



Chapter 3

GREENHOUSE GAS REDUCTION STRATEGIES AND MEASURES

This chapter outlines strategies and specific measures to be implemented by the City of Escondido (“City”) to achieve its greenhouse gas (“GHG”) reduction targets over the coming decades. As a complement to legislative actions taken by the State and federal governments, each strategy and measure focuses on local actions developed to reduce emissions and close the City’s local emissions gap.

The strategies and measures included in this Climate Action Plan (“CAP”) focus on actions taken to reduce GHG emissions at City-managed facilities, at new and existing developments, and through City-led planning activities. Implementation of these strategies and measures will depend on participation of and partnerships with and among residents, businesses, and other organizations. The strategies and measures identified in this CAP build on the measures included in the City’s previous CAP, adopted in 2013, and policies and programs included in the City’s General Plan.

The strategies and measures were developed to reduce approximately 51,000 MTCO₂e in 2030 and 114,000 MTCO₂e in 2035.

Though the primary purpose of these strategies and measures is to reduce GHG emissions, they will also result in additional co-benefits. These co-benefits, briefly discussed in [Chapter 1](#), include benefits beyond GHG reductions that would occur through implementation, such as improved environmental quality, improved health outcomes, enhanced community character, and improved resilience to climate change impacts. Implementation of the strategies and measures in this chapter would be adequate to meet the City’s reduction targets in 2030 and 2035. However, since the City is already experiencing the effects of climate change, this CAP includes multiple measures to adapt to climate change impacts, discussed in [Chapter 5](#).

3.1 Greenhouse Gas Reduction Strategies

GHG reduction strategies are essential to the climate action planning process, as they lay the framework for meeting GHG emission reduction targets. The GHG reduction strategies outlined in this CAP utilize 2012 as the baseline year for measure implementation and progress. As discussed in [Chapter 2](#), the City is anticipated to meet its 2020 reduction target under business-as-usual (“BAU”) conditions. As the City continues to grow under a BAU scenario and State and federal legislative actions take effect, the City’s emissions would decrease over time but would not be adequate to meet the 2030 or 2035 reduction targets. It is the responsibility of the City to develop local GHG reduction strategies to further reduce citywide GHG emissions to meet these targets.



Source: City of Escondido

The strategies and measures proposed in this CAP provide a pathway beyond State and federal legislative actions for new and existing development and activities in the City to reduce GHG emissions and meet the City’s 2030 and 2035 targets. Implementation of these strategies and measures proposed demonstrate progress towards supporting the State’s 2050 GHG emissions reduction goal.

In developing the strategies and measures in this CAP, City staff reviewed the measures included in the 2013 CAP, identified the potential for future projects in the City, and gathered input from residents and business owners. Successful measures from the 2013 CAP were incorporated into the strategies and

measures proposed in this CAP. As discussed in [Chapter 2](#), the emissions categories included in this CAP are consistent those outlined in the San Diego Association of Government's ("SANDAG's") Regional Climate Action Planning Framework ("ReCAP"). A summary of the relationship between the measures included in this CAP and those included in the 2013 CAP is provided in [Appendix C](#). A majority of the 2013 CAP measures were incorporated into new measures in this CAP.

The City hosted public workshops for residents, business owners, and community leaders where they were able to provide input and feedback on proposed measures. Input from these workshops was used to further define measures and identify measure goals. These outreach efforts are briefly described in [Chapter 1](#) and discussed in further detail in [Appendix D](#).

3.2 Greenhouse Gas Emissions Reduction Summary

If community emissions in the City were to continue to grow under BAU conditions, the City is anticipated to generate 833,000 metric tons of carbon dioxide equivalent ("MTCO₂e") in 2030 and 842,000 MTCO₂e in 2035. While State and federal actions would further reduce emissions in 2030 and 2035, the City would still need to reduce emissions by 61,000 MTCO₂e in 2030 and 122,000 MTCO₂e in 2035 to meet its reduction targets. [Table 3-1](#) shows the GHG reductions attributable to legislative actions and the measures in this CAP, as well as how anticipated reductions would help the City meet its 2030 and 2035 reduction targets. Further description of the methodology and calculations used to estimate emissions is provided in [Appendix B](#).

Table 3-1 Greenhouse Gas Emissions Reductions from Business-as-Usual Conditions

Emissions Projection/Category	2030 Emissions (MTCO ₂ e)	2035 Emissions (MTCO ₂ e)
BAU Emissions Projection	833,000	842,000
Reductions from Federal and State Actions	235,000	272,000
Legislatively-Adjusted BAU Emissions Projection (BAU Projection – Federal and State Action Reductions)	598,000	570,000
Target Emissions	547,000	456,000
Total Reductions from CAP Measures	105,000	115,000
Reductions from CAP Transportation Measures	31,000	49,000
Reductions from CAP Energy Measures	46,000	35,000
Reductions from CAP Water Measures	4,000	4,000
Reductions from CAP Waste Measures	23,000	26,000
Reductions from CAP Carbon Sequestration and Land Conservation Measures	1,000	1,000
City Emissions with CAP (Legislatively-Adjusted BAU – CAP Reductions)	493,000	455,000

Notes: Numbers are rounded to the nearest thousand; values and totals may not equal the values summed in other tables or figures.

BAU = business as usual; CAP = Climate Action Plan; City = City of Escondido; MTCO₂e = metric tons of carbon dioxide equivalent

Source: EPIC 2020.

3.3 Reduction Strategies and Measures

In order to close the gap between the City's Legislatively-Adjusted BAU emissions projections and the 2030 and 2035 emission reduction targets, the CAP proposes nine GHG reduction strategies with 31 GHG emission reduction measures, developed based on a combination of factors, including:

- the feasibility of the measure to be implemented by the City;
- existing policies, actions, or programs that can be expanded;
- proposed policies and plans yet to be adopted;
- feedback from community members and other stakeholders; and
- review of measures included in the 2013 CAP.

Each reduction strategy consists of measures, target year, performance metrics, and GHG reduction potential. Strategies also include supporting actions that will assist in achieving each strategy's performance metric(s) but are not quantifiable and, therefore, not applied towards meeting the City's GHG reduction targets. These terms are further defined below, and additional GHG reduction calculation details are included in [Appendix B](#).

Strategy: A strategy is a high-level plan the City will implement to achieve GHG reductions in each category of the GHG inventory. Each category may have one or more associated strategies. This CAP includes nine overall strategies.

Measure: A measure is a program, policy, or project the City will implement that will cause a direct and measurable reduction in GHG emissions.



Source: City of Escondido

Performance Metric: Each measure has a performance metric that serves as the goal by which achievement will be measured in target years. Performance metrics identified in this CAP provide timeframes for implementation of specific activities and identify target years for implementation to track progress towards measure implementation.

GHG Reduction Potential: The GHG reduction potential represents the estimated reduction in GHG emissions from a specific measure, if its performance metric is met. All GHG reduction potential values are shown in terms of MTCO₂e reduced in the 2030 and 2035 target years, selected based on State reduction goals and the City's General Plan horizon. Because the City is anticipated to achieve its 2020 target under BAU conditions, the GHG reduction potential is presented only for 2030 and 2035. Most, but not all, performance metrics have an associated GHG reduction potential. Certain performance metric activities would not directly result in GHG reductions in that year but may facilitate implementation of an action that reduces GHGs in target years.

Supporting Actions: Supporting actions are additional activities that are currently occurring or will occur within the community that may support implementation of the identified strategy and measures.

Co-Benefits: Co-benefits are the additional beneficial outcomes that would occur through the implementation of a GHG reduction strategy. Co-benefits associated with the implementation of the CAP strategies include: improved air quality, improved energy efficiency, enhanced community character, improved land use efficiency, improved public health, improved natural ecosystems, increased renewable energy, enhanced mobility, reduced waste, improved water quality, improved water efficiency, and improved resiliency to climate change impacts.

Transportation Emissions Category

Transportation is a significant contributor to GHG emissions in the City, accounting for 53 percent of total emissions in 2012. Transportation emissions include emissions from both internal combustion engines of on-road (e.g., passenger vehicles) and off-road (e.g., construction equipment, residential and commercial equipment, and recreational vehicles) sources. Improvements in State and federal vehicle fuel efficiency standards will contribute to reducing transportation emissions by requiring the development of cleaner vehicle fleets. At the local level, the State relies on cities to implement strategies that would reduce the frequency or distance of vehicle travel, reduce the amount of fossil fuels used, and/or reduce the use of internal combustion vehicles by shifting to electric vehicles or alternative modes of transportation (e.g., transit, bicycling). The strategies that will be implemented at the local level include increasing zero-emission or alternative fuel vehicle use, increasing transportation system efficiency for existing and future travel patterns, and increasing the use of alternative travel modes.

Strategy 1: Increase the Use of Zero-Emission or Alternative Fuel Vehicles

This strategy would achieve GHG emissions reductions by reducing the use of gasoline or diesel-powered vehicles and equipment and transitioning to electric or zero-emissions vehicles for residents, workers, and the City's municipal fleet. Reductions from this strategy would occur through municipal projects and development requirements, and partnerships with local businesses and developers. The four measures included under this strategy are estimated to reduce the City's emissions by approximately 4,000 MTCO₂e in 2030 and 7,000 MTCO₂e in 2035. [Table 3-2](#) provides the measures, performance metrics, and supporting actions associated with this strategy.

Strategy 1 Co-Benefits



Table 3-2 Increase the Use of Zero-Emission or Alternative Fuel Vehicles**Measure T-1.1: Transition to a Clean and More Fuel-Efficient Municipal Fleet.**

Increase the number of PHEVs in the City's municipal vehicle fleet and install EV charging stations at the City's Police and Fire Headquarters to support the vehicle charging needs of current City-owned EVs and PHEVs, and future PHEVs.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2021	Adopt a procurement policy for converting all municipal vehicle fleet to EVs and PHEV's.	-
2030	Add 11 new EVs and PHEVs to the City fleet by 2030.	33
	Install 30 EV Charging stations at the Police and Fire Headquarters by 2030.	
2035	Maintain 30 EV charging stations and 11 EVs and PHEVs in the municipal fleet in 2035.	33

Measure T-1.2: Install Electric Vehicle Charging Stations at Park and Ride Lots.

Install Level 2 or better EV charging stations at Park and Ride lots in the City that are available to ride-share commuters and/or transit riders.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Install 181 EV charging stations in Park and Ride lots by 2030.	463
2035	Install 281 EV charging stations in Park and Ride lots by 2035.	737

Measure T-1.3: Adopt an Ordinance to Require Electric Vehicle Charging Stations at New Developments.

Adopt an ordinance, effective in 2023, that requires Level 2 or better EV charging stations to be installed in a minimum of 10 percent of total parking spaces provided in new multi-family and commercial developments.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2022	Adopt an ordinance requiring EV charging station installation in new multi-family and commercial developments.	-
2030	Install 531 EV charging stations at new multi-family and commercial developments by 2030.	3,513
2035	Install 802 EV charging stations at new multi-family and commercial developments by 2035.	5,732

Measure T-1.4: Require Electric Vehicle Charging Stations at New Model Home Developments.

Adopt an ordinance, effective in 2021, requiring new developments to encourage EV charging station installation in new homes by:

- Installing at least one EV charging station in new single-family and townhouse model homes;
- Including EV charging stations as an add-on option to new homebuyers in model home subdivisions; and
- Working with the City to waive permitting and installation fees for EV charging stations in these subdivisions.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2021	Adopt an ordinance requiring EV charging station installation in new single-family homes and townhouses.	-

Table 3-2 Increase the Use of Zero-Emission or Alternative Fuel Vehicles

2030	Install 200 EV charging stations in new single-family homes and townhouses by 2030.	339
2035	Install 300 EV charging stations in new single-family homes and townhouses by 2035.	520

Supporting Actions:

- Identify and secure funding (e.g., through the San Diego Regional Clean Cities Coalition, CARB, CEC, and/or CSE) to purchase/lease low- and zero-emissions fleet vehicles and equipment.
- Identify grants and incentives and educate developers about how to take advantage of available programs.

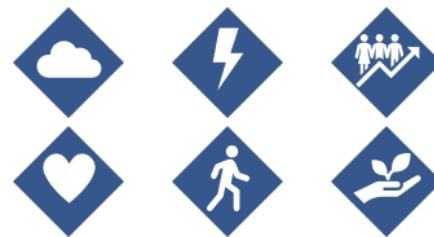
Notes: CARB = California Air Resources Board; CEC = California Energy Commission; City = City of Escondido; CSE = Center for Sustainable Energy; EV = electric vehicle; GHG = greenhouse gas; MTCO₂e = metric tons of carbon dioxide equivalent; PHEV = Plug-in hybrid electric vehicle

Source: EPIC 2020.

Strategy 2: Reduce Fossil Fuel Use

Fossil fuel use can be reduced by developing an efficient transportation network that improves traffic flow and by increasing the use of alternative fueled construction equipment. Under this strategy, GHG emissions reductions would be achieved through interagency collaboration to install transportation network improvements in City rights-of-way and working with fleet suppliers to phase out less fuel-efficient equipment. The three measures under this strategy would reduce the City's GHG emissions from fossil fuel use by approximately 6,000 MTCO₂e in 2030 and 11,000 MTCO₂e in 2035. **Table 3-3** provides the framework for this strategy and the supporting actions that promote more fuel-efficient driving approaches.

Strategy 2 Co-Benefits

**Table 3-3 Reduce Fossil Fuel Use****Measure T-2.1: Synchronize Traffic Signals.**

Synchronize traffic signals at City-maintained intersections to reduce vehicle fuel use through more efficient vehicle movement and reduced idling.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Synchronize traffic signals at 23 City-maintained intersections by 2030.	289
2035	Synchronize traffic signals at 35 City-maintained intersections by 2035.	408

Measure T-2.2: Install Roundabouts.

Install roundabouts at City-maintained intersections to reduce vehicle fuel use by improving vehicle movement efficiency.

Table 3-3 Reduce Fossil Fuel Use

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Install roundabouts at eight City-maintained intersections by 2030.	811
2035	Install roundabouts at 12 City-maintained intersections by 2035.	1,145

Measure T-2.3: Increase Renewable or Alternative Fuel Construction Equipment.

Adopt an ordinance, effective in 2023, requiring new developments to use electric-powered or alternatively-fueled construction equipment.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2022	Adopt an ordinance requiring electric-powered or alternatively-fueled construction equipment.	-
2030	Reduce fuel consumed by construction equipment and construction fleets by 30 percent by 2030.	5,321
2035	Reduce fuel consumed by construction equipment and construction fleets by 50 percent by 2035.	9,032

Supporting Actions:

- Conduct educational campaigns to promote fuel-efficient driving (“eco-driving”) practices, such as reduced idling, slower driving speeds, gentle acceleration, and proper tire inflation.
- Update the City’s General Plan Mobility and Infrastructure Element to support network build-out and improved traffic flow.

Notes: City = City of Escondido; GHG = greenhouse gas; MTCO₂e = metric tons of carbon dioxide equivalent

Source: EPIC 2020.

Strategy 3: Reduce Vehicle Miles Traveled

In addition to using cleaner fuels, reductions can be achieved by reducing the amount individuals drive. This strategy would achieve GHG emission reductions by reducing the amount of vehicle trips and vehicle miles traveled (“VMT”). To reduce VMT, this strategy aims to increase the use of alternative transportation modes (e.g., transit, bicycling); reduce vehicle trips associated with new developments through transportation demand management (“TDM”) programs and transit-oriented and/or supportive policies and programs; and increase connectivity between major commercial, retail, and residential areas in the City. The nine measures provided under this strategy require the collaboration from local and regional agencies, residents, and businesses. Reducing VMT provides the most GHG emission reductions under the transportation category, and the implementation of this strategy would reduce emissions 20,000 MTCO₂e in 2030 and 32,000 MTCO₂e in 2035. **Table 3-4** provides the details of the measures, performance metrics, and supporting actions under this strategy to reduce citywide VMT.

Strategy 3 Co-Benefits

Table 3-4 Reduce Vehicle Miles Traveled**Measure T-3.1: Participate in the San Diego Association of Governments' iCommute Vanpool Program.**

Promote and encourage businesses to participate in SANDAG's iCommute Vanpool Program.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Maintain a minimum of 36 SANDAG vanpools annually that start or end in the City in 2030.	837
2035	Maintain a minimum of 36 SANDAG vanpools annually that start or end in the City in 2035.	787

Measure T-3.2: Improve Pedestrian Infrastructure in Priority Areas.

Develop an Active Transportation Plan that includes:

- A citywide Pedestrian Master Plan;
- An update to the City's Trail Master Plan;
- A Safe Routes to School Plan;
- A Safe Routes to Transit Plan; and
- Identified "priority areas" for pedestrian infrastructure improvements in the City.

Install new or improve¹ existing pedestrian infrastructure in priority areas (e.g., downtown employment centers, near transit stations).

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2023	Develop and adopt an Active Transportation Plan that includes a Pedestrian Master Plan, Trails Master Plan, Safe Routes to School Plan, and Safe Routes to Transit Plan.	-
2030	Install or improve at least 5.8 miles of sidewalk in priority areas.	44
2035	Install or improve at least 8.3 miles of sidewalk in priority areas.	59

Measure T-3.3: Implement Safe Routes to School Program at Escondido Union School District.

Develop a Safe Routes to School Plan for inclusion in the City's Active Transportation Plan, continue to work with EUSD to implement the Safe Routes to School Program to increase the number of students walking and riding bicycles to and from school, and complete infrastructure improvement projects, such as:

- Installing new sidewalks;
- Installing intersection and crosswalk signals and high visibility crosswalk upgrades;
- Retrofitting signals to include countdown pedestrian indications at crossings; and
- Identifying and implementing other similar projects near schools within the City.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2023	Develop and adopt an Active Transportation Plan that includes a Safe Routes to School Plan.	-
2030	Increase the percent of students walking to school in the EUSD to 27 percent in 2030.	60
	Increase the percent of students bicycling to school in the EUSD to 2.3 percent in 2030.	

¹ Pedestrian infrastructure improvements as defined in the *Methods for Estimating Greenhouse Gas Emissions Reductions in the Escondido Climate Action Plan* include sidewalk improvements (i.e. sidewalk widenings, repair and maintenance programs, and ADA retrofits) and intersection improvements (raised pedestrian crossings, intersection "neck-downs," pedestrian islands, and pedestrian signals).

Table 3-4 Reduce Vehicle Miles Traveled

2035	Increase the percent of students walking to school in the EUSD to 30 percent in 2035. Increase the percent of students bicycling to school in the EUSD to 2.5 percent in 2035.	82
-------------	---	----

Measure T-3.4: Develop a Citywide Transportation Demand Management Plan.

Adopt a TDM ordinance, effective in 2022, that requires new non-residential developments and existing businesses in the downtown employment center to develop and implement TDM programs and policies. At a minimum, the TDM ordinance will require new non-residential developments and existing businesses to:

- Provide “end-of-trip” facilities for bicycle commuters (i.e. bicycle parking spaces, showers, lockers);
- Provide discounted monthly NCTD transit passes or transit subsidies;
- Provide informational material to employees for carpool and vanpool ride-matching services; and
- Implement parking cash-out policies.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2021	Adopt a TDM ordinance, effective in 2022.	-
2023	Develop and implement a wayfinding program with signage and information systems to facilitate walking, biking, and efficient driving and parking	-
2030	Increase bicycle commute mode share to 2.0 percent citywide and 3.5 percent in the downtown employment center in 2030.	533
	Increase transit commute mode share to 4.5 percent citywide and 7.5 percent in the downtown employment center in 2030.	
	Increase carpool commute mode share to 17.0 percent citywide and 15.5 percent in the downtown employment center in 2030.	
2035	Increase bicycle commute mode share to 2.5 percent citywide and 4.0 percent in the downtown employment center in 2035.	820
	Increase transit commute mode share to 5.0 percent citywide and 8.0 percent in the downtown employment center in 2035.	
	Increase carpool commute mode share to 17.0 percent citywide and 16.0 percent in the downtown employment center in 2035.	

Measure T-3.5: Update Bicycle Master Plan.

Update the City's Bicycle Master Plan and install new or improve existing Class II or better bicycle lanes.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2023	Develop an Active Transportation Plan that includes an update to the City's Bicycle Master Plan.	-
2024	Develop and implement a citywide bike rack policy.	-
2025	Develop and implement a program to incentivize City employees commuting to work by bike or other modes of alternative transport as a model for other local employers.	-
2030	Install at least 19 miles of new Class II or better bicycle lanes by 2030.	231
2035	Install at least 30 miles of new Class II or better bicycle lanes by 2035.	335

Table 3-4 Reduce Vehicle Miles Traveled**Measure T-3.6: Increase Transit Commuters Among New Downtown Residents.**

Increase the number of commuters using transit from new residential developments in the Downtown Specific Plan area by:

- Implementing smart growth policies consistent with the Downtown Specific Plan²;
- Requiring projects to provide six-month transit passes to new residents if proposing any reduction in parking over 15 percent of required amount;
- Developing a Safe Routes to Transit Plan;
- Implementing projects identified through this the Safe Routes to Transit Plan; and
- Requiring projects to monitor transit use by new residents for the first six months of operation and present monitoring results to the City.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2023	Develop an Active Transportation Plan that includes a Safe Routes to Transit Plan.	-
2024	Develop a downtown parking study and feasibility study to look into multi-level, public/private parking lot(s) and convert surplus city-owned lots to facilitate redevelopment.	-
2030	Increase the proportion of commuters using transit and living in new residential developments within the Downtown Specific Plan area from five percent to eight percent by 2030.	84
2035	Increase the proportion of commuters using transit and living in new residential developments within the Downtown Specific plan area to 10 percent by 2035.	177

Measure T-3.7: Develop an Intra-City Shuttle Program.

Assess the feasibility of and implement an intra-city shuttle system that includes:

- Two or more routes;
- Connections between activity centers within the city;
- Routes that do not directly overlap existing transit service routes; and
- High-frequency service (headways of 10-minutes or less) during peak commute periods.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Complete a feasibility study that demonstrates the intra-city shuttle system would reduce interal trips seven percent by 2030 and 10 percent by 2035.	4,463
	Operate two or more shuttle routes with 10-minute headways during commute hours in 2030.	
2035	Operate two or more shuttle routes with 10-minute headways during commute hours in 2035.	6,540

Measure T-3.8: Increase Transit Ridership.

Increase the total number of regional commuters living or working in the City using transit by working with MTS and NCTD to:

- Increase service frequency to the city; and
- Increase transit-friendly land uses (i.e., residential and office) near transit stations.

² Smart Growth Principles, Guidelines and Standards as defined in Section III.A.1 of the City's [Downtown Specific Plan](#).

Table 3-4 Reduce Vehicle Miles Traveled

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Increase internal-external/external-internal ³ commute transit mode share of four percent by 2030.	7,829
2035	Increase internal-external/external-internal commute transit mode share of six percent by 2035.	11,447

Measure T-3.9: Develop and Implement a Service Population-Based Vehicle Miles Traveled Threshold.

Develop a service population-based threshold for VMT to apply to new projects to reduce citywide VMT. This threshold would require new projects to demonstrate that project VMT would support a reduction in citywide VMT.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Reduce citywide VMT to 1.8 percent below projected 2030 VMT levels in 2030.	5,829
2035	Reduce citywide VMT to 3.5 percent below projected 2035 VMT levels in 2035.	11,075

Supporting Actions:

- Participate in and promote annual regional commute trip reduction events.
- Incorporate multi-modal improvements into pavement resurfacing, restriping, and signalization operations where the safety and convenience of users can be improved within the scope of work.
- Continue to pursue public and private funding to expand and link the City's bicycle and pedestrian network in accordance with both the General Plan Mobility and Infrastructure Element and Trails Master Plans.

Notes: City = City of Escondido; EUSD = Escondido Union School District; GHG = greenhouse gas; MTCO₂e = metric tons of carbon dioxide equivalent; MTS = Metropolitan Transit System; NCTD = North County Transit District; SANDAG = San Diego Association of Governments; TDM = Transportation Demand Management; VMT = vehicle miles traveled

Source: EPIC 2020.

Energy Emissions Category

Emissions in the energy category are generated through residential and non-residential electricity and natural gas use. Electricity and natural gas accounted for 27 percent and 12 percent of the City's 2012 emissions inventory, respectively. With a combined emissions contribution of 39 percent, the energy category is the second largest contributor to overall City emissions. Legislative reductions from State energy efficiency and renewable energy programs will contribute to reducing emissions by increasing the amount of utility supplied renewable energy and improving energy efficiency of new buildings. At the local level, GHG emissions reductions would be achieved by improving energy efficiency of existing buildings and improving energy efficiency of new developments beyond State requirements. GHG reductions would also occur from increasing the amount of renewable energy generated locally while reducing the amount of non-renewable energy consumed. Initiatives directed under the energy category rely on efforts by local utilities, organizations, and agencies, with participation from the community.

³ Internal-external commute trips are defined as trips occurring during commute hours that originate in the city and end outside of the city. External-internal commute trips are defined as trips occurring during commute hours that originate outside of the city and end in the city.

Strategy 4: Increase Building Energy Efficiency

While State legislative actions provide reductions related to building energy efficiency, additional reductions are achievable by adopting local measures. This strategy aims to reduce emissions by reducing energy consumed by residential consumers and in municipal facilities through increased energy efficiency. The four measures under this strategy would reduce the City's emissions by approximately 1,000 MTCO₂e in 2030 and 1,000 MTCO₂e in 2035. **Table 3-5** outlines the framework to increase building energy efficiency under this strategy and the supporting actions that provide additional potential reductions and funding opportunities.

Strategy 4 Co-Benefits

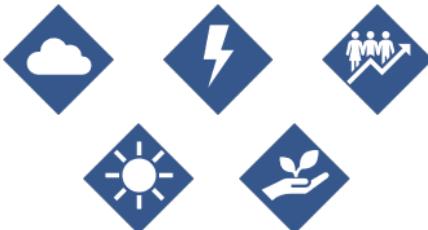


Table 3-5 Increase Building Energy Efficiency

Measure E-4.1: Require New Residential Developments to Install Alternatively-Fueled Water Heaters.

Adopt an ordinance, effective in 2023, requiring all new single-family and multi-family residential projects to install electric heat pump water heaters.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2022	Adopt an ordinance requiring the installation of alternatively-fueled water heaters effective in 2023.	-
2030	Approve 995 new residential units served by electric heat pump water heaters by 2030.	629
2035	Approve 1,276 new residential units served by electric heat pump water heaters by 2035.	822

Measure E-4.2: Require New Multi-Family Residential Developments to Install Electric Cooking Appliances.

Adopt an ordinance, effective in 2023, requiring all new multi-family residential units to install only electric cooking appliances.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2022	Adopt an ordinance, effective in 2023, requiring the installation of electric cooking appliances.	-
2030	Install 955 new electric cooking appliances.	143
2035	Install 1,142 new electric cooking appliances.	172

Measure E-4.3: Reduce Electricity Use in Streetlights.

Retrofit City-owned HPS streetlights with LED streetlights, starting in 2021.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Retrofit 300 existing HPS streetlights with LEDs by 2030.	3
2035	Retrofit 450 existing HPS streetlights with LEDs by 2035.	3

Table 3-5 Increase Building Energy Efficiency**Measure E-4.4: Require Non-Residential Alterations and Additions to Install Alternative-Fuel Water Heaters.**

Adopt an ordinance, effective in 2023, requiring all non-residential alterations and additions with a permit value of \$200,000 or more to install electric heat pump water heaters.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Require the installation of electric heat pump water heaters for a minimum alteration and addition area of 1.08 million sq. ft. of non-residential buildings by 2030.	160
2035	Require the installation of electric heat pump water heaters for a minimum alteration and addition area of 1.755 million sq. ft. of non-residential buildings by 2035.	263

Supporting Actions:

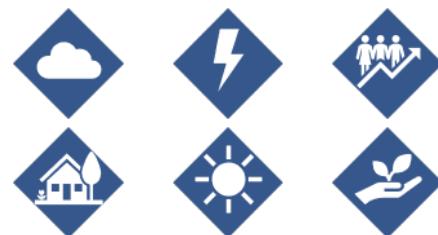
- Encourage energy efficiency improvements through rebates or incentives.
- Evaluate municipal facilities and operations for additional energy savings opportunities through SANDAG's Roadmap Program.

Notes: City = City of Escondido; GHG = greenhouse gas; HPS = high pressure sodium; LED = light-emitting diode; MTCO₂e = metric tons of carbon dioxide equivalent; SANDAG = San Diego Association of Governments; sq. ft. = square feet

Source: EPIC 2020.

Strategy 5: Increase Renewable and Zero-Carbon Energy

GHG emissions reductions would be achieved through implementation of this strategy by reducing the amount of electricity generated from fossil fuels and transitioning to cleaner energy sources such as renewables. Installing more renewable energy systems will provide a reliable local energy supply that is a more sustainable source of electricity. Under this strategy, the City would increase renewable energy locally at municipal and commercial developments and would assess the feasibility of participating in a community choice aggregation ("CCA") program. The four measures included under this strategy would reduce City emissions by approximately 45,000 MTCO₂e in 2030 and 34,000 MTCO₂e in 2035. **Table 3-6** provides details on this strategy and the supporting actions currently in process at municipal renewable facilities.

Strategy 5 Co-Benefits**Table 3-6 Increase Renewable and Zero Carbon Energy****Measure E-5.1: Increase Renewable Energy Generated at Municipal Facilities**

Increase on-site renewable generation at municipal facilities and parking lots by installing PV systems.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Install at least 0.8 MW of PV at municipal facilities and parking lots by 2030.	292
2035	Install at least 2.0 MW of PV at municipal facilities and parking lots by 2035.	745

Table 3-6 Increase Renewable and Zero Carbon Energy**Measure E-5.2: Require New Commercial Developments to Achieve Zero Net Energy.**

Adopt an ordinance, effective in 2023, requiring all new commercial developments to achieve zero net energy.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2022	Adopt a Zero Net Energy ordinance effective in 2023.	-
2030	Approve at least 970,200 sq. ft. of new office and retail space that achieve zero net energy by 2030.	1,618
2035	Approve at least 1,576,575 sq. ft. of new office and retail space that achieve zero net energy by 2035.	2,668

Measure E-5.3: Increase Grid-Supply Renewable and/or Zero-Carbon Electricity.

Join or develop a program to increase grid-supply renewables and zero-carbon electricity to 100 percent.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2021	Complete a CCA/CCE feasibility study.	-
2030	Achieve 100 percent renewable and zero-carbon electricity supply in 2030.	42,134
2035	Achieve 100 percent renewable and zero-carbon electricity supply in 2035.	29,486

Measure E-5.4: Increase Renewable Electricity Generated at School Sites.

Support the EUSD's efforts to install PV systems on school sites within the City.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Install 2.6 MW behind-the-meter PV at school sites by 2030.	947
2035	Install 2.6 MW behind-the-meter PV at school sites by 2035.	965

Supporting Actions:

- Support the efforts at the Hale Avenue Resource Recovery Facility to create renewable electricity and heat for municipal operations.

Notes: CCA = Community Choice Aggregation; CCE = Community Choice Energy; City = City of Escondido; EUSD = Escondido Union School District; GHG = greenhouse gas; MTCO₂e = metric tons of carbon dioxide equivalent; MW = megawatt PV = photovoltaic; sq. ft. = square feet
Source: EPIC 2020.

Water and Wastewater Emissions Category

Energy consumed to supply, deliver, and treat water and wastewater results in the generation of GHG emissions. Although emissions from water and wastewater contribute approximately two percent of the City's total emissions in 2012, actions taken by residents and from municipal activities can significantly reduce citywide emissions in this sector. Reducing water use leads to a more reliable water supply that may help the City adapt to climate change impacts.

Strategy 6: Increase Water Efficiency

The measures under this strategy reduce the amount of water consumption for landscaping in both residential and municipal land uses. Reducing the amount of water used would reduce the energy needed to supply, treat, and deliver water and the GHG emissions associated with those processes. The two measures under this strategy would reduce the City's emissions by an estimated 50 MTCO₂e in 2030 and 80 MTCO₂e in 2035. **Table 3-7** outlines the framework for this strategy.

Strategy 6 Co-Benefits



Table 3-7 Increase Water Efficiency

Measure W-6.1: Reduce Municipal Landscape Water Consumption.

Reduce water consumption at City Parks and in the City's LMD by:

- Installing smart irrigation controllers and water efficient rotator nozzles in the City's LMD; and,
- Requiring all new/replacement irrigation controllers installed at City parks to be smart controllers.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Reduce water use at City Parks and in the City's LMD by 84 acre-feet in 2030.	45
2035	Reduce water use at City Parks and in the City's LMD by 118 acre-feet in 2035.	64

Measure W-6.2: Reduce Landscape Water Consumption at New Model Home Developments.

Adopt an ordinance, effective in 2022, that reduces water consumed for landscaping at new single-family and townhome model developments by:

- Requiring all single-family and townhouse model homes to be fully equipped with greywater systems and rain barrels (or other rainwater capture systems); and
- Requiring model home developers to offer greywater systems and rain barrels (or other rainwater capture systems) as an add-on option.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2021	Adopt an updated landscape ordinance effective 2022.	-
2030	Approve the development of 130 new single-family homes or townhouses with greywater systems and rain barrels by 2030.	8
2035	Approve the development of 195 new single-family homes or townhouses with greywater systems and rain barrels by 2035.	12

Supporting Actions:

- Encourage water use efficiency improvements through rebates and incentives.

Notes: City = City of Escondido; GHG = greenhouse gas; LMD = Landscape Maintenance District; MTCO₂e = metric tons of carbon dioxide equivalent

Source: EPIC 2020.

Strategy 7: Diversify Local Water Supply

As described under the previous strategy, GHG emissions associated with the water category are from the upstream energy use of supplying, treating, and delivering water. By increasing the City's local water supply, the energy required to transport water throughout the City would be reduced. Under this strategy, the City plans to install a Membrane Filtration/Reverse Osmosis ("MFRO") Facility to produce a high-quality water supply for agricultural purposes and reduce the reliance on water imported from outside of the city. The one measure under this strategy would reduce the City's GHG emissions by approximately 3,000 MTCO₂e in 2030 and 4,000 MTCO₂e in 2035. **Table 3-8** provides details of the measure under this strategy and the supporting actions for additional water conservation efforts.

Strategy 7 Co-Benefits



Table 3-8 Diversify Local Water Supply

Measure W-7.1: Develop a Local Water Supply for Agricultural Water Use.

Construct and operate a new MFRO facility to produce high-quality water supply for local agricultural uses.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2030	Supply 6,721 acre-feet of water to agricultural customers from the MFRO facility in 2030.	3,541
2035	Supply 6,721 acre-feet of water to agricultural customers from the MFRO facility in 2035.	3,571

Supporting Actions:

- Maintain local water supply through water conservation efforts.

Notes: City = City of Escondido; GHG = greenhouse gas; MFRO = Membrane Filtration/Reverse Osmosis; MTCO₂e = metric tons of carbon dioxide equivalent

Source: EPIC 2020.

Solid Waste Emissions Category

GHG emissions associated with the disposal of solid waste are generated from the decomposition and off-gassing of material in landfills. To reduce GHG emissions, the City can work with regional agencies to reduce the amount of solid waste disposed of at landfills by implementing programs that increase recycling and composting. Emissions generated by solid waste contributed approximately three percent of citywide emissions in 2012. Through collaboration with local agencies and waste haulers, and changes in residents' and business owners' behaviors, reductions in solid waste can be achieved.

Strategy 8: Reduce and Recycle Solid Waste

Ways to reduce GHG emissions associated with solid waste disposal involve material recycling or organic material composting. Increased recycling and composting locally can lead to additional benefits, such as increased products created from locally recycled material and fertilizer, and organic waste covering for local agricultural use. Under this strategy, the City would increase the amount of waste diverted away from landfills. Implementation of this strategy would reduce GHG emissions by approximately 24,000 MTCO₂e in 2030 and 26,000 MTCO₂e in 2035. **Table 3-9**

provides the framework for solid waste diversion and the supporting actions to develop partnerships and recycle waste generated at construction sites.

Strategy 8 Co-Benefits



Table 3-9 Reduce and Recycle Solid Waste

Measure S-8.1: Increase Citywide Waste Diversion.

Increase citywide waste diversion by:

- Working with the City's franchise waste hauler to prepare a waste diversion plan that identifies steps toward achieving the 2035 waste diversion goal;
- Adopting and implementing an organic waste recycling program to support regional efforts that includes a food scrap composting program and fully permitted community compost facilities; and
- Adopting a composting and waste diversion ordinance, effective in 2023, to support at-home management of food waste.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2021	Adopt and implement an organic waste recycling program	-
2023	Adopt a composting and waste diversion ordinance	-
2030	Achieve 80 percent citywide waste diversion in 2030.	23,588
2035	Achieve 85 percent citywide waste diversion in 2035.	25,535

Supporting Actions:

- Explore opportunities with franchise waste hauler and other local business organizations to develop and encourage participation in commercial food scrap collection program.
- Continue to participate in regional waste diversion discussions and monitor mandatory participation levels in other area construction and demolition waste diversion ordinances.

Notes: City = City of Escondido; GHG = greenhouse gas; MTCO₂e = metric tons of carbon dioxide equivalent

Source: EPIC 2020.

Natural Systems

Maintaining tree cover and areas of vegetation is essential for the natural carbon cycle and for sustaining life. Through photosynthesis, plants convert carbon dioxide from the atmosphere into oxygen and carbon-based matter. This process of removing atmospheric carbon dioxide through natural processes is referred to as carbon sequestration. Communities can increase the amount of carbon sequestered locally by expanding the urban forest canopy and protecting natural systems to reduce communitywide GHG emissions.

Strategy 9: Carbon Sequestration and Land Conservation

Increasing tree cover and preserving land for agriculture or open space in an urban area is a strategy to sequester carbon locally and reduce citywide GHG emissions. The measures under this strategy focus on implementing programs to increase the number of trees planted at new developments and in public areas. The City will incentivize efficient land development practices by permitting additional development density for projects that also commit to conserve open space and agriculture lands. Implementation of the carbon sequestration and land conservation measures would reduce

Strategy 9 Co-Benefits



City emissions by approximately 700 MTCO₂e in 2030 and 1,000 MTCO₂e in 2035. **Table 3-10** provides details on this strategy and supporting actions that incentivize tree planting and vegetation management programs.

Table 3-10 Carbon Sequestration and Land Conservation

Measure C-9-1: Enforce Landscape Tree Requirements at New Developments.

Adopt an updated landscape ordinance, effective in 2022, to increase the number of new trees planted at new developments by requiring:

- Non-residential developments to plant a minimum of one tree for every four parking spaces; and
- New single-family and multi-family residential developments to plant a minimum of one tree per unit.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2021	Adopt an updated landscape ordinance.	-
2030	Plant and maintain 2,802 new trees at new developments by 2030.	183
2035	Plant and maintain 4,076 new trees at new developments by 2035.	239

Measure C-9.2: Develop a Citywide Urban Forestry Program.

Develop, adopt, and implement an Urban Forestry Program to plant new trees and track tree planting and maintenance in public areas (i.e. City facilities, public parks, and public rights-of-way), including standards to right-size trees to minimize pruning and support hydrozoning techniques.

Table 3-10 Carbon Sequestration and Land Conservation

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2025	Adopt an Urban Forestry Program.	-
2030	Plant and maintain 1,010 new trees in public areas by 2030.	36
2035	Plant and maintain 1,347 new trees in public areas by 2035.	48

Measure C-9.3: Develop an Agricultural Land and Open Space Conservation Program.

Develop programs and policies that would conserve agricultural land and open space, including:

- Developing an Agricultural Land and Open Space Conservation Program that allow developers to preserve lands and/or increase residential development density in smart growth infill areas by removing development potential of lands;
- Adopting a Community Gardening Ordinance, effective in 2023, that incorporates an annexation conservation policy;
- Adopting a Williamson Act incentive program, effective in 2022, to encourage the continuation of agricultural operations; and
- Adopting an Open Space Conservation program, effective in 2023, that requires 75 percent of annexed lands to be conserved.

Target Year	Performance Metric	GHG Reduction Potential (MTCO ₂ e)
2022	Adopt a Williamson Act incentive program.	-
2023	Adopt a Community Gardening Ordinance.	-
2023	Adopt an Open Space Conservation.	-
2030	Remove the development potential for at least 400 residential units on agricultural lands by 2030.	515
2035	Remove the development potential for at least 400 residential units on agricultural lands by 2035.	762

Supporting Actions:

- Continue turf management practices which specify the top-dressing of compost to increase carbon sequestration at City parks.
- Collaborate with CSE and SDG&E in developing shade tree give-away program or other incentives to encourage planting of shade trees for existing residential and non-residential sites.
- Incentivize tree planting on private property by giving away tree seedlings during Arbor Day or other events.

Notes: City = City of Escondido; CSE = Center for Sustainable Energy; GHG = greenhouse gas; MTCO₂e = metric tons of carbon dioxide equivalent; SDG&E = San Diego Gas and Electric; VMT = vehicle miles traveled

Source: EPIC 2020.

Updates to Previous CAP Measures

This CAP was developed to update the goals of and build upon the General Plan policies related to climate change and reducing GHGs, and measures identified in the City's previously adopted 2013 CAP. As discussed in [Chapter 1](#), the City's 2013 CAP includes GHG reduction measures that reduce emissions from government operations, energy, transportation, area sources, water, solid waste, and construction categories. The measures that were developed for this CAP were derived from a review of the measures included in the 2013 CAP and organized using guidance from SANDAG's ReCAP. Several measures from the 2013 CAP were updated and included in this CAP. Similarly, the measures in this CAP were developed to be consistent with related General Plan policies. A summary of the relationship between the measures in this CAP, measures included in the 2013 CAP, and General Plan policies is provided in [Appendix C](#).