTONES & TIMELINE



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.

Understanding Climate Risk at Existing Facilities	
Office of Facilities Planning and Management	Lease Management and Sustainability Unit
Director's Office	Executive Management Department-wide

Understanding Climate Risk at Planned Facilities	
Department of General Services	Real Estate Services Division

Integrating Climate Change into Department Planning and Funding Programs	
Administration Branch	Fiscal Programs Division
Office of Facilities Planning and Management	Lease Management and Sustainability Unit

Measuring and Tracking Progress	
Office of Facilities Planning and Management	Lease Management and Sustainability Unit

